



|     |                                                         |
|-----|---------------------------------------------------------|
| 2   | Multilayer Ferrite Chip Beads [ SB/PB/UP/NB/GB Series ] |
| 34  | Multilayer Ferrite Chip Beads [ BA Series ]             |
| 39  | Surface Mount Beads [ FB Series ]                       |
| 42  | EMI PC Beads [ SBC Series ]                             |
| 46  | Data Line EMI Filter [ SBCB Series ]                    |
| 49  | EMC Common Mode Filter [ SBCB Series ]                  |
| 52  | Multilayer Chip Inductors [ CL Series ]                 |
| 64  | Miniature Surface Mount Chip Inductors [ SQV Series ]   |
| 70  | Miniature Surface Mount Chip Inductors [ SQC Series ]   |
| 76  | Wound Chip Inductors [ NL Series ]                      |
| 91  | Wound Chip Inductors [ NLC Series ]                     |
| 104 | Wound Chip Inductors [ LS Series ]                      |
| 109 | Multilayer Chip Inductors High Frequency [ CLH Series ] |
| 118 | Wound Chip Inductors High Frequency [ CS Series ]       |
| 124 | Wound Chip Inductors High Frequency [ LCN Series ]      |
| 135 | Wound Chip Inductors [ CT Series ]                      |
| 135 | Wound Chip Inductors [ HC Series ]                      |
| 138 | Wound Chip Inductors [ HQ Series ]                      |
| 142 | DIP Power Inductors [ PMC Series ]                      |
| 143 | SMT Power Inductors [ SPMC Series ]                     |
| 144 | DIP Power Inductors [ MBPL Series ]                     |
| 147 | Mini Power Inductors [ GAB0312 Series ]                 |
| 148 | Mini Power Inductors [ NDA Series ]                     |
| 150 | Mini Power Inductors [ NAN Series ]                     |
| 153 | SMD Power Inductors [ NAS Series ]                      |
| 157 | SMD Power Inductors [ FV Series ]                       |
| 159 | SMT Power Inductors [ SCD Series ]                      |
| 178 | SMT Power Inductors [ SCDS Series ]                     |
| 193 | Shielded SMD Power Inductors [ SCDS Series ]            |
| 208 | UnShielded SMD Power Inductors [ SCMD Series ]          |
| 216 | SMD Power Inductors [ SDS0402 Series ]                  |
| 218 | Shielded SMD Power Inductors [ SDS0402BL Series ]       |
| 220 | SMD Power Inductors [ SDS0804 Series ]                  |
| 222 | SMD Power Inductors [ SDS1306 Series ]                  |
| 228 | SMD Power Inductors [ SLF Series ]                      |
| 241 | SMD Power Inductors [ SDT Series ]                      |
| 252 | SMD Power Inductors [ SSL0618 Series ]                  |
| 254 | SMD Power Inductors [ SSL0400 Series ]                  |
| 258 | UnShielded SMD Power Inductors [ SSL04LP Series ]       |
| 261 | SMD Power Inductors [ SSL Series ]                      |
| 276 | SMD Power Inductors [ SSL0503HC Series ]                |
| 278 | SMD Power Inductors [ SSL0804HC Series ]                |
| 280 | SMD Power Inductors [ SSL1306HC Series ]                |
| 286 | SMD Power Inductors [ STD Series ]                      |

## Multilayer Ferrite Chip Beads

# SB/PB/UP/NB/GB Series

[ SB Series for General Purpose / PB Series for Large Current/UP Series for Ultra High  
Current Use/NB Series for Data Line, Digital Signals, etc./GB Series for Medium Current ]

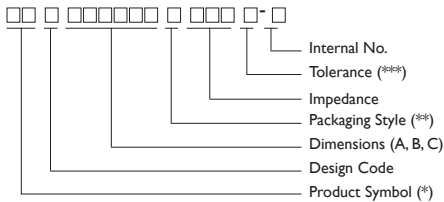


### OUTLINE

Yageo offers hundreds of multi-layered ferrite chip beads with various sizes, frequency characteristics, and a board range of impedance values to provide powerful solutions for EMI problems.

Three formulas of ferrite comprise several types of EMI suppression chip beads that are classified into 5 categories - SB, GB, PB, UP, and NB series.

### PRODUCT IDENTIFICATION



\* SB, PB, UP, NB, GB

\*\* T : Tape and Reel; B : Bulk

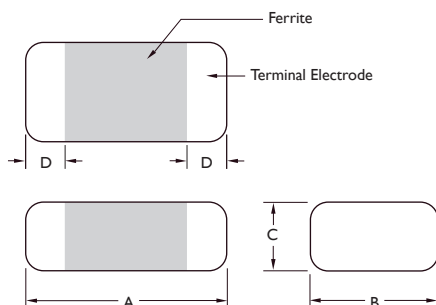
\*\*\* Y =  $\pm 25\%$ ; M =  $\pm 20\%$

■ YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.

Ex. SBY100505T-121Y-N

### SHAPES AND DIMENSIONS

Dimensions : mm



| TYPE           |        | A              | B               | C              | D               |
|----------------|--------|----------------|-----------------|----------------|-----------------|
| SB/PB/NB       | 100505 | $1.0 \pm 0.10$ | $0.50 \pm 0.10$ | $0.5 \pm 0.10$ | $0.25 \pm 0.10$ |
| SB/PB/UP/NB/GB | 160808 | $1.6 \pm 0.20$ | $0.80 \pm 0.2$  | $0.8 \pm 0.2$  | $0.3 \pm 0.2$   |
| SB/PB/UP/NB/GB | 201209 | $2.0 \pm 0.20$ | $1.25 \pm 0.20$ | $0.9 \pm 0.20$ | $0.5 \pm 0.3$   |
| SB/PB/UP/NB/GB | 321611 | $3.2 \pm 0.20$ | $1.60 \pm 0.20$ | $1.1 \pm 0.20$ | $0.5 \pm 0.3$   |
| SB/GB          | 321616 | $3.2 \pm 0.20$ | $1.60 \pm 0.20$ | $1.6 \pm 0.20$ | $0.5 \pm 0.3$   |
| SB/GB          | 322513 | $3.2 \pm 0.20$ | $2.50 \pm 0.20$ | $1.3 \pm 0.20$ | $0.5 \pm 0.3$   |
| SB/PB/GB       | 451616 | $4.5 \pm 0.25$ | $1.60 \pm 0.20$ | $1.6 \pm 0.20$ | $0.5 \pm 0.3$   |
| SB/PB/GB       | 453215 | $4.5 \pm 0.25$ | $3.20 \pm 0.20$ | $1.5 \pm 0.20$ | $0.5 \pm 0.3$   |

## SB SERIES, FOR GENERAL USE

### APPLICATIONS

I/O Ports, DC Power Lines, and Signal Lines

Computer and Peripheral Products

Consumer Electronic Products

### FEATURES

Standard type used to suppress lower-frequency, lower current signals.

Impedance over a Broad Frequency Range

Suitable for Flow and Reflow Soldering

Available in 8 Sizes

## ELECTRICAL CHARACTERISTICS

| PART NO.          | IMPEDANCE<br>at 100MHz<br>( $\Omega \pm 25\%$ ) | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. | PART NO.          | IMPEDANCE<br>at 100MHz<br>( $\Omega \pm 25\%$ ) | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. |
|-------------------|-------------------------------------------------|---------------------------------------|-------------------------------|-------------------|-------------------------------------------------|---------------------------------------|-------------------------------|
| SBY100505T-060Y-S | 6                                               | 0.05                                  | 500                           | SBK201209T-751Y-S | 750                                             | 0.50                                  | 200                           |
| SBY100505T-100Y-S | 10                                              | 0.05                                  | 500                           | SBK201209T-102Y-S | 1000                                            | 0.50                                  | 200                           |
| SBY100505T-400Y-S | 40                                              | 0.30                                  | 300                           | SBK201209T-152Y-S | 1500                                            | 0.60                                  | 200                           |
| SBY100505T-800Y-S | 80                                              | 0.40                                  | 200                           | SBK201209T-202Y-S | 2000                                            | 0.80                                  | 100                           |
| SBY100505T-121Y-S | 120                                             | 0.50                                  | 200                           | SBK201209T-222Y-S | 2200                                            | 1.00                                  | 100                           |
| SBY100505T-241Y-S | 240                                             | 0.50                                  | 200                           | SBK201209T-252Y-S | 2500                                            | 1.00                                  | 100                           |
| SBY100505T-481Y-S | 480                                             | 0.80                                  | 200                           | SBK201209T-272Y-S | 2700                                            | 1.50                                  | 100                           |
| SBY100505T-601Y-S | 600                                             | 1.00                                  | 200                           | SBY321611T-190Y-S | 19                                              | 0.05                                  | 600                           |
| SBY100505T-102Y-S | 1000                                            | 1.50                                  | 100                           | SBY321611T-260Y-S | 26                                              | 0.05                                  | 600                           |
| SBY100505T-152Y-S | 1500                                            | 2.00                                  | 60                            | SBY321611T-320Y-S | 32                                              | 0.05                                  | 600                           |
| SBK160808T-110Y-S | 11                                              | 0.05                                  | 500                           | SBY321611T-500Y-S | 50                                              | 0.10                                  | 500                           |
| SBK160808T-190Y-S | 19                                              | 0.08                                  | 500                           | SBY321611T-600Y-S | 60                                              | 0.10                                  | 500                           |
| SBK160808T-300Y-S | 30                                              | 0.10                                  | 400                           | SBK321611T-700Y-S | 70                                              | 0.10                                  | 500                           |
| SBK160808T-400Y-S | 40                                              | 0.10                                  | 400                           | SBK321611T-900Y-S | 90                                              | 0.15                                  | 500                           |
| SBK160808T-600Y-S | 60                                              | 0.10                                  | 300                           | SBK321611T-121Y-S | 120                                             | 0.15                                  | 500                           |
| SBK160808T-800Y-S | 80                                              | 0.15                                  | 300                           | SBK321611T-151Y-S | 150                                             | 0.15                                  | 500                           |
| SBK160808T-121Y-S | 120                                             | 0.25                                  | 300                           | SBK321611T-201Y-S | 200                                             | 0.20                                  | 400                           |
| SBK160808T-221Y-S | 220                                             | 0.30                                  | 200                           | SBK321611T-401Y-S | 400                                             | 0.20                                  | 400                           |
| SBK160808T-301Y-S | 300                                             | 0.40                                  | 200                           | SBK321611T-501Y-S | 500                                             | 0.20                                  | 400                           |
| SBK160808T-451Y-S | 450                                             | 0.50                                  | 200                           | SBK321611T-601Y-S | 600                                             | 0.30                                  | 400                           |
| SBK160808T-601Y-S | 600                                             | 0.50                                  | 200                           | SBK321611T-102Y-S | 1000 *                                          | 0.40                                  | 200                           |
| SBK160808T-751Y-S | 750                                             | 0.70                                  | 200                           | SBK321611T-122Y-S | 1200 *                                          | 0.40                                  | 200                           |
| SBK160808T-102Y-S | 1000                                            | 0.70                                  | 200                           | SBK321611T-152Y-S | 1500 *                                          | 0.45                                  | 200                           |
| SBK160808T-152Y-S | 1500                                            | 1.00                                  | 50                            | SBK321611T-202Y-S | 2000 **                                         | 0.60                                  | 200                           |
| SBK160808T-222Y-S | 2200                                            | 1.20                                  | 50                            | SBK321611T-272Y-S | 2700 **                                         | 0.60                                  | 200                           |
| SBK160808T-272Y-S | 2700                                            | 1.30                                  | 50                            | SBY321616T-250Y-S | 25                                              | 0.10                                  | 500                           |
| SBY201209T-070Y-S | 7                                               | 0.10                                  | 600                           | SBY321616T-600Y-S | 60                                              | 0.20                                  | 500                           |
| SBY201209T-090Y-S | 9                                               | 0.10                                  | 600                           | SBK321616T-700Y-S | 70                                              | 0.20                                  | 500                           |
| SBY201209T-110Y-S | 11                                              | 0.10                                  | 600                           | SBY322513T-320Y-S | 32                                              | 0.20                                  | 500                           |
| SBY201209T-170Y-S | 17                                              | 0.10                                  | 600                           | SBY322513T-600Y-S | 60                                              | 0.20                                  | 500                           |
| SBY201209T-320Y-S | 32                                              | 0.10                                  | 600                           | SBY322513T-900Y-S | 90                                              | 0.20                                  | 500                           |
| SBK201209T-600Y-S | 60                                              | 0.15                                  | 500                           | SBY451616T-500Y-S | 50                                              | 0.20                                  | 600                           |
| SBK201209T-700Y-S | 70                                              | 0.15                                  | 500                           | SBY451616T-600Y-S | 60                                              | 0.20                                  | 600                           |
| SBK201209T-800Y-S | 80                                              | 0.15                                  | 500                           | SBY451616T-800Y-S | 80                                              | 0.20                                  | 600                           |
| SBK201209T-121Y-S | 120                                             | 0.25                                  | 300                           | SBY451616T-101Y-S | 100                                             | 0.30                                  | 500                           |
| SBK201209T-151Y-S | 150                                             | 0.25                                  | 300                           | SBK451616T-151Y-S | 150                                             | 0.30                                  | 500                           |
| SBK201209T-221Y-S | 220                                             | 0.30                                  | 300                           | SBK451616T-171Y-S | 170                                             | 0.30                                  | 500                           |
| SBK201209T-301Y-S | 300                                             | 0.30                                  | 300                           | SBY453215T-700Y-S | 70                                              | 0.30                                  | 500                           |
| SBK201209T-401Y-S | 400                                             | 0.30                                  | 300                           | SBY453215T-121Y-S | 120                                             | 0.30                                  | 500                           |
| SBK201209T-501Y-S | 500                                             | 0.40                                  | 300                           | Note : * at 50MHz |                                                 |                                       | ** at 30MHz                   |
| SBK201209T-601Y-S | 600                                             | 0.40                                  | 300                           |                   |                                                 |                                       |                               |



## LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | IMPEDANCE             | RDC               | RATED CURRENT | PART NO.          | IMPEDANCE             | RDC               | RATED CURRENT |
|-------------------|-----------------------|-------------------|---------------|-------------------|-----------------------|-------------------|---------------|
|                   | ( $\Omega \pm 25\%$ ) | ( $\Omega$ ) Max. | (mA) Max.     |                   | ( $\Omega \pm 25\%$ ) | ( $\Omega$ ) Max. | (mA) Max.     |
| SBY100505T-060□-N | 6                     | 0.05              | 500           | SBK160808T-501□-N | 500                   | 0.5               | 200           |
| SBY100505T-100□-N | 10                    | 0.05              | 500           | SBK160808T-601□-N | 600                   | 0.5               | 200           |
| SBY100505T-300□-N | 30                    | 0.3               | 300           | SBK160808T-751□-N | 750                   | 0.7               | 200           |
| SBY100505T-400□-N | 40                    | 0.3               | 300           | SBK160808T-102□-N | 1000                  | 0.7               | 200           |
| SBY100505T-470□-N | 47                    | 0.4               | 200           | SBK160808T-122□-N | 1200                  | 1                 | 50            |
| SBY100505T-600□-N | 60                    | 0.4               | 200           | SBK160808T-152□-N | 1500                  | 1                 | 50            |
| SBY100505T-700□-N | 70                    | 0.4               | 200           | SBK160808T-202□-N | 2000                  | 1.2               | 50            |
| SBY100505T-750□-N | 75                    | 0.4               | 200           | SBK160808T-222□-N | 2200                  | 1.2               | 50            |
| SBY100505T-800□-N | 80                    | 0.4               | 200           | SBK160808T-252□-N | 2500                  | 1.3               | 50            |
| SBY100505T-121□-N | 120                   | 0.5               | 200           | SBK160808T-272□-N | 2700                  | 1.3               | 50            |
| SBY100505T-151□-N | 150                   | 0.5               | 200           | SBY201209T-070□-N | 7                     | 0.1               | 600           |
| SBY100505T-221□-N | 220                   | 0.5               | 200           | SBY201209T-090□-N | 9                     | 0.1               | 600           |
| SBY100505T-241□-N | 240                   | 0.5               | 200           | SBY201209T-100□-N | 10                    | 0.1               | 600           |
| SBY100505T-301□-N | 300                   | 0.8               | 200           | SBY201209T-110□-N | 11                    | 0.1               | 600           |
| SBY100505T-481□-N | 480                   | 0.8               | 200           | SBY201209T-170□-N | 17                    | 0.1               | 600           |
| SBY100505T-601□-N | 600                   | 1                 | 200           | SBY201209T-190□-N | 19                    | 0.1               | 600           |
| SBY100505T-102□-N | 1000                  | 1.5               | 100           | SBY201209T-220□-N | 22                    | 0.1               | 600           |
| SBY100505T-152□-N | 1500                  | 2                 | 60            | SBY201209T-260□-N | 26                    | 0.1               | 600           |
| SBK160808T-050□-N | 5                     | 0.05              | 500           | SBY201209T-280□-N | 28                    | 0.1               | 600           |
| SBK160808T-060□-N | 6                     | 0.05              | 500           | SBY201209T-300□-N | 30                    | 0.1               | 600           |
| SBK160808T-070□-N | 7                     | 0.05              | 500           | SBY201209T-310□-N | 31                    | 0.1               | 600           |
| SBK160808T-100□-N | 10                    | 0.05              | 500           | SBY201209T-320□-N | 32                    | 0.1               | 600           |
| SBK160808T-110□-N | 11                    | 0.05              | 500           | SBY201209T-390□-N | 39                    | 0.1               | 500           |
| SBK160808T-150□-N | 15                    | 0.08              | 500           | SBY201209T-400□-N | 40                    | 0.1               | 500           |
| SBK160808T-170□-N | 17                    | 0.08              | 500           | SBY201209T-470□-N | 47                    | 0.1               | 500           |
| SBK160808T-190□-N | 19                    | 0.08              | 500           | SBY201209T-500□-N | 50                    | 0.1               | 500           |
| SBK160808T-220□-N | 22                    | 0.1               | 400           | SBY201209T-560□-N | 56                    | 0.15              | 500           |
| SBK160808T-250□-N | 25                    | 0.1               | 400           | SBK201209T-600□-N | 60                    | 0.15              | 500           |
| SBK160808T-260□-N | 26                    | 0.1               | 400           | SBK201209T-700□-N | 70                    | 0.15              | 500           |
| SBK160808T-300□-N | 30                    | 0.1               | 400           | SBK201209T-750□-N | 75                    | 0.15              | 500           |
| SBK160808T-310□-N | 31                    | 0.1               | 400           | SBK201209T-800□-N | 80                    | 0.15              | 500           |
| SBK160808T-400□-N | 40                    | 0.1               | 400           | SBK201209T-900□-N | 90                    | 0.15              | 500           |
| SBK160808T-470□-N | 47                    | 0.1               | 300           | SBK201209T-101□-N | 100                   | 0.25              | 300           |
| SBK160808T-500□-N | 50                    | 0.1               | 300           | SBK201209T-121□-N | 120                   | 0.25              | 300           |
| SBK160808T-600□-N | 60                    | 0.1               | 300           | SBK201209T-151□-N | 150                   | 0.25              | 300           |
| SBK160808T-680□-N | 68                    | 0.15              | 300           | SBK201209T-201□-N | 200                   | 0.3               | 300           |
| SBK160808T-700□-N | 70                    | 0.15              | 300           | SBK201209T-221□-N | 220                   | 0.3               | 300           |
| SBK160808T-750□-N | 75                    | 0.15              | 300           | SBK201209T-241□-N | 240                   | 0.3               | 300           |
| SBK160808T-800□-N | 80                    | 0.15              | 300           | SBK201209T-301□-N | 300                   | 0.3               | 300           |
| SBK160808T-900□-N | 90                    | 0.2               | 300           | SBK201209T-331□-N | 330                   | 0.3               | 300           |
| SBK160808T-101□-N | 100                   | 0.2               | 300           | SBK201209T-401□-N | 400                   | 0.3               | 300           |
| SBK160808T-121□-N | 120                   | 0.25              | 400           | SBK201209T-431□-N | 430                   | 0.4               | 300           |
| SBK160808T-151□-N | 150                   | 0.3               | 200           | SBK201209T-451□-N | 450                   | 0.4               | 300           |
| SBK160808T-181□-N | 180                   | 0.3               | 200           | SBK201209T-471□-N | 470                   | 0.4               | 300           |
| SBK160808T-201□-N | 200                   | 0.3               | 200           | SBK201209T-501□-N | 500                   | 0.4               | 300           |
| SBK160808T-121□-N | 220                   | 0.3               | 200           | SBK201209T-601□-N | 600                   | 0.4               | 300           |
| SBK160808T-241□-N | 240                   | 0.4               | 200           | SBK201209T-751□-N | 750                   | 0.5               | 200           |
| SBK160808T-301□-N | 300                   | 0.4               | 200           | SBK201209T-102□-N | 1000                  | 0.5               | 200           |
| SBK160808T-331□-N | 330                   | 0.5               | 200           | SBK201209T-122□-N | 1200                  | 0.6               | 200           |
| SBK160808T-451□-N | 450                   | 0.5               | 200           | SBK201209T-152□-N | 1500                  | 0.6               | 200           |
| SBK160808T-471□-N | 470                   | 0.5               | 200           | SBK201209T-202□-N | 2000                  | 0.8               | 100           |



## LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | IMPEDANCE             | RDC               | RATED<br>CURRENT | PART NO.          | IMPEDANCE             | RDC               | RATED<br>CURRENT |
|-------------------|-----------------------|-------------------|------------------|-------------------|-----------------------|-------------------|------------------|
|                   | ( $\Omega \pm 25\%$ ) | ( $\Omega$ ) Max. | (mA) Max.        |                   | ( $\Omega \pm 25\%$ ) | ( $\Omega$ ) Max. | (mA) Max.        |
| SBK201209T-222□-N | 2200                  | 1                 | 100              | SBK321611T-401□-N | 400                   | 0.2               | 400              |
| SBK201209T-252□-N | 2500                  | 1                 | 100              | SBK321611T-471□-N | 470                   | 0.2               | 400              |
| SBK201209T-272□-N | 2700                  | 1.5               | 100              | SBK321611T-501□-N | 500                   | 0.2               | 400              |
| SBY321611T-080□-N | 8                     | 0.05              | 600              | SBK321611T-601□-N | 600                   | 0.3               | 400              |
| SBY321611T-090□-N | 9                     | 0.05              | 600              | SBK321611T-102□-N | 1000                  | 0.4               | 200              |
| SBY321611T-110□-N | 11                    | 0.05              | 600              | SBK321611T-122□-N | 1200                  | 0.4               | 200              |
| SBY321611T-190□-N | 19                    | 0.05              | 600              | SBK321611T-152□-N | 1500                  | 0.45              | 200              |
| SBY321611T-260□-N | 26                    | 0.05              | 600              | SBK321611T-202□-N | 2000                  | 0.6               | 200              |
| SBY321611T-300□-N | 30                    | 0.05              | 600              | SBY321616T-250□-N | 25                    | 0.1               | 500              |
| SBY321611T-310□-N | 31                    | 0.05              | 600              | SBY321616T-600□-N | 60                    | 0.2               | 500              |
| SBY321611T-320□-N | 32                    | 0.05              | 600              | SBK321616T-700□-N | 70                    | 0.2               | 500              |
| SBY321611T-470□-N | 47                    | 0.1               | 500              | SBY322513T-320□-N | 32                    | 0.2               | 500              |
| SBY321611T-500□-N | 50                    | 0.1               | 500              | SBY322513T-600□-N | 60                    | 0.2               | 500              |
| SBY321611T-600□-N | 60                    | 0.1               | 500              | SBY322513T-900□-N | 90                    | 0.2               | 500              |
| SBK321611T-700□-N | 70                    | 0.1               | 500              | SBY451616T-500□-N | 50                    | 0.2               | 600              |
| SBK321611T-750□-N | 75                    | 0.15              | 500              | SBY451616T-600□-N | 60                    | 0.2               | 600              |
| SBK321611T-800□-N | 80                    | 0.15              | 500              | SBY451616T-800□-N | 80                    | 0.2               | 600              |
| SBK321611T-900□-N | 90                    | 0.15              | 500              | SBY451616T-900□-N | 90                    | 0.3               | 500              |
| SBK321611T-101□-N | 100                   | 0.15              | 500              | SBY451616T-101□-N | 100                   | 0.3               | 500              |
| SBK321611T-121□-N | 120                   | 0.15              | 500              | SBK451616T-151□-N | 150                   | 0.3               | 500              |
| SBK321611T-151□-N | 150                   | 0.15              | 500              | SBK451616T-171□-N | 170                   | 0.3               | 500              |
| SBK321611T-201□-N | 200                   | 0.2               | 400              | SBY453215T-700□-N | 70                    | 0.3               | 500              |
| SBK321611T-221□-N | 220                   | 0.2               | 400              | SBY453215T-121□-N | 120                   | 0.3               | 500              |
| SBK321611T-301□-N | 300                   | 0.2               | 400              |                   |                       |                   |                  |



## PB SERIES, FOR HIGH CURRENT USE

### APPLICATIONS

High current DC power lines for USB interface circuitry, personal computers, electronic games, hard disk drives, and other general electronic equipment.

### FEATURES

Suitable for High Current Applications  
 Small Package Size-EIA STD 0402/0603/0805/1206/1806 and 1812  
 Nickel Barrier Terminations Provide Excellent Solder Heat Resistance  
 Current Rating up to 6 AMPS (Max) (High Current Handling Capacity)  
 Low DCR  
 Suitable for Flow and Reflow Soldering  
 Available in 6 Sizes

## ELECTRICAL CHARACTERISTICS

| PART NO.          | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|-------------------|----------------------------------------------|------------------------------------|----------------------------|
| PBY100505T-100Y-S | 10                                           | 0.03                               | 1000                       |
| PBY160808T-110Y-S | 11                                           | 0.02                               | 4000                       |
| PBY160808T-250Y-S | 25                                           | 0.03                               | 3000                       |
| PBY160808T-400Y-S | 40                                           | 0.035                              | 3000                       |
| PBY160808T-600Y-S | 60                                           | 0.04                               | 3000                       |
| PBY160808T-121Y-S | 120                                          | 0.08                               | 2500                       |
| PBY160808T-151Y-S | 150                                          | 0.085                              | 2000                       |
| PBY160808T-181Y-S | 180                                          | 0.09                               | 2000                       |
| PBY160808T-201Y-S | 200                                          | 0.095                              | 2000                       |
| PBY160808T-301Y-S | 300                                          | 0.10                               | 2000                       |
| PBY160808T-501Y-S | 500                                          | 0.15                               | 1500                       |
| PBY160808T-601Y-S | 600                                          | 0.20                               | 1000                       |
| PBY160808T-102Y-S | 1000                                         | 0.25                               | 800                        |
| PBY201209T-110Y-S | 11                                           | 0.01                               | 6000                       |
| PBY201209T-170Y-S | 17                                           | 0.02                               | 5000                       |
| PBY201209T-300Y-S | 30                                           | 0.015                              | 5000                       |
| PBY201209T-500Y-S | 50                                           | 0.025                              | 3000                       |
| PBY201209T-600Y-S | 60                                           | 0.03                               | 3000                       |
| PBY201209T-800Y-S | 80                                           | 0.04                               | 3000                       |
| PBY201209T-121Y-S | 120                                          | 0.04                               | 3000                       |
| PBY201209T-201Y-S | 200                                          | 0.05                               | 2500                       |
| PBY201209T-301Y-S | 300                                          | 0.08                               | 2000                       |
| PBY201209T-601Y-S | 600                                          | 0.10                               | 2000                       |
| PBY201209T-102Y-S | 1000                                         | 0.12                               | 1500                       |
| PBY321611T-190Y-S | 19                                           | 0.015                              | 6000                       |
| PBY321611T-320Y-S | 32                                           | 0.015                              | 4000                       |
| PBY321611T-500Y-S | 50                                           | 0.02                               | 4000                       |
| PBY321611T-800Y-S | 80                                           | 0.025                              | 3000                       |
| PBY321611T-101Y-S | 100                                          | 0.03                               | 2500                       |
| PBY321611T-121Y-S | 120                                          | 0.03                               | 2500                       |
| PBY321611T-221Y-S | 220                                          | 0.05                               | 2000                       |
| PBY321611T-301Y-S | 300                                          | 0.06                               | 2000                       |
| PBY321611T-601Y-S | 600                                          | 0.10                               | 1800                       |
| PBY321611T-102Y-S | 1000 *                                       | 0.15                               | 1200                       |
| PBY321611T-122Y-S | 1200 *                                       | 0.18                               | 1000                       |
| PBY321611T-152Y-S | 1500 *                                       | 0.20                               | 800                        |
| PBY322513T-600Y-S | 60                                           | 0.025                              | 4000                       |
| PBY322513T-900Y-S | 90                                           | 0.025                              | 3000                       |
| PBY451616T-500Y-S | 50                                           | 0.020                              | 6000                       |
| PBY451616T-600Y-S | 60                                           | 0.020                              | 5000                       |
| PBY451616T-800Y-S | 80                                           | 0.025                              | 4000                       |
| PBY451616T-900Y-S | 90                                           | 0.04                               | 4000                       |
| PBY451616T-151Y-S | 150                                          | 0.100                              | 2000                       |
| PBY453215T-700Y-S | 70                                           | 0.03                               | 6000                       |
| PBY453215T-121Y-S | 120                                          | 0.03                               | 4000                       |
| PBY453215T-151Y-S | 150                                          | 0.03                               | 4000                       |
| PBY453215T-601Y-S | 600                                          | 0.1                                | 2000                       |

Note : \* at 50MHz



## LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | IMPEDANCE             | RDC               | RATED CURRENT | PART NO.          | IMPEDANCE             | RDC               | RATED CURRENT |
|-------------------|-----------------------|-------------------|---------------|-------------------|-----------------------|-------------------|---------------|
|                   | ( $\Omega \pm 25\%$ ) | ( $\Omega$ ) Max. | (mA) Max.     |                   | ( $\Omega \pm 25\%$ ) | ( $\Omega$ ) Max. | (mA) Max.     |
| PBY100505T-100□-N | 10                    | 0.03              | 1000          | PBY201209T-151□-N | 150                   | 0.05              | 2500          |
| PBY160808T-100□-N | 10                    | 0.02              | 4000          | PBY201209T-181□-N | 180                   | 0.05              | 2500          |
| PBY160808T-110□-N | 11                    | 0.02              | 4000          | PBY201209T-201□-N | 200                   | 0.05              | 2500          |
| PBY160808T-190□-N | 19                    | 0.03              | 3000          | PBY201209T-221□-N | 220                   | 0.08              | 2000          |
| PBY160808T-200□-N | 20                    | 0.03              | 3000          | PBY201209T-301□-N | 300                   | 0.08              | 2000          |
| PBY160808T-220□-N | 22                    | 0.03              | 3000          | PBY201209T-331□-N | 330                   | 0.08              | 2000          |
| PBY160808T-250□-N | 25                    | 0.03              | 3000          | PBY201209T-401□-N | 400                   | 0.1               | 2000          |
| PBY160808T-300□-N | 30                    | 0.03              | 3000          | PBY201209T-471□-N | 470                   | 0.1               | 2000          |
| PBY160808T-310□-N | 31                    | 0.035             | 3000          | PBY201209T-501□-N | 500                   | 0.1               | 2000          |
| PBY160808T-400□-N | 40                    | 0.035             | 3000          | PBY201209T-601□-N | 600                   | 0.1               | 2000          |
| PBY160808T-470□-N | 47                    | 0.04              | 3000          | PBY201209T-102□-N | 1000                  | 0.12              | 1500          |
| PBY160808T-500□-N | 50                    | 0.04              | 3000          | PBY321611T-080□-N | 8                     | 0.015             | 6000          |
| PBY160808T-560□-N | 56                    | 0.04              | 3000          | PBY321611T-110□-N | 11                    | 0.015             | 6000          |
| PBY160808T-600□-N | 60                    | 0.04              | 3000          | PBY321611T-190□-N | 19                    | 0.015             | 6000          |
| PBY160808T-680□-N | 68                    | 0.05              | 2500          | PBY321611T-260□-N | 26                    | 0.015             | 6000          |
| PBY160808T-700□-N | 70                    | 0.05              | 2500          | PBY321611T-300□-N | 30                    | 0.015             | 4000          |
| PBY160808T-750□-N | 75                    | 0.05              | 2500          | PBY321611T-310□-N | 31                    | 0.015             | 4000          |
| PBY160808T-800□-N | 80                    | 0.05              | 2500          | PBY321611T-320□-N | 32                    | 0.015             | 4000          |
| PBY160808T-900□-N | 90                    | 0.05              | 2500          | PBY321611T-420□-N | 42                    | 0.015             | 4000          |
| PBY160808T-101□-N | 100                   | 0.05              | 2500          | PBY321611T-500□-N | 50                    | 0.02              | 4000          |
| PBY160808T-121□-N | 120                   | 0.08              | 2500          | PBY321611T-600□-N | 60                    | 0.02              | 4000          |
| PBY160808T-151□-N | 150                   | 0.085             | 2000          | PBY321611T-680□-N | 68                    | 0.02              | 4000          |
| PBY160808T-181□-N | 180                   | 0.09              | 2000          | PBY321611T-700□-N | 70                    | 0.02              | 4000          |
| PBY160808T-201□-N | 200                   | 0.095             | 2000          | PBY321611T-800□-N | 80                    | 0.025             | 3000          |
| PBY160808T-221□-N | 220                   | 0.1               | 2000          | PBY321611T-900□-N | 90                    | 0.03              | 3000          |
| PBY160808T-301□-N | 300                   | 0.12              | 1500          | PBY321611T-101□-N | 100                   | 0.03              | 2000          |
| PBY160808T-331□-N | 330                   | 0.12              | 1500          | PBY321611T-121□-N | 120                   | 0.03              | 2000          |
| PBY160808T-401□-N | 400                   | 0.12              | 1500          | PBY321611T-151□-N | 150                   | 0.04              | 2000          |
| PBY160808T-471□-N | 470                   | 0.12              | 1500          | PBY321611T-201□-N | 200                   | 0.05              | 2000          |
| PBY160808T-501□-N | 500                   | 0.15              | 1200          | PBY321611T-221□-N | 220                   | 0.05              | 2000          |
| PBY160808T-601□-N | 600                   | 0.2               | 1000          | PBY321611T-301□-N | 300                   | 0.06              | 2000          |
| PBY160808T-102□-N | 1000                  | 0.25              | 800           | PBY321611T-401□-N | 400                   | 0.1               | 2000          |
| PBY201209T-070□-N | 7                     | 0.01              | 6000          | PBY321611T-501□-N | 500                   | 0.1               | 2000          |
| PBY201209T-110□-N | 11                    | 0.01              | 6000          | PBY321611T-601□-N | 600                   | 0.1               | 2000          |
| PBY201209T-170□-N | 17                    | 0.02              | 5000          | PBY321611T-102□-N | 1000                  | 0.15              | 1200          |
| PBY201209T-190□-N | 19                    | 0.02              | 4000          | PBY321611T-122□-N | 1200                  | 0.18              | 1000          |
| PBY201209T-220□-N | 22                    | 0.02              | 4000          | PBY321611T-152□-N | 1500                  | 0.2               | 800           |
| PBY201209T-280□-N | 28                    | 0.02              | 4000          | PBY322513T-600□-N | 60                    | 0.025             | 4000          |
| PBY201209T-300□-N | 30                    | 0.02              | 4000          | PBY322513T-900□-N | 90                    | 0.025             | 3000          |
| PBY201209T-310□-N | 31                    | 0.02              | 4000          | PBY451616T-190□-N | 19                    | 0.02              | 6000          |
| PBY201209T-390□-N | 39                    | 0.02              | 3000          | PBY451616T-400□-N | 40                    | 0.02              | 6000          |
| PBY201209T-400□-N | 40                    | 0.02              | 3000          | PBY451616T-500□-N | 50                    | 0.02              | 6000          |
| PBY201209T-420□-N | 42                    | 0.025             | 3000          | PBY451616T-600□-N | 60                    | 0.02              | 5000          |
| PBY201209T-500□-N | 50                    | 0.025             | 3000          | PBY451616T-700□-N | 70                    | 0.025             | 5000          |
| PBY201209T-600□-N | 60                    | 0.03              | 3000          | PBY451616T-750□-N | 75                    | 0.025             | 5000          |
| PBY201209T-700□-N | 70                    | 0.04              | 3000          | PBY451616T-800□-N | 80                    | 0.025             | 4000          |
| PBY201209T-750□-N | 75                    | 0.04              | 3000          | PBY451616T-101□-N | 100                   | 0.1               | 2000          |
| PBY201209T-800□-N | 80                    | 0.04              | 3000          | PBY451616T-151□-N | 150                   | 0.1               | 2000          |
| PBY201209T-900□-N | 90                    | 0.04              | 3000          | PBY451616T-191□-N | 190                   | 0.1               | 2000          |
| PBY201209T-101□-N | 100                   | 0.04              | 3000          | PBY451616T-601□-N | 600                   | 0.1               | 2000          |
| PBY201209T-121□-N | 120                   | 0.04              | 3000          | PBY451616T-102□-N | 1000                  | 0.1               | 2000          |



LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | IMPEDANCE             | RDC               | RATED                |
|-------------------|-----------------------|-------------------|----------------------|
|                   | ( $\Omega \pm 25\%$ ) | ( $\Omega$ ) Max. | CURRENT<br>(mA) Max. |
| PBY451616T-132□-N | 1300                  | 0.1               | 2000                 |
| PBY453215T-700□-N | 70                    | 0.03              | 6000                 |
| PBY453215T-800□-N | 80                    | 0.03              | 4000                 |
| PBY453215T-900□-N | 90                    | 0.03              | 4000                 |
| PBY453215T-121□-N | 120                   | 0.03              | 4000                 |
| PBY453215T-125□-N | 125                   | 0.03              | 4000                 |
| PBY453215T-151□-N | 150                   | 0.03              | 4000                 |



## UPB SERIES, FOR ULTRA HIGH CURRENT USE

### APPLICATIONS

Preventing of Electronics Magnet Interference in Power Line of PC, Printer, & CD ROM  
High Frequency Filtering of Medium Speed Clocks and Video Signals

### FEATURES

High Current Performance  
Low D.C. Resistance Minute mΩ Typically  
Impedance Character of Broad Frequency

## ELECTRICAL CHARACTERISTICS

| PART NO.          | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|-------------------|----------------------------------------------|------------------------------------|----------------------------|
| UPB160808T-110Y-S | 11                                           | 0.015                              | 4500                       |
| UPB160808T-170Y-S | 17                                           | 0.015                              | 4500                       |
| UPB160808T-250Y-S | 25                                           | 0.015                              | 4500                       |
| UPB160808T-300Y-S | 30                                           | 0.015                              | 4500                       |
| UPB201209T-110Y-S | 11                                           | 0.015                              | 5000                       |
| UPB201209T-150Y-S | 15                                           | 0.015                              | 5000                       |
| UPB201209T-190Y-S | 19                                           | 0.015                              | 5000                       |
| UPB201209T-260Y-S | 26                                           | 0.015                              | 5000                       |
| UPB201209T-300Y-S | 30                                           | 0.015                              | 5000                       |
| UPB201209T-330Y-S | 33                                           | 0.015                              | 5000                       |
| UPB201209T-400Y-S | 40                                           | 0.015                              | 5000                       |
| UPB201209T-500Y-S | 50                                           | 0.015                              | 5000                       |
| UPB201209T-600Y-S | 60                                           | 0.020                              | 4500                       |
| UPB201212T-600Y-S | 60                                           | 0.02                               | 5000                       |
| UPB201212T-700Y-S | 70                                           | 0.02                               | 5000                       |
| UPB201212T-800Y-S | 80                                           | 0.02                               | 5000                       |
| UPB201212T-101Y-S | 100                                          | 0.025                              | 5000                       |
| UPB201212T-121Y-S | 120                                          | 0.025                              | 5000                       |
| UPB321611T-110Y-S | 11                                           | 0.012                              | 6000                       |
| UPB321611T-190Y-S | 19                                           | 0.012                              | 6000                       |
| UPB321611T-260Y-S | 26                                           | 0.012                              | 6000                       |
| UPB321611T-300Y-S | 30                                           | 0.012                              | 6000                       |
| UPB321611T-400Y-S | 40                                           | 0.012                              | 6000                       |
| UPB321611T-500Y-S | 50                                           | 0.012                              | 6000                       |
| UPB321611T-600Y-S | 60                                           | 0.012                              | 6000                       |
| UPB321611T-800Y-S | 80                                           | 0.012                              | 6000                       |
| UPB321611T-101Y-S | 100                                          | 0.012                              | 6000                       |
| UPB321611T-121Y-S | 120                                          | 0.012                              | 6000                       |
| UPB321611T-151Y-S | 150                                          | 0.020                              | 4500                       |
| UPB321616T-600Y-S | 60                                           | 0.012                              | 6000                       |
| UPB323215T-700Y-S | 70                                           | 0.01                               | 9000                       |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|---------------------|----------------------------------------------|------------------------------------|----------------------------|
| UPB160808T-110 □ -N | 11                                           | 0.015                              | 4500                       |
| UPB160808T-170 □ -N | 17                                           | 0.015                              | 4500                       |
| UPB160808T-250 □ -N | 25                                           | 0.015                              | 4500                       |
| UPB160808T-300 □ -N | 30                                           | 0.015                              | 4500                       |
| UPB201209T-110 □ -N | 11                                           | 0.012                              | 5000                       |
| UPB201209T-150 □ -N | 15                                           | 0.012                              | 5000                       |
| UPB201209T-190 □ -N | 19                                           | 0.012                              | 5000                       |
| UPB201209T-260 □ -N | 26                                           | 0.012                              | 5000                       |
| UPB201209T-300 □ -N | 30                                           | 0.012                              | 5000                       |
| UPB201209T-330 □ -N | 33                                           | 0.012                              | 5000                       |
| UPB201209T-400 □ -N | 40                                           | 0.015                              | 5000                       |
| UPB201209T-500 □ -N | 50                                           | 0.015                              | 5000                       |
| UPB201209T-600 □ -N | 60                                           | 0.02                               | 4500                       |
| UPB201209T-700 □ -N | 70                                           | 0.02                               | 4500                       |
| UPB201209T-800 □ -N | 80                                           | 0.02                               | 4500                       |
| UPB201212T-600 □ -N | 60                                           | 0.02                               | 5000                       |
| UPB201212T-700 □ -N | 70                                           | 0.02                               | 5000                       |
| UPB201212T-800 □ -N | 80                                           | 0.02                               | 5000                       |
| UPB201212T-101 □ -N | 100                                          | 0.025                              | 5000                       |
| UPB201212T-121 □ -N | 120                                          | 0.025                              | 5000                       |
| UPB321611T-110 □ -N | 11                                           | 0.012                              | 6000                       |
| UPB321611T-190 □ -N | 19                                           | 0.012                              | 6000                       |
| UPB321611T-260 □ -N | 26                                           | 0.012                              | 6000                       |
| UPB321611T-300 □ -N | 30                                           | 0.012                              | 6000                       |
| UPB321611T-320 □ -N | 32                                           | 0.012                              | 6000                       |
| UPB321611T-400 □ -N | 40                                           | 0.012                              | 6000                       |
| UPB321611T-500 □ -N | 50                                           | 0.012                              | 6000                       |
| UPB321611T-600 □ -N | 60                                           | 0.012                              | 6000                       |
| UPB321611T-800 □ -N | 80                                           | 0.012                              | 6000                       |
| UPB321611T-101 □ -N | 100                                          | 0.012                              | 6000                       |
| UPB321611T-121 □ -N | 120                                          | 0.012                              | 6000                       |
| UPB321611T-151 □ -N | 150                                          | 0.02                               | 4500                       |
| UPB451616T-600 □ -N | 60                                           | 0.012                              | 7000                       |
| UPB453215T-700 □ -N | 70                                           | 0.01                               | 9000                       |
| UPB453215T-900 □ -N | 90                                           | 0.01                               | 9000                       |

NOTE : □ -tolerance Y= $\pm 25\%$  / T= $\pm 30\%$

1. Operating temperature range -55°C~125°C

2. Rate current: Applied the current to coils, the temperature rise shall not be more than 30°C

"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)



## NB SERIES, FOR HIGH SPEED SIGNALS USE

### APPLICATIONS

High-Speed Circuits for Computer & Peripheral Equipments and Communication Devices

Cellular Phone

Suitable for Circuits with Unstable Ground

### FEATURES

Exhibiting High Impedance with Sharp Increase at High-Speed Signal Frequencies with Minimal Diminishing the Desired Wave Form

Suitable for Flow and Reflow Soldering

Available in 4 Sizes

## ELECTRICAL CHARACTERISTICS

| PART NO.          | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|-------------------|----------------------------------------------|------------------------------------|----------------------------|
| NBQ100505T-060Y-S | 6                                            | 0.10                               | 300                        |
| NBQ100505T-100Y-S | 10                                           | 0.20                               | 200                        |
| NBQ100505T-400Y-S | 40                                           | 0.40                               | 150                        |
| NBQ100505T-800Y-S | 80                                           | 0.60                               | 100                        |
| NBQ100505T-121Y-S | 120                                          | 0.80                               | 50                         |
| NBQ160808T-060Y-S | 6                                            | 0.05                               | 500                        |
| NBQ160808T-100Y-S | 10                                           | 0.07                               | 400                        |
| NBQ160808T-400Y-S | 40                                           | 0.30                               | 300                        |
| NBQ160808T-600Y-S | 60                                           | 0.30                               | 300                        |
| NBQ160808T-800Y-S | 80                                           | 0.40                               | 300                        |
| NBQ160808T-121Y-S | 120                                          | 0.40                               | 300                        |
| NBQ160808T-241Y-S | 240                                          | 0.40                               | 200                        |
| NBQ160808T-301Y-S | 300                                          | 0.50                               | 200                        |
| NBQ160808T-481Y-S | 480                                          | 0.60                               | 150                        |
| NBQ160808T-601Y-S | 600                                          | 0.60                               | 100                        |
| NBQ160808T-102Y-S | 1000                                         | 0.70                               | 100                        |
| NBQ160808T-122Y-S | 1200                                         | 0.70                               | 100                        |
| NBQ160808T-152Y-S | 1500                                         | 0.80                               | 100                        |
| NBQ160808T-182Y-S | 1800                                         | 0.95                               | 100                        |
| NBQ160808T-222Y-S | 2200                                         | 1.0                                | 50                         |
| NBQ160808T-252Y-S | 2500                                         | 1.0                                | 50                         |
| NBQ201209T-060Y-S | 6                                            | 0.07                               | 800                        |
| NBQ201209T-110Y-S | 11                                           | 0.10                               | 700                        |
| NBQ201209T-260Y-S | 26                                           | 0.15                               | 600                        |
| NBQ201209T-320Y-S | 32                                           | 0.15                               | 600                        |
| NBQ201209T-600Y-S | 60                                           | 0.15                               | 500                        |
| NBQ201209T-750Y-S | 75                                           | 0.15                               | 500                        |
| NBQ201209T-900Y-S | 90                                           | 0.15                               | 500                        |
| NBQ201209T-121Y-S | 120                                          | 0.20                               | 400                        |
| NBQ201209T-151Y-S | 150                                          | 0.20                               | 400                        |
| NBQ201209T-171Y-S | 170                                          | 0.30                               | 400                        |
| NBQ201209T-221Y-S | 220                                          | 0.30                               | 300                        |
| NBQ201209T-301Y-S | 300                                          | 0.30                               | 300                        |
| NBQ201209T-401Y-S | 400                                          | 0.35                               | 300                        |
| NBQ201209T-501Y-S | 500                                          | 0.35                               | 200                        |
| NBQ201209T-601Y-S | 600                                          | 0.35                               | 200                        |
| NBQ201209T-102Y-S | 1000                                         | 0.40                               | 200                        |
| NBQ201209T-122Y-S | 1200                                         | 0.45                               | 200                        |
| NBQ201209T-152Y-S | 1500                                         | 0.45                               | 200                        |
| NBQ201209T-222Y-S | 2200                                         | 0.50                               | 200                        |
| NBQ201209T-272Y-S | 2700                                         | 0.60                               | 200                        |
| NBQ321611T-320Y-S | 32                                           | 0.15                               | 600                        |
| NBQ321611T-600Y-S | 60                                           | 0.15                               | 500                        |
| NBQ321611T-800Y-S | 80                                           | 0.15                               | 500                        |
| NBQ321611T-900Y-S | 90                                           | 0.15                               | 500                        |
| NBQ321611T-121Y-S | 120                                          | 0.20                               | 400                        |
| NBQ321611T-151Y-S | 150                                          | 0.20                               | 400                        |
| NBQ321611T-201Y-S | 200                                          | 0.25                               | 300                        |
| NBQ321611T-221Y-S | 220                                          | 0.30                               | 300                        |
| NBQ321611T-351Y-S | 350                                          | 0.30                               | 300                        |
| NBQ321611T-401Y-S | 400                                          | 0.30                               | 300                        |
| NBQ321611T-601Y-S | 600                                          | 0.35                               | 300                        |
| NBQ321611T-122Y-S | 1200                                         | 0.40                               | 200                        |
| NBQ321611T-152Y-S | 1500                                         | 0.45                               | 200                        |



ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|---------------------|----------------------------------------------|------------------------------------|----------------------------|
| NBQ100505T-060 □ -N | 6                                            | 0.1                                | 300                        |
| NBQ100505T-100 □ -N | 10                                           | 0.2                                | 200                        |
| NBQ100505T-220 □ -N | 22                                           | 0.4                                | 150                        |
| NBQ100505T-400 □ -N | 40                                           | 0.4                                | 150                        |
| NBQ100505T-600 □ -N | 60                                           | 0.6                                | 100                        |
| NBQ100505T-800 □ -N | 80                                           | 0.6                                | 100                        |
| NBQ100505T-121 □ -N | 120                                          | 0.8                                | 50                         |
| NBQ100505T-221 □ -N | 220                                          | 1.4                                | 50                         |
| NBQ160808T-060 □ -N | 6                                            | 0.05                               | 500                        |
| NBQ160808T-100 □ -N | 10                                           | 0.07                               | 400                        |
| NBQ160808T-300 □ -N | 30                                           | 0.2                                | 300                        |
| NBQ160808T-400 □ -N | 40                                           | 0.2                                | 300                        |
| NBQ160808T-470 □ -N | 47                                           | 0.2                                | 300                        |
| NBQ160808T-500 □ -N | 50                                           | 0.25                               | 300                        |
| NBQ160808T-600 □ -N | 60                                           | 0.25                               | 300                        |
| NBQ160808T-680 □ -N | 68                                           | 0.25                               | 300                        |
| NBQ160808T-700 □ -N | 70                                           | 0.25                               | 300                        |
| NBQ160808T-750 □ -N | 75                                           | 0.25                               | 300                        |
| NBQ160808T-800 □ -N | 80                                           | 0.25                               | 300                        |
| NBQ160808T-101 □ -N | 100                                          | 0.3                                | 300                        |
| NBQ160808T-121 □ -N | 120                                          | 0.3                                | 300                        |
| NBQ160808T-131 □ -N | 130                                          | 0.3                                | 300                        |
| NBQ160808T-141 □ -N | 140                                          | 0.3                                | 300                        |
| NBQ160808T-151 □ -N | 150                                          | 0.3                                | 200                        |
| NBQ160808T-161 □ -N | 160                                          | 0.3                                | 200                        |
| NBQ160808T-221 □ -N | 220                                          | 0.35                               | 200                        |
| NBQ160808T-241 □ -N | 240                                          | 0.35                               | 200                        |
| NBQ160808T-301 □ -N | 300                                          | 0.4                                | 200                        |
| NBQ160808T-471 □ -N | 470                                          | 0.5                                | 200                        |
| NBQ160808T-481 □ -N | 480                                          | 0.5                                | 200                        |
| NBQ160808T-601 □ -N | 600                                          | 0.5                                | 200                        |
| NBQ160808T-102 □ -N | 1000                                         | 0.6                                | 100                        |
| NBQ160808T-122 □ -N | 1200                                         | 0.6                                | 100                        |
| NBQ160808T-152 □ -N | 1500                                         | 0.7                                | 100                        |
| NBQ160808T-182 □ -N | 1800                                         | 0.8                                | 100                        |
| NBQ160808T-222 □ -N | 2200                                         | 1                                  | 50                         |
| NBQ160808T-252 □ -N | 2500                                         | 1.5                                | 50                         |
| NBQ201209T-050 □ -N | 5                                            | 0.07                               | 800                        |
| NBQ201209T-060 □ -N | 6                                            | 0.07                               | 800                        |
| NBQ201209T-070 □ -N | 7                                            | 0.1                                | 700                        |
| NBQ201209T-110 □ -N | 11                                           | 0.1                                | 700                        |
| NBQ201209T-260 □ -N | 26                                           | 0.15                               | 600                        |
| NBQ201209T-300 □ -N | 30                                           | 0.15                               | 600                        |
| NBQ201209T-320 □ -N | 32                                           | 0.15                               | 600                        |
| NBQ201209T-400 □ -N | 40                                           | 0.15                               | 500                        |
| NBQ201209T-600 □ -N | 60                                           | 0.15                               | 500                        |
| NBQ201209T-750 □ -N | 75                                           | 0.15                               | 500                        |
| NBQ201209T-900 □ -N | 90                                           | 0.15                               | 500                        |
| NBQ201209T-101 □ -N | 100                                          | 0.2                                | 400                        |
| NBQ201209T-121 □ -N | 120                                          | 0.2                                | 400                        |
| NBQ201209T-151 □ -N | 150                                          | 0.2                                | 400                        |
| NBQ201209T-171 □ -N | 170                                          | 0.3                                | 400                        |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|---------------------|----------------------------------------------|------------------------------------|----------------------------|
| NBQ201209T-201 □ -N | 200                                          | 0.3                                | 300                        |
| NBQ201209T-221 □ -N | 220                                          | 0.3                                | 300                        |
| NBQ201209T-301 □ -N | 300                                          | 0.3                                | 300                        |
| NBQ201209T-401 □ -N | 400                                          | 0.3                                | 300                        |
| NBQ201209T-421 □ -N | 420                                          | 0.3                                | 300                        |
| NBQ201209T-501 □ -N | 500                                          | 0.35                               | 200                        |
| NBQ201209T-601 □ -N | 600                                          | 0.35                               | 200                        |
| NBQ201209T-751 □ -N | 750                                          | 0.4                                | 200                        |
| NBQ201209T-102 □ -N | 1000                                         | 0.4                                | 200                        |
| NBQ201209T-122 □ -N | 1200                                         | 0.45                               | 200                        |
| NBQ201209T-152 □ -N | 1500                                         | 0.45                               | 200                        |
| NBQ201209T-202 □ -N | 2000                                         | 0.5                                | 200                        |
| NBQ201209T-222 □ -N | 2200                                         | 0.5                                | 200                        |
| NBQ201209T-252 □ -N | 2500                                         | 0.6                                | 200                        |
| NBQ201209T-272 □ -N | 2700                                         | 0.6                                | 200                        |
| NBQ321611T-170 □ -N | 17                                           | 0.15                               | 600                        |
| NBQ321611T-190 □ -N | 19                                           | 0.15                               | 600                        |
| NBQ321611T-320 □ -N | 32                                           | 0.15                               | 600                        |
| NBQ321611T-600 □ -N | 60                                           | 0.15                               | 500                        |
| NBQ321611T-800 □ -N | 80                                           | 0.15                               | 500                        |
| NBQ321611T-900 □ -N | 90                                           | 0.15                               | 500                        |
| NBQ321611T-121 □ -N | 120                                          | 0.2                                | 400                        |
| NBQ321611T-151 □ -N | 150                                          | 0.2                                | 400                        |
| NBQ321611T-201 □ -N | 200                                          | 0.25                               | 300                        |
| NBQ321611T-221 □ -N | 220                                          | 0.3                                | 300                        |
| NBQ321611T-351 □ -N | 350                                          | 0.3                                | 300                        |
| NBQ321611T-401 □ -N | 400                                          | 0.3                                | 300                        |
| NBQ321611T-601 □ -N | 600                                          | 0.35                               | 300                        |
| NBQ321611T-122 □ -N | 1200                                         | 0.4                                | 200                        |
| NBQ321611T-152 □ -N | 1500                                         | 0.45                               | 200                        |

NOTE : □ -tolerance Y=±25% / T=±30%

1. Operating temperature range -55°C~125°C

2. Rate current: Applied the current to coils, the temperature rise shall not be more than 30°C

"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)



## GB SERIES, FOR MID CURRENT USE

### APPLICATIONS

\* Computers \* Modems \* CD-ROMs \* Hard Drives

\* Televisions \* Wireless Device

### FEATURES

This series exhibits a low DC resistance across a wide range of impedances.

Low DC resistance characteristics make the chip beads suitable for use on signal lines handling larger currents.

## ELECTRICAL CHARACTERISTICS

| PART NO.          | IMPEDANCE<br>at 100MHz<br>( $\Omega \pm 25\%$ ) | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. | PART NO.          | IMPEDANCE<br>at 100MHz<br>( $\Omega \pm 25\%$ ) | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. |
|-------------------|-------------------------------------------------|---------------------------------------|-------------------------------|-------------------|-------------------------------------------------|---------------------------------------|-------------------------------|
| GBK160808T-110Y-S | 11                                              | 0.03                                  | 1000                          | GBY321611T-190Y-S | 19                                              | 0.03                                  | 1000                          |
| GBK160808T-190Y-S | 19                                              | 0.05                                  | 1000                          | GBY321611T-260Y-S | 26                                              | 0.03                                  | 1000                          |
| GBK160808T-300Y-S | 30                                              | 0.06                                  | 800                           | GBY321611T-320Y-S | 32                                              | 0.03                                  | 1000                          |
| GBK160808T-400Y-S | 40                                              | 0.06                                  | 800                           | GBY321611T-500Y-S | 50                                              | 0.06                                  | 800                           |
| GBK160808T-600Y-S | 60                                              | 0.06                                  | 600                           | GBY321611T-600Y-S | 60                                              | 0.06                                  | 800                           |
| GBK160808T-800Y-S | 80                                              | 0.10                                  | 600                           | GBK321611T-700Y-S | 70                                              | 0.06                                  | 800                           |
| GBK160808T-121Y-S | 120                                             | 0.15                                  | 600                           | GBK321611T-900Y-S | 90                                              | 0.10                                  | 800                           |
| GBK160808T-221Y-S | 220                                             | 0.18                                  | 400                           | GBK321611T-121Y-S | 120                                             | 0.10                                  | 800                           |
| GBK160808T-301Y-S | 300                                             | 0.25                                  | 400                           | GBK321611T-151Y-S | 150                                             | 0.10                                  | 800                           |
| GBK160808T-451Y-S | 450                                             | 0.30                                  | 400                           | GBK321611T-201Y-S | 200                                             | 0.15                                  | 600                           |
| GBK160808T-601Y-S | 600                                             | 0.30                                  | 400                           | GBK321611T-401Y-S | 400                                             | 0.15                                  | 600                           |
| GBK160808T-751Y-S | 750                                             | 0.45                                  | 300                           | GBK321611T-501Y-S | 500                                             | 0.15                                  | 600                           |
| GBK160808T-102Y-S | 1000                                            | 0.45                                  | 300                           | GBK321611T-601Y-S | 600                                             | 0.20                                  | 500                           |
| GBY201209T-070Y-S | 7                                               | 0.06                                  | 1000                          | GBK321611T-102Y-S | 1000 *                                          | 0.25                                  | 400                           |
| GBY201209T-090Y-S | 9                                               | 0.06                                  | 1000                          | GBK321611T-122Y-S | 1200 *                                          | 0.25                                  | 400                           |
| GBY201209T-110Y-S | 11                                              | 0.06                                  | 1000                          | GBK321611T-202Y-S | 2000 **                                         | 0.35                                  | 400                           |
| GBY201209T-170Y-S | 17                                              | 0.06                                  | 1000                          | GBY321616T-250Y-S | 25                                              | 0.10                                  | 1000                          |
| GBY201209T-320Y-S | 32                                              | 0.06                                  | 1000                          | GBY321616T-600Y-S | 60                                              | 0.10                                  | 1000                          |
| GBK201209T-600Y-S | 60                                              | 0.10                                  | 800                           | GBK321616T-700Y-S | 70                                              | 0.10                                  | 1000                          |
| GBK201209T-700Y-S | 70                                              | 0.10                                  | 800                           | GBY322513T-320Y-S | 32                                              | 0.10                                  | 1000                          |
| GBK201209T-800Y-S | 80                                              | 0.10                                  | 800                           | GBY322513T-600Y-S | 60                                              | 0.10                                  | 1000                          |
| GBK201209T-121Y-S | 120                                             | 0.15                                  | 600                           | GBY322513T-900Y-S | 90                                              | 0.10                                  | 1000                          |
| GBK201209T-151Y-S | 150                                             | 0.15                                  | 600                           | GBY451616T-500Y-S | 50                                              | 0.10                                  | 1000                          |
| GBK201209T-221Y-S | 220                                             | 0.18                                  | 600                           | GBY451616T-600Y-S | 60                                              | 0.10                                  | 1000                          |
| GBK201209T-301Y-S | 300                                             | 0.18                                  | 600                           | GBY451616T-800Y-S | 80                                              | 0.10                                  | 1000                          |
| GBK201209T-401Y-S | 400                                             | 0.18                                  | 600                           | GBY451616T-101Y-S | 100                                             | 0.18                                  | 800                           |
| GBK201209T-501Y-S | 500                                             | 0.25                                  | 500                           | GBK451616T-151Y-S | 150                                             | 0.18                                  | 800                           |
| GBK201209T-601Y-S | 600                                             | 0.25                                  | 500                           | GBK451616T-171Y-S | 170                                             | 0.18                                  | 800                           |
| GBK201209T-751Y-S | 750                                             | 0.30                                  | 400                           | GBY453215T-700Y-S | 70                                              | 0.18                                  | 800                           |
| GBK201209T-102Y-S | 1000                                            | 0.30                                  | 400                           | GBY453215T-121Y-S | 120                                             | 0.18                                  | 800                           |
| GBK201209T-152Y-S | 1500                                            | 0.40                                  | 400                           |                   |                                                 |                                       |                               |
| GBK201209T-202Y-S | 2000                                            | 0.55                                  | 400                           |                   |                                                 |                                       |                               |

Note : \* at 50MHz \*\* at 30MHz



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|---------------------|----------------------------------------------|------------------------------------|----------------------------|
| GBK160808T-110 □ -N | 11                                           | 0.03                               | 1000                       |
| GBK160808T-190 □ -N | 19                                           | 0.05                               | 1000                       |
| GBK160808T-300 □ -N | 30                                           | 0.06                               | 800                        |
| GBK160808T-320 □ -N | 32                                           | 0.06                               | 800                        |
| GBK160808T-400 □ -N | 40                                           | 0.06                               | 800                        |
| GBK160808T-500 □ -N | 50                                           | 0.06                               | 600                        |
| GBK160808T-600 □ -N | 60                                           | 0.06                               | 600                        |
| GBK160808T-800 □ -N | 80                                           | 0.1                                | 600                        |
| GBK160808T-101 □ -N | 100                                          | 0.15                               | 600                        |
| GBK160808T-121 □ -N | 120                                          | 0.15                               | 600                        |
| GBK160808T-181 □ -N | 180                                          | 0.18                               | 400                        |
| GBK160808T-221 □ -N | 220                                          | 0.18                               | 400                        |
| GBK160808T-301 □ -N | 300                                          | 0.25                               | 400                        |
| GBK160808T-451 □ -N | 450                                          | 0.3                                | 400                        |
| GBK160808T-471 □ -N | 470                                          | 0.3                                | 400                        |
| GBK160808T-601 □ -N | 600                                          | 0.3                                | 400                        |
| GBK160808T-751 □ -N | 750                                          | 0.45                               | 300                        |
| GBK160808T-102 □ -N | 1000                                         | 0.45                               | 300                        |
| GBK160808T-152 □ -N | 1500                                         | 0.7                                | 150                        |
| GBY201209T-070 □ -N | 7                                            | 0.06                               | 1000                       |
| GBY201209T-090 □ -N | 9                                            | 0.06                               | 1000                       |
| GBY201209T-110 □ -N | 11                                           | 0.06                               | 1000                       |
| GBY201209T-170 □ -N | 17                                           | 0.06                               | 1000                       |
| GBY201209T-300 □ -N | 30                                           | 0.06                               | 1000                       |
| GBY201209T-320 □ -N | 32                                           | 0.06                               | 1000                       |
| GBY201209T-330 □ -N | 33                                           | 0.1                                | 800                        |
| GBY201209T-400 □ -N | 40                                           | 0.1                                | 800                        |
| GBK201209T-600 □ -N | 60                                           | 0.1                                | 800                        |
| GBK201209T-700 □ -N | 70                                           | 0.1                                | 800                        |
| GBK201209T-800 □ -N | 80                                           | 0.1                                | 800                        |
| GBK201209T-101 □ -N | 100                                          | 0.15                               | 600                        |
| GBK201209T-121 □ -N | 120                                          | 0.15                               | 600                        |
| GBK201209T-151 □ -N | 150                                          | 0.15                               | 600                        |
| GBK201209T-221 □ -N | 220                                          | 0.18                               | 600                        |
| GBK201209T-301 □ -N | 300                                          | 0.18                               | 600                        |



ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|---------------------|----------------------------------------------|------------------------------------|----------------------------|
| GBK201209T-40I □ -N | 400                                          | 0.18                               | 600                        |
| GBK201209T-50I □ -N | 500                                          | 0.25                               | 500                        |
| GBK201209T-60I □ -N | 600                                          | 0.25                               | 500                        |
| GBK201209T-75I □ -N | 750                                          | 0.3                                | 400                        |
| GBK201209T-102 □ -N | 1000                                         | 0.3                                | 400                        |
| GBK201209T-152 □ -N | 1500                                         | 0.4                                | 400                        |
| GBK201209T-202 □ -N | 2000                                         | 0.55                               | 400                        |
| GBY321611T-190 □ -N | 19                                           | 0.03                               | 1000                       |
| GBY321611T-260 □ -N | 26                                           | 0.03                               | 1000                       |
| GBY321611T-320 □ -N | 32                                           | 0.03                               | 1000                       |
| GBY321611T-500 □ -N | 50                                           | 0.06                               | 800                        |
| GBY321611T-600 □ -N | 60                                           | 0.06                               | 800                        |
| GBK321611T-700 □ -N | 70                                           | 0.06                               | 800                        |
| GBK321611T-900 □ -N | 90                                           | 0.1                                | 800                        |
| GBK321611T-121 □ -N | 120                                          | 0.1                                | 800                        |
| GBK321611T-151 □ -N | 150                                          | 0.1                                | 800                        |
| GBK321611T-201 □ -N | 200                                          | 0.15                               | 600                        |
| GBK321611T-301 □ -N | 300                                          | 0.15                               | 600                        |
| GBK321611T-401 □ -N | 400                                          | 0.15                               | 600                        |
| GBK321611T-501 □ -N | 500                                          | 0.15                               | 600                        |
| GBK321611T-601 □ -N | 600                                          | 0.2                                | 500                        |
| GBK321611T-102 □ -N | 1000                                         | 0.25                               | 400                        |
| GBK321611T-122 □ -N | 1200                                         | 0.25                               | 400                        |
| GBK321611T-202 □ -N | 2000                                         | 0.35                               | 400                        |
| GBY321611T-250 □ -N | 25                                           | 0.1                                | 1000                       |
| GBY321611T-600 □ -N | 60                                           | 0.1                                | 1000                       |
| GBK321611T-700 □ -N | 70                                           | 0.1                                | 1000                       |
| GBY322513T-320 □ -N | 32                                           | 0.1                                | 1000                       |
| GBY322513T-600 □ -N | 60                                           | 0.1                                | 1000                       |
| GBY322513T-900 □ -N | 90                                           | 0.1                                | 1000                       |
| GBY451616T-500 □ -N | 50                                           | 0.1                                | 1000                       |
| GBY451616T-600 □ -N | 60                                           | 0.1                                | 1000                       |
| GBY451616T-800 □ -N | 80                                           | 0.1                                | 1000                       |
| GBY451616T-101 □ -N | 100                                          | 0.18                               | 800                        |





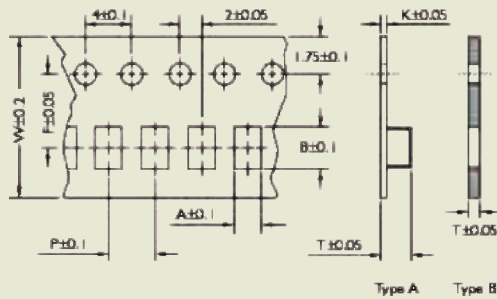
## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|---------------------|----------------------------------------------|------------------------------------|----------------------------|
| GBK451616T-151 □ -N | 150                                          | 0.18                               | 800                        |
| GBK451616T-171 □ -N | 170                                          | 0.18                               | 800                        |
| GBY453215T-700 □ -N | 70                                           | 0.18                               | 800                        |
| GBY453215T-121 □ -N | 120                                          | 0.18                               | 800                        |



## TAPE DIMENSIONS

Dimensions : mm



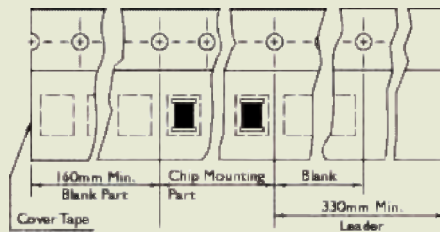
| TYPE           |        | A    | B    | T    | W    | P   | F   | K    | TAPE TYPE |
|----------------|--------|------|------|------|------|-----|-----|------|-----------|
| SB/PB/NB       | 100505 | 0.65 | 1.15 | 0.60 | 8.0  | 2.0 | 3.5 | -    | B         |
| SB/PB/UP/NB/GB | 160808 | 1.10 | 1.85 | 0.95 | 8.0  | 4.0 | 3.5 | -    | B         |
| SB/PB/UP/NB/GB | 201209 | 1.42 | 2.25 | 0.22 | 8.0  | 4.0 | 3.5 | 1.04 | A         |
| SB/PB/UP/NB/GB | 321611 | 1.88 | 3.50 | 0.22 | 8.0  | 4.0 | 3.5 | 1.27 | A         |
| SB/GB          | 321616 | 1.88 | 3.53 | 0.22 | 8.0  | 4.0 | 3.5 | 1.80 | A         |
| SB/GB          | 322513 | 2.77 | 3.42 | 0.22 | 8.0  | 4.0 | 3.5 | 1.55 | A         |
| SB/PB/GB       | 451616 | 1.93 | 4.95 | 0.24 | 12.0 | 4.0 | 5.5 | 1.93 | A         |
| SB/PB/GB       | 453215 | 3.66 | 4.95 | 0.24 | 12.0 | 8.0 | 5.5 | 1.85 | A         |

## TAPE MATERIAL

Carrier Tape : Polystyrene (for 201209, 201211, 321611, etc.)

