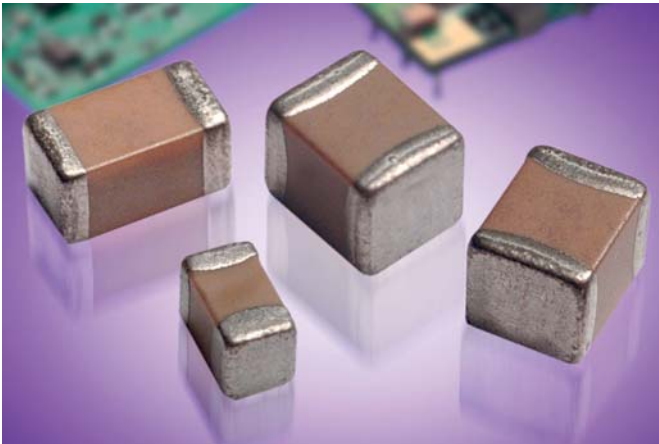


# MLCC Tin/Lead Termination “B”



## General Specifications



AVX Corporation will support those customers for commercial and military Multilayer Ceramic Capacitors with a termination consisting of 5% minimum lead. This termination is indicated by the use of a “B” in the 12th position of the AVX Catalog Part Number. This fulfills AVX’s commitment to providing a full range of products to our customers. AVX has provided in the following pages a full range of values that we are currently offering in this special “B” termination. Please contact the factory if you require additional information on our MLCC Tin/Lead Termination “B” products.

**Not RoHS Compliant**

### PART NUMBER (see page 2 for complete part number explanation)

| LD05                                                                                                                                                               | 5                                                                                                                     | A                                                                   | 101                                                                | J                                                                                                                                                                                                                                    | A                                         | B                                                                                             | 2                                                                                                                         | A                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <b>Size</b><br>LD02 - 0402<br>LD03 - 0603<br>LD04 - 0504*<br>LD05 - 0805<br>LD06 - 1206<br>LD10 - 1210<br>LD12 - 1812<br>LD13 - 1825<br>LD14 - 2225<br>LD20 - 2220 | <b>Voltage</b><br>6.3V = 6<br>10V = Z<br>16V = Y<br>25V = 3<br>35V = D<br>50V = 5<br>100V = 1<br>200V = 2<br>500V = 7 | <b>Dielectric</b><br>C0G (NP0) = A<br>X7R = C<br>X5R = D<br>X8R = F | <b>Capacitance Code (In pF)</b><br>2 Sig. Digits + Number of Zeros | <b>Capacitance Tolerance</b><br>B = $\pm 10$ pF (<10pF)<br>C = $\pm 25$ pF (<10pF)<br>D = $\pm 50$ pF (<10pF)<br>F = $\pm 1\%$ ( $\geq 10$ pF)<br>G = $\pm 2\%$ ( $\geq 10$ pF)<br>J = $\pm 5\%$<br>K = $\pm 10\%$<br>M = $\pm 20\%$ | <b>Failure Rate</b><br>A = Not Applicable | <b>Terminations</b><br>B = 5% min lead<br>X = FLEXITERM® with 5% min lead**<br><br>**X7R only | <b>Packaging</b><br>2 = 7" Reel<br>4 = 13" Reel<br>7 = Bulk Cass.<br>9 = Bulk<br><br><b>Contact Factory For Multiples</b> | <b>Special Code</b><br>A = Std. Product |

\*LD04 has the same CV ranges as LD03.

NOTE: Contact factory for availability of Tolerance Options for Specific Part Numbers.  
Contact factory for non-specified capacitance values.

See FLEXITERM® section for CV options

|     |                                        |
|-----|----------------------------------------|
| NP0 | Refer to page 4 for Electrical Graphs  |
| X7R | Refer to page 17 for Electrical Graphs |
| X7S | Refer to page 21 for Electrical Graphs |
| X5R | Refer to page 24 for Electrical Graphs |
| Y5V | Refer to page 27 for Electrical Graphs |

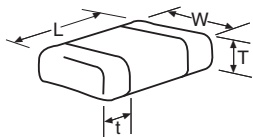
# MLCC Tin/Lead Termination “B”



