

### FEATURES

- EXPANDED VALUE RANGE & REDUCED CASE SIZES
- MOLDED CONSTRUCTION FOR HIGH SOLDERING HEAT RESISTANCE
- ELEVEN CASE SIZES (J, P, A2, A, B2, B, C2, C, V, D AND E)
- BOTH FLOW AND REFLOW SOLDERING APPLICABLE
- TAPE & REEL PACKAGING COMPATIBLE WITH AUTOMATIC PICK & PLACE EQUIPMENT

**RoHS Compliant**  
includes all homogeneous materials



\*See Part Number System for Details

### SPECIFICATIONS & PERFORMANCE CHARACTERISTICS

|                                                               |                                                                                             |     |     |          |    |    |          |    |    |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----|-----|----------|----|----|----------|----|----|
| Capacitance Range                                             | 0.1μF to 680μF                                                                              |     |     |          |    |    |          |    |    |
| Capacitance Tolerance                                         | ±10% (K), ±20% (M)                                                                          |     |     |          |    |    |          |    |    |
| Rated Voltage Range @ 85°C (Vdc)                              | 2.5                                                                                         | 4.0 | 6.3 | 10       | 16 | 20 | 25       | 35 | 50 |
| Surge Voltage Rating @ 85°C (Vdc)                             | 3.3                                                                                         | 5.2 | 8.0 | 13       | 20 | 28 | 33       | 46 | 85 |
| Derated Voltage @ 125°C (Vdc)                                 | 1.8                                                                                         | 2.5 | 4.0 | 6.3      | 10 | 13 | 16       | 22 | 32 |
| Operating Temperature Range                                   | -55°C to +125°C (voltage derating at temperatures over +85°C as referenced above)           |     |     |          |    |    |          |    |    |
| Dissipation Factor                                            | See Case Size and Specifications Table                                                      |     |     |          |    |    |          |    |    |
| Leakage Current @ +25°C<br>(After 5 Minutes at Rated Voltage) | Not More Than 0.01CV or 0.5μA, whichever is greater                                         |     |     |          |    |    |          |    |    |
| Capacitance Change<br>With Temperature                        | -55°C                                                                                       |     |     | +85°C    |    |    | +125°C   |    |    |
| A2, A, B2, B, C, D & E Case Size                              | ΔC - 12%                                                                                    |     |     | ΔC ± 12% |    |    | ΔC ± 12% |    |    |
| J & P Case Size                                               | ΔC - 20%                                                                                    |     |     | ΔC ± 20% |    |    | ΔC ± 20% |    |    |
| Resistance to Soldering Heat<br>(+260°C for 5 Seconds)        | ΔC ± 5%* Max, LC = Less than initial specification.<br>DF = Less than initial specification |     |     |          |    |    |          |    |    |
| Moisture Resistance<br>(500 hours; 90~95% RH @ 40°C)          | ΔC ± 5%* Max, LC = Less than initial specification.<br>DF = 150% of initial specification   |     |     |          |    |    |          |    |    |
| Temperature Cycling<br>(5 cycles; -55°C ~ +125°C)             | ΔC ± 5%* Max, LC = Less than initial specification.<br>DF = Less than initial specification |     |     |          |    |    |          |    |    |
| Load Life (at Rated Voltage)<br>(2,000 hours @ 85°C)          | ΔC ± 10%* Max, LC = 125% of initial specification.<br>DF = Less than initial specification  |     |     |          |    |    |          |    |    |
| Base Failure Rate (1.0Ω/Volt)                                 | 1%/1000 hours at 60% confidence level (+85°C)                                               |     |     |          |    |    |          |    |    |

\*±12% ~ ±15% for extended values, ±20% for J & P case size values

### RIPPLE CURRENT CORRECTION FACTOR:

| Ambient Temperature | 25°C | +55°C | +85°C | +105°C | +125°C |
|---------------------|------|-------|-------|--------|--------|
| Correction Factor   | 1.0  | 0.90  | 0.80  | 0.40   | 0.15   |

### RIPPLE CURRENT/VOLTAGE RATINGS:

$$I_{max.} = \sqrt{\frac{P_d}{ESR}} \quad V_{max.} = Z \cdot \sqrt{\frac{P_d}{ESR}}$$

$I_{max.}$  = Ripple Current rating (Arms)

$P_d$  = Power dissipation (watt)

$ESR$  = Equivalent series resistance (ohm)

$V_{max.}$  = Ripple voltage rating (Vrms)

$Z$  = The capacitors impedance (ohm) =  $\sqrt{(ESR)^2 + (XL - XC)^2}$

### POWER DISSIPATION @ 25°C (FREE AIR) & EQUIVALENT SERIES INDUCTANCE (ESL)

| Case Code | $P_d$ Max. (W) | ESL (nH) |
|-----------|----------------|----------|
| P         | 0.025          | 1.00     |
| A2        | 0.050          | 1.20     |
| A         | 0.070          | 1.20     |
| B2        | 0.070          | 1.50     |
| B         | 0.080          | 1.50     |
| C2        | 0.090          | -        |
| C         | 0.110          | 2.70     |
| V         | 0.125          | -        |
| D         | 0.150          | 3.00     |
| E         | 0.165          | 3.00     |

### PART NUMBER SYSTEM

NTC-T 106 M 16 TR B F

Series: NTC-T  
Capacitance Code: 106  
Tolerance Code: M = ±20%  
Voltage: 16  
Packaging: TR = Tape/Reel  
Case Code: B  
RoHS Compliant: F

### PRECAUTIONS

Please review the notes on correct use, safety and precautions found on our website at [www.niccomp.com/tantpc](http://www.niccomp.com/tantpc)  
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)