Paper (for 160808, 100505)

Cover Type : Polyethyene

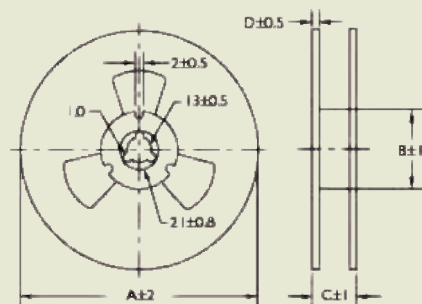


## PACKAGING QUANTITY

| TYPE           | BULK   | QUANTITY/REEL |
|----------------|--------|---------------|
| SB/PB/NB       | 100505 | √ 10000       |
| SB/PB/UP/NB/GB | 160808 | √ 4000        |
| SB/PB/UP/NB/GB | 201209 | √ 4000        |
| SB/PB/UP/NB/GB | 321611 | √ 3000        |
| SB/GB          | 321616 | √ 2000        |
| SB/GB          | 322513 | √ 2500        |
| SB/PB/GB       | 451616 | √ 2000        |
| SB/PB/GB       | 453215 | √ 1000        |

## REEL DIMENSIONS

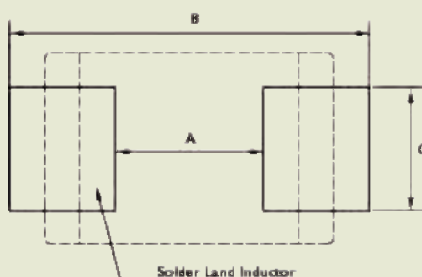
Dimensions : mm



| TYPE           |        | A   | B  | C  | D |
|----------------|--------|-----|----|----|---|
| SB/PB/NB       | 100505 | 178 | 60 | 10 | 2 |
| SB/PB/UP/NB/GB | 160808 | 178 | 60 | 10 | 2 |
| SB/PB/UP/NB/GB | 201209 | 178 | 60 | 10 | 2 |
| SB/PB/UP/NB/GB | 321611 | 178 | 60 | 10 | 2 |
| SB/GB          | 321616 | 178 | 60 | 10 | 2 |
| SB/GB          | 322513 | 178 | 60 | 10 | 2 |
| SB/PB/GB       | 451616 | 178 | 60 | 14 | 2 |
| SB/PB/GB       | 453215 | 178 | 60 | 14 | 2 |

## RECOMMENDED PATTERN

Dimensions : mm



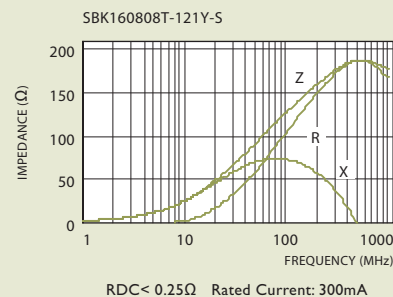
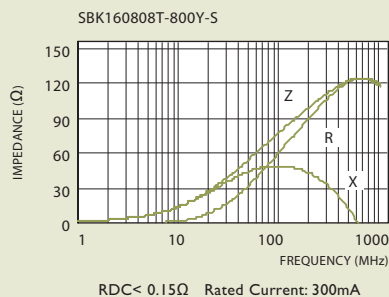
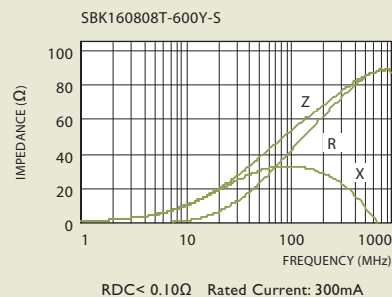
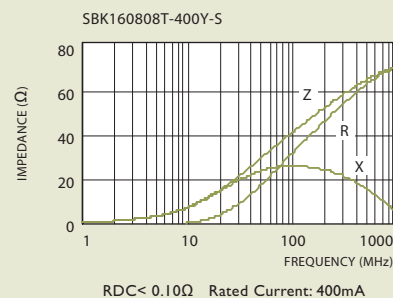
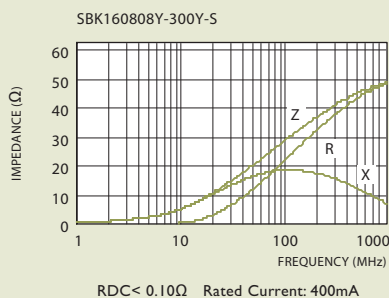
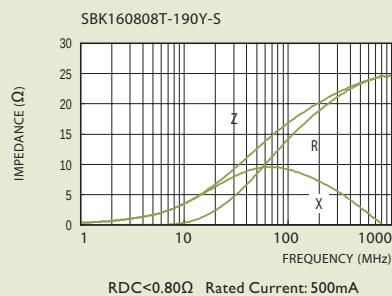
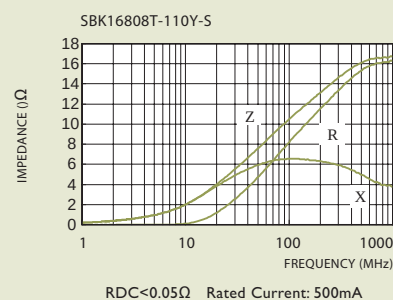
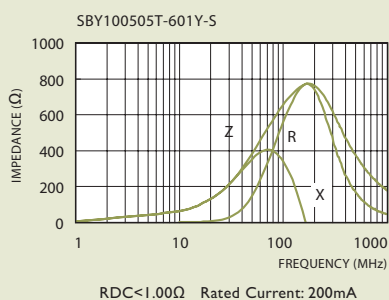
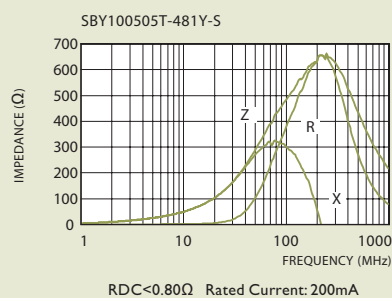
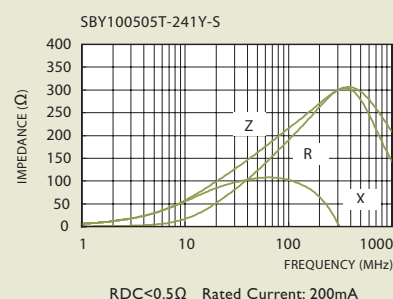
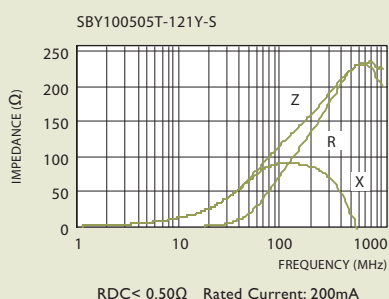
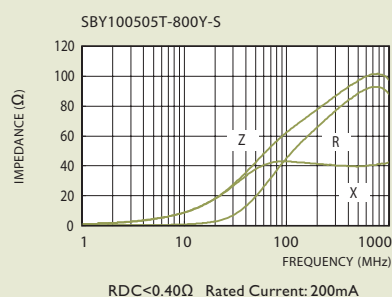
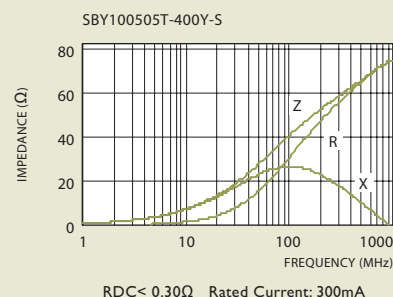
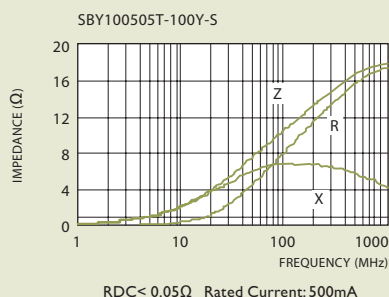
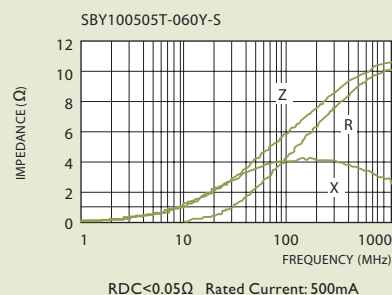
\* Don't apply narrower pattern than listed above to PB/Y and upb  
Narrow pattern might cause excessive heat or open circuit.

| TYPE           |        | A   | B         | C   |
|----------------|--------|-----|-----------|-----|
| SB/PB/NB       | 100505 | 0.4 | 1.2 ~ 1.4 | 0.4 |
| SB/PB/UP/NB/GB | 160808 | 0.8 | 2.4 ~ 3.4 | 0.6 |
| SB/PB/UP/NB/GB | 201209 | 1.2 | 3.0 ~ 4.0 | 1.0 |
| SB/PB/UP/NB/GB | 321611 | 2.0 | 4.2 ~ 5.2 | 1.2 |
| SB/GB          | 321616 | 2.0 | 4.2 ~ 5.2 | 1.2 |
| SB/GB          | 322513 | 2.0 | 5.5 ~ 6.5 | 1.8 |
| SB/PB/GB       | 451616 | 3.0 | 5.5 ~ 6.5 | 1.2 |
| SB/PB/GB       | 453215 | 3.0 | 5.5 ~ 6.5 | 2.4 |



## TYPICAL ELECTRICAL CHARACTERISTICS

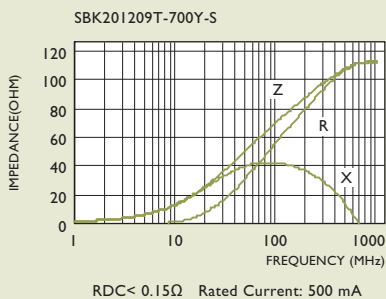
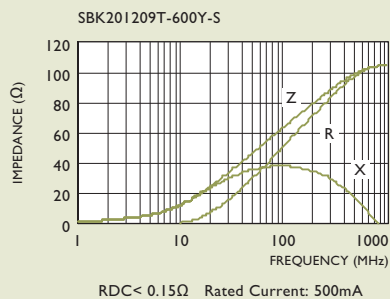
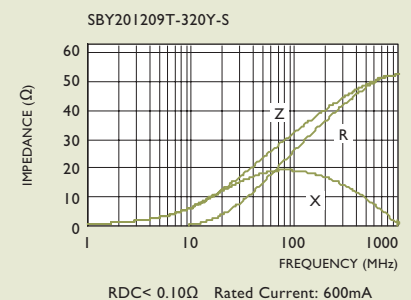
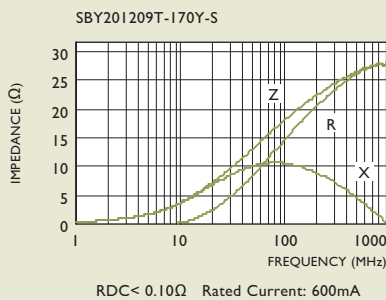
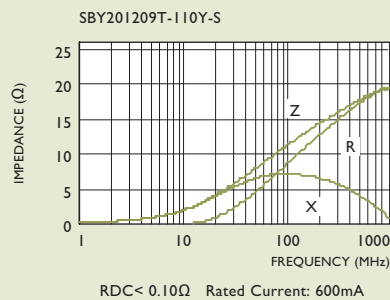
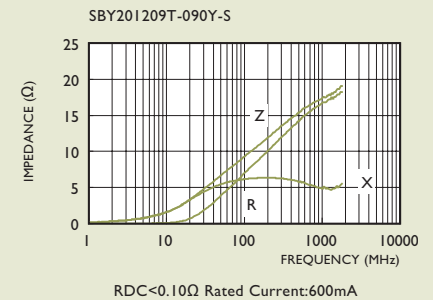
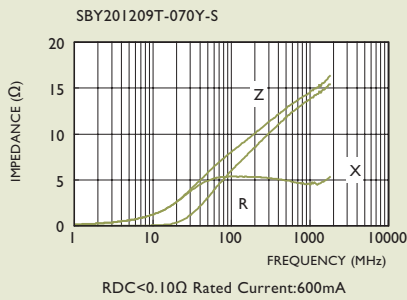
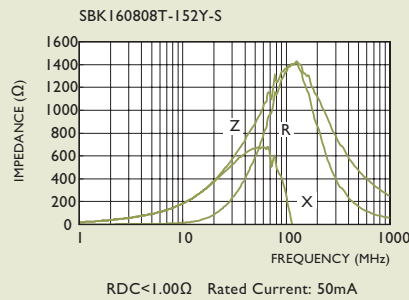
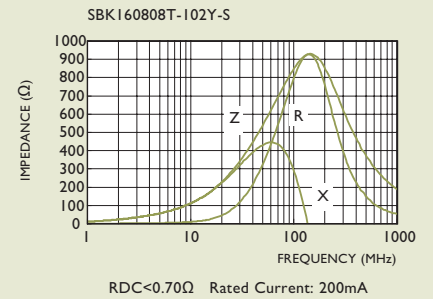
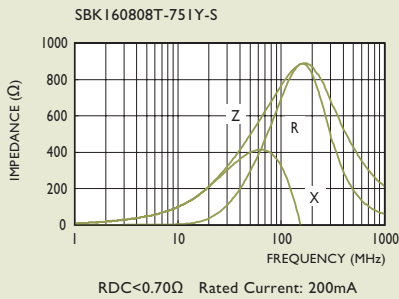
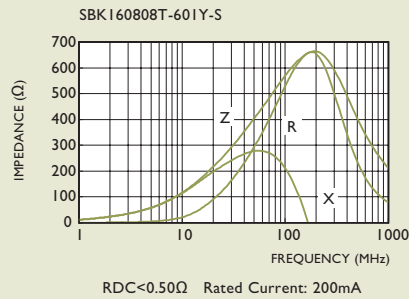
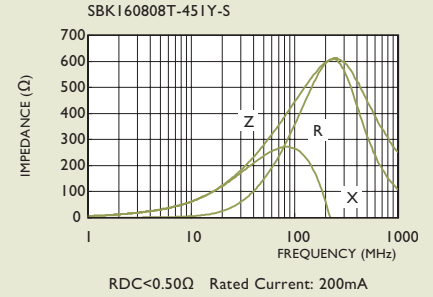
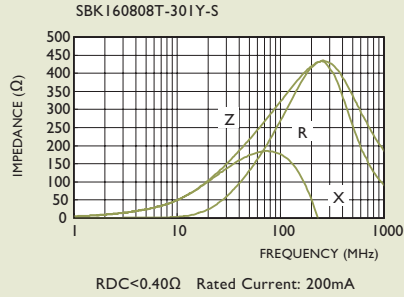
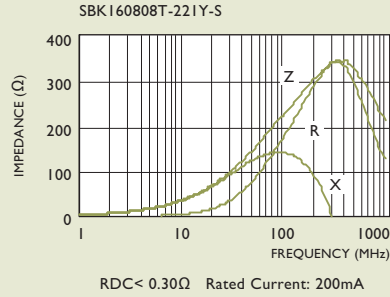
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

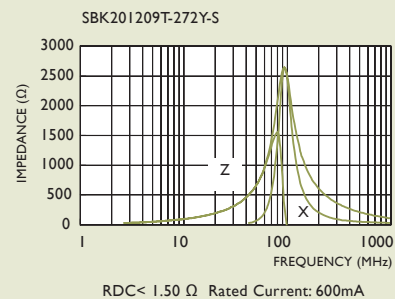
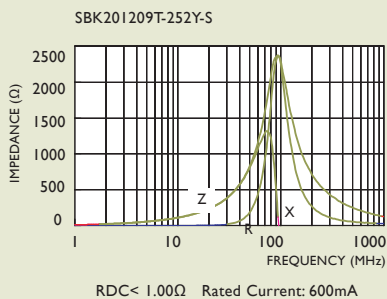
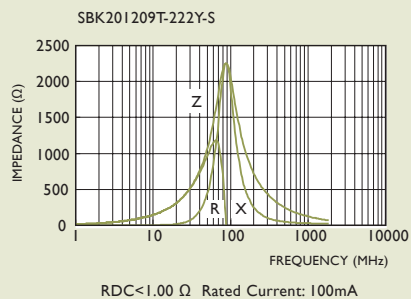
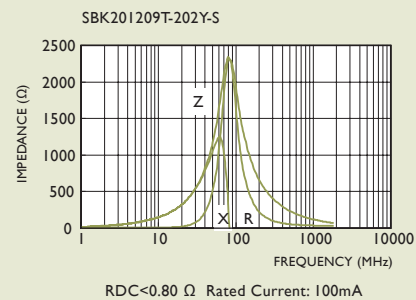
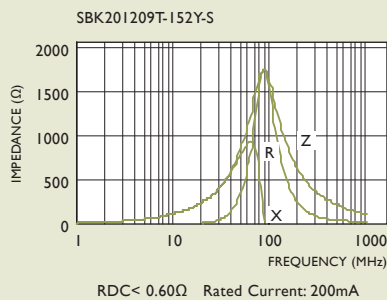
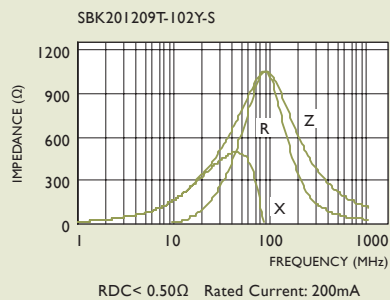
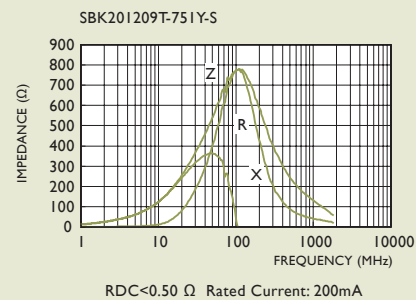
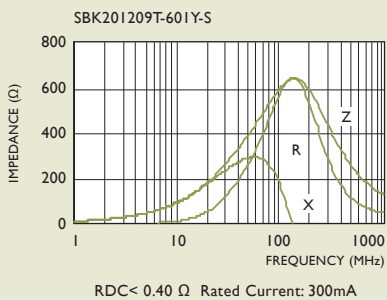
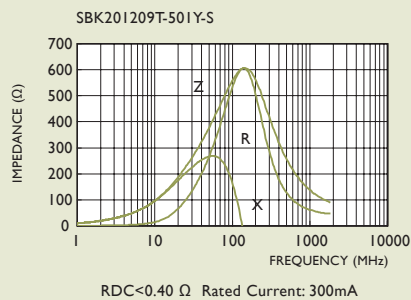
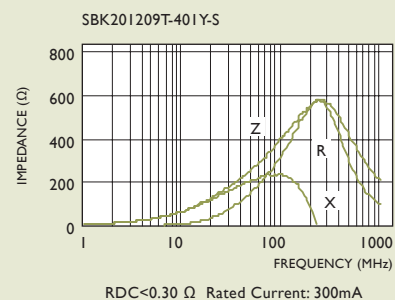
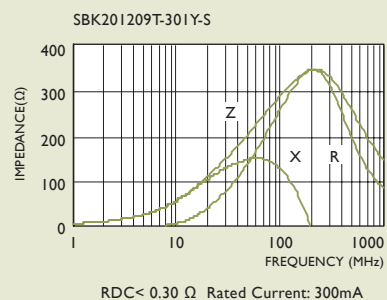
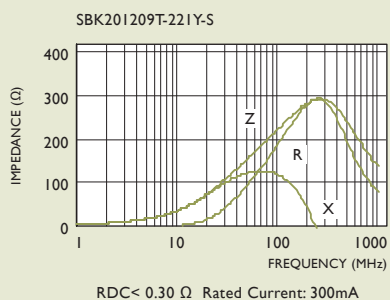
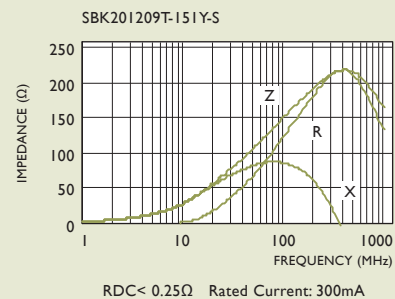
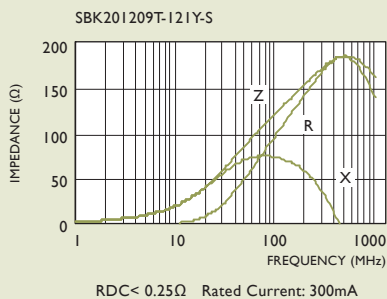
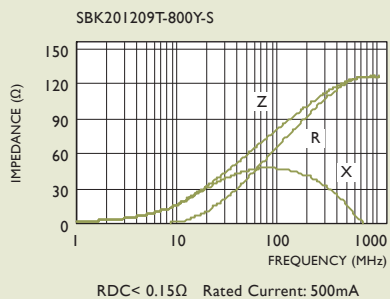
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

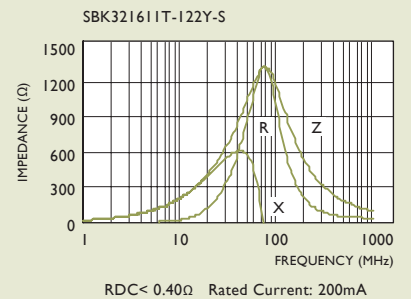
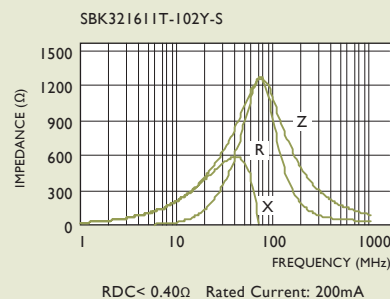
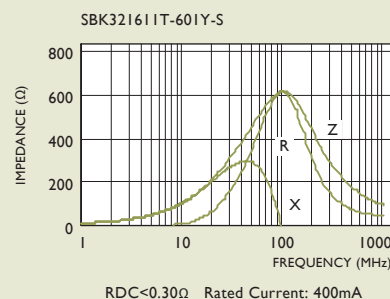
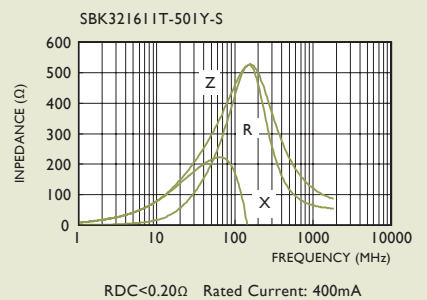
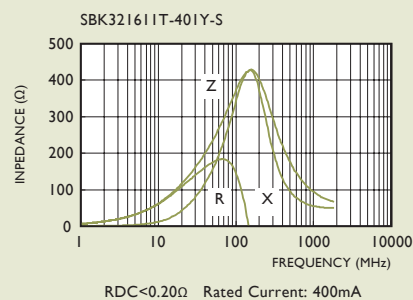
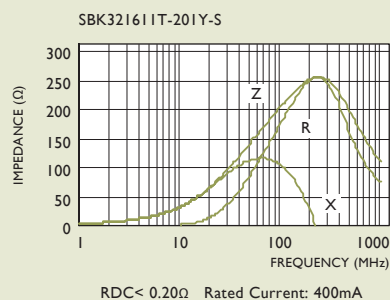
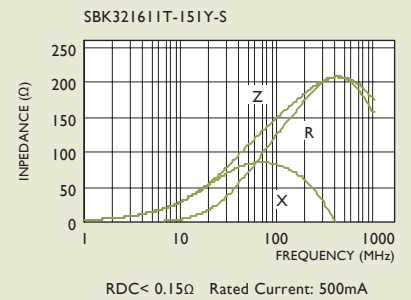
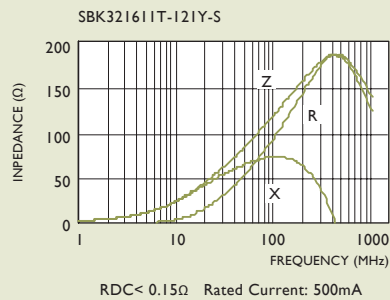
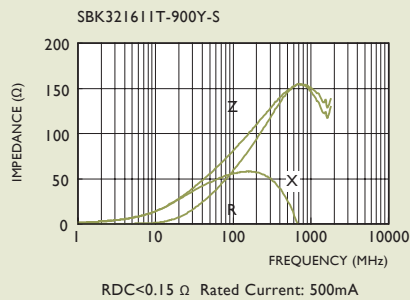
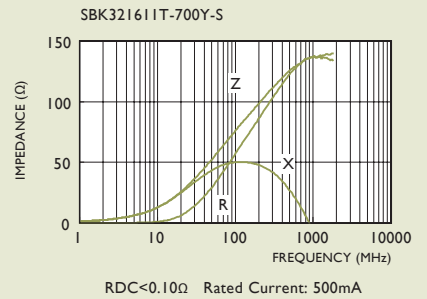
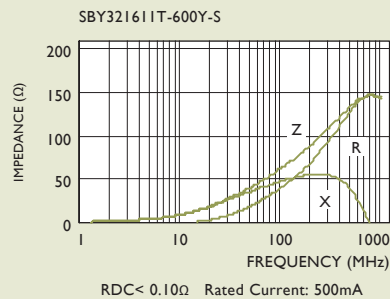
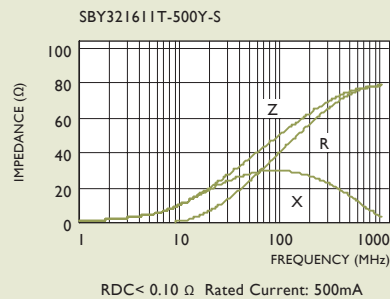
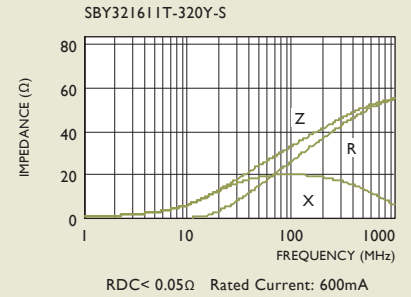
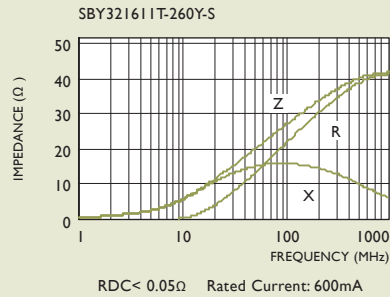
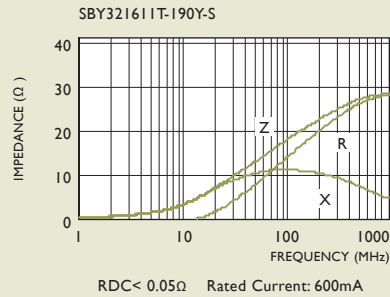
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

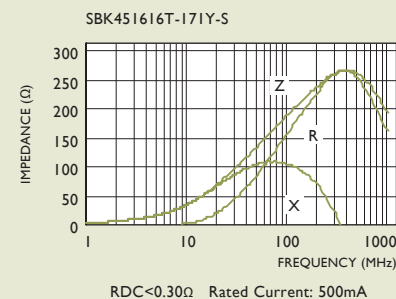
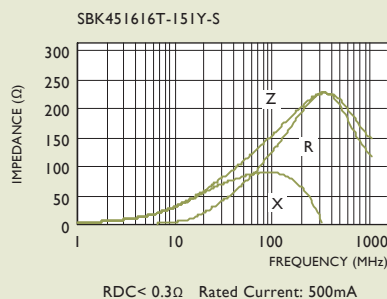
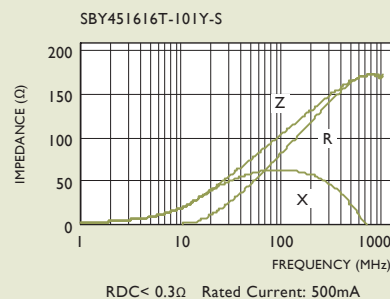
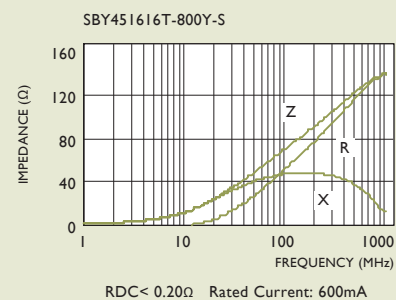
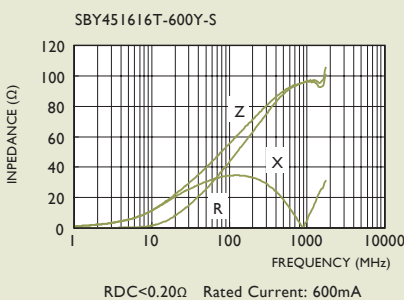
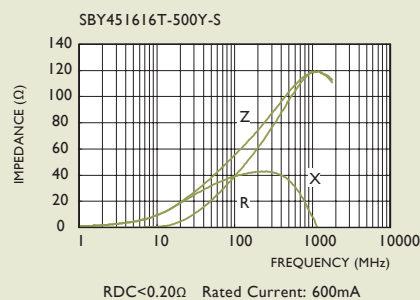
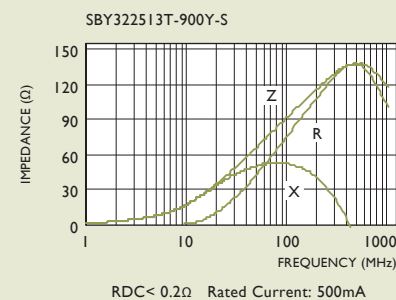
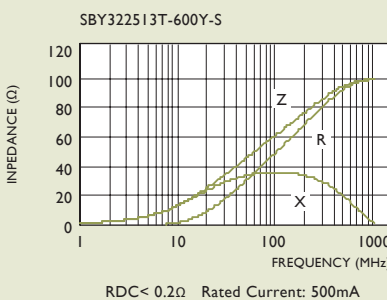
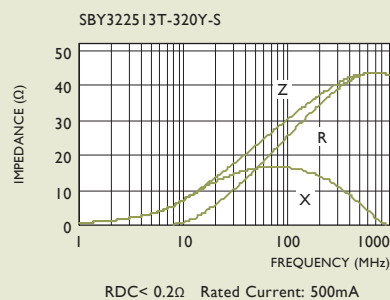
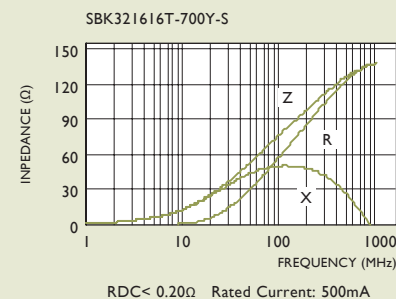
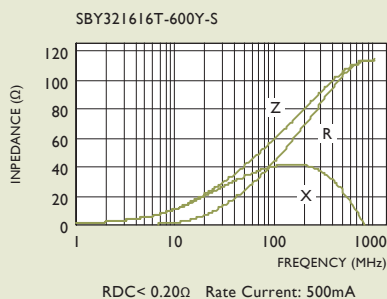
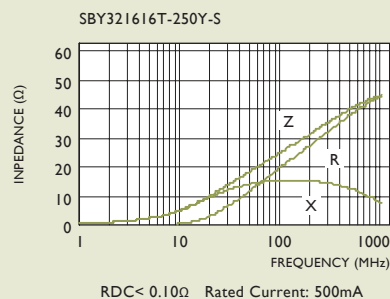
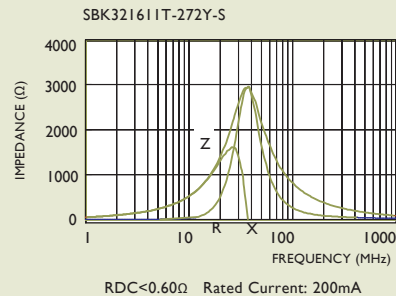
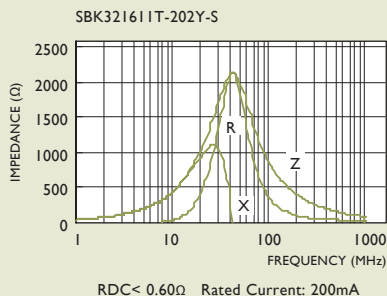
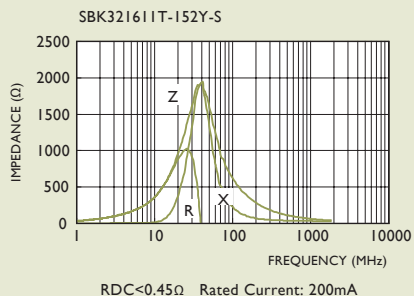
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

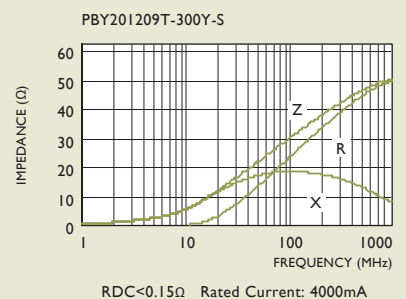
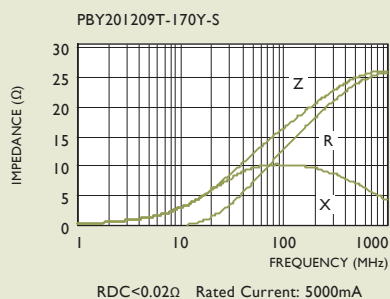
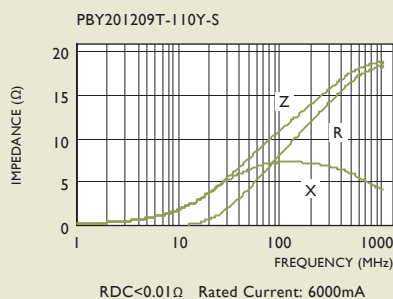
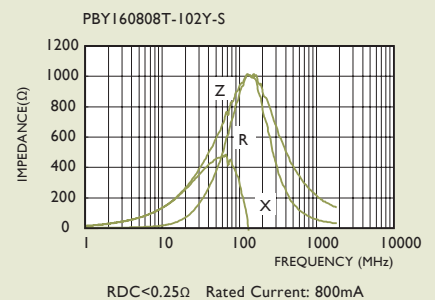
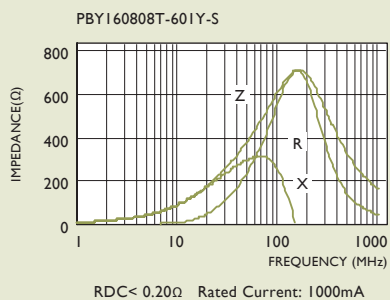
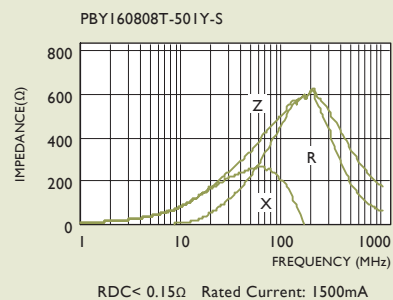
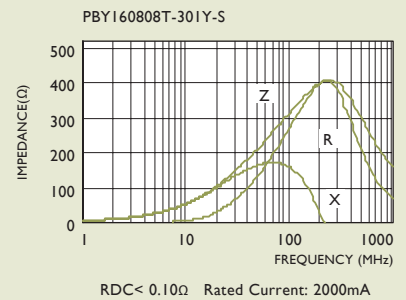
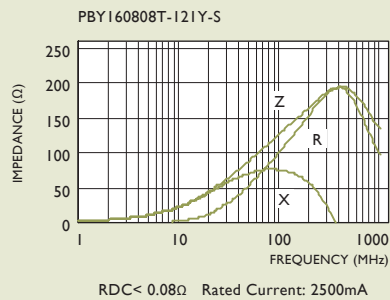
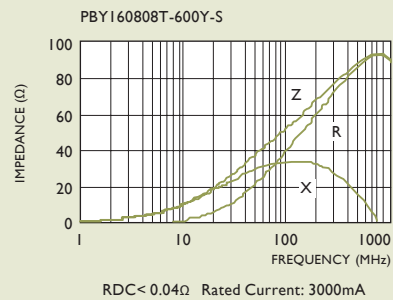
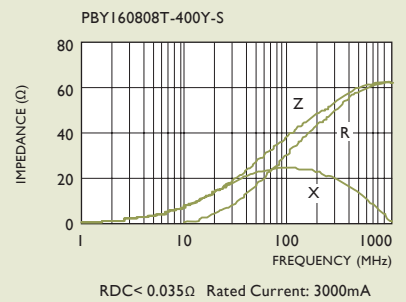
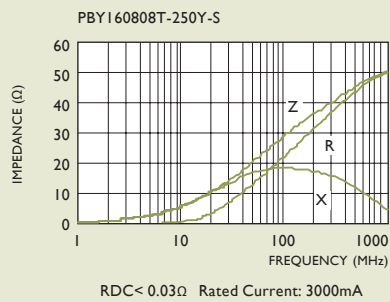
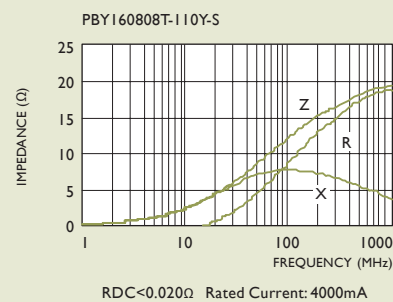
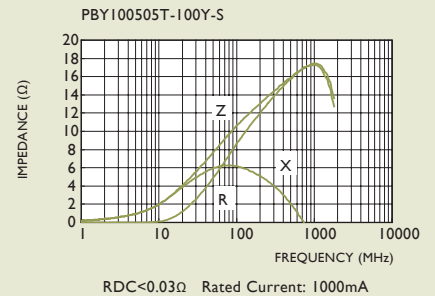
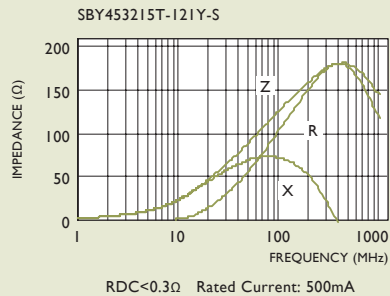
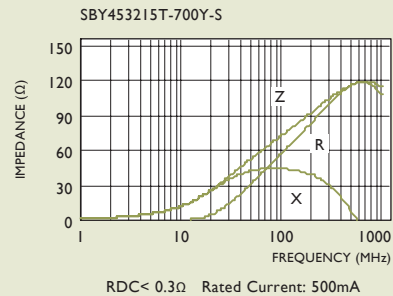
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer

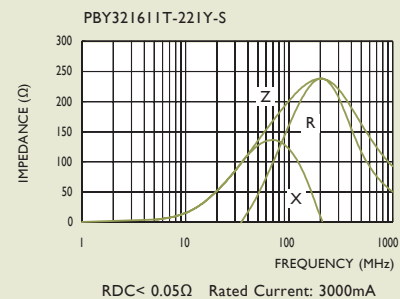
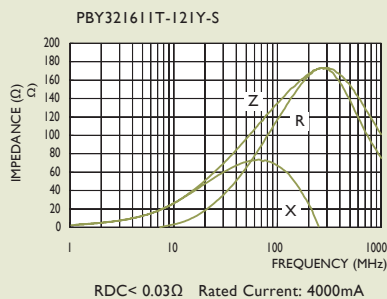
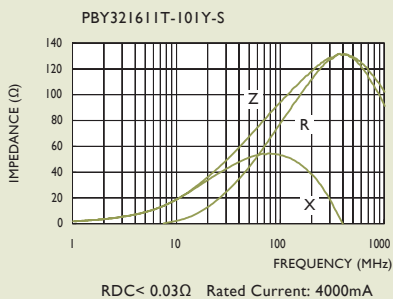
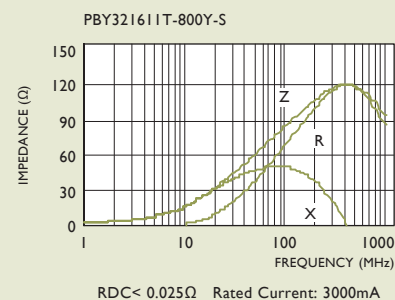
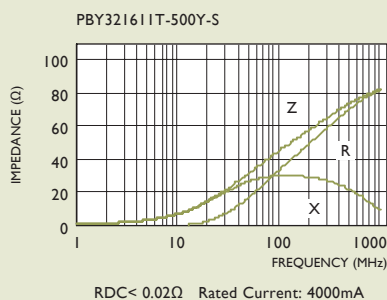
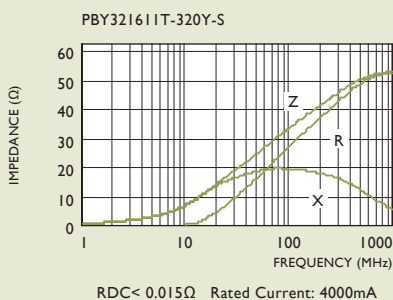
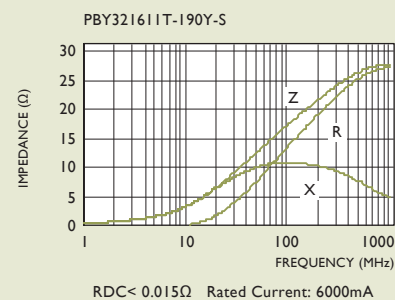
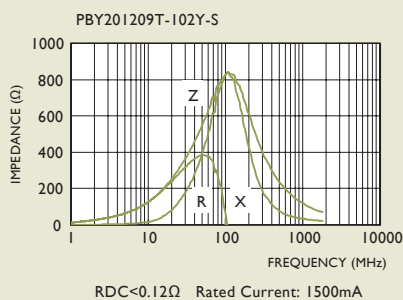
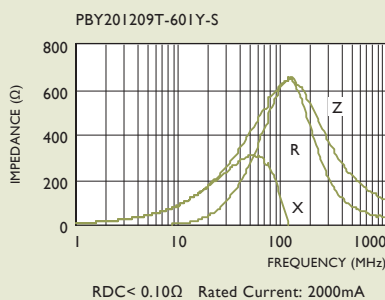
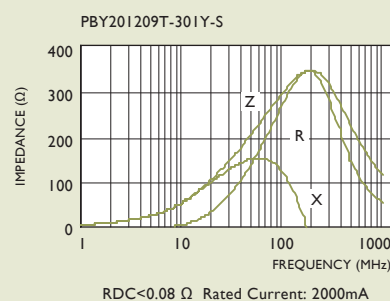
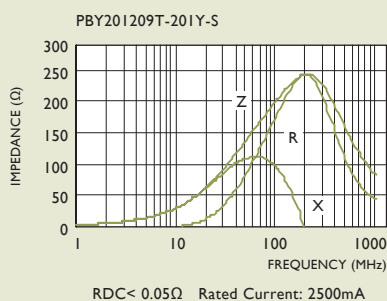
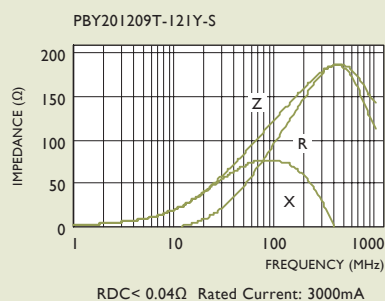
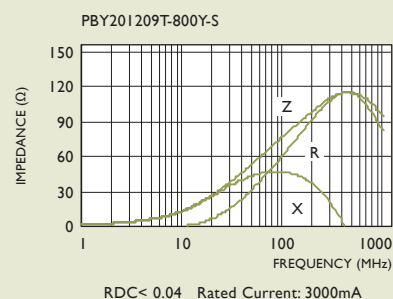
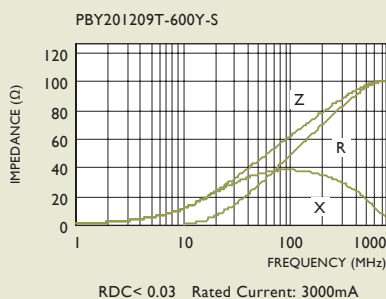
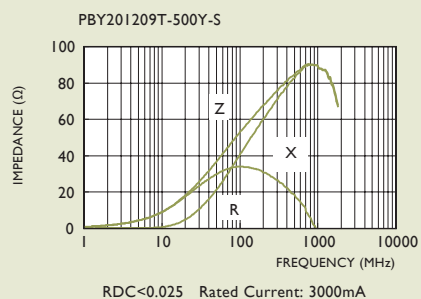






## TYPICAL ELECTRICAL CHARACTERISTICS

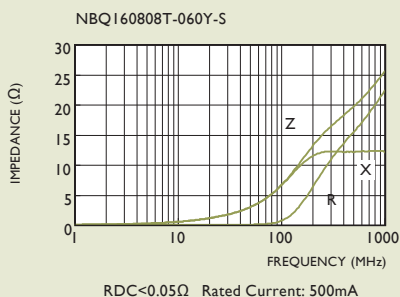
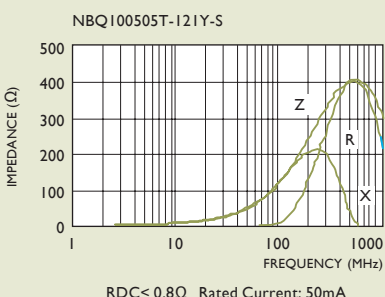
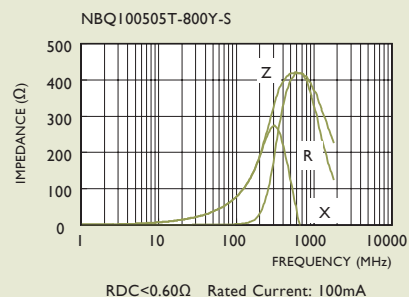
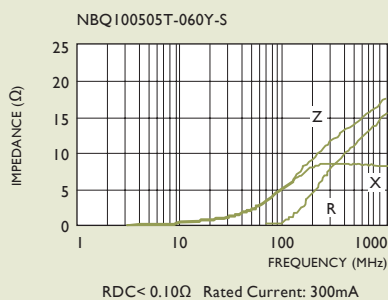
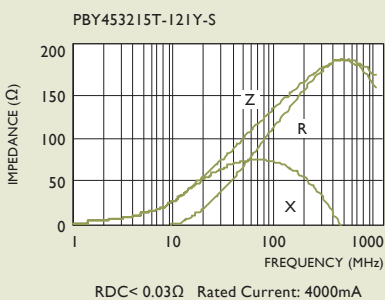
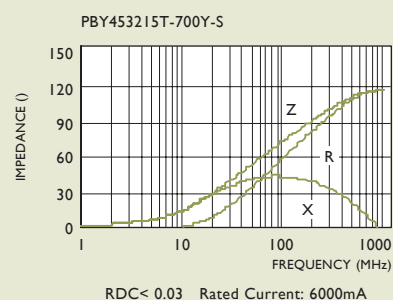
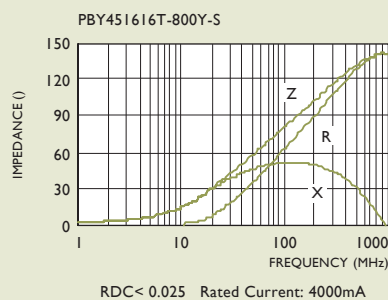
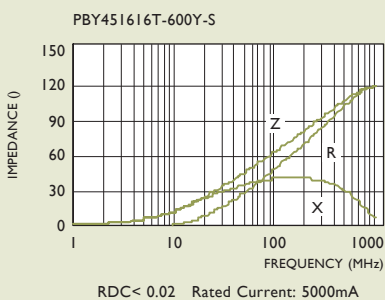
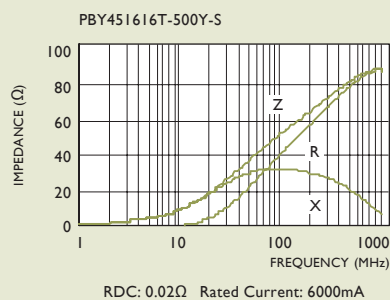
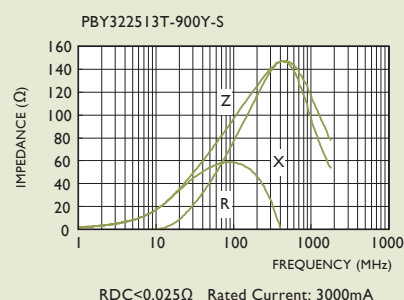
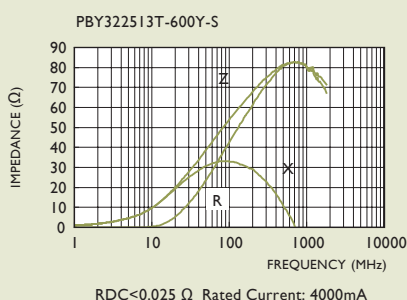
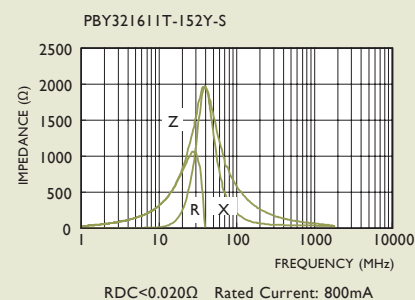
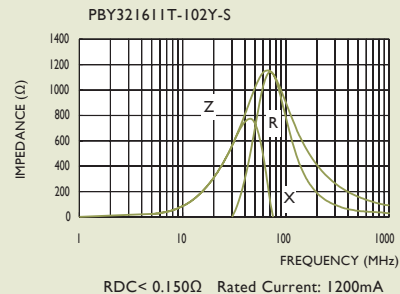
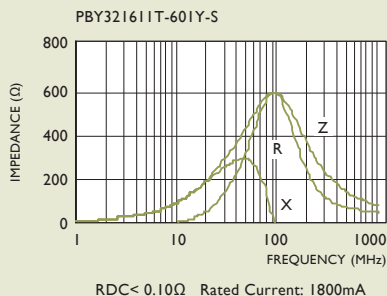
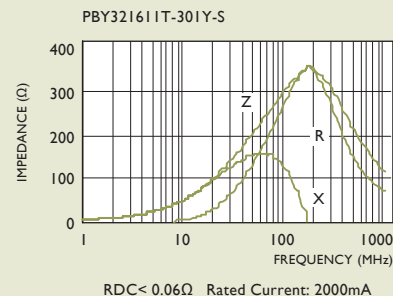
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

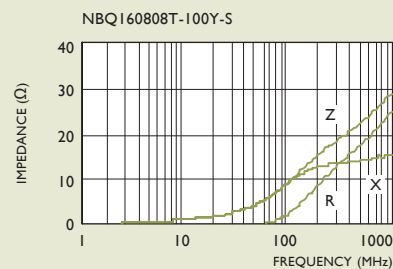
Test Instruments : HP4291A Impedance / Material Analyzer



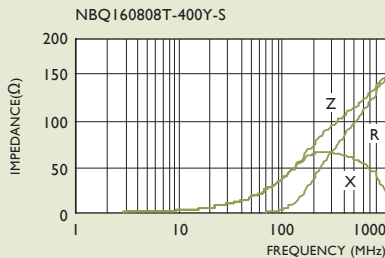


## TYPICAL ELECTRICAL CHARACTERISTICS

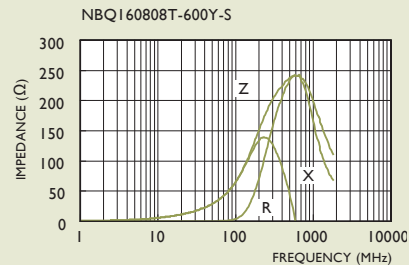
Test Instruments : HP4291A Impedance / Material Analyzer



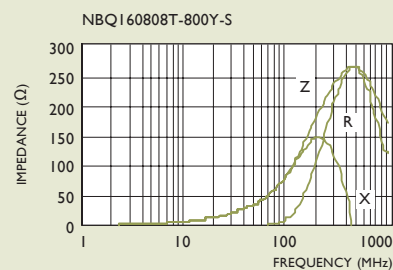
RDC < 0.07 Ω Rated Current: 400mA



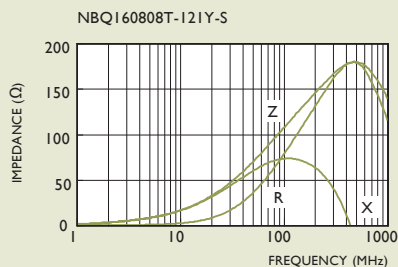
RDC < 0.2 Ω Rate Current: 300mA



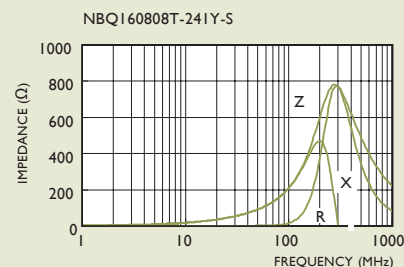
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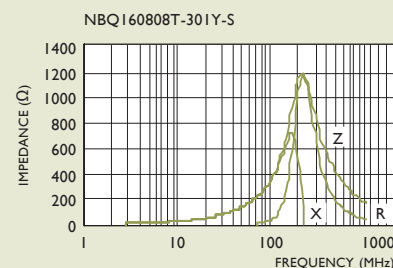
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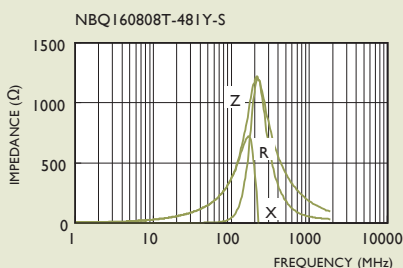
RDC < 0.30 Ω Rated Current: 300mA



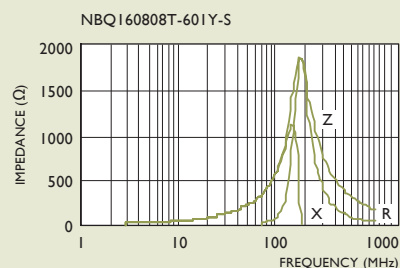
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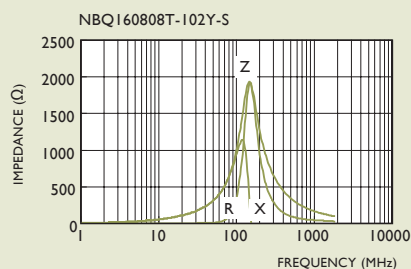
RDC < 0.4 Ω Rated Current: 200mA



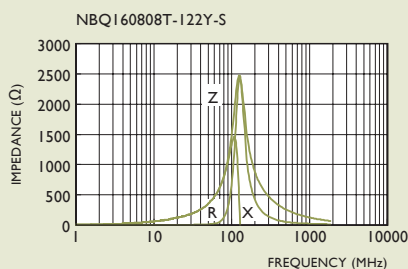
RDC < 0.50 Ω Rated Current: 200mA



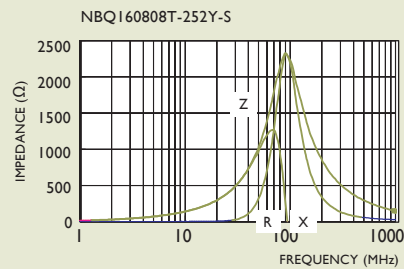
RDC < 0.5 Ω Rated Current: 200mA



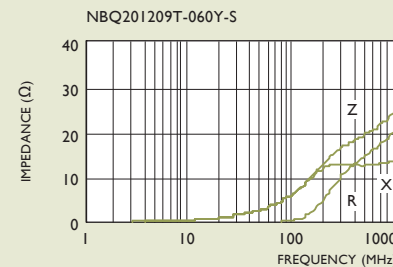
RDC < 0.6 Ω Rated Current: 100mA



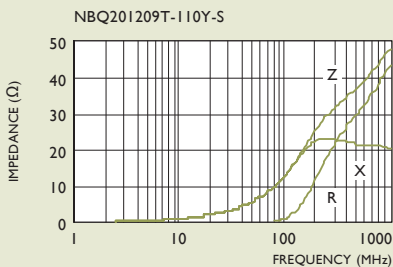
RDC < 0.60 Ω Rated Current: 100mA



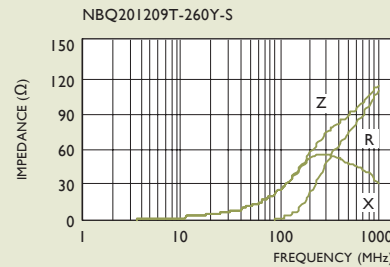
RDC < 0.10 Ω Rated Current: 50mA



RDC < 0.07 Ω Rated Current: 800mA



RDC < 0.1 Ω Rated Current: 700mA

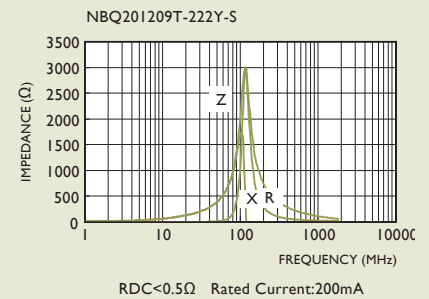
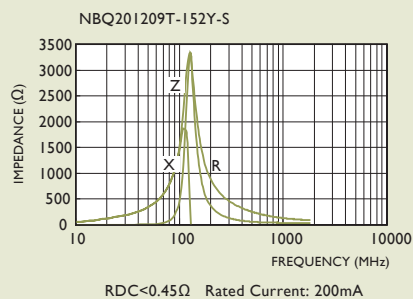
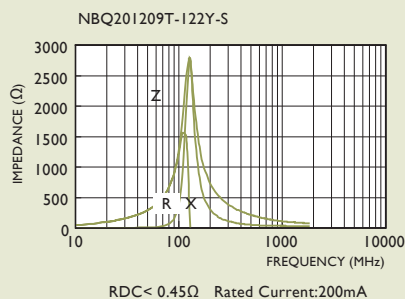
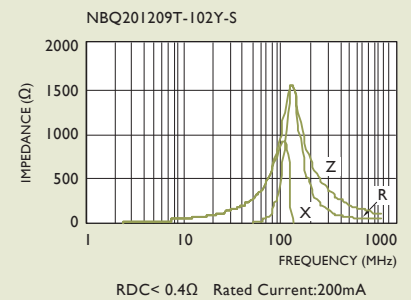
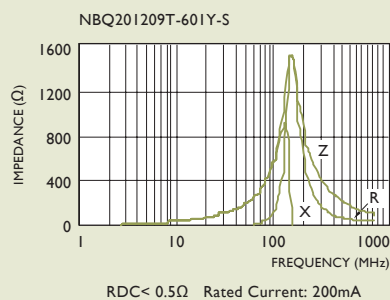
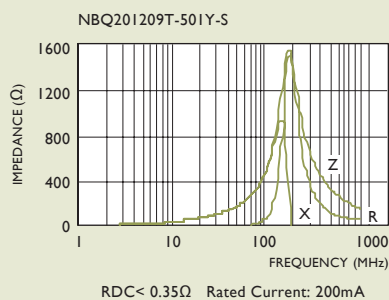
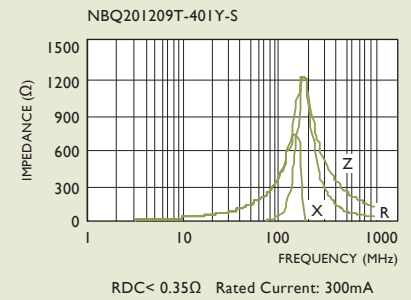
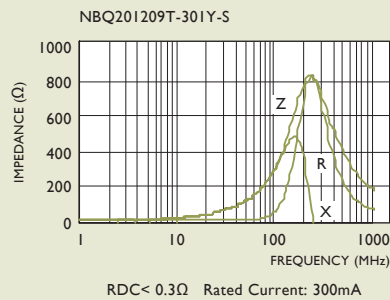
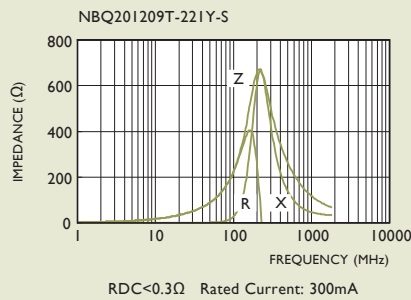
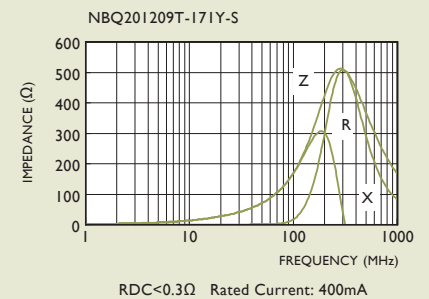
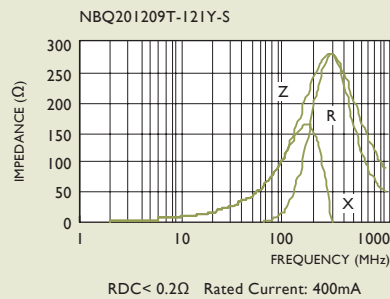
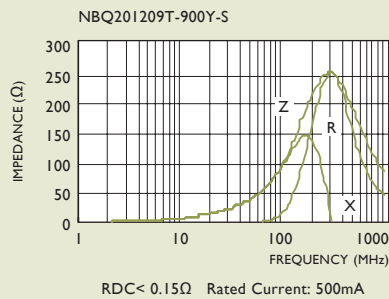
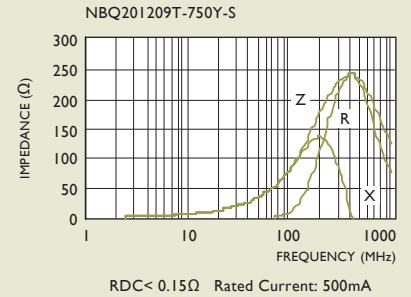
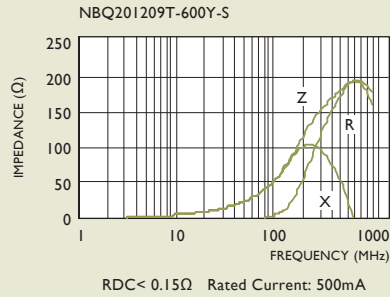
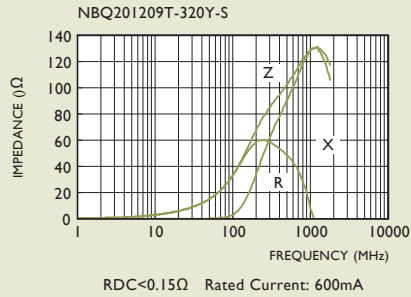


RDC < 0.15 Ω Rated Current: 600mA



## TYPICAL ELECTRICAL CHARACTERISTICS

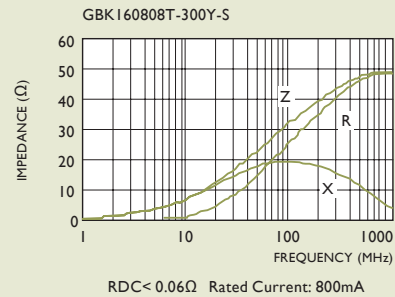
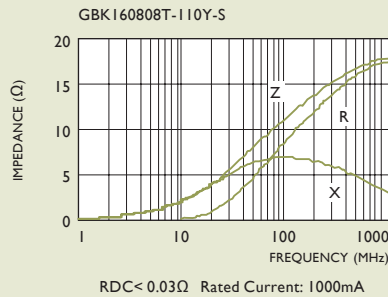
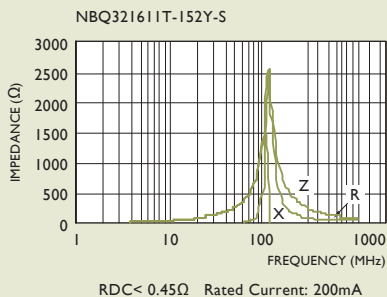
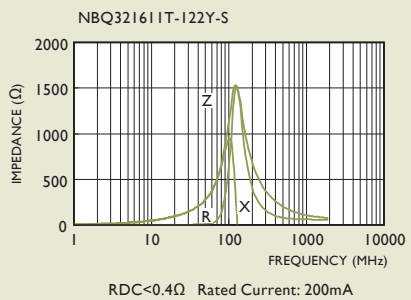
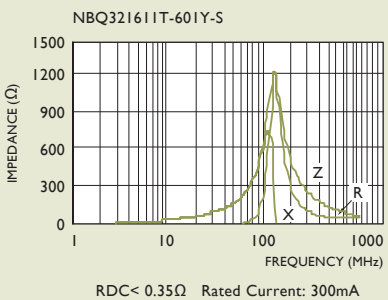
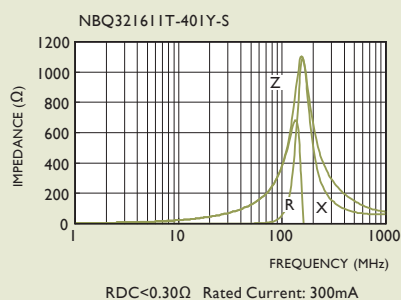
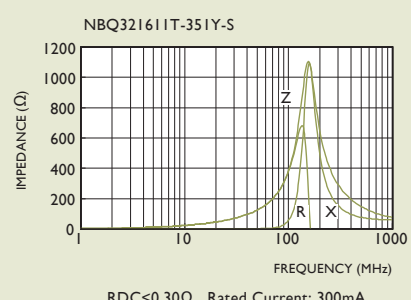
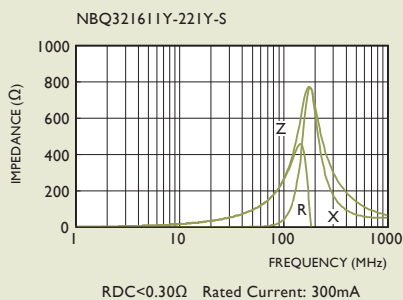
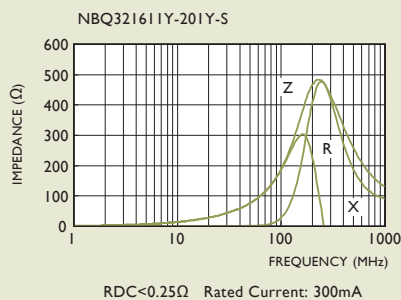
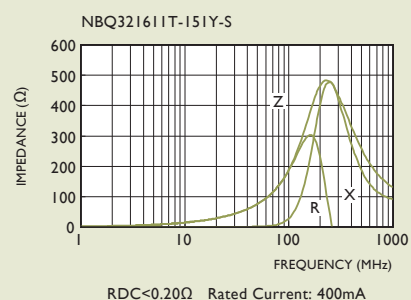
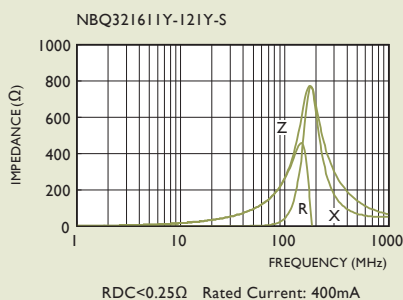
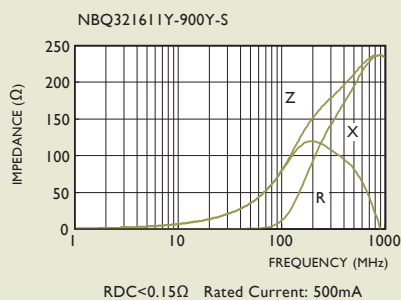
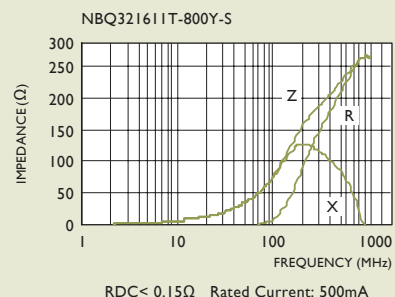
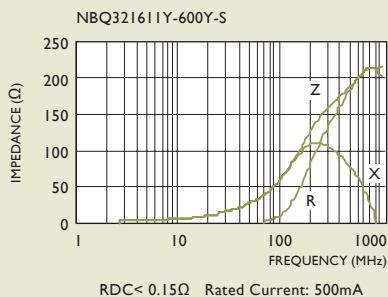
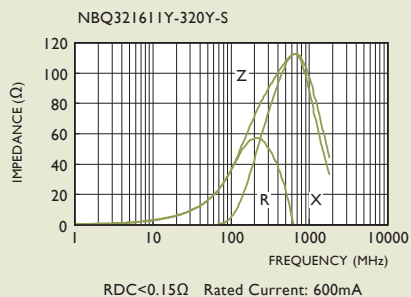
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

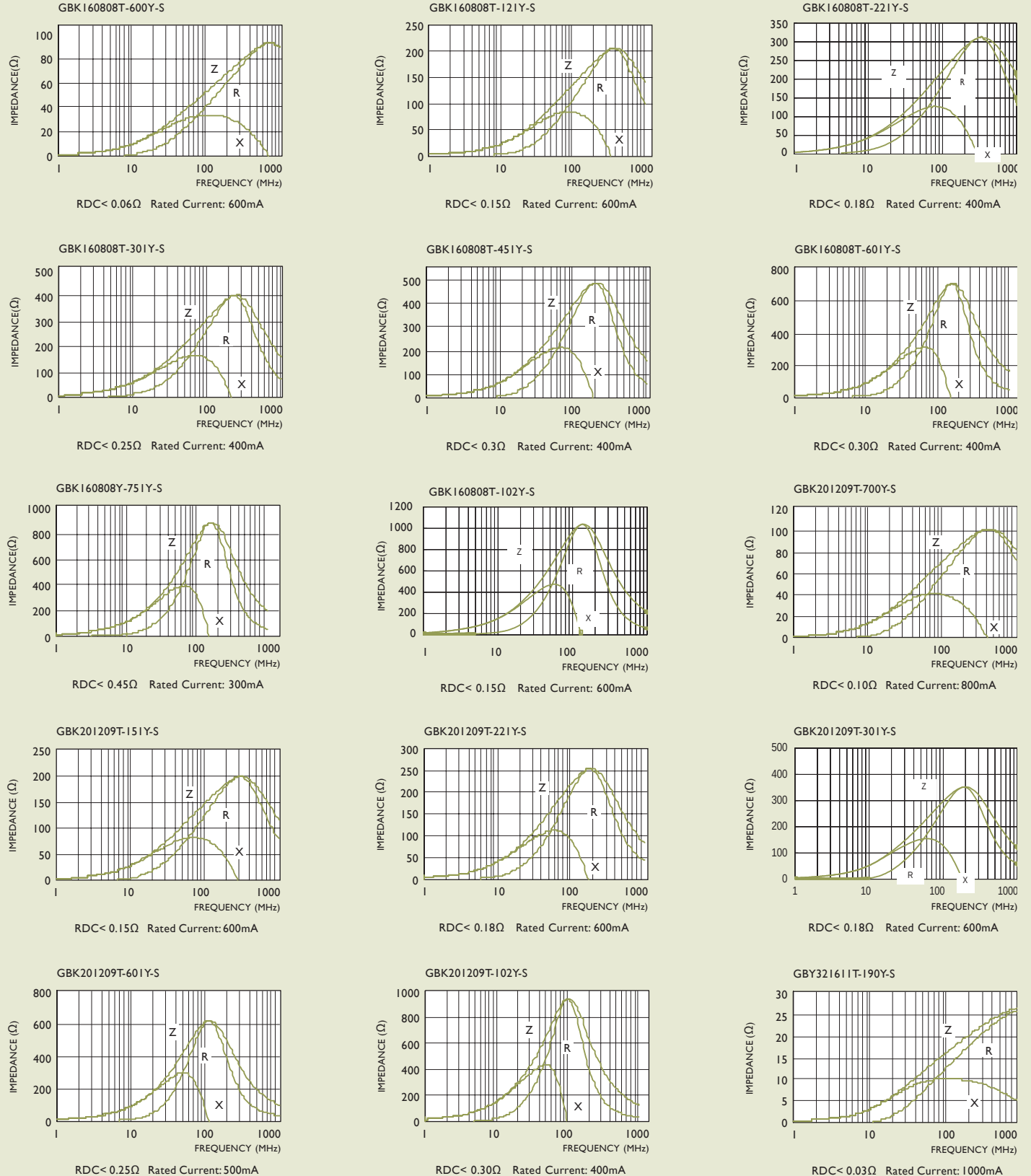
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

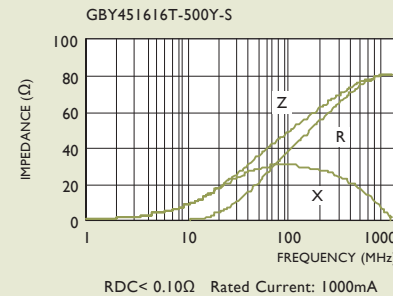
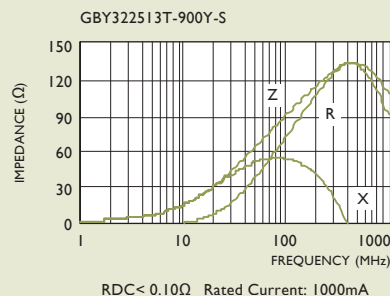
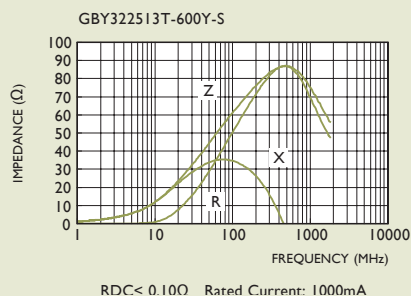
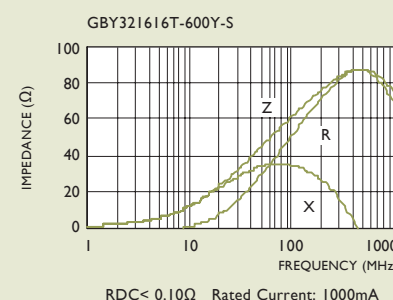
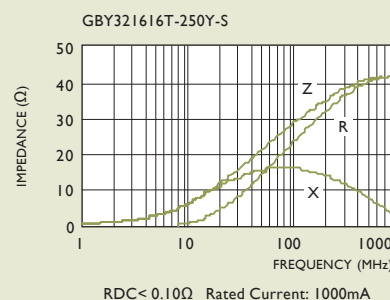
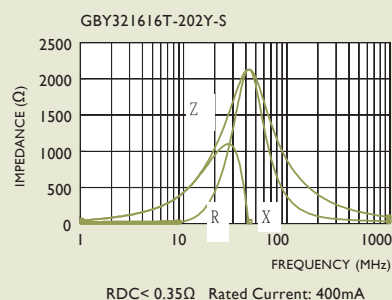
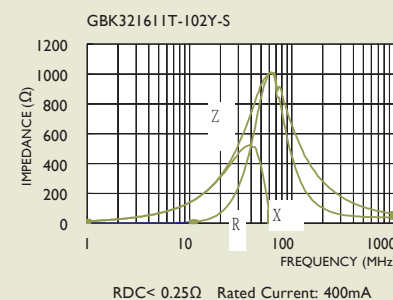
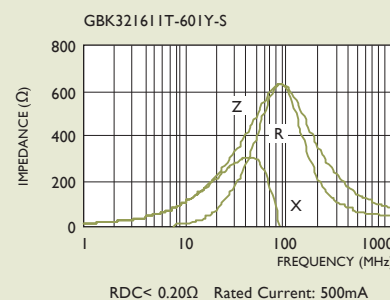
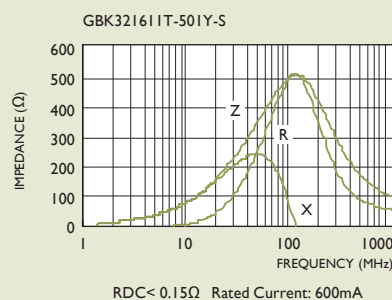
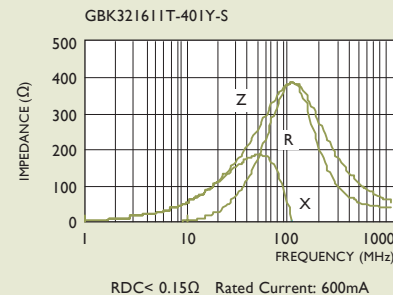
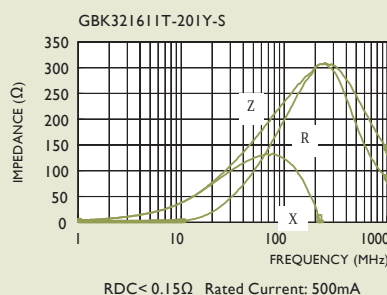
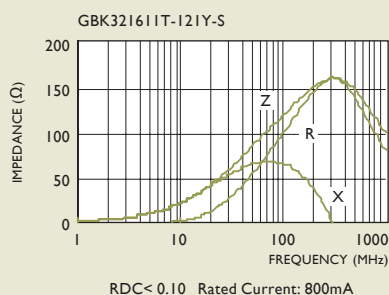
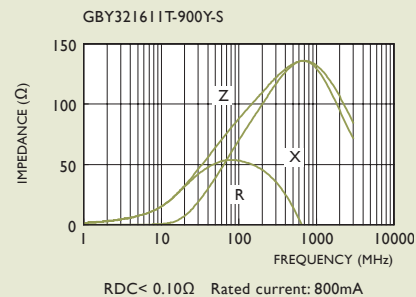
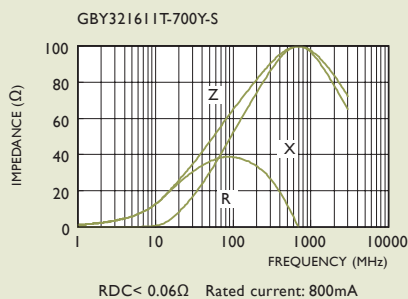
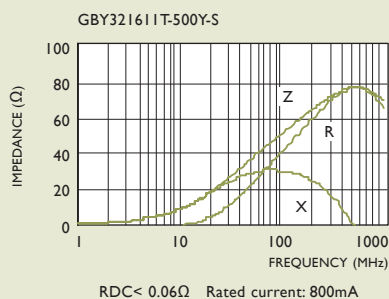
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

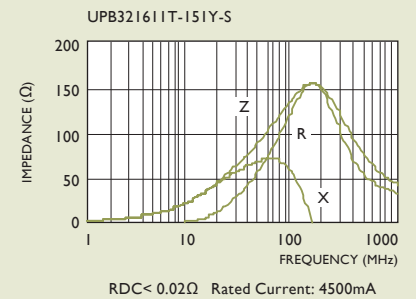
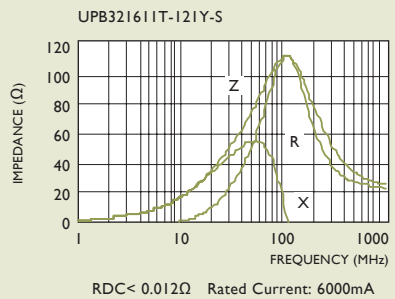
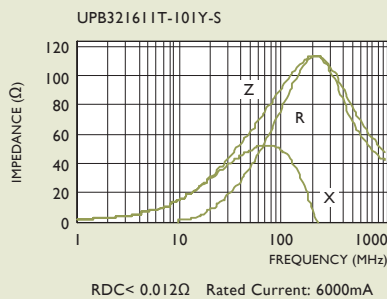
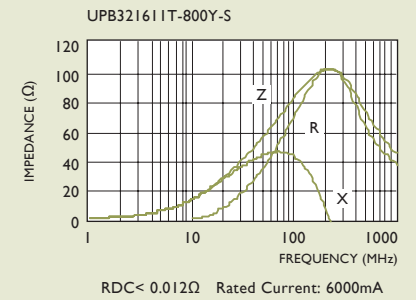
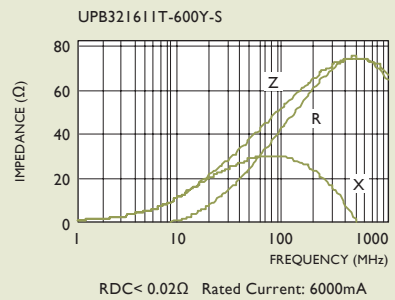
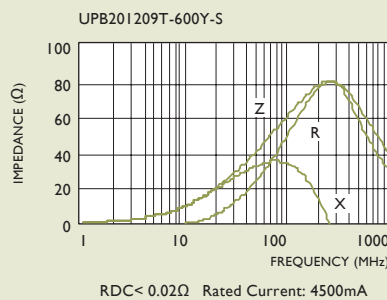
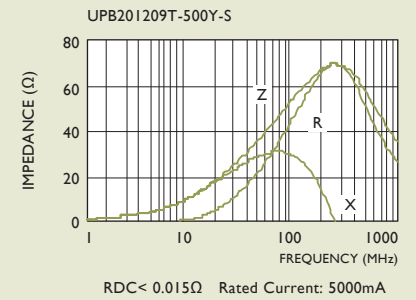
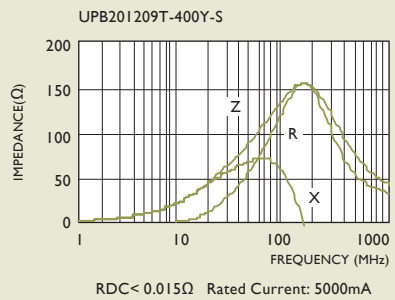
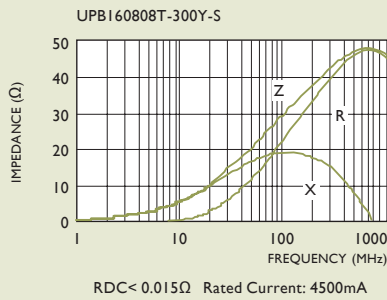
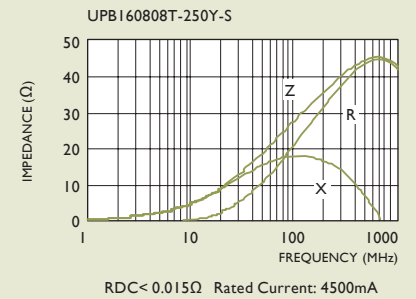
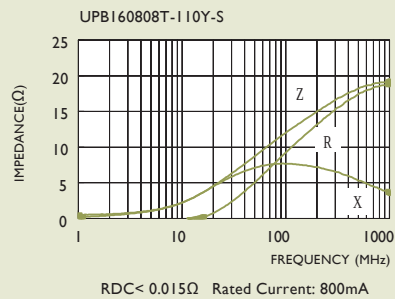
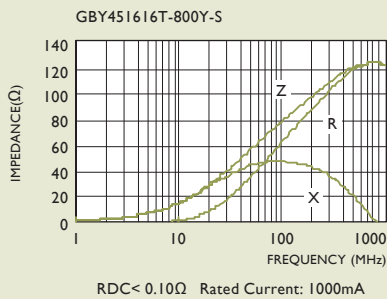
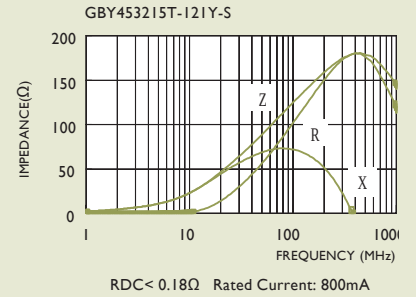
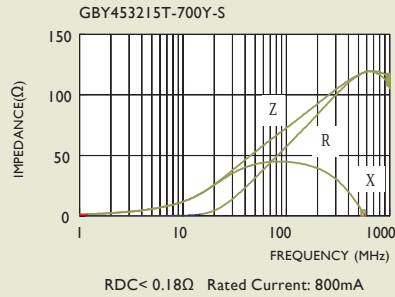
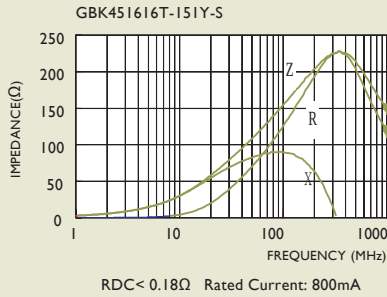
Test Instruments : HP4291A Impedance / Material Analyzer





## TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer

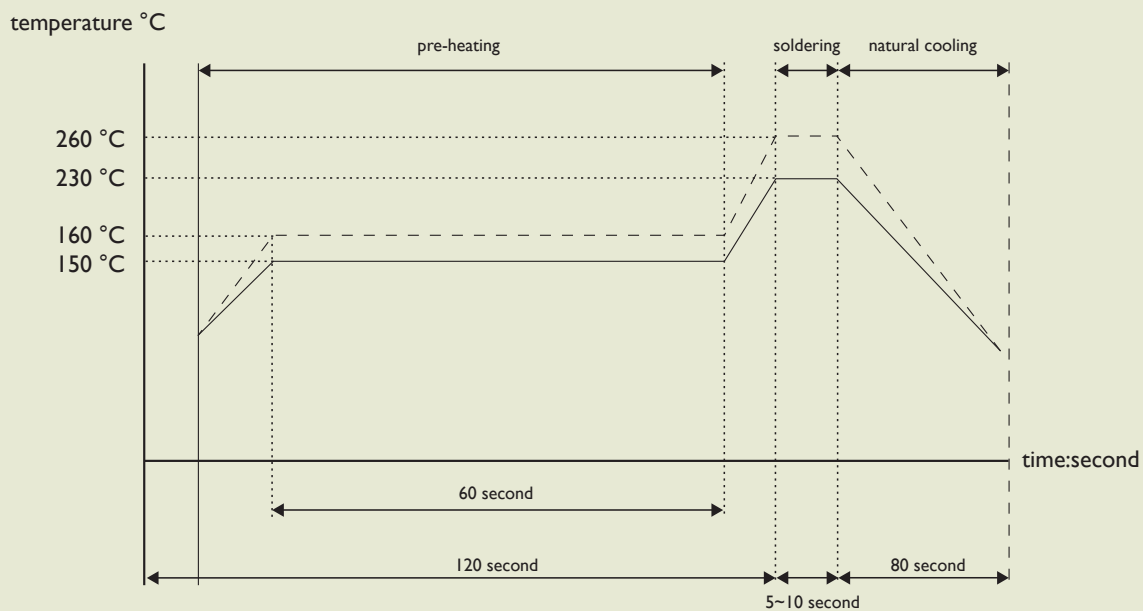






## RECOMMEND SOLDERING CONDITIONS

for:CL/ CLH/ SQV/ SMD power inductors/ SMD Chip Beads/ SMD Filters, Transformers, Current Sensors



for: lead solder

for: lead-free solder

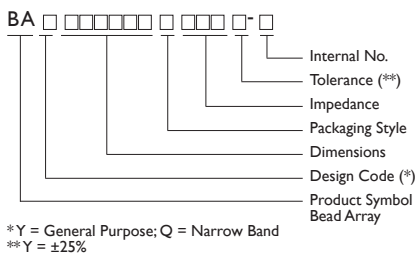
## Multilayer Ferrite Chip Beads

# BA Series

[ Bead Array For High Density Circuit Design]



### PRODUCT IDENTIFICATION

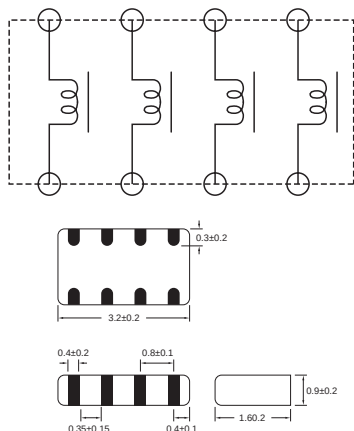


■ YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.

Ex. SBY321609T-300Y-N

### SHAPES AND DIMENSIONS

Parts Dimensions : 3.20 x 1.60 x 0.90 mm



### APPLICATIONS

• Computers • LCD Monitor • Hard Disk Drives • CD-ROMs • Motherboard

### FEATURES

These multi-layered chip bead arrays are surface mounting EMI components.

Four lines in one chip for suppressing noise

suitable for high density circuit design.