## Capacitance Range (NP0 Dielectric)

### PREFERRED SIZES ARE SHADED

| SIZE           |                 | LD02                           |                 |                 | LD03                           |                 |                 |                 | LD05                           |                 |                 |                 |                 | LD06                           |    |    |     |     |     |
|----------------|-----------------|--------------------------------|-----------------|-----------------|--------------------------------|-----------------|-----------------|-----------------|--------------------------------|-----------------|-----------------|-----------------|-----------------|--------------------------------|----|----|-----|-----|-----|
| Soldering      |                 | Reflow/Wave                    |                 |                 | Reflow/Wave                    |                 |                 |                 | Reflow/Wave                    |                 |                 |                 |                 | Reflow/Wave                    |    |    |     |     |     |
| Packaging      |                 | All Paper                      |                 |                 | All Paper                      |                 |                 |                 | Paper/Embossed                 |                 |                 |                 |                 | Paper/Embossed                 |    |    |     |     |     |
| (L) Length     | mm<br>(in.)     | 1.00 ± 0.10<br>(0.040 ± 0.004) |                 |                 | 1.60 ± 0.15<br>(0.063 ± 0.006) |                 |                 |                 | 2.01 ± 0.20<br>(0.079 ± 0.008) |                 |                 |                 |                 | 3.20 ± 0.20<br>(0.126 ± 0.008) |    |    |     |     |     |
| (W) Width      | mm<br>(in.)     | 0.50 ± 0.10<br>(0.020 ± 0.004) |                 |                 | 0.81 ± 0.15<br>(0.032 ± 0.006) |                 |                 |                 | 1.25 ± 0.20<br>(0.049 ± 0.008) |                 |                 |                 |                 | 1.60 ± 0.20<br>(0.063 ± 0.008) |    |    |     |     |     |
| (t) Terminal   | mm<br>(in.)     | 0.25 ± 0.15<br>(0.010 ± 0.006) |                 |                 | 0.35 ± 0.15<br>(0.014 ± 0.006) |                 |                 |                 | 0.50 ± 0.25<br>(0.020 ± 0.010) |                 |                 |                 |                 | 0.50 ± 0.25<br>(0.020 ± 0.010) |    |    |     |     |     |
| WVDC           |                 | 16                             | 25              | 50              | 16                             | 25              | 50              | 100             | 16                             | 25              | 50              | 100             | 200             | 16                             | 25 | 50 | 100 | 200 | 500 |
| Cap<br>(pF)    | 0.5             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 1.0             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 1.2             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 1.5             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 1.8             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 2.2             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 2.7             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 3.3             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 3.9             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 4.7             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 5.6             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 6.8             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 8.2             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 10              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 12              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 15              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 18              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 22              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 27              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 33              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 39              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 47              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 56              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 68              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 82              | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 100             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 120             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 150             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 180             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | J   |
|                | 220             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | J               | J                              | J  | J  | J   | J   | M   |
|                | 270             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | M               | J                              | J  | J  | J   | J   | M   |
|                | 330             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | M               | J                              | J  | J  | J   | J   | M   |
|                | 390             | C                              | C               | C               | G                              | G               | G               | G               | J                              | J               | J               | J               | M               | J                              | J  | J  | J   | J   | M   |
|                | 470             | C                              | C               | C               | G                              | G               | G               |                 | J                              | J               | J               | J               | M               | J                              | J  | J  | J   | J   | M   |
|                | 560             |                                |                 |                 | G                              | G               | G               |                 | J                              | J               | J               | J               | M               | J                              | J  | J  | J   | J   | M   |
|                | 680             |                                |                 |                 | G                              | G               | G               |                 | J                              | J               | J               | J               |                 | J                              | J  | J  | J   | J   | P   |
|                | 820             |                                |                 |                 | G                              | G               | G               |                 | J                              | J               | J               | J               |                 | J                              | J  | J  | J   | M   |     |
|                | 1000            |                                |                 |                 | G                              | G               | G               |                 | J                              | J               | J               | J               |                 | J                              | J  | J  | J   | Q   |     |
|                | 1200            |                                |                 |                 |                                |                 |                 |                 | J                              | J               | J               |                 |                 | J                              | J  | J  | J   | Q   |     |
|                | 1500            |                                |                 |                 |                                |                 |                 |                 | J                              | J               | J               |                 |                 | J                              | J  | M  | Q   |     |     |
|                | 1800            |                                |                 |                 |                                |                 |                 |                 | J                              | J               | J               |                 |                 | J                              | J  | M  | P   |     |     |
|                | 2200            |                                |                 |                 |                                |                 |                 |                 | J                              | J               | N               |                 |                 | J                              | J  | M  | P   |     |     |
|                | 2700            |                                |                 |                 |                                |                 |                 |                 | J                              | J               | N               |                 |                 | J                              | J  | M  | P   |     |     |
|                | 3300            |                                |                 |                 |                                |                 |                 |                 | J                              | J               |                 |                 |                 | J                              | J  | M  | P   |     |     |
|                | 3900            |                                |                 |                 |                                |                 |                 |                 | J                              | J               |                 |                 |                 | J                              | J  | M  | P   |     |     |
|                | 4700            |                                |                 |                 |                                |                 |                 |                 | J                              | J               |                 |                 |                 | J                              | J  | M  | P   |     |     |
|                | 5600            |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 | J                              | J  | M  |     |     |     |
|                | 6800            |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 | M                              | M  |    |     |     |     |
|                | 8200            |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 | M                              | M  |    |     |     |     |
|                | 0.010           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
| Cap<br>(μF)    | 0.012           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.015           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.018           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.022           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.027           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.033           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.039           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.047           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.068           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.082           |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | 0.1             |                                |                 |                 |                                |                 |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |
|                | WVDC            | 16                             | 25              | 50              | 16                             | 25              | 50              | 100             | 16                             | 25              | 50              | 100             | 200             | 16                             | 25 | 50 | 100 | 200 | 500 |
| SIZE           |                 | LD02                           |                 |                 | LD03                           |                 |                 |                 | LD05                           |                 |                 |                 |                 | LD06                           |    |    |     |     |     |
| Letter         | A               | C                              | E               | G               | J                              | K               | M               | N               | P                              | Q               | X               | Y               | Z               |                                |    |    |     |     |     |
| Max. Thickness | 0.33<br>(0.013) | 0.56<br>(0.022)                | 0.71<br>(0.028) | 0.90<br>(0.035) | 0.94<br>(0.037)                | 1.02<br>(0.040) | 1.27<br>(0.050) | 1.40<br>(0.055) | 1.52<br>(0.060)                | 1.78<br>(0.070) | 2.29<br>(0.090) | 2.54<br>(0.100) | 2.79<br>(0.110) |                                |    |    |     |     |     |
|                | PAPER           |                                |                 |                 |                                | EMBOSSD         |                 |                 |                                |                 |                 |                 |                 |                                |    |    |     |     |     |