## STANDARD AND EXTENDED PRODUCT SPECIFICATIONS TABLE

\*Extended Case Sizes

| Part Number       | Cap.<br>(μF) | Voltage<br>(Vdc) | Dissipation Factor<br>@ 120Hz/20°C | Leakage Current (μA)<br>@ 20°C | ESR (ohms)<br>@ 100KHz/20°C | Ripple Current Rating (mA)<br>@ 100KHz/25°C |
|-------------------|--------------|------------------|------------------------------------|--------------------------------|-----------------------------|---------------------------------------------|
| NTC-T475K2.5TRA2F | 4.7*         | 2.5              | 8%                                 | 0.5                            | 18                          | 53                                          |
| NTC-T685M2.5TRPF  | 6.8          | 2.5              | 20%                                | 0.5                            | 20                          | 35                                          |
| NTC-T685K2.5TRA2F | 6.8*         | 2.5              | 8%                                 | 0.5                            | 16                          | 56                                          |
| NTC-T106M2.5TRJF  | 10           | 2.5              | 20%                                | 0.5                            | 6.5                         | 37                                          |
| NTC-T106M2.5TRPF  | 10           | 2.5              | 20%                                | 0.5                            | 12                          | 46                                          |
| NTC-T106K2.5TRA2F | 10*          | 2.5              | 8%                                 | 0.5                            | 15                          | 58                                          |
| NTC-T156M2.5TRJF  | 15           | 2.5              | 20%                                | 0.5                            | 8.0                         | 35                                          |
| NTC-T156K2.5TRA2F | 15*          | 2.5              | 12%                                | 0.5                            | 10                          | 71                                          |
| NTC-T156K2.5TRAF  | 15*          | 2.5              | 8%                                 | 0.5                            | 5.0                         | 118                                         |
| NTC-T226M2.5TRPF  | 22           | 2.5              | 20%                                | 0.55                           | 4.0                         | 79                                          |
| NTC-T226K2.5TRA2F | 22*          | 2.5              | 12%                                | 0.55                           | 10                          | 71                                          |
| NTC-T226K2.5TRAF  | 22*          | 2.5              | 8%                                 | 0.55                           | 4.0                         | 132                                         |
| NTC-T336M2.5TRPF  | 33           | 2.5              | 20%                                | 0.83                           | 5.0                         | 71                                          |
| NTC-T336K2.5TRA2F | 33           | 2.5              | 12%                                | 0.83                           | 4.0                         | 112                                         |
| NTC-T336K2.5TRAF  | 33*          | 2.5              | 8%                                 | 0.83                           | 3.5                         | 141                                         |
| NTC-T336K2.5TRB2F | 33*          | 2.5              | 8%                                 | 0.83                           | 3.5                         | 141                                         |
| NTC-T336K2.5TRBF  | 33*          | 2.5              | 8%                                 | 0.83                           | 3.0                         | 163                                         |
| NTC-T476M2.5TRPF  | 47           | 2.5              | 30%                                | 1.18                           | 6.0                         | 65                                          |
| NTC-T476K2.5TRA2F | 47           | 2.5              | 12%                                | 1.18                           | 4.5                         | 105                                         |
| NTC-T476K2.5TRAF  | 47*          | 2.5              | 12%                                | 1.18                           | 4.5                         | 125                                         |
| NTC-T476K2.5TRB2F | 47*          | 2.5              | 12%                                | 1.18                           | 4.5                         | 125                                         |
| NTC-T476K2.5TRBF  | 47           | 2.5              | 8%                                 | 1.18                           | 2.4                         | 183                                         |
| NTC-T686K2.5TRAF  | 68           | 2.5              | 18%                                | 1.7                            | 2.0                         | 187                                         |
| NTC-T686K2.5TRBF  | 68           | 2.5              | 8%                                 | 1.7                            | 2.0                         | 200                                         |
| NTC-T107K2.5TRAF  | 100          | 2.5              | 30%                                | 2.5                            | 2.0                         | 187                                         |
| NTC-T107K2.5TRB2F | 100          | 2.5              | 18%                                | 2.5                            | 2.0                         | 187                                         |
| NTC-T107K2.5TRBF  | 100          | 2.5              | 8%                                 | 2.5                            | 2.0                         | 200                                         |
| NTC-T157K2.5TRAF  | 150          | 2.5              | 30%                                | 3.75                           | 2.0                         | 187                                         |
| NTC-T157K2.5TRB2F | 150          | 2.5              | 20%                                | 3.75                           | 1.0                         | 265                                         |
| NTC-T157K2.5TRBF  | 150*         | 2.5              | 16%                                | 3.75                           | 5.0                         | 126                                         |
| NTC-T157K2.5TRC2F | 150          | 2.5              | 12%                                | 3.75                           | 0.8                         | 335                                         |
| NTC-T227K2.5TRB2F | 220          | 2.5              | 30%                                | 5.5                            | 1.0                         | 265                                         |
| NTC-T227K2.5TRBF  | 220          | 2.5              | 18%                                | 5.5                            | 2.0                         | 200                                         |
| NTC-T227K2.5TRC2F | 220          | 2.5              | 12%                                | 5.5                            | 0.8                         | 335                                         |
| NTC-T227K2.5TRCF  | 220*         | 2.5              | 12%                                | 5.5                            | 1.0                         | 332                                         |
| NTC-T337K2.5TRB2F | 330          | 2.5              | 30%                                | 8.25                           | 2.0                         | 187                                         |
| NTC-T337K2.5TRBF  | 330          | 2.5              | 25%                                | 8.25                           | 0.6                         | 365                                         |
| NTC-T337K2.5TRCF  | 330          | 2.5              | 16%                                | 8.25                           | 1.2                         | 303                                         |
| NTC-T477K2.5TRBF  | 470          | 2.5              | 35%                                | 11.75                          | 0.6                         | 365                                         |
| NTC-T477K2.5TRCF  | 470          | 2.5              | 18%                                | 11.75                          | 1.2                         | 303                                         |
| NTC-T477K2.5TRDF  | 470*         | 2.5              | 14%                                | 11.75                          | 0.7                         | 463                                         |
| NTC-T155M4TRPF    | 1.5          | 4                | 10%                                | 0.5                            | 25                          | 32                                          |
| NTC-T225M4TRPF    | 2.2          | 4                | 10%                                | 0.5                            | 25                          | 32                                          |
| NTC-T335M4TRPF    | 3.3          | 4                | 20%                                | 0.5                            | 20                          | 35                                          |
| NTC-T335K4TRA2F   | 3.3*         | 4                | 8%                                 | 0.5                            | 18                          | 53                                          |
| NTC-T335K4TRAF    | 3.3          | 4                | 4%                                 | 0.5                            | 8.0                         | 94                                          |
| NTC-T475M4TRPF    | 4.7          | 4                | 20%                                | 0.5                            | 12                          | 46                                          |
| NTC-T475K4TRA2F   | 4.7*         | 4                | 8%                                 | 0.5                            | 10                          | 71                                          |
| NTC-T475K4TRAF    | 4.7          | 4                | 4%                                 | 0.5                            | 7.5                         | 97                                          |
| NTC-T685M4TRJF    | 6.8          | 4                | 20%                                | 0.5                            | 7.5                         | 37                                          |
| NTC-T685M4TRPF    | 6.8          | 4                | 20%                                | 0.5                            | 12                          | 46                                          |
| NTC-T685K4TRA2F   | 6.8*         | 4                | 8%                                 | 0.5                            | 8.0                         | 79                                          |
| NTC-T685K4TRAF    | 6.8*         | 4                | 8%                                 | 0.5                            | 6.0                         | 108                                         |
| NTC-T106M4TRJF    | 10           | 4                | 20%                                | 0.5                            | 12                          | 29                                          |
| NTC-T106M4TRPF    | 10           | 4                | 20%                                | 0.5                            | 12                          | 46                                          |
| NTC-T106K4TRA2F   | 10*          | 4                | 12%                                | 0.5                            | 8.0                         | 79                                          |
| NTC-T106K4TRAF    | 10*          | 4                | 8%                                 | 0.5                            | 5.0                         | 118                                         |
| NTC-T106K4TRBF    | 10           | 4                | 6%                                 | 0.5                            | 3.5                         | 151                                         |