### ELECTRICAL CHARACTERISTICS

| PART NO.          | IMPEDANCE<br>at 100MHz ( $\Omega \pm 25\%$ ) | DC RESISTANCE<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|-------------------|----------------------------------------------|------------------------------------|----------------------------|
| BAY321609T-300Y-S | 30                                           | 0.4                                | 350                        |
| BAY321609T-600Y-S | 60                                           | 0.4                                | 250                        |
| BAY321609T-121Y-S | 120                                          | 0.8                                | 150                        |
| BAY321609T-241Y-S | 240                                          | 0.8                                | 150                        |
| BAY321609T-301Y-S | 300                                          | 0.8                                | 150                        |
| BAY321609T-471Y-S | 470                                          | 1                                  | 100                        |
| BAY321609T-601Y-S | 600                                          | 1.5                                | 100                        |
| BAY321609T-102Y-S | 1000                                         | 1.7                                | 50                         |
| BAQ321609T-600Y-S | 60                                           | 0.8                                | 150                        |
| BAQ321609T-121Y-S | 120                                          | 0.8                                | 150                        |
| BAQ321609T-221Y-S | 220                                          | 0.8                                | 150                        |
| BAQ321609T-471Y-S | 470                                          | 1                                  | 150                        |
| BAQ321609T-601Y-S | 600                                          | 1.5                                | 100                        |
| BAQ321609T-102Y-S | 1000                                         | 1.8                                | 100                        |

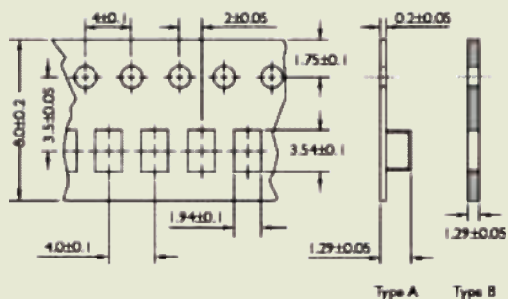
### ELECTRICAL CHARACTERISTICS: LEAD-FREE & ROHS COMPLIANCE!!

| PART NO.          | TEST FREQ<br>(MHZ) | IMPEDANCE<br>( $\Omega \pm 25\%$ ) | RDC<br>( $\Omega$ ) Max. | RATED CURRENT<br>(mA) Max. |
|-------------------|--------------------|------------------------------------|--------------------------|----------------------------|
| BAY321609T-300Y-N | 100                | 30                                 | 0.4                      | 350                        |
| BAY321609T-600Y-N | 100                | 60                                 | 0.4                      | 250                        |
| BAY321609T-800Y-N | 100                | 80                                 | 0.8                      | 150                        |
| BAY321609T-121Y-N | 100                | 120                                | 0.8                      | 150                        |
| BAY321609T-151Y-N | 100                | 150                                | 0.8                      | 150                        |
| BAY321609T-181Y-N | 100                | 180                                | 0.8                      | 150                        |
| BAY321609T-221Y-N | 100                | 220                                | 0.8                      | 150                        |
| BAY321609T-241Y-N | 100                | 240                                | 0.8                      | 150                        |
| BAY321609T-301Y-N | 100                | 300                                | 0.8                      | 150                        |
| BAY321609T-471Y-N | 100                | 470                                | 1                        | 100                        |
| BAY321609T-601Y-N | 100                | 600                                | 1.5                      | 100                        |
| BAY321609T-102Y-N | 100                | 1000                               | 1.7                      | 50                         |



## TAPE DIMENSIONS

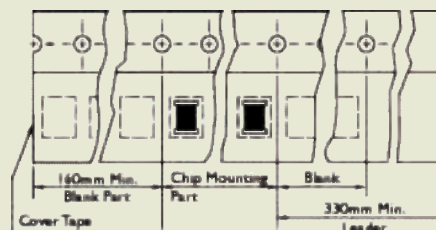
Dimensions : mm



## TAPE MATERIAL

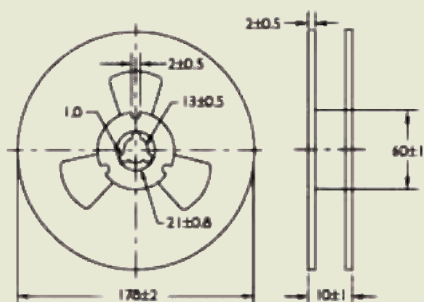
Carrier Tape : Polystyrene for 321609

Cover Type : Polystyrene



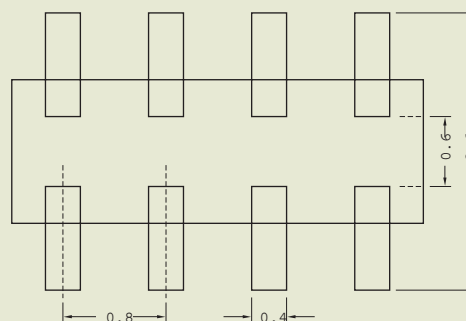
## REEL DIMENSIONS

Dimensions : mm



## RECOMMENDED PATTERN

Dimensions : mm

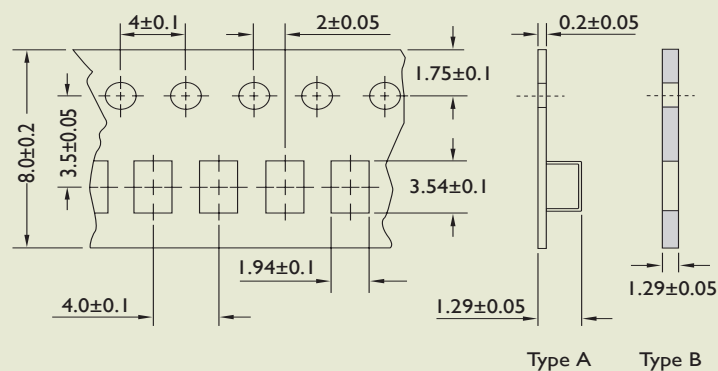


## PACKAGING QUANTITY

| TYPE      | QUANTITY/REEL |
|-----------|---------------|
| BAY321609 | 3000          |
| BAQ321609 | 3000          |

## TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer





## SB/PB/UP/NB/GB/BA SERIES RELIABILITY TEST

### I-1 MECHANICAL PERFORMANCE

| NO.   | ITEM                         | SPECIFICATION                                                                                                                                           | TEST CONDITIONS                                                                                                                                                                                                                                             |
|-------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I-1-1 | Flexure Strength             | Appearance : No Damage<br>Z Change : within $\pm 20\%$<br>RDC : within Specification                                                                    | Test device shall be soldered on the substrate.<br>Substrate Dimension : $100 \times 40 \times 1.6\text{mm}$<br>Deflection : $2.0\text{mm}$<br>Keeping Time : $30\text{Sec.}$<br>* For 100505, substrate dimension is $100 \times 40 \times 0.8\text{mm}$ . |
| I-1-2 | Vibration                    |                                                                                                                                                         | Test device shall be soldered on the substrate.<br>Oscillation Frequency : 10 to 55 to $10\text{Hz}$ for $1\text{Min.}$<br>Amplitude : $1.5\text{mm}$<br>Time : $2\text{Hrs.}$ for each Axis (X,Y & Z), Total $6\text{Hrs.}$                                |
| I-1-3 | Resistance to Soldering Heat | Appearance : No Damage                                                                                                                                  | Pre-heating : $150^\circ\text{C}$ , $1\text{Min.}$<br>Solder Composition : $\text{Sn/Pb} = 63/37$<br>Solder Temperature : $260 \pm 5^\circ\text{C}$<br>Immersion Time : $10 \pm 1\text{Sec.}$                                                               |
| I-1-4 | Solderability                | The electrodes shall be at least 90% covered with new solder coating.                                                                                   | Pre-heating : $150^\circ\text{C}$ , $1\text{Min.}$<br>Solder Composition : $\text{Sn/Pb} = 63/37$<br>Solder Temperature : $230 \pm 5^\circ\text{C}$<br>Immersion Time : $4 \pm 1\text{Sec.}$                                                                |
| I-1-5 | Terminal Strength Test       | 100505 Series : $\geq 0.2\text{kg}$<br>160808 Series : $\geq 0.5\text{kg}$<br>201209 Series : $\geq 1.0\text{kg}$<br>Other Series : $\geq 2.0\text{kg}$ | Test device shall be soldered on the substrate.<br>                                                                                                                     |

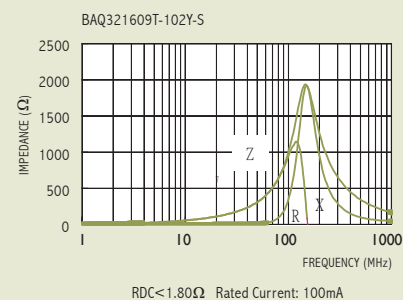
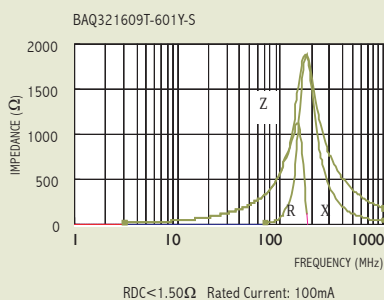
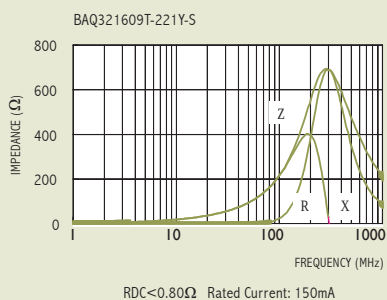
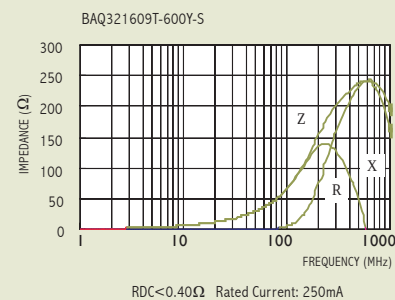
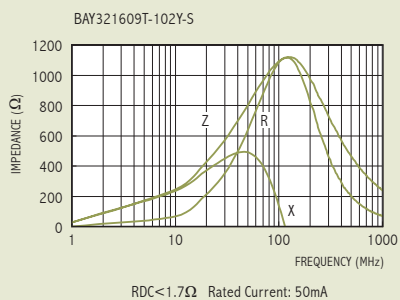
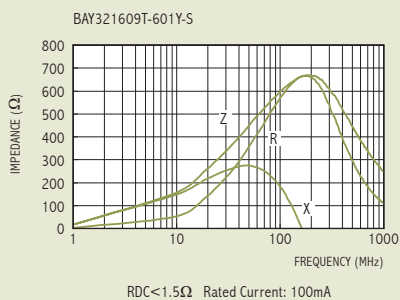
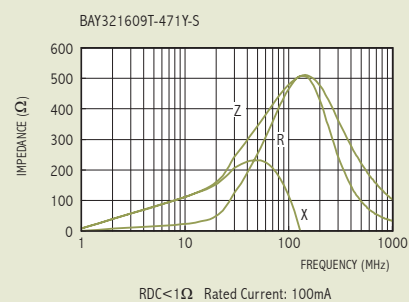
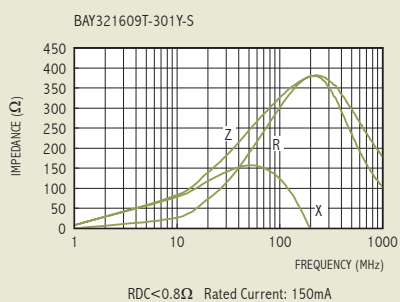
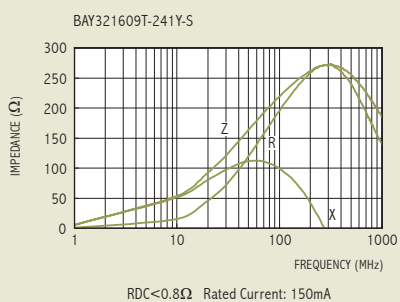
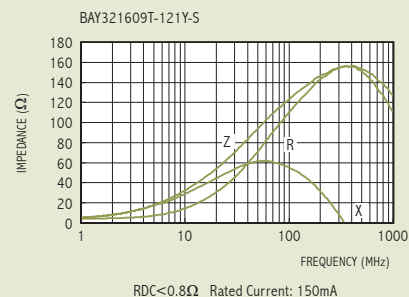
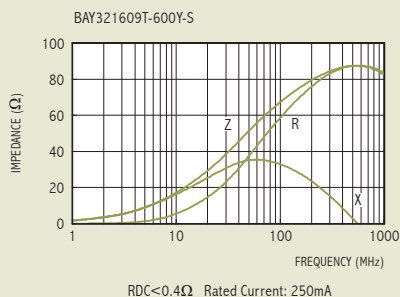
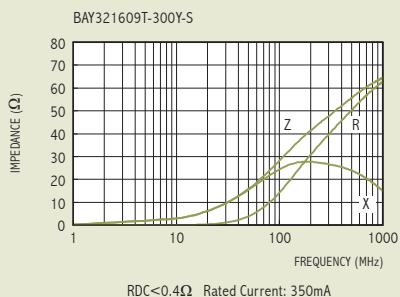
### I-2 ENVIRONMENTAL PERFORMANCE

| NO.   | ITEM                        | SPECIFICATION                                                                  | TEST CONDITIONS                                          |                  |             |
|-------|-----------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------|------------------|-------------|
| I-2-1 | Temperature Cycle           | Appearance : No Damage<br>Z Change : within ±20%<br>RDC : within Specification | One Cycle                                                |                  |             |
|       |                             |                                                                                | Step                                                     | Temperature (°C) | Time (Min.) |
|       |                             |                                                                                | 1                                                        | -55 ± 3          | 30          |
|       |                             |                                                                                | 2                                                        | 25 ± 2           | 3           |
|       |                             |                                                                                | 3                                                        | 125 ± 3          | 30          |
|       |                             |                                                                                | 4                                                        | 25 ± 2           | 3           |
|       |                             |                                                                                | Total : 100 Cycles                                       |                  |             |
| I-2-2 | Humidity Resistance         |                                                                                | Measured after Exposure in the Room Condition for 24Hrs. |                  |             |
|       |                             |                                                                                | Temperature : 40 ±2°C                                    |                  |             |
|       |                             |                                                                                | Relative Humidity : 90 ~ 95%                             |                  |             |
|       |                             |                                                                                | Time : 1000Hrs.                                          |                  |             |
|       |                             |                                                                                | Measured after Exposure in the Room Condition for 24Hrs. |                  |             |
| I-2-3 | High Temperature Resistance |                                                                                | Temperature : 125 ± 3°C                                  |                  |             |
|       |                             |                                                                                | Relative Humidity : 0%                                   |                  |             |
|       |                             |                                                                                | Applied Current : Rated Current                          |                  |             |
|       |                             |                                                                                | Time : 1000Hrs.                                          |                  |             |
|       |                             |                                                                                | Measured after Exposure in the Room Condition for 24Hrs. |                  |             |
| I-2-4 | Low Temperature Resistance  |                                                                                | Temperature : -55 ± 3°C                                  |                  |             |
|       |                             |                                                                                | Relative Humidity : 0%                                   |                  |             |
|       |                             |                                                                                | Time : 1000Hrs.                                          |                  |             |
|       |                             |                                                                                | Measured after Exposure in the Room Condition for 24Hrs. |                  |             |



## MULTILAYER FERRITE BEAD ARRAY - BA SERIES

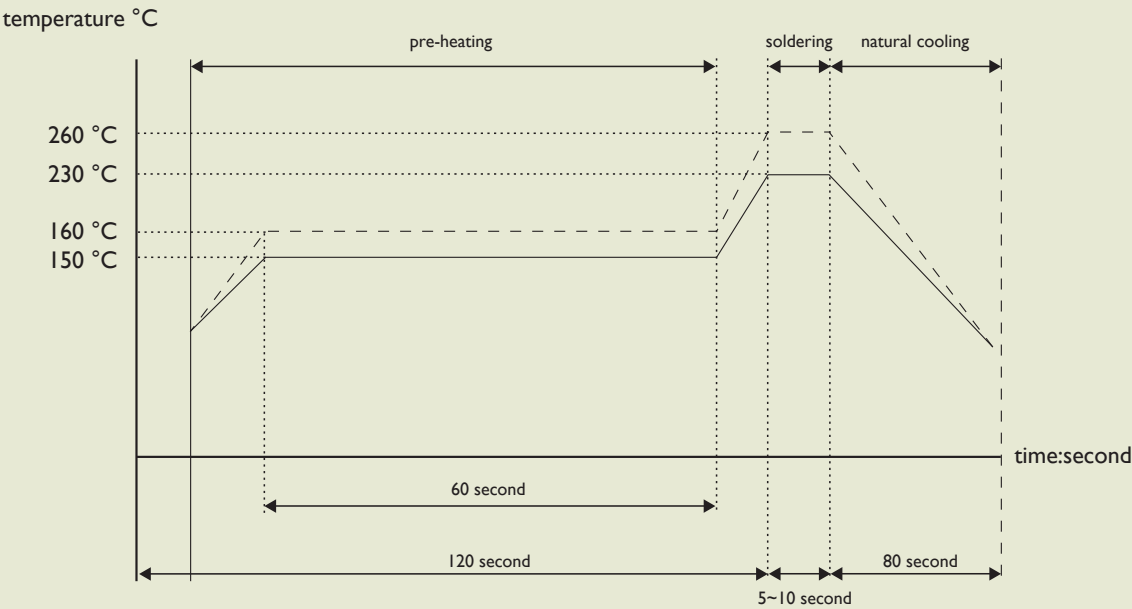
Test Instruments : HP4291A Impedance / Material Analyzer





RECOMMEND SOLDERING CONDITIONS

for:CL/ CLH/ SQV/ SMD power inductors/ SMD Chip Beads/ SMD Filters,Transformers, Current Sensors



for: lead solder      \_\_\_\_\_  
for: lead-free solder      .....





ELECTRICAL CHARACTERISTICS

| PART NO.      | IMPEDANCE (Ω) | IMPEDANCE (Ω)  | DC RESISTANCE |
|---------------|---------------|----------------|---------------|
|               | Min. at 25MHz | Min. at 100MHz | (Ω) Max.      |
| FB423226-Y7-S | 24            | 40             | 0.6           |
| FB784729-Y7-S | 48            | 72             | 0.9           |
| FB863226-Y7-S | 48            | 72             | 0.9           |
| FB865626-Y7-S | 30            | 60 ± 20%       |               |

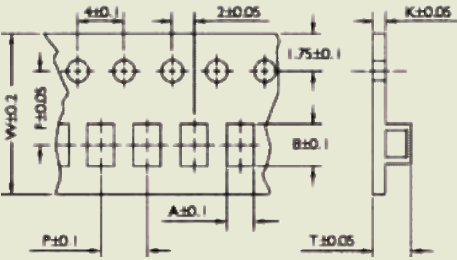
ELECTRICAL CHARACTERISTICS: LEAD-FREE & ROHS COMPLIANCE

| PART NO.       | Z (Ω) | Z (Ω)    | TEST FREQ (MHz) |
|----------------|-------|----------|-----------------|
| FB423226T-Y7-N | 24-0  | 36-0     | 25/100          |
| FB784729T-Y7-N | 24-0  | 36-0     | 25/100          |
| FB863226T-Y7-N | 24-0  | 36-0     | 25/100          |
| FB865656T-Y7-N | 30-0  | 60 ± 20% | 25/100          |

NOTE:  
I.Operation temperature range -25°C~85°C  
“-N” FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)

TAPE DIMENSIONS

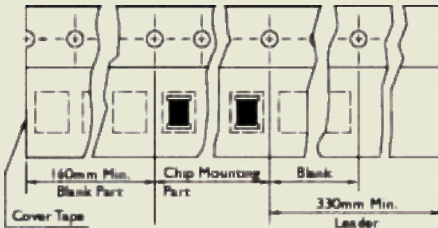
Dimensions : mm



| TYPE       | A    | B    | T    | W  | P | F   | K    |
|------------|------|------|------|----|---|-----|------|
| FB423226-S | 3.64 | 5.30 | 3.10 | 12 | 8 | 5.5 | 0.3  |
| FB784729-S | 5.24 | 8.77 | 3.69 | 16 | 8 | 7.5 | 0.3  |
| FB863226-S | 3.28 | 9.35 | 3.06 | 16 | 8 | 7.5 | 0.3  |
| FB865626-S | 6.30 | 9.30 | 3.10 | 16 | 8 | 7.5 | 0.27 |

TAPE MATERIAL

Carrier Tape : Polystyrene      Cover Type : Polyethyiene



PACKAGING QUANTITY

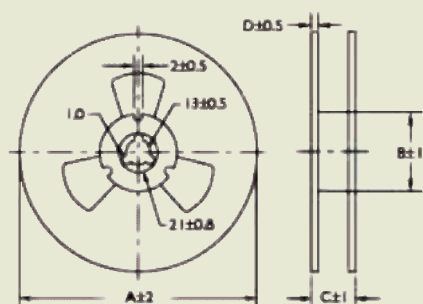
| TYPE        | BULK | QUANTITY/REEL |
|-------------|------|---------------|
| FB423226-Y7 | √    | 500           |
| FB784729-Y7 | √    | 500           |
| FB863226-Y7 | √    | 500           |
| FB865626-Y7 | √    | 2400          |





## REEL DIMENSIONS

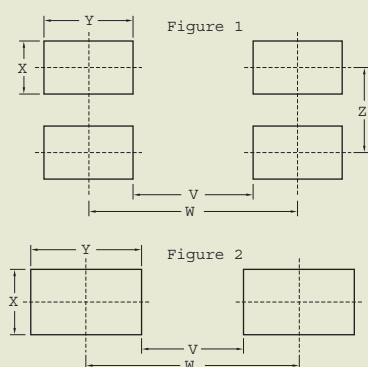
Dimensions : mm



| TYPE     | A   | B   | C  | D   |
|----------|-----|-----|----|-----|
| FB423226 | 178 | 60  | 16 | 1.5 |
| FB784729 | 178 | 60  | 20 | 1.5 |
| FB863226 | 178 | 60  | 20 | 1.5 |
| FB865626 | 330 | 100 | 21 | 2   |

## RECOMMENDED PATTERN

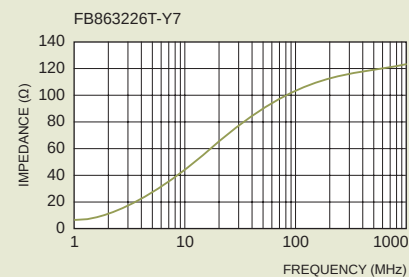
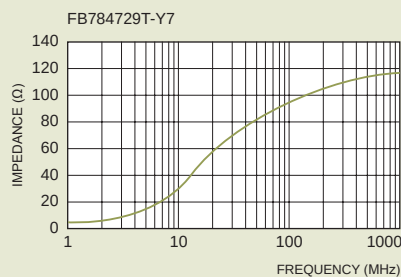
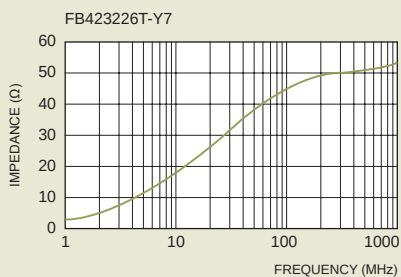
Dimensions : mm



| TYPE     | V   | W   | X   | Y   | Z    | FIGURE |
|----------|-----|-----|-----|-----|------|--------|
| FB423226 | 1.0 | 4.0 | 1.8 | 3.0 | -    | 2      |
| FB784729 | 5.0 | 8.0 | 1.8 | 3.0 | -    | 2      |
| FB863226 | 4.5 | 7.5 | 1.8 | 3.0 | -    | 2      |
| FB865626 |     | 7.5 | 1.8 | 3.0 | 2.54 | 1      |

## TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance/Material Analyzer





FB SERIES RELIABILITY TEST

I-1 MECHANICAL PERFORMANCE

| NO.   | ITEM      | SPECIFICATION                | TEST CONDITIONS                                    |
|-------|-----------|------------------------------|----------------------------------------------------|
| I-1-1 | Vibration | Appearance : No Damage       | Test device shall be soldered on the substrate.    |
|       |           | Z Change : within $\pm 20\%$ | Oscillation Frequency : 10 to 55 to 10Hz for 1Min. |
|       |           | RDC : within Specification   | Amplitude : 1.5mm                                  |
|       |           |                              | Time : 2Hrs. for each Axis (X,Y & Z), Total 6Hrs.  |

I-2 ENVIRONMENTAL PERFORMANCE

| NO.                                                      | ITEM                        | SPECIFICATION                                                                          | TEST CONDITIONS    |                  |             |
|----------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------|--------------------|------------------|-------------|
| I-2-1                                                    | Temperature Cycle           | Appearance : No Damage<br><br>Z Change : within ±20%<br><br>RDC : within Specification | One Cycle          |                  |             |
|                                                          |                             |                                                                                        | Step               | Temperature (°C) | Time (Min.) |
|                                                          |                             |                                                                                        | 1                  | -55 ± 3          | 30          |
|                                                          |                             |                                                                                        | 2                  | 25 ± 2           | 3           |
|                                                          |                             |                                                                                        | 3                  | 125 ± 3          | 30          |
|                                                          |                             |                                                                                        | 4                  | 25 ± 2           | 3           |
|                                                          |                             |                                                                                        | Total : 100 Cycles |                  |             |
| Measured after Exposure in the Room Condition for 24Hrs. |                             |                                                                                        |                    |                  |             |
| I-2-2                                                    | Humidity Resistance         | Temperature : 40 ± 2°C                                                                 |                    |                  |             |
|                                                          |                             | Relative Humidity : 90 ~ 95%                                                           |                    |                  |             |
|                                                          |                             | Time : 1000Hrs.                                                                        |                    |                  |             |
|                                                          |                             | Measured after Exposure in the Room Condition for 24Hrs.                               |                    |                  |             |
| I-2-3                                                    | High Temperature Resistance | Temperature : 125 ± 3°C                                                                |                    |                  |             |
|                                                          |                             | Relative Humidity : 0%                                                                 |                    |                  |             |
|                                                          |                             | Time : 1000Hrs.                                                                        |                    |                  |             |
|                                                          |                             | Measured after Exposure in the Room Condition for 24Hrs.                               |                    |                  |             |
| I-2-4                                                    | Low Temperature Resistance  | Temperature : -55 ± 3°C                                                                |                    |                  |             |
|                                                          |                             | Relative Humidity : 0%                                                                 |                    |                  |             |
|                                                          |                             | Time : 1000Hrs.                                                                        |                    |                  |             |
|                                                          |                             | Measured after Exposure in the Room Condition for 24Hrs.                               |                    |                  |             |

# SBC Series

## EMI PC Beads

### APPLICATIONS

The PC Beads mainly used in the PC board of personal computers, microcomputers and relative devices to filter the EMI from the outside.

### OUTLINE

Yageo EMI PC Beads provide a powerful function of EMI/RFI attenuation for electronic equipment. Multiple single turn printed circuit beads or multi-turn printed circuit beads are available in three sizes with B material.

With tinned copper jumper wires, these beads could complete the desired winding configuration on the printed circuit boards.

### FEATURES

Jumped wires are oxygen free and high conductivity copper with 95/5 tin/lead coating.

Compact and High Performance

Easy Installation

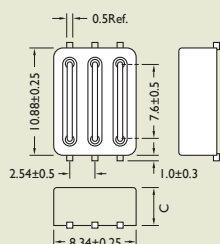
### ELECTRICAL CHARACTERISTICS

| PART NO.     | TYPICAL IMPEDANCE AT 100MHZ ( $\Omega$ ) |                   |                   |                   |                   |                   |
|--------------|------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|              | B-#1                                     | B-#2              | B-#3              | B-#4              | B-#5              | B-#6              |
| SBC0810F6H-  | 65 <sup>-0</sup>                         | 100 <sup>-0</sup> | 120 <sup>-0</sup> | 155 <sup>-0</sup> | 170 <sup>-0</sup> | 270 <sup>-0</sup> |
| SBC1010F8H-  | 65 <sup>-0</sup>                         | 100 <sup>-0</sup> | 120 <sup>-0</sup> | 155 <sup>-0</sup> | 170 <sup>-0</sup> | 270 <sup>-0</sup> |
| SBC1310F10H- | 65 <sup>-0</sup>                         | 100 <sup>-0</sup> | 120 <sup>-0</sup> | 155 <sup>-0</sup> | 170 <sup>-0</sup> | 270 <sup>-0</sup> |

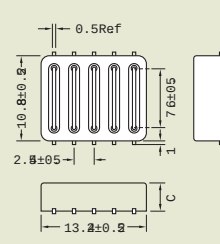
Dimensions : mm

### SHAPES AND DIMENSIONS

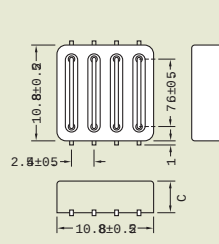
SBC0810F6H-B# □



SBC1310F10H-B# □



SBC1010F8H-B# □



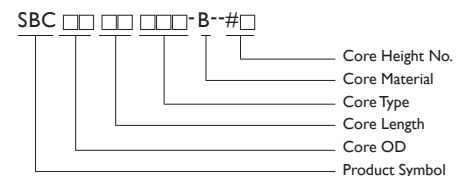
SBC0810F6H-Series  
SBC1010F8H-Series  
SBC1310F10H-Series



SBC0508F6HT-B



### PRODUCT IDENTIFICATION



#### NOTE:

YAGEO will add "-N" after original P/N as identification.

EX. SBC0810F6H-B# □-N

| TYPE             | A     | B    | C                     |
|------------------|-------|------|-----------------------|
| SBC0810F6H-B# □  | 8.34  | 10.9 | -#1 3.81<br>-#2 5.08  |
| SBC1010F8H-B# □  | 10.88 | 10.9 | -#3 6.35<br>-#4 7.62  |
| SBC1310F10H-B# □ | 13.42 | 10.9 | -#5 8.09<br>-#6 10.15 |

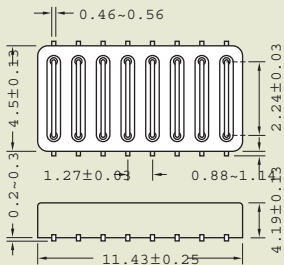
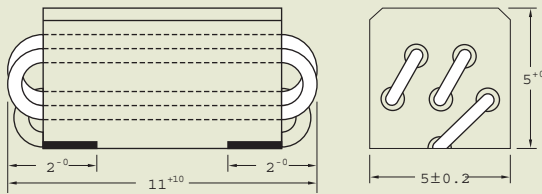


SHAPE AND DIMENSIONS

Dimensions : mm

SBC0508F6HT-B

SBC1105FI6HT-B246

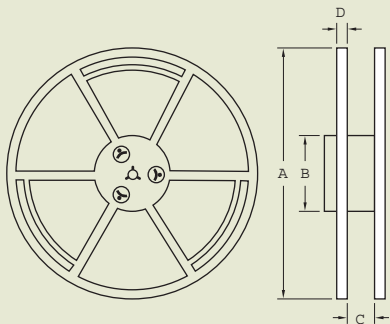
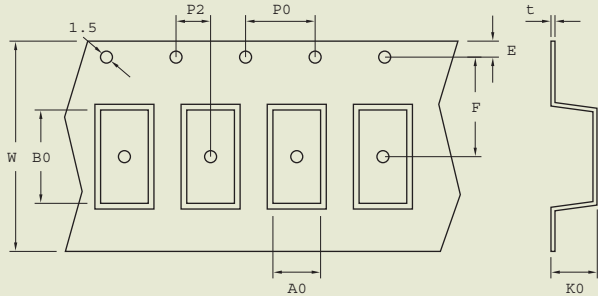


ELECTRICAL CHARACTERISTICS

| PART NO.          | IMPEDANCE       | TEST FREQUENCY<br>(MHz) | IMPEDANCE<br>(Ω) | TEST FREQUENCY<br>(MHz) | DC RESISTANCE<br>(mΩ) Max. |
|-------------------|-----------------|-------------------------|------------------|-------------------------|----------------------------|
| SBC0508F6HT-B     | $340^{-0}_{-0}$ | 25                      | $600 \pm 25\%$   | 100                     | 7.5                        |
| SBC1105FI6HT-B246 | -               | -                       | $80^{-0}_{-0}$   | 100                     | 10                         |

TAPE DIMENSIONS

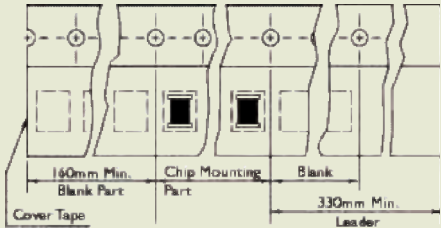
REEL DIMENSIONS



TAPE MATERIAL

Carrier Tape : Black Conductive Polystyrene - Alloy

Cover Type : Black Conductive Polystyrene - Alloy



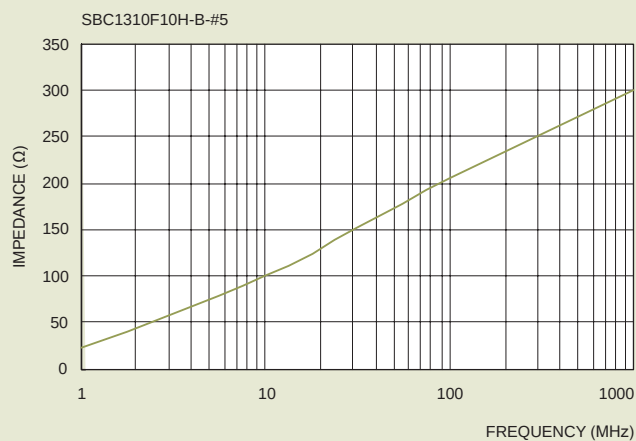
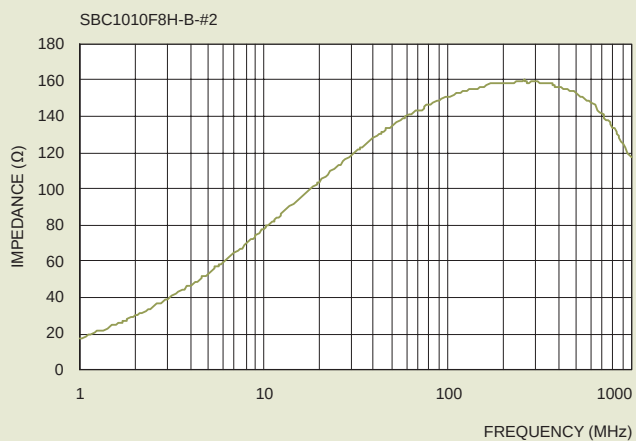
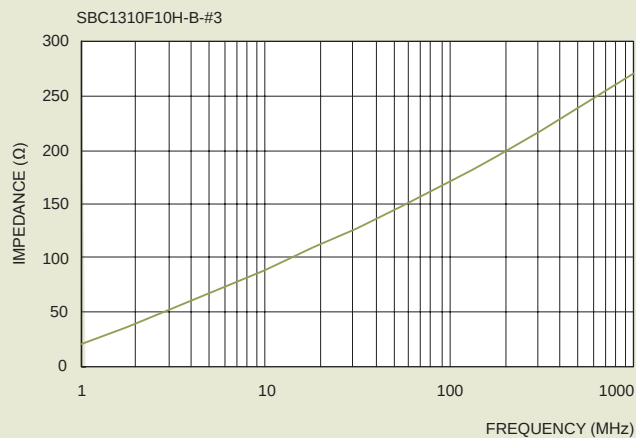
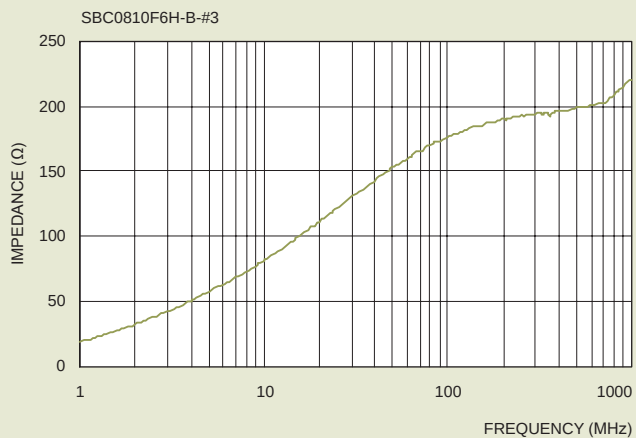
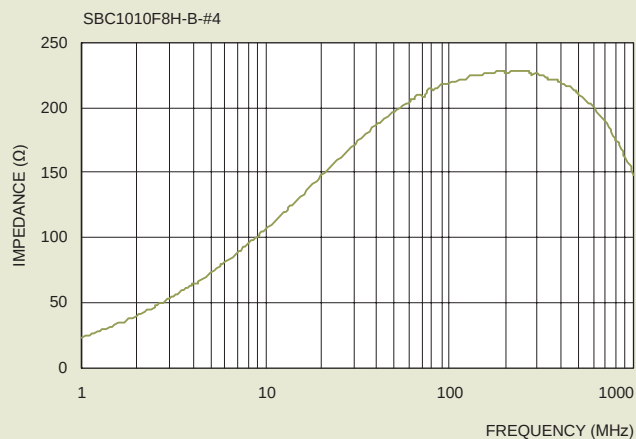
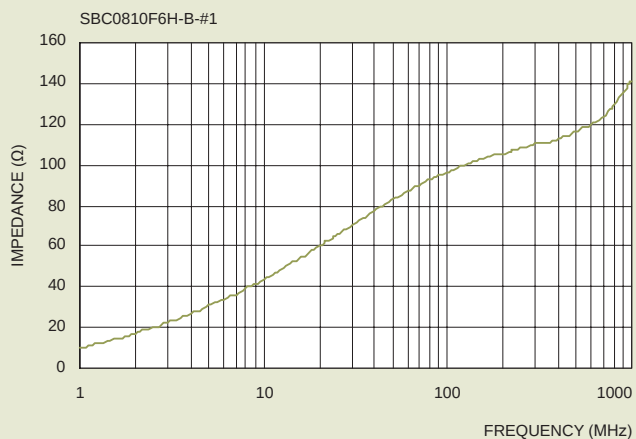
Dimensions : mm

| TYPE              | TAPE DIMENSIONS |      |      |    |    |     |      |     |      | REEL DIMENSIONS |     |      | QUANTITY    |
|-------------------|-----------------|------|------|----|----|-----|------|-----|------|-----------------|-----|------|-------------|
|                   | W               | E    | F    | P0 | P2 | A0  | B0   | K0  | T    | A               | B   | C    | REEL/CARTON |
| SBC0508F6HT-B     | 24              | 1.75 | 11.5 | 4  | 2  | 5.3 | 10.9 | 5.1 | 0.35 | 330             | 100 | 24.4 | 1000/10000  |
| SBC1105FI6HT-B246 | 24              | 1.75 | 11.5 | 4  | 2  | 7.5 | 11.7 | 4.7 | 0.35 | 330             | 100 | 24.4 | 1000/10000  |



## TYPICAL ELECTRICAL CHARACTERISTIC

Test Instruments : HP4291A RF Impedance Analyzer

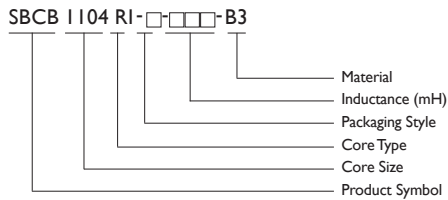


## Data Line EMI Filter

## SBCB Series



## PRODUCT IDENTIFICATION

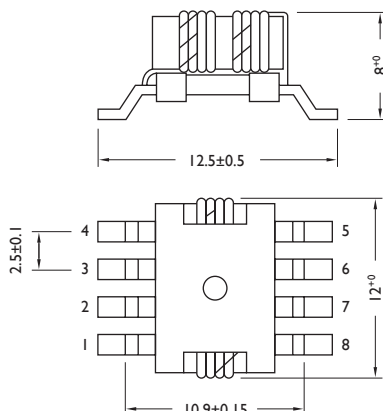


■ Packaging: T: Tape and Reel

■ NOTE: YAGEO will add "-N" after original P/N as identification. EX. SBCBI104RIT-330-B3-N

## SHAPES AND DIMENSIONS

Dimensions : mm



## APPLICATIONS

Attenuating Noise of Analog and Digital Signals for Telecommunication Devices

Prevention of Interference from Amateur Radios, CB Stations, or High Frequency Welders, etc.

## OUTLINE

These surface mount filters are specially designed to virtually eliminate the problem of conducted EMI in data line applications. They provide both differential and common mode noise attenuation.

These components contain tremendous electrode straight, solder heat resistance and outstanding solderability. These products are designed for flow, reflow and wave soldering required for surface mounting applications.

## FEATURES

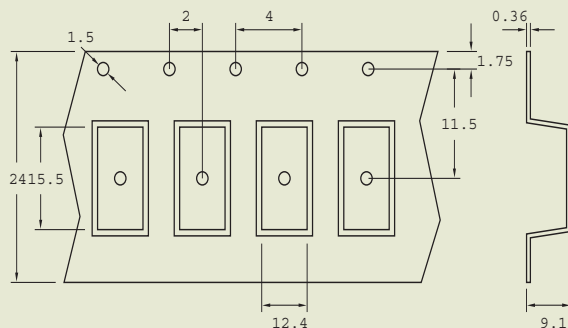
These components are compatible with auto insertion equipment and easy installed for PC board.

With Four Lines for Voice and Data Line

Compact and High Performance

## ELECTRIAL CHARACTERISTICS

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | TEST FREQUENCY<br>(KHz) 0.6V | DC RESISTANCE<br>( $\Omega$ ) Max. |
|--------------------|--------------------------|------------------------------|------------------------------------|
| SBCBI104RIT-330-B3 | 25 ~ 50                  | 100                          | 0.07                               |





## SBCBI I04 SERIES RELIABILITY TEST

### I-1 MECHANICAL PERFORMANCE

| NO.   | ITEM                         | SPECIFICATION                                                                                                        | TEST CONDITIONS                                                                                                                                                                 |
|-------|------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I-1-1 | Vibration                    | Appearance : No Damage<br>L Change : within $\pm 10\%$<br>Q Change : within $\pm 30\%$<br>RDC : within Specification | Test device shall be soldered on the substrate.<br>Oscillation Frequency : 10 to 55 to 10Hz for 1Min.<br>Amplitude : 1.5mm<br>Time : 2Hrs. for each Axis (X,Y & Z), Total 6Hrs. |
| I-1-2 | Resistance to Soldering Heat | Appearance : No Damage                                                                                               | Pre-heating : $150^{\circ}\text{C}$ , 1Min.<br>Solder Composition : Sn/Pb = 63/37<br>Solder Temperature : $260 \pm 5^{\circ}\text{C}$<br>Immersion Time : $10 \pm 1\text{Sec.}$ |
| I-1-3 | Solderability                | The electrodes shall be at least 90% covered with new solder coating.                                                | Pre-heating : $150^{\circ}\text{C}$ , 1Min.<br>Solder Composition : Sn/Pb = 63/37<br>Solder Temperature : $230 \pm 5^{\circ}\text{C}$<br>Immersion Time : $4 \pm 1\text{Sec.}$  |

### I-2 ENVIRONMENTAL PERFORMANCE

| NO.   | ITEM                               | SPECIFICATION                                                                                                        | TEST CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
|-------|------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------|-------------|---|-------------|----|---|------------|---|---|------------|----|---|------------|---|
| I-2-1 | Temperature Shock                  | Appearance : No Damage<br>L Change : within $\pm 10\%$<br>L Change : within $\pm 30\%$<br>RDC : within Specification | 10 Cycles (Air to Air)   Cycles shall Consist of :<br>30Min. Exposure to $-55^{\circ}\text{C}$<br>30Min. Exposure to $125^{\circ}\text{C}$<br>15Sec. Max. Transition between Temperatures<br>Measured after Exposure in the Room Condition for 24Hrs.                                                                                                                                                                                                 |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| I-2-2 | Temperature Cycle                  |                                                                                                                      | One Cycle <table><tr><th>Step</th><th>Temperature (<math>^{\circ}\text{C}</math>)</th><th>Time (Min.)</th></tr><tr><td>1</td><td><math>-25 \pm 3</math></td><td>30</td></tr><tr><td>2</td><td><math>25 \pm 2</math></td><td>3</td></tr><tr><td>3</td><td><math>85 \pm 3</math></td><td>30</td></tr><tr><td>4</td><td><math>25 \pm 2</math></td><td>3</td></tr></table> Total : 100 Cycles<br>Measured after Exposure in the Room Condition for 24Hrs. | Step | Temperature ( $^{\circ}\text{C}$ ) | Time (Min.) | 1 | $-25 \pm 3$ | 30 | 2 | $25 \pm 2$ | 3 | 3 | $85 \pm 3$ | 30 | 4 | $25 \pm 2$ | 3 |
| Step  | Temperature ( $^{\circ}\text{C}$ ) | Time (Min.)                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| 1     | $-25 \pm 3$                        | 30                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| 2     | $25 \pm 2$                         | 3                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| 3     | $85 \pm 3$                         | 30                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| 4     | $25 \pm 2$                         | 3                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| I-2-3 | Humidity Resistance                |                                                                                                                      | Temperature : $40 \pm 2^{\circ}\text{C}$<br>Relative Humidity : 90 ~ 95%<br>Time : 1000Hrs.<br>Measured after Exposure in the Room Condition for 24Hrs.                                                                                                                                                                                                                                                                                               |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| I-2-4 | High Temperature Resistance        |                                                                                                                      | Temperature : $85 \pm 3^{\circ}\text{C}$<br>Relative Humidity : 20%<br>Applied Current : Rated Current<br>Time : 1000Hrs.<br>Measured after Exposure in the Room Condition for 24Hrs.                                                                                                                                                                                                                                                                 |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |
| I-2-5 | Low Temperature Resistance         |                                                                                                                      | Temperature : $-25 \pm 3^{\circ}\text{C}$<br>Relative Humidity : 0%<br>Time : 1000Hrs.<br>Measured after Exposure in the Room Condition for 24Hrs.                                                                                                                                                                                                                                                                                                    |      |                                    |             |   |             |    |   |            |   |   |            |    |   |            |   |

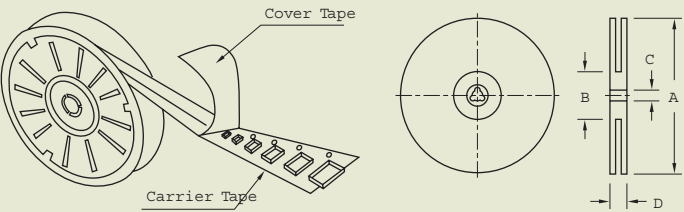


# EMC Common Mode Filter

YAGEO will add "-N" after original P/N as identification. EX.SBCB656030T-900-S -N

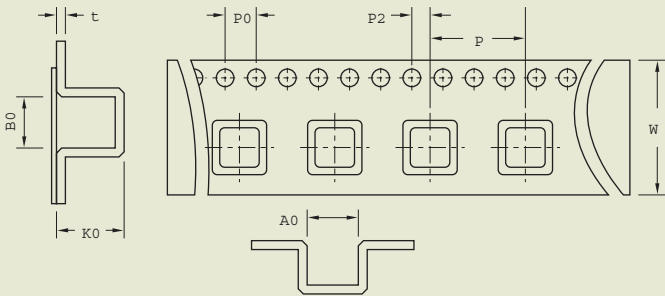


PACKAGING



SBCB656030-S

|          |        |
|----------|--------|
| Pcs/Reel | 1000   |
| A        | 330mm  |
| B        | 100mm  |
| C        | 13.0mm |
| D        | 21.0mm |

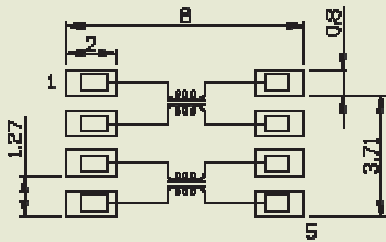


SBCB656030-S

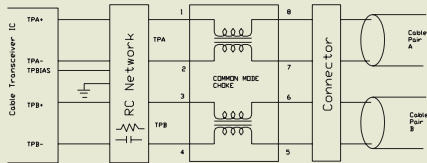
|    |      |
|----|------|
| A0 | 6.6  |
| B0 | 6.15 |
| K0 | 3.5  |
| P  | 12   |
| P0 | 4.0  |
| P2 | 2.0  |
| W  | 16.0 |
| t  | 0.35 |

RECOMMENDED PATTERN

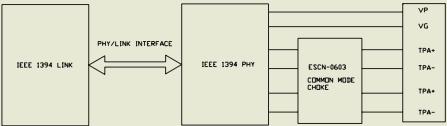
Recommended Pattern



Twisted Pair Cable interface



IEEE 1394 Port





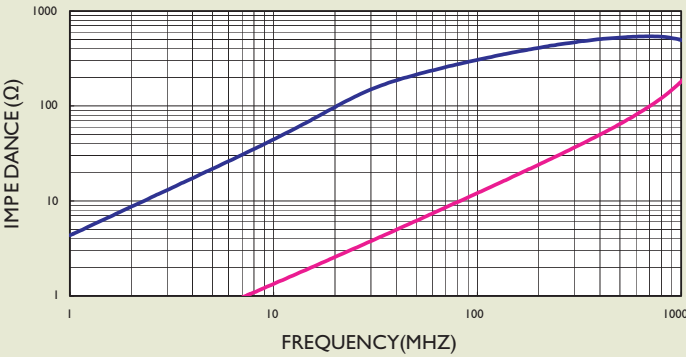
### ELECTRICAL CHARACTERISTICS

| Model no.             | Rated Current<br>(ma) Max. | DC Resistance<br>( $\Omega$ /Line)Max. | Withstand Voltage |
|-----------------------|----------------------------|----------------------------------------|-------------------|
| SBCB656030T - □□□ - □ | 500                        | 0.12                                   | 80V DC            |

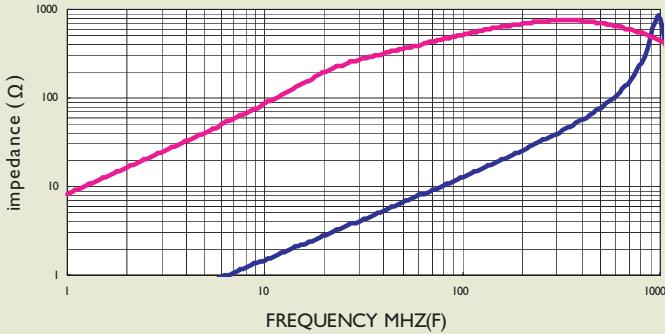
### ELECTRICAL CHARACTERISTICS

| Part Number       | Impedance( $\Omega$ )<br>Common Mode |                        | Impedance( $\Omega$ )<br>Normal Mode |                        |
|-------------------|--------------------------------------|------------------------|--------------------------------------|------------------------|
|                   | @10Mhz( $\Omega$ )Min                | @100Mhz( $\Omega$ )Min | @10Mhz( $\Omega$ )Min                | @100Mhz( $\Omega$ )Min |
| SBCB656030T-900-S | 9                                    | 60                     | 2                                    | 9                      |
| SBCB656030T-181-S | 15                                   | 150                    | 3                                    | 16                     |
| SBCB656030T-301-S | 20                                   | 200                    | 3                                    | 20                     |
| SBCB656030T-601-S | 25                                   | 480                    | 3                                    | 15                     |

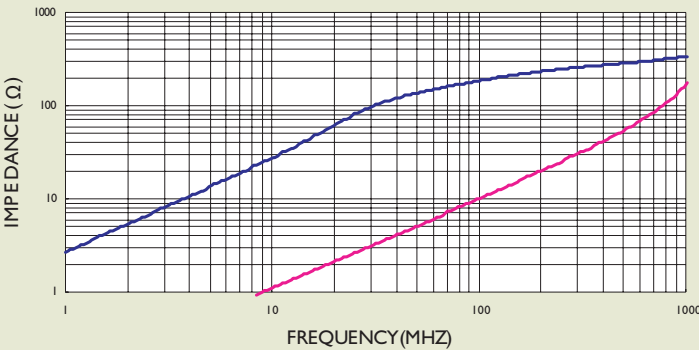
S B C B 656030T-301-S



S B C B 656030T-601-S



S B C B 656030T-181-S

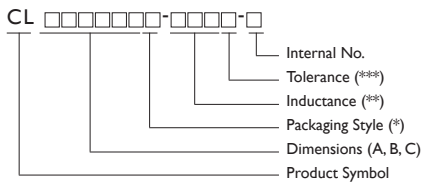


## Multilayer Chip Inductors

# CL Series



## PRODUCT IDENTIFICATION



\* B: Bulk ; T: Tape and Reel

\*\* Example :  $47N = 47nH$

$$R_{I0} = 0.1\mu H \quad I_{R0} = 1.0\mu H$$

\*\*\* K =  $\pm 10\%$  M =  $\pm 20\%$

■ YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.

Ex. CL160808T-10NM-N

## APPLICATIONS

Personal computers, HDDs, or other various electronic appliances.

Any general circuit of portable equipment in which compact size and high mounting densities are required.

## OUTLINE

Yageo's SMD multi-layered ferrite chip inductors provide a cost-effective solution for densely packed PC board designs. CL series comes in 4 sizes and is suitable for low frequency applications

## FEATURES

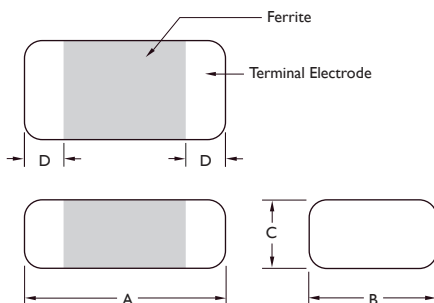
High mounting density of compact circuit due to crosstalk elimination that results from a closed magnetic flux in a ferrite material.

Suitable for Flow and Re-flow Soldering

Available in 4 Sizes

## SHAPES AND DIMENSIONS

Dimensions : mm



| TYPE     | A          | B           | C           | D         |
|----------|------------|-------------|-------------|-----------|
| CL160808 | 1.6 ± 0.20 | 0.80 ± 0.15 | 0.80 ± 0.15 | 0.3 ± 0.2 |
| CL201209 | 2.0 ± 0.20 | 1.25 ± 0.20 | 0.90 ± 0.20 | 0.5 ± 0.3 |
| CL201212 | 2.0 ± 0.20 | 1.25 ± 0.20 | 1.25 ± 0.20 | 0.5 ± 0.3 |
| CL321611 | 3.2 ± 0.20 | 1.60 ± 0.20 | 1.10 ± 0.20 | 0.5 ± 0.3 |



## ELECTRICAL CHARACTERISTICS CL060808 (0603) SERIES

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm$ %) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|--------------------|--------------------------|-------------------------|-----------|----------------------------|-------------------|---------------------------------------|------------------|
| CL160808T-10NM-S   | 0.010                    | 20%                     | 15        | 50                         | 300               | 0.20                                  | 50               |
| CL160808T-33NM-S   | 0.033                    | 20%                     | 15        | 50                         | 270               | 0.20                                  | 50               |
| CL160808T-47NM-S   | 0.047                    | 20%                     | 15        | 50                         | 260               | 0.30                                  | 50               |
| CL160808T-56NM-S   | 0.056                    | 20%                     | 15        | 50                         | 255               | 0.30                                  | 50               |
| CL160808T-68NM-S   | 0.068                    | 20%                     | 15        | 50                         | 250               | 0.30                                  | 50               |
| CL160808T-82NM-S   | 0.082                    | 20%                     | 15        | 50                         | 245               | 0.30                                  | 50               |
| CL160808T-R10 □ -S | 0.10                     | 20 or 10%               | 25        | 25                         | 240               | 0.50                                  | 50               |
| CL160808T-R12 □ -S | 0.12                     | 20 or 10%               | 25        | 25                         | 205               | 0.50                                  | 50               |
| CL160808T-R15 □ -S | 0.15                     | 20 or 10%               | 25        | 25                         | 180               | 0.60                                  | 50               |
| CL160808T-R18 □ -S | 0.18                     | 20 or 10%               | 25        | 25                         | 165               | 0.60                                  | 50               |
| CL160808T-R22 □ -S | 0.22                     | 20 or 10%               | 25        | 25                         | 150               | 0.80                                  | 50               |
| CL160808T-R27 □ -S | 0.27                     | 20 or 10%               | 25        | 25                         | 136               | 0.80                                  | 50               |
| CL160808T-R33 □ -S | 0.33                     | 20 or 10%               | 25        | 25                         | 125               | 0.85                                  | 35               |
| CL160808T-R39 □ -S | 0.39                     | 20 or 10%               | 25        | 25                         | 110               | 1.00                                  | 35               |
| CL160808T-R47 □ -S | 0.47                     | 20 or 10%               | 25        | 25                         | 105               | 1.35                                  | 35               |
| CL160808T-R56 □ -S | 0.56                     | 20 or 10%               | 25        | 25                         | 95                | 1.50                                  | 35               |
| CL160808T-R68 □ -S | 0.68                     | 20 or 10%               | 25        | 25                         | 85                | 1.70                                  | 35               |
| CL160808T-R82 □ -S | 0.82                     | 20 or 10%               | 25        | 25                         | 75                | 2.10                                  | 35               |
| CL160808T-1R0 □ -S | 1.0                      | 20 or 10%               | 35        | 10                         | 65                | 0.60                                  | 25               |
| CL160808T-1R2 □ -S | 1.2                      | 20 or 10%               | 35        | 10                         | 60                | 0.80                                  | 25               |
| CL160808T-1R5 □ -S | 1.5                      | 20 or 10%               | 35        | 10                         | 55                | 0.80                                  | 25               |
| CL160808T-1R8 □ -S | 1.8                      | 20 or 10%               | 35        | 10                         | 50                | 0.95                                  | 25               |
| CL160808T-2R2 □ -S | 2.2                      | 20 or 10%               | 35        | 10                         | 45                | 1.10                                  | 15               |
| CL160808T-2R7 □ -S | 2.7                      | 20 or 10%               | 35        | 10                         | 40                | 1.30                                  | 15               |
| CL160808T-3R3 □ -S | 3.3                      | 20 or 10%               | 35        | 10                         | 38                | 1.50                                  | 15               |
| CL160808T-3R9 □ -S | 3.9                      | 20 or 10%               | 35        | 10                         | 36                | 1.70                                  | 15               |
| CL160808T-4R7 □ -S | 4.7                      | 20 or 10%               | 35        | 10                         | 33                | 2.10                                  | 15               |
| CL160808T-5R6 □ -S | 5.6                      | 20 or 10%               | 35        | 4                          | 22                | 1.50                                  | 5                |
| CL160808T-6R8 □ -S | 6.8                      | 20 or 10%               | 35        | 4                          | 20                | 1.70                                  | 5                |
| CL160808T-8R2 □ -S | 8.2                      | 20 or 10%               | 30        | 4                          | 18                | 2.10                                  | 5                |
| CL160808T-100 □ -S | 10                       | 20 or 10%               | 30        | 2                          | 17                | 2.55                                  | 5                |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | L,Q Test Freq<br>(MHZ) | Q<br>Min | SRF<br>(MHZ)Min. | RDC<br>( $\Omega$ )Max. | IDC<br>(mA)Max | TOLERANCE<br>( $\pm$ %) |
|-------------------|--------------------------|------------------------|----------|------------------|-------------------------|----------------|-------------------------|
| CL160808T-10N □-N | 0.01                     | 50MHZ,200mV            | 15       | 300              | 0.2                     | 50             | 20,15                   |
| CL160808T-33N □-N | 0.033                    | 50MHZ,200mV            | 15       | 270              | 0.2                     | 50             | 20,15                   |
| CL160808T-47N □-N | 0.047                    | 50MHZ,200mV            | 15       | 260              | 0.3                     | 50             | 20,15                   |
| CL160808T-56N □-N | 0.056                    | 50MHZ,200mV            | 15       | 255              | 0.3                     | 50             | 20,15                   |
| CL160808T-68N □-N | 0.068                    | 50MHZ,200mV            | 15       | 250              | 0.3                     | 50             | 20,15                   |
| CL160808T-82N □-N | 0.082                    | 50MHZ,200mV            | 15       | 245              | 0.3                     | 50             | 20,15                   |
| CL160808T-R10 □-N | 0.1                      | 25MHZ,200mV            | 25       | 240              | 0.5                     | 50             | 20,15,10                |
| CL160808T-R12 □-N | 0.12                     | 25MHZ,200mV            | 25       | 205              | 0.5                     | 50             | 20,15,10                |
| CL160808T-R15 □-N | 0.15                     | 25MHZ,200mV            | 25       | 180              | 0.6                     | 50             | 20,15,10                |
| CL160808T-R18 □-N | 0.18                     | 25MHZ,200mV            | 25       | 165              | 0.6                     | 50             | 20,15,10                |
| CL160808T-R22 □-N | 0.22                     | 25MHZ,200mV            | 25       | 150              | 0.8                     | 50             | 20,15,10                |
| CL160808T-R27 □-N | 0.27                     | 25MHZ,200mV            | 25       | 136              | 0.8                     | 50             | 20,15,10                |
| CL160808T-R33 □-N | 0.33                     | 25MHZ,200mV            | 25       | 125              | 0.85                    | 35             | 20,15,10                |
| CL160808T-R39 □-N | 0.39                     | 25MHZ,200mV            | 25       | 110              | 1                       | 35             | 20,15,10                |
| CL160808T-R47 □-N | 0.47                     | 25MHZ,200mV            | 25       | 105              | 1.35                    | 35             | 20,15,10                |
| CL160808T-R56 □-N | 0.56                     | 25MHZ,200mV            | 25       | 95               | 1.5                     | 35             | 20,15,10                |
| CL160808T-R68 □-N | 0.68                     | 25MHZ,200mV            | 25       | 85               | 1.7                     | 35             | 20,15,10                |
| CL160808T-R82 □-N | 0.82                     | 25MHZ,200mV            | 25       | 75               | 2.1                     | 35             | 20,15,10                |
| CL160808T-1R0 □-N | 1                        | 10MHZ,200mV            | 35       | 65               | 0.6                     | 25             | 20,15,10                |
| CL160808T-1R2 □-N | 1.2                      | 10MHZ,200mV            | 35       | 60               | 0.8                     | 25             | 20,15,10                |
| CL160808T-1R5 □-N | 1.5                      | 10MHZ,200mV            | 35       | 55               | 0.8                     | 25             | 20,15,10                |
| CL160808T-1R8 □-N | 1.8                      | 10MHZ,200mV            | 35       | 50               | 0.95                    | 25             | 20,15,10                |
| CL160808T-2R2 □-N | 2.2                      | 10MHZ,200mV            | 35       | 45               | 1.1                     | 15             | 20,15,10                |
| CL160808T-2R7 □-N | 2.7                      | 10MHZ,200mV            | 35       | 40               | 1.3                     | 15             | 20,15,10                |
| CL160808T-3R3 □-N | 3.3                      | 10MHZ,200mV            | 35       | 38               | 1.5                     | 15             | 20,15,10                |
| CL160808T-3R9 □-N | 3.9                      | 10MHZ,200mV            | 35       | 36               | 1.7                     | 15             | 20,15,10                |
| CL160808T-4R7 □-N | 4.7                      | 10MHZ,200mV            | 35       | 33               | 2.1                     | 15             | 20,15,10                |
| CL160808T-5R6 □-N | 5.6                      | 4MHZ,200mV             | 35       | 22               | 1.5                     | 5              | 20,15,10                |
| CL160808T-6R8 □-N | 6.8                      | 4MHZ,200mV             | 35       | 20               | 1.7                     | 5              | 20,15,10                |
| CL160808T-8R2 □-N | 8.2                      | 4MHZ,100mV             | 30       | 18               | 2.1                     | 5              | 20,15,10                |
| CL160808T-100 □-N | 10                       | 2MHZ,100mV             | 30       | 17               | 2.55                    | 5              | 20,15,10                |
| CL160808T-120 □-N | 12                       | 2MHZ,60mV              | 30       | 15               | 2.6                     | 3              | 20,15,10                |
| CL160808T-150 □-N | 15                       | 1MHZ,60mV              | 20       | 14               | 1.7                     | 1              | 20,15,10                |
| CL160808T-180 □-N | 18                       | 1MHZ,60mV              | 20       | 13               | 1.8                     | 1              | 20,15,10                |
| CL160808T-220 □-N | 22                       | 1MHZ,60mV              | 20       | 11               | 2.1                     | 1              | 20,15,10                |
| CL160808T-270 □-N | 27                       | 1MHZ,60mV              | 20       | 10               | 2.7                     | 1              | 20,15,10                |
| CL160808T-330 □-N | 33                       | 1MHZ,60mV              | 20       | 9                | 2.9                     | 1              | 20,15,10                |

NOTE: □-tolerance K=  $\pm$ 10% / L=  $\pm$ 15% / M=  $\pm$ 20%

1. Operating temperature range -25°C~85°C

2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

"-N"FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS CL201209, CL201212 (0805) SERIES

| PART NO.                   | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm$ %) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|----------------------------|--------------------------|-------------------------|-----------|----------------------------|-------------------|---------------------------------------|------------------|
| CL201209T-47NM-S           | 0.047                    | 20%                     | 20        | 50                         | 320               | 0.20                                  | 300              |
| CL201209T-68NM-S           | 0.068                    | 20%                     | 20        | 50                         | 280               | 0.20                                  | 300              |
| CL201209T-82NM-S           | 0.082                    | 20%                     | 20        | 50                         | 255               | 0.20                                  | 300              |
| CL201209T-R10 $\square$ -S | 0.10                     | 20 or 10%               | 25        | 25                         | 235               | 0.30                                  | 250              |
| CL201209T-R12 $\square$ -S | 0.12                     | 20 or 10%               | 25        | 25                         | 220               | 0.30                                  | 250              |
| CL201209T-R15 $\square$ -S | 0.15                     | 20 or 10%               | 25        | 25                         | 200               | 0.40                                  | 250              |
| CL201209T-R18 $\square$ -S | 0.18                     | 20 or 10%               | 25        | 25                         | 185               | 0.40                                  | 250              |
| CL201209T-R22 $\square$ -S | 0.22                     | 20 or 10%               | 25        | 25                         | 170               | 0.50                                  | 250              |
| CL201209T-R27 $\square$ -S | 0.27                     | 20 or 10%               | 25        | 25                         | 150               | 0.50                                  | 250              |
| CL201209T-R33 $\square$ -S | 0.33                     | 20 or 10%               | 25        | 25                         | 145               | 0.55                                  | 250              |
| CL201209T-R39 $\square$ -S | 0.39                     | 20 or 10%               | 25        | 25                         | 135               | 0.65                                  | 250              |
| CL201209T-R47 $\square$ -S | 0.47                     | 20 or 10%               | 25        | 25                         | 125               | 0.65                                  | 250              |
| CL201209T-R56 $\square$ -S | 0.56                     | 20 or 10%               | 25        | 25                         | 115               | 0.75                                  | 150              |
| CL201209T-R68 $\square$ -S | 0.68                     | 20 or 10%               | 25        | 25                         | 105               | 0.80                                  | 150              |
| CL201209T-R82 $\square$ -S | 0.82                     | 20 or 10%               | 25        | 25                         | 100               | 1.00                                  | 150              |
| CL201209T-1R0 $\square$ -S | 1.0                      | 20 or 10%               | 45        | 10                         | 75                | 0.40                                  | 50               |
| CL201209T-1R2 $\square$ -S | 1.2                      | 20 or 10%               | 45        | 10                         | 65                | 0.50                                  | 50               |
| CL201209T-1R5 $\square$ -S | 1.5                      | 20 or 10%               | 45        | 10                         | 60                | 0.50                                  | 50               |
| CL201209T-1R8 $\square$ -S | 1.8                      | 20 or 10%               | 45        | 10                         | 55                | 0.60                                  | 50               |
| CL201209T-2R2 $\square$ -S | 2.2                      | 20 or 10%               | 45        | 10                         | 50                | 0.65                                  | 30               |
| CL201212T-2R7 $\square$ -S | 2.7                      | 20 or 10%               | 45        | 10                         | 45                | 0.75                                  | 30               |
| CL201212T-3R3 $\square$ -S | 3.3                      | 20 or 10%               | 45        | 10                         | 41                | 0.80                                  | 30               |
| CL201212T-3R9 $\square$ -S | 3.9                      | 20 or 10%               | 45        | 10                         | 38                | 0.90                                  | 30               |
| CL201212T-4R7 $\square$ -S | 4.7                      | 20 or 10%               | 45        | 10                         | 35                | 1.00                                  | 30               |
| CL201212T-5R6 $\square$ -S | 5.6                      | 20 or 10%               | 45        | 4                          | 32                | 0.90                                  | 15               |
| CL201212T-6R8 $\square$ -S | 6.8                      | 20 or 10%               | 45        | 4                          | 29                | 1.00                                  | 15               |
| CL201212T-8R2 $\square$ -S | 8.2                      | 20 or 10%               | 45        | 4                          | 26                | 1.10                                  | 15               |
| CL201212T-100 $\square$ -S | 10                       | 20 or 10%               | 45        | 2                          | 24                | 1.10                                  | 15               |
| CL201212T-120 $\square$ -S | 12                       | 20 or 10%               | 45        | 2                          | 22                | 1.20                                  | 15               |
| CL201212T-150 $\square$ -S | 15                       | 20 or 10%               | 30        | 1                          | 19                | 0.80                                  | 5                |
| CL201212T-180 $\square$ -S | 18                       | 20 or 10%               | 30        | 1                          | 18                | 0.90                                  | 5                |
| CL201212T-220 $\square$ -S | 22                       | 20 or 10%               | 30        | 1                          | 16                | 1.10                                  | 5                |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | L,Q Test Freq<br>(MHZ) | Q<br>Min | SRF<br>(MHZ)Min. | RDC<br>( $\Omega$ )Max. | IDC<br>(mA)Max | TOLERANCE<br>( $\pm$ %) |
|--------------------|--------------------------|------------------------|----------|------------------|-------------------------|----------------|-------------------------|
| CL201209T-22N □ -N | 0.022                    | 50MHZ,200mV            | 20       | 320              | 0.2                     | 300            | 20,15                   |
| CL201209T-33N □ -N | 0.033                    | 50MHZ,200mV            | 20       | 320              | 0.2                     | 300            | 20,15                   |
| CL201209T-47N □ -N | 0.047                    | 50MHZ,200mV            | 20       | 320              | 0.2                     | 300            | 20,15                   |
| CL201209T-56N □ -N | 0.056                    | 50MHZ,200mV            | 20       | 320              | 0.2                     | 300            | 20,15                   |
| CL201209T-68N □ -N | 0.068                    | 50MHZ,200mV            | 20       | 280              | 0.2                     | 300            | 20,15                   |
| CL201209T-82N □ -N | 0.082                    | 50MHZ,200mV            | 20       | 255              | 0.2                     | 300            | 20,15                   |
| CL201209T-R10 □ -N | 0.1                      | 25MHZ,200mV            | 25       | 235              | 0.3                     | 250            | 20,15,10                |
| CL201209T-R12 □ -N | 0.12                     | 25MHZ,200mV            | 25       | 220              | 0.3                     | 250            | 20,15,10                |
| CL201209T-R15 □ -N | 0.15                     | 25MHZ,200mV            | 25       | 200              | 0.4                     | 250            | 20,15,10                |
| CL201209T-R18 □ -N | 0.18                     | 25MHZ,200mV            | 25       | 185              | 0.4                     | 250            | 20,15,10                |
| CL201209T-R22 □ -N | 0.22                     | 25MHZ,200mV            | 25       | 170              | 0.5                     | 250            | 20,15,10                |
| CL201209T-R27 □ -N | 0.27                     | 25MHZ,200mV            | 25       | 150              | 0.5                     | 250            | 20,15,10                |
| CL201209T-R33 □ -N | 0.33                     | 25MHZ,200mV            | 25       | 145              | 0.55                    | 250            | 20,15,10                |
| CL201209T-R39 □ -N | 0.39                     | 25MHZ,200mV            | 25       | 135              | 0.65                    | 250            | 20,15,10                |
| CL201209T-R47 □ -N | 0.47                     | 25MHZ,200mV            | 25       | 125              | 0.65                    | 250            | 20,15,10                |
| CL201209T-R56 □ -N | 0.56                     | 25MHZ,200mV            | 25       | 115              | 0.75                    | 150            | 20,15,10                |
| CL201209T-R68 □ -N | 0.68                     | 25MHZ,200mV            | 25       | 105              | 0.8                     | 150            | 20,15,10                |
| CL201209T-R82 □ -N | 0.82                     | 25MHZ,200mV            | 25       | 100              | 1                       | 150            | 20,15,10                |
| CL201209T-1R0 □ -N | 1                        | 10MHZ,200mV            | 45       | 75               | 0.4                     | 50             | 20,15,10                |
| CL201209T-1R2 □ -N | 1.2                      | 10MHZ,200mV            | 45       | 65               | 0.5                     | 50             | 20,15,10                |
| CL201209T-1R5 □ -N | 1.5                      | 10MHZ,200mV            | 45       | 60               | 0.5                     | 50             | 20,15,10                |
| CL201209T-1R8 □ -N | 1.8                      | 10MHZ,200mV            | 45       | 55               | 0.6                     | 50             | 20,15,10                |
| CL201209T-2R2 □ -N | 2.2                      | 10MHZ,200mV            | 45       | 50               | 0.65                    | 30             | 20,15,10                |
| CL201212T-2R7 □ -N | 2.7                      | 10MHZ,200mV            | 45       | 45               | 0.75                    | 30             | 20,15,10                |
| CL201212T-3R3 □ -N | 3.3                      | 10MHZ,200mV            | 45       | 41               | 0.8                     | 30             | 20,15,10                |
| CL201212T-3R9 □ -N | 3.9                      | 10MHZ,200mV            | 45       | 38               | 0.9                     | 30             | 20,15,10                |
| CL201212T-4R7 □ -N | 4.7                      | 10MHZ,200mV            | 45       | 35               | 1                       | 30             | 20,15,10                |
| CL201212T-5R6 □ -N | 5.6                      | 4MHZ,200mV             | 45       | 32               | 0.9                     | 15             | 20,15,10                |
| CL201212T-6R8 □ -N | 6.8                      | 4MHZ,200mV             | 45       | 29               | 1                       | 15             | 20,15,10                |
| CL201212T-8R2 □ -N | 8.2                      | 4MHZ,200mV             | 45       | 26               | 1.1                     | 15             | 20,15,10                |
| CL201212T-100 □ -N | 10                       | 2MHZ,60mV              | 45       | 24               | 1.1                     | 15             | 20,15,10                |
| CL201212T-120 □ -N | 12                       | 2MHZ,60mV              | 45       | 22               | 1.2                     | 15             | 20,15,10                |
| CL201212T-150 □ -N | 15                       | 1MHZ,60mV              | 30       | 19               | 0.8                     | 5              | 20,15,10                |





## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | L,Q Test Freq<br>(MHZ) | Q<br>(MHZ)Min. | SRF<br>( $\Omega$ )Max. | RDC<br>(mA)Max | IDC<br>( $\pm$ %) | TOLERANCE |
|--------------------|--------------------------|------------------------|----------------|-------------------------|----------------|-------------------|-----------|
| CL201212T-180 □ -N | 18                       | 1MHZ,60mV              | 30             | 18                      | 0.9            | 5                 | 20,15,10  |
| CL201212T-220 □ -N | 22                       | 1MHZ,60mV              | 30             | 16                      | 1.1            | 5                 | 20,15,10  |
| CL201212T-330 □ -N | 33                       | 1MHZ,60mV              | 30             | 13                      | 1.25           | 5                 | 20,15,10  |

NOTE: □-tolerance K=  $\pm 10\%$  / L=  $\pm 15\%$  / M= $\pm 20\%$

1.Operating temperature range -25°C~85°C

2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

"-N"FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS CL321611 (1206) SERIES

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm$ %) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|-------------------|--------------------------|-------------------------|-----------|----------------------------|-------------------|---------------------------------------|------------------|
| CL321611T-47NM-S  | 0.047                    | 20%                     | 20        | 50                         | 320               | 0.15                                  | 300              |
| CL321611T-68NM-S  | 0.068                    | 20%                     | 20        | 50                         | 280               | 0.25                                  | 300              |
| CL321611T-82NM-S  | 0.082                    | 20%                     | 20        | 50                         | 250               | 0.25                                  | 300              |
| CL321611T-R10 □-S | 0.10                     | 20 or 10%               | 25        | 25                         | 235               | 0.25                                  | 250              |
| CL321611T-R12 □-S | 0.12                     | 20 or 10%               | 25        | 25                         | 220               | 0.30                                  | 250              |
| CL321611T-R15 □-S | 0.15                     | 20 or 10%               | 25        | 25                         | 200               | 0.30                                  | 250              |
| CL321611T-R18 □-S | 0.18                     | 20 or 10%               | 25        | 25                         | 185               | 0.40                                  | 250              |
| CL321611T-R22 □-S | 0.22                     | 20 or 10%               | 25        | 25                         | 170               | 0.40                                  | 250              |
| CL321611T-R27 □-S | 0.27                     | 20 or 10%               | 25        | 25                         | 150               | 0.50                                  | 250              |
| CL321611T-R33 □-S | 0.33                     | 20 or 10%               | 25        | 25                         | 145               | 0.60                                  | 250              |
| CL321611T-R39 □-S | 0.39                     | 20 or 10%               | 25        | 25                         | 135               | 0.50                                  | 200              |
| CL321611T-R47 □-S | 0.47                     | 20 or 10%               | 25        | 25                         | 125               | 0.60                                  | 200              |
| CL321611T-R56 □-S | 0.56                     | 20 or 10%               | 25        | 25                         | 115               | 0.70                                  | 150              |
| CL321611T-R68 □-S | 0.68                     | 20 or 10%               | 25        | 25                         | 105               | 0.80                                  | 150              |
| CL321611T-R82 □-S | 0.82                     | 20 or 10%               | 25        | 25                         | 100               | 0.90                                  | 150              |
| CL321611T-IR0 □-S | 1.0                      | 20 or 10%               | 45        | 10                         | 75                | 0.40                                  | 100              |
| CL321611T-IR2 □-S | 1.2                      | 20 or 10%               | 45        | 10                         | 65                | 0.50                                  | 100              |
| CL321611T-IR5 □-S | 1.5                      | 20 or 10%               | 45        | 10                         | 60                | 0.50                                  | 80               |
| CL321611T-IR8 □-S | 1.8                      | 20 or 10%               | 45        | 10                         | 55                | 0.50                                  | 70               |
| CL321611T-2R2 □-S | 2.2                      | 20 or 10%               | 45        | 10                         | 50                | 0.60                                  | 60               |
| CL321611T-2R7 □-S | 2.7                      | 20 or 10%               | 45        | 10                         | 45                | 0.60                                  | 60               |
| CL321611T-3R3 □-S | 3.3                      | 20 or 10%               | 45        | 10                         | 41                | 0.70                                  | 60               |
| CL321611T-3R9 □-S | 3.9                      | 20 or 10%               | 45        | 10                         | 38                | 0.80                                  | 50               |
| CL321611T-4R7 □-S | 4.7                      | 20 or 10%               | 45        | 10                         | 35                | 0.90                                  | 50               |
| CL321611T-5R6 □-S | 5.6                      | 20 or 10%               | 45        | 4                          | 32                | 0.70                                  | 25               |
| CL321611T-6R8 □-S | 6.8                      | 20 or 10%               | 45        | 4                          | 29                | 0.80                                  | 25               |
| CL321611T-8R2 □-S | 8.2                      | 20 or 10%               | 45        | 4                          | 26                | 0.90                                  | 25               |
| CL321611T-100 □-S | 10                       | 20 or 10%               | 45        | 2                          | 24                | 1.00                                  | 25               |
| CL321611T-120 □-S | 12                       | 20 or 10%               | 45        | 2                          | 22                | 1.00                                  | 15               |
| CL321611T-150 □-S | 15                       | 20 or 10%               | 35        | 1                          | 19                | 0.70                                  | 5                |
| CL321611T-180 □-S | 18                       | 20 or 10%               | 35        | 1                          | 18                | 0.75                                  | 5                |
| CL321611T-220 □-S | 22                       | 20 or 10%               | 35        | 1                          | 16                | 0.90                                  | 5                |
| CL321611T-270 □-S | 27                       | 20 or 10%               | 35        | 1                          | 14                | 0.90                                  | 5                |
| CL321611T-330 □-S | 33                       | 20 or 10%               | 35        | 1                          | 13                | 1.05                                  | 5                |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | L,Q TEST FREQ<br>(MHz) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) |
|--------------------|--------------------------|------------------------|-----------|-------------------|--------------------------|------------------|-------------------------|
| CL32161IT-47N □ -N | 0.047                    | 50MHZ,200mV            | 20        | 320               | 0.15                     | 300              | 20,15                   |
| CL32161IT-56N □ -N | 0.056                    | 50MHZ,200mV            | 20        | 280               | 0.25                     | 300              | 20,15                   |
| CL32161IT-68N □ -N | 0.068                    | 50MHZ,200mV            | 20        | 280               | 0.25                     | 300              | 20,15                   |
| CL32161IT-82N □ -N | 0.082                    | 50MHZ,200mV            | 20        | 250               | 0.25                     | 300              | 20,15                   |
| CL32161IT-R10 □ -N | 0.1                      | 25MHZ,200mV            | 25        | 235               | 0.25                     | 250              | 20,15,10                |
| CL32161IT-R12 □ -N | 0.12                     | 25MHZ,200mV            | 25        | 220               | 0.3                      | 250              | 20,15,10                |
| CL32161IT-R15 □ -N | 0.15                     | 25MHZ,200mV            | 25        | 200               | 0.3                      | 250              | 20,15,10                |
| CL32161IT-R18 □ -N | 0.18                     | 25MHZ,200mV            | 25        | 185               | 0.4                      | 250              | 20,15,10                |
| CL32161IT-R22 □ -N | 0.22                     | 25MHZ,200mV            | 25        | 170               | 0.4                      | 250              | 20,15,10                |
| CL32161IT-R27 □ -N | 0.27                     | 25MHZ,200mV            | 25        | 150               | 0.5                      | 250              | 20,15,10                |
| CL32161IT-R33 □ -N | 0.33                     | 25MHZ,200mV            | 25        | 145               | 0.6                      | 250              | 20,15,10                |
| CL32161IT-R39 □ -N | 0.39                     | 25MHZ,200mV            | 25        | 135               | 0.5                      | 200              | 20,15,10                |
| CL32161IT-R47 □ -N | 0.47                     | 25MHZ,200mV            | 25        | 125               | 0.6                      | 200              | 20,15,10                |
| CL32161IT-R56 □ -N | 0.56                     | 25MHZ,200mV            | 25        | 115               | 0.7                      | 150              | 20,15,10                |
| CL32161IT-R68 □ -N | 0.68                     | 25MHZ,200mV            | 25        | 105               | 0.8                      | 150              | 20,15,10                |
| CL32161IT-R82 □ -N | 0.82                     | 25MHZ,200mV            | 25        | 100               | 0.9                      | 150              | 20,15,10                |
| CL32161IT-IR0 □ -N | 1                        | 10MHZ,200mV            | 45        | 75                | 0.4                      | 100              | 20,15,10                |
| CL32161IT-IR2 □ -N | 1.2                      | 10MHZ,200mV            | 45        | 65                | 0.5                      | 100              | 20,15,10                |
| CL32161IT-IR5 □ -N | 1.5                      | 10MHZ,200mV            | 45        | 60                | 0.5                      | 80               | 20,15,10                |
| CL32161IT-IR8 □ -N | 1.8                      | 10MHZ,200mV            | 45        | 55                | 0.5                      | 70               | 20,15,10                |
| CL32161IT-2R2 □ -N | 2.2                      | 10MHZ,200mV            | 45        | 50                | 0.6                      | 60               | 20,15,10                |
| CL32161IT-2R7 □ -N | 2.7                      | 10MHZ,200mV            | 45        | 45                | 0.6                      | 60               | 20,15,10                |
| CL32161IT-3R3 □ -N | 3.3                      | 10MHZ,200mV            | 45        | 41                | 0.7                      | 60               | 20,15,10                |
| CL32161IT-3R9 □ -N | 3.9                      | 10MHZ,200mV            | 45        | 38                | 0.8                      | 50               | 20,15,10                |
| CL32161IT-4R7 □ -N | 4.7                      | 10MHZ,200mV            | 45        | 35                | 0.9                      | 50               | 20,15,10                |
| CL32161IT-5R6 □ -N | 5.6                      | 4MHZ,200mV             | 45        | 32                | 0.7                      | 25               | 20,15,10                |
| CL32161IT-6R8 □ -N | 6.8                      | 4MHZ,200mV             | 45        | 29                | 0.8                      | 25               | 20,15,10                |
| CL32161IT-8R2 □ -N | 8.2                      | 4MHZ,200mV             | 45        | 26                | 0.9                      | 25               | 20,15,10                |
| CL32161IT-100 □ -N | 10                       | 2MHZ,60mV              | 45        | 24                | 1                        | 25               | 20,15,10                |
| CL32161IT-120 □ -N | 12                       | 2MHZ,60mV              | 45        | 22                | 1                        | 15               | 20,15,10                |
| CL32161IT-150 □ -N | 15                       | 1MHZ,60mV              | 35        | 19                | 0.7                      | 5                | 20,15,10                |
| CL32161IT-180 □ -N | 18                       | 1MHZ,60mV              | 35        | 18                | 0.75                     | 5                | 20,15,10                |
| CL32161IT-220 □ -N | 22                       | 1MHZ,60mV              | 35        | 16                | 0.9                      | 5                | 20,15,10                |
| CL32161IT-270 □ -N | 27                       | 1MHZ,60mV              | 35        | 14                | 0.9                      | 5                | 20,15,10                |
| CL32161IT-330 □ -N | 33                       | 1MHZ,60mV              | 35        | 13                | 1.05                     | 5                | 20,15,10                |