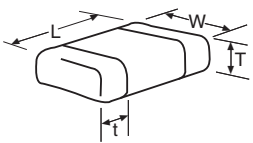
# MLCC Tin/Lead Termination “B”

## Capacitance Range (NP0 Dielectric)



### PREFERRED SIZES ARE SHADED

| SIZE           |       | LD10            |                 |                 |                 |                 | LD12            |                 |                 |                 |                 | LD13            |                 |                 | LD14            |     |     |
|----------------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|-----|
| Soldering      |       | Reflow Only     |                 |                 |                 |                 | Reflow Only     |                 |                 |                 |                 | Reflow Only     |                 |                 | Reflow Only     |     |     |
| Packaging      |       | Paper/Embossed  |                 |                 |                 |                 | All Embossed    |                 |                 |                 |                 | All Embossed    |                 |                 | All Embossed    |     |     |
| (L) Length     | mm    | 3.20 ± 0.20     |                 |                 |                 |                 | 4.50 ± 0.30     |                 |                 |                 |                 | 4.50 ± 0.30     |                 |                 | 5.72 ± 0.25     |     |     |
|                | (in.) | (0.126 ± 0.008) |                 |                 |                 |                 | (0.177 ± 0.012) |                 |                 |                 |                 | (0.177 ± 0.012) |                 |                 | (0.225 ± 0.010) |     |     |
| (W) Width      | mm    | 2.50 ± 0.20     |                 |                 |                 |                 | 3.20 ± 0.20     |                 |                 |                 |                 | 6.40 ± 0.40     |                 |                 | 6.35 ± 0.25     |     |     |
|                | (in.) | (0.098 ± 0.008) |                 |                 |                 |                 | (0.126 ± 0.008) |                 |                 |                 |                 | (0.252 ± 0.016) |                 |                 | (0.250 ± 0.010) |     |     |
| (t) Terminal   | mm    | 0.50 ± 0.25     |                 |                 |                 |                 | 0.61 ± 0.36     |                 |                 |                 |                 | 0.61 ± 0.36     |                 |                 | 0.64 ± 0.39     |     |     |
|                | (in.) | (0.020 ± 0.010) |                 |                 |                 |                 | (0.024 ± 0.014) |                 |                 |                 |                 | (0.024 ± 0.014) |                 |                 | (0.025 ± 0.015) |     |     |
| WVDC           |       | 25              | 50              | 100             | 200             | 500             | 25              | 50              | 100             | 200             | 500             | 50              | 100             | 200             | 50              | 100 | 200 |
| Cap (pF)       | 0.5   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 1.0   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 1.2   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 1.5   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 1.8   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 2.2   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 2.7   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 3.3   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 3.9   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 4.7   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 5.6   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 6.8   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 8.2   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 10    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 12    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 15    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 18    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 22    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 27    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 33    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 39    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 47    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 56    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 68    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 82    |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 100   |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 120   |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 150   |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 180   |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 220   |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 270   |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 330   |                 |                 |                 |                 | J               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 390   |                 |                 |                 |                 | M               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 470   |                 |                 |                 |                 | M               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 560   | J               | J               | J               | J               | M               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 680   | J               | J               | J               | J               | M               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 820   | J               | J               | J               | J               | M               |                 |                 |                 |                 |                 |                 |                 |                 |                 |     |     |
|                | 1000  | J               | J               | J               | J               | M               | K               | K               | K               | K               | M               | M               | M               | M               | M               | M   | P   |
|                | 1200  | J               | J               | J               | M               | M               | K               | K               | K               | K               | M               | M               | M               | M               | M               | M   | P   |
|                | 1500  | J               | J               | J               | M               | M               | K               | K               | K               | K               | M               | M               | M               | M               | M               | M   | P   |
|                | 1800  | J               | J               | J               | M               |                 | K               | K               | K               | K               | M               | M               | M               | M               | M               | M   | P   |
|                | 2200  | J               | J               | J               | Q               |                 | K               | K               | K               | K               | P               | M               | M               | M               | M               | M   | P   |
|                | 2700  | J               | J               | J               | Q               |                 | K               | K               | K               | P               | Q               | M               | M               | M               | M               | M   | P   |
|                | 3300  | J               | J               | J               |                 |                 | K               | K               | K               | P               | Q               | M               | M               | M               | M               | M   | P   |
|                | 3900  | J               | J               | M               |                 |                 | K               | K               | K               | P               | Q               | M               | M               | M               | M               | M   | P   |
|                | 4700  | J               | J               | M               |                 |                 | K               | K               | K               | P               | Q               | M               | M               | M               | M               | M   | P   |
|                | 5600  | J               | J               |                 |                 |                 | K               | K               | M               | P               | X               | M               | M               | M               | M               | M   | P   |
|                | 6800  | J               | J               |                 |                 |                 | K               | K               | M               | X               |                 | M               | M               | M               | M               | M   | P   |
|                | 8200  | J               | J               |                 |                 |                 | K               | K               | M               |                 |                 | M               | M               |                 | M               | M   | P   |
| Cap (µF)       | 0.010 | J               | J               |                 |                 |                 | K               | M               | M               |                 |                 | M               | M               |                 | M               | M   | P   |
|                | 0.012 | J               | J               |                 |                 |                 | K               | M               |                 |                 |                 | M               | M               |                 | M               | M   | P   |
|                | 0.015 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 | M               | M               |                 | M               | M   | Y   |
|                | 0.018 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 | P               | M               |                 | M               | M   | Y   |
|                | 0.022 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 | P               |                 |                 | M               | Y   | Y   |
|                | 0.027 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 | P               |                 |                 | P               | Y   | Y   |
|                | 0.033 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 | P               |                 |                 | P               |     |     |
|                | 0.039 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 | P               |                 |                 | P               |     |     |
|                | 0.047 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 | P               |                 |                 | P               |     |     |
|                | 0.068 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 |                 |                 |                 | P               |     |     |
|                | 0.082 |                 |                 |                 |                 |                 | M               | M               |                 |                 |                 |                 |                 |                 | Q               |     |     |
|                | 0.1   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 | Q               |     |     |
| WVDC           |       | 25              | 50              | 100             | 200             | 500             | 25              | 50              | 100             | 200             | 500             | 50              | 100             | 200             | 50              | 100 | 200 |
| SIZE           |       | LD10            |                 |                 |                 |                 | LD12            |                 |                 |                 |                 | LD13            |                 |                 | LD14            |     |     |
| Letter         |       | A               | C               | E               | G               | J               | K               | M               | N               | P               | Q               | X               | Y               | Z               |                 |     |     |
| Max. Thickness |       | 0.33<br>(0.013) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.90<br>(0.035) | 0.94<br>(0.037) | 1.02<br>(0.040) | 1.27<br>(0.050) | 1.40<br>(0.055) | 1.52<br>(0.060) | 1.78<br>(0.070) | 2.29<br>(0.090) | 2.54<br>(0.100) | 2.79<br>(0.110) |                 |     |     |
|                |       | PAPER           |                 |                 |                 |                 | EMBOSSED        |                 |                 |                 |                 |                 |                 |                 |                 |     |     |