Note: 20% (M) tolerance parts available special order



### STANDARD AND EXTENDED PRODUCT SPECIFICATIONS TABLE

\*Extended Case Sizes

| Part Number       | Cap.<br>( $\mu$ F) | Voltage<br>(Vdc) | Dissipation Factor<br>@ 120Hz/20°C | Leakage Current ( $\mu$ A)<br>@ 20°C | ESR (ohms)<br>@ 100KHz/20°C | Ripple Current Rating (mA)<br>@ 100KHz/25°C |
|-------------------|--------------------|------------------|------------------------------------|--------------------------------------|-----------------------------|---------------------------------------------|
| NTC-T156M4TRPF    | 15                 | 4                | 20%                                | 0.6                                  | 5.0                         | 71                                          |
| NTC-T156K4TRA2F   | 15*                | 4                | 12%                                | 0.6                                  | 8.0                         | 79                                          |
| NTC-T156K4TRAF    | 15*                | 4                | 8%                                 | 0.6                                  | 4.0                         | 132                                         |
| NTC-T156K4TRBF    | 15*                | 4                | 8%                                 | 0.6                                  | 3.0                         | 163                                         |
| NTC-T226K4TRPF    | 22                 | 4                | 20%                                | 0.88                                 | 5.0                         | 71                                          |
| NTC-T226K4TRA2F   | 22                 | 4                | 12%                                | 0.88                                 | 4.0                         | 112                                         |
| NTC-T226K4TRAF    | 22*                | 4                | 8%                                 | 0.88                                 | 3.5                         | 141                                         |
| NTC-T226K4TRB2F   | 22*                | 4                | 8%                                 | 0.88                                 | 3.5                         | 141                                         |
| NTC-T226K4TRBF    | 22*                | 4                | 8%                                 | 0.88                                 | 2.8                         | 169                                         |
| NTC-T336M4TRPF    | 33                 | 4                | 20%                                | 1.32                                 | 4.0                         | 79                                          |
| NTC-T336K4TRA2F   | 33                 | 4                | 8%                                 | 1.32                                 | 4.5                         | 105                                         |
| NTC-T336K4TRAF    | 33*                | 4                | 10%                                | 1.32                                 | 4.5                         | 39                                          |
| NTC-T336K4TRB2F   | 33                 | 4                | 12%                                | 1.32                                 | 4.5                         | 125                                         |
| NTC-T336K4TRBF    | 33*                | 4                | 8%                                 | 1.32                                 | 2.4                         | 183                                         |
| NTC-T476M4TRPF    | 47                 | 4                | 30%                                | 1.88                                 | 3.0                         | 91                                          |
| NTC-T476K4TRA2F   | 47                 | 4                | 15%                                | 1.88                                 | 4.5                         | 105                                         |
| NTC-T476K4TRAF    | 47                 | 4                | 12%                                | 1.88                                 | 5.0                         | 118                                         |
| NTC-T476K4TRB2F   | 47                 | 4                | 12%                                | 1.88                                 | 3.0                         | 153                                         |
| NTC-T476K4TRBF    | 47*                | 4                | 8%                                 | 1.88                                 | 2.0                         | 200                                         |
| NTC-T476K4TRCF    | 47*                | 4                | 8%                                 | 1.88                                 | 1.8                         | 247                                         |
| NTC-T686K4TRAF    | 68                 | 4                | 12%                                | 2.72                                 | 2.5                         | 167                                         |
| NTC-T686K4TRB2F   | 68                 | 4                | 15%                                | 2.72                                 | 3.0                         | 153                                         |
| NTC-T686K4TRBF    | 68*                | 4                | 8%                                 | 2.72                                 | 2.0                         | 200                                         |
| NTC-T686K4TRCF    | 68*                | 4                | 8%                                 | 2.72                                 | 1.6                         | 262                                         |
| NTC-T107K4TRAF    | 100                | 4                | 30%                                | 4.0                                  | 2.0                         | 187                                         |
| NTC-T107K4TRB2F   | 100                | 4                | 20%                                | 4.0                                  | 1.3                         | 232                                         |
| NTC-T107K4TRBF    | 100*               | 4                | 12%                                | 4.0                                  | 2.0                         | 200                                         |
| NTC-T107K4TRC2F   | 100                | 4                | 10%                                | 4.0                                  | 0.8                         | 335                                         |
| NTC-T107K4TRCF    | 100*               | 4                | 8%                                 | 4.0                                  | 1.2                         | 303                                         |
| NTC-T107K4TRDF    | 100*               | 4                | 8%                                 | 4.0                                  | 0.8                         | 433                                         |
| NTC-T157K4TRBF    | 150                | 4                | 18%                                | 6.0                                  | 2.0                         | 200                                         |
| NTC-T157K4TRC2F   | 150                | 4                | 10%                                | 6.0                                  | 0.8                         | 335                                         |
| NTC-T157K4TRCF    | 150*               | 4                | 10%                                | 6.0                                  | 1.0                         | 332                                         |
| NTC-T157K4TRDF    | 150*               | 4                | 8%                                 | 6.0                                  | 0.7                         | 463                                         |
| NTC-T227K4TRBF    | 220                | 4                | 18%                                | 8.8                                  | 0.5                         | 400                                         |
| NTC-T227K4TRCF    | 220                | 4                | 12%                                | 8.8                                  | 1.2                         | 303                                         |
| NTC-T227K4TRDF    | 220*               | 4                | 8%                                 | 8.8                                  | 0.7                         | 463                                         |
| NTC-T337K4TRCF    | 330                | 4                | 14%                                | 13.2                                 | 1.2                         | 303                                         |
| NTC-T337K4TRVF    | 330                | 4                | 12%                                | 13.2                                 | 0.5                         | 500                                         |
| NTC-T337K4TRDF    | 330*               | 4                | 14%                                | 13.2                                 | 0.7                         | 463                                         |
| NTC-T477K4TRDF    | 470                | 4                | 16%                                | 18.8                                 | 1.0                         | 387                                         |
| NTC-T687K4TRDF    | 680*               | 4                | 25%                                | 27.2                                 | 0.3                         | 707                                         |
| NTC-T105M6.3TRPF  | 1.0                | 6.3              | 10%                                | 0.5                                  | 25                          | 32                                          |
| NTC-T155M6.3TRPF  | 1.5                | 6.3              | 10%                                | 0.5                                  | 25                          | 32                                          |
| NTC-T225M6.3TRJF  | 2.2                | 6.3              | 20%                                | 0.5                                  | 20                          | 22                                          |
| NTC-T225M6.3TRPF  | 2.2                | 6.3              | 20%                                | 0.5                                  | 20                          | 35                                          |
| NTC-T225K6.3TRA2F | 2.2*               | 6.3              | 8%                                 | 0.5                                  | 18                          | 53                                          |
| NTC-T225K6.3TRAF  | 2.2                | 6.3              | 4%                                 | 0.5                                  | 8.0                         | 94                                          |
| NTC-T335M6.3TRJF  | 3.3                | 6.3              | 20%                                | 0.5                                  | 20                          | 22                                          |
| NTC-T335M6.3TRPF  | 3.3                | 6.3              | 20%                                | 0.5                                  | 13                          | 44                                          |
| NTC-T335K6.3TRA2F | 3.3*               | 6.3              | 8%                                 | 0.5                                  | 9.0                         | 75                                          |
| NTC-T335K6.3TRAF  | 3.3                | 6.3              | 4%                                 | 0.5                                  | 7.5                         | 97                                          |
| NTC-T475M6.3TRJF  | 4.7                | 6.3              | 20%                                | 0.5                                  | 15                          | 26                                          |
| NTC-T475M6.3TRPF  | 4.7                | 6.3              | 20%                                | 0.5                                  | 12                          | 29                                          |
| NTC-T475K6.3TRA2F | 4.7*               | 6.3              | 8%                                 | 0.5                                  | 7.5                         | 37                                          |
| NTC-T475K6.3TRAF  | 4.7*               | 6.3              | 8%                                 | 0.5                                  | 6.0                         | 41                                          |
| NTC-T685M6.3TRJF  | 6.8                | 6.3              | 20%                                | 0.5                                  | 7.0                         | 38                                          |
| NTC-T685K6.3TRPF  | 6.8                | 6.3              | 20%                                | 0.5                                  | 12                          | 29                                          |
| NTC-T685K6.3TRA2F | 6.8*               | 6.3              | 8%                                 | 0.5                                  | 7.5                         | 37                                          |