NOTE: □-tolerance K=  $\pm$ 10% / L=  $\pm$ 15% / M= $\pm$ 20%

1.Operating temperature range -25°C~85°C

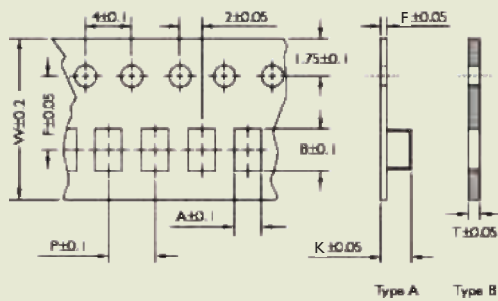
2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

"-N"FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## TAPE DIMENSIONS

Dimensions : mm

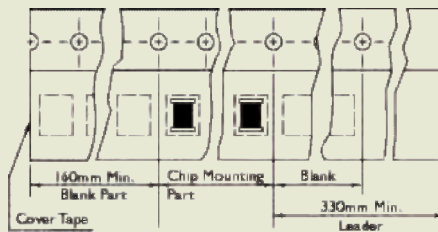


| TYPE     | A    | B    | T    | W   | P   | F   | K    | TAPE TYPE |
|----------|------|------|------|-----|-----|-----|------|-----------|
| CL160808 | 1.05 | 1.8  | 0.95 | 8.0 | 4.0 | 3.5 | -    | B         |
| CL201209 | 1.42 | 2.30 | 0.22 | 8.0 | 4.0 | 3.5 | 1.04 | A         |
| CL201212 | 1.35 | 2.25 | 0.22 | 8.0 | 4.0 | 3.5 | 1.35 | A         |
| CL321611 | 1.88 | 3.50 | 0.22 | 8.0 | 4.0 | 3.5 | 1.27 | A         |

## TAPE MATERIAL

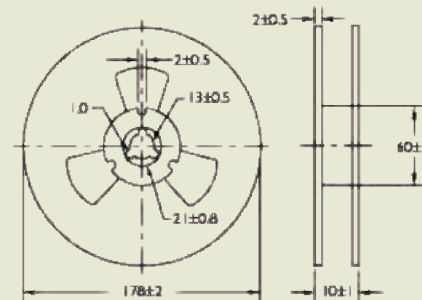
Carrier Tape : Polystyrene (for 201209, 201212, 321611 Series), Paper (for 160808)

Cover Type : Polyethyene



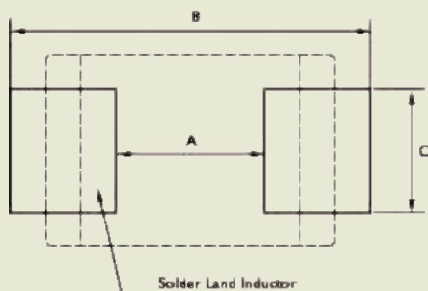
## REEL DIMENSIONS

Dimensions : mm



## RECOMMENDED PATTERN

Dimensions : mm



| TYPE     | A   | B         | C   |
|----------|-----|-----------|-----|
| CL160808 | 0.8 | 2.4 ~ 3.4 | 0.6 |
| CL201209 | 1.2 | 3.0 ~ 4.0 | 1.0 |
| CL201212 | 1.2 | 3.0 ~ 4.0 | 1.0 |
| CL321611 | 2.0 | 4.2 ~ 5.2 | 1.2 |

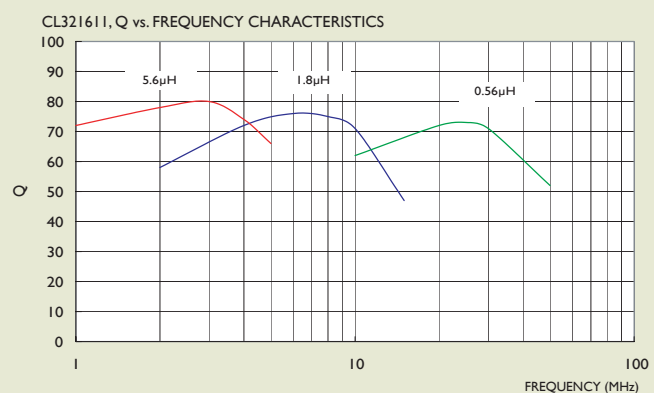
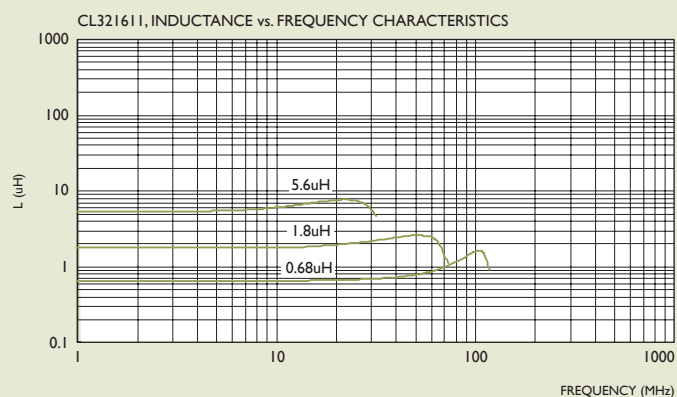
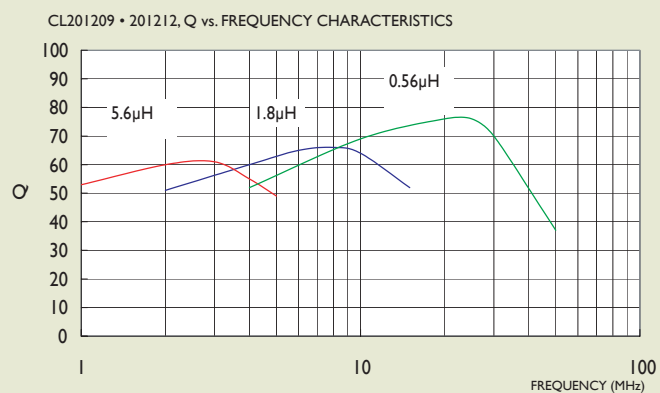
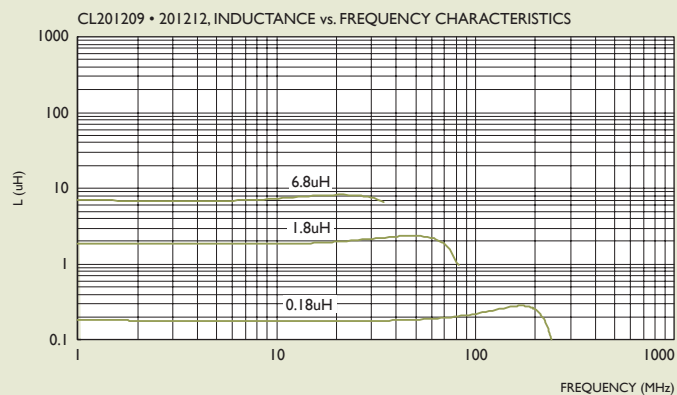
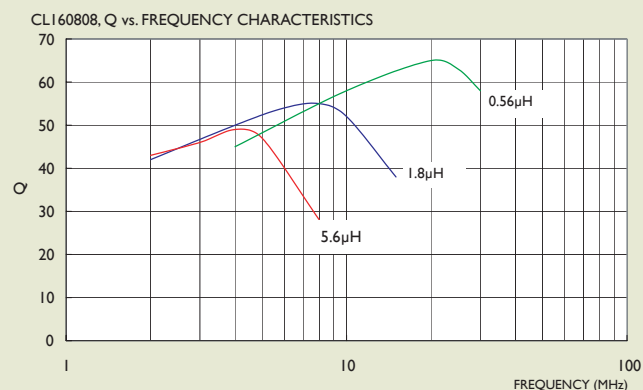
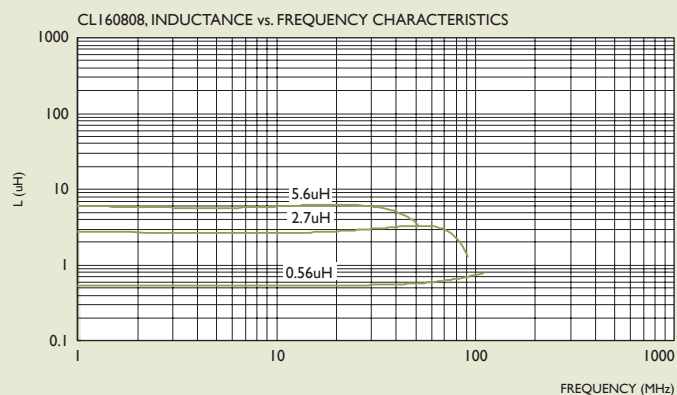
## PACKAGING QUANTITY

| TYPE     | BULK | QUANTITY/REEL |
|----------|------|---------------|
| CL160808 | ✓    | 4000          |
| CL201209 | ✓    | 4000          |
| CL201212 | ✓    | 3000          |
| CL321611 | ✓    | 3000          |



## TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer

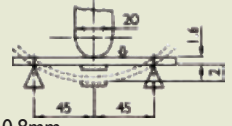




## CL SERIES RELIABILITY TEST

### I-1 MECHANICAL PERFORMANCE

| NO.   | ITEM                         | SPECIFICATION                                                                          | TEST CONDITIONS                                                                                                                                                                                    |
|-------|------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I-1-1 | Flexure Strength             | Appearance : No Damage<br>L Change : within $\pm 10\%$<br>Q Change : within $\pm 30\%$ | Test device shall be soldered on the substrate.<br>Substrate Dimension : 100 x 40 x 1.6mm<br>Deflection : 2.0mm<br>Keeping Time : 30Sec.<br>* For 100505, substrate dimension is 100 x 40 x 0.8mm. |
| I-1-2 | Vibration                    |                                                                                        | Test device shall be soldered on the substrate.<br>Oscillation Frequency : 10 to 55 to 10Hz for 1Min.<br>Amplitude : 1.5mm<br>Time : 2Hrs. for each Axis (X,Y & Z), Total 6Hrs.                    |
| I-1-3 | Resistance to Soldering Heat | Appearance : No Damage                                                                 | Pre-heating : 150°C, 1Min.<br>Solder Composition : Sn/Pb = 63/37<br>Solder Temperature : 260 $\pm$ 5°C<br>Immersion Time : 10 $\pm$ 1Sec.                                                          |
| I-1-4 | Solderability                | The electrodes shall be at least 90% covered with new solder coating.                  | Pre-heating : 150°C, 1Min.<br>Solder Composition : Sn/Pb = 63/37<br>Solder Temperature : 230 $\pm$ 5°C<br>Immersion Time : 4 $\pm$ 1Sec.                                                           |



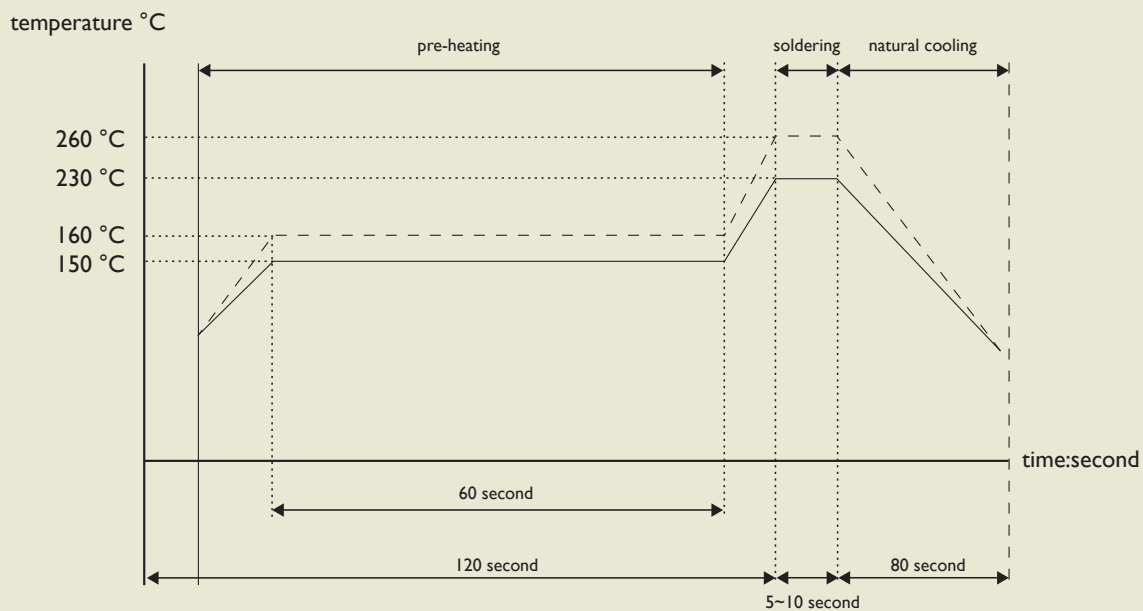
### I-2 ENVIRONMENTAL PERFORMANCE

| NO.   | ITEM                        | SPECIFICATION                                                              | TEST CONDITIONS                                                                                                                                                                                                                                                                                                                                                |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
|-------|-----------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|-------------|---|---------|----|---|--------|---|---|--------|----|---|--------|---|
| I-2-1 | Temperature Cycle           | Appearance : No Damage<br>L Change : within ±10%<br>Q Change : within ±30% | One Cycle <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (Min.)</th></tr><tr><td>1</td><td>-25 ± 3</td><td>30</td></tr><tr><td>2</td><td>25 ± 2</td><td>3</td></tr><tr><td>3</td><td>85 ± 3</td><td>30</td></tr><tr><td>4</td><td>25 ± 2</td><td>3</td></tr></table> Total : 100 Cycles<br>Measured after Exposure in the Room Condition for 24Hrs. | Step | Temperature (°C) | Time (Min.) | 1 | -25 ± 3 | 30 | 2 | 25 ± 2 | 3 | 3 | 85 ± 3 | 30 | 4 | 25 ± 2 | 3 |
| Step  | Temperature (°C)            | Time (Min.)                                                                |                                                                                                                                                                                                                                                                                                                                                                |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
| 1     | -25 ± 3                     | 30                                                                         |                                                                                                                                                                                                                                                                                                                                                                |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
| 2     | 25 ± 2                      | 3                                                                          |                                                                                                                                                                                                                                                                                                                                                                |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
| 3     | 85 ± 3                      | 30                                                                         |                                                                                                                                                                                                                                                                                                                                                                |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
| 4     | 25 ± 2                      | 3                                                                          |                                                                                                                                                                                                                                                                                                                                                                |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
| I-2-2 | Humidity Resistance         |                                                                            | Temperature : 40 ± 2°C<br>Relative Humidity : 90 ~ 95%<br>Time : 1000Hrs.<br>Measured after Exposure in the Room Condition for 24Hrs.                                                                                                                                                                                                                          |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
| I-2-3 | High Temperature Resistance |                                                                            | Temperature : 85 ± 3°C<br>Relative Humidity : 20%<br>Applied Current : Rated Current<br>Time : 1000Hrs.<br>Measured after Exposure in the Room Condition for 24Hrs.                                                                                                                                                                                            |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |
| I-2-4 | Low Temperature Resistance  |                                                                            | Temperature : -25 ± 3°C<br>Relative Humidity : 0%<br>Time : 1000Hrs.<br>Measured after Exposure in the Room Condition for 24Hrs.                                                                                                                                                                                                                               |      |                  |             |   |         |    |   |        |   |   |        |    |   |        |   |



## RECOMMEND SOLDERING CONDITIONS

for:CL/ CLH/ SQV/ SMD power inductors/ SMD Chip Beads/ SMD Filters, Transformers, Current Sensors



for: lead solder

for: lead-free solder

# Miniature Surface Mount Chip Inductors

# SQV Series



SQV Series comes in 2 sizes and provides wide inductance range , high Q value at high frequencies and low DC resistance

## APPLICATIONS

### Personal, Cordless Phone

## High Freq. Communication Products

## GPS ( Global Position System )

## Personal Computers

Note :SQV Series is not suitable for wave soldering

## FEATURES

This miniature chip inductors wound on a special ferrite core.

High Q value at high frequencies and low DC resistance.

## Wide Inductance Range

## PRODUCT IDENTIFICATION

- SQV** 
- Internal No.
  - Tolerance
  - Inductance
  - Packaging Style
  - Dimensions
  - Product Symbol

- Packaging : T: Tape and Reel
- Tolerance : J =  $\pm 5\%$ ; K =  $\pm 10\%$ ; M =  $\pm 20\%$
- YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.  
Ex. SQV322520T-220J-N

## RECOMMENDED PATTERN



| TYPE      | A   | B   | C   | D   | E   |
|-----------|-----|-----|-----|-----|-----|
| SQV322520 | 5.5 | 1.0 | 1.3 | 1.0 | 2.0 |
| SQV453226 | 7.5 | 1.5 | 1.5 | 1.5 | 3.0 |



| TYPE      | A         | B         | C         | D       | E         |
|-----------|-----------|-----------|-----------|---------|-----------|
| SQV322520 | 3.2 ± 0.3 | 2.5 ± 0.2 | 2.0 ± 0.2 | 1.3 TYP | 2.5 ± 0.2 |
| SQV453226 | 4.5 ± 0.3 | 3.2 ± 0.2 | 2.6 ± 0.2 | 1.0 Min | 3.6 ± 0.2 |





## ELECTRICAL CHARACTERISTICS

| PART NO.            | INDUCTANCE (μH) |           | QUALITY FACTOR |       |           | DC RESISTANCE<br>(Ω) Max. | SRF<br>(MHz) Min. | IDC<br>(mA) Max. |
|---------------------|-----------------|-----------|----------------|-------|-----------|---------------------------|-------------------|------------------|
|                     | NOMINAL         | TOLERANCE | TEST           | SPEC. | TEST      |                           |                   |                  |
|                     | VALUE           | (±%)      | FREQUENCY      | Min.  | FREQUENCY |                           |                   |                  |
| SQV322520T-R10 □ -S | 0.10            | 20        | 1MHz           | 20    | 25.2MHz   | 0.25                      | 200               | 700              |
| SQV322520T-R18 □ -S | 0.18            | 20        | 1MHz           | 20    | 25.2MHz   | 0.25                      | 200               | 650              |
| SQV322520T-R27 □ -S | 0.27            | 20        | 1MHz           | 25    | 25.2MHz   | 0.25                      | 200               | 600              |
| SQV322520T-R39 □ -S | 0.39            | 20        | 1MHz           | 25    | 25.2MHz   | 0.25                      | 200               | 530              |
| SQV322520T-R56 □ -S | 0.56            | 20        | 1MHz           | 30    | 25.2MHz   | 0.25                      | 160               | 530              |
| SQV322520T-R68 □ -S | 0.68            | 20        | 1MHz           | 30    | 25.2MHz   | 0.25                      | 160               | 470              |
| SQV322520T-R82 □ -S | 0.82            | 20        | 1MHz           | 30    | 25.2MHz   | 0.25                      | 120               | 450              |
| SQV322520T-1R0 □ -S | 1.0             | 20        | 1MHz           | 20    | 1MHz      | 0.50                      | 100               | 445              |
| SQV322520T-1R2 □ -S | 1.2             | 20        | 1MHz           | 20    | 1MHz      | 0.60                      | 100               | 425              |
| SQV322520T-1R5 □ -S | 1.5             | 10/20     | 1MHz           | 20    | 1MHz      | 0.60                      | 75                | 400              |
| SQV322520T-1R8 □ -S | 1.8             | 10/20     | 1MHz           | 20    | 1MHz      | 0.70                      | 60                | 390              |
| SQV322520T-2R2 □ -S | 2.2             | 10/20     | 1MHz           | 20    | 1MHz      | 0.80                      | 50                | 370              |
| SQV322520T-2R7 □ -S | 2.7             | 10/20     | 1MHz           | 20    | 1MHz      | 0.90                      | 43                | 320              |
| SQV322520T-3R3 □ -S | 3.3             | 10/20     | 1MHz           | 20    | 1MHz      | 1.0                       | 38                | 300              |
| SQV322520T-3R9 □ -S | 3.9             | 10/20     | 1MHz           | 20    | 1MHz      | 1.1                       | 35                | 290              |
| SQV322520T-4R7 □ -S | 4.7             | 10/20     | 1MHz           | 20    | 1MHz      | 1.2                       | 31                | 270              |
| SQV322520T-5R6 □ -S | 5.6             | 10/20     | 1MHz           | 20    | 1MHz      | 1.3                       | 28                | 250              |
| SQV322520T-6R8 □ -S | 6.8             | 10/20     | 1MHz           | 20    | 1MHz      | 1.5                       | 25                | 240              |
| SQV322520T-8R2 □ -S | 8.2             | 10/20     | 1MHz           | 20    | 1MHz      | 1.6                       | 23                | 225              |
| SQV322520T-100 □ -S | 10              | 5/10      | 1MHz           | 35    | 1MHz      | 1.8                       | 20                | 190              |
| SQV322520T-120 □ -S | 12              | 5/10      | 1MHz           | 35    | 1MHz      | 2.0                       | 18                | 180              |
| SQV322520T-150 □ -S | 15              | 5/10      | 1MHz           | 35    | 1MHz      | 2.2                       | 16                | 170              |
| SQV322520T-180 □ -S | 18              | 5/10      | 1MHz           | 35    | 1MHz      | 2.5                       | 15                | 165              |
| SQV322520T-220 □ -S | 22              | 5/10      | 1MHz           | 35    | 1MHz      | 2.8                       | 14                | 150              |
| SQV322520T-270 □ -S | 27              | 5/10      | 1MHz           | 35    | 1MHz      | 3.1                       | 13                | 125              |
| SQV322520T-330 □ -S | 33              | 5/10      | 1MHz           | 40    | 1MHz      | 3.5                       | 12                | 115              |
| SQV322520T-390 □ -S | 39              | 5/10      | 1MHz           | 40    | 1MHz      | 3.9                       | 11                | 110              |
| SQV322520T-470 □ -S | 47              | 5/10      | 1MHz           | 40    | 1MHz      | 4.3                       | 11                | 100              |
| SQV322520T-560 □ -S | 56              | 5/10      | 1MHz           | 40    | 1MHz      | 4.9                       | 10.0              | 85               |
| SQV322520T-680 □ -S | 68              | 5/10      | 1MHz           | 40    | 1MHz      | 5.5                       | 9.0               | 80               |
| SQV322520T-820 □ -S | 82              | 5/10      | 1MHz           | 40    | 1MHz      | 6.2                       | 8.5               | 70               |
| SQV322520T-101 □ -S | 100             | 5/10      | 1MHz           | 40    | 796KHz    | 7.0                       | 8.0               | 80               |
| SQV322520T-121 □ -S | 120             | 5/10      | 1MHz           | 40    | 796KHz    | 8.0                       | 7.5               | 75               |
| SQV322520T-151 □ -S | 150             | 5/10      | 1MHz           | 40    | 796KHz    | 9.3                       | 7.0               | 70               |
| SQV322520T-181 □ -S | 180             | 5/10      | 1MHz           | 40    | 796KHz    | 10.2                      | 6.0               | 65               |
| SQV322520T-221 □ -S | 220             | 5/10      | 1MHz           | 40    | 796KHz    | 11.8                      | 5.5               | 65               |
| SQV322520T-271 □ -S | 270             | 5/10      | 1MHz           | 40    | 796KHz    | 12.5                      | 5.0               | 65               |
| SQV322520T-331 □ -S | 330             | 5/10      | 1MHz           | 40    | 796KHz    | 13.0                      | 5.0               | 65               |
| SQV322520T-391 □ -S | 390             | 5/10      | 1MHz           | 50    | 796KHz    | 22.0                      | 5.0               | 50               |
| SQV322520T-471 □ -S | 470             | 5/10      | 1KHz           | 50    | 796KHz    | 25.0                      | 5.0               | 45               |
| SQV322520T-561 □ -S | 560             | 5/10      | 1KHz           | 50    | 796KHz    | 28.0                      | 5.0               | 40               |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | L/Q TEST FREQ | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | Rated Current<br>(A) Max. | TOLERANCE<br>( $\pm$ %) |
|---------------------|--------------------------|---------------|-----------|-------------------|--------------------------|---------------------------|-------------------------|
| SQV322520T-R10 □ -N | 0.1                      | 1MHz/25.2MHz  | 20        | 200               | 0.025                    | 0.7                       | M                       |
| SQV322520T-IR0 □ -N | 1                        | 1MHz/1MHz     | 20        | 100               | 0.5                      | 0.445                     | M                       |
| SQV322520T-IR2 □ -N | 1.2                      | 1MHz/1MHz     | 20        | 100               | 0.6                      | 0.425                     | K,M                     |
| SQV322520T-IR5 □ -N | 1.5                      | 1MHz/1MHz     | 20        | 75                | 0.6                      | 0.4                       | K,M                     |
| SQV322520T-IR8 □ -N | 1.8                      | 1MHz/1MHz     | 20        | 60                | 0.7                      | 0.39                      | K,M                     |
| SQV322520T-2R2 □ -N | 2.2                      | 1MHz/1MHz     | 20        | 50                | 0.8                      | 0.37                      | K,M                     |
| SQV322520T-2R7 □ -N | 2.7                      | 1MHz/1MHz     | 20        | 43                | 0.9                      | 0.32                      | K,M                     |
| SQV322520T-3R3 □ -N | 3.3                      | 1MHz/1MHz     | 20        | 38                | 1                        | 0.3                       | K,M                     |
| SQV322520T-3R9 □ -N | 3.9                      | 1MHz/1MHz     | 20        | 35                | 1.1                      | 0.29                      | K,M                     |
| SQV322520T-4R7 □ -N | 4.7                      | 1MHz/1MHz     | 20        | 31                | 1.2                      | 0.27                      | K,M                     |
| SQV322520T-5R6 □ -N | 5.6                      | 1MHz/1MHz     | 20        | 28                | 1.3                      | 0.25                      | K,M                     |
| SQV322520T-6R8 □ -N | 6.8                      | 1MHz/1MHz     | 20        | 25                | 1.5                      | 0.24                      | K,M                     |
| SQV322520T-8R2 □ -N | 8.2                      | 1MHz/1MHz     | 20        | 23                | 1.6                      | 0.225                     | K,M                     |
| SQV322520T-100 □ -N | 10                       | 1MHz/1MHz     | 35        | 20                | 1.8                      | 0.19                      | J,K,M                   |
| SQV322520T-120 □ -N | 12                       | 1MHz/1MHz     | 35        | 18                | 2                        | 0.18                      | J,K,M                   |
| SQV322520T-150 □ -N | 15                       | 1MHz/1MHz     | 35        | 16                | 2.2                      | 0.17                      | J,K,M                   |
| SQV322520T-180 □ -N | 18                       | 1MHz/1MHz     | 35        | 15                | 2.5                      | 0.165                     | J,K,M                   |
| SQV322520T-220 □ -N | 22                       | 1MHz/1MHz     | 35        | 14                | 2.8                      | 0.15                      | J,K,M                   |
| SQV322520T-270 □ -N | 27                       | 1MHz/1MHz     | 35        | 13                | 3.1                      | 0.125                     | J,K,M                   |
| SQV322520T-330 □ -N | 33                       | 1MHz/1MHz     | 40        | 12                | 3.5                      | 0.115                     | J,K,M                   |
| SQV322520T-390 □ -N | 39                       | 1MHz/1MHz     | 40        | 11                | 3.9                      | 0.11                      | J,K,M                   |
| SQV322520T-470 □ -N | 47                       | 1MHz/1MHz     | 40        | 11                | 4.3                      | 0.1                       | J,K,M                   |
| SQV322520T-560 □ -N | 56                       | 1MHz/1MHz     | 40        | 10                | 4.9                      | 0.085                     | J,K,M                   |
| SQV322520T-680 □ -N | 68                       | 1MHz/1MHz     | 40        | 9                 | 5.5                      | 0.08                      | J,K,M                   |
| SQV322520T-820 □ -N | 82                       | 1MHz/1MHz     | 40        | 8.5               | 6.2                      | 0.07                      | J,K,M                   |
| SQV322520T-101 □ -N | 100                      | 1MHz/796KHz   | 40        | 8                 | 7                        | 0.08                      | J,K,M                   |
| SQV322520T-121 □ -N | 120                      | 1MHz/796KHz   | 40        | 7.5               | 8                        | 0.075                     | J,K,M                   |
| SQV322520T-151 □ -N | 150                      | 1MHz/796KHz   | 40        | 7                 | 9.3                      | 0.07                      | J,K,M                   |
| SQV322520T-181 □ -N | 180                      | 1MHz/796KHz   | 40        | 6                 | 10.2                     | 0.065                     | J,K,M                   |
| SQV322520T-221 □ -N | 220                      | 1MHz/796KHz   | 40        | 5.5               | 11.8                     | 0.065                     | J,K,M                   |
| SQV322520T-271 □ -N | 270                      | 1MHz/796KHz   | 40        | 5                 | 12.5                     | 0.065                     | J,K,M                   |
| SQV322520T-331 □ -N | 330                      | 1MHz/796KHz   | 40        | 5                 | 13                       | 0.065                     | J,K,M                   |
| SQV322520T-391 □ -N | 390                      | 1MHz/796KHz   | 50        | 5                 | 22                       | 0.05                      | J,K,M                   |
| SQV322520T-471 □ -N | 470                      | 1KHz/796KHz   | 50        | 5                 | 25                       | 0.045                     | J,K,M                   |
| SQV322520T-561 □ -N | 560                      | 1KHz/796KHz   | 50        | 5                 | 28                       | 0.04                      | J,K,M                   |

NOTE: □-tolerance J=  $\pm$ 5% / K=  $\pm$ 10% / M=  $\pm$ 20%

1. Operating temperature range -25°C~85°C

2. Rated Current: Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.

3. L/Q Test OSC @1V

"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS

| PART NO.            | INDUCTANCE (μH) |           | QUALITY FACTOR |       |           | DC RESISTANCE<br>(Ω) Max. | SRF<br>(MHz) Min. | IDC<br>(mA) Max. |
|---------------------|-----------------|-----------|----------------|-------|-----------|---------------------------|-------------------|------------------|
|                     | NOMINAL         | TOLERANCE | TEST           | SPEC. | TEST      |                           |                   |                  |
|                     | VALUE           | (±%)      | FREQUENCY      | Min.  | FREQUENCY |                           |                   |                  |
| SQV453226T-1R0 □ -S | 1.0             | 20        | 1MHz           | 20    | 1MHz      | 0.20                      | 120               | 500              |
| SQV453226T-1R2 □ -S | 1.2             | 20        | 1MHz           | 20    | 1MHz      | 0.20                      | 100               | 500              |
| SQV453226T-1R5 □ -S | 1.5             | 20        | 1MHz           | 20    | 1MHz      | 0.30                      | 85                | 500              |
| SQV453226T-1R8 □ -S | 1.8             | 20        | 1MHz           | 20    | 1MHz      | 0.30                      | 75                | 500              |
| SQV453226T-2R2 □ -S | 2.2             | 20        | 1MHz           | 20    | 1MHz      | 0.30                      | 62                | 500              |
| SQV453226T-2R7 □ -S | 2.7             | 20        | 1MHz           | 20    | 1MHz      | 0.32                      | 53                | 500              |
| SQV453226T-3R3 □ -S | 3.3             | 20        | 1MHz           | 20    | 1MHz      | 0.35                      | 47                | 500              |
| SQV453226T-3R9 □ -S | 3.9             | 20        | 1MHz           | 20    | 1MHz      | 0.38                      | 41                | 500              |
| SQV453226T-4R7 □ -S | 4.7             | 10/20     | 1MHz           | 30    | 1MHz      | 0.40                      | 38                | 500              |
| SQV453226T-5R6 □ -S | 5.6             | 10/20     | 1MHz           | 30    | 1MHz      | 0.47                      | 33                | 500              |
| SQV453226T-6R8 □ -S | 6.8             | 10/20     | 1MHz           | 30    | 1MHz      | 0.50                      | 31                | 450              |
| SQV453226T-8R2 □ -S | 8.2             | 10/20     | 1MHz           | 30    | 1MHz      | 0.56                      | 27                | 450              |
| SQV453226T-100 □ -S | 10              | 5/10      | 1MHz           | 35    | 1MHz      | 0.56                      | 23                | 400              |
| SQV453226T-120 □ -S | 12              | 5/10      | 1MHz           | 35    | 1MHz      | 0.62                      | 21                | 380              |
| SQV453226T-150 □ -S | 15              | 5/10      | 1MHz           | 35    | 1MHz      | 0.73                      | 19                | 360              |
| SQV453226T-180 □ -S | 18              | 5/10      | 1MHz           | 35    | 1MHz      | 0.82                      | 17                | 340              |
| SQV453226T-220 □ -S | 22              | 5/10      | 1MHz           | 35    | 1MHz      | 0.94                      | 15                | 320              |
| SQV453226T-270 □ -S | 27              | 5/10      | 1MHz           | 35    | 1MHz      | 1.1                       | 14                | 300              |
| SQV453226T-330 □ -S | 33              | 5/10      | 1MHz           | 35    | 1MHz      | 1.2                       | 12                | 270              |
| SQV453226T-390 □ -S | 39              | 5/10      | 1MHz           | 35    | 1MHz      | 1.4                       | 11                | 240              |
| SQV453226T-470 □ -S | 47              | 5/10      | 1MHz           | 35    | 1MHz      | 1.5                       | 10                | 220              |
| SQV453226T-560 □ -S | 56              | 5/10      | 1MHz           | 35    | 1MHz      | 1.7                       | 9.3               | 200              |
| SQV453226T-680 □ -S | 68              | 5/10      | 1MHz           | 35    | 1MHz      | 1.9                       | 8.4               | 180              |
| SQV453226T-820 □ -S | 82              | 5/10      | 1MHz           | 35    | 1MHz      | 2.2                       | 7.5               | 170              |
| SQV453226T-101 □ -S | 100             | 5/10      | 1MHz           | 40    | 796KHz    | 2.5                       | 6.8               | 160              |
| SQV453226T-121 □ -S | 120             | 5/10      | 1MHz           | 40    | 796KHz    | 3.0                       | 6.2               | 150              |
| SQV453226T-151 □ -S | 150             | 5/10      | 1MHz           | 40    | 796KHz    | 3.7                       | 5.5               | 130              |
| SQV453226T-181 □ -S | 180             | 5/10      | 1MHz           | 40    | 796KHz    | 4.5                       | 5.0               | 120              |
| SQV453226T-221 □ -S | 220             | 5/10      | 1MHz           | 40    | 796KHz    | 5.4                       | 4.5               | 110              |
| SQV453226T-271 □ -S | 270             | 5/10      | 1MHz           | 40    | 796KHz    | 6.8                       | 4.0               | 100              |
| SQV453226T-331 □ -S | 330             | 5/10      | 1MHz           | 40    | 796KHz    | 8.2                       | 3.6               | 95               |
| SQV453226T-391 □ -S | 390             | 5/10      | 1MHz           | 40    | 796KHz    | 9.7                       | 3.3               | 90               |
| SQV453226T-471 □ -S | 470             | 5/10      | 1KHz           | 40    | 796KHz    | 11.8                      | 3.0               | 80               |
| SQV453226T-561 □ -S | 560             | 5/10      | 1KHz           | 40    | 796KHz    | 14.5                      | 2.7               | 70               |
| SQV453226T-681 □ -S | 680             | 5/10      | 1KHz           | 40    | 796KHz    | 17.5                      | 2.5               | 65               |
| SQV453226T-821 □ -S | 820             | 5/10      | 1KHz           | 40    | 796KHz    | 20.5                      | 2.2               | 60               |
| SQV453226T-102 □ -S | 1000            | 5/10      | 1KHz           | 40    | 252KHz    | 25.0                      | 2.0               | 50               |
| SQV453226T-122 □ -S | 1200            | 5/10      | 1KHz           | 40    | 252KHz    | 30.0                      | 1.8               | 45               |
| SQV453226T-152 □ -S | 1500            | 5/10      | 1KHz           | 40    | 252KHz    | 37.0                      | 1.6               | 40               |
| SQV453226T-182 □ -S | 1800            | 5/10      | 1KHz           | 40    | 252KHz    | 45.0                      | 1.5               | 35               |
| SQV453226T-222 □ -S | 2200            | 5/10      | 1KHz           | 40    | 252KHz    | 50.0                      | 1.3               | 30               |

- Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.
- Operating temp : -25°C~85°C
- Soldering Heat : 230°C 10 sec after 150°C preheat cycle for 4 min.
- Inductance tolerance : J=±5% K=±10% M=±20%
- Test Equipment : L&Q : HP4192A. LF Impedance Analyzer  
SRF : HP4291A RF Impedance Analyzer  
DCR : CH502BC/HP4338B



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | L/Q TEST FREQ | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | Rated Current<br>(A) Max. | TOLERANCE<br>( $\pm$ %) |
|---------------------|--------------------------|---------------|-----------|-------------------|--------------------------|---------------------------|-------------------------|
| SQV453226T-1R0 □ -N | 1                        | 1MHz/1MHz     | 20        | 120               | 0.2                      | 0.5                       | M                       |
| SQV453226T-1R2 □ -N | 1.2                      | 1MHz/1MHz     | 20        | 100               | 0.2                      | 0.5                       | M                       |
| SQV453226T-1R5 □ -N | 1.5                      | 1MHz/1MHz     | 20        | 85                | 0.3                      | 0.5                       | M                       |
| SQV453226T-1R8 □ -N | 1.8                      | 1MHz/1MHz     | 20        | 75                | 0.3                      | 0.5                       | M                       |
| SQV453226T-2R2 □ -N | 2.2                      | 1MHz/1MHz     | 20        | 62                | 0.3                      | 0.5                       | M                       |
| SQV453226T-2R7 □ -N | 2.7                      | 1MHz/1MHz     | 20        | 53                | 0.32                     | 0.5                       | M                       |
| SQV453226T-3R3 □ -N | 3.3                      | 1MHz/1MHz     | 20        | 47                | 0.35                     | 0.5                       | M                       |
| SQV453226T-3R9 □ -N | 3.9                      | 1MHz/1MHz     | 20        | 41                | 0.38                     | 0.5                       | M                       |
| SQV453226T-4R7 □ -N | 4.7                      | 1MHz/1MHz     | 30        | 38                | 0.4                      | 0.5                       | K,M                     |
| SQV453226T-5R6 □ -N | 5.6                      | 1MHz/1MHz     | 30        | 33                | 0.47                     | 0.5                       | K,M                     |
| SQV453226T-6R8 □ -N | 6.8                      | 1MHz/1MHz     | 30        | 31                | 0.5                      | 0.45                      | K,M                     |
| SQV453226T-8R2 □ -N | 8.2                      | 1MHz/1MHz     | 30        | 27                | 0.56                     | 0.45                      | K,M                     |
| SQV453226T-100 □ -N | 10                       | 1MHz/1MHz     | 35        | 23                | 0.56                     | 0.4                       | J,K,M                   |
| SQV453226T-120 □ -N | 12                       | 1MHz/1MHz     | 35        | 21                | 0.62                     | 0.38                      | J,K,M                   |
| SQV453226T-150 □ -N | 15                       | 1MHz/1MHz     | 35        | 19                | 0.73                     | 0.36                      | J,K,M                   |
| SQV453226T-180 □ -N | 18                       | 1MHz/1MHz     | 35        | 17                | 0.82                     | 0.34                      | J,K,M                   |
| SQV453226T-220 □ -N | 22                       | 1MHz/1MHz     | 35        | 15                | 0.94                     | 0.32                      | J,K,M                   |
| SQV453226T-270 □ -N | 27                       | 1MHz/1MHz     | 35        | 14                | 1.1                      | 0.3                       | J,K,M                   |
| SQV453226T-330 □ -N | 33                       | 1MHz/1MHz     | 35        | 12                | 1.2                      | 0.27                      | J,K,M                   |
| SQV453226T-390 □ -N | 39                       | 1MHz/1MHz     | 35        | 11                | 1.4                      | 0.24                      | J,K,M                   |
| SQV453226T-470 □ -N | 47                       | 1MHz/1MHz     | 35        | 10                | 1.5                      | 0.22                      | J,K,M                   |
| SQV453226T-560 □ -N | 56                       | 1MHz/1MHz     | 35        | 9.3               | 1.7                      | 0.2                       | J,K,M                   |
| SQV453226T-680 □ -N | 68                       | 1MHz/1MHz     | 35        | 8.4               | 1.9                      | 0.18                      | J,K,M                   |
| SQV453226T-820 □ -N | 82                       | 1MHz/1MHz     | 35        | 7.5               | 2.2                      | 0.17                      | J,K,M                   |
| SQV453226T-101 □ -N | 100                      | 1MHz/0.796MHz | 40        | 6.8               | 2.5                      | 0.16                      | J,K,M                   |
| SQV453226T-121 □ -N | 120                      | 1MHz/0.796MHz | 40        | 6.2               | 3                        | 0.15                      | J,K,M                   |
| SQV453226T-151 □ -N | 150                      | 1MHz/0.796MHz | 40        | 5.5               | 3.7                      | 0.13                      | J,K,M                   |
| SQV453226T-181 □ -N | 180                      | 1MHz/0.796MHz | 40        | 5                 | 4.5                      | 0.12                      | J,K,M                   |
| SQV453226T-221 □ -N | 220                      | 1MHz/0.796MHz | 40        | 4.5               | 5.4                      | 0.11                      | J,K,M                   |
| SQV453226T-271 □ -N | 270                      | 1MHz/0.796MHz | 40        | 4                 | 6.8                      | 0.1                       | J,K,M                   |
| SQV453226T-331 □ -N | 330                      | 1MHz/0.796MHz | 40        | 3.6               | 8.2                      | 0.095                     | J,K,M                   |
| SQV453226T-391 □ -N | 390                      | 1MHz/0.796MHz | 40        | 3.3               | 9.7                      | 0.09                      | J,K,M                   |
| SQV453226T-471 □ -N | 470                      | 1KHz/0.796MHz | 40        | 3                 | 11.8                     | 0.08                      | J,K,M                   |
| SQV453226T-561 □ -N | 560                      | 1KHz/0.796MHz | 40        | 2.7               | 14.5                     | 0.07                      | J,K,M                   |
| SQV453226T-681 □ -N | 680                      | 1KHz/0.796MHz | 40        | 2.5               | 17.5                     | 0.065                     | J,K,M                   |
| SQV453226T-821 □ -N | 820                      | 1KHz/0.796MHz | 40        | 2.2               | 20.5                     | 0.06                      | J,K,M                   |
| SQV453226T-102 □ -N | 1000                     | 1KHz/0.252MHz | 40        | 2                 | 25                       | 0.05                      | J,K,M                   |
| SQV453226T-122 □ -N | 1200                     | 1KHz/0.252MHz | 40        | 1.8               | 30                       | 0.045                     | J,K,M                   |
| SQV453226T-152 □ -N | 1500                     | 1KHz/0.252MHz | 40        | 1.6               | 37                       | 0.04                      | J,K,M                   |
| SQV453226T-182 □ -N | 1800                     | 1KHz/0.252MHz | 40        | 1.5               | 45                       | 0.035                     | J,K,M                   |
| SQV453226T-222 □ -N | 2200                     | 1KHz/0.252MHz | 40        | 1.3               | 50                       | 0.03                      | J,K,M                   |

NOTE: □-tolerance J=  $\pm$ 5% / K=  $\pm$ 10% / M=  $\pm$ 20%

1. Operating temperature range -25°C~85°C

2. Rated Current: Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.

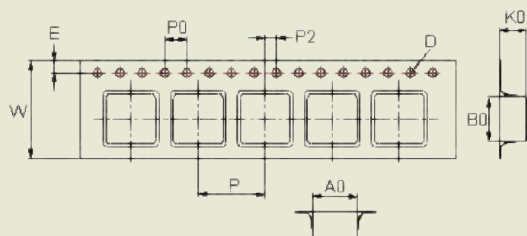
3. L/Q Test OSC @1V

"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)



## TAPE DIMENSIONS

Dimensions : mm

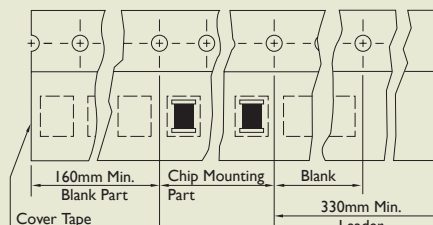


## TAPE MATERIAL

Dimensions : mm

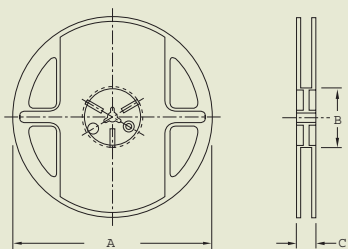
Carrier Tape : Polystyrene

Cover Type : Polyethylene



## REEL DIMENSIONS

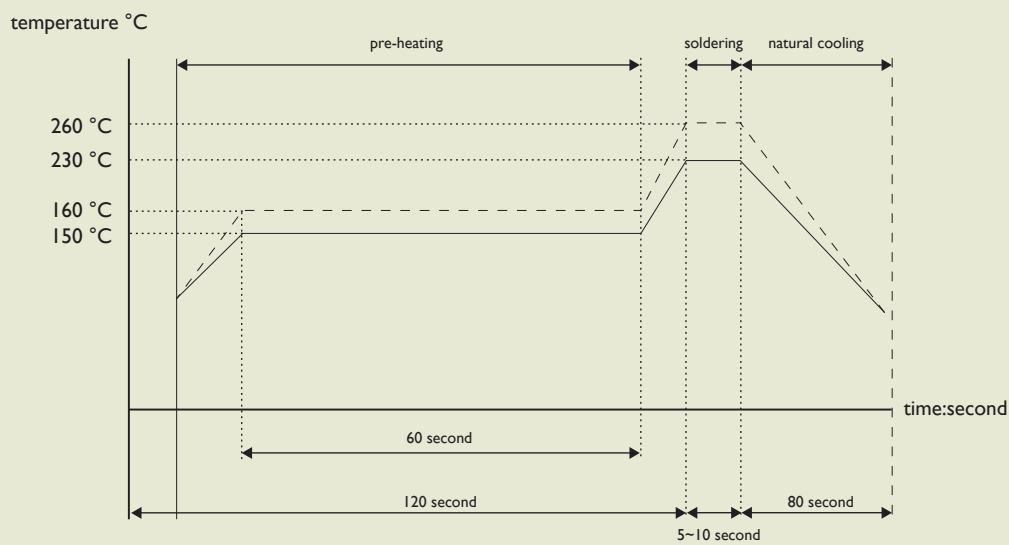
Dimensions : mm



| TYPE      | TAPE DIMENSIONS |      |      |     |      |    |   |    |    | REEL DIMENSIONS |    |      |     | QUANTITY |
|-----------|-----------------|------|------|-----|------|----|---|----|----|-----------------|----|------|-----|----------|
|           | A0              | B0   | K0   | D   | E    | W  | P | P0 | P2 | A               | B  | C    | D   | PCS/REEL |
| SQV322520 | 2.90            | 3.60 | 2.25 | 1.5 | 1.75 | 8  | 4 | 4  | 2  | 178             | 60 | 9    | 1.5 | 2000     |
| SQV453226 | 3.60            | 4.90 | 3.00 | 1.5 | 1.75 | 12 | 8 | 4  | 2  | 178             | 60 | 13.2 | 1.5 | 500      |

## RECOMMEND SOLDERING CONDITIONS

for:CL/ CLH/ SQV/ SMD power inductors/ SMD Chip Beads/ SMD Filters,Transformers, Current Sensors



for: lead solder —————

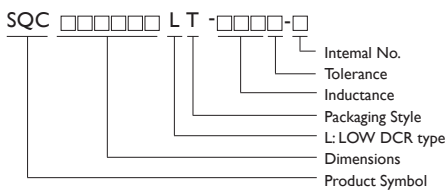
for: lead-free solder ··········

## High Current and Low DC Resistance



**SQC** □□□□□□-□□□□-□

Internal No.  
Tolerance  
Inductance  
Packaging Style  
Dimensions  
Product Symbol



- SQC\_LT : Low DCR Type

Note : SQC Series inductors with lead-free terminals which meet SONY SS-00259's criteria for lead-free product in Q2 of 2006 and internal No. will be change to "N" as identification. EX. SQC321618T-R12□ -N

Available in 4 sizes.

| A   | B   | C    | D   |
|-----|-----|------|-----|
| 1.5 | 4.5 | 1.75 | 1.0 |

| TYPE      | A   | B   | C   | D   | E   |
|-----------|-----|-----|-----|-----|-----|
| SQC322520 | 5.5 | 1.0 | 1.3 | 1.0 | 2.0 |
| SQC423556 | 7.5 | 1.5 | 1.5 | 1.5 | 3.0 |

| A   | B   | C   | D   |
|-----|-----|-----|-----|
| 8.0 | 3.0 | 2.0 | 3.5 |

| TYPE      | A         | B         | C         | D       | E       |
|-----------|-----------|-----------|-----------|---------|---------|
| SQC321618 | 3.2 ± 0.3 | 1.6 ± 0.2 | 1.8 ± 0.2 | 0.7Min. | 2.3±0.2 |
| SQC322520 | 3.2 ± 0.3 | 2.5 ± 0.2 | 2.0 ± 0.2 | 1.3TYP. | 2.5±0.2 |
| SQC453226 | 4.5 ± 0.3 | 3.2 ± 0.2 | 2.6 ± 0.2 | 1.0Min. | 3.6±0.2 |
| SQC575047 | 5.7 ± 0.3 | 5.0 ± 0.3 | 4.7 ± 0.3 | 1.7Min. | 5.0±0.3 |



## ELECTRICAL CHARACTERISTICS

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>(%) | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. |
|---------------------|--------------------------|------------------|----------------------------|-------------------|---------------------------------------|-------------------------------|
| SQC321618T-R12 □ -S | 0.12                     | 20               | I                          | 250               | 0.112                                 | 970                           |
| SQC321618T-R22 □ -S | 0.22                     | 20               | I                          | 250               | 0.140                                 | 850                           |
| SQC321618T-R47 □ -S | 0.47                     | 20               | I                          | 180               | 0.210                                 | 700                           |
| SQC321618T-1R0 □ -S | 1.0                      | 20               | I                          | 100               | 0.364                                 | 510                           |
| SQC321618T-2R2 □ -S | 2.2                      | 20               | I                          | 50                | 0.533                                 | 430                           |
| SQC321618T-4R7 □ -S | 4.7                      | 10/20            | I                          | 31                | 0.845                                 | 340                           |
| SQC321618T-100 □ -S | 10                       | 5/10             | I                          | 20                | 1.690                                 | 230                           |
| SQC321618T-220 □ -S | 22                       | 5/10             | I                          | 14                | 3.900                                 | 160                           |
| SQC321618T-470 □ -S | 47                       | 5/10             | I                          | 10                | 10.40                                 | 100                           |
| SQC321618T-101 □ -S | 100                      | 5/10             | I                          | 7                 | 15.60                                 | 80                            |

- Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.
- Operating temp : -25°C~85°C
- Soldering Heat : 230°C 10 sec after 150°C preheat cycle for 4 min.
- Test Equipment : L : HP4192A. LF Impedance Analyzer  
SRF : HP4291A RF Impedance Analyzer  
DCR : CHEN HWA 502 BC

## ELECTRICAL CHARACTERISTICS

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>(%) | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. |
|---------------------|--------------------------|------------------|----------------------------|-------------------|---------------------------------------|-------------------------------|
| SQC322520T-1R0 □ -S | 1.0                      | 20               | I                          | 96                | 0.09                                  | 1000                          |
| SQC322520T-2R2 □ -S | 2.2                      | 20               | I                          | 64                | 0.13                                  | 600                           |
| SQC322520T-4R7 □ -S | 4.7                      | 20               | I                          | 43                | 0.20                                  | 450                           |
| SQC322520T-100 □ -S | 10                       | 20               | I                          | 26                | 0.44                                  | 300                           |
| SQC322520T-220 □ -S | 22                       | 10/20            | I                          | 19                | 0.71                                  | 250                           |
| SQC322520T-470 □ -S | 47                       | 10/20            | I                          | 15                | 1.30                                  | 170                           |
| SQC322520T-101 □ -S | 100                      | 10/20            | I                          | 10                | 3.50                                  | 100                           |
| SQC322520T-221 □ -S | 220                      | 10/20            | I                          | 6.8               | 8.40                                  | 70                            |
| SQC322520T-331 □ -S | 330                      | 10/20            | I                          | 5.6               | 10.0                                  | 60                            |
| SQC322520T-391 □ -S | 390                      | 10/20            | I                          | 5.0               | 17.0                                  | 60                            |
| SQC322520T-471 □ -S | 470                      | 10/20            | 0.001                      | 5.0               | 19.0                                  | 60                            |
| SQC322520T-561 □ -S | 560                      | 10/20            | 0.001                      | 5.0               | 22.0                                  | 60                            |

- Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.
- Operating temp : -25°C~85°C
- Soldering Heat : 230°C 10 sec after 150°C preheat cycle for 4 min.
- Inductance tolerance : J=±5% K=±10% M=±20%
- Test Equipment : L : HP4192A. LF Impedance Analyzer  
SRF : HP4291A RF Impedance Analyzer  
DCR : CHEN HWA 502 BC



## ELECTRICAL CHARACTERISTICS (LOW DCR TYPE)

| PART NO.             | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>(%) | TEST<br>FREQUENCY<br>(MHz) | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | SRF<br>(MHz) Min. | RATED<br>CURRENT<br>(mA) Max. |
|----------------------|--------------------------|------------------|----------------------------|---------------------------------------|-------------------|-------------------------------|
| SQC322520LT-R15 □ -S | 0.15                     | 20               | 1                          | 0.028                                 | 400               | 1450                          |
| SQC322520LT-R27 □ -S | 0.27                     | 20               | 1                          | 0.034                                 | 250               | 1250                          |
| SQC322520LT-R47 □ -S | 0.47                     | 20               | 1                          | 0.042                                 | 150               | 1100                          |
| SQC322520LT-1R0 □ -S | 1.0                      | 20               | 1                          | 0.060                                 | 100               | 1000                          |
| SQC322520LT-2R2 □ -S | 2.2                      | 20               | 1                          | 0.097                                 | 64                | 790                           |
| SQC322520LT-4R7 □ -S | 4.7                      | 20               | 1                          | 0.15                                  | 43                | 650                           |
| SQC322520LT-100 □ -S | 10                       | 10/20            | 1                          | 0.30                                  | 26                | 450                           |

- Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.
- Operating temp : -25°C~85°C
- Soldering Heat : 230°C 10 sec after 150°C preheat cycle for 4 min.
- Test Equipment : L : HP4192A, LF Impedance Analyzer  
SRF : HP4292A LF Impedance Analyzer  
DCR : CHEN HWA 502 BC

## ELECTRICAL CHARACTERISTICS : LEAD FREE & ROHS COMPLIANCE

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(A) Max. | TOLERANCE |
|---------------------|--------------------------|----------------------------|-------------------|---------------------------------------|------------------------------|-----------|
| SQC321618T-R12 □ -N | 0.12                     | 1V 1MHz                    | 250               | 0.112+0                               | 0.97                         | M         |
| SQC321618T-R22 □ -N | 0.22                     | 1V 1MHz                    | 250               | 0.140+0                               | 0.85                         | M         |
| SQC321618T-R47 □ -N | 0.47                     | 1V 1MHz                    | 180               | 0.210+0                               | 0.7                          | M         |
| SQC321618T-1R0 □ -N | 1                        | 1V 1MHz                    | 100               | 0.364+0                               | 0.51                         | M         |
| SQC321618T-2R2 □ -N | 2.2                      | 1V 1MHz                    | 50                | 0.533+0                               | 0.43                         | K,M       |
| SQC321618T-4R7 □ -N | 4.7                      | 1V 1MHz                    | 31                | 0.845+0                               | 0.34                         | J,K,M     |
| SQC321618T-100 □ -N | 10                       | 1V 1MHz                    | 20                | 1.69+0                                | 0.23                         | J,K,M     |
| SQC321618T-220 □ -N | 22                       | 1V 1MHz                    | 14                | 3.90+0                                | 0.16                         | J,K,M     |
| SQC321618T-470 □ -N | 47                       | 1V 1MHz                    | 10                | 10.4+0                                | 0.1                          | J,K,M     |
| SQC321618T-101 □ -N | 100                      | 1V 1MHz                    | 7                 | 15.6+0                                | 0.08                         | J,K,M     |
| SQC322520T-1R0 □ -N | 1                        | 0.1V 1MHz                  | 96                | 0.09±30%                              | 1                            | M         |
| SQC322520T-2R2 □ -N | 2.2                      | 0.1V 1MHz                  | 64                | 0.13±30%                              | 0.6                          | M         |
| SQC322520T-3R3 □ -N | 3.3                      | 0.1V 1MHz                  | 60                | 0.15±30%                              | 0.6                          | K,M       |
| SQC322520T-3R9 □ -N | 3.9                      | 0.1V 1MHz                  | 50                | 0.16±30%                              | 0.5                          | M         |
| SQC322520T-4R7 □ -N | 4.7                      | 0.1V 1MHz                  | 43                | 0.20±30%                              | 0.45                         | M         |
| SQC322520T-6R8 □ -N | 6.8                      | 0.1V 1MHz                  | 30                | 0.26±30%                              | 0.4                          | M         |
| SQC322520T-100 □ -N | 10                       | 0.1V 1MHz                  | 26                | 0.44±30%                              | 0.3                          | K,M       |
| SQC322520T-220 □ -N | 22                       | 0.1V 1MHz                  | 19                | 0.71±30%                              | 0.25                         | K,M       |
| SQC322520T-330 □ -N | 33                       | 0.1V 1MHz                  | 15                | 1.1±30%                               | 0.2                          | K,M       |
| SQC322520T-470 □ -N | 47                       | 0.1V 1MHz                  | 15                | 1.30±30%                              | 0.17                         | K,M       |
| SQC322520T-560 □ -N | 56                       | 0.1V 1MHz                  | 12                | 2.30±30%                              | 0.15                         | K,M       |
| SQC322520T-101 □ -N | 100                      | 0.1V 1MHz                  | 10                | 3.50±30%                              | 0.1                          | K,M       |
| SQC322520T-221 □ -N | 220                      | 0.1V 1MHz                  | 6.8               | 8.40±30%                              | 0.07                         | K,M       |
| SQC322520T-331 □ -N | 330                      | 0.1V 1MHz                  | 5.6               | 10±30%                                | 0.06                         | K,M       |
| SQC322520T-391 □ -N | 390                      | 0.1V 1MHz                  | 5                 | 17±30%                                | 0.06                         | K,M       |
| SQC322520T-471 □ -N | 470                      | 0.1V 1KHz                  | 5                 | 19±30%                                | 0.06                         | K,M       |
| SQC322520T-561 □ -N | 560                      | 0.1V 1KHz                  | 5                 | 22±30%                                | 0.06                         | K,M       |

NOTE : □ -tolerance J±5% / K=±10% / M=±20%

1. Operating temperature range -25°C~85°C

2. Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.

“-N” FOR COMPLETELY LEAD TYPE (INCLUDING FERRITE BODY & SOLDER)





## ELECTRICAL CHARACTERISTICS

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>(%) | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. |
|---------------------|--------------------------|------------------|----------------------------|-------------------|---------------------------------------|-------------------------------|
| SQC453226T-1R0 □ -S | 1.0                      | 20               | 1                          | 100               | 0.08                                  | 1080                          |
| SQC453226T-1R5 □ -S | 1.5                      | 20               | 1                          | 85                | 0.09                                  | 1000                          |
| SQC453226T-2R2 □ -S | 2.2                      | 20               | 1                          | 60                | 0.11                                  | 900                           |
| SQC453226T-3R3 □ -S | 3.3                      | 20               | 1                          | 47                | 0.13                                  | 800                           |
| SQC453226T-4R7 □ -S | 4.7                      | 10/20            | 1                          | 35                | 0.15                                  | 750                           |
| SQC453226T-6R8 □ -S | 6.8                      | 10/20            | 1                          | 30                | 0.20                                  | 720                           |
| SQC453226T-100 □ -S | 10                       | 5/10             | 1                          | 23                | 0.24                                  | 650                           |
| SQC453226T-150 □ -S | 15                       | 5/10             | 1                          | 20                | 0.32                                  | 570                           |
| SQC453226T-220 □ -S | 22                       | 5/10             | 1                          | 15                | 0.60                                  | 420                           |
| SQC453226T-330 □ -S | 33                       | 5/10             | 1                          | 12                | 1.0                                   | 310                           |
| SQC453226T-470 □ -S | 47                       | 5/10             | 1                          | 10                | 1.1                                   | 280                           |
| SQC453226T-680 □ -S | 68                       | 5/10             | 1                          | 8.4               | 1.7                                   | 220                           |
| SQC453226T-101 □ -S | 100                      | 5/10             | 1                          | 6.8               | 2.2                                   | 190                           |
| SQC453226T-151 □ -S | 150                      | 5/10             | 1                          | 5.5               | 3.5                                   | 130                           |
| SQC453226T-221 □ -S | 220                      | 5/10             | 1                          | 4.5               | 4.0                                   | 110                           |
| SQC453226T-331 □ -S | 330                      | 5/10             | 1                          | 3.6               | 6.8                                   | 100                           |
| SQC453226T-471 □ -S | 470                      | 5/10             | 0.001                      | 3.0               | 8.5                                   | 90                            |

- Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.
- Operating temp : -25°C~85°C
- Soldering Heat : 230°C 10 sec after 150°C preheat cycle for 4 min.
- Test Equipment : L : HP4192A. LF Impedance Analyzer  
SRF : HP4291A RF Impedance Analyzer  
DCR : CHEN HWA 502 BC

## ELECTRICAL CHARACTERISTICS : LEAD FREE & ROHS COMPLIANCE

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>resistance<br>( $\Omega$ ) Max. | RATED<br>Current<br>(A) Max. | TOLERANCE |
|---------------------|--------------------------|----------------------------|-------------------|---------------------------------------|------------------------------|-----------|
| SQC453226T-1R0 □ -N | 1                        | 1V 1MHz                    | 100               | 0.08+0                                | 1.08                         | M         |
| SQC453226T-1R5 □ -N | 1.5                      | 1V 1MHz                    | 85                | 0.09+0                                | 1                            | M         |
| SQC453226T-2R2 □ -N | 2.2                      | 1V 1MHz                    | 60                | 0.11+0                                | 0.9                          | M         |
| SQC453226T-3R3 □ -N | 3.3                      | 1V 1MHz                    | 47                | 0.13+0                                | 0.8                          | M         |
| SQC453226T-4R7 □ -N | 4.7                      | 1V 1MHz                    | 35                | 0.15+0                                | 0.75                         | K,M       |
| SQC453226T-6R8 □ -N | 6.8                      | 1V 1MHz                    | 30                | 0.20+0                                | 0.75                         | K,M       |
| SQC453226T-100 □ -N | 10                       | 1V 1MHz                    | 23                | 0.24+0                                | 0.65                         | J,K,M     |
| SQC453226T-150 □ -N | 15                       | 1V 1MHz                    | 20                | 0.32+0                                | 0.57                         | J,K,M     |
| SQC453226T-220 □ -N | 22                       | 1V 1MHz                    | 15                | 0.60+0                                | 0.42                         | J,K,M     |
| SQC453226T-330 □ -N | 33                       | 1V 1MHz                    | 12                | 1.00+0                                | 0.31                         | J,K,M     |
| SQC453226T-470 □ -N | 47                       | 1V 1MHz                    | 10                | 1.10+0                                | 0.28                         | J,K,M     |
| SQC453226T-680 □ -N | 68                       | 1V 1MHz                    | 8.4               | 1.70+0                                | 0.22                         | J,K,M     |
| SQC453226T-101 □ -N | 100                      | 1V 1MHz                    | 6.8               | 2.20+0                                | 0.19                         | J,K,M     |
| SQC453226T-151 □ -N | 150                      | 1V 1MHz                    | 5.5               | 3.50+0                                | 0.13                         | J,K,M     |
| SQC453226T-221 □ -N | 220                      | 1V 1MHz                    | 4.5               | 4.00+0                                | 0.11                         | J,K,M     |
| SQC453226T-331 □ -N | 330                      | 1V 1MHz                    | 3.6               | 6.80+0                                | 0.1                          | J,K,M     |
| SQC453226T-471 □ -N | 470                      | 1V 1MHz                    | 3                 | 8.50+0                                | 0.09                         | J,K,M     |

NOTE : □ -tolerance J $\pm$ 5% / K $\pm$ 10% / M $\pm$ 20%

1. Operating temperature range -25°C~85°C

2. Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.

“-N” FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm\%$ ) | TEST<br>FREQUENCY | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | SRF<br>(MHz) Min. | Rated Current<br>(mA) Max. |
|-------------------|--------------------------|--------------------------|-------------------|---------------------------------------|-------------------|----------------------------|
| SQC575047T-R12□-S | 0.12                     | 20                       | 1MHz              | 0.0098                                | 450               | 6000                       |
| SQC575047T-R27□-S | 0.27                     | 20                       | 1MHz              | 0.0140                                | 300               | 5300                       |
| SQC575047T-R47□-S | 0.47                     | 20                       | 1MHz              | 0.0182                                | 200               | 4800                       |
| SQC575047T-1R0□-S | 1.0                      | 20                       | 1MHz              | 0.0270                                | 150               | 4000                       |
| SQC575047T-1R5□-S | 1.5                      | 20                       | 1MHz              | 0.0310                                | 110               | 3700                       |
| SQC575047T-2R2□-S | 2.2                      | 20                       | 1MHz              | 0.0410                                | 80                | 3200                       |
| SQC575047T-3R3□-S | 3.3                      | 20                       | 1MHz              | 0.0500                                | 40                | 2900                       |
| SQC575047T-4R7□-S | 4.7                      | 20                       | 1MHz              | 0.0574                                | 30                | 2700                       |
| SQC575047T-6R8□-S | 6.8                      | 20                       | 1MHz              | 0.1040                                | 25                | 2000                       |
| SQC575047T-100□-S | 10                       | 10/20                    | 1MHz              | 0.1300                                | 20                | 1700                       |
| SQC575047T-150□-S | 15                       | 10/20                    | 1MHz              | 0.210                                 | 17                | 1400                       |
| SQC575047T-220□-S | 22                       | 10/20                    | 1MHz              | 0.266                                 | 15                | 1200                       |
| SQC575047T-330□-S | 33                       | 10/20                    | 1MHz              | 0.448                                 | 12                | 900                        |
| SQC575047T-470□-S | 47                       | 10/20                    | 1MHz              | 0.560                                 | 10                | 800                        |
| SQC575047T-680□-S | 68                       | 10/20                    | 100kHz            | 0.938                                 | 7.6               | 640                        |
| SQC575047T-101□-S | 100                      | 10/20                    | 100kHz            | 1.204                                 | 6.5               | 560                        |
| SQC575047T-151□-S | 150                      | 10/20                    | 100kHz            | 2.660                                 | 5.0               | 420                        |
| SQC575047T-221□-S | 220                      | 10/20                    | 100kHz            | 3.360                                 | 4.0               | 320                        |
| SQC575047T-331□-S | 330                      | 10/20                    | 100kHz            | 6.160                                 | 3.1               | 270                        |
| SQC575047T-471□-S | 470                      | 10/20                    | 100kHz            | 7.560                                 | 2.4               | 240                        |
| SQC575047T-681□-S | 680                      | 10/20                    | 100kHz            | 11.34                                 | 1.9               | 190                        |
| SQC575047T-102□-S | 1000                     | 10/20                    | 10kHz             | 14.42                                 | 1.7               | 150                        |
| SQC575047T-222□-S | 2200                     | 10/20                    | 10kHz             | 30.10                                 | 1.2               | 100                        |
| SQC575047T-472□-S | 4700                     | 10/20                    | 10kHz             | 61.04                                 | 0.8               | 70                         |
| SQC575047T-103□-S | 10000                    | 10/20                    | 10kHz             | 140.0                                 | 0.5               | 50                         |

- Inductance Range : 0.12  $\mu$ H to 10000  $\mu$ H.
- Rated Current : Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.
- Operating temp : -25°C~85°C
- Soldering Heat : 230°C 10 sec after 150°C preheat cycle for 4 min.
- Inductance tolerance : J=±5% K=±10% M=±20%
- Test Equipment : L : HP4192A, LF Impedance Analyzer  
SRF : HP4291A RF Impedance Analyzer  
DCR : CHEN HWA 502 BC



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.                                   | INDUCTANCE<br>( $\mu$ H) | TEST FREQ | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | Rated Current<br>(mA) Max. | TOLERANCE |
|--------------------------------------------|--------------------------|-----------|-------------------|--------------------------|----------------------------|-----------|
| SQC575047T-R12 <input type="checkbox"/> -N | 0.12                     | IV 1MHz   | 450               | 0.0980                   | 6000                       | M         |
| SQC575047T-R27 <input type="checkbox"/> -N | 0.27                     | IV 1MHz   | 300               | 0.0140                   | 5300                       | M         |
| SQC575047T-R47 <input type="checkbox"/> -N | 0.47                     | IV 1MHz   | 200               | 0.0182                   | 4800                       | M         |
| SQC575047T-1R0 <input type="checkbox"/> -N | 1.00                     | IV 1MHz   | 150               | 0.0270                   | 4000                       | M         |
| SQC575047T-1R5 <input type="checkbox"/> -N | 1.5                      | IV 1MHz   | 110               | 0.0310                   | 3700                       | M         |
| SQC575047T-2R2 <input type="checkbox"/> -N | 2.2                      | IV 1MHz   | 80                | 0.0410                   | 3200                       | M         |
| SQC575047T-3R3 <input type="checkbox"/> -N | 3.3                      | IV 1MHz   | 40                | 0.0500                   | 2900                       | M         |
| SQC575047T-4R7 <input type="checkbox"/> -N | 4.7                      | IV 1MHz   | 30                | 0.0574                   | 2700                       | M         |
| SQC575047T-6R8 <input type="checkbox"/> -N | 6.8                      | IV 1MHz   | 25                | 0.1040                   | 2000                       | M         |
| SQC575047T-100 <input type="checkbox"/> -N | 10                       | IV 1MHz   | 20                | 0.1300                   | 1700                       | K,M       |
| SQC575047T-150 <input type="checkbox"/> -N | 15                       | IV 1MHz   | 17                | 0.210                    | 1400                       | K,M       |
| SQC575047T-220 <input type="checkbox"/> -N | 22                       | IV 1MHz   | 15                | 0.266                    | 1200                       | K,M       |
| SQC575047T-330 <input type="checkbox"/> -N | 33                       | IV 1MHz   | 12                | 0.448                    | 900                        | K,M       |
| SQC575047T-470 <input type="checkbox"/> -N | 47                       | IV 1MHz   | 10                | 0.560                    | 800                        | K,M       |
| SQC575047T-680 <input type="checkbox"/> -N | 68                       | IV 1MHz   | 7.6               | 0.938                    | 640                        | K,M       |
| SQC575047T-101 <input type="checkbox"/> -N | 100                      | IV 100KHz | 6.5               | 1.204                    | 560                        | K,M       |
| SQC575047T-151 <input type="checkbox"/> -N | 150                      | IV 100KHz | 5                 | 2.660                    | 420                        | K,M       |
| SQC575047T-221 <input type="checkbox"/> -N | 220                      | IV 100KHz | 4                 | 3.360                    | 320                        | K,M       |
| SQC575047T-331 <input type="checkbox"/> -N | 330                      | IV 100KHz | 3.1               | 6.160                    | 270                        | K,M       |
| SQC575047T-471 <input type="checkbox"/> -N | 470                      | IV 100KHz | 2.4               | 7.560                    | 240                        | K,M       |
| SQC575047T-681 <input type="checkbox"/> -N | 680                      | IV 100KHz | 1.9               | 11.34                    | 190                        | K,M       |
| SQC575047T-102 <input type="checkbox"/> -N | 1000                     | IV 10KHz  | 1.7               | 14.42                    | 150                        | K,M       |
| SQC575047T-222 <input type="checkbox"/> -N | 2200                     | IV 10KHz  | 1.2               | 30.10                    | 100                        | K,M       |
| SQC575047T-472 <input type="checkbox"/> -N | 4700                     | IV 10KHz  | 0.8               | 61.04                    | 70                         | K,M       |
| SQC575047T-103 <input type="checkbox"/> -N | 10000                    | IV 10KHz  | 0.5               | 140.0                    | 50                         | K,M       |

NOTE: ☐ -tolerance K=  $\pm 10\%$  / M=  $\pm 20\%$

1. Operating temperature range -25°C~85°C

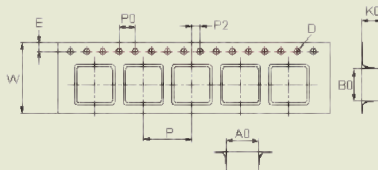
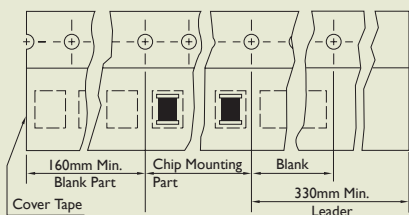
2. Rated Current: Self temperature rise shall be limited to 20°C Max. Inductance drop 10% typ. at last

"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)

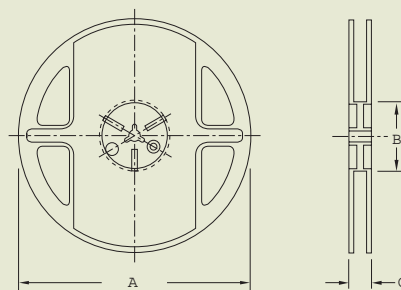
## TAPE MATERIAL

Carrier Tape : Polystyrene

Cover Type : Polyethylene



## REEL DIMENSIONS



Dimensions : mm

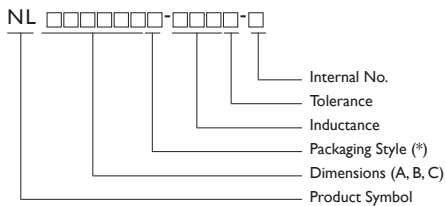
| TYPE      | TAPE DIMENSIONS |      |      |     |      |    |    | REEL DIMENSIONS |    |     |     |      |     | QUANTITY |
|-----------|-----------------|------|------|-----|------|----|----|-----------------|----|-----|-----|------|-----|----------|
|           | A0              | B0   | K0   | D   | E    | W  | P  | P0              | P2 | A   | B   | C    | D   | /REEL    |
| SQC321618 | 1.88            | 3.53 | 2.10 | 1.5 | 1.75 | 8  | 4  | 4               | 2  | 178 | 60  | 9    | 1.5 | 2000     |
| SQC322520 | 2.90            | 3.60 | 2.25 | 1.5 | 1.75 | 8  | 4  | 4               | 2  | 178 | 60  | 9    | 1.5 | 2000     |
| SQC453226 | 3.60            | 4.90 | 3.00 | 1.5 | 1.75 | 12 | 8  | 4               | 2  | 178 | 60  | 13.2 | 1.5 | 500      |
| SQC575047 | 5.4             | 6.0  | 5.5  | 1.5 | 1.75 | 16 | 12 | 12              | 2  | 330 | 100 | 17   | 1.5 | 1000     |

# Wound Chip Inductors

# NL Series



## PRODUCT IDENTIFICATION

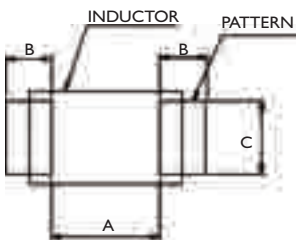


\*T: Tape and Reel ; B: Bulk

- Tolerance : J =  $\pm 5\%$  ; K =  $\pm 10\%$
- YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.  
Ex. NL322522T-R10K-N

## RECOMMENDED PATTERN

Dimensions : mm



| TYPE     | A   | B   | C   |
|----------|-----|-----|-----|
| NL322522 | 1.6 | 1.2 | 2.0 |
| NL453232 | 3.0 | 1.5 | 2.8 |
| NL565050 | 4.0 | 2.0 | 4.5 |

## APPLICATIONS

Microtelevisions, liquid crystal televisions, video cameras, portable VCRs, car radios, car stereos, thin tape radios, television tuners, mobile telephones, radio and other electronic devices.

## OUTLINE

These revolutionary, highly reliable wound chip inductors for automatic mounting have been developed in response to the trend toward high density in electronic equipment.

## FEATURES

Very strong solderability by reflow soldering, soldering iron or wave soldering.

Highly accurate dimensions can be mounted automatically.

Terminals are highly resistant to pull forces.

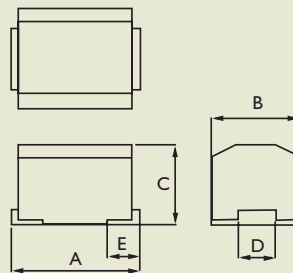
Highly resistant to mechanical shocks and pressure.

Highly reliable in environments of sudden temperature change and humidity.