# MLCC Tin/Lead Termination “B”



## Capacitance Range (X8R Dielectric)

| SIZE           |                 |                 |                 | LD03            |                 |                 | LD05            |                 |                 |                 | LD06            |                 |                 |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                | WVDC            |                 |                 | 25V             | 50V             | 25V             | 50V             | 25V             | 50V             | 25V             | 50V             |                 |                 |
| 271            | Cap             | 270             |                 | G               | G               |                 |                 |                 |                 |                 |                 |                 |                 |
| 331            | (pF)            | 330             |                 | G               | G               | J               | J               |                 |                 |                 |                 |                 |                 |
| 471            |                 | 470             |                 | G               | G               | J               | J               |                 |                 |                 |                 |                 |                 |
| 681            |                 | 680             |                 | G               | G               | J               | J               |                 |                 |                 |                 |                 |                 |
| 102            |                 | 1000            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 152            |                 | 1500            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 182            |                 | 1800            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 222            |                 | 2200            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 272            |                 | 2700            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 332            |                 | 3300            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 392            |                 | 3900            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 472            |                 | 4700            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 562            |                 | 5600            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 682            |                 | 6800            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 822            |                 | 8200            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 103            | Cap             | 0.01            |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 123            | (µF)            | 0.012           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 153            |                 | 0.015           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 183            |                 | 0.018           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 223            |                 | 0.022           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 273            |                 | 0.027           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 333            |                 | 0.033           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 393            |                 | 0.039           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 473            |                 | 0.047           |                 | G               | G               | J               | J               |                 |                 | J               | J               |                 |                 |
| 563            |                 | 0.056           |                 | G               |                 | N               | N               |                 |                 | M               | M               |                 |                 |
| 683            |                 | 0.068           |                 | G               |                 | N               | N               |                 |                 | M               | M               |                 |                 |
| 823            |                 | 0.082           |                 |                 |                 | N               | N               |                 |                 | M               | M               |                 |                 |
| 104            |                 | 0.1             |                 |                 |                 | N               | N               |                 |                 | M               | M               |                 |                 |
| 124            |                 | 0.12            |                 |                 |                 | N               | N               |                 |                 | M               | M               |                 |                 |
| 154            |                 | 0.15            |                 |                 |                 | N               | N               |                 |                 | M               | M               |                 |                 |
| 184            |                 | 0.18            |                 |                 |                 | N               |                 |                 |                 | M               | M               |                 |                 |
| 224            |                 | 0.22            |                 |                 |                 | N               |                 |                 |                 | M               | M               |                 |                 |
| 274            |                 | 0.27            |                 |                 |                 |                 |                 |                 |                 | M               | M               |                 |                 |
| 334            |                 | 0.33            |                 |                 |                 |                 |                 |                 |                 | M               | M               |                 |                 |
| 394            |                 | 0.39            |                 |                 |                 |                 |                 |                 |                 | M               |                 |                 |                 |
| 474            |                 | 0.47            |                 |                 |                 |                 |                 |                 |                 | M               |                 |                 |                 |
| 684            |                 | 0.68            |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| 824            |                 | 0.82            |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| 105            |                 | 1               |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
|                | WVDC            |                 |                 | 25V             | 50V             | 25V             | 50V             | 25V             | 50V             | 25V             | 50V             |                 |                 |
| SIZE           |                 |                 |                 | LD03            |                 |                 | LD05            |                 |                 |                 | LD06            |                 |                 |
| Letter         | A               | C               | E               | G               | J               | K               | M               | N               | P               | Q               | X               | Y               | Z               |
| Max. Thickness | 0.33<br>(0.013) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.90<br>(0.035) | 0.94<br>(0.037) | 1.02<br>(0.040) | 1.27<br>(0.050) | 1.40<br>(0.055) | 1.52<br>(0.060) | 1.78<br>(0.070) | 2.29<br>(0.090) | 2.54<br>(0.100) | 2.79<br>(0.110) |
|                | PAPER           |                 |                 |                 |                 | EMBOSSED        |                 |                 |                 |                 |                 |                 |                 |