Note: 20% (M) tolerance parts available special order



### STANDARD AND EXTENDED PRODUCT SPECIFICATIONS TABLE

\*Extended Case Sizes

| Part Number       | Cap.<br>( $\mu$ F) | Voltage<br>(Vdc) | Dissipation Factor<br>@ 120Hz/20°C | Leakage Current ( $\mu$ A)<br>@ 20°C | ESR (ohms)<br>@ 100KHz/20°C | Ripple Current Rating (mA)<br>@ 100KHz/25°C |
|-------------------|--------------------|------------------|------------------------------------|--------------------------------------|-----------------------------|---------------------------------------------|
| NTC-T685K6.3TRAF  | 6.8*               | 6.3              | 8%                                 | 0.5                                  | 5.0                         | 45                                          |
| NTC-T685K6.3TRBF  | 6.8*               | 6.3              | 6%                                 | 0.5                                  | 3.5                         | 53                                          |
| NTC-T106M6.3TRJF  | 10                 | 6.3              | 20%                                | 0.63                                 | 8.0                         | 35                                          |
| NTC-T106M6.3TRPF  | 10                 | 6.3              | 20%                                | 0.63                                 | 12                          | 46                                          |
| NTC-T106K6.3TRA2F | 10*                | 6.3              | 8%                                 | 0.63                                 | 10                          | 71                                          |
| NTC-T106K6.3TRAF  | 10*                | 6.3              | 8%                                 | 0.63                                 | 4.0                         | 132                                         |
| NTC-T106K6.3TRBF  | 10                 | 6.3              | 6%                                 | 0.63                                 | 3.0                         | 163                                         |
| NTC-T156M6.3TRPF  | 15                 | 6.3              | 20%                                | 0.95                                 | 5.0                         | 71                                          |
| NTC-T156K6.3TRA2F | 15                 | 6.3              | 12%                                | 0.95                                 | 4.0                         | 79                                          |
| NTC-T156K6.3TRAF  | 15*                | 6.3              | 8%                                 | 0.95                                 | 3.5                         | 85                                          |
| NTC-T156K6.3TRB2F | 15*                | 6.3              | 8%                                 | 0.95                                 | 3.5                         | 85                                          |
| NTC-T156K6.3TRBF  | 15*                | 6.3              | 8%                                 | 0.95                                 | 2.5                         | 100                                         |
| NTC-T226M6.3TRPF  | 22                 | 6.3              | 20%                                | 1.39                                 | 4.0                         | 79                                          |
| NTC-T226K6.3TRA2F | 22                 | 6.3              | 12%                                | 1.39                                 | 2.8                         | 134                                         |
| NTC-T226K6.3TRAF  | 22*                | 6.3              | 10%                                | 1.39                                 | 4.5                         | 125                                         |
| NTC-T226K6.3TRB2F | 22*                | 6.3              | 12%                                | 1.39                                 | 4.5                         | 125                                         |
| NTC-T226K6.3TRBF  | 22*                | 6.3              | 8%                                 | 1.39                                 | 2.3                         | 187                                         |
| NTC-T226K6.3TRCF  | 22                 | 6.3              | 6%                                 | 1.39                                 | 1.8                         | 247                                         |
| NTC-T336K6.3TRA2F | 33                 | 6.3              | 18%                                | 2.08                                 | 3.0                         | 129                                         |
| NTC-T336K6.3TRAF  | 33                 | 6.3              | 12%                                | 2.08                                 | 5.0                         | 118                                         |
| NTC-T336K6.3TRB2F | 33                 | 6.3              | 12%                                | 2.08                                 | 1.7                         | 203                                         |
| NTC-T336K6.3TRBF  | 33*                | 6.3              | 8%                                 | 2.08                                 | 2.0                         | 200                                         |
| NTC-T336K6.3TRCF  | 33*                | 6.3              | 8%                                 | 2.08                                 | 1.8                         | 247                                         |
| NTC-T476K6.3TRAF  | 47                 | 6.3              | 12%                                | 2.96                                 | 2.0                         | 187                                         |
| NTC-T476K6.3TRB2F | 47                 | 6.3              | 12%                                | 2.96                                 | 3.0                         | 153                                         |
| NTC-T476K6.3TRBF  | 47*                | 6.3              | 8%                                 | 2.96                                 | 2.0                         | 200                                         |
| NTC-T476K6.3TRCF  | 47*                | 6.3              | 8%                                 | 2.96                                 | 1.6                         | 262                                         |
| NTC-T686K6.3TRAF  | 68                 | 6.3              | 30%                                | 4.29                                 | 2.0                         | 187                                         |