## Superior Q characteristics and the broadest L selections among peers

## SHAPES AND DIMENSIONS

Dimensions : mm



| TYPE     | A         | B         | C         | D         | E         |
|----------|-----------|-----------|-----------|-----------|-----------|
| NL322522 | 3.2 ± 0.2 | 2.5 ± 0.2 | 2.2 ± 0.2 | 1.2 ± 0.4 | 0.6 ± 0.1 |
| NL453232 | 4.5 ± 0.3 | 3.2 ± 0.3 | 3.2 ± 0.3 | 1.4 ± 0.4 | 0.9 ± 0.2 |
| NL565050 | 5.6 ± 0.3 | 5.0 ± 0.3 | 5.0 ± 0.3 | 1.8 ± 0.3 | 1.3 ± 0.2 |



## ELECTRICAL CHARACTERISTICS NL322522 SERIES

| PART NO.         | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm\%$ ) | Q<br>Min. | TEST FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|------------------|--------------------------|--------------------------|-----------|-------------------------|-------------------|------------------------------------|------------------|
| NL322522T-010K-S | 0.010                    | 10                       | 15        | 100                     | 2500              | 0.13                               | 450              |
| NL322522T-012K-S | 0.012                    | 10                       | 17        | 100                     | 2300              | 0.14                               | 450              |
| NL322522T-015K-S | 0.015                    | 10                       | 19        | 100                     | 2100              | 0.16                               | 450              |
| NL322522T-018K-S | 0.018                    | 10                       | 21        | 100                     | 1900              | 0.18                               | 450              |
| NL322522T-022K-S | 0.022                    | 10                       | 23        | 100                     | 1700              | 0.20                               | 450              |
| NL322522T-027K-S | 0.027                    | 10                       | 23        | 100                     | 1500              | 0.22                               | 450              |
| NL322522T-033K-S | 0.033                    | 10                       | 25        | 100                     | 1400              | 0.24                               | 450              |
| NL322522T-039K-S | 0.039                    | 10                       | 25        | 100                     | 1300              | 0.27                               | 450              |
| NL322522T-047K-S | 0.047                    | 10                       | 26        | 100                     | 1200              | 0.30                               | 450              |
| NL322522T-056K-S | 0.056                    | 10                       | 26        | 100                     | 1100              | 0.33                               | 450              |
| NL322522T-068K-S | 0.068                    | 10                       | 27        | 100                     | 1000              | 0.36                               | 450              |
| NL322522T-082K-S | 0.082                    | 10                       | 27        | 100                     | 900               | 0.40                               | 450              |
| NL322522T-R10K-S | 0.10                     | 10                       | 28        | 100                     | 700               | 0.44                               | 450              |
| NL322522T-R12K-S | 0.12                     | 10                       | 30        | 25.20                   | 500               | 0.22                               | 450              |
| NL322522T-R15K-S | 0.15                     | 10                       | 30        | 25.20                   | 450               | 0.25                               | 450              |
| NL322522T-R18K-S | 0.18                     | 10                       | 30        | 25.20                   | 400               | 0.28                               | 450              |
| NL322522T-R22K-S | 0.22                     | 10                       | 30        | 25.20                   | 350               | 0.32                               | 450              |
| NL322522T-R27K-S | 0.27                     | 10                       | 30        | 25.20                   | 320               | 0.36                               | 450              |
| NL322522T-R33K-S | 0.33                     | 10                       | 30        | 25.20                   | 300               | 0.40                               | 450              |
| NL322522T-R39K-S | 0.39                     | 10                       | 30        | 25.20                   | 250               | 0.45                               | 450              |
| NL322522T-R47K-S | 0.47                     | 10                       | 30        | 25.20                   | 220               | 0.50                               | 450              |
| NL322522T-R56K-S | 0.56                     | 10                       | 30        | 25.20                   | 180               | 0.55                               | 450              |
| NL322522T-R68K-S | 0.68                     | 10                       | 30        | 25.20                   | 160               | 0.60                               | 450              |
| NL322522T-R82K-S | 0.82                     | 10                       | 30        | 25.20                   | 140               | 0.65                               | 450              |
| NL322522T-1R0K-S | 1.00                     | 10                       | 30        | 7.960                   | 90                | 0.70                               | 400              |
| NL322522T-1R2K-S | 1.20                     | 10                       | 30        | 7.960                   | 85                | 0.75                               | 390              |
| NL322522T-1R5K-S | 1.50                     | 10                       | 30        | 7.960                   | 70                | 0.85                               | 370              |
| NL322522T-1R8K-S | 1.80                     | 10                       | 30        | 7.960                   | 60                | 0.90                               | 350              |
| NL322522T-2R2K-S | 2.20                     | 10                       | 30        | 7.960                   | 50                | 1.00                               | 320              |
| NL322522T-2R7K-S | 2.70                     | 10                       | 30        | 7.960                   | 45                | 1.10                               | 290              |
| NL322522T-3R3K-S | 3.30                     | 10                       | 30        | 7.960                   | 40                | 1.20                               | 260              |
| NL322522T-3R9K-S | 3.90                     | 10                       | 30        | 7.960                   | 37                | 1.30                               | 250              |



## ELECTRICAL CHARACTERISTICS NL322522 SERIES

| PART NO.         | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm\%$ ) | Q<br>Min. | TEST FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|------------------|--------------------------|--------------------------|-----------|-------------------------|-------------------|------------------------------------|------------------|
| NL322522T-4R7K-S | 4.70                     | 10                       | 30        | 7.960                   | 32                | 1.50                               | 220              |
| NL322522T-5R6K-S | 5.60                     | 10                       | 30        | 7.960                   | 30                | 1.60                               | 200              |
| NL322522T-6R8K-S | 6.80                     | 10                       | 30        | 7.960                   | 28                | 1.80                               | 180              |
| NL322522T-8R2K-S | 8.20                     | 10                       | 30        | 7.960                   | 25                | 2.00                               | 170              |
| NL322522T-100K-S | 10                       | 10                       | 30        | 2.520                   | 23                | 2.10                               | 150              |
| NL322522T-120K-S | 12                       | 10                       | 30        | 2.520                   | 20                | 2.50                               | 140              |
| NL322522T-150K-S | 15                       | 10                       | 30        | 2.520                   | 19                | 2.80                               | 130              |
| NL322522T-180K-S | 18                       | 10                       | 30        | 2.520                   | 17                | 3.30                               | 120              |
| NL322522T-220K-S | 22                       | 10                       | 30        | 2.520                   | 16                | 3.70                               | 110              |
| NL322522T-270K-S | 27                       | 10                       | 30        | 2.520                   | 14                | 5.00                               | 80               |
| NL322522T-330K-S | 33                       | 10                       | 30        | 2.520                   | 13                | 5.60                               | 70               |
| NL322522T-390K-S | 39                       | 10                       | 30        | 2.520                   | 12                | 6.40                               | 65               |
| NL322522T-470K-S | 47                       | 10                       | 30        | 2.520                   | 10                | 7.00                               | 60               |
| NL322522T-560K-S | 56                       | 10                       | 30        | 2.520                   | 9                 | 8.00                               | 55               |
| NL322522T-680K-S | 68                       | 10                       | 30        | 2.520                   | 9                 | 9.00                               | 50               |
| NL322522T-820K-S | 82                       | 10                       | 30        | 2.520                   | 8                 | 10.0                               | 45               |
| NL322522T-101K-S | 100                      | 10                       | 20        | 0.796                   | 7                 | 10.0                               | 40               |
| NL322522T-121K-S | 120                      | 10                       | 20        | 0.796                   | 7                 | 11.0                               | 70               |
| NL322522T-151K-S | 150                      | 10                       | 20        | 0.796                   | 6                 | 15.0                               | 65               |
| NL322522T-181K-S | 180                      | 10                       | 20        | 0.796                   | 6                 | 17.0                               | 60               |
| NL322522T-221K-S | 220                      | 10                       | 20        | 0.796                   | 5                 | 21.0                               | 50               |
| NL322522T-271K-S | 270                      | 10                       | 20        | 0.796                   | 6                 | 22.0                               | 45               |
| NL322522T-331K-S | 330                      | 10                       | 20        | 0.796                   | 5                 | 34.0                               | 40               |

• S R F : HP4291A

• RDC : CH502BC / HP4338B

• IDC : HP4284A + HP42841A

• L/Q : HP4287A(0.10 $\mu$  H MAX)

• L / Q : HP4285A + HP16034E (0.12 $\mu$  H MIN)

• IDC:  $\Delta$  L / L : -10%



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | TEST FREQ<br>(MHz) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) |
|--------------------|--------------------------|--------------------|-----------|-------------------|--------------------------|------------------|-------------------------|
| NL322522T-010 □ -N | 0.01                     | 100                | 15        | 2500              | 0.13                     | 450              | 10                      |
| NL322522T-012 □ -N | 0.012                    | 100                | 17        | 2300              | 0.14                     | 450              | 10                      |
| NL322522T-015 □ -N | 0.015                    | 100                | 19        | 2100              | 0.16                     | 450              | 10                      |
| NL322522T-018 □ -N | 0.018                    | 100                | 21        | 1900              | 0.18                     | 450              | 10                      |
| NL322522T-022 □ -N | 0.022                    | 100                | 23        | 1700              | 0.2                      | 450              | 10                      |
| NL322522T-027 □ -N | 0.027                    | 100                | 23        | 1500              | 0.22                     | 450              | 10                      |
| NL322522T-033 □ -N | 0.033                    | 100                | 25        | 1400              | 0.24                     | 450              | 10                      |
| NL322522T-039 □ -N | 0.039                    | 100                | 25        | 1300              | 0.27                     | 450              | 10                      |
| NL322522T-047 □ -N | 0.047                    | 100                | 26        | 1200              | 0.3                      | 450              | 10                      |
| NL322522T-056 □ -N | 0.056                    | 100                | 26        | 1100              | 0.33                     | 450              | 10                      |
| NL322522T-068 □ -N | 0.068                    | 100                | 27        | 1000              | 0.36                     | 450              | 10                      |
| NL322522T-082 □ -N | 0.082                    | 100                | 27        | 900               | 0.4                      | 450              | 10                      |
| NL322522T-R10 □ -N | 0.1                      | 100                | 28        | 700               | 0.44                     | 450              | 5,10,20                 |
| NL322522T-R12 □ -N | 0.12                     | 25.2               | 30        | 500               | 0.22                     | 450              | 5,10,20                 |
| NL322522T-R15 □ -N | 0.15                     | 25.2               | 30        | 450               | 0.25                     | 450              | 5,10,20                 |
| NL322522T-R18 □ -N | 0.18                     | 25.2               | 30        | 400               | 0.28                     | 450              | 5,10,20                 |
| NL322522T-R22 □ -N | 0.22                     | 25.2               | 30        | 350               | 0.32                     | 450              | 5,10,20                 |
| NL322522T-R27 □ -N | 0.27                     | 25.2               | 30        | 320               | 0.36                     | 450              | 5,10,20                 |
| NL322522T-R33 □ -N | 0.33                     | 25.2               | 30        | 300               | 0.4                      | 450              | 5,10,20                 |
| NL322522T-R39 □ -N | 0.39                     | 25.2               | 30        | 250               | 0.45                     | 450              | 5,10,20                 |
| NL322522T-R47 □ -N | 0.47                     | 25.2               | 30        | 220               | 0.5                      | 450              | 5,10,20                 |
| NL322522T-R56 □ -N | 0.56                     | 25.2               | 30        | 180               | 0.55                     | 450              | 5,10,20                 |
| NL322522T-R68 □ -N | 0.68                     | 25.2               | 30        | 160               | 0.6                      | 450              | 5,10,20                 |
| NL322522T-R82 □ -N | 0.82                     | 25.2               | 30        | 140               | 0.65                     | 450              | 5,10,20                 |
| NL322522T-IR0 □ -N | 1                        | 7.96               | 30        | 90                | 0.7                      | 400              | 5,10                    |
| NL322522T-IR2 □ -N | 1.2                      | 7.96               | 30        | 85                | 0.75                     | 390              | 5,10                    |
| NL322522T-IR5 □ -N | 1.5                      | 7.96               | 30        | 70                | 0.85                     | 370              | 5,10                    |
| NL322522T-IR8 □ -N | 1.8                      | 7.96               | 30        | 60                | 0.9                      | 350              | 5,10                    |
| NL322522T-2R2 □ -N | 2.2                      | 7.96               | 30        | 50                | 1                        | 320              | 5,10                    |
| NL322522T-2R7 □ -N | 2.7                      | 7.96               | 30        | 45                | 1.1                      | 290              | 5,10                    |
| NL322522T-3R3 □ -N | 3.3                      | 7.96               | 30        | 40                | 1.2                      | 260              | 5,10                    |
| NL322522T-3R9 □ -N | 3.9                      | 7.96               | 30        | 37                | 1.3                      | 250              | 5,10                    |
| NL322522T-4R7 □ -N | 4.7                      | 7.96               | 30        | 32                | 1.5                      | 220              | 5,10                    |
| NL322522T-5R6 □ -N | 5.6                      | 7.96               | 30        | 30                | 1.6                      | 200              | 5,10                    |
| NL322522T-6R8 □ -N | 6.8                      | 7.96               | 30        | 28                | 1.8                      | 180              | 5,10                    |
| NL322522T-8R2 □ -N | 8.2                      | 7.96               | 30        | 25                | 2                        | 170              | 5,10                    |
| NL322522T-100 □ -N | 10                       | 2.52               | 30        | 23                | 2.1                      | 150              | 5,10                    |
| NL322522T-120 □ -N | 12                       | 2.52               | 30        | 20                | 2.5                      | 140              | 5,10                    |
| NL322522T-150 □ -N | 15                       | 2.52               | 30        | 19                | 2.8                      | 130              | 5,10                    |
| NL322522T-180 □ -N | 18                       | 2.52               | 30        | 17                | 3.3                      | 120              | 5,10                    |
| NL322522T-220 □ -N | 22                       | 2.52               | 30        | 16                | 3.7                      | 110              | 5,10                    |
| NL322522T-270 □ -N | 27                       | 2.52               | 30        | 14                | 5                        | 80               | 5,10                    |
| NL322522T-330 □ -N | 33                       | 2.52               | 30        | 13                | 5.6                      | 70               | 5,10                    |
| NL322522T-390 □ -N | 39                       | 2.52               | 30        | 12                | 6.4                      | 65               | 5,10                    |
| NL322522T-470 □ -N | 47                       | 2.52               | 30        | 10                | 7                        | 60               | 5,10                    |
| NL322522T-560 □ -N | 56                       | 2.52               | 30        | 9                 | 8                        | 55               | 5,10                    |
| NL322522T-680 □ -N | 68                       | 2.52               | 30        | 9                 | 9                        | 50               | 5,10                    |
| NL322522T-820 □ -N | 82                       | 2.52               | 30        | 8                 | 10                       | 45               | 5,10                    |
| NL322522T-101 □ -N | 100                      | 0.796              | 20        | 7                 | 10                       | 40               | 5,10                    |
| NL322522T-121 □ -N | 120                      | 0.796              | 20        | 7                 | 11                       | 70               | 5,10                    |
| NL322522T-151 □ -N | 150                      | 0.796              | 20        | 6                 | 15                       | 65               | 5,10                    |
| NL322522T-181 □ -N | 180                      | 0.796              | 20        | 6                 | 17                       | 60               | 5,10                    |
| NL322522T-221 □ -N | 220                      | 0.796              | 20        | 5                 | 21                       | 50               | 5,10                    |
| NL322522T-271 □ -N | 270                      | 0.796              | 20        | 6                 | 22                       | 45               | 5,10                    |
| NL322522T-331 □ -N | 330                      | 0.796              | 20        | 5                 | 34                       | 40               | 5,10                    |

NOTE: □-tolerance J=  $\pm 5\%$  / K=  $\pm 10\%$  / M=  $\pm 20\%$

1. Operating temperature range -25°C~85°C

2. IDC: Applied the current to coils, the inductance shall be less than 10% initial value.

3. L, Q (010~R10) Test OSC@502mV / L, Q (R10~331) Test OSC@1V

"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS NL453232 SERIES

| PART NO.         | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm\%$ ) | Q<br>Min. | TEST FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|------------------|--------------------------|--------------------------|-----------|-------------------------|-------------------|------------------------------------|------------------|
| NL453232T-R10M-S | 0.10                     | 20                       | 28        | 25.20                   | 700               | 0.44                               | 450              |
| NL453232T-R12M-S | 0.12                     | 20                       | 30        | 25.20                   | 500               | 0.22                               | 450              |
| NL453232T-R15M-S | 0.15                     | 20                       | 30        | 25.20                   | 450               | 0.25                               | 450              |
| NL453232T-R18M-S | 0.18                     | 20                       | 30        | 25.20                   | 400               | 0.28                               | 450              |
| NL453232T-R22M-S | 0.22                     | 20                       | 30        | 25.20                   | 350               | 0.32                               | 450              |
| NL453232T-R27M-S | 0.27                     | 20                       | 30        | 25.20                   | 320               | 0.36                               | 450              |
| NL453232T-R33M-S | 0.33                     | 20                       | 30        | 25.20                   | 300               | 0.40                               | 450              |
| NL453232T-R39M-S | 0.39                     | 20                       | 30        | 25.20                   | 250               | 0.45                               | 450              |
| NL453232T-R47M-S | 0.47                     | 20                       | 30        | 25.20                   | 220               | 0.50                               | 450              |
| NL453232T-R56M-S | 0.56                     | 20                       | 30        | 25.20                   | 180               | 0.55                               | 450              |
| NL453232T-R68M-S | 0.68                     | 20                       | 30        | 25.20                   | 160               | 0.60                               | 450              |
| NL453232T-R82M-S | 0.82                     | 20                       | 30        | 25.20                   | 140               | 0.67                               | 450              |
| NL453232T-1R0K-S | 1.00                     | 10                       | 50        | 7.960                   | 100               | 0.50                               | 450              |
| NL453232T-1R2K-S | 1.20                     | 10                       | 50        | 7.960                   | 80                | 0.55                               | 430              |
| NL453232T-1R5K-S | 1.50                     | 10                       | 50        | 7.960                   | 70                | 0.60                               | 410              |
| NL453232T-1R8K-S | 1.80                     | 10                       | 50        | 7.960                   | 60                | 0.65                               | 390              |
| NL453232T-2R2K-S | 2.20                     | 10                       | 50        | 7.960                   | 55                | 0.70                               | 380              |
| NL453232T-2R7K-S | 2.70                     | 10                       | 50        | 7.960                   | 50                | 0.75                               | 370              |
| NL453232T-3R3K-S | 3.30                     | 10                       | 50        | 7.960                   | 45                | 0.80                               | 355              |
| NL453232T-3R9K-S | 3.90                     | 10                       | 50        | 7.960                   | 40                | 0.90                               | 330              |
| NL453232T-4R7K-S | 4.70                     | 10                       | 50        | 7.960                   | 35                | 1.00                               | 315              |
| NL453232T-5R6K-S | 5.60                     | 10                       | 50        | 7.960                   | 33                | 1.10                               | 300              |
| NL453232T-6R8K-S | 6.80                     | 10                       | 50        | 7.960                   | 27                | 1.20                               | 285              |
| NL453232T-8R2K-S | 8.20                     | 10                       | 50        | 7.960                   | 25                | 1.40                               | 270              |
| NL453232T-100K-S | 10                       | 10                       | 50        | 2.520                   | 20                | 1.60                               | 250              |
| NL453232T-120K-S | 12                       | 10                       | 50        | 2.520                   | 18                | 2.00                               | 225              |
| NL453232T-150K-S | 15                       | 10                       | 50        | 2.520                   | 17                | 2.50                               | 200              |
| NL453232T-180K-S | 18                       | 10                       | 50        | 2.520                   | 15                | 2.80                               | 190              |
| NL453232T-220K-S | 22                       | 10                       | 50        | 2.520                   | 13                | 3.20                               | 180              |
| NL453232T-270K-S | 27                       | 10                       | 50        | 2.520                   | 12                | 3.60                               | 170              |
| NL453232T-330K-S | 33                       | 10                       | 50        | 2.520                   | 11                | 4.00                               | 160              |
| NL453232T-390K-S | 39                       | 10                       | 50        | 2.520                   | 10                | 4.50                               | 150              |
| NL453232T-470K-S | 47                       | 10                       | 50        | 2.520                   | 10                | 5.00                               | 140              |
| NL453232T-560K-S | 56                       | 10                       | 50        | 2.520                   | 9                 | 5.50                               | 135              |
| NL453232T-680K-S | 68                       | 10                       | 50        | 2.520                   | 9                 | 6.00                               | 130              |
| NL453232T-820K-S | 82                       | 10                       | 50        | 2.520                   | 8                 | 7.00                               | 120              |
| NL453232T-101K-S | 100                      | 10                       | 40        | 0.796                   | 8                 | 8.00                               | 110              |
| NL453232T-121K-S | 120                      | 10                       | 40        | 0.796                   | 6                 | 8.00                               | 110              |
| NL453232T-151K-S | 150                      | 10                       | 40        | 0.796                   | 5                 | 9.00                               | 105              |
| NL453232T-181K-S | 180                      | 10                       | 40        | 0.796                   | 5                 | 9.50                               | 102              |
| NL453232T-221K-S | 220                      | 10                       | 40        | 0.796                   | 4                 | 12.00                              | 100              |
| NL453232T-271K-S | 270                      | 10                       | 30        | 0.796                   | 4                 | 18.00                              | 92               |
| NL453232T-331K-S | 330                      | 10                       | 30        | 0.796                   | 3.5               | 20.00                              | 85               |
| NL453232T-391K-S | 390                      | 10                       | 30        | 0.796                   | 3                 | 23.00                              | 80               |
| NL453232T-471K-S | 470                      | 10                       | 30        | 0.796                   | 3                 | 26.00                              | 62               |
| NL453232T-561K-S | 560                      | 10                       | 30        | 0.796                   | 3                 | 30.00                              | 50               |
| NL453232T-681K-S | 680                      | 10                       | 30        | 0.796                   | 3                 | 40.00                              | 50               |
| NL453232T-821K-S | 820                      | 10                       | 30        | 0.796                   | 2.5               | 45.00                              | 30               |
| NL453232T-102K-S | 1000                     | 10                       | 30        | 0.796                   | 2.5               | 50.00                              | 30               |





## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | TEST FREQ<br>(MHz) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) |
|--------------------|--------------------------|--------------------|-----------|-------------------|--------------------------|------------------|-------------------------|
| NL453232T-R10 □ -N | 0.1                      | 25.2               | 28        | 700               | 0.44                     | 450              | 5,10,20                 |
| NL453232T-R12 □ -N | 0.12                     | 25.2               | 30        | 500               | 0.22                     | 450              | 5,10,20                 |
| NL453232T-R15 □ -N | 0.15                     | 25.2               | 30        | 450               | 0.25                     | 450              | 5,10,20                 |
| NL453232T-R18 □ -N | 0.18                     | 25.2               | 30        | 400               | 0.28                     | 450              | 5,10,20                 |
| NL453232T-R22 □ -N | 0.22                     | 25.2               | 30        | 350               | 0.32                     | 450              | 5,10,20                 |
| NL453232T-R27 □ -N | 0.27                     | 25.2               | 30        | 320               | 0.36                     | 450              | 5,10,20                 |
| NL453232T-R33 □ -N | 0.33                     | 25.2               | 30        | 300               | 0.4                      | 450              | 5,10,20                 |
| NL453232T-R39 □ -N | 0.39                     | 25.2               | 30        | 250               | 0.45                     | 450              | 5,10,20                 |
| NL453232T-R47 □ -N | 0.47                     | 25.2               | 30        | 220               | 0.5                      | 450              | 5,10,20                 |
| NL453232T-R56 □ -N | 0.56                     | 25.2               | 30        | 180               | 0.55                     | 450              | 5,10,20                 |
| NL453232T-R68 □ -N | 0.68                     | 25.2               | 30        | 160               | 0.6                      | 450              | 5,10,20                 |
| NL453232T-R82 □ -N | 0.82                     | 25.2               | 30        | 140               | 0.67                     | 450              | 5,10,20                 |
| NL453232T-IR0 □ -N | 1                        | 7.96               | 50        | 100               | 0.5                      | 450              | 5,10                    |
| NL453232T-IR2 □ -N | 1.2                      | 7.96               | 50        | 80                | 0.55                     | 430              | 5,10                    |
| NL453232T-IR5 □ -N | 1.5                      | 7.96               | 50        | 70                | 0.6                      | 410              | 5,10                    |
| NL453232T-IR8 □ -N | 1.8                      | 7.96               | 50        | 60                | 0.65                     | 390              | 5,10                    |
| NL453232T-2R2 □ -N | 2.2                      | 7.96               | 50        | 55                | 0.7                      | 380              | 5,10                    |
| NL453232T-2R7 □ -N | 2.7                      | 7.96               | 50        | 50                | 0.75                     | 370              | 5,10                    |
| NL453232T-3R3 □ -N | 3.3                      | 7.96               | 50        | 45                | 0.8                      | 355              | 5,10                    |
| NL453232T-3R9 □ -N | 3.9                      | 7.96               | 50        | 40                | 0.9                      | 330              | 5,10                    |
| NL453232T-4R7 □ -N | 4.7                      | 7.96               | 50        | 35                | 1                        | 315              | 5,10                    |
| NL453232T-5R6 □ -N | 5.6                      | 7.96               | 50        | 33                | 1.1                      | 300              | 5,10                    |
| NL453232T-6R8 □ -N | 6.8                      | 7.96               | 50        | 27                | 1.2                      | 285              | 5,10                    |
| NL453232T-8R2 □ -N | 8.2                      | 7.96               | 50        | 25                | 1.4                      | 270              | 5,10                    |
| NL453232T-100 □ -N | 10                       | 2.52               | 50        | 20                | 1.6                      | 250              | 5,10                    |
| NL453232T-120 □ -N | 12                       | 2.52               | 50        | 18                | 2                        | 225              | 5,10                    |
| NL453232T-150 □ -N | 15                       | 2.52               | 50        | 17                | 2.5                      | 200              | 5,10                    |
| NL453232T-180 □ -N | 18                       | 2.52               | 50        | 15                | 2.8                      | 190              | 5,10                    |
| NL453232T-220 □ -N | 22                       | 2.52               | 50        | 13                | 3.2                      | 180              | 5,10                    |
| NL453232T-270 □ -N | 27                       | 2.52               | 50        | 12                | 3.6                      | 170              | 5,10                    |
| NL453232T-330 □ -N | 33                       | 2.52               | 50        | 11                | 4                        | 160              | 5,10                    |
| NL453232T-390 □ -N | 39                       | 2.52               | 50        | 10                | 4.5                      | 150              | 5,10                    |
| NL453232T-470 □ -N | 47                       | 2.52               | 50        | 10                | 5                        | 140              | 5,10                    |
| NL453232T-560 □ -N | 56                       | 2.52               | 50        | 9                 | 5.5                      | 135              | 5,10                    |
| NL453232T-680 □ -N | 68                       | 2.52               | 50        | 9                 | 6                        | 130              | 5,10                    |
| NL453232T-820 □ -N | 82                       | 2.52               | 50        | 8                 | 7                        | 120              | 5,10                    |
| NL453232T-101 □ -N | 100                      | 0.796              | 40        | 8                 | 8                        | 110              | 5,10                    |
| NL453232T-121 □ -N | 120                      | 0.796              | 40        | 6                 | 8                        | 110              | 5,10                    |
| NL453232T-151 □ -N | 150                      | 0.796              | 40        | 5                 | 9                        | 105              | 5,10                    |
| NL453232T-181 □ -N | 180                      | 0.796              | 40        | 5                 | 9.5                      | 102              | 5,10                    |
| NL453232T-221 □ -N | 220                      | 0.796              | 40        | 4                 | 12                       | 100              | 5,10                    |
| NL453232T-271 □ -N | 270                      | 0.796              | 30        | 4                 | 18                       | 92               | 5,10                    |
| NL453232T-331 □ -N | 330                      | 0.796              | 30        | 3.5               | 20                       | 85               | 5,10                    |
| NL453232T-391 □ -N | 390                      | 0.796              | 30        | 3                 | 23                       | 80               | 5,10                    |
| NL453232T-471 □ -N | 470                      | 0.796              | 30        | 3                 | 26                       | 62               | 5,10                    |
| NL453232T-561 □ -N | 560                      | 0.796              | 30        | 3                 | 30                       | 50               | 5,10                    |
| NL453232T-681 □ -N | 680                      | 0.796              | 30        | 3                 | 40                       | 50               | 5,10                    |
| NL453232T-821 □ -N | 820                      | 0.796              | 30        | 2.5               | 45                       | 30               | 5,10                    |
| NL453232T-102 □ -N | 1000                     | 0.796              | 30        | 2.5               | 50                       | 30               | 5,10                    |

NOTE: □ -tolerance J=  $\pm 5\%$  /K=  $\pm 10\%$  / M=  $\pm 20\%$

1. Operating temperature range -25°C~85°C

2. IDC: Applied the current to coils, the inductance shall be less than 10% initial value.

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS

Dimensions : mm

| PART NO.         | INDUCTANCE<br>(mH) | TOLERANCE<br>(±%) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>(Ω) Max. | IDC<br>(mA) Max. |
|------------------|--------------------|-------------------|-----------|----------------------------|-------------------|------------------------------|------------------|
| NL565050T-122J-S | 1.2                | 5, 10             | 30        | 0.252                      | 1.5               | 17                           | 75               |
| NL565050T-152J-S | 1.5                | 5, 10             | 30        | 0.252                      | 1.4               | 20                           | 70               |
| NL565050T-182J-S | 1.8                | 5, 10             | 30        | 0.252                      | 1.3               | 30                           | 60               |
| NL565050T-222J-S | 2.2                | 5, 10             | 30        | 0.252                      | 1.2               | 35                           | 55               |
| NL565050T-272J-S | 2.7                | 5, 10             | 30        | 0.252                      | 1.1               | 55                           | 45               |
| NL565050T-332J-S | 3.3                | 5, 10             | 30        | 0.252                      | 1                 | 60                           | 40               |
| NL565050T-392J-S | 3.9                | 5, 10             | 30        | 0.252                      | 1                 | 70                           | 38               |
| NL565050T-472J-S | 4.7                | 5, 10             | 30        | 0.252                      | 0.9               | 78                           | 36               |
| NL565050T-562J-S | 5.6                | 5, 10             | 30        | 0.252                      | 0.8               | 85                           | 33               |
| NL565050T-682J-S | 6.8                | 5, 10             | 30        | 0.252                      | 0.7               | 110                          | 30               |
| NL565050T-822J-S | 8.2                | 5, 10             | 30        | 0.252                      | 0.6               | 125                          | 28               |
| NL565050T-103J-S | 10                 | 5, 10             | 20        | 0.0796                     | 0.5               | 150                          | 25               |

- L/Q : HP4285A+HPI6034E
- S R F : HP4291A
- RDC : CH502BC / HP4338B

- IDC : HP4284A + HP42841A
- IDC : ΔL/L : -10%

## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>(μH) | TEST FREQ<br>(MHz) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>(Ω) Max. | IDC<br>(mA) Max. | TOLERANCE<br>(±%) |
|--------------------|--------------------|--------------------|-----------|-------------------|-----------------|------------------|-------------------|
| NL565050T-122 □ -N | 1200               | 0.252              | 30        | 1.5               | 17              | 75               | 5,10              |
| NL565050T-152 □ -N | 1500               | 0.252              | 30        | 1.4               | 20              | 70               | 5,10              |
| NL565050T-182 □ -N | 1800               | 0.252              | 30        | 1.3               | 30              | 60               | 5,10              |
| NL565050T-222 □ -N | 2200               | 0.252              | 30        | 1.2               | 35              | 55               | 5,10              |
| NL565050T-272 □ -N | 2700               | 0.252              | 30        | 1.1               | 55              | 45               | 5,10              |
| NL565050T-332 □ -N | 3300               | 0.252              | 30        | 1                 | 60              | 40               | 5,10              |
| NL565050T-392 □ -N | 3900               | 0.252              | 30        | 1                 | 70              | 38               | 5,10              |
| NL565050T-472 □ -N | 4700               | 0.252              | 30        | 0.9               | 78              | 36               | 5,10              |
| NL565050T-562 □ -N | 5600               | 0.252              | 30        | 0.8               | 85              | 33               | 5,10              |
| NL565050T-682 □ -N | 6800               | 0.252              | 30        | 0.7               | 110             | 30               | 5,10              |
| NL565050T-822 □ -N | 8200               | 0.252              | 30        | 0.6               | 125             | 28               | 5,10              |
| NL565050T-103 □ -N | 10000              | 0.0796             | 20        | 0.5               | 150             | 25               | 5,10              |

NOTE: □-tolerance J= ±5% / K= ±10% / M=± 20%

1. Operating temperature range -25°C~85°C

2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | TEST FREQ<br>(MHZ) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) | Color Code<br>IST |
|--------------------|--------------------------|--------------------|-----------|-------------------|--------------------------|------------------|-------------------------|-------------------|
| NL201614T-R12 □ -N | 0.12                     | 25.2               | 25        | 500               | 0.2                      | 600              | 5,10                    | WHT               |
| NL201614T-R15 □ -N | 0.15                     | 25.2               | 25        | 450               | 0.25                     | 600              | 5,10                    | BLK               |
| NL201614T-R18 □ -N | 0.18                     | 25.2               | 25        | 410               | 0.3                      | 570              | 5,10                    | BRN               |
| NL201614T-R22 □ -N | 0.22                     | 25.2               | 25        | 350               | 0.35                     | 550              | 5,10                    | RED               |
| NL201614T-R27 □ -N | 0.27                     | 25.2               | 25        | 280               | 0.4                      | 530              | 5,10                    | ORN               |
| NL201614T-R33 □ -N | 0.33                     | 25.2               | 25        | 235               | 0.45                     | 510              | 5,10                    | YEL               |
| NL201614T-R39 □ -N | 0.39                     | 25.2               | 25        | 210               | 0.5                      | 490              | 5,10                    | GRN               |
| NL201614T-R47 □ -N | 0.47                     | 25.2               | 25        | 170               | 0.55                     | 470              | 5,10                    | BLU               |
| NL201614T-R56 □ -N | 0.56                     | 25.2               | 25        | 150               | 0.6                      | 450              | 5,10                    | VIO               |
| NL201614T-R68 □ -N | 0.68                     | 25.2               | 25        | 140               | 0.7                      | 420              | 5,10                    | GRY               |
| NL201614T-R82 □ -N | 0.82                     | 25.2               | 25        | 130               | 0.75                     | 400              | 5,10                    | WHT               |
| NL201614T-1R0 □ -N | 1                        | 7.96               | 15        | 115               | 0.8                      | 350              | 5,10                    | BLK               |
| NL201614T-1R2 □ -N | 1.2                      | 7.96               | 15        | 95                | 0.9                      | 325              | 5,10                    | BRN               |
| NL201614T-1R5 □ -N | 1.5                      | 7.96               | 15        | 85                | 1.05                     | 300              | 5,10                    | RED               |
| NL201614T-1R8 □ -N | 1.8                      | 7.96               | 15        | 80                | 1.2                      | 270              | 5,10                    | ORN               |
| NL201614T-2R2 □ -N | 2.2                      | 7.96               | 15        | 75                | 1.4                      | 250              | 5,10                    | YEL               |
| NL201614T-2R7 □ -N | 2.7                      | 7.96               | 15        | 70                | 1.6                      | 230              | 5,10                    | GRN               |
| NL201614T-3R3 □ -N | 3.3                      | 7.96               | 15        | 60                | 1.8                      | 210              | 5,10                    | BLU               |
| NL201614T-3R9 □ -N | 3.9                      | 7.96               | 15        | 55                | 2                        | 190              | 5,10                    | VIO               |
| NL201614T-4R7 □ -N | 4.7                      | 7.96               | 15        | 45                | 2.4                      | 170              | 5,10                    | GRY               |
| NL201614T-5R6 □ -N | 5.6                      | 7.96               | 15        | 40                | 2.7                      | 150              | 5,10                    | WHT               |
| NL201614T-6R8 □ -N | 6.8                      | 7.96               | 15        | 36                | 3.2                      | 140              | 5,10                    | BLK               |
| NL201614T-8R2 □ -N | 8.2                      | 7.96               | 15        | 33                | 3.6                      | 120              | 5,10                    | BRN               |
| NL201614T-100 □ -N | 10                       | 2.52               | 15        | 30                | 4.5                      | 110              | 5,10                    | RED               |
| NL201614T-120 □ -N | 12                       | 2.52               | 15        | 25                | 5.7                      | 105              | 5,10                    | ORN               |
| NL201614T-150 □ -N | 15                       | 2.52               | 15        | 23                | 6.5                      | 90               | 5,10                    | YEL               |
| NL201614T-180 □ -N | 18                       | 2.52               | 15        | 21                | 7                        | 85               | 5,10                    | GRN               |
| NL201614T-220 □ -N | 22                       | 2.52               | 15        | 20                | 8                        | 78               | 5,10                    | BLU               |
| NL201614T-270 □ -N | 27                       | 2.52               | 15        | 18                | 9                        | 75               | 5,10                    | VIO               |
| NL201614T-330 □ -N | 33                       | 2.52               | 15        | 17                | 10                       | 70               | 5,10                    | GRY               |

NOTE: □-tolerance J=  $\pm$ 5% /K=  $\pm$ 10% / M=  $\pm$ 20%

1. Operating temperature range -25°C~85°C

2. IDC: Applied the current to coils, the inductance shall be less than 10% initial value.

3. L/Q Test OSC@200mV

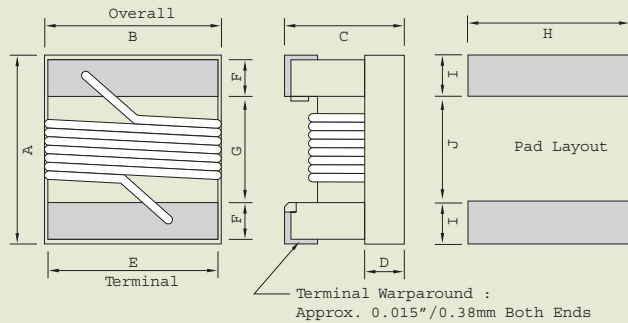
"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## SHAPES AND DIMENSIONS NL201614 SERIES

Dimensions : mm

Ferrite body and wire wound construction provide highest current.



| UNIT | A    | B     | C    | D    | E    | F    | G    | H    | I    | J    |
|------|------|-------|------|------|------|------|------|------|------|------|
|      | Max. | Max.  | Max. | Ref. |      |      |      |      |      |      |
| in   | 0.09 | 0.068 | 0.06 | 0.02 | 0.05 | 0.02 | 0.04 | 0.07 | 0.04 | 0.03 |
| mm   | 2.29 | 1.73  | 1.52 | 0.51 | 1.27 | 0.51 | 1.02 | 1.78 | 1.02 | 0.76 |

## ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm$ %) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | RATED<br>CURRENT<br>(mA) Max. | COLOR<br>CODING |
|-------------------|--------------------------|-------------------------|-----------|----------------------------|-------------------|---------------------------------------|-------------------------------|-----------------|
| NL201614T-R12 □-S | 0.12                     | 10/5                    | 25        | 25.2                       | 500               | 0.20                                  | 600                           | White           |
| NL201614T-R15 □-S | 0.15                     | 10/5                    | 25        | 25.2                       | 450               | 0.25                                  | 600                           | Black           |
| NL201614T-R18 □-S | 0.18                     | 10/5                    | 25        | 25.2                       | 410               | 0.30                                  | 570                           | Brown           |
| NL201614T-R22 □-S | 0.22                     | 10/5                    | 25        | 25.2                       | 350               | 0.35                                  | 550                           | Red             |
| NL201614T-R27 □-S | 0.27                     | 10/5                    | 25        | 25.2                       | 280               | 0.40                                  | 530                           | Orange          |
| NL201614T-R33 □-S | 0.33                     | 10/5                    | 25        | 25.2                       | 235               | 0.45                                  | 510                           | Yellow          |
| NL201614T-R39 □-S | 0.39                     | 10/5                    | 25        | 25.2                       | 210               | 0.50                                  | 490                           | Green           |
| NL201614T-R47 □-S | 0.47                     | 10/5                    | 25        | 25.2                       | 170               | 0.55                                  | 470                           | Blue            |
| NL201614T-R56 □-S | 0.56                     | 10/5                    | 25        | 25.2                       | 150               | 0.60                                  | 450                           | Violet          |
| NL201614T-R68 □-S | 0.68                     | 10/5                    | 25        | 25.2                       | 140               | 0.70                                  | 420                           | Gray            |
| NL201614T-R82 □-S | 0.82                     | 10/5                    | 25        | 25.2                       | 130               | 0.75                                  | 400                           | White           |
| NL201614T-IR0 □-S | 1.00                     | 10/5                    | 15        | 7.96                       | 115               | 0.80                                  | 350                           | Black           |
| NL201614T-IR2 □-S | 1.20                     | 10/5                    | 15        | 7.96                       | 95                | 0.90                                  | 325                           | Brown           |
| NL201614T-IR5 □-S | 1.50                     | 10/5                    | 15        | 7.96                       | 85                | 1.05                                  | 300                           | Red             |
| NL201614T-IR8 □-S | 1.80                     | 10/5                    | 15        | 7.96                       | 80                | 1.20                                  | 270                           | Orange          |
| NL201614T-2R2 □-S | 2.20                     | 10/5                    | 15        | 7.96                       | 75                | 1.40                                  | 250                           | Yellow          |
| NL201614T-2R7 □-S | 2.70                     | 10/5                    | 15        | 7.96                       | 70                | 1.60                                  | 230                           | Green           |
| NL201614T-3R3 □-S | 3.30                     | 10/5                    | 15        | 7.96                       | 60                | 1.80                                  | 210                           | Blue            |
| NL201614T-3R9 □-S | 3.90                     | 10/5                    | 15        | 7.96                       | 55                | 2.00                                  | 190                           | Violet          |
| NL201614T-4R7 □-S | 4.70                     | 10/5                    | 15        | 7.96                       | 45                | 2.40                                  | 170                           | Gray            |
| NL201614T-5R6 □-S | 5.60                     | 10/5                    | 15        | 7.96                       | 40                | 2.70                                  | 150                           | White           |
| NL201614T-6R8 □-S | 6.80                     | 10/5                    | 15        | 7.96                       | 36                | 3.20                                  | 140                           | Black           |
| NL201614T-8R2 □-S | 8.20                     | 10/5                    | 15        | 7.96                       | 33                | 3.60                                  | 120                           | Brown           |
| NL201614T-100 □-S | 10.0                     | 10/5                    | 15        | 2.52                       | 30                | 4.50                                  | 110                           | Red             |
| NL201614T-120 □-S | 12.0                     | 10/5                    | 15        | 2.52                       | 25                | 5.70                                  | 105                           | Orange          |
| NL201614T-150 □-S | 15.0                     | 10/5                    | 15        | 2.52                       | 23                | 6.50                                  | 90                            | Yellow          |
| NL201614T-180 □-S | 18.0                     | 10/5                    | 15        | 2.52                       | 21                | 7.00                                  | 85                            | Green           |
| NL201614T-220 □-S | 22.0                     | 10/5                    | 15        | 2.52                       | 20                | 8.00                                  | 78                            | Blue            |
| NL201614T-270 □-S | 27.0                     | 10/5                    | 15        | 2.52                       | 18                | 9.00                                  | 75                            | Violet          |
| NL201614T-330 □-S | 33.0                     | 10/5                    | 15        | 2.52                       | 17                | 10.0                                  | 70                            | Gray            |

• When ordering, please specify tolerance and packaging codes. Ex : NL201614T-R12J-S

• Tolerance : J =  $\pm$ 5% , K= $\pm$ 10%

• Packaging : Clear Tape and Reel (Standard)

• L/Q : Agilent/HP4291A+ Agilent/HPI6193A

• SRF : Agilent/HP4291A

• RDC : Digital Multimeter SC-7401

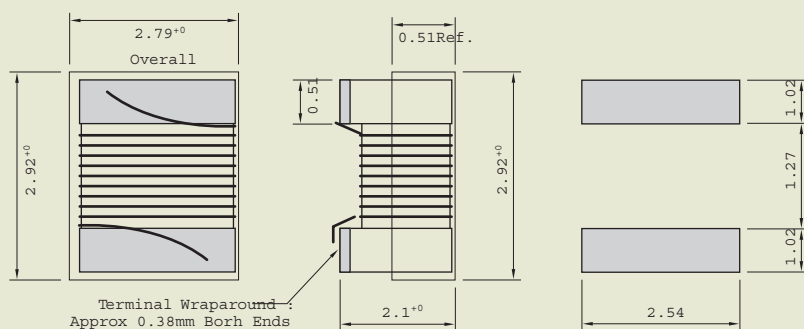
• Idc for inductance drop 10% from its value without current.

• Operating Temperature Range : -25°C to 85°C

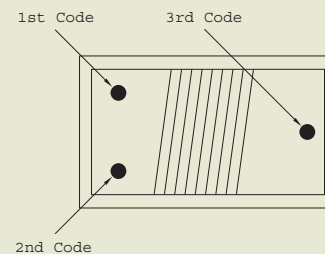


## SHAPES AND DIMENSIONS NL252018 SERIES

Dimensions : mm



### Color Coding



## ELECTRICAL CHARACTERISTICS

| PART NO.           | INDUCTANCE<br>μH) | TOLERANCE<br>(±%) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>(Ω) Max. | IDC<br>(mA) Max. | COLOR CODING    |                 |                 |
|--------------------|-------------------|-------------------|-----------|----------------------------|----------------------|------------------------------|------------------|-----------------|-----------------|-----------------|
|                    |                   |                   |           |                            |                      |                              |                  | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| NL252018T-5N0 □ -S | 0.005             | 10                | 10        | 100                        | 3000                 | 0.25                         | 2000             | Black           | Green           | Black           |
| NL252018T-10N □ -S | 0.010             | 10                | 10        | 100                        | 2500                 | 0.25                         | 1800             | Brown           | Black           | Black           |
| NL252018T-12N □ -S | 0.012             | 10                | 15        | 100                        | 2400                 | 0.26                         | 1700             | Brown           | Red             | Black           |
| NL252018T-15N □ -S | 0.015             | 10                | 15        | 100                        | 2300                 | 0.28                         | 1600             | Brown           | Green           | Black           |
| NL252018T-18N □ -S | 0.018             | 10                | 15        | 100                        | 2200                 | 0.30                         | 1550             | Brown           | Gray            | Black           |
| NL252018T-22N □ -S | 0.022             | 5, 10             | 20        | 100                        | 2100                 | 0.35                         | 1500             | Red             | Red             | Black           |
| NL252018T-27N □ -S | 0.027             | 5, 10             | 20        | 100                        | 2000                 | 0.40                         | 1450             | Red             | Violet          | Black           |
| NL252018T-33N □ -S | 0.033             | 5, 10             | 30        | 100                        | 1600                 | 0.42                         | 1400             | Orange          | Orange          | Black           |
| NL252018T-39N □ -S | 0.039             | 5, 10             | 35        | 100                        | 1500                 | 0.45                         | 1350             | Orange          | White           | Black           |
| NL252018T-47N □ -S | 0.047             | 5, 10             | 35        | 100                        | 1400                 | 0.50                         | 1300             | Yellow          | Violet          | Black           |
| NL252018T-56N □ -S | 0.056             | 5, 10             | 35        | 100                        | 1300                 | 0.60                         | 1250             | Green           | Blue            | Black           |
| NL252018T-68N □ -S | 0.068             | 5, 10             | 35        | 100                        | 1200                 | 0.65                         | 1240             | Blue            | Gray            | Black           |
| NL252018T-82N □ -S | 0.082             | 5, 10             | 35        | 100                        | 1100                 | 0.75                         | 1230             | Gray            | Red             | Black           |
| NL252018T-R10 □ -S | 0.10              | 5, 10             | 35        | 100                        | 800                  | 0.80                         | 1220             | Brown           | Black           | Brown           |
| NL252018T-R12 □ -S | 0.12              | 5, 10             | 30        | 25.2                       | 700                  | 0.30                         | 900              | Brown           | Red             | Brown           |
| NL252018T-R15 □ -S | 0.15              | 5, 10             | 30        | 25.2                       | 550                  | 0.35                         | 900              | Brown           | Green           | Brown           |
| NL252018T-R18 □ -S | 0.18              | 5, 10             | 30        | 25.2                       | 500                  | 0.40                         | 850              | Brown           | Gray            | Brown           |
| NL252018T-R22 □ -S | 0.22              | 5, 10             | 30        | 25.2                       | 450                  | 0.50                         | 840              | Red             | Red             | Brown           |
| NL252018T-R27 □ -S | 0.27              | 5, 10             | 30        | 25.2                       | 425                  | 0.55                         | 830              | Red             | Violet          | Brown           |
| NL252018T-R33 □ -S | 0.33              | 5, 10             | 30        | 25.2                       | 400                  | 0.60                         | 820              | Orange          | Orange          | Brown           |
| NL252018T-R39 □ -S | 0.39              | 5, 10             | 30        | 25.2                       | 375                  | 0.65                         | 810              | Orange          | White           | Brown           |
| NL252018T-R47 □ -S | 0.47              | 5, 10             | 30        | 25.2                       | 350                  | 0.68                         | 800              | Yellow          | Violet          | Brown           |



## ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm$ %) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | COLOR CODING    |                 |                 |
|-------------------|--------------------------|-------------------------|-----------|----------------------------|----------------------|---------------------------------------|------------------|-----------------|-----------------|-----------------|
|                   |                          |                         |           |                            |                      |                                       |                  | 1 <sup>ST</sup> | 2 <sup>ND</sup> | 3 <sup>RD</sup> |
| NL252018T-R56 □-S | 0.560                    | 5, 10                   | 30        | 25.2                       | 325                  | 0.75                                  | 800              | Green           | Blue            | Brown           |
| NL252018T-R68 □-S | 0.680                    | 5, 10                   | 30        | 25.2                       | 300                  | 0.85                                  | 800              | Blue            | Gray            | Brown           |
| NL252018T-R82 □-S | 0.820                    | 5, 10                   | 30        | 25.2                       | 260                  | 1.0                                   | 800              | Gray            | Red             | Brown           |
| NL252018T-1R0 □-S | 1.000                    | 5, 10                   | 25        | 7.96                       | 245                  | 1.1                                   | 800              | Brown           | Black           | Red             |
| NL252018T-1R2 □-S | 1.200                    | 5, 10                   | 25        | 7.96                       | 230                  | 1.2                                   | 790              | Brown           | Red             | Red             |
| NL252018T-1R5 □-S | 1.500                    | 5, 10                   | 25        | 7.96                       | 182                  | 1.3                                   | 750              | Brown           | Green           | Red             |
| NL252018T-1R8 □-S | 1.800                    | 5, 10                   | 25        | 7.96                       | 135                  | 1.45                                  | 750              | Brown           | Gray            | Red             |
| NL252018T-2R2 □-S | 2.200                    | 5, 10                   | 25        | 7.96                       | 105                  | 1.55                                  | 750              | Red             | Red             | Red             |
| NL252018T-2R7 □-S | 2.700                    | 5, 10                   | 25        | 7.96                       | 70                   | 1.7                                   | 740              | Red             | Violet          | Red             |
| NL252018T-3R3 □-S | 3.300                    | 5, 10                   | 25        | 7.96                       | 55                   | 1.9                                   | 730              | Orange          | Orange          | Red             |
| NL252018T-3R9 □-S | 3.900                    | 5, 10                   | 25        | 7.96                       | 48                   | 2.1                                   | 700              | Orange          | White           | Red             |
| NL252018T-4R7 □-S | 4.7                      | 5, 10                   | 25        | 7.96                       | 43                   | 2.3                                   | 650              | Yellow          | Violet          | Red             |
| NL252018T-5R6 □-S | 5.6                      | 5, 10                   | 20        | 7.96                       | 42                   | 2.5                                   | 640              | Green           | Blue            | Red             |
| NL252018T-6R8 □-S | 6.8                      | 5, 10                   | 20        | 7.96                       | 39                   | 2.7                                   | 630              | Blue            | Gray            | Red             |
| NL252018T-8R2 □-S | 8.2                      | 5, 10                   | 20        | 7.96                       | 36                   | 3.05                                  | 600              | Gray            | Red             | Red             |
| NL252018T-100 □-S | 10                       | 5, 10                   | 15        | 2.52                       | 33                   | 3.5                                   | 600              | Brown           | Black           | Orange          |
| NL252018T-120 □-S | 12                       | 5, 10                   | 15        | 2.52                       | 30                   | 3.8                                   | 550              | Brown           | Red             | Orange          |
| NL252018T-150 □-S | 15                       | 5, 10                   | 15        | 2.52                       | 26                   | 4.4                                   | 430              | Brown           | Green           | Orange          |
| NL252018T-180 □-S | 18                       | 5, 10                   | 15        | 2.52                       | 24                   | 4.8                                   | 400              | Brown           | Gray            | Orange          |
| NL252018T-220 □-S | 22                       | 5, 10                   | 15        | 2.52                       | 22                   | 5.5                                   | 400              | Red             | Red             | Orange          |
| NL252018T-270 □-S | 27                       | 5, 10                   | 15        | 2.52                       | 21                   | 6.3                                   | 360              | Red             | Violet          | Orange          |
| NL252018T-330 □-S | 33                       | 5, 10                   | 15        | 2.52                       | 20                   | 7.1                                   | 350              | Orange          | Orange          | Orange          |
| NL252018T-390 □-S | 39                       | 5, 10                   | 10        | 2.52                       | 18                   | 9.5                                   | 330              | Orange          | White           | Orange          |
| NL252018T-470 □-S | 47                       | 5, 10                   | 10        | 2.52                       | 17                   | 11.1                                  | 300              | Yellow          | Violet          | Orange          |
| NL252018T-560 □-S | 56                       | 5, 10                   | 10        | 2.52                       | 16                   | 12.1                                  | 270              | Green           | Blue            | Orange          |
| NL252018T-680 □-S | 68                       | 5, 10                   | 10        | 2.52                       | 15                   | 16.6                                  | 250              | Blue            | Gray            | Orange          |
| NL252018T-820 □-S | 82                       | 5, 10                   | 10        | 2.52                       | 13                   | 19                                    | 200              | Gray            | Red             | Orange          |
| NL252018T-101 □-S | 100                      | 5, 10                   | 8         | 0.796                      | 12                   | 21                                    | 120              | Brown           | Black           | Yellow          |

\* UV Color : Blue / Core Color : Black

When ordering, please specify tolerance and packaging code. Ex : NL252018T-101J-S

Tolerance : □ J = 5%    □ K = 10%

Packaging : Clear Tape and Reel (Standard)

L, Q, RDC : HP4287A

SRF : HP8753D / HP4291A    RDC : Digital Multimeter SC-7401

Operating Temperature Range : -25°C to +85°C



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.           | INDUCTANCE<br>(μH) | TEST FREQ<br>(MHZ) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>(Ω) Max. | IDC<br>(mA) Max. | TOLERANCE<br>(±%) | Color Code      |                 |                 |
|--------------------|--------------------|--------------------|-----------|-------------------|-----------------|------------------|-------------------|-----------------|-----------------|-----------------|
|                    |                    |                    |           |                   |                 |                  |                   | 1 <sup>ST</sup> | 2 <sup>ND</sup> | 3 <sup>RD</sup> |
| NL252018T-5N0 □ -N | 0.005              | 100                | 10        | 3000              | 0.25            | 2000             | 10                | BLK             | GRN             | BLK             |
| NL252018T-10N □ -N | 0.01               | 100                | 10        | 2500              | 0.25            | 1800             | 10                | BRN             | BLK             | BLK             |
| NL252018T-12N □ -N | 0.012              | 100                | 15        | 2400              | 0.26            | 1700             | 10                | BRN             | RED             | BLK             |
| NL252018T-15N □ -N | 0.015              | 100                | 15        | 2300              | 0.28            | 1600             | 10                | BRN             | GRN             | BLK             |
| NL252018T-18N □ -N | 0.018              | 100                | 15        | 2200              | 0.3             | 1550             | 10                | BRN             | GRY             | BLK             |
| NL252018T-22N □ -N | 0.022              | 100                | 20        | 2100              | 0.35            | 1500             | 5,10              | RED             | RED             | BLK             |
| NL252018T-27N □ -N | 0.027              | 100                | 20        | 2000              | 0.4             | 1450             | 5,10              | RED             | VIO             | BLK             |
| NL252018T-33N □ -N | 0.033              | 100                | 30        | 1600              | 0.42            | 1400             | 5,10              | ORN             | ORN             | BLK             |
| NL252018T-39N □ -N | 0.039              | 100                | 35        | 1500              | 0.45            | 1350             | 5,10              | ORN             | WHT             | BLK             |
| NL252018T-47N □ -N | 0.047              | 100                | 35        | 1400              | 0.5             | 1300             | 5,10              | YEL             | VIO             | BLK             |
| NL252018T-56N □ -N | 0.056              | 100                | 35        | 1300              | 0.6             | 1250             | 5,10              | GRN             | BLU             | BLK             |
| NL252018T-68N □ -N | 0.068              | 100                | 35        | 1200              | 0.65            | 1240             | 5,10              | BLU             | GRY             | BLK             |
| NL252018T-82N □ -N | 0.082              | 100                | 35        | 1100              | 0.75            | 1230             | 5,10              | GRY             | RED             | BLK             |
| NL252018T-R10 □ -N | 0.1                | 100                | 35        | 800               | 0.8             | 1220             | 5,10              | BRN             | BLK             | BRN             |
| NL252018T-R12 □ -N | 0.12               | 25.2               | 30        | 700               | 0.3             | 900              | 5,10              | BRN             | RED             | BRN             |
| NL252018T-R15 □ -N | 0.15               | 25.2               | 30        | 550               | 0.35            | 900              | 5,10              | BRN             | GRN             | BRN             |
| NL252018T-R18 □ -N | 0.18               | 25.2               | 30        | 500               | 0.4             | 850              | 5,10              | BRN             | GRY             | BRN             |
| NL252018T-R22 □ -N | 0.22               | 25.2               | 30        | 450               | 0.5             | 840              | 5,10              | RED             | RED             | BRN             |
| NL252018T-R27 □ -N | 0.27               | 25.2               | 30        | 425               | 0.55            | 830              | 5,10              | RED             | VIO             | BRN             |
| NL252018T-R33 □ -N | 0.33               | 25.2               | 30        | 400               | 0.6             | 820              | 5,10              | ORN             | ORN             | BRN             |
| NL252018T-R39 □ -N | 0.39               | 25.2               | 30        | 375               | 0.65            | 810              | 5,10              | ORN             | WHT             | BRN             |
| NL252018T-R47 □ -N | 0.47               | 25.2               | 30        | 350               | 0.68            | 800              | 5,10              | YEL             | VIO             | BRN             |
| NL252018T-R56 □ -N | 0.56               | 25.2               | 30        | 325               | 0.75            | 800              | 5,10              | GRN             | BLU             | BRN             |
| NL252018T-R68 □ -N | 0.68               | 25.2               | 30        | 300               | 0.85            | 800              | 5,10              | BLU             | GRY             | BRN             |
| NL252018T-R82 □ -N | 0.82               | 25.2               | 30        | 260               | 1               | 800              | 5,10              | GRY             | RED             | BRN             |
| NL252018T-1R0 □ -N | 1                  | 7.96               | 25        | 245               | 1.1             | 800              | 5,10              | BRN             | BLK             | RED             |
| NL252018T-1R2 □ -N | 1.2                | 7.96               | 25        | 230               | 1.2             | 790              | 5,10              | BRN             | RED             | RED             |
| NL252018T-1R5 □ -N | 1.5                | 7.96               | 25        | 182               | 1.3             | 750              | 5,10              | BRN             | GRN             | RED             |
| NL252018T-1R8 □ -N | 1.8                | 7.96               | 25        | 135               | 1.45            | 750              | 5,10              | BRN             | GRY             | RED             |
| NL252018T-2R2 □ -N | 2.2                | 7.96               | 25        | 105               | 1.55            | 750              | 5,10              | RED             | RED             | RED             |
| NL252018T-2R7 □ -N | 2.7                | 7.96               | 25        | 70                | 1.7             | 740              | 5,10              | RED             | VIO             | RED             |
| NL252018T-3R3 □ -N | 3.3                | 7.96               | 25        | 55                | 1.9             | 730              | 5,10              | ORN             | ORN             | RED             |
| NL252018T-3R9 □ -N | 3.9                | 7.96               | 25        | 48                | 2.1             | 700              | 5,10              | ORN             | WHY             | RED             |
| NL252018T-4R7 □ -N | 4.7                | 7.96               | 25        | 43                | 2.3             | 650              | 5,10              | YEL             | VIO             | RED             |
| NL252018T-5R6 □ -N | 5.6                | 7.96               | 20        | 42                | 2.5             | 640              | 5,10              | GRN             | BLU             | RED             |
| NL252018T-6R8 □ -N | 6.8                | 7.96               | 20        | 39                | 2.7             | 630              | 5,10              | BLU             | GRY             | RED             |
| NL252018T-8R2 □ -N | 8.2                | 7.96               | 20        | 36                | 3.05            | 600              | 5,10              | GRY             | RED             | RED             |
| NL252018T-100 □ -N | 10                 | 2.52               | 15        | 33                | 3.5             | 600              | 5,10              | BRN             | BLK             | ORN             |
| NL252018T-120 □ -N | 12                 | 2.52               | 15        | 30                | 3.8             | 550              | 5,10              | BRN             | RED             | ORN             |
| NL252018T-150 □ -N | 15                 | 2.52               | 15        | 26                | 4.4             | 430              | 5,10              | BRN             | GRN             | ORN             |
| NL252018T-180 □ -N | 18                 | 2.52               | 15        | 24                | 4.8             | 400              | 5,10              | BRN             | GRY             | ORN             |
| NL252018T-220 □ -N | 22                 | 2.52               | 15        | 22                | 5.5             | 400              | 5,10              | RED             | RED             | ORN             |
| NL252018T-270 □ -N | 27                 | 2.52               | 15        | 21                | 6.3             | 360              | 5,10              | RED             | VIO             | ORN             |
| NL252018T-330 □ -N | 33                 | 2.52               | 15        | 20                | 7.1             | 350              | 5,10              | ORN             | ORN             | ORN             |
| NL252018T-390 □ -N | 39                 | 2.52               | 10        | 18                | 9.5             | 330              | 5,10              | ORN             | WHT             | ORN             |
| NL252018T-470 □ -N | 47                 | 2.52               | 10        | 17                | 11.1            | 300              | 5,10              | YEL             | VIO             | ORN             |
| NL252018T-560 □ -N | 56                 | 2.52               | 10        | 16                | 12.1            | 270              | 5,10              | GRN             | BLU             | ORN             |
| NL252018T-680 □ -N | 68                 | 2.52               | 10        | 15                | 16.6            | 250              | 5,10              | BLU             | GRY             | ORN             |
| NL252018T-820 □ -N | 82                 | 2.52               | 10        | 13                | 19              | 200              | 5,10              | GRY             | RED             | ORN             |
| NL252018T-101 □ -N | 100                | 0.796              | 8         | 12                | 21              | 120              | 5,10              | BRN             | BLK             | YEL             |

NOTE: □ -tolerance J= ±5%K= ±10% / M=± 20%

1.Operating temperature range -25°C~85°C

2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

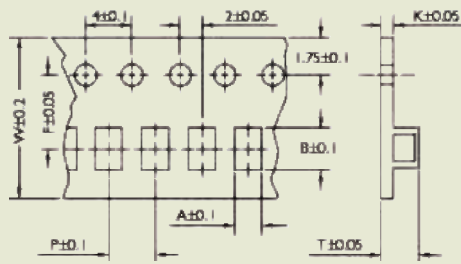
3.L/Q Test OSC@200mV

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## TAPE DIMENSIONS

Dimensions : mm

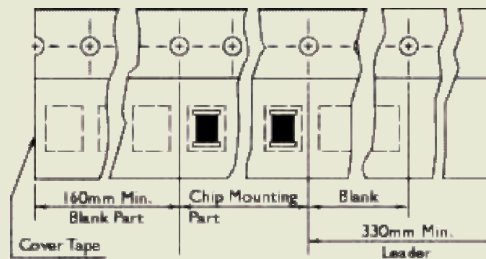


| TYPE     | A    | B    | T    | W     | P    | F   | K    |
|----------|------|------|------|-------|------|-----|------|
| NL201614 | 1.85 | 2.45 | 0.23 | 8     | 4    | 3.5 | 1.45 |
| NL252018 | 2.7  | 2.95 | 2.25 | 8     | 4    | 3.5 | 0.25 |
| NL322522 | 2.94 | 3.64 | 2.52 | 8     | 4    | 3.5 | 0.2  |
| NL453232 | 3.64 | 5.14 | 3.6  | 12    | 8    | 5.5 | 0.3  |
| NL565050 | 4.9  | 5.65 | 5.3  | 16.15 | 12.2 | 5.5 | 0.5  |

## TAPE MATERIAL

Carrier Tape : Polystyrene

Cover Type : Polyethylene



## REEL DIMENSIONS

Dimensions : mm

Figure 1

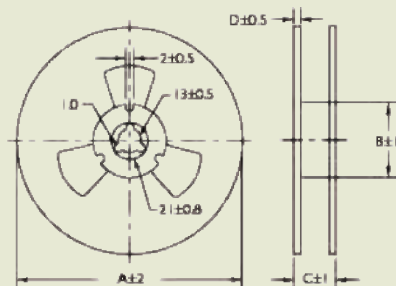
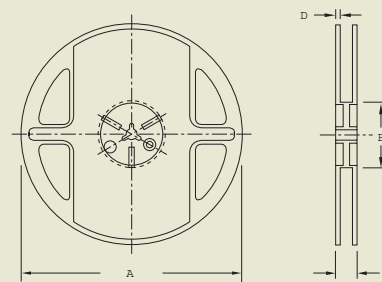


Figure 2

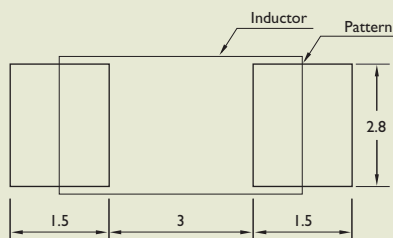


| TYPE     | FIGURE | A   | B  | C  | D   |
|----------|--------|-----|----|----|-----|
| NL201614 | 2      | 178 | 60 | 13 | 9   |
| NL252018 | 2      | 178 | 60 | 12 | 1.5 |
| NL322522 | 1      | 178 | 60 | 10 | 1.5 |
| NL453232 | 1      | 250 | 80 | 14 | 1.5 |
| NL565050 | 2      | 330 | 80 | 20 | 2   |

## RECOMMENDED PATTERN

Dimensions : mm

NL45



## PACKAGING QUANTITY

| TYPE     | BULK | QUANTITY/REEL |
|----------|------|---------------|
| NL201614 | √    | 2000          |
| NL252018 | √    | 2000          |
| NL322522 | √    | 2000          |
| NL453232 | √    | 500           |
| NL565050 | √    | 1000          |

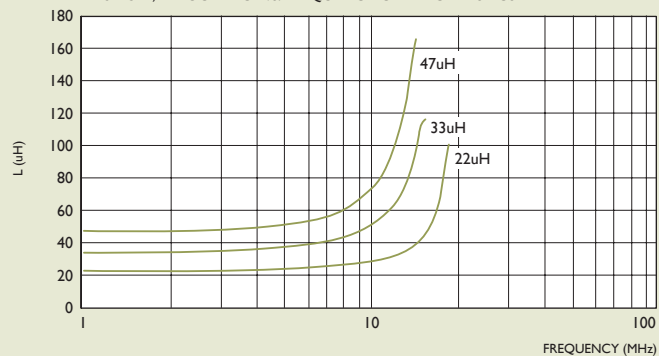




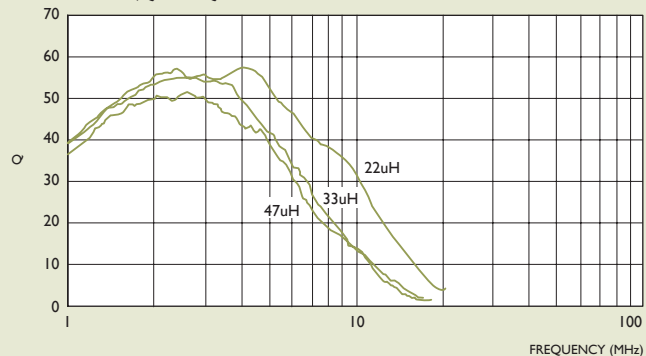
## TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer

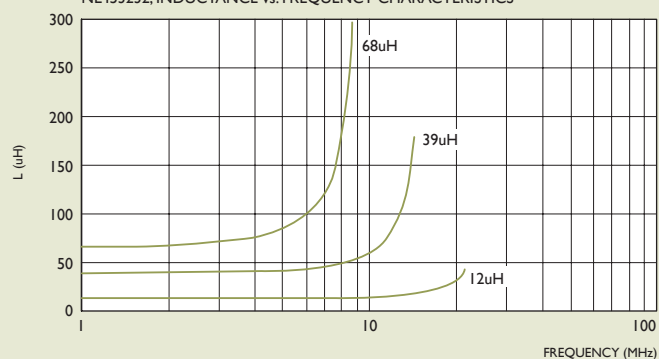
NL322522, INDUCTANCE vs. FREQUENCY CHARACTERISTICS



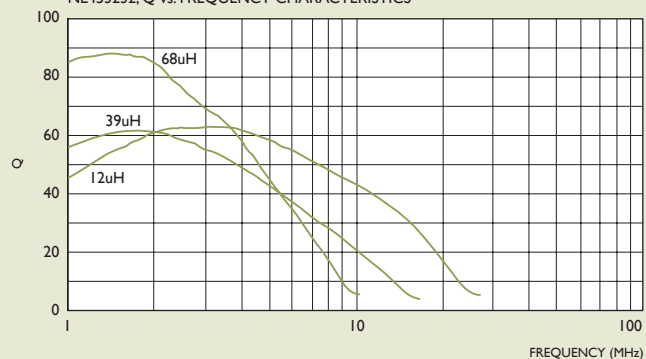
NL322522, Q vs. FREQUENCY CHARACTERISTICS



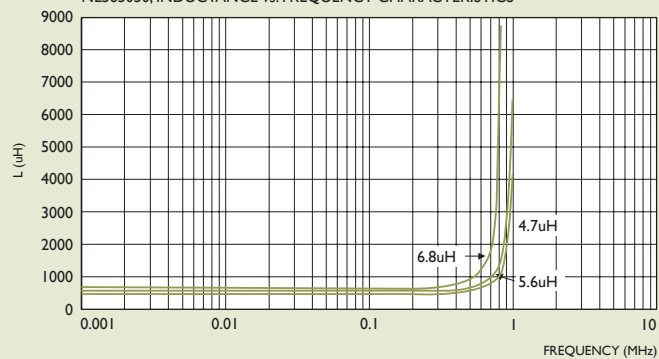
NL453232, INDUCTANCE vs. FREQUENCY CHARACTERISTICS



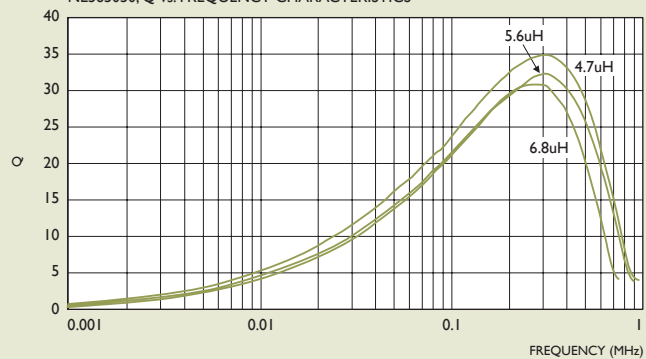
NL453232, Q vs. FREQUENCY CHARACTERISTICS



NL565050, INDUCTANCE vs. FREQUENCY CHARACTERISTICS



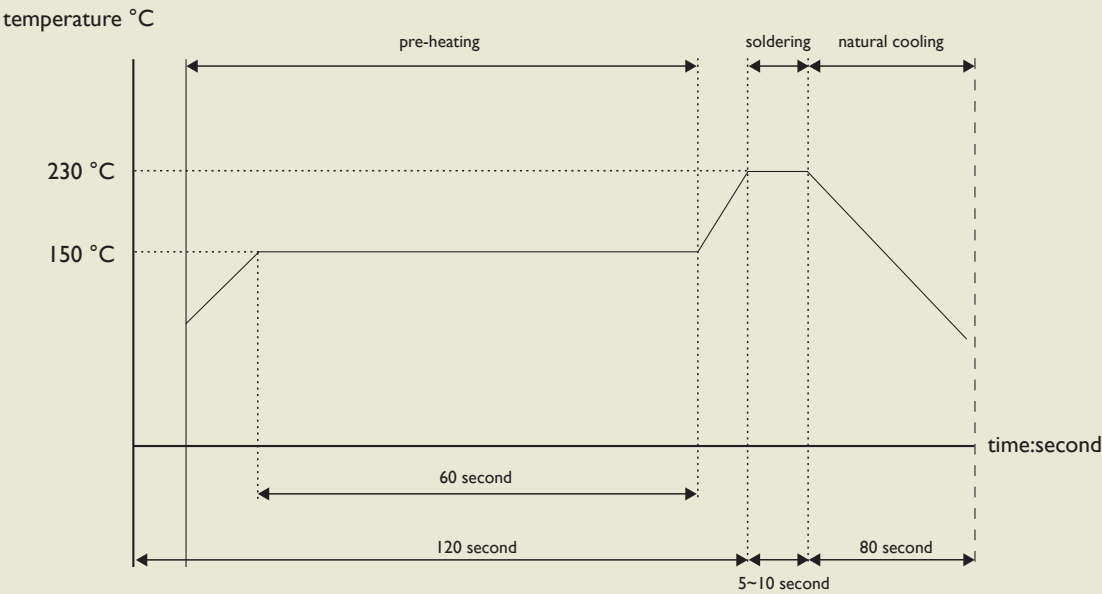
NL565050, Q vs. FREQUENCY CHARACTERISTICS





RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



# NLC Series

For High Current Application

## Wound Chip Inductors

These revolutionary, highly reliable wound chip inductors for automatic mounting have been developed in response to the trend toward high density in electronic equipment.

With metal terminals and a body of heat resistant resin, these inductors offer many superior features.

### APPLICATIONS

DC/DC converter such as DSC, LCD TV, game console, portable VCRs, conveyable telephone, and others.

### FEATURES

Very strong solderability by reflow soldering and soldering iron

Highly accurate dimensions can be mounted automatically

Terminals are highly resistant to pull forces.

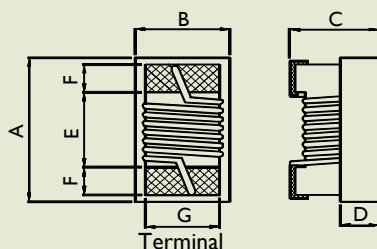
Highly resistant to mechanical shocks and pressure.

Highly reliable in environments of sudden temperature change and humidity.

Superior IDC for DC/DC converter.

### SHAPES AND DIMENSIONS

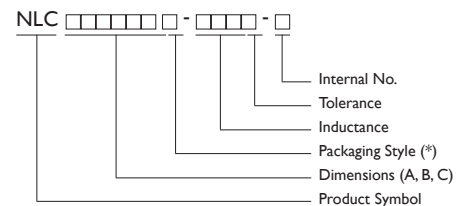
Dimensions : mm



| TYPE      | A                  | B                  | C                  | D       | E    | F    | G    |
|-----------|--------------------|--------------------|--------------------|---------|------|------|------|
| NLC252018 | 2.92 <sup>+0</sup> | 2.79 <sup>+0</sup> | 2.20 <sup>+0</sup> | 0.70Ref | 1.52 | 0.51 | 2.03 |
| NLC252018 | 3.70 <sup>+0</sup> | 2.90 <sup>+0</sup> | 2.60 <sup>+0</sup> | 0.90Ref | 2.18 | 0.51 | 2.40 |



### PRODUCT IDENTIFICATION



■ Packaging : T :Tape and Reel

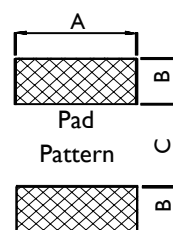
■ Tolerance : J=±5% ; K= ±10%

■ YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.

Ex. NLC252018T-1R0K-N

### RECOMMENDED PATTERN

Dimensions : mm



| TYPE      | A    | B    | C    |
|-----------|------|------|------|
| NLC252018 | 2.54 | 1.02 | 1.27 |
| NLC322522 | 2.70 | 1.00 | 2.00 |



## ELECTRICAL CHARACTERISTICS

| PART NO.           | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm$ %) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | COLOR CODING    |                 |                 |
|--------------------|--------------------------|-------------------------|-----------|----------------------------|----------------------|---------------------------------------|------------------|-----------------|-----------------|-----------------|
|                    |                          |                         |           |                            |                      |                                       |                  | 1 <sup>ST</sup> | 2 <sup>ND</sup> | 3 <sup>RD</sup> |
| NLC252018T-1R0 □-S | 1.0                      | 10 / 5                  | 25        | 7.96                       | 300                  | 0.34                                  | 1500             | Brown           | Black           | Red             |
| NLC252018T-1R5 □-S | 1.5                      | 10 / 5                  | 25        | 7.96                       | 270                  | 0.42                                  | 1400             | Brown           | Green           | Red             |
| NLC252018T-2R2 □-S | 2.2                      | 10 / 5                  | 25        | 7.96                       | 140                  | 0.50                                  | 1200             | Red             | Red             | Red             |
| NLC252018T-3R3 □-S | 3.3                      | 10 / 5                  | 25        | 7.96                       | 95                   | 0.65                                  | 1000             | Orange          | Orange          | Red             |
| NLC252018T-4R7 □-S | 4.7                      | 10 / 5                  | 25        | 7.96                       | 90                   | 0.80                                  | 800              | Yellow          | Violet          | Red             |
| NLC252018T-6R8 □-S | 6.8                      | 10 / 5                  | 25        | 7.96                       | 68                   | 1.00                                  | 730              | Blue            | Gray            | Red             |
| NLC252018T-100 □-S | 10                       | 10 / 5                  | 20        | 2.52                       | 45                   | 1.50                                  | 700              | Brown           | Black           | Orange          |
| NLC252018T-150 □-S | 15                       | 10 / 5                  | 20        | 2.52                       | 40                   | 2.20                                  | 500              | Brown           | Green           | Orange          |
| NLC252018T-220 □-S | 22                       | 10 / 5                  | 20        | 2.52                       | 25                   | 2.70                                  | 470              | Red             | Red             | Orange          |
| NLC252018T-330 □-S | 33                       | 10 / 5                  | 20        | 2.52                       | 25                   | 4.00                                  | 400              | Orange          | Orange          | Orange          |
| NLC252018T-470 □-S | 47                       | 10 / 5                  | 16        | 2.52                       | 20                   | 8.00                                  | 300              | Yellow          | Violet          | Orange          |

• When ordering, please specify tolerance and packaging code.

Ex : NLC252018T-4R7J-S

• Tolerance : J =  $\pm 5\%$  ; K =  $\pm 10\%$

• Packaging : Clear Tape and Reel (Standard)

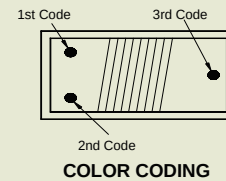
• L / Q : Agilent / HP4291 + Agilent / HP16193A

• SRF : Agilent / HP4291A

• RDC : Digital Multimeter CH502BC HP4338B

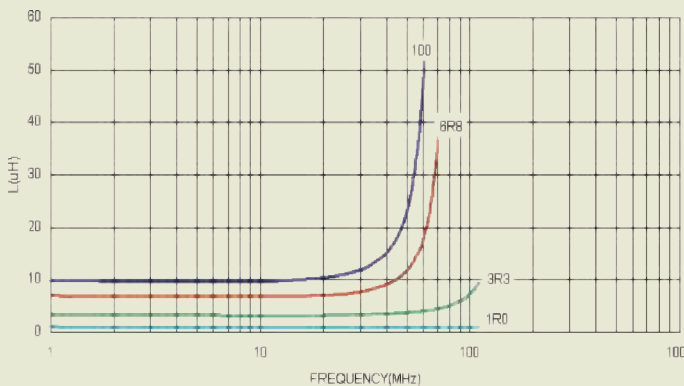
• Idc for inductance drop 10% from its value without current.

• Operating Temperature Range : -25°C to 85°C

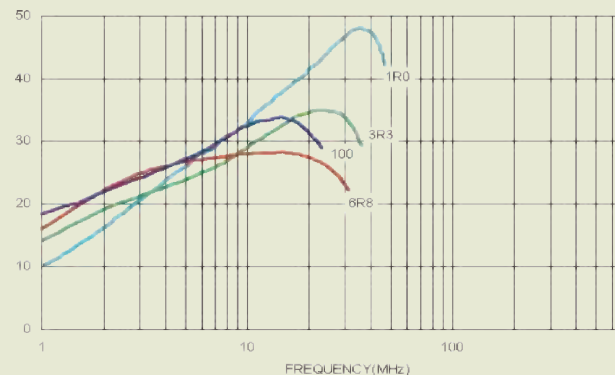


## TEST INSTRUMENTS : HP4291A Impedance / Material Analyzer

Typical L vs. Frequency



Typical Q vs. Frequency





## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TEST FREQ<br>(MHZ) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) | Color Code      |                 |                 |
|---------------------|--------------------------|--------------------|-----------|-------------------|--------------------------|------------------|-------------------------|-----------------|-----------------|-----------------|
|                     |                          |                    |           |                   |                          |                  |                         | 1 <sup>ST</sup> | 2 <sup>ND</sup> | 3 <sup>RD</sup> |
| NLC252018T-1R0 □ -N | 1                        | 7.96               | 25        | 300               | 0.34                     | 1500             | 5,10                    | BRN             | BLK             | RED             |
| NLC252018T-1R5 □ -N | 1.5                      | 7.96               | 25        | 270               | 0.42                     | 1400             | 5,10                    | BRN             | GRN             | RED             |
| NLC252018T-2R2 □ -N | 2.2                      | 7.96               | 25        | 140               | 0.5                      | 1200             | 5,10                    | RED             | RED             | RED             |
| NLC252018T-3R3 □ -N | 3.3                      | 7.96               | 25        | 95                | 0.65                     | 1000             | 5,10                    | ORN             | ORN             | RED             |
| NLC252018T-4R7 □ -N | 4.7                      | 7.96               | 25        | 90                | 0.8                      | 800              | 5,10                    | YEL             | VIO             | RED             |
| NLC252018T-6R8 □ -N | 6.8                      | 7.96               | 25        | 68                | 1                        | 730              | 5,10                    | BLU             | GRY             | RED             |
| NLC252018T-100 □ -N | 10                       | 2.52               | 20        | 45                | 1.5                      | 700              | 5,10                    | BRN             | BLK             | ORN             |
| NLC252018T-150 □ -N | 15                       | 2.52               | 20        | 40                | 2.2                      | 500              | 5,10                    | BRN             | GRN             | ORN             |
| NLC252018T-220 □ -N | 22                       | 2.52               | 20        | 25                | 2.7                      | 470              | 5,10                    | RED             | RED             | ORN             |
| NLC252018T-330 □ -N | 33                       | 2.52               | 20        | 25                | 4                        | 400              | 5,10                    | ORN             | ORN             | ORN             |
| NLC252018T-470 □ -N | 47                       | 2.52               | 16        | 20                | 8                        | 300              | 5,10                    | YEL             | VIO             | ORN             |

NOTE: □ -tolerance J=  $\pm$ 5% / K=  $\pm$ 10% / M=  $\pm$ 20%

1. Operating temperature range -25°C~85°C

2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm$ %) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | COLOR CODING    |                 |                 |
|---------------------|--------------------------|-------------------------|-----------|----------------------------|----------------------|---------------------------------------|------------------|-----------------|-----------------|-----------------|
|                     |                          |                         |           |                            |                      |                                       |                  | 1 <sup>ST</sup> | 2 <sup>ND</sup> | 3 <sup>RD</sup> |
| NLC322522T-1R0 □ -S | 1.0                      | 5, 10                   | 20        | 7.96                       | 100                  | 0.08                                  | 1500             | Brown           | Black           | Red             |
| NLC322522T-1R5 □ -S | 1.5                      | 5, 10                   | 20        | 7.96                       | 80                   | 0.13                                  | 1125             | Brown           | Green           | Red             |
| NLC322522T-2R2 □ -S | 2.2                      | 5, 10                   | 20        | 7.96                       | 68                   | 0.13                                  | 970              | Red             | Red             | Red             |
| NLC322522T-3R3 □ -S | 3.3                      | 5, 10                   | 20        | 7.96                       | 54                   | 0.16                                  | 837              | Orange          | Orange          | Red             |
| NLC322522T-4R7 □ -S | 4.7                      | 5, 10                   | 20        | 7.96                       | 43                   | 0.20                                  | 675              | Yellow          | Violet          | Red             |
| NLC322522T-6R8 □ -S | 6.8                      | 5, 10                   | 20        | 7.96                       | 33                   | 0.27                                  | 600              | Blue            | Gray            | Red             |
| NLC322522T-100 □ -S | 10                       | 5, 10                   | 15        | 2.52                       | 28                   | 0.36                                  | 520              | Brown           | Black           | Orange          |
| NLC322522T-150 □ -S | 15                       | 5, 10                   | 15        | 2.52                       | 19                   | 0.56                                  | 480              | Brown           | Green           | Orange          |
| NLC322522T-220 □ -S | 22                       | 5, 10                   | 15        | 2.52                       | 16                   | 0.77                                  | 310              | Red             | Red             | Orange          |
| NLC322522T-330 □ -S | 33                       | 5, 10                   | 15        | 2.52                       | 12                   | 1.10                                  | 270              | Orange          | Orange          | Orange          |
| NLC322522T-470 □ -S | 47                       | 5, 10                   | 15        | 2.52                       | 10                   | 1.64                                  | 210              | Yellow          | Violet          | Orange          |
| NLC322522T-680 □ -S | 68                       | 5, 10                   | 15        | 2.52                       | 9                    | 2.80                                  | 189              | Blue            | Gray            | Orange          |
| NLC322522T-101 □ -S | 100                      | 5, 10                   | 15        | 0.796                      | 6                    | 3.70                                  | 145              | Brown           | Black           | Yellow          |
| NLC322522T-151 □ -S | 150                      | 5, 10                   | 15        | 0.796                      | 5                    | 6.10                                  | 120              | Brown           | Green           | Yellow          |
| NLC322522T-221 □ -S | 220                      | 5, 10                   | 15        | 0.796                      | 4                    | 8.40                                  | 100              | Red             | Red             | Yellow          |
| NLC322522T-331 □ -S | 330                      | 5, 10                   | 15        | 0.796                      | 3.5                  | 12.3                                  | 80               | Orange          | Orange          | Yellow          |
| NLC322522T-471 □ -S | 470                      | 5, 10                   | 15        | 0.796                      | 2.8                  | 22.0                                  | 75               | Yellow          | Violet          | Yellow          |
| NLC322522T-681 □ -S | 680                      | 5, 10                   | 15        | 0.796                      | 2                    | 28.0                                  | 65               | Blue            | Gray            | Yellow          |

• When ordering, please specify tolerance and packaging code.