# MLCC Tin/Lead Termination “B”



## Capacitance Range (X7R Dielectric)

PREFERRED SIZES ARE SHADED

| SIZE           |       | LD02            |                 |                 | LD03            |                 |                 |                 |                 |                 | LD05            |                 |                 |                 |    |    |     |     | LD06            |    |    |    |    |     |     |     |   |  |
|----------------|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|----|-----|-----|-----------------|----|----|----|----|-----|-----|-----|---|--|
| Soldering      |       | Reflow/Wave     |                 |                 | Reflow/Wave     |                 |                 |                 |                 |                 | Reflow/Wave     |                 |                 |                 |    |    |     |     | Reflow/Wave     |    |    |    |    |     |     |     |   |  |
| Packaging      |       | All Paper       |                 |                 | All Paper       |                 |                 |                 |                 |                 | Paper/Embossed  |                 |                 |                 |    |    |     |     | Paper/Embossed  |    |    |    |    |     |     |     |   |  |
| (L) Length     | mm    | 1.00 ± 0.10     |                 |                 | 1.60 ± 0.15     |                 |                 |                 |                 |                 | 2.01 ± 0.20     |                 |                 |                 |    |    |     |     | 3.20 ± 0.20     |    |    |    |    |     |     |     |   |  |
|                | (in.) | (0.040 ± 0.004) |                 |                 | (0.063 ± 0.006) |                 |                 |                 |                 |                 | (0.079 ± 0.008) |                 |                 |                 |    |    |     |     | (0.126 ± 0.008) |    |    |    |    |     |     |     |   |  |
| (W) Width      | mm    | 0.50 ± 0.10     |                 |                 | 0.81 ± 0.15     |                 |                 |                 |                 |                 | 1.25 ± 0.20     |                 |                 |                 |    |    |     |     | 1.60 ± 0.20     |    |    |    |    |     |     |     |   |  |
|                | (in.) | (0.020 ± 0.004) |                 |                 | (0.032 ± 0.006) |                 |                 |                 |                 |                 | (0.049 ± 0.008) |                 |                 |                 |    |    |     |     | (0.063 ± 0.008) |    |    |    |    |     |     |     |   |  |
| (t) Terminal   | mm    | 0.25 ± 0.15     |                 |                 | 0.35 ± 0.15     |                 |                 |                 |                 |                 | 0.50 ± 0.25     |                 |                 |                 |    |    |     |     | 0.50 ± 0.25     |    |    |    |    |     |     |     |   |  |
|                | (in.) | (0.010 ± 0.006) |                 |                 | (0.014 ± 0.006) |                 |                 |                 |                 |                 | (0.020 ± 0.010) |                 |                 |                 |    |    |     |     | (0.020 ± 0.010) |    |    |    |    |     |     |     |   |  |
| WDC            |       | 16              | 25              | 50              | 6.3             | 10              | 16              | 25              | 50              | 100             | 200             | 6.3             | 10              | 16              | 25 | 50 | 100 | 200 | 6.3             | 10 | 16 | 25 | 50 | 100 | 200 | 500 |   |  |
| Cap (pF)       | 100   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |
|                | 150   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |
|                | 220   |                 |                 | C               |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |
|                | 330   |                 |                 | C               |                 |                 |                 |                 | G               | G               | G               |                 | J               | J               | J  | J  | J   | J   | J               |    |    |    |    |     |     |     | K |  |
|                | 470   |                 |                 | C               |                 |                 |                 |                 | G               | G               | G               |                 | J               | J               | J  | J  | J   | J   | J               |    |    |    |    |     |     |     | K |  |
|                | 680   |                 |                 | C               |                 |                 |                 |                 | G               | G               | G               |                 | J               | J               | J  | J  | J   | J   | J               |    |    |    |    |     |     |     | K |  |
|                | 1000  |                 |                 | C               |                 |                 |                 |                 | G               | G               | G               | G               | J               | J               | J  | J  | J   | J   | J               |    |    |    |    |     |     |     | K |  |
|                | 1500  |                 |                 | C               |                 |                 |                 |                 | G               | G               | G               |                 | J               | J               | J  | J  | J   | J   | J               |    | J  | J  | J  | J   | J   | J   | M |  |
|                | 2200  |                 |                 | C               |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | J   | J   | J               |    | J  | J  | J  | J   | J   | J   | M |  |
|                | 3300  |                 |                 | C               | C               |                 |                 |                 | G               | G               | G               | J               | J               | J               | J  | J  | J   | J   | J               |    | J  | J  | J  | J   | J   | J   | M |  |