| NTC-T686K6.3TRB2F | 68                 | 6.3              | 20%                                | 4.29                                 | 2.0                         | 187                                         |
| NTC-T686K6.3TRBF  | 68*                | 6.3              | 10%                                | 4.29                                 | 1.8                         | 211                                         |
| NTC-T686K6.3TRC2F | 68                 | 6.3              | 10%                                | 4.29                                 | 0.8                         | 335                                         |
| NTC-T686K6.3TRCF  | 68*                | 6.3              | 8%                                 | 4.29                                 | 1.2                         | 303                                         |
| NTC-T686K6.3TRDF  | 68*                | 6.3              | 8%                                 | 4.29                                 | 0.8                         | 433                                         |
| NTC-T107K6.3TRB2F | 100                | 6.3              | 20%                                | 6.3                                  | 1.3                         | 232                                         |
| NTC-T107K6.3TRBF  | 100                | 6.3              | 12%                                | 6.3                                  | 1.2                         | 258                                         |
| NTC-T107K6.3TRC2F | 100                | 6.3              | 10%                                | 6.3                                  | 0.8                         | 335                                         |
| NTC-T107K6.3TRCF  | 100*               | 6.3              | 10%                                | 6.3                                  | 0.9                         | 350                                         |
| NTC-T107K6.3TRDF  | 100                | 6.3              | 8%                                 | 6.3                                  | 0.8                         | 433                                         |
| NTC-T157K6.3TRBF  | 150                | 6.3              | 12%                                | 9.45                                 | 1.0                         | 283                                         |
| NTC-T157K6.3TRCF  | 150                | 6.3              | 10%                                | 9.45                                 | 1.2                         | 303                                         |
| NTC-T157K6.3TRDF  | 150*               | 6.3              | 8%                                 | 9.45                                 | 0.7                         | 463                                         |
| NTC-T227K6.3TRBF  | 220                | 6.3              | 18%                                | 13.9                                 | 0.5                         | 400                                         |
| NTC-T227K6.3TRCF  | 220                | 6.3              | 14%                                | 13.9                                 | 1.2                         | 303                                         |
| NTC-T227K6.3TRVF  | 220                | 6.3              | 12%                                | 13.9                                 | 0.5                         | 500                                         |
| NTC-T227K6.3TRDF  | 220*               | 6.3              | 12%                                | 13.9                                 | 0.8                         | 433                                         |
| NTC-T337K6.3TRVF  | 330                | 6.3              | 14%                                | 20.8                                 | 0.5                         | 500                                         |
| NTC-T337K6.3TRDF  | 330                | 6.3              | 14%                                | 20.8                                 | 1.0                         | 387                                         |
| NTC-T477K6.3TRDF  | 470                | 6.3              | 20%                                | 29.6                                 | 0.3                         | 707                                         |
| NTC-T105M10TRPF   | 1                  | 10               | 10%                                | 0.5                                  | 25                          | 32                                          |
| NTC-T155M10TRJF   | 1.5                | 10               | 20%                                | 0.5                                  | 30                          | 18                                          |
| NTC-T155M10TRPF   | 1.5                | 10               | 20%                                | 0.5                                  | 25                          | 32                                          |
| NTC-T155K10TRA2F  | 1.5*               | 10               | 8%                                 | 0.5                                  | 20                          | 50                                          |
| NTC-T155K10TRAF   | 1.5                | 10               | 4%                                 | 0.5                                  | 8.0                         | 94                                          |
| NTC-T225M10TRJF   | 2.2                | 10               | 20%                                | 0.5                                  | 30                          | 18                                          |
| NTC-T225M10TRPF   | 2.2                | 10               | 20%                                | 0.5                                  | 20                          | 35                                          |
| NTC-T225K10TRA2F  | 2.2*               | 10               | 8%                                 | 0.5                                  | 12                          | 65                                          |
| NTC-T225K10TRAF   | 2.2                | 10               | 8%                                 | 0.5                                  | 5.5                         | 113                                         |
| NTC-T335M10TRJF   | 3.3                | 10               | 20%                                | 0.5                                  | 25                          | 20                                          |
| NTC-T335M10TRPF   | 3.3                | 10               | 20%                                | 0.5                                  | 20                          | 35                                          |