Ex : NLC322522T-4R7J-S

• Tolerance : J =  $\pm 5\%$  ; K =  $\pm 10\%$

• Packaging : Clear Tape and Reel (Standard)

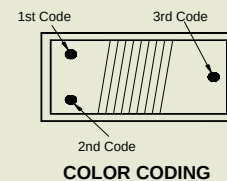
• L / Q : Agilent / HP4291A + Agilent / HP16193A (over 1MHz)  
Agilent / HP4285A + Agilent / HP16193A (under 1MHz)

• SRF : Agilent / HP4291A

• RDC : Digital Multimeter HP4338B CH502BC

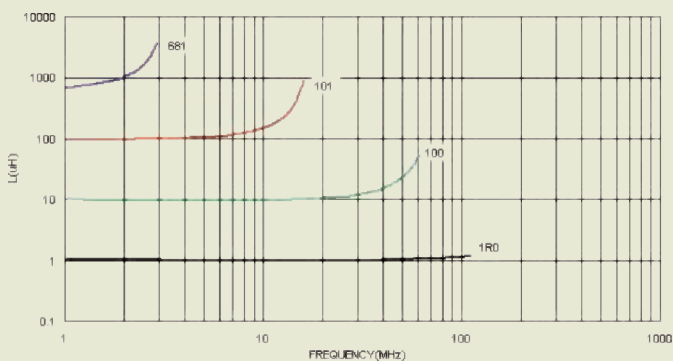
• Idc for inductance drop 10% from its value without current.

• Operating Temperature Range : -25°C to 85°C

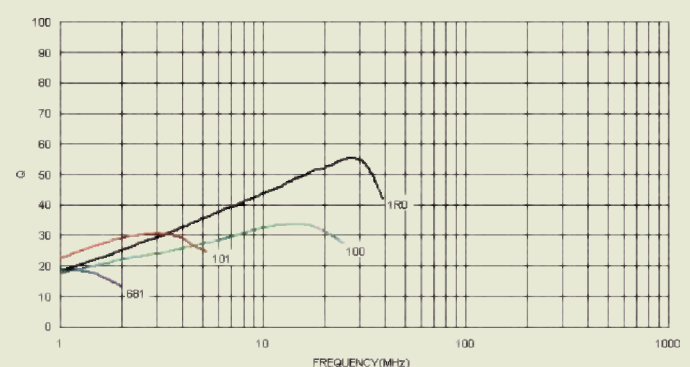


## TEST INSTRUMENTS : HP4291A Impedance / Material Analyzer

Typical L vs. Frequency



Typical Q vs. Frequency





## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.                    | INDUCTANCE<br>( $\mu$ H) | TEST FREQ<br>(MHZ) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) | Color Code      |                 |                 |
|-----------------------------|--------------------------|--------------------|-----------|-------------------|--------------------------|------------------|-------------------------|-----------------|-----------------|-----------------|
|                             |                          |                    |           |                   |                          |                  |                         | 1 <sup>ST</sup> | 2 <sup>ND</sup> | 3 <sup>RD</sup> |
| NLC322522T-R47 $\square$ -N | 0.47                     | 25.2               | 40        | 450               | 0.07                     | 1800             | 5,10                    | YEL             | VIO             | BRN             |
| NLC322522T-1R0 $\square$ -N | 1                        | 7.96               | 20        | 100               | 0.08                     | 1500             | 5,10                    | BRN             | BLK             | RED             |
| NLC322522T-1R2 $\square$ -N | 1.2                      | 7.96               | 20        | 90                | 0.08                     | 1400             | 5,10                    | BRN             | RED             | RED             |
| NLC322522T-1R5 $\square$ -N | 1.5                      | 7.96               | 20        | 80                | 0.13                     | 1125             | 5,10                    | BRN             | GRN             | RED             |
| NLC322522T-1R8 $\square$ -N | 1.8                      | 7.96               | 20        | 70                | 0.13                     | 970              | 5,10                    | BRN             | GRY             | RED             |
| NLC322522T-2R2 $\square$ -N | 2.2                      | 7.96               | 20        | 68                | 0.13                     | 970              | 5,10                    | RED             | RED             | RED             |
| NLC322522T-2R7 $\square$ -N | 2.7                      | 7.96               | 20        | 62                | 0.15                     | 900              | 5,10                    | RED             | VIO             | RED             |
| NLC322522T-3R3 $\square$ -N | 3.3                      | 7.96               | 20        | 54                | 0.16                     | 837              | 5,10                    | ORN             | ORN             | RED             |
| NLC322522T-4R7 $\square$ -N | 4.7                      | 7.96               | 20        | 43                | 0.23                     | 675              | 5,10                    | YEL             | VIO             | RED             |
| NLC322522T-5R6 $\square$ -N | 5.6                      | 7.96               | 20        | 36                | 0.26                     | 620              | 5,10                    | GRN             | BLU             | RED             |
| NLC322522T-6R8 $\square$ -N | 6.8                      | 7.96               | 20        | 33                | 0.27                     | 600              | 5,10                    | BLU             | GRY             | RED             |
| NLC322522T-8R2 $\square$ -N | 8.2                      | 7.96               | 20        | 30                | 0.32                     | 580              | 5,10                    | GRY             | RED             | RED             |
| NLC322522T-100 $\square$ -N | 10                       | 2.52               | 15        | 28                | 0.36                     | 520              | 5,10                    | BRN             | BLK             | ORN             |
| NLC322522T-150 $\square$ -N | 15                       | 2.52               | 15        | 19                | 0.56                     | 480              | 5,10                    | BRN             | GRN             | ORN             |
| NLC322522T-180 $\square$ -N | 18                       | 2.52               | 15        | 17                | 0.67                     | 330              | 5,10                    | BRN             | GRY             | ORN             |
| NLC322522T-220 $\square$ -N | 22                       | 2.52               | 15        | 16                | 0.77                     | 310              | 5,10                    | RED             | RED             | ORN             |
| NLC322522T-270 $\square$ -N | 27                       | 2.52               | 15        | 13                | 1                        | 280              | 5,10                    | RED             | VIO             | ORN             |
| NLC322522T-330 $\square$ -N | 33                       | 2.52               | 15        | 12                | 1.1                      | 270              | 5,10                    | ORN             | ORN             | ORN             |
| NLC322522T-470 $\square$ -N | 47                       | 2.52               | 15        | 10                | 1.64                     | 210              | 5,10                    | YEL             | VIO             | ORN             |
| NLC322522T-680 $\square$ -N | 68                       | 2.52               | 15        | 9                 | 2.8                      | 189              | 5,10                    | BLU             | GRY             | ORN             |
| NLC322522T-101 $\square$ -N | 100                      | 0.796              | 15        | 6                 | 3.7                      | 145              | 5,10                    | BRN             | BLK             | YEL             |
| NLC322522T-151 $\square$ -N | 150                      | 0.796              | 15        | 5                 | 6.1                      | 120              | 5,10                    | BRN             | GRN             | YEL             |
| NLC322522T-181 $\square$ -N | 180                      | 0.796              | 15        | 4                 | 8                        | 105              | 5,10                    | BRN             | GRY             | YEL             |
| NLC322522T-221 $\square$ -N | 220                      | 0.796              | 15        | 4                 | 8.4                      | 100              | 5,10                    | RED             | RED             | YEL             |
| NLC322522T-331 $\square$ -N | 330                      | 0.796              | 15        | 3.5               | 12.3                     | 80               | 5,10                    | ORN             | ORN             | YEL             |
| NLC322522T-391 $\square$ -N | 390                      | 0.796              | 15        | 2.8               | 17.6                     | 75               | 5,10                    | YEL             | VIO             | YEL             |
| NLC322522T-471 $\square$ -N | 470                      | 0.796              | 15        | 2.8               | 22                       | 75               | 5,10                    | YEL             | VIO             | YEL             |
| NLC322522T-561 $\square$ -N | 560                      | 0.796              | 15        | 2.5               | 23                       | 65               | 5,10                    | GRN             | BLU             | YEL             |
| NLC322522T-681 $\square$ -N | 680                      | 0.796              | 15        | 2                 | 28                       | 65               | 5,10                    | BLU             | GRY             | YEL             |

NOTE:  $\square$  -tolerance J=  $\pm$ 5% /K=  $\pm$ 10% / M=  $\pm$ 20%

1. Operating temperature range -25°C~85°C

2. IDC: Applied the current to coils, the inductance shall be less than 10% initial value.

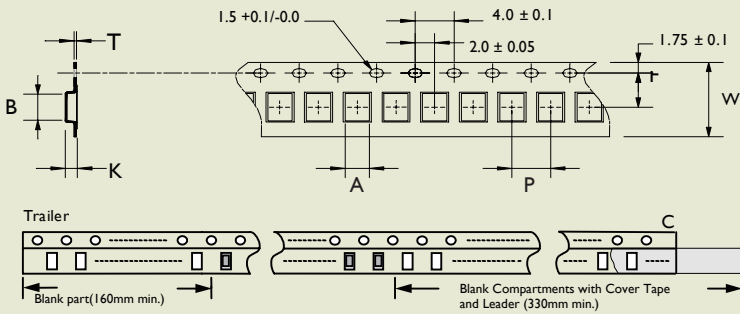
"-N" FOR COMPLETELY LEAD FREE TYPE (INCLUDING FERRITE BODY & SOLDER)



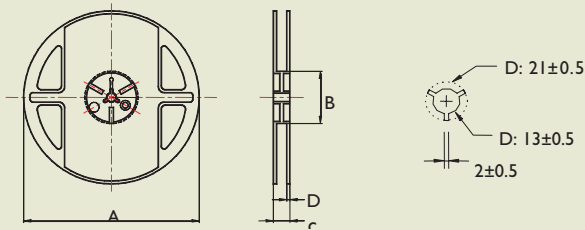
PACKAGING SPECIFICATIONS

Dimensions : mm

TAPE Dimensions



Reel Dimensions



Dimensions : mm

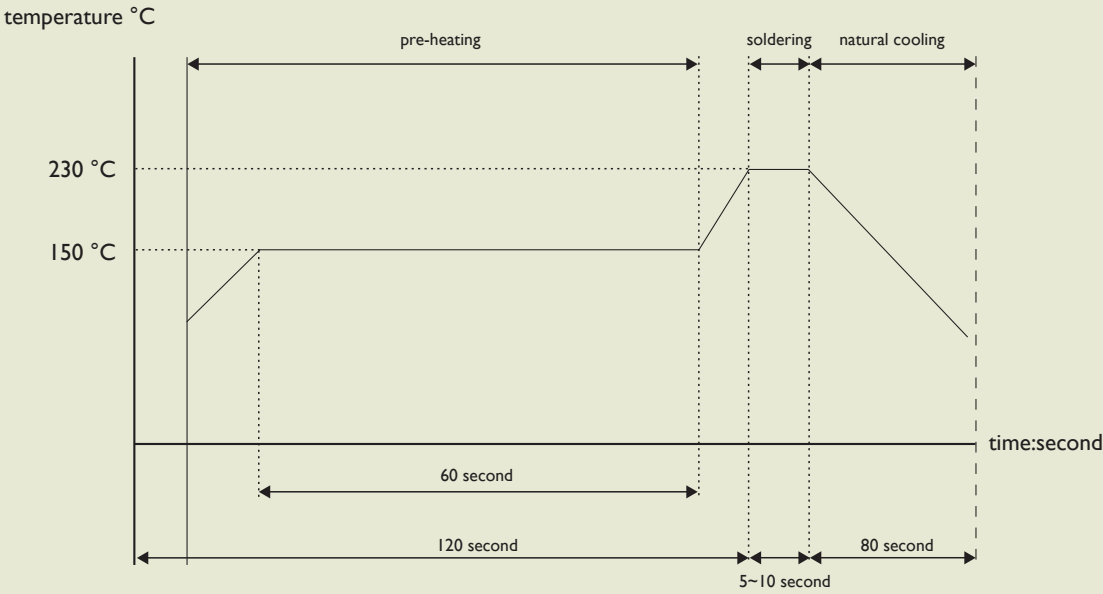
Dimensions : mm

| TYPE      | TAPE DIMENSIONS |      |      |    |   |     |      |
|-----------|-----------------|------|------|----|---|-----|------|
|           | A               | B    | T    | W  | P | F   | K    |
| NLC252018 | 2.70            | 2.95 | 0.23 | 8  | 4 | 3.5 | 2.25 |
| NLC322522 | 2.95            | 3.85 | 0.25 | 12 | 4 | 3.5 | 2.45 |

| REEL DIMENSIONS |    |    |     | Q'TY/REEL |
|-----------------|----|----|-----|-----------|
| A               | B  | C  | D   |           |
| 178             | 60 | 12 | 1.5 | 2000      |
| 178             | 60 | 16 | 1.4 | 2000      |

RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS





# NLC Series

Molded Type / For High Current Application

## Wound Chip Inductors

The characteristics of NLC series (molded type) features low RDC and high current handling capacities. These chip inductors are ideal for power supply applications such as PC, conveyable telephone, and so on.

### APPLICATIONS

Portable Telephones

Personal computers

HHDs.

Other electronics appliances.

### FEATURES

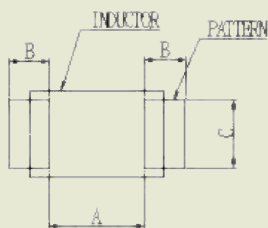
Low RDC, large current type

Best for power supply line.

Available in 2 sizes.

### RECOMMENDED PATTERN

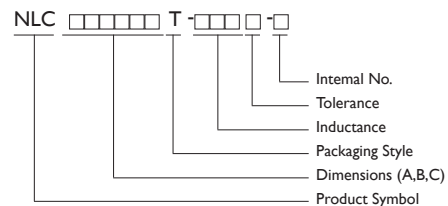
Dimensions : mm



| TYPE      | A   | B   | C   |
|-----------|-----|-----|-----|
| NLC453232 | 3.0 | 1.5 | 2.8 |
| NLC565050 | 4.0 | 2.0 | 4.5 |

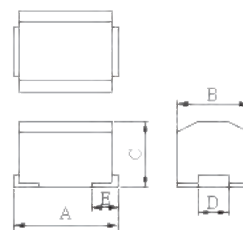


### PRODUCT IDENTIFICATION



- Packaging : T : Tape and Reel ; B : Bulk
- Tolerance : J =  $\pm 5\%$  ; K =  $\pm 10\%$
- YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.  
Ex. NLC453232T-1R0K-N

### SHAPES AND DIMENSIONS



| TYPE      | A             | B             | C             | D             | E             |
|-----------|---------------|---------------|---------------|---------------|---------------|
| NLC453232 | 4.5 $\pm$ 0.3 | 3.2 $\pm$ 0.3 | 3.2 $\pm$ 0.3 | 1.4 $\pm$ 0.4 | 0.9 $\pm$ 0.2 |
| NLC565050 | 5.6 $\pm$ 0.3 | 5.0 $\pm$ 0.3 | 5.0 $\pm$ 0.3 | 1.8 $\pm$ 0.3 | 1.3 $\pm$ 0.2 |



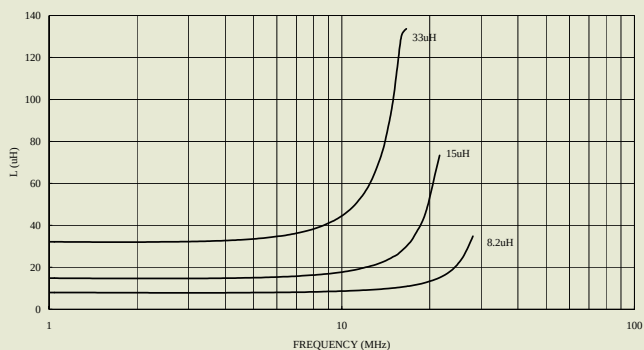
## ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm\%$ ) | Q<br>Min. | TEST FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|-------------------|--------------------------|--------------------------|-----------|-------------------------|-------------------|------------------------------------|------------------|
| NLC453232T-1R0K-S | 1.0                      | 10                       | 10        | 7.96                    | 200               | 0.11                               | 1050             |
| NLC453232T-1R2K-S | 1.2                      | 10                       | 10        | 7.96                    | 155               | 0.12                               | 1000             |
| NLC453232T-1R5K-S | 1.5                      | 10                       | 10        | 7.96                    | 130               | 0.15                               | 950              |
| NLC453232T-1R8K-S | 1.8                      | 10                       | 10        | 7.96                    | 100               | 0.16                               | 900              |
| NLC453232T-2R2K-S | 2.2                      | 10                       | 10        | 7.96                    | 80                | 0.18                               | 850              |
| NLC453232T-2R7K-S | 2.7                      | 10                       | 10        | 7.96                    | 55                | 0.20                               | 800              |
| NLC453232T-3R3K-S | 3.3                      | 10                       | 10        | 7.96                    | 45                | 0.22                               | 750              |
| NLC453232T-3R9K-S | 3.9                      | 10                       | 10        | 7.96                    | 40                | 0.24                               | 700              |
| NLC453232T-4R7K-S | 4.7                      | 10                       | 10        | 7.96                    | 35                | 0.27                               | 650              |
| NLC453232T-5R6K-S | 5.6                      | 10                       | 10        | 7.96                    | 30                | 0.30                               | 650              |
| NLC453232T-6R8K-S | 6.8                      | 10                       | 10        | 7.96                    | 28                | 0.35                               | 600              |
| NLC453232T-8R2K-S | 8.2                      | 10                       | 10        | 7.96                    | 25                | 0.40                               | 600              |
| NLC453232T-100K-S | 10                       | 10                       | 10        | 2.52                    | 22                | 0.50                               | 550              |
| NLC453232T-120K-S | 12                       | 10                       | 10        | 2.52                    | 21                | 0.60                               | 500              |
| NLC453232T-150K-S | 15                       | 10                       | 10        | 2.52                    | 20                | 0.70                               | 450              |
| NLC453232T-180K-S | 18                       | 10                       | 10        | 2.52                    | 18                | 0.80                               | 400              |
| NLC453232T-220K-S | 22                       | 10                       | 10        | 2.52                    | 17                | 0.90                               | 370              |
| NLC453232T-270K-S | 27                       | 10                       | 10        | 2.52                    | 15                | 1.20                               | 330              |
| NLC453232T-330K-S | 33                       | 10                       | 10        | 2.52                    | 14                | 1.40                               | 300              |
| NLC453232T-390K-S | 39                       | 10                       | 10        | 2.52                    | 12                | 1.60                               | 280              |
| NLC453232T-470K-S | 47                       | 10                       | 10        | 2.52                    | 11.5              | 1.90                               | 260              |
| NLC453232T-560K-S | 56                       | 10                       | 10        | 2.52                    | 10.5              | 2.20                               | 240              |
| NLC453232T-680K-S | 68                       | 10                       | 10        | 2.52                    | 9                 | 2.60                               | 220              |
| NLC453232T-820K-S | 82                       | 10                       | 10        | 2.52                    | 8.5               | 3.50                               | 200              |
| NLC453232T-101K-S | 100                      | 10                       | 20        | 0.796                   | 7.0               | 4.00                               | 180              |
| NLC453232T-121K-S | 120                      | 10                       | 20        | 0.796                   | 6.5               | 4.50                               | 160              |
| NLC453232T-151K-S | 150                      | 10                       | 20        | 0.796                   | 6                 | 6.50                               | 140              |
| NLC453232T-181K-S | 180                      | 10                       | 20        | 0.796                   | 5.5               | 7.50                               | 120              |
| NLC453232T-221K-S | 220                      | 10                       | 20        | 0.796                   | 5.0               | 9.00                               | 120              |
| NLC453232T-271K-S | 270                      | 10                       | 20        | 0.796                   | 4.5               | 11.0                               | 100              |
| NLC453232T-331K-S | 330                      | 10                       | 20        | 0.796                   | 4                 | 13.0                               | 90               |

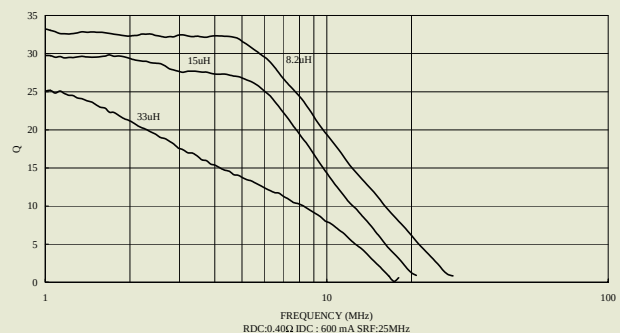
• Test Instruments: HP4286A RF Impedance Analyzer for L · Q · SRF Digital Multimeter CH502BC/ HP4338B for RDC  
HP4286A LF Impedance Analyzer for L · Q · HP4284A+HP42841A for IDC

## TEST INSTRUMENTS : HP4291A Impedance / Material Analyzer

Inductance vs. Frequency characteristics



Q vs. Frequency characteristics





## ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | TOLERANCE<br>( $\pm\%$ ) | Q<br>Min. | TEST FREQUENCY<br>(MHz) | SRF<br>(MHz) Min. | DC RESISTANCE<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. |
|-------------------|--------------------------|--------------------------|-----------|-------------------------|-------------------|------------------------------------|------------------|
| NLC565050T-1R0K-S | 1.0                      | 10                       | 10        | 7.96                    | 95                | 0.03                               | 1800             |
| NLC565050T-1R2K-S | 1.2                      | 10                       | 10        | 7.96                    | 70                | 0.035                              | 1700             |
| NLC565050T-1R5K-S | 1.5                      | 10                       | 10        | 7.96                    | 55                | 0.04                               | 1600             |
| NLC565050T-1R8K-S | 1.8                      | 10                       | 10        | 7.96                    | 47                | 0.05                               | 1400             |
| NLC565050T-2R2K-S | 2.2                      | 10                       | 10        | 7.96                    | 42                | 0.06                               | 1300             |
| NLC565050T-2R7K-S | 2.7                      | 10                       | 10        | 7.96                    | 37                | 0.07                               | 1200             |
| NLC565050T-3R3K-S | 3.3                      | 10                       | 10        | 7.96                    | 34                | 0.08                               | 1120             |
| NLC565050T-3R9K-S | 3.9                      | 10                       | 10        | 7.96                    | 32                | 0.09                               | 1050             |
| NLC565050T-4R7K-S | 4.7                      | 10                       | 10        | 7.96                    | 29                | 0.11                               | 950              |
| NLC565050T-5R6K-S | 5.6                      | 10                       | 10        | 7.96                    | 26                | 0.13                               | 880              |
| NLC565050T-6R8K-S | 6.8                      | 10                       | 10        | 7.96                    | 24                | 0.15                               | 810              |
| NLC565050T-8R2K-S | 8.2                      | 10                       | 10        | 7.96                    | 22                | 0.18                               | 750              |
| NLC565050T-100K-S | 10                       | 10                       | 10        | 2.52                    | 19                | 0.21                               | 690              |
| NLC565050T-120K-S | 12                       | 10                       | 10        | 2.52                    | 17                | 0.25                               | 630              |
| NLC565050T-150K-S | 15                       | 10                       | 10        | 2.52                    | 16                | 0.30                               | 580              |
| NLC565050T-180K-S | 18                       | 10                       | 10        | 2.52                    | 14                | 0.36                               | 530              |
| NLC565050T-220K-S | 22                       | 10                       | 10        | 2.52                    | 13                | 0.43                               | 480              |
| NLC565050T-270K-S | 27                       | 10                       | 10        | 2.52                    | 11.5              | 0.52                               | 440              |
| NLC565050T-330K-S | 33                       | 10                       | 10        | 2.52                    | 10.5              | 0.62                               | 400              |
| NLC565050T-390K-S | 39                       | 10                       | 10        | 2.52                    | 9.5               | 0.72                               | 370              |
| NLC565050T-470K-S | 47                       | 10                       | 10        | 2.52                    | 8.5               | 0.85                               | 340              |
| NLC565050T-560K-S | 56                       | 10                       | 10        | 2.52                    | 7.8               | 1.00                               | 310              |
| NLC565050T-680K-S | 68                       | 10                       | 10        | 2.52                    | 7                 | 1.2                                | 290              |
| NLC565050T-820K-S | 82                       | 10                       | 10        | 2.52                    | 6.4               | 1.4                                | 270              |
| NLC565050T-101K-S | 100                      | 10                       | 20        | 0.796                   | 6                 | 1.6                                | 250              |
| NLC565050T-121K-S | 120                      | 10                       | 20        | 0.796                   | 5.4               | 1.9                                | 230              |
| NLC565050T-151K-S | 150                      | 10                       | 20        | 0.796                   | 4.8               | 2.2                                | 210              |
| NLC565050T-181K-S | 180                      | 10                       | 20        | 0.796                   | 4.4               | 2.8                                | 190              |
| NLC565050T-221K-S | 220                      | 10                       | 20        | 0.796                   | 3.9               | 3.4                                | 170              |
| NLC565050T-271K-S | 270                      | 10                       | 20        | 0.796                   | 3.6               | 4.2                                | 155              |
| NLC565050T-331K-S | 330                      | 10                       | 20        | 0.796                   | 3.2               | 4.9                                | 140              |
| NLC565050T-391K-S | 390                      | 10                       | 20        | 0.796                   | 2.9               | 5.8                                | 130              |
| NLC565050T-471K-S | 470                      | 10                       | 20        | 0.796                   | 2.6               | 7                                  | 120              |
| NLC565050T-561K-S | 560                      | 10                       | 20        | 0.796                   | 2.4               | 8.5                                | 110              |
| NLC565050T-681K-S | 680                      | 10                       | 20        | 0.796                   | 2.2               | 10                                 | 100              |
| NLC565050T-821K-S | 820                      | 10                       | 20        | 0.796                   | 2                 | 13                                 | 90               |
| NLC565050T-102K-S | 1000                     | 10                       | 20        | 0.252                   | 1.8               | 15                                 | 85               |

Test Instruments : P4286A RF Impedance Analyzer for L · Q · SRF Digital Multimeter CH502BC / HP4338B for RDC  
 HP4285A LF Impedance Analyzer for L · Q · HP4284A+HP42841A for IDC



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.            | INDUCTANCE<br>( $\mu$ H) | TEST FREQ<br>(MHz) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) |
|---------------------|--------------------------|--------------------|-----------|-------------------|--------------------------|------------------|-------------------------|
| NLC453232T-1R0 □ -N | 1                        | 7.96               | 10        | 200               | 0.11                     | 1050             | 5,10                    |
| NLC453232T-1R2 □ -N | 1.2                      | 7.96               | 10        | 155               | 0.12                     | 1000             | 5,10                    |
| NLC453232T-1R5 □ -N | 1.5                      | 7.96               | 10        | 130               | 0.15                     | 950              | 5,10                    |
| NLC453232T-1R8 □ -N | 1.8                      | 7.96               | 10        | 100               | 0.16                     | 900              | 5,10                    |
| NLC453232T-2R2 □ -N | 2.2                      | 7.96               | 10        | 80                | 0.18                     | 850              | 5,10                    |
| NLC453232T-2R7 □ -N | 2.7                      | 7.96               | 10        | 55                | 0.2                      | 800              | 5,10                    |
| NLC453232T-3R3 □ -N | 3.3                      | 7.96               | 10        | 45                | 0.22                     | 750              | 5,10                    |
| NLC453232T-3R9 □ -N | 3.9                      | 7.96               | 10        | 40                | 0.24                     | 700              | 5,10                    |
| NLC453232T-4R7 □ -N | 4.7                      | 7.96               | 10        | 35                | 0.27                     | 650              | 5,10                    |
| NLC453232T-5R6 □ -N | 5.6                      | 7.96               | 10        | 30                | 0.3                      | 650              | 5,10                    |
| NLC453232T-6R8 □ -N | 6.8                      | 7.96               | 10        | 28                | 0.35                     | 600              | 5,10                    |
| NLC453232T-8R2 □ -N | 8.2                      | 7.96               | 10        | 25                | 0.4                      | 600              | 5,10                    |
| NLC453232T-100 □ -N | 10                       | 2.52               | 10        | 22                | 0.5                      | 550              | 5,10                    |
| NLC453232T-120 □ -N | 12                       | 2.52               | 10        | 21                | 0.6                      | 500              | 5,10                    |
| NLC453232T-150 □ -N | 15                       | 2.52               | 10        | 20                | 0.7                      | 450              | 5,10                    |
| NLC453232T-180 □ -N | 18                       | 2.52               | 10        | 18                | 0.8                      | 400              | 5,10                    |
| NLC453232T-220 □ -N | 22                       | 2.52               | 10        | 17                | 0.9                      | 370              | 5,10                    |
| NLC453232T-270 □ -N | 27                       | 2.52               | 10        | 15                | 1.2                      | 330              | 5,10                    |
| NLC453232T-330 □ -N | 33                       | 2.52               | 10        | 14                | 1.4                      | 300              | 5,10                    |
| NLC453232T-390 □ -N | 39                       | 2.52               | 10        | 12                | 1.6                      | 280              | 5,10                    |
| NLC453232T-470 □ -N | 47                       | 2.52               | 10        | 11.5              | 1.9                      | 260              | 5,10                    |
| NLC453232T-560 □ -N | 56                       | 2.52               | 10        | 10.5              | 2.2                      | 240              | 5,10                    |
| NLC453232T-680 □ -N | 68                       | 2.52               | 10        | 9                 | 2.6                      | 220              | 5,10                    |
| NLC453232T-820 □ -N | 82                       | 2.52               | 10        | 8.5               | 3.5                      | 200              | 5,10                    |
| NLC453232T-101 □ -N | 100                      | 0.796              | 20        | 7                 | 4                        | 180              | 5,10                    |
| NLC453232T-121 □ -N | 120                      | 0.796              | 20        | 6.5               | 4.5                      | 160              | 5,10                    |
| NLC453232T-151 □ -N | 150                      | 0.796              | 20        | 6                 | 6.5                      | 140              | 5,10                    |
| NLC453232T-181 □ -N | 180                      | 0.796              | 20        | 5.5               | 7.5                      | 120              | 5,10                    |
| NLC453232T-221 □ -N | 220                      | 0.796              | 20        | 5                 | 9                        | 120              | 5,10                    |
| NLC453232T-271 □ -N | 270                      | 0.796              | 20        | 4.5               | 11                       | 100              | 5,10                    |
| NLC453232T-331 □ -N | 330                      | 0.796              | 20        | 4                 | 13                       | 90               | 5,10                    |
| NLC453232T-471 □ -N | 470                      | 0.796              | 20        | 3.5               | 19                       | 70               | 5,10                    |
| NLC453232T-561 □ -N | 560                      | 0.796              | 20        | 2.5               | 21                       | 60               | 5,10                    |
| NLC453232T-681 □ -N | 680                      | 0.796              | 20        | 2                 | 30                       | 60               | 5,10                    |

NOTE: □-tolerance J=  $\pm$ 5% / K=  $\pm$ 10% / M=  $\pm$ 20%

1.Operating temperature range -25°C~85°C

2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE<br>( $\mu$ H) | TEST FREQ<br>(MHz) | Q<br>Min. | SRF<br>(MHz) Min. | RDC<br>( $\Omega$ ) Max. | IDC<br>(mA) Max. | TOLERANCE<br>( $\pm$ %) |
|-------------------|--------------------------|--------------------|-----------|-------------------|--------------------------|------------------|-------------------------|
| NLC565050T-1R0K-N | 1                        | 7.96               | 10        | 95                | 0.03                     | 1800             | 10                      |
| NLC565050T-1R2K-N | 1.2                      | 7.96               | 10        | 70                | 0.035                    | 1700             | 10                      |
| NLC565050T-1R5K-N | 1.5                      | 7.96               | 10        | 55                | 0.04                     | 1600             | 10                      |
| NLC565050T-1R8K-N | 1.8                      | 7.96               | 10        | 47                | 0.05                     | 1400             | 10                      |
| NLC565050T-2R2K-N | 2.2                      | 7.96               | 10        | 42                | 0.06                     | 1300             | 10                      |
| NLC565050T-2R7K-N | 2.7                      | 7.96               | 10        | 37                | 0.07                     | 1200             | 10                      |
| NLC565050T-3R3K-N | 3.3                      | 7.96               | 10        | 34                | 0.08                     | 1120             | 10                      |
| NLC565050T-3R9K-N | 3.9                      | 7.96               | 10        | 32                | 0.09                     | 1050             | 10                      |
| NLC565050T-4R7K-N | 4.7                      | 7.96               | 10        | 29                | 0.11                     | 950              | 10                      |
| NLC565050T-5R6K-N | 5.6                      | 7.96               | 10        | 26                | 0.13                     | 880              | 10                      |
| NLC565050T-6R8K-N | 6.8                      | 7.96               | 10        | 24                | 0.15                     | 810              | 10                      |
| NLC565050T-8R2K-N | 8.2                      | 7.96               | 10        | 22                | 0.18                     | 750              | 10                      |
| NLC565050T-100K-N | 10                       | 2.52               | 10        | 19                | 0.21                     | 690              | 10                      |
| NLC565050T-120K-N | 12                       | 2.52               | 10        | 17                | 0.25                     | 630              | 10                      |
| NLC565050T-150K-N | 15                       | 2.52               | 10        | 16                | 0.3                      | 580              | 10                      |
| NLC565050T-180K-N | 18                       | 2.52               | 10        | 14                | 0.36                     | 530              | 10                      |
| NLC565050T-220K-N | 22                       | 2.52               | 10        | 13                | 0.43                     | 480              | 10                      |
| NLC565050T-270K-N | 27                       | 2.52               | 10        | 11.5              | 0.52                     | 440              | 10                      |
| NLC565050T-330K-N | 33                       | 2.52               | 10        | 10.5              | 0.62                     | 400              | 10                      |
| NLC565050T-390K-N | 39                       | 2.52               | 10        | 9.5               | 0.72                     | 370              | 10                      |
| NLC565050T-470K-N | 47                       | 2.52               | 10        | 8.5               | 0.85                     | 340              | 10                      |
| NLC565050T-560K-N | 56                       | 2.52               | 10        | 7.8               | 1                        | 310              | 10                      |
| NLC565050T-680K-N | 68                       | 2.52               | 10        | 7                 | 1.2                      | 290              | 10                      |
| NLC565050T-820K-N | 82                       | 2.52               | 10        | 6.4               | 1.4                      | 270              | 10                      |
| NLC565050T-101K-N | 100                      | 0.796              | 20        | 6                 | 1.6                      | 250              | 10                      |
| NLC565050T-121K-N | 120                      | 0.796              | 20        | 5.4               | 1.9                      | 230              | 10                      |
| NLC565050T-151K-N | 150                      | 0.796              | 20        | 4.8               | 2.2                      | 210              | 10                      |
| NLC565050T-181K-N | 180                      | 0.796              | 20        | 4.4               | 2.8                      | 190              | 10                      |
| NLC565050T-221K-N | 220                      | 0.796              | 20        | 3.9               | 3.4                      | 170              | 10                      |
| NLC565050T-271K-N | 270                      | 0.796              | 20        | 3.6               | 4.2                      | 155              | 10                      |
| NLC565050T-331K-N | 330                      | 0.796              | 20        | 3.2               | 4.9                      | 140              | 10                      |
| NLC565050T-391K-N | 390                      | 0.796              | 20        | 2.9               | 5.8                      | 130              | 10                      |
| NLC565050T-471K-N | 470                      | 0.796              | 20        | 2.6               | 7                        | 120              | 10                      |
| NLC565050T-561K-N | 560                      | 0.796              | 20        | 2.4               | 8.5                      | 110              | 10                      |
| NLC565050T-681K-N | 680                      | 0.796              | 20        | 2.2               | 10                       | 100              | 10                      |
| NLC565050T-821K-N | 820                      | 0.796              | 20        | 2                 | 13                       | 90               | 10                      |
| NLC565050T-102K-N | 1000                     | 0.252              | 20        | 1.8               | 15                       | 85               | 10                      |

NOTE: -tolerance K=  $\pm$ 10%

1. Operating temperature range -25°C~85°C

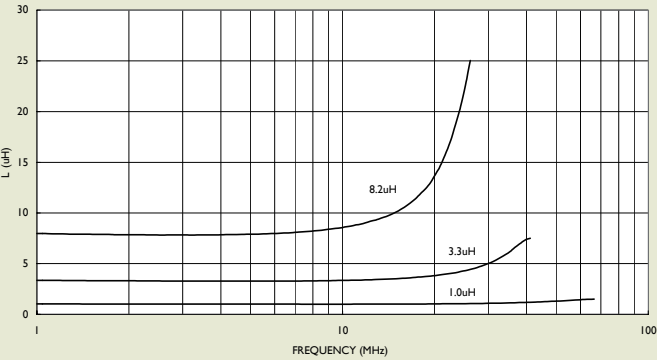
2.IDC:Applied the current to coils,the inductance shall be less than 10% initial value.

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)

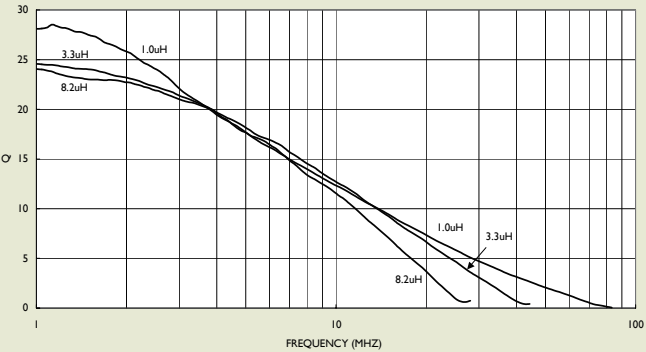


TEST INSTRUMENTS : HP4291A IMPEDANCE / MATERIAL ANALYZER

INDUCTANCE vs. FREQUENCY CHARACTERISTICS

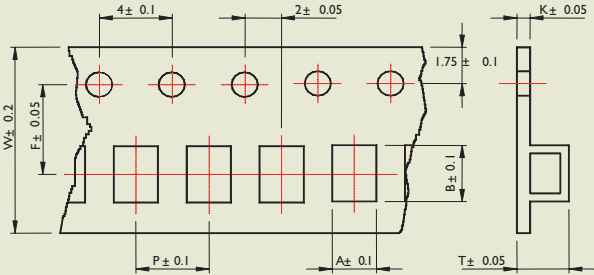


Q vs. FREQUENCY CHARACTERISTICS

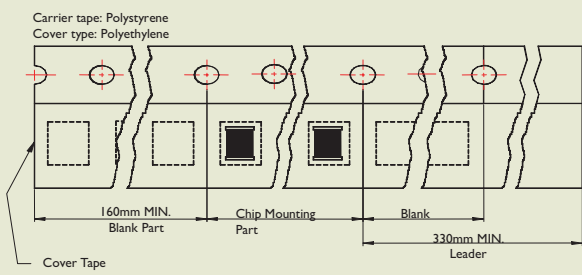


PACKAGING SPECIFICATIONS

Tape Dimensions



Tape Material



Reel Dimensions

Figure 1

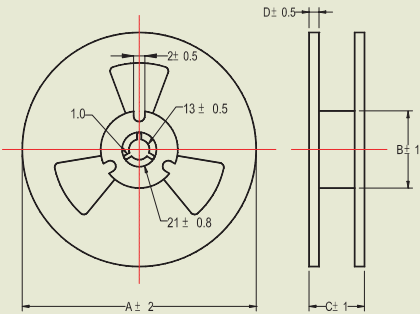
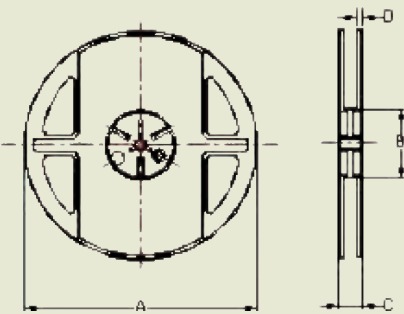


Figure 2



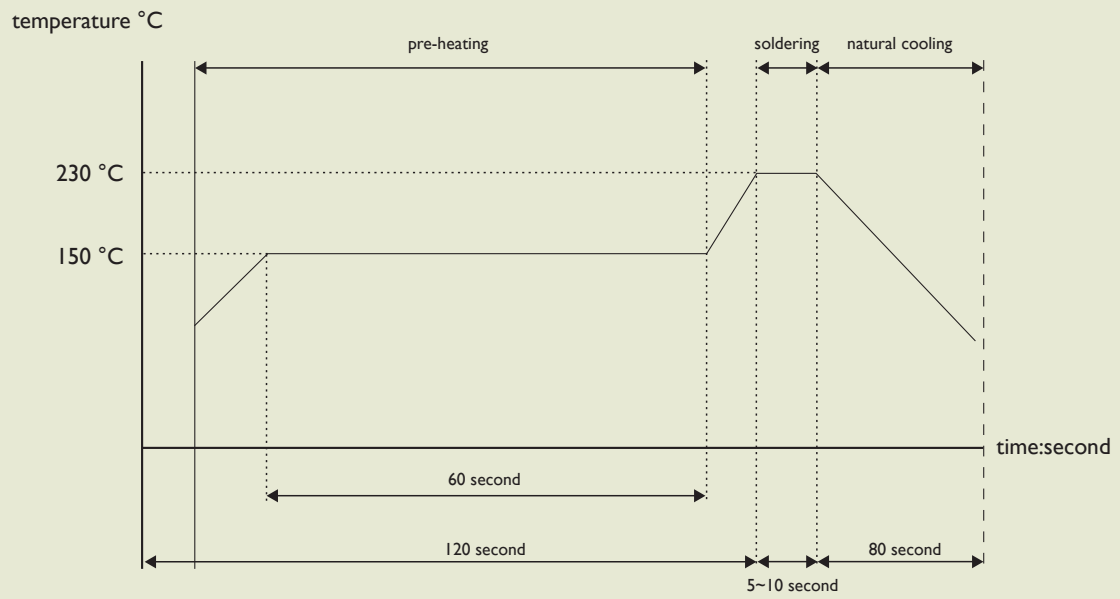
Dimensions : mm

| TYPE      | TAPE DIMENSIONS |      |      |    |    |     |      |     | REEL DIMENSIONS |     |    |     | Q'TY/REEL |
|-----------|-----------------|------|------|----|----|-----|------|-----|-----------------|-----|----|-----|-----------|
|           | A               | B    | T    | W  | P  | F   | K    | FIG | A               | B   | C  | D   |           |
| NLC453232 | 3.3             | 5.00 | 3.50 | 12 | 8  | 5.5 | 0.3  | 2   | 178             | 60  | 16 | 1.4 | 500       |
| NLC565050 | 5.35            | 6.10 | 5.50 | 16 | 12 | 7.5 | 0.35 | 1   | 330             | 100 | 22 | 2.3 | 1000      |



## RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



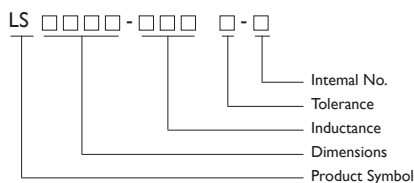
## Wire Wound Ferrite Chip Inductors

# LS Series

Open Type / For High Frequency & Low Loss Applications

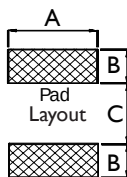


### PRODUCT IDENTIFICATION



- Tolerance : J=±5% ; K= ±10%
- YAGEO will start to release lead-free that meet SONY SS-00259's criteria, and Internal No. will be changed to "N" as identification.  
Ex. LS0603-R47 ☐-N

### RECOMMENDED PATTERN



| TYPE   | A    | B    | C    |
|--------|------|------|------|
| LS0603 | 1.02 | 0.64 | 0.64 |
| LS1008 | 2.54 | 1.02 | 1.27 |

LS Series is the latest combo open type ferrite wire wound chip inductor. Thw wire wound ferrite construction provides higher SRF, lower DCR and superior Q values than other ferrite chip in duc-tors.

### APPLICATIONS

Telecom and datacom applications such as xDSL, Cable Modem, Set-top Box, CATV filter/ tuner, wireless LAN and so on.

### FEATURES

Very strong solderability by reflow soldering and soldering iron or wave soldering.

Highly accurate dimensions can be mounted automatically.

Terminals are highly resistant to pull forces.

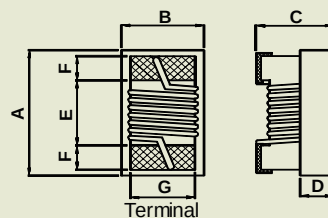
Highly resistant to mechanical shocks and pressure.

Highly reliable in environments of sudden temperature change and humidity.

Lowest DCR & better Q value in ferrite Series.

### SHAPES AND DIMENSIONS

Dimensions : mm



| TYPE   | A                  | B                  | C                  | D       | E    | F    | G    |
|--------|--------------------|--------------------|--------------------|---------|------|------|------|
| LS0603 | 1.8 <sup>+0</sup>  | 1.25 <sup>+0</sup> | 1.02 <sup>+0</sup> | 0.38Ref | 0.86 | 0.33 | 0.76 |
| LS1008 | 2.92 <sup>+0</sup> | 2.79 <sup>+0</sup> | 2.20 <sup>+0</sup> | 0.70Ref | 1.52 | 0.51 | 2.03 |





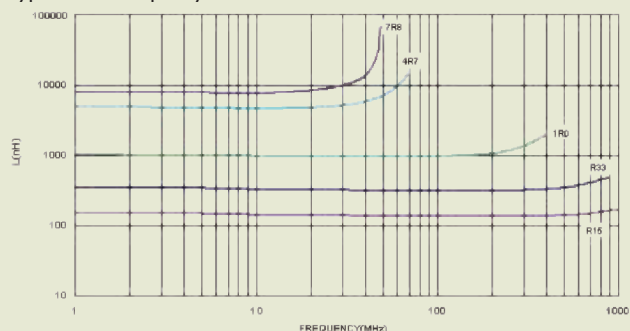
## ELECTRICAL CHARACTERISTICS

| PART NO.        | INDUCTANCE<br>(nH) | TEST FREQ<br>(MHz) | TOLERANCE<br>(±%) | Q<br>TYP- | SRF MIN<br>(MHz) | RDC MAX<br>(Ω) | IDC MAX<br>(mA) | Color  |
|-----------------|--------------------|--------------------|-------------------|-----------|------------------|----------------|-----------------|--------|
| LS0603-R47 □ -S | 470                | 7.9                | 10/5              | 17        | 800              | 0.45           | 1100            | Brown  |
| LS0603-1R0 □ -S | 1000               | 7.9                | 10/5              | 18        | 310              | 0.81           | 400             | Blue   |
| LS0603-2R2 □ -S | 2200               | 7.9                | 10/5              | 19        | 250              | 1.35           | 500             | Black  |
| LS0603-4R7 □ -S | 4700               | 7.9                | 10/5              | 19        | 95               | 2.80           | 400             | Yellow |
| LS0603-6R8 □ -S | 6800               | 7.9                | 10/5              | 19        | 55               | 3.30           | 400             | Blue   |
| LS0603-100 □ -S | 10000              | 7.9                | 10/5              | 19        | 40               | 4.80           | 300             | White  |

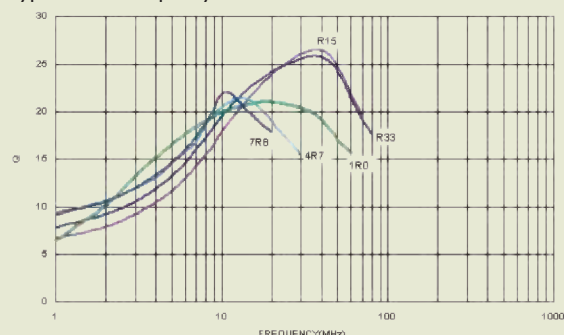
- Tolerance : J = ±5% , K = ±10%
- Packaging : Clear tape and reel (standard)
- L/Q : Agilent / HP4291A + Agilent / HP 16193A
- SRF : Agilent / HP4291A
- RDC : DIGITAL MULTIMETER SC-7401
- Idc for Inductance drop 10% from its value without current.
- Operating temperature range from -25°C to 85°C

## TEST INSTRUMENTS : HP4291A Impedance / Material Analyzer

Typical L vs. Frequency



Typical Q vs. Frequency



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.        | INDUCTANCE<br>(μH) | TEST FREQ<br>(MHz) | Q<br>TYP- | SRF MIN<br>(MHz) | RDC MAX<br>(Ω) | IDC MAX<br>(mA) | TOLERANCE<br>(±%) | Color |
|-----------------|--------------------|--------------------|-----------|------------------|----------------|-----------------|-------------------|-------|
| LS0603-47N □ -N | 0.047              | 7.9/7.9            | 17        | 1700             | 0.075          | 1500            | 5,10              | BLK   |
| LS0603-72N □ -N | 0.072              | 7.9/7.9            | 17        | 1700             | 0.12           | 1500            | 5,10              | BRN   |
| LS0603-R10 □ -N | 0.1                | 7.9/7.9            | 17        | 1650             | 0.13           | 1500            | 5,10              | RED   |
| LS0603-R12 □ -N | 0.12               | 7.9/7.9            | 17        | 1400             | 0.15           | 1500            | 5,10              | ORN   |
| LS0603-R15 □ -N | 0.15               | 7.9/7.9            | 17        | 1350             | 0.15           | 1450            | 5,10              | YEL   |
| LS0603-R18 □ -N | 0.18               | 7.9/7.9            | 17        | 1350             | 0.15           | 1400            | 5,10              | GRN   |
| LS0603-R22 □ -N | 0.22               | 7.9/7.9            | 17        | 1150             | 0.16           | 1350            | 5,10              | BLU   |
| LS0603-R24 □ -N | 0.24               | 7.9/7.9            | 17        | 1050             | 0.19           | 1300            | 5,10              | VIO   |
| LS0603-R27 □ -N | 0.27               | 7.9/7.9            | 17        | 1050             | 0.3            | 1050            | 5,10              | GRY   |
| LS0603-R33 □ -N | 0.33               | 7.9/7.9            | 17        | 850              | 0.46           | 1200            | 5,10              | WHT   |
| LS0603-R39 □ -N | 0.39               | 7.9/7.9            | 17        | 810              | 0.51           | 1200            | 5,10              | BLK   |
| LS0603-R47 □ -N | 0.47               | 7.9/7.9            | 17        | 720              | 0.62           | 1050            | 5,10              | BRN   |
| LS0603-R56 □ -N | 0.56               | 7.9/7.9            | 17        | 600              | 0.44           | 850             | 5,10              | RED   |
| LS0603-R68 □ -N | 0.68               | 7.9/7.9            | 17        | 600              | 0.52           | 850             | 5,10              | ORN   |
| LS0603-R78 □ -N | 0.78               | 7.9/7.9            | 17        | 460              | 0.83           | 850             | 5,10              | YEL   |
| LS0603-R82 □ -N | 0.82               | 7.9/7.9            | 17        | 480              | 0.69           | 750             | 5,10              | GRN   |
| LS0603-1R0 □ -N | 1                  | 7.9/7.9            | 18        | 310              | 0.81           | 600             | 5,10              | BLU   |
| LS0603-1R2 □ -N | 1.2                | 7.9/7.9            | 17        | 270              | 0.87           | 550             | 5,10              | VIO   |
| LS0603-1R5 □ -N | 1.5                | 7.9/7.9            | 17        | 270              | 1.06           | 540             | 5,10              | GRY   |



| PART NO.        | INDUCTANCE<br>(μH) | TEST FREQ<br>(MHz) | Q<br>TYP- | SRF MIN<br>(MHz) | RDC MAX<br>(Ω) | IDC MAX<br>(mA) | TOLERANCE<br>(±%) | Color |
|-----------------|--------------------|--------------------|-----------|------------------|----------------|-----------------|-------------------|-------|
| LS0603-1R8 □ -N | 1.8                | 7.9/7.9            | 17        | 230              | 1.1            | 520             | 5,10              | WHT   |
| LS0603-2R2 □ -N | 2.2                | 7.9/7.9            | 17        | 150              | 1.2            | 500             | 5,10              | BLK   |
| LS0603-2R7 □ -N | 2.7                | 7.9/7.9            | 17        | 105              | 1.5            | 480             | 5,10              | BRN   |
| LS0603-3R3 □ -N | 3.3                | 7.9/7.9            | 17        | 84               | 1.5            | 440             | 5,10              | RED   |
| LS0603-3R9 □ -N | 3.9                | 7.9/7.9            | 17        | 80               | 1.6            | 430             | 5,10              | ORN   |
| LS0603-4R7 □ -N | 4.7                | 7.9/7.9            | 18        | 69               | 2.1            | 420             | 5,10              | YEL   |
| LS0603-5R6 □ -N | 5.6                | 7.9/7.9            | 18        | 65               | 2.6            | 400             | 5,10              | GRN   |
| LS0603-6R8 □ -N | 6.8                | 7.9/7.9            | 19        | 55               | 3.1            | 400             | 5,10              | BLU   |
| LS0603-7R8 □ -N | 7.8                | 7.9/7.9            | 17        | 47               | 3.5            | 400             | 5,10              | VIO   |
| LS0603-8R2 □ -N | 8.2                | 7.9/7.9            | 17        | 42               | 3.6            | 400             | 5,10              | GRY   |
| LS0603-100 □ -N | 10                 | 7.9/7.9            | 19        | 40               | 4.8            | 300             | 5,10              | WHT   |

NOTE: □ -tolerance J= ±5% / K= ±10% / L= ±15% / M=± 20%  
1.Operating temperature range -25°C~85°C  
2.L/Q Test OSC @200mV  
3.IDC for Inductance drop 10% from its value without current  
"N" FOR Completely lead free type (Including Ferrite Body & Solder )

ELECTRICAL CHARACTERISTICS

| PART NO.        | INDUCTANCE<br>(μH) | TOLERANCE<br>(±%) | Q TYP  |       |       | SRF<br>(MHz) Min. | RDC<br>(Ω) Max. | IDC MAX<br>(mA) | Color Code |        |        |
|-----------------|--------------------|-------------------|--------|-------|-------|-------------------|-----------------|-----------------|------------|--------|--------|
|                 |                    |                   | 7.9MHz | 25MHz | 50MHz |                   |                 |                 | 1ST        | 2ND    | 3RD    |
| LS1008-1R2 □ -S | 1.2@7.9MHz         | 10/5              | 35     | 47    | 55    | 350               | 0.50            | 1200            | Brown      | Red    | Red    |
| LS1008-1R5 □ -S | 1.5@7.9MHz         | 10/5              | 38     | 53    | 58    | 300               | 0.65            | 1200            | Brown      | Green  | Red    |
| LS1008-1R8 □ -S | 1.8@7.9MHz         | 10/5              | 34     | 47    | 54    | 280               | 0.75            | 1050            | Brown      | Gray   | Red    |
| LS1008-2R2 □ -S | 2.2@7.9MHz         | 10/5              | 34     | 43    | 48    | 250               | 0.90            | 950             | Red        | Red    | Red    |
| LS1008-2R7 □ -S | 2.7@7.9MHz         | 10/5              | 38     | 49    | 51    | 200               | 1.00            | 950             | Red        | Violet | Red    |
| LS1008-3R3 □ -S | 3.3@7.9MHz         | 10/5              | 42     | 57    | 58    | 200               | 1.15            | 900             | Orange     | Orange | Red    |
| LS1008-3R9 □ -S | 3.9@7.9MHz         | 10/5              | 37     | 46    | 47    | 170               | 1.25            | 850             | Orange     | White  | Red    |
| LS1008-4R7 □ -S | 4.7@7.9MHz         | 10/5              | 37     | 43    | 38    | 130               | 1.35            | 700             | Yellow     | Violet | Red    |
| LS1008-5R6 □ -S | 5.6@7.9MHz         | 10/5              | 36     | 40    | 29    | 110               | 1.45            | 700             | Green      | Blue   | Red    |
| LS1008-6R8 □ -S | 6.8@7.9MHz         | 10/5              | 33     | 39    | 33    | 105               | 1.60            | 600             | Blue       | Gray   | Red    |
| LS1008-8R2 □ -S | 8.2@7.9MHz         | 10/5              | 40     | 43    | 28    | 90                | 1.80            | 550             | Gray       | Red    | Red    |
| LS1008-100 □ -S | 10.0@7.9MHz        | 10/5              | 40     | 41    | 25    | 85                | 2.40            | 500             | Brown      | Black  | Orange |

ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

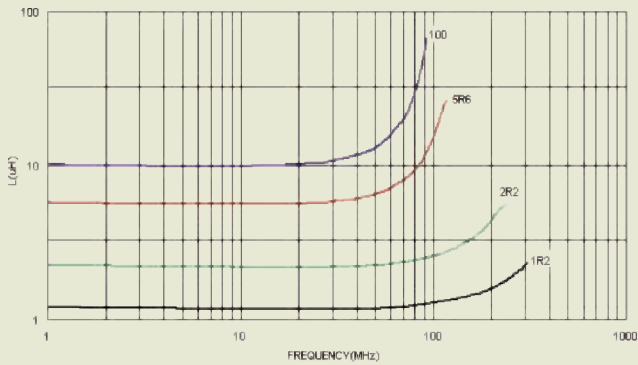
| PART NO.        | INDUCTANCE<br>(μH) | TEST FREQ<br>(MHz) | Q<br>TYP. | SRF<br>(MHz) Min. | RDC<br>(Ω) Max. | IDC<br>(mA) Max. | TOLERANCE<br>(±%) | Color Code |     |     |
|-----------------|--------------------|--------------------|-----------|-------------------|-----------------|------------------|-------------------|------------|-----|-----|
|                 |                    |                    |           |                   |                 |                  |                   | 1ST        | 2ND | 3RD |
| LS1008-1R2 □ -N | 1.2                | 7.9/50             | 55        | 350               | 0.5             | 1200             | 5,10              | BRN        | RED | RED |
| LS1008-1R5 □ -N | 1.5                | 7.9/50             | 58        | 300               | 0.65            | 1200             | 5,10              | BRN        | GRN | RED |
| LS1008-1R8 □ -N | 1.8                | 7.9/50             | 54        | 280               | 0.75            | 1050             | 5,10              | BRN        | GRY | RED |
| LS1008-2R2 □ -N | 2.2                | 7.9/50             | 48        | 250               | 0.9             | 950              | 5,10              | RED        | RED | RED |
| LS1008-2R7 □ -N | 2.7                | 7.9/50             | 51        | 200               | 1               | 950              | 5,10              | RED        | VIO | RED |
| LS1008-3R3 □ -N | 3.3                | 7.9/50             | 58        | 200               | 1.15            | 900              | 5,10              | ORN        | ORN | RED |
| LS1008-3R9 □ -N | 3.9                | 7.9/50             | 37        | 170               | 1.25            | 850              | 5,10              | ORN        | WHT | RED |
| LS1008-4R7 □ -N | 4.7                | 7.9/7.9            | 37        | 130               | 1.35            | 700              | 5,10              | YEL        | VIO | RED |
| LS1008-5R6 □ -N | 5.6                | 7.9/7.9            | 36        | 110               | 1.45            | 700              | 5,10              | GRN        | BLU | RED |
| LS1008-6R8 □ -N | 6.8                | 7.9/7.9            | 33        | 105               | 1.6             | 600              | 5,10              | BLU        | GRY | RED |
| LS1008-8R2 □ -N | 8.2                | 7.9/7.9            | 40        | 90                | 1.8             | 550              | 5,10              | GRY        | RED | RED |
| LS1008-100 □ -N | 10                 | 7.9/7.9            | 40        | 85                | 2.4             | 500              | 5,10              | BRN        | BLK | ORN |
| LS1008-150 □ -N | 15                 | 7.9/7.9            | 35        | 40                | 2.4             | 450              | 5,10              | BRN        | GRN | ORN |

NOTE: □ -tolerance J= ±5% / K= ±10% /M=± 20%  
1.Operating temperature range -25°C~85°C  
2.L/Q Test OSC@200mV.  
3.IDC for Inductance drop 10% from its value without current  
"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)

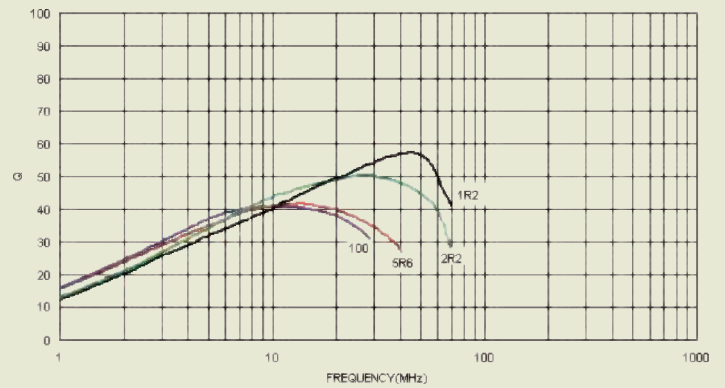


## TEST INSTRUMENTS : HP4291A IMPEDANCE / MATERIAL ANALYZER

Typical L vs. Frequency

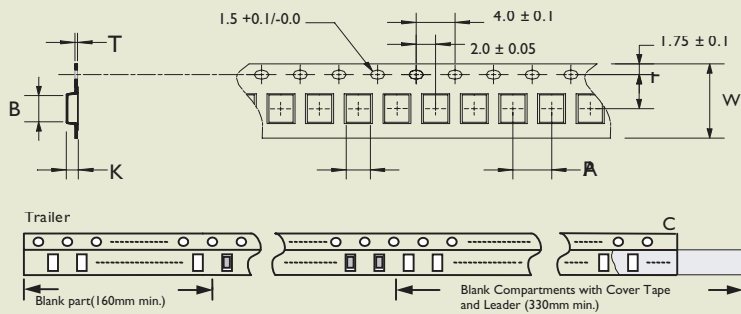


Typical Q vs. Frequency

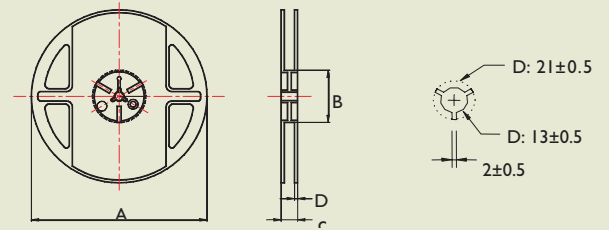


## PACKAGING SPECIFICATIONS

Tape Dimensions



Reel Dimensions



Dimensions : mm

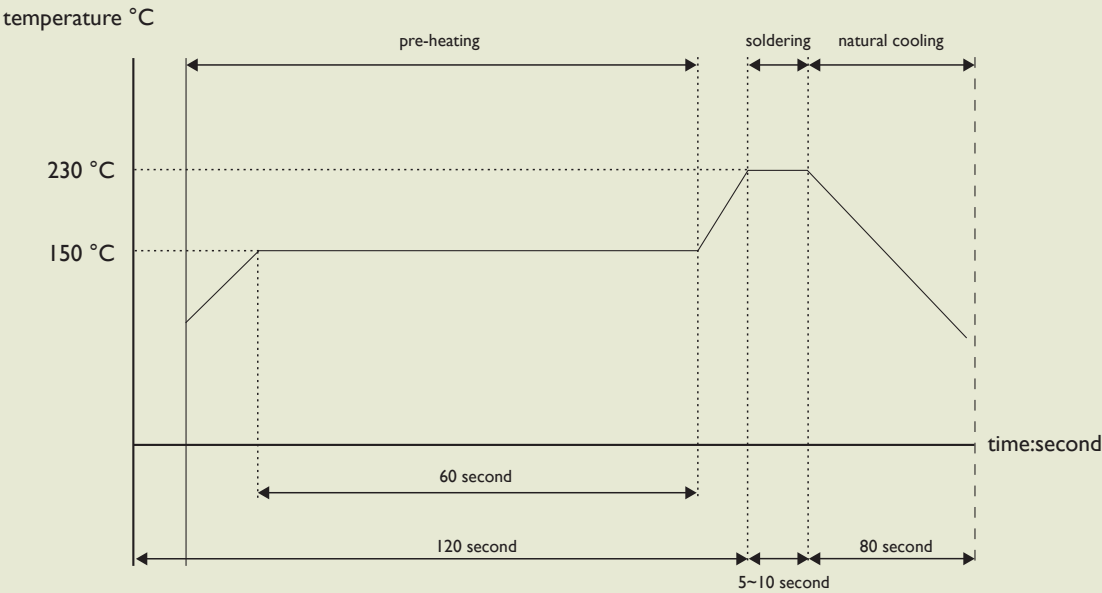
| TYPE   | TAPE DIMENSIONS |      |      |   |   |     |      |
|--------|-----------------|------|------|---|---|-----|------|
|        | A               | B    | T    | W | P | F   | K    |
| LS0603 | 1.15            | 1.83 | 0.23 | 8 | 4 | 3.5 | 1.00 |
| LS1008 | 2.70            | 2.95 | 0.23 | 8 | 4 | 3.5 | 2.25 |

| REEL DIMENSIONS |    |    |     | Q'TY/REEL |
|-----------------|----|----|-----|-----------|
| A               | B  | C  | D   |           |
| 178             | 60 | 12 | 1.5 | 4,000     |
| 178             | 60 | 12 | 1.5 | 2,000     |



RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



# CLH Series

Lead-free / For High Frequency Applications

## Multilayer Chip Inductors High Frequency

### APPLICATIONS

RF Resonance and Impedance Matching Circuit

RF and Wireless Communication

Information Technology Equipments, Computers, Telecommunications, Radar Detectors, Automotive Electronics, Cellular Phones, Pagers, PDAs, Keyless Remote Systems.

Use in L-C Filter Configurations

### OUTLINE

Yageo high frequency multilayer ceramic chip inductor is formed without wound wire.

Monolithic laminated structure.

### FEATURES

Meet SONY SS-00259's criteria for lead-free product.

Excellent Q Factor and SRF Characteristic

Cost Effective

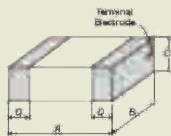
Small size of 1005/1608 is suitable for small portable equipment.

Supports Operating Frequency up to 6GHz with Nominal Inductance Values from 1.0nH To 330nH

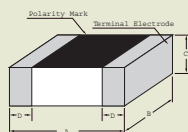
### SHAPES AND DIMENSIONS

Dimensions : mm

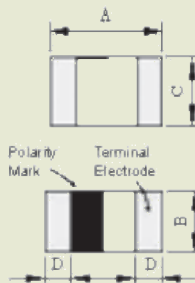
CLH1608-W series  
CLH2012-S series



CLH1005-S series  
CLH1608-S series

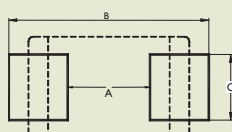


CLH1005-H series  
CLH1608-H series



| TYPE    | A           | B           | C           | D           |
|---------|-------------|-------------|-------------|-------------|
| CLH1005 | 1.00 ± 0.10 | 0.50 ± 0.10 | 0.50 ± 0.10 | 0.25 ± 0.10 |
| CLH1608 | 1.60 ± 0.15 | 0.80 ± 0.15 | 0.80 ± 0.15 | 0.30 ± 0.20 |
| CLH2012 | 2.00 ± 0.20 | 1.25 ± 0.20 | 0.90 ± 0.20 | 0.50 ± 0.30 |

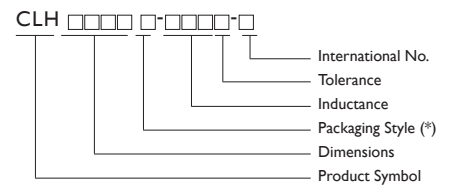
### RECOMMENDED PATTERN



| A   | B       | C   |
|-----|---------|-----|
| 0.4 | 1.2~1.4 | 0.4 |
| 0.8 | 2.4~3.4 | 0.6 |
| 1.2 | 3.0~4.0 | 1.0 |



### PRODUCT IDENTIFICATION



\* B: Bulk ; T: Tape and Reel

CLH1005-H



CLH1005-S

CLH1608-H



CLH1608-W  
CLH2012-S

CLH1608-S



ELECTRICAL CHARACTERISTICS CLHI005T (0402) SERIES: LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE<br>at 100MHz<br>(nH) | TOLERANCE | Q Min.<br>at 100MHz | Q TYPICAL |           | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>(Ω) Max. | RATED<br>CURRENT<br>(mA) Max. |
|-------------------|---------------------------------|-----------|---------------------|-----------|-----------|-------------------|------------------------------|-------------------------------|
|                   |                                 |           |                     | at 100MHz | at 800MHz |                   |                              |                               |
| CLHI005T-1N0 □ -N | 1.0                             | S         | 8                   | 9         | 28        | 10,000            | 0.12                         | 300                           |
| CLHI005T-1N2 □ -N | 1.2                             | S         | 8                   | 9         | 28        | 10,000            | 0.12                         | 300                           |
| CLHI005T-1N5 □ -N | 1.5                             | S         | 8                   | 10        | 28        | 9,000             | 0.13                         | 300                           |
| CLHI005T-1N8 □ -N | 1.8                             | S         | 8                   | 10        | 28        | 8,700             | 0.14                         | 300                           |
| CLHI005T-2N2 □ -N | 2.2                             | S         | 8                   | 10        | 29        | 8,100             | 0.16                         | 300                           |
| CLHI005T-2N7 □ -N | 2.7                             | S         | 8                   | 11        | 30        | 7,700             | 0.17                         | 300                           |
| CLHI005T-3N3 □ -N | 3.3                             | S, K      | 8                   | 11        | 30        | 6,300             | 0.19                         | 300                           |
| CLHI005T-3N9 □ -N | 3.9                             | S, K      | 8                   | 11        | 31        | 6,100             | 0.22                         | 300                           |
| CLHI005T-4N7 □ -N | 4.7                             | S, K      | 8                   | 11        | 31        | 5,400             | 0.24                         | 300                           |
| CLHI005T-5N6 □ -N | 5.6                             | S, K      | 8                   | 11        | 31        | 5,100             | 0.27                         | 300                           |
| CLHI005T-6N8 □ -N | 6.8                             | J, K      | 8                   | 11        | 33        | 4,550             | 0.32                         | 250                           |
| CLHI005T-8N2 □ -N | 8.2                             | J, K      | 8                   | 12        | 32        | 4,100             | 0.40                         | 250                           |
| CLHI005T-10N □ -N | 10                              | J, K      | 8                   | 12        | 32        | 3,900             | 0.45                         | 250                           |
| CLHI005T-12N □ -N | 12                              | J, K      | 8                   | 12        | 31        | 3,000             | 0.50                         | 250                           |
| CLHI005T-15N □ -N | 15                              | J, K      | 8                   | 12        | 30        | 2,600             | 0.60                         | 250                           |
| CLHI005T-18N □ -N | 18                              | J, K      | 8                   | 12        | 29        | 2,350             | 0.65                         | 200                           |
| CLHI005T-22N □ -N | 22                              | J, K      | 8                   | 12        | 28        | 2,000             | 0.80                         | 200                           |
| CLHI005T-27N □ -N | 27                              | J, K      | 8                   | 12        | 27        | 1,900             | 0.90                         | 200                           |
| CLHI005T-33N □ -N | 33                              | J, K      | 8                   | 10        | 25        | 1,700             | 1.00                         | 200                           |
| CLHI005T-39N □ -N | 39                              | J, K      | 8                   | 10        | 25        | 1,600             | 1.20                         | 150                           |
| CLHI005T-47N □ -N | 47                              | J, K      | 8                   | 9         | 22        | 1300              | 1.30                         | 150                           |
| CLHI005T-56N □ -N | 56                              | J, K      | 8                   | 10        | 21        | 1250              | 2.00                         | 150                           |
| CLHI005T-68N □ -N | 68                              | J, K      | 8                   | 10        | 15        | 1000              | 2.20                         | 100                           |
| CLHI005T-82N □ -N | 82                              | J, K      | 8                   | 9         | 13        | 900               | 2.50                         | 100                           |
| CLHI005T-R10 □ -N | 100                             | J, K      | 8                   | 9         | 10        | 850               | 2.50                         | 100                           |

Note : Tolerance : □-S = ±0.3nH      J = ±5%      K = ±10%

Test Conditions : L/Q- Agilent E4991A      Fixture :Agilent 16197A

SRF - HP8753D

RDC - HP4338B / CH502BC



## ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE<br>at 100MHz<br>(nH) | TOLERANCE | Q Min.<br>at 100MHz | Q TYPICAL |           | SRF<br>(MHz) Typical | DC<br>RESISTANCE<br>(Ω) Max. | IDC<br>(mA) MAX. |
|-------------------|---------------------------------|-----------|---------------------|-----------|-----------|----------------------|------------------------------|------------------|
|                   |                                 |           |                     | at 100MHz | at 800MHz |                      |                              |                  |
| CLH1005T-1N0 □ -H | 1.0                             | S         | 8                   | 9         | 28        | 10000                | 0.12                         | 300              |
| CLH1005T-1N2 □ -H | 1.2                             | S         | 8                   | 9         | 28        | 10000                | 0.12                         | 300              |
| CLH1005T-1N5 □ -H | 1.5                             | S         | 8                   | 10        | 28        | 9000                 | 0.13                         | 300              |
| CLH1005T-1N8 □ -H | 1.8                             | S         | 8                   | 10        | 28        | 8700                 | 0.14                         | 300              |
| CLH1005T-2N2 □ -H | 2.2                             | S         | 8                   | 10        | 29        | 8100                 | 0.16                         | 300              |
| CLH1005T-2N7 □ -H | 2.7                             | S         | 8                   | 11        | 30        | 7700                 | 0.17                         | 300              |
| CLH1005T-3N3 □ -H | 3.3                             | S, K      | 8                   | 11        | 30        | 6300                 | 0.19                         | 300              |
| CLH1005T-3N9 □ -H | 3.9                             | S, K      | 8                   | 11        | 31        | 6100                 | 0.22                         | 300              |
| CLH1005T-4N7 □ -H | 4.7                             | S, K      | 8                   | 11        | 31        | 5400                 | 0.24                         | 300              |
| CLH1005T-5N6 □ -H | 5.6                             | S, K      | 8                   | 11        | 31        | 5100                 | 0.27                         | 300              |
| CLH1005T-6N8 □ -H | 6.8                             | J, K      | 8                   | 11        | 33        | 4550                 | 0.32                         | 250              |
| CLH1005T-8N2 □ -H | 8.2                             | J, K      | 8                   | 12        | 32        | 4100                 | 0.40                         | 250              |
| CLH1005T-10N □ -H | 10                              | J, K      | 8                   | 12        | 32        | 3900                 | 0.45                         | 250              |
| CLH1005T-12N □ -H | 12                              | J, K      | 8                   | 12        | 31        | 3000                 | 0.50                         | 250              |
| CLH1005T-15N □ -H | 15                              | J, K      | 8                   | 12        | 30        | 2600                 | 0.60                         | 250              |
| CLH1005T-18N □ -H | 18                              | J, K      | 8                   | 12        | 29        | 2350                 | 0.65                         | 200              |
| CLH1005T-22N □ -H | 22                              | J, K      | 8                   | 12        | 28        | 2000                 | 0.80                         | 200              |
| CLH1005T-27N □ -H | 27                              | J, K      | 8                   | 12        | 27        | 1900                 | 0.90                         | 200              |
| CLH1005T-33N □ -H | 33                              | J, K      | 8                   | 10        | 25        | 1700                 | 1.00                         | 200              |
| CLH1005T-39N □ -H | 39                              | J, K      | 8                   | 10        | 25        | 1600                 | 1.20                         | 150              |
| CLH1005T-47N □ -H | 47                              | J, K      | 8                   | 10        | 22        | 1300                 | 1.30                         | 150              |
| CLH1005T-56N □ -H | 56                              | J, K      | 8                   | 10        | 21        | 1250                 | 2.00                         | 150              |
| CLH1005T-68N □ -H | 68                              | J, K      | 8                   | 10        | 19        | 1000                 | 2.20                         | 100              |
| CLH1005T-82N □ -H | 82                              | J, K      | 8                   | 10        | 16        | 900                  | 2.50                         | 100              |
| CLH1005T-R10 □ -H | 100                             | J, K      | 8                   | 10        | 10        | 850                  | 2.50                         | 100              |

Note : Tolerance : □-S =  $\pm 0.3\text{nH}$       J =  $\pm 5\%$       K =  $\pm 10\%$