|                | 4700  |                 |                 | C               | C               |                 |                 |                 | G               | G               | G               | J               | J               | J               | J  | J  | J   | J   | J               |    | J  | J  | J  | J   | J   | J   | M |  |
|                | 6800  | C               | C               | C               |                 |                 |                 |                 | G               | G               | G               | J               | J               | J               | J  | J  | J   | J   | J               |    | J  | J  | J  | J   | J   | J   | P |  |
| Cap (μF)       | 0.010 | C               | C               |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | J   | J   | N               |    | J  | J  | J  | J   | J   | J   | P |  |
|                | 0.015 | C               | C               |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | J   | J   |                 | J  | J  | J  | J  | J   | J   | M   |   |  |
|                | 0.022 | C               |                 |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | J   | J   |                 | J  | J  | J  | J  | J   | J   | M   |   |  |
|                | 0.033 |                 |                 |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | N   | N   |                 | J  | J  | J  | J  | J   | J   | M   |   |  |
|                | 0.047 |                 |                 |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | N   | N   |                 | J  | J  | J  | J  | J   | J   | M   |   |  |
|                | 0.068 |                 |                 |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | N   | N   |                 | J  | J  | J  | J  | J   | J   | P   |   |  |
|                | 0.10  |                 | C*              |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | J  | N   | N   |                 | J  | J  | J  | J  | J   | J   | P   |   |  |
|                | 0.15  |                 |                 |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | J               | J  | N  | N   | N   |                 | J  | J  | J  | J  | J   | Q   |     |   |  |
|                | 0.22  |                 |                 |                 |                 |                 |                 |                 | G               | G               |                 | J               | J               | N               | N  | N  | N   | N   |                 | J  | J  | J  | J  | J   | Q   |     |   |  |
|                | 0.33  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 | N               | N               | N               | N  | N  | N   | N   |                 | J  | J  | M  | P  | Q   | Q   |     |   |  |
|                | 0.47  |                 |                 |                 |                 |                 |                 |                 | J*              |                 |                 | N               | N               | N               | N  | N  | N   | N   |                 | M  | M  | M  | P  | Q   | Q   |     |   |  |
|                | 0.68  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 | N               | N               | N               | N  |    |     |     |                 | M  | M  | M  | Q  | Q   | Q   |     |   |  |
|                | 1.0   |                 |                 |                 |                 |                 |                 |                 | J*              | J*              |                 |                 | N               | N               | N* |    |     |     |                 | M  | M  | Q  | Q  | Q   |     |     |   |  |
|                | 1.5   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 | P  | Q  | Q  | Q  |     |     |     |   |  |
|                | 2.2   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 | Q  | Q  | Q  |    |     |     |     |   |  |
|                | 3.3   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 | Q  | Q  | Q  |    |     |     |     |   |  |
|                | 4.7   |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 | P*              | P*              | P* |    |     |     |                 |    |    |    |    |     |     |     |   |  |
|                | 10    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 | Q* | Q* | Q* |    |     |     |     |   |  |
|                | 22    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 | Q* |    |    |    |     |     |     |   |  |
|                | 47    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |
| 100            |       |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |
| WDC            |       | 16              | 25              | 50              | 6.3             | 10              | 16              | 25              | 50              | 100             | 200             | 6.3             | 10              | 16              | 25 | 50 | 100 | 200 | 6.3             | 10 | 16 | 25 | 50 | 100 | 200 | 500 |   |  |
| SIZE           |       | LD02            |                 |                 | LD03            |                 |                 |                 |                 |                 | LD05            |                 |                 |                 |    |    |     |     | LD06            |    |    |    |    |     |     |     |   |  |
| Letter         |       | A               | C               | E               | G               | J               | K               | M               | N               | P               | Q               | X               | Y               | Z               |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |
| Max. Thickness |       | 0.33<br>(0.013) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.90<br>(0.035) | 0.94<br>(0.037) | 1.02<br>(0.040) | 1.27<br>(0.050) | 1.40<br>(0.055) | 1.52<br>(0.060) | 1.78<br>(0.070) | 2.29<br>(0.090) | 2.54<br>(0.100) | 2.79<br>(0.110) |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |
|                |       | PAPER           |                 |                 |                 |                 |                 | EMBOSS          |                 |                 |                 |                 |                 |                 |    |    |     |     |                 |    |    |    |    |     |     |     |   |  |