Note: 20% (M) tolerance parts available special order



### STANDARD AND EXTENDED PRODUCT SPECIFICATIONS TABLE

\*Extended Case Sizes

| Part Number      | Cap.<br>( $\mu$ F) | Voltage<br>(Vdc) | Dissipation Factor<br>@ 120Hz/20°C | Leakage Current ( $\mu$ A)<br>@ 20°C | ESR (ohms)<br>@ 100KHz/20°C | Ripple Current Rating (mA)<br>@ 100KHz/25°C |
|------------------|--------------------|------------------|------------------------------------|--------------------------------------|-----------------------------|---------------------------------------------|
| NTC-T335K10TRA2F | 3.3*               | 10               | 8%                                 | 0.5                                  | 12                          | 65                                          |
| NTC-T335K10TRAF  | 3.3                | 10               | 8%                                 | 0.5                                  | 5.5                         | 113                                         |
| NTC-T475M10TRJF  | 4.7                | 10               | 20%                                | 1.0                                  | 10                          | 32                                          |
| NTC-T475M10TRPF  | 4.7                | 10               | 20%                                | 1.0                                  | 10                          | 50                                          |
| NTC-T475K10TRA2F | 4.7*               | 10               | 8%                                 | 1.0                                  | 8.0                         | 79                                          |
| NTC-T475K10TRAF  | 4.7*               | 10               | 8%                                 | 1.0                                  | 5.0                         | 118                                         |
| NTC-T475K10TRBF  | 4.7                | 10               | 4%                                 | 1.0                                  | 3.5                         | 151                                         |
| NTC-T685K10TRA2F | 6.8                | 10               | 8%                                 | 0.68                                 | 8.0                         | 79                                          |
| NTC-T685K10TRAF  | 6.8*               | 10               | 8%                                 | 0.68                                 | 4.5                         | 125                                         |
| NTC-T685K10TRBF  | 6.8                | 10               | 8%                                 | 0.68                                 | 3.0                         | 163                                         |
| NTC-T106M10TRPF  | 10                 | 10               | 20%                                | 1.0                                  | 6.0                         | 65                                          |
| NTC-T106K10TRA2F | 10                 | 10               | 8%                                 | 1.0                                  | 5.0                         | 100                                         |
| NTC-T106K10TRAF  | 10*                | 10               | 8%                                 | 1.0                                  | 3.2                         | 148                                         |
| NTC-T106K10TRB2F | 10*                | 10               | 8%                                 | 1.0                                  | 3.2                         | 148                                         |
| NTC-T106K10TRBF  | 10*                | 10               | 8%                                 | 1.0                                  | 2.5                         | 179                                         |
| NTC-T106K10TRCF  | 10                 | 10               | 8%                                 | 1.0                                  | 1.8                         | 247                                         |
| NTC-T156K10TRA2F | 15                 | 10               | 20%                                | 1.5                                  | 3.0                         | 129                                         |
| NTC-T156K10TRB2F | 15*                | 10               | 8%                                 | 1.5                                  | 2.5                         | 167                                         |
| NTC-T156K10TRCF  | 15                 | 10               | 8%                                 | 1.5                                  | 1.8                         | 247                                         |
| NTC-T226K10TRAF  | 22                 | 10               | 12%                                | 2.2                                  | 2.5                         | 167                                         |
| NTC-T226K10TRB2F | 22                 | 10               | 12%                                | 2.2                                  | 4.0                         | 132                                         |
| NTC-T226K10TRBF  | 22*                | 10               | 8%                                 | 2.2                                  | 2.4                         | 183                                         |
| NTC-T226K10TRCF  | 22*                | 10               | 8                                  | 2.2                                  | 1.8                         | 247                                         |
| NTC-T336K10TRB2F | 33                 | 10               | 12%                                | 3.3                                  | 1.7                         | 203                                         |
| NTC-T336K10TRBF  | 33                 | 10               | 8%                                 | 3.3                                  | 2.0                         | 200                                         |
| NTC-T336K10TRCF  | 33*                | 10               | 8%                                 | 3.3                                  | 1.6                         | 262                                         |
| NTC-T336K10TRDF  | 33*                | 10               | 6%                                 | 3.3                                  | 0.8                         | 433                                         |
| NTC-T476K10TRBF  | 47                 | 10               | 8%                                 | 4.7                                  | 3.0                         | 163                                         |
| NTC-T476K10TRC2F | 47                 | 10               | 8%                                 | 4.7                                  | 1.0                         | 300                                         |
| NTC-T476K10TRCF  | 47*                | 10               | 8%                                 | 4.7                                  | 1.6                         | 262                                         |
| NTC-T476K10TRDF  | 47                 | 10               | 8%                                 | 4.7                                  | 0.8                         | 433                                         |
| NTC-T686K10TRBF  | 68                 | 10               | 12%                                | 6.8                                  | 0.9                         | 298                                         |
| NTC-T686K10TRC2F | 68                 | 10               | 10%                                | 6.8                                  | 1.0                         | 300                                         |
| NTC-T686K10TRCF  | 68*                | 10               | 8%                                 | 6.8                                  | 1.2                         | 303                                         |
| NTC-T686K10TRDF  | 68*                | 10               | 8%                                 | 6.8                                  | 0.8                         | 433                                         |
| NTC-T107K10TRC2F | 100                | 10               | 10%                                | 10                                   | 0.8                         | 335                                         |
| NTC-T107K10TRCF  | 100                | 10               | 10%                                | 10                                   | 1.2                         | 303                                         |
| NTC-T107K10TRVF  | 100                | 10               | 8%                                 | 10                                   | 0.5                         | 500                                         |
| NTC-T107K10TRDF  | 100*               | 10               | 8%                                 | 10                                   | 0.7                         | 463                                         |
| NCT-T157K10TRVF  | 150                | 10               | 8%                                 | 15                                   | 0.5                         | 500                                         |
| NTC-T157K10TRDF  | 150*               | 10               | 10%                                | 15                                   | 0.7                         | 463                                         |
| NTC-T227K10TRDF  | 220                | 10               | 12%                                | 22                                   | 1.0                         | 387                                         |
| NTC-T227K10TREF  | 220*               | 10               | 8%                                 | 22                                   | 0.9                         | 428                                         |
| NTC-T474M16TRPF  | 0.47               | 16               | 10%                                | 0.5                                  | 35                          | 27                                          |
| NTC-T105M16TRJF  | 1.0                | 16               | 10%                                | 0.5                                  | 30                          | 18                                          |
| NTC-T105M16TRPF  | 1.0                | 16               | 20%                                | 0.5                                  | 25                          | 32                                          |
| NTC-T105K16TRA2F | 1.0*               | 16               | 6%                                 | 0.5                                  | 16                          | 56                                          |
| NTC-T105K16TRAF  | 1.0                | 16               | 4%                                 | 0.5                                  | 10                          | 84                                          |
| NTC-T155M16TRJF  | 1.5                | 16               | 10%                                | 0.5                                  | 25                          | 20                                          |
| NTC-T155K16TRA2F | 1.5*               | 16               | 6%                                 | 0.5                                  | 13                          | 62                                          |
| NTC-T155K16TRAF  | 1.5                | 16               | 4%                                 | 0.5                                  | 8.0                         | 94                                          |
| NTC-T225M16TRPF  | 2.2                | 16               | 10%                                | 0.5                                  | 19                          | 36                                          |
| NTC-T225K16TRA2F | 2.2*               | 16               | 6%                                 | 0.5                                  | 13                          | 62                                          |
| NTC-T225K16TRAF  | 2.2                | 16               | 6%                                 | 0.5                                  | 6.0                         | 108                                         |
| NTC-T335M16TRPF  | 3.3                | 16               | 10%                                | 0.53                                 | 8.0                         | 56                                          |
| NTC-T335K16TRA2F | 3.3                | 16               | 8%                                 | 0.53                                 | 7.0                         | 85                                          |
| NTC-T335K16TRAF  | 3.3*               | 16               | 6%                                 | 0.53                                 | 5.0                         | 118                                         |
| NTC-T335K16TRBF  | 3.3                | 16               | 4%                                 | 0.53                                 | 3.5                         | 151                                         |
| NTC-T475K16TRA2F | 4.7                | 16               | 8%                                 | 0.75                                 | 4.5                         | 105                                         |