Test Conditions : L/Q- HP4291A+HP16192A

SRF - HP4291A+HP16192A OR HP8753D

RDC - HP4338B / CH502BC

IDC - HP4291A / HP6632A



## ELECTRICAL CHARACTERISTICS CLHI608T (0603) SERIES

| PART NO.          | INDUCTANCE<br>at 100MHz<br>(nH) | TOLERANCE | Q Min.<br>at 100MHz | Q TYPICAL |           | SRF<br>(MHz) Min. | DC<br>RESISTANCE<br>(Ω) Max. | RATED<br>CURRENT<br>(mA) Max. |
|-------------------|---------------------------------|-----------|---------------------|-----------|-----------|-------------------|------------------------------|-------------------------------|
|                   |                                 |           |                     | at 100MHz | at 800MHz |                   |                              |                               |
| CLHI608T-1N0 □ -N | 1.0                             | S         | 8                   | 12        | 60        | 10,000            | 0.10                         | 500                           |
| CLHI608T-1N2 □ -N | 1.2                             | S         | 8                   | 13        | 60        | 10,000            | 0.10                         | 500                           |
| CLHI608T-1N5 □ -N | 1.5                             | S         | 8                   | 13        | 57        | 8,000             | 0.10                         | 500                           |
| CLHI608T-1N8 □ -N | 1.8                             | S         | 8                   | 13        | 51        | 8,000             | 0.10                         | 500                           |
| CLHI608T-2N2 □ -N | 2.2                             | S         | 8                   | 13        | 46        | 7,200             | 0.10                         | 500                           |
| CLHI608T-2N7 □ -N | 2.7                             | S         | 10                  | 13        | 46        | 6,200             | 0.10                         | 500                           |
| CLHI608T-3N3 □ -N | 3.3                             | S, K      | 10                  | 13        | 47        | 5,200             | 0.12                         | 500                           |
| CLHI608T-3N9 □ -N | 3.9                             | S, K      | 10                  | 13        | 47        | 5,000             | 0.14                         | 500                           |
| CLHI608T-4N7 □ -N | 4.7                             | S, K      | 10                  | 13        | 41        | 4,750             | 0.16                         | 500                           |
| CLHI608T-5N6 □ -N | 5.6                             | S, K      | 10                  | 13        | 41        | 4,100             | 0.18                         | 500                           |
| CLHI608T-6N8 □ -N | 6.8                             | J, K      | 10                  | 13        | 44        | 3750              | 0.22                         | 500                           |
| CLHI608T-8N2 □ -N | 8.2                             | J, K      | 10                  | 13        | 44        | 3300              | 0.24                         | 500                           |
| CLHI608T-10N □ -N | 10                              | J, K      | 12                  | 13        | 45        | 3,000             | 0.26                         | 300                           |
| CLHI608T-12N □ -N | 12                              | J, K      | 12                  | 15        | 46        | 2,600             | 0.28                         | 300                           |
| CLHI608T-15N □ -N | 15                              | J, K      | 12                  | 15        | 48        | 2,500             | 0.32                         | 300                           |
| CLHI608T-18N □ -N | 18                              | J, K      | 12                  | 15        | 48        | 2,400             | 0.35                         | 300                           |
| CLHI608T-22N □ -N | 22                              | J, K      | 12                  | 17        | 45        | 2,000             | 0.40                         | 300                           |
| CLHI608T-27N □ -N | 27                              | J, K      | 12                  | 17        | 43        | 1,900             | 0.45                         | 300                           |
| CLHI608T-33N □ -N | 33                              | J, K      | 12                  | 18        | 39        | 1,600             | 0.55                         | 300                           |
| CLHI608T-39N □ -N | 39                              | J, K      | 12                  | 18        | 37 ***    | 1400              | 0.60                         | 300                           |
| CLHI608T-47N □ -N | 47                              | J, K      | 12                  | 18        | 35 ***    | 1,300             | 0.70                         | 300                           |
| CLHI608T-56N □ -N | 56                              | J, K      | 12                  | 18        | 32 ***    | 1100              | 0.75                         | 300                           |
| CLHI608T-62N □ -N | 62                              | J, K      | 12                  | 18        | 34 ***    | 1050              | 0.85                         | 300                           |
| CLHI608T-68N □ -N | 68                              | J, K      | 12                  | 18        | 34 ***    | 1050              | 0.85                         | 300                           |
| CLHI608T-82N □ -N | 82                              | J, K      | 12                  | 18        | 32 ***    | 900               | 1.00                         | 300                           |
| CLHI608T-R10 □ -N | 100                             | J, K      | 12                  | 18        | 20 ***    | 770               | 1.20                         | 300                           |
| CLHI608T-R12 □ -N | 120 *                           | J, K      | 8 *                 | 14 *      | 20 **     | 850               | 2.3                          | 250                           |
| CLHI608T-R15 □ -N | 150 *                           | J, K      | 8 *                 | 15 *      | 16 **     | 550               | 2.4                          | 250                           |
| CLHI608T-R18 □ -N | 180 *                           | J, K      | 8 *                 | 15 *      | 16 **     | 520               | 2.7                          | 250                           |

Note : \* at 50MHz    \*\* at 300MHz    \*\*\* at 500MHz

Tolerance : □ - S = ±0.3nH    J = ±5%    K = ±10%

Test            L/Q : HP4291A+HP16192A

Conditions : SRF: HP4291A+HP16192A

RDC: HP4338B / CH502BC

IDC: HP4291A + HP6632A





## ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE        | TOLERANCE | Q Min.      | Q TYPICAL(MHz) |          |     |     |     | SRF | DC           | IDC                    |          |
|-------------------|-------------------|-----------|-------------|----------------|----------|-----|-----|-----|-----|--------------|------------------------|----------|
|                   | at 100MHz<br>(nH) |           | AT<br>50MHz | 100MHz         | AT<br>50 | 100 | 300 | 500 | 800 | (MHZ)TYPICAL | RESISTANCE<br>(Ω) Max. | (mA) MAX |
| CLH1608T-1N0S-H   | 1.0               | S         |             | 8              |          | 12  |     |     | 43  | 10000        | 0.10                   | 500      |
| CLH1608T-1N2S-H   | 1.2               | S         |             | 8              |          | 13  |     |     | 44  | 10000        | 0.10                   | 500      |
| CLH1608T-1N5S-H   | 1.5               | S         |             | 8              |          | 13  |     |     | 45  | 8000         | 0.10                   | 500      |
| CLH1608T-1N8S-H   | 1.8               | S         |             | 8              |          | 13  |     |     | 46  | 8000         | 0.10                   | 500      |
| CLH1608T-2N2S-H   | 2.2               | S         |             | 8              |          | 13  |     |     | 46  | 7200         | 0.10                   | 500      |
| CLH1608T-2N7S-H   | 2.7               | S         |             | 10             |          | 13  |     |     | 46  | 6200         | 0.10                   | 500      |
| CLH1608T-3N3 □ -H | 3.3               | S, K      |             | 10             |          | 13  |     |     | 47  | 5200         | 0.12                   | 500      |
| CLH1608T-3N9 □ -H | 3.9               | S, K      |             | 10             |          | 13  |     |     | 47  | 5000         | 0.14                   | 500      |
| CLH1608T-4N7 □ -H | 4.7               | S, K      |             | 10             |          | 13  |     |     | 41  | 4750         | 0.16                   | 500      |
| CLH1608T-5N6 □ -H | 5.6               | S, K      |             | 10             |          | 13  |     |     | 41  | 4100         | 0.18                   | 500      |
| CLH1608T-6N8 □ -H | 6.8               | J, K      |             | 10             |          | 13  |     |     | 44  | 3750         | 0.22                   | 500      |
| CLH1608T-8N2 □ -H | 8.2               | J, K      |             | 10             |          | 13  |     |     | 44  | 3300         | 0.24                   | 500      |
| CLH1608T-10N □ -H | 10                | J, K      |             | 12             |          | 13  |     |     | 45  | 3000         | 0.26                   | 300      |
| CLH1608T-12N □ -H | 12                | J, K      |             | 12             |          | 15  |     |     | 46  | 2600         | 0.28                   | 300      |
| CLH1608T-15N □ -H | 15                | J, K      |             | 12             |          | 15  |     |     | 48  | 2500         | 0.32                   | 300      |
| CLH1608T-18N □ -H | 18                | J, K      |             | 12             |          | 15  |     |     | 48  | 2400         | 0.35                   | 300      |
| CLH1608T-22N □ -H | 22                | J, K      |             | 12             |          | 17  |     |     | 45  | 2000         | 0.40                   | 300      |
| CLH1608T-27N □ -H | 27                | J, K      |             | 12             |          | 17  |     |     | 43  | 1900         | 0.45                   | 300      |
| CLH1608T-33N □ -H | 33                | J, K      |             | 12             |          | 18  |     |     | 39  | 1600         | 0.55                   | 300      |
| CLH1608T-39N □ -H | 39                | J, K      |             | 12             |          | 18  |     | 37  |     | 1400         | 0.60                   | 300      |
| CLH1608T-47N □ -H | 47                | J, K      |             | 12             |          | 18  |     | 35  |     | 1300         | 0.70                   | 300      |
| CLH1608T-56N □ -H | 56                | J, K      |             | 12             |          | 18  |     | 32  |     | 1100         | 0.75                   | 300      |
| CLH1608T-62N □ -H | 62                | J, K      |             | 12             |          | 18  |     | 32  |     | 1050         | 0.85                   | 300      |
| CLH1608T-68N □ -H | 68                | J, K      |             | 12             |          | 18  |     | 32  |     | 1050         | 0.85                   | 300      |
| CLH1608T-82N □ -H | 82                | J, K      |             | 12             |          | 18  |     | 30  |     | 900          | 1.00                   | 300      |
| CLH1608T-R10 □ -H | 100               | J, K      |             | 12             |          | 18  |     | 20  |     | 770          | 1.20                   | 300      |
| CLH1608T-R12 □ -H | *120              | J, K      | 8           |                |          | 14  |     | 20  |     | 850          | 2.30                   | 250      |
| CLH1608T-R15 □ -H | *150              | J, K      | 8           |                |          | 15  |     | 16  |     | 550          | 2.40                   | 250      |
| CLH1608T-R18 □ -H | *180              | J, K      | 8           |                |          | 15  |     | 16  |     | 520          | 2.70                   | 250      |

Note : \* at 50MHz

Tolerance : □ - S =  $\pm 0.3\text{nH}$       J =  $\pm 5\%$       K =  $\pm 10\%$

Test      L/Q - HP4291A+HP16192A

Conditions :      SRF - HP4291A+HP16192A

RDC - Digital Multimeter SC-7401

IDC - HP4291A+HP6632A



ELECTRICAL CHARACTERISTICS

| PART NO.          | INDUCTANCE<br>at 100MHz<br>(nH) | TOLERANCE | Q Min.<br>AT<br>50MHz | Q TYPICAL(MHz) |          |     |     |     |     | SRF<br>(MHZ) TYPICAL | DC<br>RESISTANCE<br>(Ω) Max. | IDC<br>(mA) MAX |
|-------------------|---------------------------------|-----------|-----------------------|----------------|----------|-----|-----|-----|-----|----------------------|------------------------------|-----------------|
|                   |                                 |           |                       | 100MHz         | AT<br>50 | 100 | 300 | 500 | 800 |                      |                              |                 |
| CLH1608T-1N0S-W   | 1.0                             | S         |                       | 8              |          | 12  |     |     | 43  | 10000                | 0.10                         | 500             |
| CLH1608T-1N2S-W   | 1.2                             | S         |                       | 8              |          | 13  |     |     | 44  | 10000                | 0.10                         | 500             |
| CLH1608T-1N5S-W   | 1.5                             | S         |                       | 8              |          | 13  |     |     | 45  | 8000                 | 0.10                         | 500             |
| CLH1608T-1N8S-W   | 1.8                             | S         |                       | 8              |          | 13  |     |     | 46  | 8000                 | 0.10                         | 500             |
| CLH1608T-2N2S-W   | 2.2                             | S         |                       | 8              |          | 13  |     |     | 46  | 7200                 | 0.10                         | 500             |
| CLH1608T-2N7S-W   | 2.7                             | S         |                       | 10             |          | 13  |     |     | 46  | 6200                 | 0.10                         | 500             |
| CLH1608T-3N3 □ -W | 3.3                             | S, K      |                       | 10             |          | 13  |     |     | 47  | 5200                 | 0.12                         | 500             |
| CLH1608T-3N9 □ -W | 3.9                             | S, K      |                       | 10             |          | 13  |     |     | 47  | 5000                 | 0.14                         | 500             |
| CLH1608T-4N7 □ -W | 4.7                             | S, K      |                       | 10             |          | 13  |     |     | 41  | 4750                 | 0.16                         | 500             |
| CLH1608T-5N6 □ -W | 5.6                             | S, K      |                       | 10             |          | 13  |     |     | 41  | 4100                 | 0.18                         | 500             |
| CLH1608T-6N8 □ -W | 6.8                             | J, K      |                       | 10             |          | 13  |     |     | 44  | 3750                 | 0.22                         | 500             |
| CLH1608T-8N2 □ -W | 8.2                             | J, K      |                       | 10             |          | 13  |     |     | 44  | 3300                 | 0.24                         | 500             |
| CLH1608T-10N □ -W | 10                              | J, K      |                       | 12             |          | 13  |     |     | 45  | 3000                 | 0.26                         | 300             |
| CLH1608T-12N □ -W | 12                              | J, K      |                       | 12             |          | 15  |     |     | 46  | 2600                 | 0.28                         | 300             |
| CLH1608T-15N □ -W | 15                              | J, K      |                       | 12             |          | 15  |     |     | 48  | 2500                 | 0.32                         | 300             |
| CLH1608T-18N □ -W | 18                              | J, K      |                       | 12             |          | 15  |     |     | 48  | 2400                 | 0.35                         | 300             |
| CLH1608T-22N □ -W | 22                              | J, K      |                       | 12             |          | 17  |     |     | 45  | 2000                 | 0.40                         | 300             |
| CLH1608T-27N □ -W | 27                              | J, K      |                       | 12             |          | 17  |     |     | 43  | 1900                 | 0.45                         | 300             |
| CLH1608T-33N □ -W | 33                              | J, K      |                       | 12             |          | 18  |     |     | 39  | 1600                 | 0.55                         | 300             |
| CLH1608T-39N □ -W | 39                              | J, K      |                       | 12             |          | 18  |     | 37  |     | 1400                 | 0.60                         | 300             |
| CLH1608T-47N □ -W | 47                              | J, K      |                       | 12             |          | 18  |     | 35  |     | 1300                 | 0.70                         | 300             |
| CLH1608T-56N □ -W | 56                              | J, K      |                       | 12             |          | 18  |     | 32  |     | 1100                 | 0.75                         | 300             |
| CLH1608T-62N □ -W | 62                              | J, K      |                       | 12             |          | 18  |     | 32  |     | 1050                 | 0.85                         | 300             |
| CLH1608T-68N □ -W | 68                              | J, K      |                       | 12             |          | 18  |     | 32  |     | 1050                 | 0.85                         | 300             |
| CLH1608T-82N □ -W | 82                              | J, K      |                       | 12             |          | 18  |     | 30  |     | 900                  | 1.00                         | 300             |
| CLH1608T-R10 □ -W | 100                             | J, K      |                       | 12             |          | 18  |     | 20  |     | 770                  | 1.20                         | 300             |
| CLH1608T-R12 □ -W | *120                            | J, K      | 8                     |                | 14       |     | 20  |     |     | 850                  | 2.30                         | 250             |
| CLH1608T-R15 □ -W | *150                            | J, K      | 8                     |                | 15       |     | 16  |     |     | 550                  | 2.40                         | 250             |
| CLH1608T-R18 □ -W | *180                            | J, K      | 8                     |                | 15       |     | 16  |     |     | 520                  | 2.70                         | 250             |

Note : \* at 50MHz

Tolerance : □- S = ±0.3nH      J = ±5%      K = ±10%

Test                    L/Q - HP4291A+HPI6192A

Conditions :        SRF - HP4291A+HPI6192A

                          RDC - Digital Multimeter SC-7401

                          IDC - HP4291A+HP6632A



## ELECTRICAL CHARACTERISTICS CLH2012T (0805) SERIES : LEAD FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE<br>at 100MHz<br>(nH) | TOLERANCE | Q Min. | Q TYPICAL |           |           | SRF<br>(MHz)Typical | DC<br>RESISTANCE<br>(Ω) Max. | IDC<br>(mA) Max. |
|-------------------|---------------------------------|-----------|--------|-----------|-----------|-----------|---------------------|------------------------------|------------------|
|                   |                                 |           |        | at 50MHz  | at 100MHz | at 100MHz | at 800MHz           |                              |                  |
| CLH2012T-1N0 □ -N | 1.0                             | S         |        | 10        |           | 13        | 40                  | > 6000                       | 300              |
| CLH2012T-1N2 □ -N | 1.2                             | S         |        | 10        |           | 13        | 40                  | > 6000                       | 300              |
| CLH2012T-1N5 □ -N | 1.5                             | S         |        | 10        |           | 13        | 40                  | > 6000                       | 300              |
| CLH2012T-1N8 □ -N | 1.8                             | S         |        | 10        |           | 13        | 45                  | > 6000                       | 300              |
| CLH2012T-2N2 □ -N | 2.2                             | S         |        | 10        |           | 13        | 48                  | > 6000                       | 300              |
| CLH2012T-2N7 □ -N | 2.7                             | S         |        | 12        |           | 13        | 48                  | > 6000                       | 300              |
| CLH2012T-3N3 □ -N | 3.3                             | S, K      |        | 12        |           | 15        | 56                  | > 6000                       | 300              |
| CLH2012T-3N9 □ -N | 3.9                             | S, K      |        | 12        |           | 15        | 54                  | 5400                         | 300              |
| CLH2012T-4N7 □ -N | 4.7                             | S, K      |        | 12        |           | 15        | 50                  | 4500                         | 300              |
| CLH2012T-5N6 □ -N | 5.6                             | S, K      |        | 12        |           | 15        | 53                  | 4000                         | 300              |
| CLH2012T-6N8 □ -N | 6.8                             | J, K      |        | 15        |           | 15        | 51                  | 3650                         | 300              |
| CLH2012T-8N2 □ -N | 8.2                             | J, K      |        | 15        |           | 15        | 53                  | 3000                         | 300              |
| CLH2012T-10N □ -N | 10                              | J, K      |        | 15        |           | 16        | 45                  | 2500                         | 300              |
| CLH2012T-12N □ -N | 12                              | J, K      |        | 15        |           | 16        | 48                  | 2450                         | 300              |
| CLH2012T-15N □ -N | 15                              | J, K      |        | 15        |           | 17        | 48                  | 2000                         | 300              |
| CLH2012T-18N □ -N | 18                              | J, K      |        | 15        |           | 17        | 43                  | 1750                         | 300              |
| CLH2012T-22N □ -N | 22                              | J, K      |        | 15        |           | 17        | 40                  | 1700                         | 300              |
| CLH2012T-27N □ -N | 27                              | J, K      |        | 15        |           | 18        | 38                  | 1550                         | 300              |
| CLH2012T-33N □ -N | 33                              | J, K      |        | 15        |           | 19        | 35                  | 1350                         | 300              |
| CLH2012T-39N □ -N | 39                              | J, K      |        | 18        |           | 21        | 37                  | 1300                         | 300              |
| CLH2012T-47N □ -N | 47                              | J, K      |        | 18        |           | 21        | 38                  | 1200                         | 300              |
| CLH2012T-56N □ -N | 56                              | J, K      |        | 18        |           | 21        | 31                  | 1150                         | 300              |
| CLH2012T-68N □ -N | 68                              | J, K      |        | 18        |           | 21        | 28                  | 1000                         | 300              |
| CLH2012T-82N □ -N | 82                              | J, K      |        | 18        |           | 22        | 16                  | 850                          | 300              |
| CLH2012T-R10 □ -N | 100                             | J, K      |        | 18        |           | 23        |                     | 730                          | 300              |
| CLH2012T-R12 □ -N | 120 *                           | J, K      | 13     |           | 16        | 22        |                     | 650                          | 300              |
| CLH2012T-R15 □ -N | 150 *                           | J, K      | 13     |           | 16        | 22        |                     | 550                          | 300              |
| CLH2012T-R18 □ -N | 180 *                           | J, K      | 13     |           | 16        | 23        |                     | 500                          | 300              |
| CLH2012T-R22 □ -N | 220 *                           | J, K      | 12     |           | 14        | 20        |                     | 450                          | 300              |
| CLH2012T-R27 □ -N | 270 *                           | J, K      | 12     |           | 14        | 20        |                     | 400                          | 200              |
| CLH2012T-R33 □ -N | 330 *                           | J, K      | 12     |           | 14        | 22        |                     | 380                          | 200              |

Note : \* at 50MHz

Tolerance : □ - S = ±0.3nH

J = ±5%

K = ±10%

Test Conditions :

Agilent E4991A

Agilent 16197A

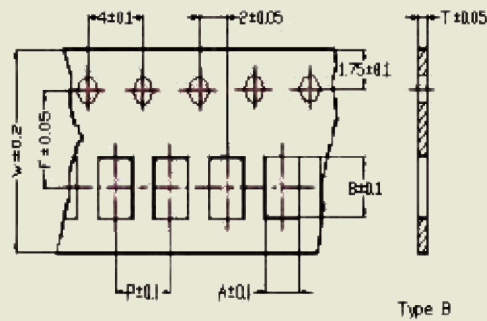
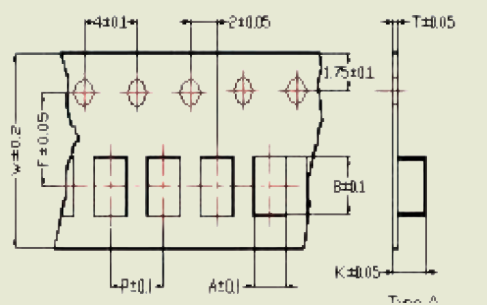
SRF - HP8753D

RDC - HP4338B/CH502BC

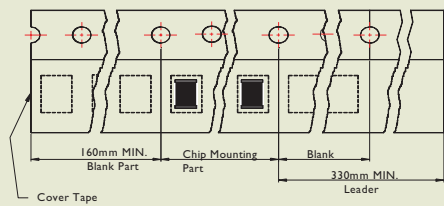


PACKAGING SPECIFICATIONS

Tape Dimensions

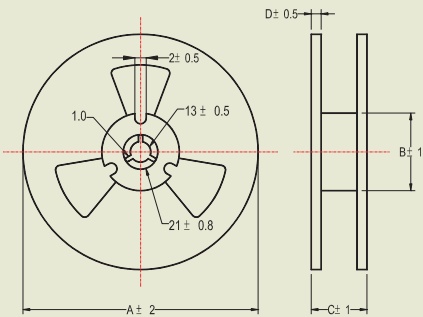


Tape Materia



Carrier tape: Polystyrene for 2012  
Paper for 1608, 1005  
Cover type : Polystyrene

Reel Dimensions

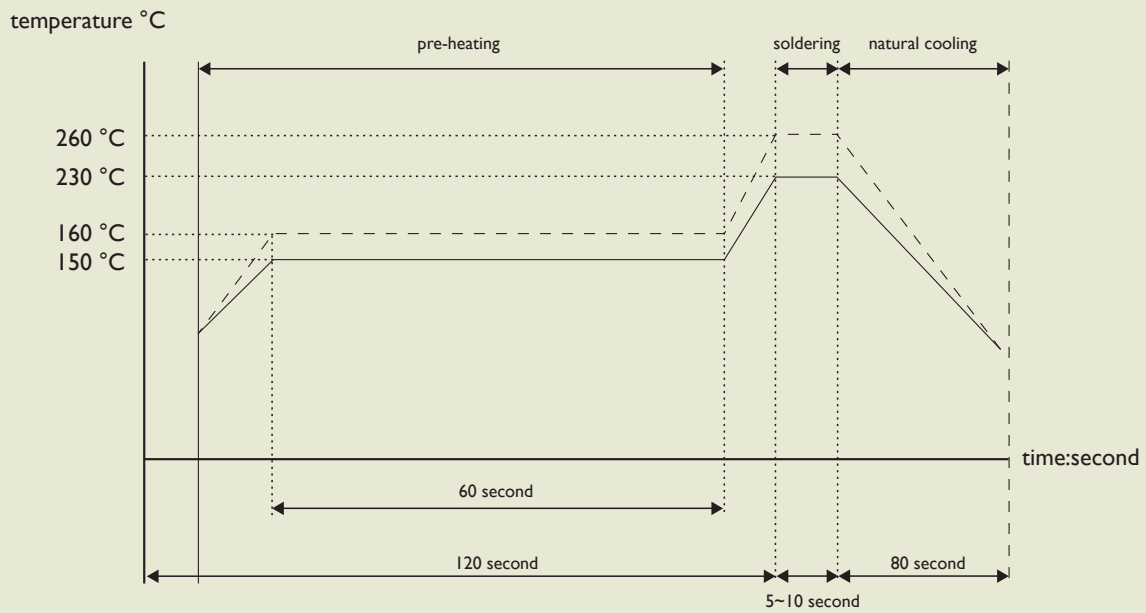


| Dimensions : mm |                 |      |      |      |   |   |     |      |                 |    |       |   |                 |     |       |          |
|-----------------|-----------------|------|------|------|---|---|-----|------|-----------------|----|-------|---|-----------------|-----|-------|----------|
| TYPE            | Tape Dimensions |      |      |      |   |   |     |      | Reel Dimensions |    |       |   | Reel Dimensions |     |       | Quantity |
|                 | Tape            | A    | B    | T    | W | P | F   | K    | A               | B  | C     | D | A               | B   | C     |          |
| CLH1005         | B               | 0.65 | 1.15 | 0.60 | 8 | 2 | 3.5 |      | 17860           | 12 | 1.50. | 4 | 1.2 ~ 1.4       | 0.4 | 10000 |          |
| CLH1608         | B               | 1.00 | 1.80 | 0.95 | 8 | 4 | 3.5 |      | 17860           | 12 | 1.50. | 8 | 2.4 ~ 3.4       | 0.6 | 4000  |          |
| CLH2012         | A               | 1.42 | 2.25 | 0.22 | 8 | 4 | 3.5 | 1.04 | 17860           | 12 | 1.51. | 2 | 3.0 ~ 4.0       | 1.0 | 4000  |          |



## RECOMMEND SOLDERING CONDITIONS

for:CL/ CLH/ SQV/ SMD power inductors/ SMD Chip Beads/ SMD Filters, Transformers, Current Sensors



for: lead solder —————

for: lead-free solder - - - - -

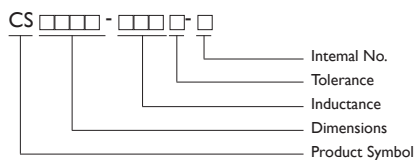
# Wire Chip Inductors High Frequency

## CS Series

Lead-free / For RF Signals



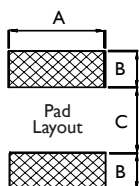
### PRODUCT IDENTIFICATION



- Tolerance :G=±2%, J=±5%, K=±10%

### RECOMMENDED PATTERN

Dimensions : mm



| TYPE   | A    | B    | C    |
|--------|------|------|------|
| CS0402 | 0.66 | 0.36 | 0.46 |
| CS0603 | 1.02 | 0.64 | 0.64 |
| CS0805 | 1.78 | 1.02 | 0.76 |
| CS1008 | 2.54 | 1.02 | 1.27 |

Due to technical expertise of accurately winding skill, these chip inductors are designed as filtering, impedance matching, resonance and choke circuits for RF designer. The standard series as well as customer design to meet your needs of telecom & wireless products.

### APPLICATIONS

RF products for cellular phone, GPS receiver, Base Station, Repeater, Wireless LAN/ Mouse/ Keyboard/ earphone, remote control, security system and other RF modules.

### FEATURES

Meet SONY SS-00259's criteria for lead-free product. RoHS compliance.

Ceramic body and wire wound construction provide highest SRFs.

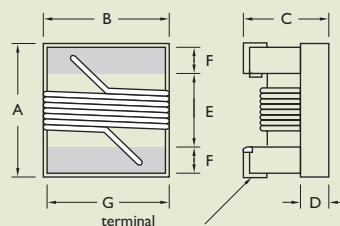
These ultra-compact inductors provided exceptional Q values, even at high frequencies.

Their ceramic construction delivers the highest possible SRFs as well as excellent Q values.

The non-magnetic coil form also assures the utmost in thermal stability, predictability and batch consistency.

CS series is standard parts for RF designers.

### SHAPES AND DIMENSIONS



Terminal Wraparound :  
CS0402: Approx. 0.18mm Both Ends  
CS0603: Approx. 0.18mm Both Ends  
CS0805: Approx. 0.38mm Both Ends  
CS1008: Approx. 0.38mm Both Ends

| TYPE   | A                  | B                  | C                  | D       | E    | F    | G    |
|--------|--------------------|--------------------|--------------------|---------|------|------|------|
| CS0402 | 1.19 <sup>+0</sup> | 0.7 <sup>+0</sup>  | 0.66 <sup>+0</sup> | 0.25Ref | 0.56 | 0.23 | 0.51 |
| CS0603 | 1.80 <sup>+0</sup> | 1.12 <sup>+0</sup> | 1.02 <sup>+0</sup> | 0.35Ref | 0.86 | 0.33 | 0.76 |
| CS0805 | 2.29 <sup>+0</sup> | 1.73 <sup>+0</sup> | 1.52 <sup>+0</sup> | 0.50Ref | 1.02 | 0.44 | 1.27 |
| CS1008 | 2.92 <sup>+0</sup> | 2.79 <sup>+0</sup> | 2.03 <sup>+0</sup> | 0.70Ref | 1.52 | 0.51 | 2.03 |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.        | Inductance | Tolerance | 900MHz |       |       |       | SRF Min |       | RDC MAX | Irms Max |
|-----------------|------------|-----------|--------|-------|-------|-------|---------|-------|---------|----------|
|                 | (nH)       | (±%)      | Min    | L typ | Q typ | L typ | Q typ   | (GHz) |         | (mA)     |
| CS0402-1N0 □ -N | 1.0        | 10/5      | 16     | 1.02  | 77    | 1.02  | 69      | 12.70 | 0.045   | 1360     |
| CS0402-1N9 □ -N | 1.9        | 10/5      | 16     | 1.72  | 68    | 1.74  | 82      | 11.30 | 0.070   | 1040     |
| CS0402-2N0 □ -N | 2.0        | 10/5      | 16     | 1.93  | 54    | 1.93  | 75      | 11.10 | 0.070   | 1040     |
| CS0402-2N2 □ -N | 2.2        | 10/5      | 19     | 2.19  | 59    | 2.23  | 100     | 10.80 | 0.070   | 960      |
| CS0402-2N4 □ -N | 2.4        | 10/5      | 15     | 2.24  | 51    | 2.27  | 68      | 10.50 | 0.068   | 790      |
| CS0402-2N7 □ -N | 2.7        | 10/5      | 16     | 2.58  | 42    | 2.60  | 61      | 10.40 | 0.120   | 640      |
| CS0402-3N3 □ -N | 3.3        | 10/5      | 19     | 3.10  | 65    | 3.12  | 87      | 7.00  | 0.066   | 840      |
| CS0402-3N6 □ -N | 3.6        | 10/5      | 19     | 3.56  | 45    | 3.62  | 71      | 6.80  | 0.066   | 840      |
| CS0402-3N9 □ -N | 3.9        | 10/5      | 19     | 3.89  | 50    | 4.00  | 75      | 6.00  | 0.066   | 840      |
| CS0402-4N3 □ -N | 4.3        | 10/5      | 18     | 4.19  | 47    | 4.30  | 71      | 6.00  | 0.091   | 700      |
| CS0402-4N7 □ -N | 4.7        | 10/5      | 15     | 4.55  | 48    | 4.68  | 68      | 4.77  | 0.130   | 640      |
| CS0402-5N1 □ -N | 5.1        | 10/5      | 20     | 5.15  | 56    | 5.25  | 82      | 4.80  | 0.083   | 800      |
| CS0402-5N6 □ -N | 5.6        | 10/5      | 20     | 5.16  | 54    | 5.28  | 81      | 4.80  | 0.083   | 760      |
| CS0402-6N2 □ -N | 6.2        | 10/5      | 20     | 6.16  | 52    | 6.37  | 76      | 4.80  | 0.083   | 760      |
| CS0402-6N8 □ -N | 6.8        | 10/5      | 20     | 6.56  | 63    | 6.93  | 78      | 4.80  | 0.083   | 680      |
| CS0402-7N5 □ -N | 7.5        | 10/5      | 22     | 7.91  | 60    | 8.22  | 88      | 4.80  | 0.10    | 680      |
| CS0402-8N2 □ -N | 8.2        | 10/5      | 22     | 8.50  | 57    | 8.85  | 84      | 4.40  | 0.10    | 680      |
| CS0402-8N7 □ -N | 8.7        | 10/5      | 18     | 8.78  | 54    | 9.21  | 73      | 4.10  | 0.20    | 480      |
| CS0402-9N0 □ -N | 9.0        | 10/5      | 22     | 9.07  | 62    | 9.53  | 78      | 4.16  | 0.10    | 680      |
| CS0402-9N5 □ -N | 9.5        | 10/5      | 18     | 9.42  | 54    | 9.98  | 69      | 4.00  | 0.20    | 480      |
| CS0402-10N □ -N | 10.0       | 10/5      | 21     | 9.8   | 50    | 10.10 | 67      | 3.90  | 0.20    | 480      |
| CS0402-11N □ -N | 11.0       | 10/5      | 24     | 10.7  | 52    | 11.20 | 78      | 3.68  | 0.12    | 640      |
| CS0402-12N □ -N | 12.0       | 10/5      | 24     | 11.9  | 53    | 12.70 | 71      | 3.60  | 0.12    | 640      |
| CS0402-13N □ -N | 13.0       | 10/5      | 24     | 13.4  | 51    | 14.63 | 57      | 3.45  | 0.21    | 440      |
| CS0402-15N □ -N | 15.0       | 10/5      | 24     | 14.6  | 55    | 15.50 | 77      | 3.28  | 0.17    | 560      |
| CS0402-16N □ -N | 16.0       | 10/5      | 24     | 16.6  | 46    | 18.86 | 47      | 3.10  | 0.22    | 560      |
| CS0402-18N □ -N | 18.0       | 10/5      | 25     | 18.3  | 57    | 20.28 | 62      | 3.10  | 0.23    | 420      |
| CS0402-19N □ -N | 19.0       | 10/5      | 24     | 19.1  | 50    | 21.10 | 67      | 3.04  | 0.20    | 480      |
| CS0402-20N □ -N | 20.0       | 10/5      | 25     | 20.7  | 52    | 23.66 | 53      | 3.00  | 0.25    | 420      |
| CS0402-22N □ -N | 22.0       | 10/5      | 25     | 23.2  | 53    | 26.75 | 53      | 2.80  | 0.30    | 400      |
| CS0402-23N □ -N | 23.0       | 10/5      | 22     | 23.8  | 49    | 26.90 | 64      | 2.72  | 0.30    | 400      |
| CS0402-24N □ -N | 24.0       | 10/5      | 25     | 25.1  | 51    | 29.50 | 50      | 2.70  | 0.30    | 400      |
| CS0402-27N □ -N | 27.0       | 10/5      | 24     | 28.7  | 49    | 33.50 | 63      | 2.48  | 0.30    | 400      |
| CS0402-30N □ -N | 30.0       | 10/5      | 25     | 31.1  | 46    | 38.50 | 39      | 2.35  | 0.30    | 400      |
| CS0402-33N □ -N | 33.0       | 10/5      | 24     | 34.9  | 31    | 41.74 | 32      | 2.35  | 0.40    | 400      |
| CS0402-36N □ -N | 36.0       | 10/5      | 24     | 39.5  | 44    | 48.40 | 53      | 2.32  | 0.44    | 320      |
| CS0402-39N □ -N | 39.0       | 10/5      | 25     | 41.7  | 47    | 50.23 | 45      | 2.10  | 0.55    | 200      |
| CS0402-40N □ -N | 40.0       | 10/5      | 24     | 39.0  | 44    | 47.40 | 33      | 2.24  | 0.44    | 320      |
| CS0402-43N □ -N | 43.0       | 10/5      | 25     | 45.8  | 46    | 61.55 | 34      | 2.03  | 0.81    | 100      |
| CS0402-47N □ -N | 47.0       | 10/5      | 20     | 50.0  | 38    | -     | -       | 2.10  | 0.83    | 150      |
| CS0402-51N □ -N | 51.0       | 10/5      | 25     | 56.6  | 40    | -     | -       | 1.75  | 0.82    | 100      |
| CS0402-56N □ -N | 56.0       | 10/5      | 22     | 62.8  | 42    | -     | -       | 1.76  | 0.97    | 100      |
| CS0402-68N □ -N | 68.0       | 10/5      | 22     | 78.2  | 36    | -     | -       | 1.62  | 1.12    | 100      |
| CS0402-82N □ -N | 82.0       | 10/5      | 20     | -     | -     | -     | -       | 1.26  | 1.55    | 50       |
| CS0402-R10 □ -N | 100.0      | 10/5      | 20     | -     | -     | -     | -       | 1.16  | 2.00    | 30       |

1. When ordering, please specify tolerance and packaging code. Ex : CS0402-10NJ-N

Tolerance : G = ±2% , J = ±5% , K = ±10% , M = ±20%    Packaging : Clear Tape and Reel (Standard)

2. L, Q : Agilent / HP4291A+Agilent / HP16193A @250MHz

3. SRF : Agilent/HP8753D / Agilent/HP8722ES

4. RDC : Digital Multimeter SC-7401

5. I<sub>rms</sub> for a 15°C rise above 25°C ambient



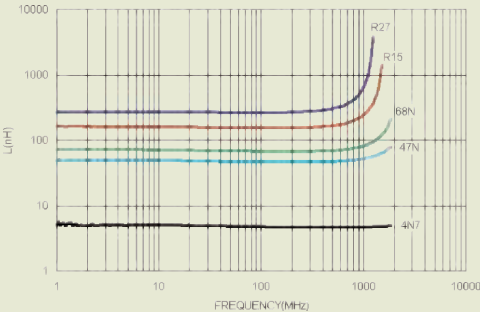
ELECTRICAL CHARACTERISTICS CS0603 SERIES : LEAD-FREE & ROHS COMPLIANCE

| PART NO.       | INDUCTANCE<br>(nH) | TOLERANCE<br>(±%) | TEST<br>FREQUENCY<br>(MHz) | Q<br>Min. | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>(Ω) Max. | RATED<br>CURRENT<br>(mA) Max. | 900MHz    |           | 1.7 GHz   |           | COLOR<br>CODING |
|----------------|--------------------|-------------------|----------------------------|-----------|----------------------|------------------------------|-------------------------------|-----------|-----------|-----------|-----------|-----------------|
|                |                    |                   |                            |           |                      |                              |                               | L<br>TYPE | Q<br>TYPE | L<br>TYPE | Q<br>TYPE |                 |
| CS0603-1N6 □-N | 1.6                | 10/5              | 250                        | 24        | 12500                | 0.030                        | 700                           | 1.67      | 49        | 1.65      | 63        | Red             |
| CS0603-1N8 □-N | 1.8                | 10/5              | 250                        | 16        | 12500                | 0.045                        | 700                           | 1.63      | 35        | 1.66      | 50        | Black           |
| CS0603-3N6 □-N | 3.6                | 10/5              | 250                        | 22        | 5900                 | 0.063                        | 700                           | 3.72      | 53        | 3.71      | 65        | Red             |
| CS0603-3N9 □-N | 3.9                | 10/5              | 250                        | 22        | 6900                 | 0.080                        | 700                           | 3.95      | 49        | 3.96      | 67        | Brown           |
| CS0603-4N3 □-N | 4.3                | 10/5              | 250                        | 22        | 5900                 | 0.063                        | 700                           | 4.32      | 50        | 4.33      | 70        | Orange          |
| CS0603-4N7 □-N | 4.7                | 10/5              | 250                        | 20        | 5800                 | 0.116                        | 700                           | 4.72      | 47        | 4.75      | 57        | Violet          |
| CS0603-5N1 □-N | 5.1                | 10/5              | 250                        | 20        | 5700                 | 0.140                        | 700                           | 4.93      | 47        | 4.95      | 56        | Green           |
| CS0603-5N6 □-N | 5.6                | 10/5              | 250                        | 20        | 5800                 | 0.170                        | 700                           | 5.53      | 56        | 5.86      | 77        | Yellow          |
| CS0603-6N3 □-N | 6.3                | 10/5              | 250                        | 20        | 5700                 | 0.140                        | 700                           | 5.5       | 47        | 6.1       | 60        | White           |
| CS0603-6N8 □-N | 6.8                | 10/5              | 250                        | 27        | 5800                 | 0.110                        | 700                           | 6.75      | 60        | 7.1       | 81        | Red             |
| CS0603-7N5 □-N | 7.5                | 10/5              | 250                        | 28        | 4800                 | 0.106                        | 700                           | 7.70      | 60        | 7.82      | 65        | Brown           |
| CS0603-8N2 □-N | 8.2                | 10/5              | 250                        | 28        | 4700                 | 0.109                        | 700                           | 8.30      | 60        | 8.50      | 60        | White           |
| CS0603-8N7 □-N | 8.7                | 10/5              | 250                        | 28        | 4600                 | 0.109                        | 700                           | 8.86      | 62        | 9.32      | 58        | Yellow          |
| CS0603-9N5 □-N | 9.5                | 10/5              | 250                        | 28        | 5400                 | 0.135                        | 700                           | 9.70      | 59        | 9.92      | 61        | Blue            |
| CS0603-10N □-N | 10                 | 10/5/2            | 250                        | 31        | 4800                 | 0.130                        | 700                           | 10        | 66        | 10.6      | 83        | Orange          |
| CS0603-11N □-N | 11                 | 10/5/2            | 250                        | 33        | 4000                 | 0.086                        | 700                           | 11        | 53        | 11.5      | 56        | Gray            |
| CS0603-12N □-N | 12                 | 10/5/2            | 250                        | 35        | 4000                 | 0.130                        | 700                           | 12.3      | 72        | 13.5      | 83        | Yellow          |
| CS0603-15N □-N | 15                 | 10/5/2            | 250                        | 35        | 4000                 | 0.170                        | 700                           | 15.4      | 64        | 16.8      | 89        | Green           |
| CS0603-16N □-N | 16                 | 10/5/2            | 250                        | 34        | 3300                 | 0.104                        | 700                           | 16.2      | 55        | 17.3      | 52        | White           |
| CS0603-18N □-N | 18                 | 10/5/2            | 250                        | 35        | 3100                 | 0.170                        | 700                           | 18.7      | 70        | 21.4      | 69        | Blue            |
| CS0603-22N □-N | 22                 | 10/5/2            | 250                        | 38        | 3000                 | 0.190                        | 700                           | 22.8      | 73        | 26.1      | 71        | Violet          |
| CS0603-24N □-N | 24                 | 10/5/2            | 250                        | 37        | 2650                 | 0.135                        | 700                           | 24.5      | 45        | 28.7      | 39        | Black           |
| CS0603-27N □-N | 27                 | 10/5/2            | 250                        | 40        | 2800                 | 0.220                        | 600                           | 29.2      | 74        | 34.6      | 65        | Gray            |
| CS0603-30N □-N | 30                 | 10/5/2            | 250                        | 37        | 2250                 | 0.144                        | 600                           | 31.4      | 47        | 39.9      | 28        | Brown           |
| CS0603-33N □-N | 33                 | 10/5/2            | 250                        | 40        | 2300                 | 0.220                        | 600                           | 36        | 67        | 49.5      | 42        | White           |
| CS0603-36N □-N | 36                 | 10/5/2            | 250                        | 38        | 2080                 | 0.250                        | 600                           | 39.4      | 47        | 52.7      | 24        | Red             |
| CS0603-39N □-N | 39                 | 10/5/2            | 250                        | 40        | 2200                 | 0.250                        | 600                           | 42.7      | 60        | 60.2      | 40        | Black           |
| CS0603-43N □-N | 43                 | 10/5/2            | 250                        | 39        | 2000                 | 0.280                        | 600                           | 47        | 44        | 64.9      | 21        | Orange          |
| CS0603-47N □-N | 47                 | 10/5/2            | 200                        | 38        | 2000                 | 0.280                        | 600                           | 52.2      | 62        | 77.2      | 35        | Brown           |
| CS0603-56N □-N | 56                 | 10/5/2            | 200                        | 38        | 1900                 | 0.310                        | 600                           | 62.5      | 56        | 97        | 26        | Red             |
| CS0603-68N □-N | 68                 | 10/5/2            | 200                        | 37        | 1700                 | 0.340                        | 600                           | 80.5      | 54        | 168       | 21        | Orange          |
| CS0603-72N □-N | 72                 | 10/5/2            | 150                        | 34        | 1700                 | 0.490                        | 400                           | 82        | 53        | 135       | 20        | Yellow          |
| CS0603-82N □-N | 82                 | 10/5/2            | 150                        | 34        | 1700                 | 0.540                        | 400                           | 96.2      | 54        | 177       | 21        | Green           |
| CS0603-R10 □-N | 100                | 10/5/2            | 150                        | 34        | 1400                 | 0.580                        | 400                           | 124       | 49        | -         | -         | Blue            |
| CS0603-R11 □-N | 110                | 10/5/2            | 150                        | 32        | 1350                 | 0.610                        | 300                           | 138       | 43        | -         | -         | Violet          |
| CS0603-R12 □-N | 120                | 10/5/2            | 150                        | 32        | 1300                 | 0.750                        | 300                           | 166       | 39        | -         | -         | Gray            |
| CS0603-R15 □-N | 150                | 10/5/2            | 150                        | 28        | 990                  | 0.920                        | 280                           | 250       | 25        | -         | -         | White           |
| CS0603-R18 □-N | 180                | 10/5/2            | 100                        | 25        | 990                  | 1.250                        | 240                           | 305       | 22        | -         | -         | Black           |
| CS0603-R22 □-N | 220                | 10/5/2            | 100                        | 25        | 900                  | 2.100                        | 200                           | -         | -         | -         | -         | Brown           |
| CS0603-R27 □-N | 270                | 10/5/2            | 100                        | 24        | 900                  | 2.300                        | 170                           | -         | -         | -         | -         | Red             |
| CS0603-R33 □-N | 330                | 10/5/2            | 100                        | 25        | 900                  | 3.890                        | 100                           | -         | -         | -         | -         | Orange          |
| CS0603-R39 □-N | 390                | 10/5/2            | 100                        | 25        | 700                  | 4.350                        | 100                           | -         | -         | -         | -         | Yellow          |

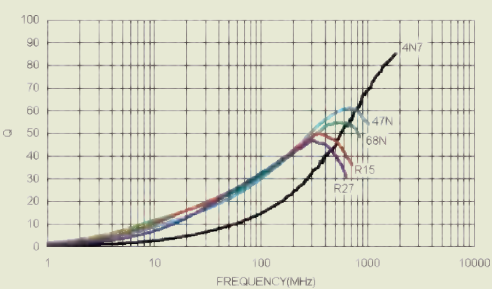
- When ordering, please specify tolerance and packaging code. Ex : CS0603-R12J -N
  - Packaging : Clear Tape and Reel (Standard)
  - SRF : HP8753D / HP4291A
  - Irms for a 15°C rise above 25°C ambient.
- Tolerance : G = ±2% , J = ±5% , K = ±10%
  - L, Q : Agilent / HP4291A + Agilent / HP16193A
  - RDC : CH502BC HP4338B
  - Operating Temperature Range from -40°C to 125°C

TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs. Frequency



Typical Q vs. Frequency







## ELECTRICAL CHARACTERISTICS CS0805 SERIES : LEAD-FREE & ROHS COMPLIANCE

| PART NO.        | INDUCTANCE<br>(nH) | TOLERANCE<br>(±%) | TEST<br>FREQUENCY<br>(MHz) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>(Ω) Max. | RATED<br>CURRENT<br>(mA) Max. | COLOR<br>CODING |
|-----------------|--------------------|-------------------|----------------------------|-----------|----------------------------|----------------------|------------------------------|-------------------------------|-----------------|
| CS0805-2N8 □ -N | 2.8                | 10/5              | 250                        | 80        | 1500                       | 7900                 | 0.06                         | 800                           | Gray            |
| CS0805-3N0 □ -N | 3.0                | 10/5              | 250                        | 65        | 1500                       | 7900                 | 0.06                         | 800                           | White           |
| CS0805-3N3 □ -N | 3.3                | 10/5              | 250                        | 50        | 1500                       | 7900                 | 0.08                         | 600                           | Black           |
| CS0805-5N6 □ -N | 5.6                | 10/5              | 250                        | 65        | 1000                       | 5500                 | 0.08                         | 600                           | Orange          |
| CS0805-6N8 □ -N | 6.8                | 10/5              | 250                        | 50        | 1000                       | 5500                 | 0.11                         | 600                           | Brown           |
| CS0805-7N5 □ -N | 7.5                | 10/5              | 250                        | 50        | 1000                       | 4500                 | 0.14                         | 600                           | Green           |
| CS0805-8N2 □ -N | 8.2                | 10/5              | 250                        | 50        | 1000                       | 4700                 | 0.12                         | 600                           | Red             |
| CS0805-12N □ -N | 12                 | 10/5/2            | 250                        | 50        | 500                        | 4000                 | 0.15                         | 600                           | Orange          |
| CS0805-15N □ -N | 15                 | 10/5/2            | 250                        | 50        | 500                        | 3400                 | 0.17                         | 600                           | Yellow          |
| CS0805-18N □ -N | 18                 | 10/5/2            | 250                        | 50        | 500                        | 3300                 | 0.20                         | 600                           | Green           |
| CS0805-22N □ -N | 22                 | 10/5/2            | 250                        | 55        | 500                        | 2600                 | 0.22                         | 500                           | Blue            |
| CS0805-24N □ -N | 24                 | 10/5/2            | 250                        | 50        | 500                        | 2000                 | 0.22                         | 500                           | Gray            |
| CS0805-27N □ -N | 27                 | 10/5/2            | 250                        | 55        | 500                        | 2500                 | 0.25                         | 500                           | Violet          |
| CS0805-33N □ -N | 33                 | 10/5/2            | 250                        | 60        | 500                        | 2050                 | 0.27                         | 500                           | Gray            |
| CS0805-36N □ -N | 36                 | 10/5/2            | 250                        | 55        | 500                        | 1700                 | 0.27                         | 500                           | Orange          |
| CS0805-39N □ -N | 39                 | 10/5/2            | 250                        | 60        | 500                        | 2000                 | 0.29                         | 500                           | White           |
| CS0805-43N □ -N | 43                 | 10/5/2            | 200                        | 60        | 500                        | 1650                 | 0.34                         | 500                           | Yellow          |
| CS0805-47N □ -N | 47                 | 10/5/2            | 200                        | 60        | 500                        | 1650                 | 0.31                         | 500                           | Black           |
| CS0805-56N □ -N | 56                 | 10/5/2            | 200                        | 60        | 500                        | 1550                 | 0.34                         | 500                           | Brown           |
| CS0805-68N □ -N | 68                 | 10/5/2            | 200                        | 60        | 500                        | 1450                 | 0.38                         | 500                           | Red             |
| CS0805-82N □ -N | 82                 | 10/5/2            | 150                        | 65        | 500                        | 1300                 | 0.42                         | 400                           | Orange          |
| CS0805-91N □ -N | 91                 | 10/5/2            | 150                        | 65        | 500                        | 1200                 | 0.48                         | 400                           | Black           |
| CS0805-R10 □ -N | 100                | 10/5/2            | 150                        | 65        | 500                        | 1200                 | 0.46                         | 400                           | Yellow          |
| CS0805-R11 □ -N | 110                | 10/5/2            | 150                        | 50        | 250                        | 1000                 | 0.48                         | 400                           | Brown           |
| CS0805-R12 □ -N | 120                | 10/5/2            | 150                        | 50        | 250                        | 1100                 | 0.51                         | 400                           | Green           |
| CS0805-R15 □ -N | 150                | 10/5/2            | 100                        | 50        | 250                        | 920                  | 0.56                         | 400                           | Blue            |
| CS0805-R18 □ -N | 180                | 10/5/2            | 100                        | 50        | 250                        | 870                  | 0.64                         | 400                           | Violet          |
| CS0805-R20 □ -N | 200                | 10/5/2            | 100                        | 50        | 250                        | 860                  | 0.68                         | 400                           | Red             |
| CS0805-R22 □ -N | 220                | 10/5/2            | 100                        | 50        | 250                        | 850                  | 0.70                         | 400                           | Gray            |
| CS0805-R24 □ -N | 240                | 10/5/2            | 100                        | 44        | 250                        | 690                  | 1.00                         | 350                           | Red             |
| CS0805-R25 □ -N | 250                | 10/5/2            | 100                        | 45        | 250                        | 660                  | 1.20                         | 350                           | Yellow          |
| CS0805-R27 □ -N | 270                | 10/5/2            | 100                        | 48        | 250                        | 650                  | 1.00                         | 350                           | White           |
| CS0805-R33 □ -N | 330                | 10/5/2            | 100                        | 48        | 250                        | 600                  | 1.40                         | 310                           | Black           |
| CS0805-R39 □ -N | 390                | 10/5/2            | 100                        | 48        | 250                        | 560                  | 1.50                         | 290                           | Brown           |
| CS0805-R47 □ -N | 470                | 10/5/2            | 50                         | 33        | 100                        | 375                  | 1.76                         | 250                           | Violet          |
| CS0805-R56 □ -N | 560                | 10/5/2            | 25                         | 23        | 50                         | 340                  | 1.90                         | 230                           | Orange          |
| CS0805-R62 □ -N | 620                | 10/5/2            | 25                         | 23        | 50                         | 220                  | 2.20                         | 210                           | White           |
| CS0805-R68 □ -N | 680                | 10/5/2            | 25                         | 23        | 50                         | 188                  | 2.20                         | 190                           | Green           |
| CS0805-R82 □ -N | 820                | 10/5/2            | 25                         | 23        | 50                         | 215                  | 2.35                         | 180                           | Blue            |
| CS0805-1R0 □ -N | 1000               | 10/5/2            | 25                         | 20        | 50                         | 100                  | 2.50                         | 170                           | Violet          |

• When ordering, please specify tolerance and packaging code. Ex : CS0805-R12J -N

• Packaging : Clear Tape and Reel (Standard)

• SRF : HP8753D / HP4291A

• Irms for a 15°C rise above 25°C ambient.

• Tolerance : G = ±2% , J = ±5% , K = ±10% ,

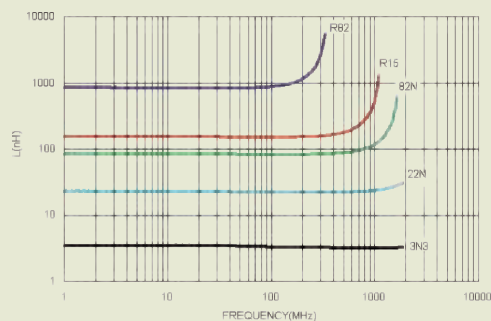
• L, Q : Agilent / HP4291A + Agilent / HP16193A

• RDC : CH502BC HP4338B

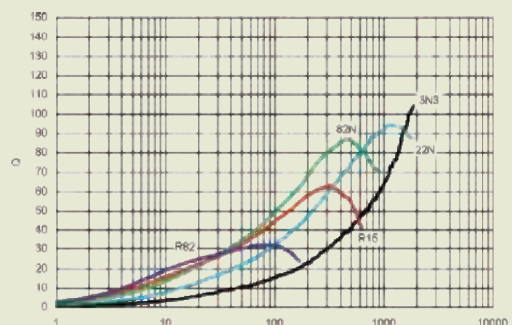
• Operating Temperature Range from -40°C to 125°C

## TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs Frequency



Typical Q vs Frequency

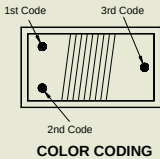




ELECTRICAL CHARACTERISTICS CSI008 SERIES : LEAD-FREE & ROHS COMPLIANCE

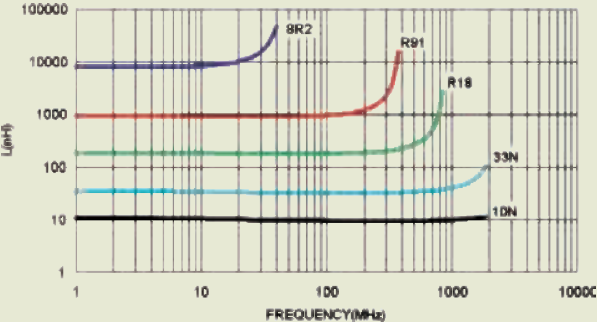
| PART NO.        | INDUCTANCE<br>(nH) | TOLERANCE<br>(±%) | TEST<br>FREQUENCY<br>(MHz) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>(Ω) Max. | RATED<br>CURRENT<br>(mA) Max. | COLOR CODING    |                 |                 |
|-----------------|--------------------|-------------------|----------------------------|-----------|----------------------------|----------------------|------------------------------|-------------------------------|-----------------|-----------------|-----------------|
|                 |                    |                   |                            |           |                            |                      |                              |                               | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| CSI008-10N □ -N | 10                 | 10/5/2            | 50                         | 50        | 500                        | 4100                 | 0.08                         | 1000                          | Brown           | Black           | Black           |
| CSI008-12N □ -N | 12                 | 10/5/2            | 50                         | 50        | 500                        | 3300                 | 0.09                         | 1000                          | Brown           | Red             | Black           |
| CSI008-15N □ -N | 15                 | 10/5/2            | 50                         | 50        | 500                        | 2500                 | 0.10                         | 1000                          | Brown           | Green           | Black           |
| CSI008-18N □ -N | 18                 | 10/5/2            | 50                         | 50        | 350                        | 2500                 | 0.11                         | 1000                          | Brown           | Gray            | Black           |
| CSI008-22N □ -N | 22                 | 10/5/2            | 50                         | 55        | 350                        | 2400                 | 0.12                         | 1000                          | Red             | Red             | Black           |
| CSI008-27N □ -N | 27                 | 10/5/2            | 50                         | 55        | 350                        | 1600                 | 0.13                         | 1000                          | Red             | Violet          | Black           |
| CSI008-33N □ -N | 33                 | 10/5/2            | 50                         | 60        | 350                        | 1600                 | 0.14                         | 1000                          | Orange          | Orange          | Black           |
| CSI008-39N □ -N | 39                 | 10/5/2            | 50                         | 60        | 350                        | 1500                 | 0.15                         | 1000                          | Orange          | White           | Black           |
| CSI008-47N □ -N | 47                 | 10/5/2            | 50                         | 65        | 350                        | 1500                 | 0.16                         | 1000                          | Yellow          | Violet          | Black           |
| CSI008-56N □ -N | 56                 | 10/5/2            | 50                         | 65        | 350                        | 1300                 | 0.18                         | 1000                          | Green           | Blue            | Black           |
| CSI008-68N □ -N | 68                 | 10/5/2            | 50                         | 65        | 350                        | 1300                 | 0.20                         | 1000                          | Blue            | Gray            | Black           |
| CSI008-82N □ -N | 82                 | 10/5/2            | 50                         | 60        | 350                        | 1000                 | 0.22                         | 1000                          | Gray            | Red             | Black           |
| CSI008-R10 □ -N | 100                | 10/5/2            | 25                         | 60        | 350                        | 1000                 | 0.56                         | 650                           | Brown           | Black           | Brown           |
| CSI008-R12 □ -N | 120                | 10/5/2            | 25                         | 60        | 350                        | 950                  | 0.63                         | 650                           | Brown           | Red             | Brown           |
| CSI008-R15 □ -N | 150                | 10/5/2            | 25                         | 45        | 100                        | 850                  | 0.70                         | 580                           | Brown           | Green           | Brown           |
| CSI008-R18 □ -N | 180                | 10/5/2            | 25                         | 45        | 100                        | 750                  | 0.77                         | 620                           | Brown           | Gray            | Brown           |
| CSI008-R22 □ -N | 220                | 10/5/2            | 25                         | 45        | 100                        | 700                  | 0.84                         | 500                           | Red             | Red             | Brown           |
| CSI008-R27 □ -N | 270                | 10/5/2            | 25                         | 45        | 100                        | 600                  | 0.91                         | 500                           | Red             | Violet          | Brown           |
| CSI008-R33 □ -N | 330                | 10/5/2            | 25                         | 45        | 100                        | 570                  | 1.05                         | 450                           | Orange          | Orange          | Brown           |
| CSI008-R39 □ -N | 390                | 10/5/2            | 25                         | 45        | 100                        | 500                  | 1.12                         | 470                           | Orange          | White           | Brown           |
| CSI008-R47 □ -N | 470                | 10/5/2            | 25                         | 45        | 100                        | 450                  | 1.19                         | 470                           | Yellow          | Violet          | Brown           |
| CSI008-R56 □ -N | 560                | 10/5/2            | 25                         | 45        | 100                        | 415                  | 1.33                         | 400                           | Green           | Blue            | Brown           |
| CSI008-R62 □ -N | 620                | 10/5/2            | 25                         | 45        | 100                        | 375                  | 1.40                         | 300                           | Blue            | Red             | Brown           |
| CSI008-R68 □ -N | 680                | 10/5/2            | 25                         | 45        | 100                        | 375                  | 1.47                         | 400                           | Blue            | Gray            | Brown           |
| CSI008-R75 □ -N | 750                | 10/5/2            | 25                         | 45        | 100                        | 360                  | 1.54                         | 360                           | Violet          | Green           | Brown           |
| CSI008-R82 □ -N | 820                | 10/5/2            | 25                         | 45        | 100                        | 350                  | 1.61                         | 400                           | Gray            | Red             | Brown           |
| CSI008-R91 □ -N | 910                | 10/5/2            | 25                         | 35        | 50                         | 320                  | 1.68                         | 380                           | White           | Brown           | Brown           |
| CSI008-1R0 □ -N | 1000               | 10/5/2            | 25                         | 35        | 50                         | 290                  | 1.75                         | 370                           | Brown           | Black           | Red             |
| CSI008-1R2 □ -N | 1200               | 10/5/2            | 7.9                        | 35        | 50                         | 250                  | 2.0                          | 310                           | Brown           | Red             | Red             |
| CSI008-1R5 □ -N | 1500               | 10/5/2            | 7.9                        | 28        | 50                         | 200                  | 2.3                          | 330                           | Brown           | Green           | Red             |
| CSI008-1R8 □ -N | 1800               | 10/5/2            | 7.9                        | 28        | 50                         | 160                  | 2.6                          | 300                           | Brown           | Gray            | Red             |
| CSI008-2R2 □ -N | 2200               | 10/5/2            | 7.9                        | 28        | 50                         | 160                  | 2.8                          | 280                           | Red             | Red             | Red             |
| CSI008-2R7 □ -N | 2700               | 10/5/2            | 7.9                        | 22        | 25                         | 140                  | 3.2                          | 290                           | Red             | Violet          | Red             |
| CSI008-3R3 □ -N | 3300               | 10/5/2            | 7.9                        | 22        | 25                         | 110                  | 3.4                          | 290                           | Orange          | Orange          | Red             |
| CSI008-3R9 □ -N | 3900               | 10/5/2            | 7.9                        | 20        | 25                         | 100                  | 3.6                          | 260                           | Orange          | White           | Red             |
| CSI008-4R7 □ -N | 4700               | 10/5/2            | 7.9                        | 20        | 25                         | 90                   | 4.0                          | 260                           | Yellow          | Violet          | Red             |
| CSI008-5R6 □ -N | 5600               | 10/5/2            | 7.9                        | 18        | 7.9                        | 45                   | 4.0                          | 240                           | Green           | Blue            | Red             |
| CSI008-6R8 □ -N | 6800               | 10/5/2            | 7.9                        | 18        | 7.9                        | 40                   | 4.9                          | 200                           | Blue            | Gray            | Red             |
| CSI008-8R2 □ -N | 8200               | 10/5/2            | 7.9                        | 18        | 7.9                        | 25                   | 6.0                          | 170                           | Gray            | Red             | Red             |
| CSI008-100 □ -N | 10000              | 10/5/2            | 7.9                        | 18        | 7.9                        | 25                   | 8.0                          | 150                           | Brown           | Black           | Orange          |

- When ordering, please specify tolerance and packaging code. Ex : CS0805-R12J -N
  - Packaging : Clear Tape and Reel (Standard)
  - SRF : HP8753D / HP4291A
  - Irms for a 15°C rise above 25°C ambient.
- Tolerance : G = ±2% , J = ±5% , K = ±10% ,
  - L, Q : Agilent / HP4291A + Agilent / HP16193A
  - RDC : CH502BC HP4338B
  - Operating Temperature Range from -40°C to 125°C

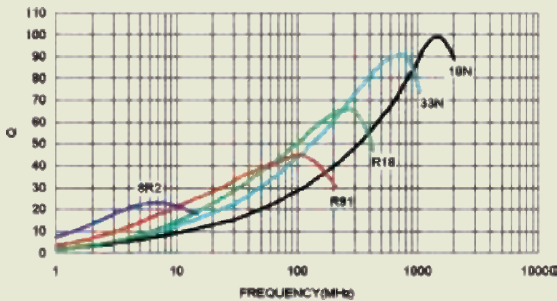


TEST INSTRUMENTS : HP4291A IMPEDANCE / MATERIAL ANALYZER

Typical L vs Frequency



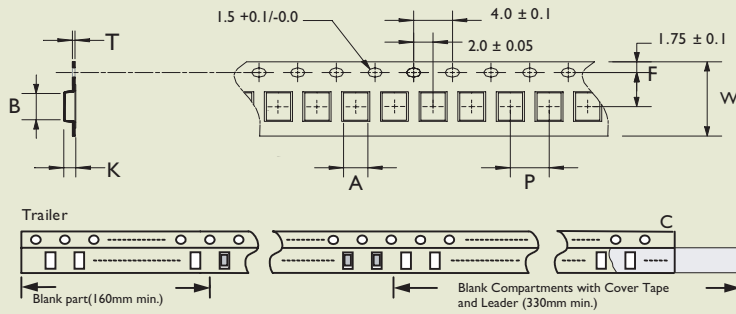
Typical Q vs Frequency



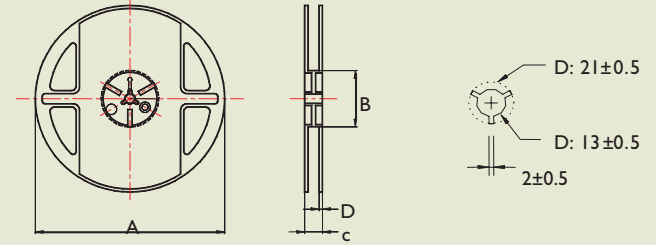


## PACKAGING SPECIFICATIONS

Tape Dimensions



Reel Dimensions

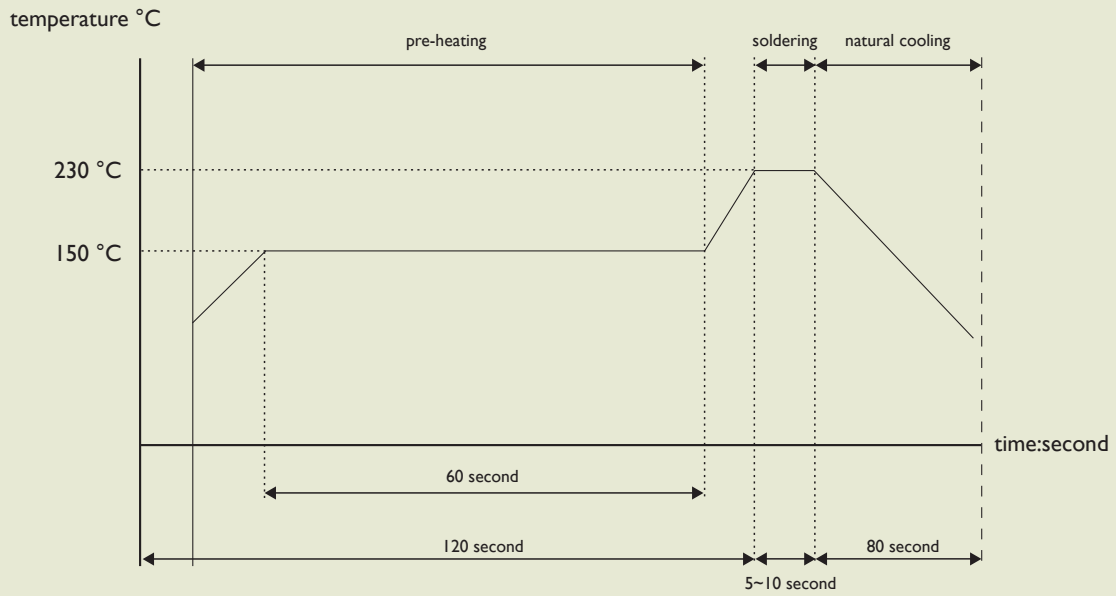


Dimensions : mm

| TYPE   | TAPE DIMENSIONS |      |      |   |   |     |      | REEL DIMENSIONS |    |    |     | QUANTITY/REEL |
|--------|-----------------|------|------|---|---|-----|------|-----------------|----|----|-----|---------------|
|        | A               | B    | T    | W | P | F   | K    | A               | B  | C  | D   |               |
| CS0402 | 0.7             | 1.2  | 0.23 | 8 | 4 | 3.5 | 0.62 | 178             | 60 | 12 | 1.5 | 4000          |
| CS0603 | 1.15            | 1.83 | 0.23 | 8 | 4 | 3.5 | 1.00 | 178             | 60 | 12 | 1.5 | 4000          |
| CS0805 | 1.85            | 2.45 | 0.23 | 8 | 4 | 3.5 | 1.45 | 178             | 60 | 12 | 1.5 | 2000          |
| CS1008 | 2.70            | 2.95 | 0.23 | 8 | 4 | 3.5 | 2.25 | 178             | 60 | 12 | 1.5 | 2000          |

## RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



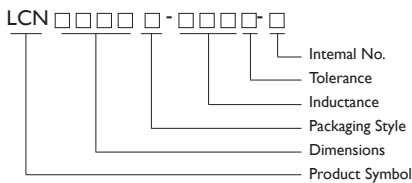
## Wound Chip Inductors High Frequency

# LCN Series

Lead-free / For RF Signals / Customer Design



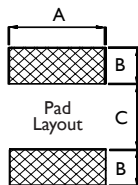
### PRODUCT IDENTIFICATION



- Packaging: T: Tape and Reel
- Tolerance : G=±2%, J=±5%, K=±10%

### RECOMMENDED PATTERN

Dimensions : mm



| TYPE    | A    | B    | C    |
|---------|------|------|------|
| LCN0402 | 0.66 | 0.36 | 0.46 |
| LCN0603 | 1.02 | 0.64 | 0.64 |
| LCN0805 | 1.78 | 1.02 | 0.76 |
| LCN1008 | 2.54 | 1.02 | 1.27 |
| LCN1206 | 2.70 | 1.00 | 2.00 |

Due to technical expertise of accurately winding skill, these chip inductors are designed as filtering, impedance matching, resonance and choke circuits for RF designer. The standard series as well as customer design to meet your needs of telecom & wireless products.

### APPLICATIONS

RF products for cellular phone, GPS receiver, Base Station, Repeater, Wireless LAN/ Mouse/ Keyboard/ earphone, remote control, security system and other RF modules.

### FEATURES

Meet SONY SS-00259's criteria for lead-free product. RoHS compliance.

Ceramic body and wire wound construction provide highest SRFs.

These ultra-compact inductors provided exceptional Q values, even at high frequencies.

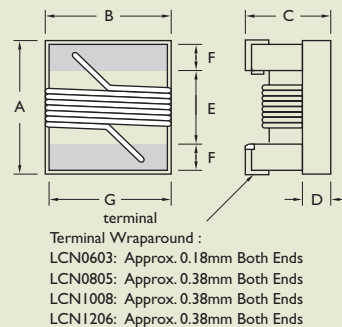
Their ceramic construction delivers the highest possible SRFs as well as excellent Q values.

The non-magnetic coil form also assures the utmost in thermal stability, predictability and batch consistency.

"LCN" series has been designed especially for the needs of customer design.