 = Under Development

# MLCC Tin/Lead Termination “B”

Capacitance Range (X7R Dielectric)



PREFERRED SIZES ARE SHADED

| SIZE           |             | LD10                           |                 |                 |                 |                 |                 |                 | LD12                           |                 |                 |                 | LD13                           |                 | LD20                           |    |     |     | LD14                           |     |
|----------------|-------------|--------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------------------------|-----------------|-----------------|-----------------|--------------------------------|-----------------|--------------------------------|----|-----|-----|--------------------------------|-----|
| Soldering      |             | Reflow Only                    |                 |                 |                 |                 |                 |                 | Reflow Only                    |                 |                 |                 | Reflow Only                    |                 | Reflow Only                    |    |     |     | Reflow Only                    |     |
| Packaging      |             | Paper/Embossed                 |                 |                 |                 |                 |                 |                 | All Embossed                   |                 |                 |                 | All Embossed                   |                 | All Embossed                   |    |     |     | All Embossed                   |     |
| (L) Length     | mm<br>(in.) | 3.20 ± 0.20<br>(0.126 ± 0.008) |                 |                 |                 |                 |                 |                 | 4.50 ± 0.30<br>(0.177 ± 0.012) |                 |                 |                 | 4.50 ± 0.30<br>(0.177 ± 0.012) |                 | 5.70 ± 0.40<br>(0.225 ± 0.016) |    |     |     | 5.72 ± 0.25<br>(0.225 ± 0.010) |     |
| (W) Width      | mm<br>(in.) | 2.50 ± 0.20<br>(0.098 ± 0.008) |                 |                 |                 |                 |                 |                 | 3.20 ± 0.20<br>(0.126 ± 0.008) |                 |                 |                 | 6.40 ± 0.40<br>(0.252 ± 0.016) |                 | 5.00 ± 0.40<br>(0.197 ± 0.016) |    |     |     | 6.35 ± 0.25<br>(0.250 ± 0.010) |     |
| (t) Terminal   | mm<br>(in.) | 0.50 ± 0.25<br>(0.020 ± 0.010) |                 |                 |                 |                 |                 |                 | 0.61 ± 0.36<br>(0.024 ± 0.014) |                 |                 |                 | 0.61 ± 0.36<br>(0.024 ± 0.014) |                 | 0.64 ± 0.39<br>(0.025 ± 0.015) |    |     |     | 0.64 ± 0.39<br>(0.025 ± 0.015) |     |
| WVDC           |             | 10                             | 16              | 25              | 50              | 100             | 200             | 500             | 50                             | 100             | 200             | 500             | 50                             | 100             | 25                             | 50 | 100 | 200 | 50                             | 100 |
| Cap (pF)       |             | 100                            |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 150                            |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 220                            |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 330                            |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 470                            |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 680                            |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 1000                           |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 1500                           | J               | J               | J               | J               | J               | J               | M                              |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 2200                           | J               | J               | J               | J               | J               | J               | M                              |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 3300                           | J               | J               | J               | J               | J               | J               | M                              |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 4700                           | J               | J               | J               | J               | J               | J               | M                              |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 6800                           | J               | J               | J               | J               | J               | J               | M                              |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
| Cap (μF)       |             | 0.010                          | J               | J               | J               | J               | J               | M               | K                              | K               | K               | K               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.015                          | J               | J               | J               | J               | J               | P               | K                              | K               | K               | P               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.022                          | J               | J               | J               | J               | J               | Q               | K                              | K               | K               | Z               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.033                          | J               | J               | J               | J               | J               | Q               | K                              | K               | K               | X               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.047                          | J               | J               | J               | J               | J               |                 | K                              | K               | K               | Z               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.068                          | J               | J               | J               | J               | J               | M               | K                              | K               | K               | Z               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.10                           | J               | J               | J               | J               | J               | M               | K                              | K               | K               | Z               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.15                           | J               | J               | J               | J               | M               | Z               | K                              | K               | K               | P               | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.22                           | J               | J               | J               | J               | P               | Z               | K                              | K               | P               |                 | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.33                           | J               | J               | J               | J               | Q               |                 | K                              | M               | X               |                 | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.47                           | M               | M               | M               | M               | Q               |                 | K                              | P               |                 |                 | M                              | M               |                                | X  | X   | X   | M                              | P   |
|                |             | 0.68                           | M               | M               | P               | X               | X               |                 | M                              | Q               |                 |                 | M                              | P               |                                | X  | X   |     | M                              | P   |
|                |             | 1.0                            | N               | N               | P               | X               | Z               |                 | M                              | X               |                 |                 | M                              | P               |                                | X  | X   |     | M                              | P   |
|                |             | 1.5                            | N               | N               | Z               | Z               | Z               |                 | Z                              | Z               |                 |                 | M                              |                 |                                | X  | X   |     | M                              | X   |
|                |             | 2.2                            | X               | X               | Z               | Z               | Z               |                 | Z                              | Z               |                 |                 |                                |                 |                                | X  | X   |     | M                              |     |
|                |             | 3.3                            | X               | X               | Z               | Z               |                 |                 | Z                              |                 |                 |                 |                                |                 |                                | X  | Z   |     |                                |     |
|                |             | 4.7                            | X               | X               | Z               | Z               |                 |                 | Z                              |                 |                 |                 |                                |                 |                                | X  | Z   |     |                                |     |
|                |             | 10                             | Z               | Z               | Z               |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                | Z  |     |     |                                |     |
|                |             | 22                             | Z               | Z               |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 | Z                              |    |     |     |                                |     |
|                |             | 47                             |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
|                |             | 100                            |                 |                 |                 |                 |                 |                 |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |
| WVDC           |             | 10                             | 16              | 25              | 50              | 100             | 200             | 500             | 50                             | 100             | 200             | 500             | 50                             | 100             | 25                             | 50 | 100 | 200 | 50                             | 100 |
| SIZE           |             | LD10                           |                 |                 |                 |                 |                 |                 | LD12                           |                 |                 |                 | LD13                           |                 | LD20                           |    |     |     | LD14                           |     |
| Letter         |             | A                              | C               | E               | G               | J               | K               | M               | N                              | P               | Q               | X               | Y                              | Z               |                                |    |     |     |                                |     |
| Max. Thickness |             | 0.33<br>(0.013)                | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.90<br>(0.035) | 0.94<br>(0.037) | 1.02<br>(0.040) | 1.27<br>(0.050) | 1.40<br>(0.055)                | 1.52<br>(0.060) | 1.78<br>(0.070) | 2.29<br>(0.090) | 2.54<br>(0.100)                | 2.79<br>(0.110) |                                |    |     |     |                                |     |
|                |             | PAPER                          |                 |                 |                 |                 |                 | EMBOSS          |                                |                 |                 |                 |                                |                 |                                |    |     |     |                                |     |



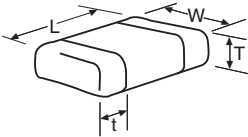
# MLCC Tin/Lead Termination “B”