Note: 20% (M) tolerance parts available special order



### STANDARD AND EXTENDED PRODUCT SPECIFICATIONS TABLE

\*Extended Case Sizes

| Part NuKber      | Cap.<br>(μF) | Voltage<br>(Vdc) | Dissipation Factor<br>@ 120Hz/20°C | Leakage Current (μA)<br>@ 20°C | ESR (ohms)<br>@ 100KHz/20°C | Ripple Current Rating (mA)<br>@ 100KHz/25°C |
|------------------|--------------|------------------|------------------------------------|--------------------------------|-----------------------------|---------------------------------------------|
| NTC-T475K16TRAF  | 4.7*         | 16               | 6%                                 | 0.75                           | 5.0                         | 118                                         |
| NTC-T475K16TRBF  | 4.7          | 16               | 6%                                 | 0.75                           | 3.0                         | 163                                         |
| NTC-T685K16TRA2F | 6.8*         | 16               | 6%                                 | 1.09                           | 4.5                         | 105                                         |
| NTC-T685K16TRAF  | 6.8*         | 16               | 6%                                 | 1.09                           | 5.0                         | 118                                         |
| NTC-T685K16TRB2F | 6.8          | 16               | 6%                                 | 1.09                           | 5.0                         | 118                                         |
| NTC-T685K16TRBF  | 6.8*         | 16               | 6%                                 | 1.09                           | 2.5                         | 179                                         |
| NTC-T106K16TRAF  | 10           | 16               | 8%                                 | 1.6                            | 5.0                         | 118                                         |
| NTC-T106K16TRB2F | 10           | 16               | 8%                                 | 1.6                            | 4.0                         | 132                                         |
| NTC-T106K16TRBF  | 10*          | 16               | 6%                                 | 1.6                            | 2.4                         | 183                                         |
| NTC-T106K16TRCF  | 10           | 16               | 6%                                 | 1.6                            | 1.8                         | 247                                         |
| NTC-T156K16TRAF  | 15           | 16               | 12%                                | 2.4                            | 5.0                         | 118                                         |
| NTC-T156K16TRBF  | 15*          | 16               | 6%                                 | 2.4                            | 2.5                         | 167                                         |
| NTC-T156K16TRCF  | 15*          | 16               | 6%                                 | 2.4                            | 1.8                         | 247                                         |
| NTC-T156K16TRDF  | 15           | 16               | 6%                                 | 2.4                            | 1.8                         | 289                                         |
| NTC-T226K16TRB2F | 22           | 16               | 10%                                | 3.52                           | 2.2                         | 178                                         |
| NTC-T226K16TRBF  | 22*          | 16               | 6%                                 | 3.52                           | 2.5                         | 179                                         |
| NTC-T226K16TRCF  | 22*          | 16               | 6%                                 | 3.52                           | 1.6                         | 209                                         |
| NTC-T226K16TRDF  | 22           | 16               | 6%                                 | 3.52                           | 0.8                         | 296                                         |
| NTC-T336K16TRBF  | 33           | 16               | 8%                                 | 5.28                           | 1.4                         | 239                                         |
| NTC-T336K16TRC2F | 33           | 16               | 6%                                 | 5.28                           | 1.4                         | 254                                         |
| NTC-T336K16TRCF  | 33*          | 16               | 6%                                 | 5.28                           | 1.2                         | 303                                         |
| NTC-T336K16TRDF  | 33*          | 16               | 6%                                 | 5.28                           | 0.8                         | 433                                         |
| NTC-T476K16TRCF  | 47*          | 16               | 6%                                 | 7.52                           | 1.2                         | 303                                         |
| NTC-T476K16TRDF  | 47*          | 16               | 6%                                 | 7.52                           | 0.8                         | 433                                         |
| NTC-T686K16TRCF  | 68           | 16               | 6%                                 | 10.9                           | 0.7                         | 396                                         |
| NTC-T686K16TRDF  | 68*          | 16               | 6%                                 | 10.9                           | 0.7                         | 463                                         |
| NTC-T107K16TRDF  | 100*         | 16               | 10%                                | 16.0                           | 1.0                         | 387                                         |
| NTC-T157K16TRDF  | 150*         | 16               | 6%                                 | 24.0                           | 0.9                         | 408                                         |
| NTC-T684K20TRAF  | 0.68         | 20               | 4%                                 | 0.5                            | 12                          | 76                                          |
| NTC-T105K20TRA2F | 1*           | 20               | 6%                                 | 0.5                            | 13                          | 62                                          |
| NTC-T105K20TRAF  | 1*           | 20               | 6%                                 | 0.5                            | 9.0                         | 88                                          |
| NTC-T155K20TRA2F | 1.5*         | 20               | 6%                                 | 0.5                            | 13                          | 62                                          |
| NTC-T155K20TRAF  | 1.5*         | 20               | 6%                                 | 0.5                            | 6.5                         | 104                                         |
| NTC-T225M20TRPF  | 2.2          | 20               | 10%                                | 0.5                            | 8.0                         | 56                                          |
| NTC-T225K20TRA2F | 2.2          | 20               | 6%                                 | 0.5                            | 7.0                         | 85                                          |
| NTC-T225K20TRAF  | 2.2*         | 20               | 6%                                 | 0.5                            | 6.0                         | 108                                         |
| NTC-T225K20TRBF  | 2.2          | 20               | 4%                                 | 0.5                            | 3.5                         | 151                                         |
| NTC-T335K20TRA2F | 3.3          | 20               | 8%                                 | 0.66                           | 5.0                         | 100                                         |
| NTC-T335K20TRAF  | 3.3*         | 20               | 6%                                 | 0.66                           | 5.0                         | 118                                         |
| NTC-T335K20TRB2F | 3.3          | 20               | 6%                                 | 0.66                           | 3.9                         | 134                                         |
| NTC-T335K20TRBF  | 3.3*         | 20               | 6%                                 | 0.66                           | 3.0                         | 163                                         |
| NTC-T475K20TRA2F | 4.7          | 20               | 15%                                | 0.94                           | 5.0                         | 100                                         |
| NTC-T475K20TRAF  | 4.7*         | 20               | 6%                                 | 0.94                           | 5.0                         | 118                                         |
| NTC-T475K20TRB2F | 4.7          | 20               | 6%                                 | 0.94                           | 3.0                         | 153                                         |
| NTC-T475K20TRBF  | 4.7*         | 20               | 6%                                 | 0.94                           | 3.0                         | 163                                         |
| NTC-T475K20TRCF  | 4.7          | 20               | 4%                                 | 0.94                           | 2.4                         | 214                                         |
| NTC-T685K20TRB2F | 6.8          | 20               | 6%                                 | 1.36                           | 3.0                         | 153                                         |
| NTC-T685K20TRBF  | 6.8*         | 20               | 6%                                 | 1.36                           | 2.8                         | 169                                         |
| NTC-T685K20TRCF  | 6.8          | 20               | 6%                                 | 1.36                           | 1.9                         | 241                                         |
| NTC-T106K20TRBF  | 10*          | 20               | 6%                                 | 2.0                            | 2.5                         | 179                                         |
| NTC-T106K20TRCF  | 10*          | 20               | 6%                                 | 2.0                            | 1.8                         | 247                                         |
| NTC-T106K20TRDF  | 10           | 20               | 6%                                 | 2.0                            | 1.3                         | 340                                         |
| NTC-T156K20TRCF  | 15*          | 20               | 6%                                 | 3.0                            | 1.7                         | 254                                         |
| NTC-T156K20TRDF  | 15           | 20               | 6%                                 | 3.0                            | 0.8                         | 433                                         |
| NTC-T226K20TRC2F | 22           | 20               | 6%                                 | 4.4                            | 1.4                         | 254                                         |
| NTC-T226K20TRCF  | 22*          | 20               | 6%                                 | 4.4                            | 1.5                         | 271                                         |
| NTC-T226K20TRDF  | 22*          | 20               | 6%                                 | 4.4                            | 0.8                         | 433                                         |
| NTC-T336K20TRDF  | 33*          | 20               | 6%                                 | 6.6                            | 0.8                         | 433                                         |
| NTC-T476K20TRDF  | 47*          | 20               | 6%                                 | 9.4                            | 0.8                         | 433                                         |