### SHAPES AND DIMENSIONS

Dimensions : mm



| TYPE    | A                  | B                  | C                  | D       | E    | F    | G    |
|---------|--------------------|--------------------|--------------------|---------|------|------|------|
| LCN0402 | 1.19 <sup>+0</sup> | 0.64 <sup>+0</sup> | 0.66 <sup>+0</sup> | 0.25Ref | 0.56 | 0.23 | 0.51 |
| LCN0603 | 1.80 <sup>+0</sup> | 1.12 <sup>+0</sup> | 1.02 <sup>+0</sup> | 0.35Ref | 0.86 | 0.33 | 0.76 |
| LCN0805 | 2.29 <sup>+0</sup> | 1.73 <sup>+0</sup> | 1.52 <sup>+0</sup> | 0.50Ref | 1.02 | 0.44 | 1.27 |
| LCN1008 | 2.92 <sup>+0</sup> | 2.79 <sup>+0</sup> | 2.03 <sup>+0</sup> | 0.70Ref | 1.52 | 0.51 | 2.03 |
| LCN1206 | 3.70 <sup>+0</sup> | 2.80 <sup>+0</sup> | 2.20 <sup>+0</sup> | 0.90Ref | 2.18 | 0.51 | 2.30 |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | Inductance<br>(nH) | Test Frequency<br>(MHz) | Tolerance<br>(±%) | Q<br>Min | SRF Min<br>(MHz) | RDC MAX<br>(Ω) | Irms Max<br>(mA) |
|-------------------|--------------------|-------------------------|-------------------|----------|------------------|----------------|------------------|
| LCN0402T-1N5 □ -N | 1.5                | 250                     | 10/5              | 15       | 11300            | 0.050          | 1040             |
| LCN0402T-2N0 □ -N | 2.0                | 250                     | 10/5              | 16       | 11100            | 0.070          | 1040             |
| LCN0402T-2N2 □ -N | 2.2                | 250                     | 10/5              | 19       | 10800            | 0.070          | 960              |
| LCN0402T-3N3 □ -N | 3.3                | 250                     | 10/5/3/2          | 19       | 7000             | 0.100          | 840              |
| LCN0402T-3N6 □ -N | 3.6                | 250                     | 10/5/3/2          | 19       | 6800             | 0.100          | 840              |
| LCN0402T-3N9 □ -N | 3.9                | 250                     | 10/5/3/2          | 19       | 6000             | 0.100          | 840              |
| LCN0402T-5N1 □ -N | 5.1                | 250                     | 10/5/3/2          | 20       | 4800             | 0.130          | 800              |
| LCN0402T-5N6 □ -N | 5.6                | 250                     | 10/5/3/2          | 20       | 4800             | 0.130          | 760              |
| LCN0402T-6N2 □ -N | 6.2                | 250                     | 10/5/3/2          | 20       | 4800             | 0.150          | 760              |
| LCN0402T-7N5 □ -N | 7.5                | 250                     | 10/5/3/2          | 22       | 4800             | 0.150          | 680              |
| LCN0402T-8N2 □ -N | 8.2                | 250                     | 10/5/3/2          | 22       | 4400             | 0.150          | 680              |
| LCN0402T-9N0 □ -N | 9.0                | 250                     | 10/5/3/2          | 22       | 4160             | 0.200          | 680              |
| LCN0402T-10N □ -N | 10                 | 250                     | 10/5/3/2          | 21       | 3900             | 0.200          | 480              |
| LCN0402T-11N □ -N | 11                 | 250                     | 10/5/3/2          | 24       | 3680             | 0.230          | 640              |
| LCN0402T-12N □ -N | 12                 | 250                     | 10/5/3/2          | 24       | 3600             | 0.230          | 640              |
| LCN0402T-15N □ -N | 15                 | 250                     | 10/5/3/2          | 24       | 3280             | 0.230          | 560              |
| LCN0402T-19N □ -N | 19                 | 250                     | 10/5/3/2          | 24       | 3040             | 0.270          | 480              |
| LCN0402T-23N □ -N | 23                 | 250                     | 10/5/3/2          | 22       | 2720             | 0.300          | 400              |
| LCN0402T-27N □ -N | 27                 | 250                     | 10/5/3/2          | 24       | 2480             | 0.350          | 400              |
| LCN0402T-33N □ -N | 33                 | 250                     | 10/5/3/2          | 24       | 2350             | 0.440          | 320              |
| LCN0402T-36N □ -N | 36                 | 250                     | 10/5/3/2          | 24       | 2320             | 0.440          | 320              |
| LCN0402T-40N □ -N | 40                 | 250                     | 10/5/3/2          | 24       | 2240             | 0.540          | 320              |
| LCN0402T-47N □ -N | 47                 | 250                     | 10/5/3/2          | 20       | 2100             | 0.830          | 150              |

1. When ordering, please specify tolerance and packaging code. Ex : LCN0402T-10NJ-N

Tolerance : G = ±2% , H = ±3% , J = ±5% , K = ±10%      Packaging : Clear Tape and Reel (Standard)

2.L, Q : Agilent / HP4291A+Agilent / HP16193A

3.SRF : Agilent/HP8753D / Agilent/HP4291A

4.RDC : Digital Multimeter SC-7401

5.Irms for a 15°C rise above 25°C ambient



## ELECTRICAL CHARACTERISTICS LCN0603 SERIES : LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE | TOLERANCE  | Q    | SRF   | DC                | RATED     | 900MHz |      | 1.7 GHz |      | COLOR  |
|-------------------|------------|------------|------|-------|-------------------|-----------|--------|------|---------|------|--------|
|                   | at 250MHz  | (%)        | Min. | (MHz) | RESISTANCE        | CURRENT   | L      | Q    | L       | Q    |        |
|                   | (nH)       |            |      | Min.  | ( $\Omega$ ) Max. | (mA) Max. | TYPE   | TYPE | TYPE    | TYPE |        |
| LCN0603T-1N6 □ -N | 1.6        | 10 / 5     | 24   | 12500 | 0.030             | 700       | 1.6    | 49   | 1.58    | 63   | Red    |
| LCN0603T-1N8 □ -N | 1.8        | 10 / 5     | 16   | 12500 | 0.045             | 700       | 1.6    | 35   | 1.66    | 50   | Black  |
| LCN0603T-3N6 □ -N | 3.6        | 10 / 5     | 22   | 5900  | 0.063             | 700       | 3.72   | 53   | 3.71    | 65   | Red    |
| LCN0603T-3N9 □ -N | 3.9        | 10 / 5     | 22   | 6900  | 0.080             | 700       | 3.95   | 49   | 3.96    | 67   | Brown  |
| LCN0603T-4N3 □ -N | 4.3        | 10 / 5     | 22   | 5900  | 0.063             | 700       | 4.32   | 50   | 4.33    | 70   | Orange |
| LCN0603T-4N7 □ -N | 4.7        | 10 / 5     | 20   | 5800  | 0.116             | 700       | 4.72   | 47   | 4.75    | 57   | Violet |
| LCN0603T-5N1 □ -N | 5.1        | 10 / 5     | 20   | 5700  | 0.140             | 700       | 4.93   | 47   | 4.95    | 56   | Green  |
| LCN0603T-6N3 □ -N | 6.3        | 10 / 5     | 20   | 5700  | 0.140             | 700       | 5.5    | 47   | 6.1     | 60   | White  |
| LCN0603T-6N8 □ -N | 6.8        | 10 / 5     | 27   | 5800  | 0.110             | 700       | 6.75   | 60   | 7.1     | 81   | Red    |
| LCN0603T-7N5 □ -N | 7.5        | 10 / 5     | 28   | 4800  | 0.106             | 700       | 7.70   | 60   | 7.82    | 65   | Brown  |
| LCN0603T-8N2 □ -N | 8.2        | 10 / 5     | 28   | 4700  | 0.109             | 700       | 8.30   | 60   | 8.50    | 60   | White  |
| LCN0603T-8N7 □ -N | 8.7        | 10 / 5     | 28   | 4600  | 0.109             | 700       | 8.86   | 62   | 9.32    | 58   | Yellow |
| LCN0603T-9N5 □ -N | 9.5        | 10 / 5     | 28   | 5400  | 0.135             | 700       | 9.70   | 59   | 9.92    | 61   | Blue   |
| LCN0603T-10N □ -N | 10         | 10 / 5 / 2 | 31   | 4800  | 0.130             | 700       | 10     | 66   | 10.6    | 83   | Orange |
| LCN0603T-11N □ -N | 11         | 10 / 5 / 2 | 33   | 4000  | 0.086             | 700       | 11     | 53   | 11.5    | 56   | Gray   |
| LCN0603T-12N □ -N | 12         | 10 / 5 / 2 | 35   | 4000  | 0.130             | 700       | 12.3   | 72   | 13.5    | 83   | Yellow |
| LCN0603T-15N □ -N | 15         | 10 / 5 / 2 | 35   | 4000  | 0.170             | 700       | 15.4   | 64   | 16.8    | 89   | Green  |
| LCN0603T-16N □ -N | 16         | 10 / 5 / 2 | 34   | 3300  | 0.104             | 700       | 16.2   | 55   | 17.3    | 52   | White  |
| LCN0603T-18N □ -N | 18         | 10 / 5 / 2 | 35   | 3100  | 0.170             | 700       | 18.7   | 70   | 21.4    | 69   | Blue   |
| LCN0603T-22N □ -N | 22         | 10 / 5 / 2 | 38   | 3000  | 0.190             | 700       | 22.8   | 73   | 26.1    | 71   | Violet |
| LCN0603T-24N □ -N | 24         | 10 / 5 / 2 | 37   | 2650  | 0.135             | 700       | 24.5   | 45   | 28.7    | 39   | Black  |
| LCN0603T-27N □ -N | 27         | 10 / 5 / 2 | 40   | 2800  | 0.220             | 600       | 29.2   | 74   | 34.6    | 65   | Gray   |
| LCN0603T-30N □ -N | 30         | 10 / 5 / 2 | 37   | 2250  | 0.144             | 600       | 31.4   | 47   | 39.9    | 28   | Brown  |
| LCN0603T-33N □ -N | 33         | 10 / 5 / 2 | 40   | 2300  | 0.220             | 600       | 36     | 67   | 49.5    | 42   | White  |
| LCN0603T-36N □ -N | 36         | 10 / 5 / 2 | 38   | 2080  | 0.250             | 600       | 39.4   | 47   | 52.7    | 24   | Red    |
| LCN0603T-39N □ -N | 39         | 10 / 5 / 2 | 40   | 2200  | 0.250             | 600       | 42.7   | 60   | 60.2    | 40   | Black  |
| LCN0603T-43N □ -N | 43         | 10 / 5 / 2 | 39   | 2000  | 0.280             | 600       | 47     | 44   | 64.9    | 21   | Orange |
| LCN0603T-47N □ -N | 47 *       | 10 / 5 / 2 | 38   | 2000  | 0.280             | 600       | 52.2   | 62   | 77.2    | 35   | Brown  |
| LCN0603T-56N □ -N | 56 *       | 10 / 5 / 2 | 38   | 1900  | 0.310             | 600       | 62.5   | 56   | 97      | 26   | Red    |
| LCN0603T-68N □ -N | 68 *       | 10 / 5 / 2 | 37   | 1700  | 0.340             | 600       | 80.5   | 54   | 168     | 21   | Orange |
| LCN0603T-72N □ -N | 72 **      | 10 / 5 / 2 | 34   | 1700  | 0.490             | 400       | 82     | 53   | 135     | 20   | Yellow |
| LCN0603T-82N □ -N | 82 **      | 10 / 5 / 2 | 34   | 1700  | 0.540             | 400       | 96.2   | 54   | 177     | 21   | Green  |
| LCN0603T-R10 □ -N | 100 **     | 10 / 5 / 2 | 34   | 1400  | 0.580             | 400       | 124    | 49   |         |      | Blue   |
| LCN0603T-R11 □ -N | 110 **     | 10 / 5 / 2 | 32   | 1350  | 0.610             | 300       | 138    | 43   |         |      | Violet |
| LCN0603T-R12 □ -N | 120 **     | 10 / 5 / 2 | 32   | 1300  | 0.750             | 300       | 166    | 39   |         |      | Gray   |
| LCN0603T-R15 □ -N | 150 **     | 10 / 5 / 2 | 28   | 990   | 0.920             | 280       | 250    | 25   |         |      | White  |
| LCN0603T-R18 □ -N | 180 ***    | 10 / 5 / 2 | 25   | 990   | 1.250             | 240       | 305    | 22   |         |      | Black  |
| LCN0603T-R22 □ -N | 220 ***    | 10 / 5 / 2 | 25   | 900   | 2.100             | 200       | 480    | 8    |         |      | Brown  |
| LCN0603T-R27 □ -N | 270 ***    | 10 / 5 / 2 | 24   | 900   | 2.300             | 170       | 980    | 4    |         |      | Red    |

Note : \* at 200MHz \*\* at 150MHz \*\*\* at 100MHz

• Tolerance : G = $\pm 2\%$ , J = $\pm 5\%$ , K = $\pm 10\%$

• Packaging : Clear Tape and Reel (Standard)

• L/Q : Agilent / HP4291A+Agilent / HP16193A

• SRF : Agilent/HP8753D / Agilent/HP4291A

• RDC : CH502BC HP4338B

• Irms for a 15°C rise above 25°C ambient

• Operating Temperature Range from -40°C to 125°C



## ELECTRICAL CHARACTERISTICS LCN0805 SERIES : LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE<br>at 250MHz<br>(nH) | TOLERANCE<br>(±%) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | DC<br>RESISTANCE<br>(Ω) Max. | RATED<br>CURRENT<br>(mA) Max. | COLOR<br>CODING |
|-------------------|---------------------------------|-------------------|-----------|----------------------------|----------------------|------------------------------|-------------------------------|-----------------|
| LCN0805T-2N8 □ -S | 2.8                             | 10 / 5            | 70        | 1500                       | 7900                 | 0.06                         | 800                           | Gray            |
| LCN0805T-3N0 □ -S | 3.0                             | 10 / 5            | 65        | 1500                       | 7900                 | 0.06                         | 800                           | White           |
| LCN0805T-3N3 □ -N | 3.3                             | 10 / 5            | 50        | 1500                       | 7900                 | 0.08                         | 600                           | Black           |
| LCN0805T-5N6 □ -N | 5.6                             | 10 / 5            | 65        | 1000                       | 5500                 | 0.08                         | 600                           | Orange          |
| LCN0805T-6N8 □ -N | 6.8                             | 10 / 5            | 50        | 1000                       | 5500                 | 0.11                         | 600                           | Brown           |
| LCN0805T-7N5 □ -N | 7.5                             | 10 / 5            | 50        | 1000                       | 4500                 | 0.14                         | 600                           | Green           |
| LCN0805T-8N2 □ -N | 8.2                             | 10 / 5            | 50        | 1000                       | 4700                 | 0.12                         | 600                           | Red             |
| LCN0805T-10N □ -N | 10                              | 10 / 5 / 2        | 60        | 500                        | 4200                 | 0.10                         | 600                           | Blue            |
| LCN0805T-12N □ -N | 12                              | 10 / 5 / 2        | 50        | 500                        | 4000                 | 0.15                         | 600                           | Orange          |
| LCN0805T-15N □ -N | 15                              | 10 / 5 / 2        | 50        | 500                        | 3400                 | 0.17                         | 600                           | Yellow          |
| LCN0805T-18N □ -N | 18                              | 10 / 5 / 2        | 50        | 500                        | 3300                 | 0.20                         | 600                           | Green           |
| LCN0805T-22N □ -N | 22                              | 10 / 5 / 2        | 55        | 500                        | 2600                 | 0.22                         | 500                           | Blue            |
| LCN0805T-24N □ -N | 24                              | 10 / 5 / 2        | 50        | 500                        | 2000                 | 0.22                         | 500                           | Gray            |
| LCN0805T-27N □ -N | 27                              | 10 / 5 / 2        | 55        | 500                        | 2500                 | 0.25                         | 500                           | Violet          |
| LCN0805T-33N □ -N | 33                              | 10 / 5 / 2        | 60        | 500                        | 2050                 | 0.27                         | 500                           | Gray            |
| LCN0805T-36N □ -N | 36                              | 10 / 5 / 2        | 55        | 500                        | 1700                 | 0.27                         | 500                           | Orange          |
| LCN0805T-39N □ -N | 39                              | 10 / 5 / 2        | 60        | 500                        | 2000                 | 0.29                         | 500                           | White           |
| LCN0805T-43N □ -N | 43 *                            | 10 / 5 / 2        | 60        | 500                        | 1650                 | 0.34                         | 500                           | Yellow          |
| LCN0805T-47N □ -N | 47 *                            | 10 / 5 / 2        | 60        | 500                        | 1650                 | 0.31                         | 500                           | Black           |
| LCN0805T-56N □ -N | 56 *                            | 10 / 5 / 2        | 60        | 500                        | 1550                 | 0.34                         | 500                           | Brown           |
| LCN0805T-68N □ -N | 68 *                            | 10 / 5 / 2        | 60        | 500                        | 1450                 | 0.38                         | 500                           | Red             |
| LCN0805T-82N □ -N | 82 **                           | 10 / 5 / 2        | 65        | 500                        | 1300                 | 0.42                         | 400                           | Orange          |
| LCN0805T-91N □ -N | 91 **                           | 10 / 5 / 2        | 65        | 500                        | 1200                 | 0.48                         | 400                           | Black           |
| LCN0805T-R10 □ -N | 100 **                          | 10 / 5 / 2        | 65        | 500                        | 1200                 | 0.46                         | 400                           | Yellow          |
| LCN0805T-R11 □ -N | 110 **                          | 10 / 5 / 2        | 50        | 250                        | 1000                 | 0.48                         | 400                           | Brown           |
| LCN0805T-R12 □ -N | 120 **                          | 10 / 5 / 2        | 50        | 250                        | 1100                 | 0.51                         | 400                           | Green           |
| LCN0805T-R15 □ -N | 150 ***                         | 10 / 5 / 2        | 50        | 250                        | 920                  | 0.56                         | 400                           | Blue            |
| LCN0805T-R18 □ -N | 180 ***                         | 10 / 5 / 2        | 50        | 250                        | 870                  | 0.64                         | 400                           | Violet          |
| LCN0805T-R20 □ -N | 200 ***                         | 10 / 5 / 2        | 50        | 250                        | 860                  | 0.68                         | 400                           | Red             |
| LCN0805T-R22 □ -N | 220 ***                         | 10 / 5 / 2        | 50        | 250                        | 850                  | 0.70                         | 400                           | Gray            |
| LCN0805T-R24 □ -N | 240 ***                         | 10 / 5 / 2        | 44        | 250                        | 690                  | 1.00                         | 350                           | Red             |
| LCN0805T-R25 □ -N | 250 ***                         | 10 / 5 / 2        | 45        | 250                        | 660                  | 1.20                         | 350                           | Yellow          |
| LCN0805T-R27 □ -N | 270 ***                         | 10 / 5 / 2        | 48        | 250                        | 650                  | 1.30                         | 350                           | White           |
| LCN0805T-R33 □ -N | 330 ***                         | 10 / 5 / 2        | 48        | 250                        | 600                  | 1.65                         | 310                           | Black           |
| LCN0805T-R39 □ -N | 390 ***                         | 10 / 5 / 2        | 25        | 250                        | 400                  | 1.80                         | 290                           | Brown           |
| LCN0805T-R47 □ -N | 470 ****                        | 10 / 5 / 2        | 33        | 100                        | 400                  | 2.00                         | 250                           | Violet          |
| LCN0805T-R56 □ -N | 560 ****                        | 10 / 5 / 2        | 20        | 50                         | 200                  | 2.10                         | 230                           | Orange          |
| LCN0805T-R68 □ -N | 680 ****                        | 10 / 5 / 2        | 18        | 50                         | 130                  | 2.30                         | 190                           | Green           |
| LCN0805T-R82 □ -N | 820 ****                        | 10 / 5 / 2        | 15        | 50                         | 100                  | 2.50                         | 180                           | Blue            |

Note : \* at 200MHz    \*\* at 150MHz    \*\*\* at 100MHz    \*\*\*\* at 50MHz    \*\*\*\*\* at 25MHz

- Tolerance : G = ±2% , J = ±5% , K = ±10%
- Packaging : Clear Tape and Reel (Standard)
- L/Q : Agilent / HP4291A+Agilent / HP16193A
- SRF : Agilent/HP8753D / Agilent/HP4291A
- RDC : CH502BC HP4338B
- Irms for a 15°C rise above 25°C ambient
- Operating Temperature Range from -40°C to 125°C

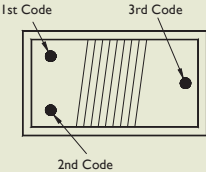


ELECTRICAL CHARACTERISTICS LCN1008 SERIES : LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE<br>at 50MHz<br>(nH) | TOLERANCE<br>(±%) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz)<br>Min. | Rdc<br>Max<br>(Ω) | Irms<br>Max<br>(mA) | COLOR CODING    |                 |                 |
|-------------------|--------------------------------|-------------------|-----------|----------------------------|----------------------|-------------------|---------------------|-----------------|-----------------|-----------------|
|                   |                                |                   |           |                            |                      |                   |                     | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| LCN1008T-10N □ -N | 10                             | 10 / 5 / 2        | 50        | 500                        | 4100                 | 0.08              | 1000                | Brown           | Black           | Black           |
| LCN1008T-12N □ -N | 12                             | 10 / 5 / 2        | 50        | 500                        | 3300                 | 0.09              | 1000                | Brown           | Red             | Black           |
| LCN1008T-15N □ -N | 15                             | 10 / 5 / 2        | 50        | 500                        | 2500                 | 0.10              | 1000                | Brown           | Green           | Black           |
| LCN1008T-18N □ -N | 18                             | 10 / 5 / 2        | 50        | 350                        | 2500                 | 0.11              | 1000                | Brown           | Gray            | Black           |
| LCN1008T-22N □ -N | 22                             | 10 / 5 / 2        | 55        | 350                        | 2400                 | 0.12              | 1000                | Red             | Red             | Black           |
| LCN1008T-27N □ -N | 27                             | 10 / 5 / 2        | 55        | 350                        | 1600                 | 0.13              | 1000                | Red             | Violet          | Black           |
| LCN1008T-33N □ -N | 33                             | 10 / 5 / 2        | 60        | 350                        | 1600                 | 0.14              | 1000                | Orange          | Orange          | Black           |
| LCN1008T-39N □ -N | 39                             | 10 / 5 / 2        | 60        | 350                        | 1500                 | 0.15              | 1000                | Orange          | White           | Black           |
| LCN1008T-47N □ -N | 47                             | 10 / 5 / 2        | 65        | 350                        | 1500                 | 0.16              | 1000                | Yellow          | Violet          | Black           |
| LCN1008T-56N □ -N | 56                             | 10 / 5 / 2        | 65        | 350                        | 1300                 | 0.18              | 1000                | Green           | Blue            | Black           |
| LCN1008T-68N □ -N | 68                             | 10 / 5 / 2        | 65        | 350                        | 1300                 | 0.20              | 1000                | Blue            | Gray            | Black           |
| LCN1008T-82N □ -N | 82                             | 10 / 5 / 2        | 60        | 350                        | 1000                 | 0.22              | 1000                | Gray            | Red             | Black           |
| LCN1008T-R10 □ -N | 100 *                          | 10 / 5 / 2        | 60        | 350                        | 1000                 | 0.56              | 650                 | Brown           | Black           | Brown           |
| LCN1008T-R12 □ -N | 120 *                          | 10 / 5 / 2        | 60        | 350                        | 950                  | 0.63              | 650                 | Brown           | Red             | Brown           |
| LCN1008T-R15 □ -N | 150 *                          | 10 / 5 / 2        | 45        | 100                        | 850                  | 0.70              | 580                 | Brown           | Green           | Brown           |
| LCN1008T-R18 □ -N | 180 *                          | 10 / 5 / 2        | 45        | 100                        | 750                  | 0.77              | 620                 | Brown           | Gray            | Brown           |
| LCN1008T-R22 □ -N | 220 *                          | 10 / 5 / 2        | 45        | 100                        | 700                  | 0.84              | 500                 | Red             | Red             | Brown           |
| LCN1008T-R27 □ -N | 270 *                          | 10 / 5 / 2        | 45        | 100                        | 600                  | 0.91              | 500                 | Red             | Violet          | Brown           |
| LCN1008T-R33 □ -N | 330 *                          | 10 / 5 / 2        | 45        | 100                        | 570                  | 1.05              | 450                 | Orange          | Orange          | Brown           |
| LCN1008T-R39 □ -N | 390 *                          | 10 / 5 / 2        | 45        | 100                        | 500                  | 1.12              | 470                 | Orange          | White           | Brown           |
| LCN1008T-R47 □ -N | 470 *                          | 10 / 5 / 2        | 45        | 100                        | 450                  | 1.19              | 470                 | Yellow          | Violet          | Brown           |
| LCN1008T-R56 □ -N | 560 *                          | 10 / 5 / 2        | 45        | 100                        | 415                  | 1.33              | 400                 | Green           | Blue            | Brown           |
| LCN1008T-R62 □ -N | 620 *                          | 10 / 5 / 2        | 45        | 100                        | 375                  | 1.40              | 300                 | Blue            | Red             | Brown           |
| LCN1008T-R68 □ -N | 680 *                          | 10 / 5 / 2        | 45        | 100                        | 375                  | 1.47              | 400                 | Blue            | Gray            | Brown           |
| LCN1008T-R75 □ -N | 750 *                          | 10 / 5 / 2        | 45        | 100                        | 360                  | 1.54              | 360                 | Violet          | Green           | Brown           |
| LCN1008T-R82 □ -N | 820 *                          | 10 / 5 / 2        | 45        | 100                        | 350                  | 1.61              | 400                 | Gray            | Red             | Brown           |
| LCN1008T-R91 □ -N | 910 *                          | 10 / 5 / 2        | 35        | 50                         | 320                  | 1.68              | 380                 | White           | Brown           | Brown           |
| LCN1008T-IR0 □ -N | 1000 *                         | 10 / 5 / 2        | 35        | 50                         | 220                  | 1.75              | 370                 | Brown           | Black           | Red             |
| LCN1008T-IR2 □ -N | 1200 **                        | 10 / 5 / 2        | 35        | 50                         | 186                  | 2.0               | 310                 | Brown           | Red             | Red             |
| LCN1008T-IR5 □ -N | 1500 **                        | 10 / 5 / 2        | 28        | 50                         | 200                  | 2.3               | 330                 | Brown           | Green           | Red             |
| LCN1008T-IR8 □ -N | 1800 **                        | 10 / 5 / 2        | 25        | 50                         | 170                  | 2.6               | 300                 | Brown           | Gray            | Red             |
| LCN1008T-2R2 □ -N | 2200 **                        | 10 / 5 / 2        | 20        | 50                         | 110                  | 2.8               | 280                 | Red             | Red             | Red             |
| LCN1008T-2R7 □ -N | 2700 **                        | 10 / 5 / 2        | 15        | 25                         | 140                  | 3.2               | 290                 | Red             | Violet          | Red             |
| LCN1008T-3R3 □ -N | 3300 **                        | 10 / 5 / 2        | 15        | 25                         | 100                  | 3.4               | 290                 | Orange          | Orange          | Red             |
| LCN1008T-3R9 □ -N | 3900 **                        | 10 / 5 / 2        | 15        | 25                         | 100                  | 3.6               | 260                 | Orange          | White           | Red             |
| LCN1008T-4R7 □ -N | 4700 **                        | 10 / 5 / 2        | 13        | 25                         | 90                   | 4.0               | 260                 | Yellow          | Violet          | Red             |
| LCN1008T-5R6 □ -N | 5600 **                        | 10 / 5 / 2        | 16        | 7.9                        | 20                   | 4.0               | 240                 | Green           | Yellow          | Red             |
| LCN1008T-6R8 □ -N | 6800 **                        | 10 / 5 / 2        | 18        | 7.9                        | 40                   | 4.9               | 200                 | Yellow          | Gray            | Red             |
| LCN1008T-8R2 □ -N | 8200 **                        | 10 / 5 / 2        | 18        | 7.9                        | 25                   | 6.0               | 170                 | Gray            | Red             | Red             |

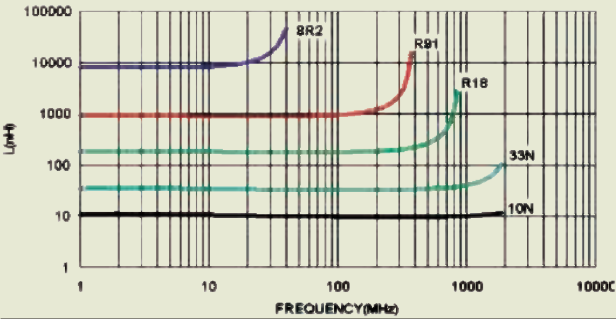
Note : \* at 25MHz \*\* at 7.9MHz  
• When ordering, please specify tolerance and packaging code. Ex : LCN1008T -R82J-N  
• Tolerance : G =±2% , J =±5% , K =±10%  
• Packaging : Clear Tape and Reel (Standard)  
• L/Q : Agilent / HP4291A+Agilent / HPI6193A

• SRF : Agilent/HP8753D / Agilent/HP4291A  
• RDC : CH502BC HP4338B  
• Irms for a 15°C rise above 25°C ambient  
• Operating Temperature Range from -40°C to 125°C

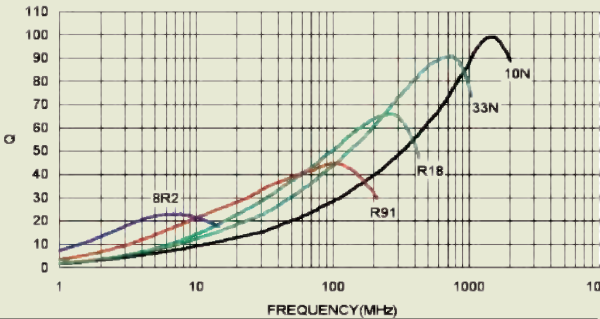


TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs Frequency



Typical Q vs Frequency



COLOR CODING





## ELECTRICAL CHARACTERISTICS CSI008 SERIES : LEAD-FREE & ROHS COMPLIANCE

| PART NO.          | INDUCTANCE<br>(nH) | TEST<br>FREQUENCY<br>(MHz) | TOLERANCE<br>(±%) | Q<br>Min. | TEST<br>FREQUENCY<br>(MHz) | SRF<br>(MHz) | RDC<br>MAX<br>(Ω) | IRMS<br>(mA) Max. | COLOR CODING    |                 |                 |
|-------------------|--------------------|----------------------------|-------------------|-----------|----------------------------|--------------|-------------------|-------------------|-----------------|-----------------|-----------------|
|                   |                    |                            |                   |           |                            |              |                   |                   | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| LCN1206T-3N3 □ -N | 3.3                | 100                        | 10/5              | 30        | 300                        | 6200         | 0.05              | 1000              | Black           | Orange          | Black           |
| LCN1206T-6N8 □ -N | 6.8                | 100                        | 10/5              | 30        | 300                        | 5500         | 0.07              | 1000              | Black           | Blue            | Black           |
| LCN1206T-10N □ -N | 10                 | 100                        | 10/5/2            | 40        | 300                        | 4000         | 0.08              | 1000              | Brown           | Black           | Black           |
| LCN1206T-12N □ -N | 12                 | 100                        | 10/5/2            | 40        | 300                        | 3200         | 0.08              | 1000              | Brown           | Red             | Black           |
| LCN1206T-15N □ -N | 15                 | 100                        | 10/5/2            | 40        | 300                        | 3200         | 0.10              | 1000              | Brown           | Green           | Black           |
| LCN1206T-18N □ -N | 18                 | 100                        | 10/5/2            | 50        | 300                        | 2800         | 0.10              | 1000              | Brown           | Gray            | Black           |
| LCN1206T-22N □ -N | 22                 | 100                        | 10/5/2            | 50        | 300                        | 2200         | 0.10              | 1000              | Red             | Red             | Black           |
| LCN1206T-27N □ -N | 27                 | 100                        | 10/5/2            | 50        | 300                        | 1800         | 0.11              | 1000              | Red             | Violet          | Black           |
| LCN1206T-33N □ -N | 33                 | 100                        | 10/5/2            | 55        | 300                        | 1800         | 0.11              | 1000              | Orange          | Orange          | Black           |
| LCN1206T-39N □ -N | 39                 | 100                        | 10/5/2            | 55        | 300                        | 1800         | 0.12              | 1000              | Orange          | White           | Black           |
| LCN1206T-47N □ -N | 47                 | 100                        | 10/5/2            | 55        | 300                        | 1500         | 0.13              | 1000              | Yellow          | Violet          | Black           |
| LCN1206T-56N □ -N | 56                 | 100                        | 10/5/2            | 55        | 300                        | 1450         | 0.14              | 1000              | Green           | Blue            | Black           |
| LCN1206T-68N □ -N | 68                 | 100                        | 10/5/2            | 55        | 300                        | 1200         | 0.26              | 900               | Blue            | Gray            | Black           |
| LCN1206T-82N □ -N | 82                 | 100                        | 10/5/2            | 55        | 300                        | 1200         | 0.21              | 900               | Gray            | Red             | Black           |
| LCN1206T-R10 □ -N | 100                | 100                        | 10/5/2            | 55        | 300                        | 1100         | 0.26              | 850               | Brown           | Black           | Brown           |
| LCN1206T-R12 □ -N | 120                | 100                        | 10/5/2            | 60        | 300                        | 1100         | 0.26              | 800               | Brown           | Red             | Brown           |
| LCN1206T-R15 □ -N | 150                | 100                        | 10/5/2            | 60        | 300                        | 950          | 0.31              | 750               | Brown           | Green           | Brown           |
| LCN1206T-R18 □ -N | 180                | 50                         | 10/5/2            | 60        | 300                        | 900          | 0.43              | 700               | Brown           | Gray            | Brown           |
| LCN1206T-R22 □ -N | 220                | 50                         | 10/5/2            | 60        | 300                        | 760          | 0.50              | 670               | Red             | Red             | Brown           |
| LCN1206T-R27 □ -N | 270                | 50                         | 10/5/2            | 55        | 300                        | 730          | 0.56              | 630               | Red             | Violet          | Brown           |
| LCN1206T-R33 □ -N | 330                | 50                         | 10/5/2            | 45        | 150                        | 650          | 0.62              | 590               | Orange          | Orange          | Brown           |
| LCN1206T-R39 □ -N | 390                | 50                         | 10/5/2            | 45        | 150                        | 600          | 0.75              | 530               | Orange          | White           | Brown           |
| LCN1206T-R47 □ -N | 470                | 50                         | 10/5/2            | 45        | 150                        | 550          | 1.30              | 490               | Yellow          | Violet          | Brown           |
| LCN1206T-R56 □ -N | 560                | 35                         | 10/5/2            | 45        | 150                        | 470          | 1.34              | 460               | Green           | Blue            | Brown           |
| LCN1206T-R62 □ -N | 620                | 35                         | 10/5/2            | 45        | 150                        | 470          | 1.58              | 460               | Blue            | Red             | Brown           |
| LCN1206T-R68 □ -N | 680                | 35                         | 10/5/2            | 45        | 150                        | 450          | 1.58              | 430               | Blue            | Gray            | Brown           |
| LCN1206T-R75 □ -N | 750                | 35                         | 10/5/2            | 45        | 150                        | 440          | 2.25              | 320               | Violet          | Green           | Brown           |
| LCN1206T-R82 □ -N | 820                | 35                         | 10/5/2            | 45        | 150                        | 420          | 1.82              | 400               | Gray            | Red             | Brown           |
| LCN1206T-R91 □ -N | 910                | 35                         | 10/5/2            | 45        | 150                        | 410          | 2.95              | 310               | White           | Brown           | Brown           |
| LCN1206T-1R0 □ -N | 1000               | 35                         | 10/5/2            | 45        | 150                        | 400          | 2.80              | 320               | Brown           | Black           | Red             |
| LCN1206T-1R2 □ -N | 1200               | 35                         | 10/5/2            | 45        | 150                        | 380          | 3.20              | 300               | Brown           | Red             | Red             |

• When ordering, please specify tolerance and packaging code. Ex : LCN1206T -R12J -N

• Packaging : Clear Tape and Reel (Standard)

• SRF : Agilent / HP8753D / Agilent HP4291A

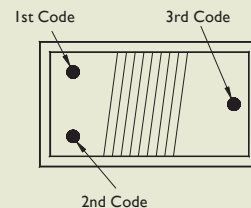
• Irms for a 15°C rise above 25°C ambient.

• Tolerance : G = ±2% , J = ±5% , K = ±10% ,

• L, Q : Agilent / HP4291A + Agilent / HP16193A

• RDC : CH502BC HP4338B

• Operating Temperature Range from -40°C to 125°C

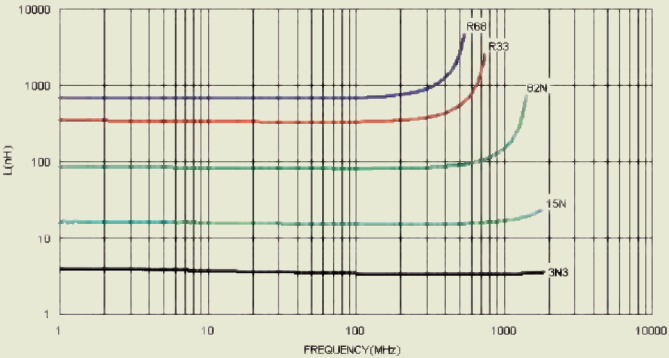


COLOR CODING

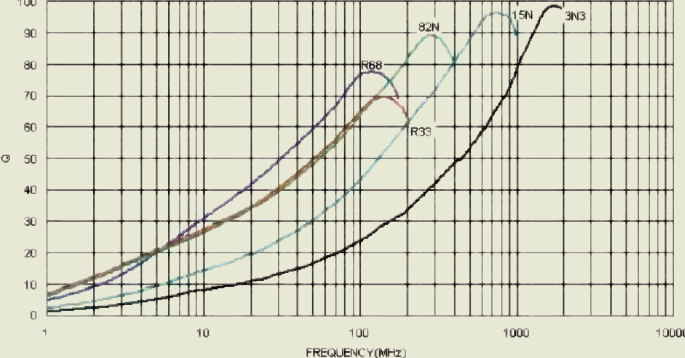


TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs Frequency

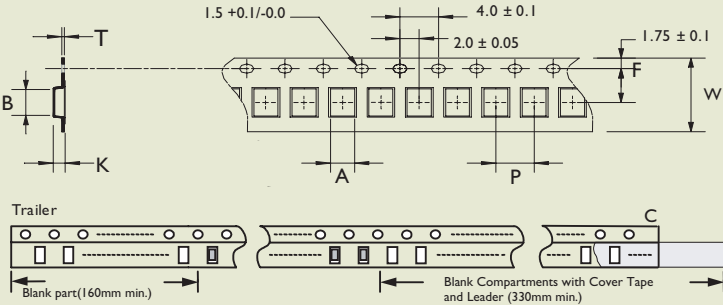


Typical Q vs Frequency

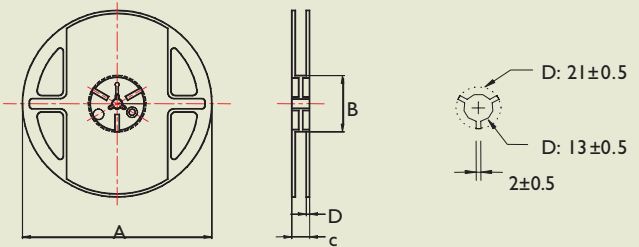


PACKAGING SPECIFICATIONS

Tape Dimensions



Reel Dimensions



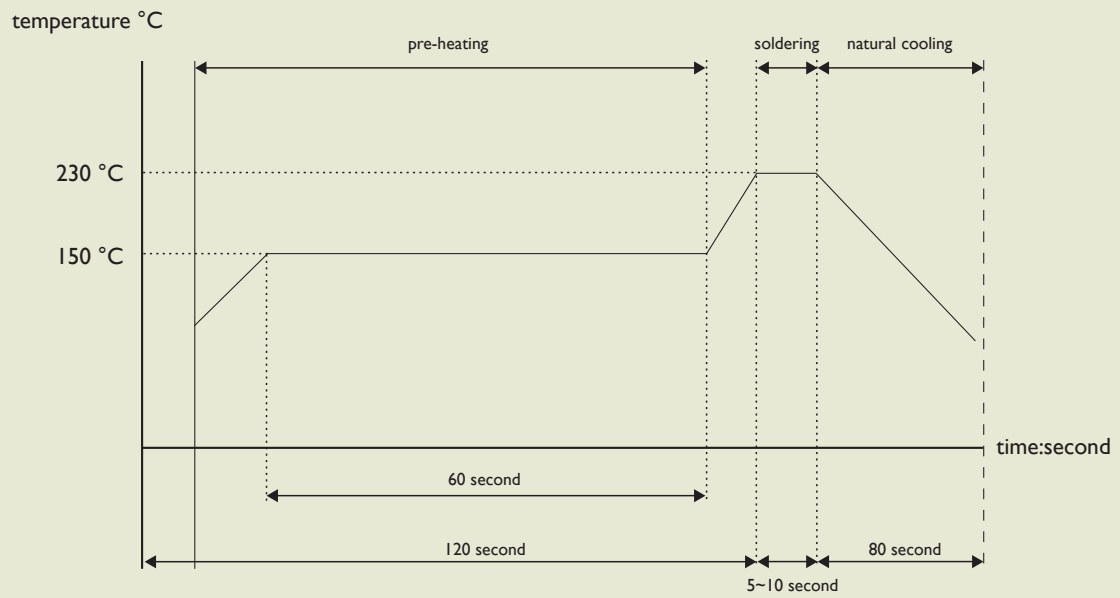
Dimensions : mm

| TYPE    | TAPE DIMENSIONS |      |      |    |   |     |      | REEL DIMENSIONS |    |    |     | QUANTITY/REEL |
|---------|-----------------|------|------|----|---|-----|------|-----------------|----|----|-----|---------------|
|         | A               | B    | T    | W  | P | F   | K    | A               | B  | C  | D   |               |
| LCN0402 | 0.6             | 1.25 | 0.23 | 8  | 4 | 3.5 | 0.8  | 178             | 60 | 12 | 1.5 | 4000          |
| LCN0603 | 1.15            | 1.83 | 0.23 | 8  | 4 | 3.5 | 1.00 | 178             | 60 | 12 | 1.5 | 4000          |
| LCN0805 | 1.85            | 2.45 | 0.23 | 8  | 4 | 3.5 | 1.45 | 178             | 60 | 12 | 1.5 | 2500          |
| LCN1008 | 2.70            | 2.95 | 0.23 | 8  | 4 | 3.5 | 2.25 | 178             | 60 | 12 | 1.5 | 2000          |
| LCN1206 | 2.95            | 3.85 | 0.25 | 12 | 4 | 5.5 | 2.45 | 178             | 60 | 16 | 1.4 | 2000          |



## RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



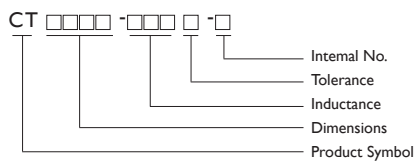
# Wire Wound Ceramic Chip Inductors

## CT Series

Lead-free / Open Type Wire Wound Chip Inductors



### PRODUCT IDENTIFICATION



Tolerance : G=±2%, J=±5%, K=±10%

Due to technical expertise of accurately wounding skill, these chip inductors are designed as filtering, impedance matching, resonance and choke circuits for RF designer. The stand series as well as customer design to meet your needs of telecom & wireless products.

### APPLICATIONS

RF products for cellular phone, GPS receiver, Base Station, Repeater, Wireless LAN/ Mouse/ Keyboard/ earphone, remote control, security system and other RF modules.

### FEATURES

Meet SONY SS-00259's criteria for lead-free product.

Ceramic body and wire wound construction provide highest SRFs.

These ultra-compact inductors provided exceptional Q values, even at high frequencies.

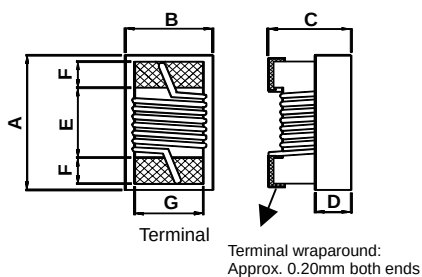
Their ceramic construction delivers the highest possible SRFs as well as excellent Q values.

The non-magnetic coil form also assures the utmost in thermal stability, predictability and batch consistency.

At just 1.02mm high, CT0805 is the lowest profile SMD inductor among 0805 series.

### SHAPES AND DIMENSIONS

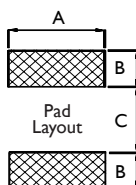
Dimensions : mm



| TYPE   | A                  | B                  | C                  | D       | E    | F    | G    |
|--------|--------------------|--------------------|--------------------|---------|------|------|------|
| CT0805 | 2.35 <sup>+0</sup> | 1.73 <sup>+0</sup> | 1.02 <sup>+0</sup> | 0.35Ref | 1.02 | 0.44 | 1.27 |

### RECOMMENDED PATTERN

Dimensions : mm



| TYPE   | A    | B    | C    |
|--------|------|------|------|
| CT0805 | 1.78 | 1.02 | 0.76 |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.        | Inductance<br>(nH) | Test Frequency<br>(MHz) | Tolerance<br>(±%) | Q<br>Min | Test Frequency<br>(MHz) | SRF Min<br>(MHz) | RDC MAX<br>(Ω) | Irms Max<br>(mA) | Color  |
|-----------------|--------------------|-------------------------|-------------------|----------|-------------------------|------------------|----------------|------------------|--------|
| CT0805-1N8 □ -N | 1.8                | 250                     | 10                | 55       | 1500                    | 9400             | 0.03           | 800              | Black  |
| CT0805-3N9 □ -N | 3.9                | 250                     | 10                | 50       | 1000                    | 6100             | 0.06           | 800              | Brown  |
| CT0805-4N7 □ -N | 4.7                | 250                     | 10/5              | 50       | 1000                    | 5500             | 0.06           | 800              | Red    |
| CT0805-6N8 □ -N | 6.8                | 250                     | 10/5              | 50       | 1000                    | 5500             | 0.08           | 800              | Orange |
| CT0805-8N2 □ -N | 8.2                | 250                     | 10/5              | 50       | 1000                    | 4800             | 0.08           | 800              | Yellow |
| CT0805-10N □ -N | 10                 | 250                     | 10/5/2            | 55       | 750                     | 3300             | 0.08           | 800              | Green  |
| CT0805-12N □ -N | 12                 | 250                     | 10/5/2            | 55       | 750                     | 3800             | 0.10           | 800              | Blue   |
| CT0805-15N □ -N | 15                 | 250                     | 10/5/2            | 50       | 500                     | 2950             | 0.10           | 800              | Violet |
| CT0805-18N □ -N | 18                 | 250                     | 10/5/2            | 50       | 500                     | 3100             | 0.13           | 800              | Gray   |
| CT0805-22N □ -N | 22                 | 250                     | 10/5/2            | 50       | 500                     | 2900             | 0.15           | 800              | White  |
| CT0805-27N □ -N | 27                 | 250                     | 10/5/2            | 50       | 500                     | 2450             | 0.23           | 600              | Black  |
| CT0805-33N □ -N | 33                 | 250                     | 10/5/2            | 55       | 500                     | 2350             | 0.28           | 600              | Brown  |
| CT0805-39N □ -N | 39                 | 250                     | 10/5/2            | 55       | 500                     | 2200             | 0.33           | 600              | Red    |
| CT0805-47N □ -N | 47                 | 200                     | 10/5/2            | 50       | 500                     | 2000             | 0.39           | 600              | Orange |
| CT0805-56N □ -N | 56                 | 200                     | 10/5/2            | 50       | 500                     | 1850             | 0.39           | 500              | Yellow |
| CT0805-68N □ -N | 68                 | 200                     | 10/5/2            | 50       | 500                     | 1500             | 0.40           | 500              | Green  |
| CT0805-82N □ -N | 82                 | 150                     | 10/5/2            | 50       | 500                     | 1500             | 0.44           | 500              | Blue   |
| CT0805-R10 □ -N | 100                | 150                     | 10/5/2            | 50       | 500                     | 1200             | 0.64           | 400              | Violet |
| CT0805-R12 □ -N | 120                | 150                     | 10/5/2            | 40       | 250                     | 1150             | 0.68           | 300              | Gray   |
| CT0805-R15 □ -N | 150                | 150                     | 10/5/2            | 40       | 250                     | 1050             | 0.80           | 300              | White  |
| CT0805-R18 □ -N | 180                | 150                     | 10/5/2            | 40       | 250                     | 950              | 0.90           | 300              | Black  |
| CT0805-R22 □ -N | 220                | 150                     | 10/5/2            | 40       | 250                     | 900              | 0.98           | 300              | Brown  |
| CT0805-R27 □ -N | 270                | 150                     | 10/5/2            | 40       | 250                     | 850              | 1.30           | 300              | Red    |
| CT0805-R33 □ -N | 330                | 100                     | 10/5/2            | 40       | 250                     | 800              | 1.45           | 300              | Orange |
| CT0805-R39 □ -N | 390                | 100                     | 10/5/2            | 35       | 250                     | 700              | 1.60           | 300              | Yellow |
| CT0805-R47 □ -N | 470                | 50                      | 10/5/2            | 25       | 100                     | 600              | 1.80           | 300              | Green  |
| CT0805-R56 □ -N | 560                | 25                      | 10/5/2            | 18       | 50                      | 550              | 1.90           | 300              | Blue   |
| CT0805-R62 □ -N | 620                | 25                      | 10/5/2            | 18       | 50                      | 450              | 2.00           | 300              | Violet |
| CT0805-R68 □ -N | 680                | 25                      | 10/5/2            | 18       | 50                      | 420              | 2.10           | 300              | Gray   |
| CT0805-R75 □ -N | 750                | 25                      | 10/5/2            | 18       | 50                      | 400              | 2.20           | 300              | White  |
| CT0805-R82 □ -N | 820                | 25                      | 10/5/2            | 18       | 50                      | 400              | 2.50           | 300              | Black  |
| CT0805-1R0 □ -N | 1000               | 25                      | 10/5              | 17       | 50                      | 330              | 3.10           | 300              | Brown  |

• When ordering, please specify tolerance and packaging code. Ex : CT0805-1R0J-N

• Tolerance : G = ±2% , J = ±5% , K = ±10%

• Packaging : Clear Tape and Reel (Standard)

• L/Q : Agilent / HP4291A+Agilent / HP16193A

• SRF : Agilent/HP8753D / Agilent/HP4291A

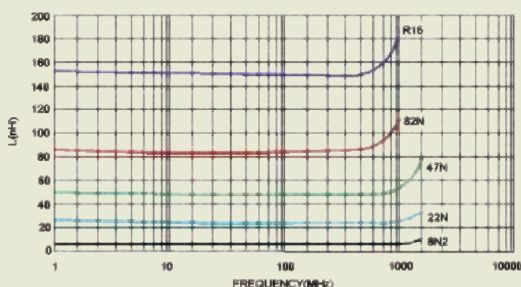
• RDC : CH502BC HP4338B

• Irms for a 15°C rise above 25°C ambient

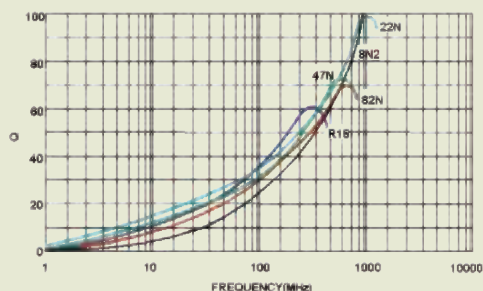
• Operating Temperature Range from -40°C to 125°C

## TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

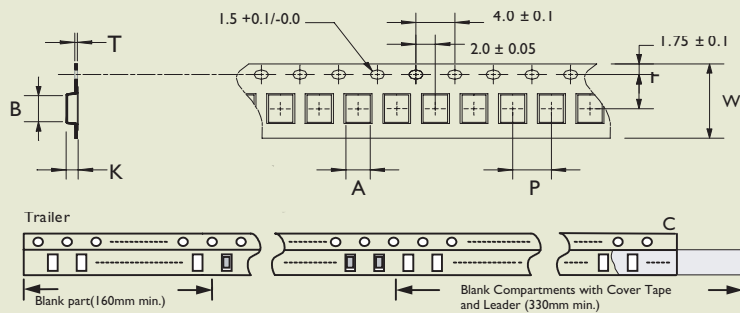
Typical L vs Frequency



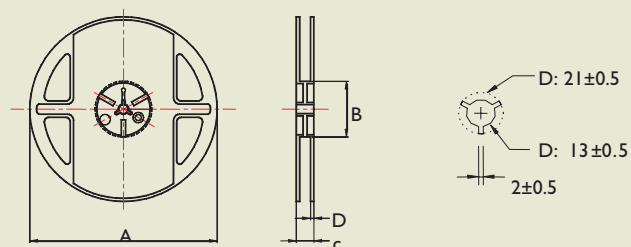
Typical Q vs Frequency



## Tape Dimensions



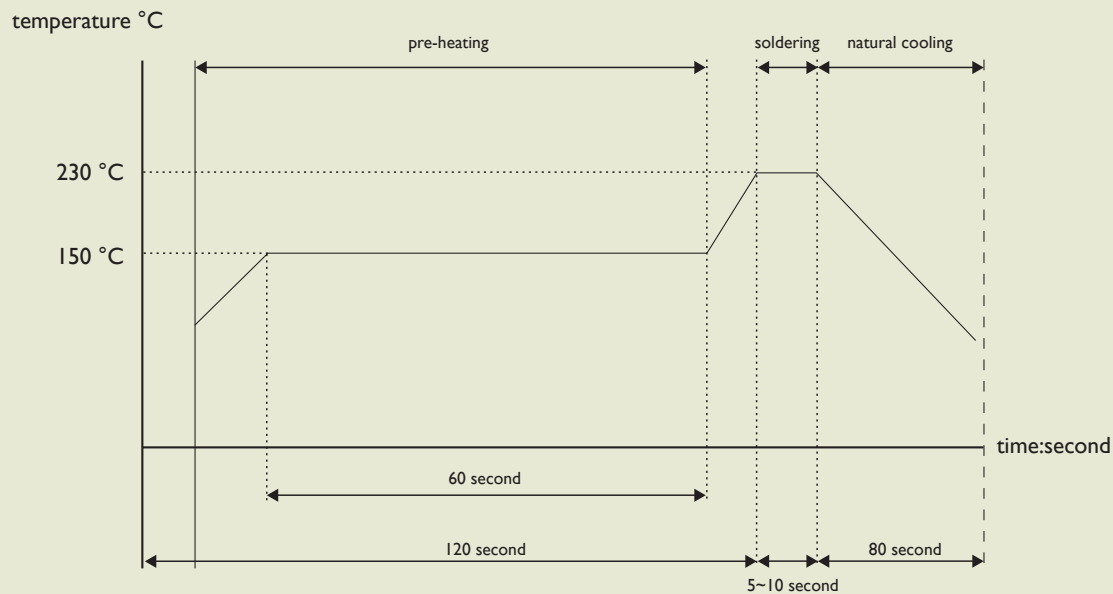
## Reel Dimensions



Dimensions : mm

| TYPE   | TAPE DIMENSIONS |      |      |   |   |     |      | REEL DIMENSIONS |    |    |     | QUANTITY/REEL |
|--------|-----------------|------|------|---|---|-----|------|-----------------|----|----|-----|---------------|
|        | A               | B    | T    | W | P | F   | K    | A               | B  | C  | D   |               |
| CT0805 | 1.85            | 2.45 | 0.23 | 8 | 4 | 3.5 | 1.00 | 178             | 60 | 12 | 1.5 | 2000          |

## for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



# HC Series

Lead-free / For High Current

## Wire Wound Ceramic Chip Inductors

Due to technical expertise of accurately winding skill, these chip inductors are designed as filtering, impedance matching, resonance and choke circuits for RF designer. The stand series as well as customer design to meet your needs of telecom & wireless products.

### APPLICATIONS

RF products for cellular phone, GPS receiver, Base Station, Repeater, Wireless LAN/ Mouse/ Keyboard/ earphone, remote control, security system and other RF modules.

### FEATURES

Meet SONY SS-00259's criteria for lead-free product.

Ceramic body and wire wound construction provide highest SRFs.

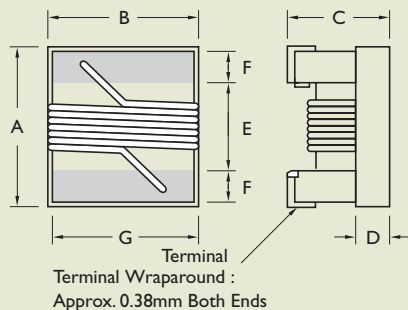
These ultra-compact inductors provided exceptional Q values, even at high frequencies.

Their ceramic construction delivers the highest possible SRFs as well as excellent Q values.

The non-magnetic coil form also assures the utmost in thermal stability, predictability and batch consistency.

The high current rating and low loss to fit the RF applications.

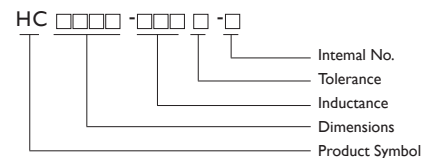
### SHAPES AND DIMENSIONS



| TYPE   | A                  | B                  | C                  | D       | E    | F    | G    |
|--------|--------------------|--------------------|--------------------|---------|------|------|------|
| HC0603 | 1.80 <sup>+0</sup> | 1.12 <sup>+0</sup> | 1.02 <sup>+0</sup> | 0.35Ref | 0.86 | 0.33 | 0.76 |



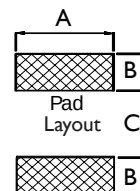
### PRODUCT IDENTIFICATION



• Tolerance : G=±2%, J=±5%, K=±10%

### RECOMMENDED PATTERN

Dimensions : mm



| TYPE   | A    | B    | C    |
|--------|------|------|------|
| HC0603 | 1.02 | 0.64 | 0.64 |



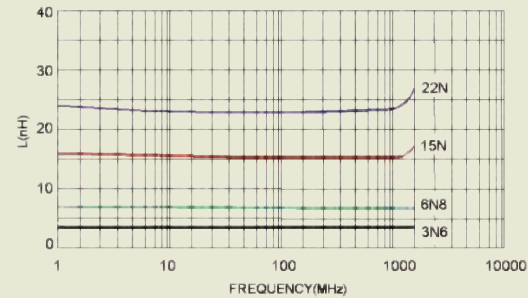
ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.        | Inductance<br>(nH) | Test Frequency<br>(Mhz) | Tolerance<br>(±%) | Q<br>Min | Test Frequency<br>(Mhz) | SRF Min<br>(Mhz) | RDC MAX<br>(Ω) | Irms Max<br>(mA) | Color  |
|-----------------|--------------------|-------------------------|-------------------|----------|-------------------------|------------------|----------------|------------------|--------|
| HC0603-1N6 □ -N | 1.6                | 250                     | 10/5              | 24       | 250                     | 12500            | 0.030          | 2400             | Black  |
| HC0603-3N6 □ -N | 3.6                | 250                     | 10/5              | 24       | 250                     | 5900             | 0.048          | 2300             | Brown  |
| HC0603-3N9 □ -N | 3.9                | 250                     | 10/5              | 25       | 250                     | 5900             | 0.054          | 2200             | Red    |
| HC0603-6N8 □ -N | 6.8                | 250                     | 10/5              | 35       | 250                     | 5800             | 0.054          | 2100             | Orange |
| HC0603-7N5 □ -N | 7.5                | 250                     | 10/5              | 35       | 250                     | 3700             | 0.059          | 2100             | Yellow |
| HC0603-10N □ -N | 10.0               | 250                     | 10/5/2            | 38       | 250                     | 3700             | 0.071          | 2000             | Green  |
| HC0603-12N □ -N | 12.0               | 250                     | 10/5/2            | 38       | 250                     | 3000             | 0.075          | 2000             | Blue   |
| HC0603-15N □ -N | 15.0               | 250                     | 10/5/2            | 38       | 250                     | 2800             | 0.080          | 1900             | Violet |
| HC0603-18N □ -N | 18.0               | 250                     | 10/5/2            | 40       | 250                     | 2800             | 0.099          | 1900             | Gray   |
| HC0603-22N □ -N | 22.0               | 250                     | 10/5/2            | 42       | 250                     | 2400             | 0.099          | 1800             | White  |
| HC0603-24N □ -N | 24.0               | 250                     | 10/5/2            | 42       | 250                     | 2400             | 0.105          | 1800             | Black  |

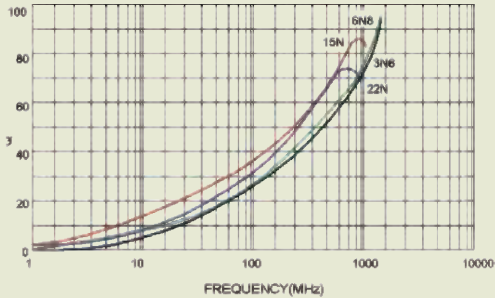
- Tolerance : G =±2% , J =±5% , K =±10%
- Packaging : Clear Tape and Reel (Standard)
- L/Q : Agilent / HP4291A+Agilent / HP16193A
- SRF : Agilent/HP8753D
- RDC : Digital Multimeter SC-7401
- Irms for a 15°C rise above 25°C ambient
- Operating Temperature Range from -40°C to 125°C

TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs Frequency

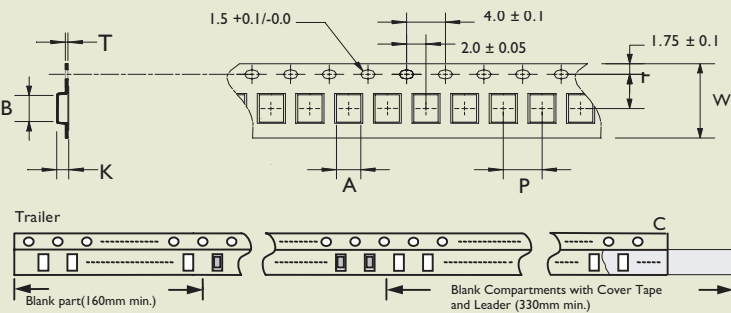


Typical Q vs Frequency

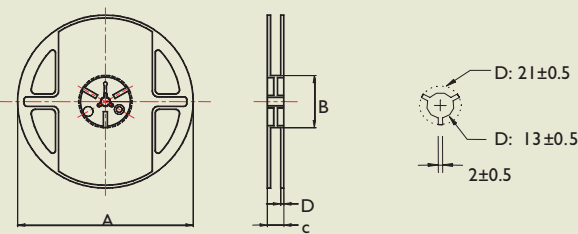


PACKAGING SPECIFICATIONS

Tape Dimensions



Reel Dimensions



Dimensions : mm

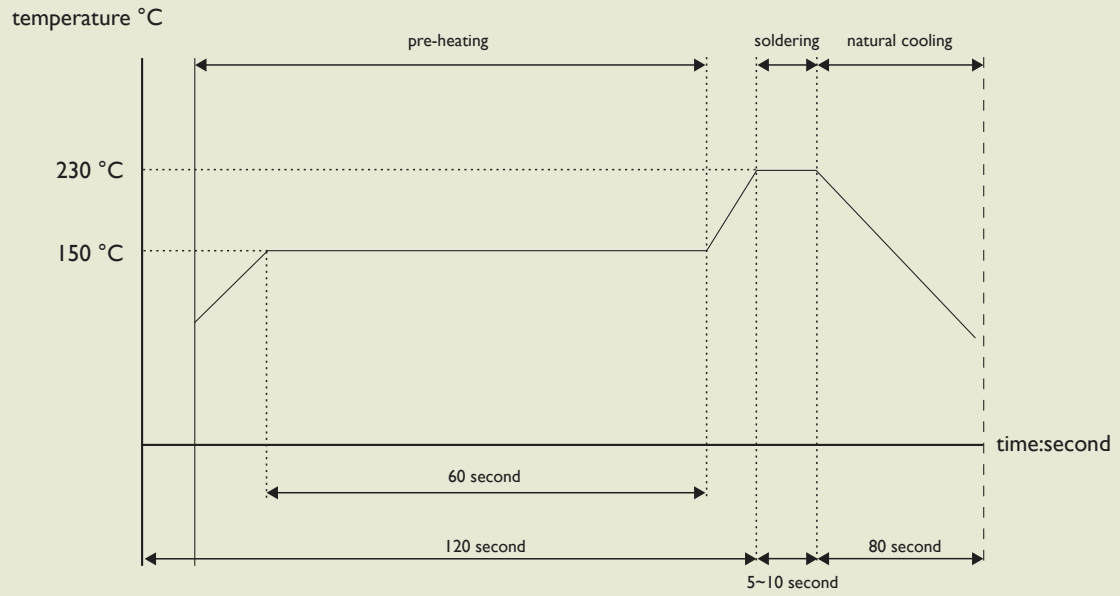
| TYPE   | TAPE DIMENSIONS |      |      |   |   |     |      | REEL DIMENSIONS |    |    |     | QUANTITY/REEL |
|--------|-----------------|------|------|---|---|-----|------|-----------------|----|----|-----|---------------|
|        | A               | B    | T    | W | P | F   | K    | A               | B  | C  | D   |               |
| HC0603 | 1.15            | 1.83 | 0.23 | 8 | 4 | 3.5 | 1.00 | 178             | 60 | 12 | 1.5 | 4000          |





## RECOMMEND SOLDERING CONDITIONS

for: CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



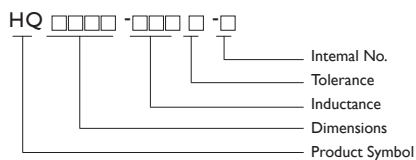
# Wire Wound Ceramic Chip Inductors

# HQ Series

Lead-free / High Q



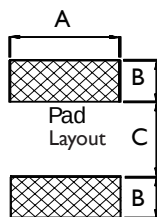
## PRODUCT IDENTIFICATION



• Tolerance :G=±2%, J=±5%, K=±10%

## RECOMMENDED PATTERN

Dimensions : mm



| TYPE   | A    | B    | C    |
|--------|------|------|------|
| HQ0805 | 1.78 | 1.02 | 0.76 |
| HQ1008 | 2.54 | 1.02 | 1.27 |

Due to technical expertise of accurately winding skill, these chip inductors are designed as filtering, impedance matching, resonance and choke circuits for RF designer. The stand series as well as customer design to meet your needs of telecom & wireless products.

## APPLICATIONS

RF products for cellular phone, GPS receiver, Base Station, Repeater, Wireless LAN/ Mouse/ Keyboard/ earphone, remote control, security system and other RF modules.

## FEATURES

Meet SONY SS-00259's criteria for lead-free product.

Ceramic body and wire wound construction provide highest SRFs.

These ultra-compact inductors provided exceptional Q values, even at high frequencies.

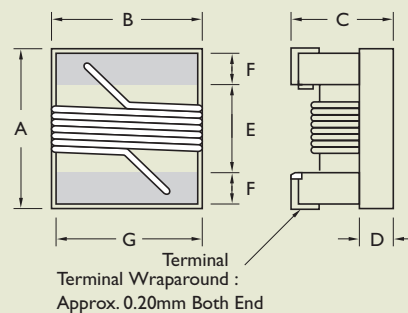
Their ceramic construction delivers the highest possible SRFs as well as excellent Q values.

The non-magnetic coil form also assures the utmost in thermal stability, predictability and batch consistency.

The high current rating and low loss to fit the RF applications.

## SHAPES AND DIMENSIONS

Dimensions : mm



| TYPE   | A                  | B                  | C                  | D       | E    | F    | G    |
|--------|--------------------|--------------------|--------------------|---------|------|------|------|
| HQ0805 | 2.29 <sup>+0</sup> | 1.73 <sup>+0</sup> | 1.52 <sup>+0</sup> | 0.50Ref | 1.02 | 0.44 | 1.27 |
| HQ1008 | 2.92 <sup>+0</sup> | 2.79 <sup>+0</sup> | 2.03 <sup>+0</sup> | 0.70Ref | 1.52 | 0.51 | 2.03 |



## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

| PART NO.        | Inductance<br>(nH) | Test Frequency<br>(MHz) | Tolerance<br>(±%) | Q<br>Min | Test Frequency<br>(MHz) | SRF Min<br>(MHz) | RDC MAX<br>(Ω) | Irms Max<br>(mA) | Color  |
|-----------------|--------------------|-------------------------|-------------------|----------|-------------------------|------------------|----------------|------------------|--------|
| HQ0805-2N5 □ -N | 2.5                | 250                     | 10/5              | 80       | 1500                    | 6000             | 0.020          | 1600             | Black  |
| HQ0805-5N6 □ -N | 5.6                | 250                     | 10/5              | 98       | 1500                    | 6000             | 0.035          | 1600             | Brown  |
| HQ0805-6N2 □ -N | 6.2                | 250                     | 10/5              | 88       | 1000                    | 4750             | 0.035          | 1600             | Red    |
| HQ0805-12N □ -N | 12.0               | 250                     | 10/5              | 80       | 1000                    | 3000             | 0.045          | 1600             | Orange |
| HQ0805-16N □ -N | 16.0               | 250                     | 10/5/2            | 72       | 500                     | 2950             | 0.060          | 1500             | Yellow |
| HQ0805-18N □ -N | 18.0               | 250                     | 10/5/2            | 75       | 500                     | 2550             | 0.060          | 1400             | Green  |
| HQ0805-20N □ -N | 20.0               | 250                     | 10/5/2            | 70       | 500                     | 2050             | 0.055          | 1400             | Blue   |
| HQ0805-27N □ -N | 27.0               | 250                     | 10/5/2            | 75       | 500                     | 2000             | 0.070          | 1300             | Violet |
| HQ0805-30N □ -N | 30.0               | 250                     | 10/5/2            | 65       | 500                     | 1950             | 0.095          | 1200             | Gray   |
| HQ0805-39N □ -N | 39.0               | 250                     | 10/5/2            | 65       | 500                     | 1600             | 0.110          | 1100             | White  |
| HQ0805-48N □ -N | 48.0               | 200                     | 10/5/2            | 65       | 500                     | 1400             | 0.095          | 1200             | Black  |
| HQ0805-51N □ -N | 51.0               | 200                     | 10/5/2            | 65       | 500                     | 1400             | 0.120          | 1000             | Brown  |

• When ordering, please specify tolerance and packaging code. Ex :HQ0805-12NJ-N

• Tolerance : G =±2% , J =±5% , K =±10%

• Packaging : Clear Tape and Reel (Standard)

• L/Q : Agilent / HP4291A+Agilent / HP16193A

• SRF : Agilent/HP8753D / Agilent/HP4291A

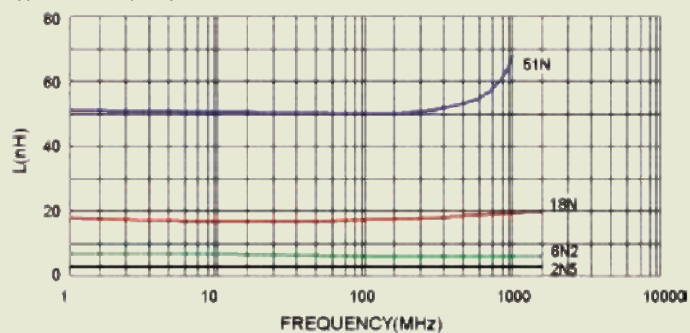
• RDC : Digital Multimeter SC-7401

• Irms for a 15°C rise above 25°C ambient

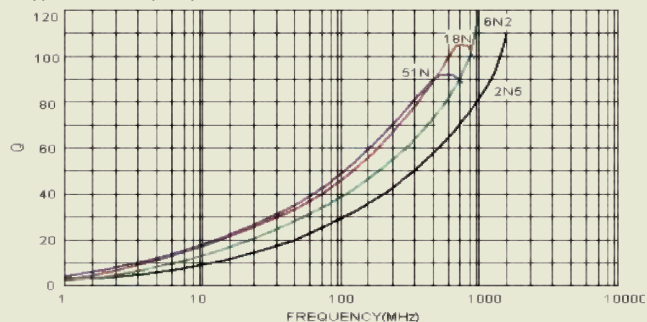
• Operating Temperature Range from -40°C to 125°C

## TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs Frequency



Typical Q vs Frequency

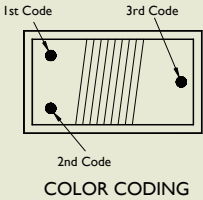




ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

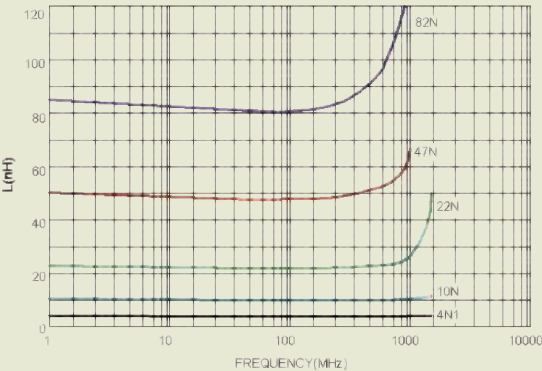
| PART NO.        | INDUCTANCE<br>(nH) | TEST<br>FREQUENCY<br>(MHz) | TOLERANCE<br>(±%) | Q<br>Min. | TEST<br>FREQUENCY (MHz) | SRF<br>(MHz) | Rdc<br>Max<br>(Ω) | Irms<br>Max<br>(mA) | COLOR CODING    |                 |                 |
|-----------------|--------------------|----------------------------|-------------------|-----------|-------------------------|--------------|-------------------|---------------------|-----------------|-----------------|-----------------|
|                 |                    |                            |                   |           |                         |              |                   |                     | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| HQ1008-4N1 □ -N | 4.1                | 50                         | 10/5              | 75        | 1500                    | 6000         | 0.05              | 1600                | Black           | Yellow          | Black           |
| HQ1008-10N □ -N | 10.0               | 50                         | 10/5              | 60        | 500                     | 3600         | 0.06              | 1600                | Brown           | Black           | Black           |
| HQ1008-12N □ -N | 12.0               | 50                         | 10/5/2            | 70        | 500                     | 2800         | 0.06              | 1500                | Brown           | Red             | Black           |
| HQ1008-18N □ -N | 18.0               | 50                         | 10/5/2            | 62        | 350                     | 2700         | 0.07              | 1400                | Brown           | Gray            | Black           |
| HQ1008-22N □ -N | 22.0               | 50                         | 10/5/2            | 62        | 350                     | 2050         | 0.07              | 1400                | Red             | Red             | Black           |
| HQ1008-33N □ -N | 33.0               | 50                         | 10/5/2            | 75        | 350                     | 1700         | 0.09              | 1300                | Orange          | Orange          | Black           |
| HQ1008-39N □ -N | 39.0               | 50                         | 10/5/2            | 75        | 350                     | 1300         | 0.09              | 1300                | Orange          | White           | Black           |
| HQ1008-47N □ -N | 47.0               | 50                         | 10/5/2            | 75        | 350                     | 1450         | 0.12              | 1200                | Yellow          | Violet          | Black           |
| HQ1008-56N □ -N | 56.0               | 50                         | 10/5/2            | 75        | 350                     | 1230         | 0.12              | 1200                | Green           | Blue            | Black           |
| HQ1008-68N □ -N | 68.0               | 50                         | 10/5/2            | 80        | 350                     | 1150         | 0.13              | 1100                | Blue            | Gray            | Black           |
| HQ1008-82N □ -N | 82.0               | 50                         | 10/5/2            | 80        | 350                     | 1060         | 0.16              | 1100                | Gray            | Red             | Black           |
| HQ1008-R10 □ -N | 100.0              | 50                         | 10/5/2            | 62        | 350                     | 820          | 0.16              | 1000                | Brown           | Black           | Brown           |
| HQ1008-R15 □ -N | 150.0              | 50                         | 10/5/2            | 55        | 350                     | 800          | 0.23              | 1000                | Brown           | Green           | Brown           |

- When ordering, please specify tolerance and packaging code. Ex : HQ1008-R10J-N
- Tolerance : G =±2% , J =±5% , K =±10%
- Packaging : Clear Tape and Reel (Standard)
- L/Q : Agilent / HP4291A+Agilent / HP16193A
- SRF : Agilent/HP8753D / Agilent/HP4291A
- RDC : Digital Multimeter SC-7401
- I rms for a 15°C rise above 25°C ambient
- Operating Temperature Range from -40°C to 125°C

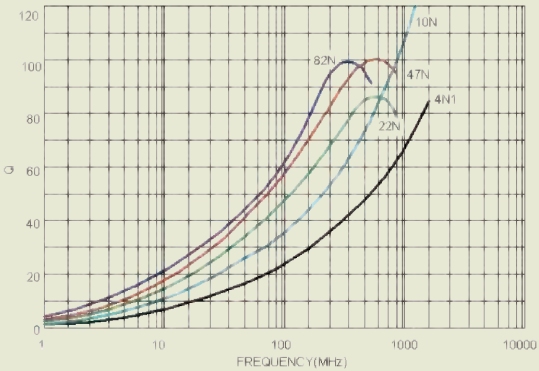


TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs Frequency

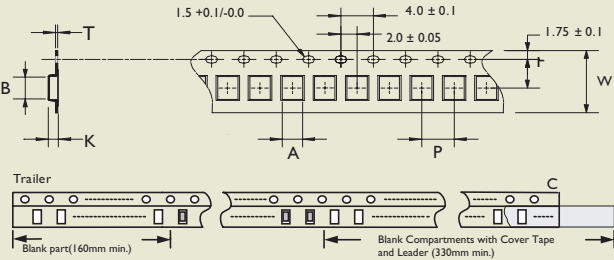


Typical Q vs Frequency

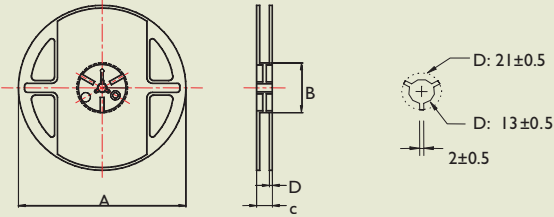


PACKAGING SPECIFICATIONS

Tape Dimensions



Reel Dimensions



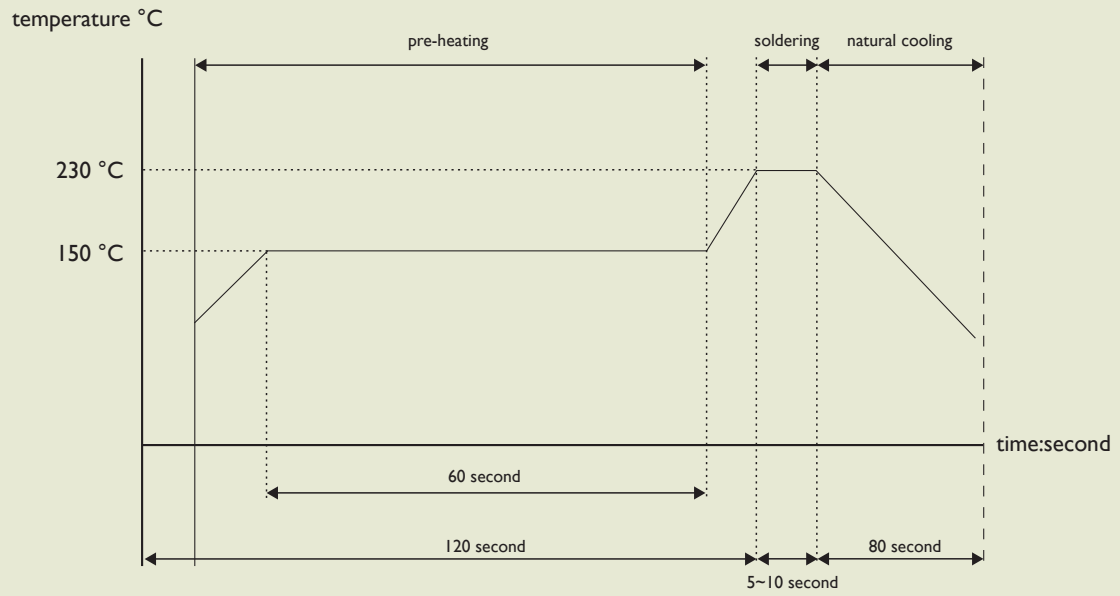
Dimensions : mm

| TYPE   | TAPE DIMENSIONS |      |      |   |   |     |      | REEL DIMENSIONS |    |    |     | QUANTITY/REEL |
|--------|-----------------|------|------|---|---|-----|------|-----------------|----|----|-----|---------------|
|        | A               | B    | T    | W | P | F   | K    | A               | B  | C  | D   |               |
| HQ0805 | 1.85            | 2.45 | 0.23 | 8 | 4 | 3.5 | 1.45 | 178             | 60 | 12 | 1.5 | 2000          |
| HQ1008 | 2.70            | 2.95 | 0.23 | 8 | 4 | 3.5 | 2.25 | 178             | 60 | 12 | 1.5 | 2000          |



## RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS



## DIP Power Inductors

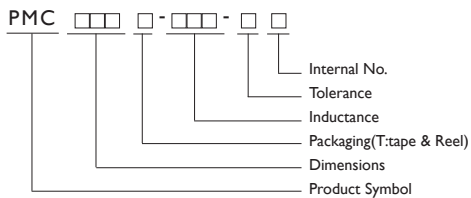
# PMC Series



### FEATURES

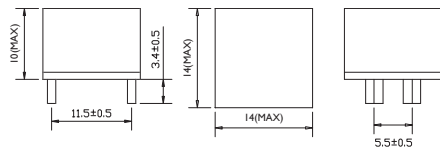
Magnetic shielded construction for high density board assembly  
 High performance excellent DC current characteristics  
 Large energy storage capacity  
 Up to 40 amps continuous  
 Custom designs available

### PRODUCT IDENTIFICATION

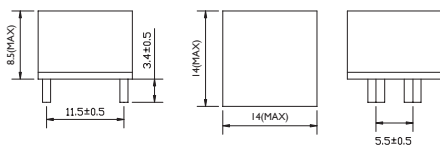


### SHAPE AND DIMENSIONS

PMCI29 Dimensions : mm



PMCI27



### ELECTRICAL CHARACTERISTICS : LEAD FREE & ROHS COMPLIANCE

| PART NO.       | INDUCTANCE at (μH) | TOLERANCE (±%) | TEST FREQUENCY (KHZ) | SER (KHZ) MIN. | DC RESISTANCE (mΩ) MAX | RATED CURRENT (A) MIN |
|----------------|--------------------|----------------|----------------------|----------------|------------------------|-----------------------|
| PMCI29B-R30M-N | 0.30               | 20%            | 100                  |                | 0.8                    | 60                    |
| PMCI29B-R50M-N | 0.50               | 20%            | 100                  |                | 1.0                    | 40                    |
| PMCI29B-R60M-N | 0.60               | 20%            | 100                  |                | 1.0                    | 40                    |
| PMCI29B-R90M-N | 0.90               | 20%            | 100                  |                | 1.8                    | 30                    |
| PMCI29B-1R2M-N | 1.20               | 20%            | 100                  |                | 2.0                    | 30                    |
| PMCI29B-1R5M-N | 1.50               | 20%            | 100                  |                | 2.2                    | 25                    |
| PMCI29B-2R2M-N | 2.20               | 20%            | 100                  |                | 3.0                    | 20                    |
| PMCI29B-3R3M-N | 3.30               | 20%            | 100                  |                | 3.0                    | 15                    |
| PMCI29B-4R7M-N | 4.70               | 20%            | 100                  |                | 5.0                    | 15                    |
| PMCI27B-R60M-N | 0.60               | 20%            | 100                  |                | 1.0                    | 30                    |
| PMCI27B-1R0M-N | 1.00               | 20%            | 100                  |                | 2.0                    | 30                    |
| PMCI27B-1R5M-N | 1.50               | 20%            | 100                  |                | 2.0                    | 25                    |
| PMCI27B-2R2M-N | 2.20               | 20%            | 100                  |                | 3.0                    | 20                    |
| PMCI27B-3R3M-N | 3.30               | 20%            | 100                  |                | 4.5                    | 20                    |

Note: \* at 25MHZ \*\* at 7.9MHZ

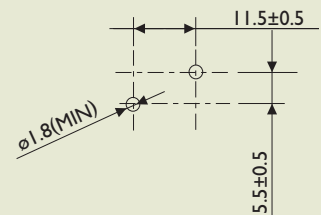
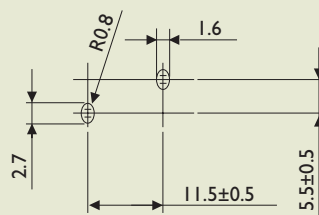
When ordering please specify tolerance and packaging code.

Ex : PMCI29- R60M- S Tolerance: M±20%, L±15%, K±10% Packaging: Clear Tape and Reel (Standard)

L Q : HP4287A SRF : HP8753D/E4991A RDC: Digital Multimeter SC-7401

Operating Temperature °C Range -40°C to +125°C

### LAY OUT



# SPMC Series

## SMT Power Inductors

### FEATURES

Magnetic shielded construction for high density board assembly  
 High performance excellent DC current characteristics  
 Large energy storage capacity  
 Up to 40 amps continuous  
 Custom designs available

### ELECTRICAL CHARACTERISTICS : LEAD FREE & ROHS COMPLIANCE

| PART NO.        | INDUCTANCE at (μH) | TOLERANCE (±%) | TEST FREQUENCY (KHZ) | SER (KHZ) MIN. | DC RESISTANCE (mΩ) MAX | RATED CURRENT (A) MIN |
|-----------------|--------------------|----------------|----------------------|----------------|------------------------|-----------------------|
| SPMC129T-R47M-N | 0.47               | 20%            | 100                  |                | 5.0                    | 40                    |
| SPMC129T-R50M-N | 0.50               | 20%            | 100                  |                | 3.0                    | 40                    |
| SPMC129T-1R0M-N | 1.00               | 20%            | 100                  |                | 2.8                    | 30                    |
| SPMC129T-1R2M-N | 1.20               | 20%            | 100                  |                | 2.0                    | 30                    |
| SPMC129T-1R5M-N | 1.50               | 20%            | 100                  |                | 2.0                    | 25                    |
| SPMC129T-4R7M-N | 1.70               | 20%            | 100                  |                | 1.0                    | 18                    |
| SPMC127T-R50M-N | 0.50               | 20%            | 100                  |                | 1.5                    | 35                    |
| SPMC127T-R60M-N | 0.60               | 20%            | 100                  |                | 1.2                    | 30                    |
| SPMC127T-1R0M-N | 1.00               | 20%            | 100                  |                | 2.0                    | 30                    |
| SPMC127T-1R5M-N | 1.50               | 20%            | 100                  |                | 3.3                    | 20                    |
| SPMC127T-4R7M-N | 4.70               | 20%            | 100                  |                | 8.0                    | 15                    |
| SPMC125T-R50M-N | 0.50               | 20%            | 100                  |                | 1.8                    | 30                    |
| SPMC125T-R60M-N | 0.60               | 20%            | 100                  |                | 1.8                    | 30                    |
| SPMC125T-R80M-N | 0.80               | 20%            | 100                  |                | 2.0                    | 30                    |

Note: \* at 25MHZ \*\* at 7.9MHZ

When ordering please specify tolerance and packaging code.

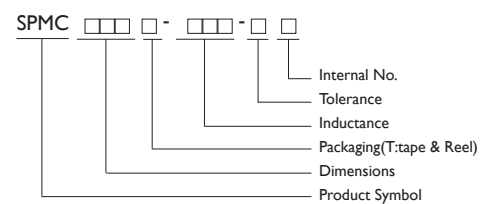
Ex : PMC129- R60M-S Tolerance: M±20%, L±15%, K±10% Packaging: Clear Tape and Reel (Standard)

L Q : HP4287A SRF : HP8753D/E4991A RDC: Digital Multimeter SC-7401

Operating Temperature °C Range -40°C to +125°C

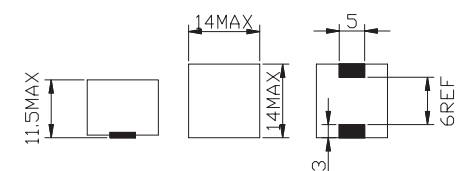


### PRODUCT IDENTIFICATION

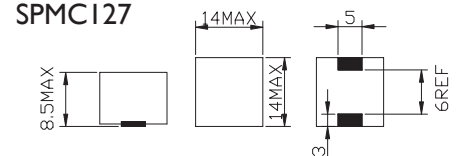


### SHAPE AND DIMENSIONS

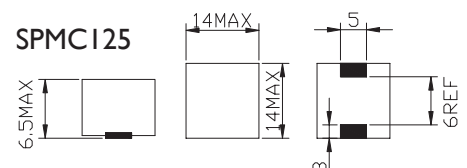
SPMC129 Dimensions : mm



SPMC127



SPMC125

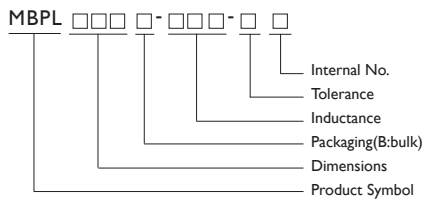


## DIP Power Inductors

## MBPL Series

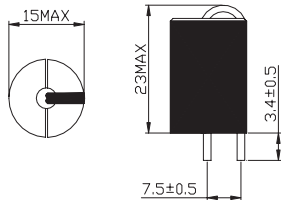


## PRODUCT IDENTIFICATION

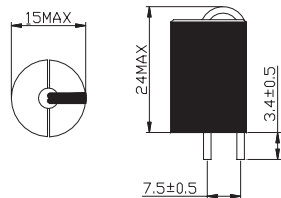


## SHAPE AND DIMENSIONS

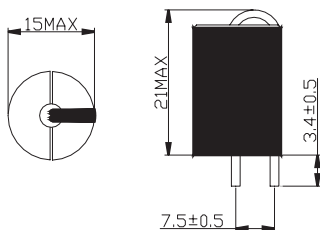
MBPL1319



MBPL1220



MBPL1217



Dimensions : mm

## FEATURES

Magnetic shielded construction for high density board assembly

High performance excellent DC current characteristics

Large energy storage capacity

Up to 40 amps continuous

Custom designs available

## ELECTRICAL CHARACTERISTICS MBPL SERIES

| PART NO.         | INDUCTANCE at (μH) | TOLERANCE (±%) | TEST FREQUENCY (KHZ) | SER (KHZ) MIN. | DC RESISTANCE (mΩ) MAX | RATED CURRENT (A) MIN |
|------------------|--------------------|----------------|----------------------|----------------|------------------------|-----------------------|
| MBPL1319B-R30M-N | 0.30               | 20%            | 100                  |                | 0.5                    | 60                    |
| MBPL1319B-R60M-N | 0.60               | 20%            | 100                  |                | 1.0                    | 60                    |
| MBPL1319B-R90M-N | 0.90               | 20%            | 100                  |                | 1.0                    | 40                    |
| MBPL1319B-IR2M-N | 1.20               | 20%            | 100                  |                | 1.0                    | 35                    |
| MBPL1220B-IR2M-N | 1.20               | 20%            | 100                  |                | 1.8                    | 30                    |
| MBPL1220B-IR5M-N | 1.50               | 20%            | 100                  |                | 1.8                    | 40                    |
| MBPL1217B-R30M-N | 0.30               | 20%            | 100                  |                | 0.7                    | 45                    |
| MBPL1217B-R60M-N | 0.60               | 20%            | 100                  |                | 1.5                    | 40                    |
| MBPL1217B-R90M-N | 0.90               | 20%            | 100                  |                | 1.5                    | 30                    |

Note: \* at 25MHZ \*\* at 7.9MHZ

When ordering please specify tolerance and packaging code.

Ex : PMC129- R60M-S Tolerance: M±20%, L±15%, K±10% Packaging: Clear Tape and Reel (Standard)

L Q : HP4287A SRF : HP8753D/E4991A RDC: Digital Multimeter SC-7401

Operating Temperature °C Range -40°C to +125°C