## Capacitance Range (X5R Dielectric)

PREFERRED SIZES ARE SHADED

| SIZE         |             | LD02                           |     |    |    |    | LD03                           |   |     |    |    | LD05                           |    |    |     |    | LD06                           |    |    |    |     | LD10                           |    |    |    |    | LD12 |     |    |    |    |    |    |     |    |    |    |
|--------------|-------------|--------------------------------|-----|----|----|----|--------------------------------|---|-----|----|----|--------------------------------|----|----|-----|----|--------------------------------|----|----|----|-----|--------------------------------|----|----|----|----|------|-----|----|----|----|----|----|-----|----|----|----|
| Soldering    |             | Reflow/Wave                    |     |    |    |    | Reflow/Wave                    |   |     |    |    | Reflow/Wave                    |    |    |     |    | Reflow/Wave                    |    |    |    |     | Reflow/Wave                    |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
| Packaging    |             | All Paper                      |     |    |    |    | All Paper                      |   |     |    |    | Paper/Embossed                 |    |    |     |    | Paper/Embossed                 |    |    |    |     | Paper/Embossed                 |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
| (L) Length   | mm<br>(in.) | 1.00 ± 0.10<br>(0.040 ± 0.004) |     |    |    |    | 1.60 ± 0.15<br>(0.063 ± 0.006) |   |     |    |    | 2.01 ± 0.20<br>(0.079 ± 0.008) |    |    |     |    | 3.20 ± 0.20<br>(0.126 ± 0.008) |    |    |    |     | 3.20 ± 0.20<br>(0.126 ± 0.008) |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
| (W) Width    | mm<br>(in.) | 0.50 ± 0.10<br>(0.020 ± 0.004) |     |    |    |    | 0.81 ± 0.15<br>(0.032 ± 0.006) |   |     |    |    | 1.25 ± 0.20<br>(0.049 ± 0.008) |    |    |     |    | 1.60 ± 0.20<br>(0.063 ± 0.008) |    |    |    |     | 2.50 ± 0.20<br>(0.098 ± 0.008) |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
| (t) Terminal | mm<br>(in.) | 0.25 ± 0.15<br>(0.010 ± 0.006) |     |    |    |    | 0.35 ± 0.15<br>(0.014 ± 0.006) |   |     |    |    | 0.50 ± 0.25<br>(0.020 ± 0.010) |    |    |     |    | 0.50 ± 0.25<br>(0.020 ± 0.010) |    |    |    |     | 0.50 ± 0.25<br>(0.020 ± 0.010) |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
| WVDC         |             | 4                              | 6.3 | 10 | 16 | 25 | 50                             | 4 | 6.3 | 10 | 16 | 25                             | 35 | 50 | 6.3 | 10 | 16                             | 25 | 35 | 50 | 6.3 | 10                             | 16 | 25 | 35 | 50 | 4    | 6.3 | 10 | 16 | 25 | 35 | 50 | 6.3 | 10 | 25 | 50 |
| Cap (pF)     |             |                                |     |    |    |    |                                |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 100         |                                |     |    |    |    |                                |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 150         |                                |     |    |    |    |                                |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 220         |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 330         |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 470         |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 680         |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 1000        |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 1500        |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 2200        |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 3300        |                                |     |    |    |    | C                              |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 4700        |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 6800        |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
| Cap (μF)     |             |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.010       |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.015       |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.022       |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.033       |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.047       |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.068       |                                |     |    |    |    | C                              |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.10        |                                |     | C  | C  | C  |                                |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.15        |                                |     |    |    |    |                                |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.22        |                                |     | C* |    |    |                                |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.33        |                                |     |    |    |    |                                |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.47        | C*                             | C*  |    |    |    |                                |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 0.68        |                                |     |    |    |    |                                |   |     |    |    |                                |    | G  | G   |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 1.0         | C*                             | C*  | C* |    |    |                                |   |     |    |    |                                |    | G  | G   | J* |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 1.5         |                                |     |    |    |    |                                |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 2.2         | C*                             | C*  |    |    |    |                                |   |     |    |    |                                |    | G* | G*  | J* | J*                             |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 3.3         |                                |     |    |    |    |                                |   |     |    |    |                                |    | J* | J*  | J* | J*                             |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 4.7         | E*                             |     |    |    |    |                                |   |     |    |    |                                |    | J* | J*  | J* | J*                             |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 10          |                                |     |    |    |    |                                |   |     |    |    |                                |    | K* | J*  |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 22          |                                |     |    |    |    |                                |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 47          |                                |     |    |    |    |                                |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
|              | 100         |                                |     |    |    |    |                                |   |     |    |    |                                |    |    |     |    |                                |    |    |    |     |                                |    |    |    |    |      |     |    |    |    |    |    |     |    |    |    |
| WVDC         |             | 4                              | 6.3 | 10 | 16 | 25 | 50                             | 4 | 6.3 | 10 | 16 | 25                             | 35 | 50 | 6.3 | 10 | 16                             | 25 | 35 | 50 | 6.3 | 10                             | 16 | 25 | 35 | 50 | 4    | 6.3 | 10 | 16 | 25 | 35 | 50 | 6.3 | 10 | 25 | 50 |
| SIZE         |             | LD02                           |     |    |    |    | LD03                           |   |     |    |    | LD05                           |    |    |     |    | LD06                           |    |    |    |     | LD10                           |    |    |    |    | LD12 |     |    |    |    |    |    |     |    |    |    |



| Letter         | A               | C               | E               | G               | J               | K               | M               | N               | P               | Q               | X               | Y               | Z               |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Max. Thickness | 0.33<br>(0.013) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.90<br>(0.035) | 0.94<br>(0.037) | 1.02<br>(0.040) | 1.27<br>(0.050) | 1.40<br>(0.055) | 1.52<br>(0.060) | 1.78<br>(0.070) | 2.29<br>(0.090) | 2.54<br>(0.100) | 2.79<br>(0.110) |
| PAPER          |                 |                 |                 |                 |                 | EMBOSSED        |                 |                 |                 |                 |                 |                 |                 |

- = Under Development
- = \*Optional Specifications – Contact factory

NOTE: Contact factory for non-specified capacitance values