Note: 20% (M) tolerance parts available special order



### STANDARD AND EXTENDED PRODUCT SPECIFICATIONS TABLE

\*Extended Case Sizes

| Part Number      | Cap. (μF) | Voltage (Vdc) | Dissipation Factor @ 120Hz/20°C | Leakage Current (μA) @ 20°C | ESR (ohms) @ 100KHz/20°C | Ripple Current Rating (mA) @ 100KHz/25°C |
|------------------|-----------|---------------|---------------------------------|-----------------------------|--------------------------|------------------------------------------|
| NTC-T474K25TRAF  | 0.47      | 25            | 4%                              | 0.5                         | 14                       | 71                                       |
| NTC-T684K25TRAF  | 0.68*     | 25            | 6%                              | 0.5                         | 10                       | 84                                       |
| NTC-T105M25TRPF  | 1         | 25            | 6%                              | 0.5                         | 8.0                      | 56                                       |
| NTC-T105K25TRA2F | 1         | 25            | 6%                              | 0.5                         | 13                       | 62                                       |
| NTC-T105K25TRAF  | 1*        | 25            | 6%                              | 0.5                         | 8.0                      | 94                                       |
| NTC-T155K25TRAF  | 1.5*      | 25            | 6%                              | 0.5                         | 8.0                      | 94                                       |
| NTC-T155K25TRBF  | 1.5       | 25            | 4%                              | 0.5                         | 4.6                      | 132                                      |
| NTC-T225K25TRAF  | 2.2*      | 25            | 6%                              | 0.55                        | 8.0                      | 94                                       |
| NTC-T225K25TRBF  | 2.2       | 25            | 6%                              | 0.55                        | 4.0                      | 141                                      |
| NTC-T335K25TRAF  | 3.3       | 25            | 6%                              | 0.83                        | 7.0                      | 100                                      |
| NTC-T335K25TRBF  | 3.3*      | 25            | 6%                              | 0.83                        | 3.5                      | 151                                      |
| NTC-T335K25TRCF  | 3.3       | 25            | 4%                              | 0.83                        | 2.5                      | 210                                      |
| NTC-T475K25TRB2F | 4.7       | 25            | 6%                              | 1.18                        | 3.0                      | 153                                      |
| NTC-T475K25TRBF  | 4.7*      | 25            | 6%                              | 1.18                        | 3.0                      | 163                                      |
| NTC-T475K25TRCF  | 4.7       | 25            | 4%                              | 1.18                        | 2.4                      | 214                                      |
| NTC-T685K25TRBF  | 6.8       | 25            | 6%                              | 1.7                         | 2.5                      | 179                                      |
| NTC-T685K25TRCF  | 6.8*      | 25            | 6%                              | 1.7                         | 1.9                      | 241                                      |
| NTC-T685K25TRDF  | 6.8       | 25            | 6%                              | 1.7                         | 1.4                      | 327                                      |
| NTC-T106K25TRC2F | 10        | 25            | 6%                              | 2.5                         | 2.0                      | 212                                      |
| NTC-T106K25TRCF  | 10*       | 25            | 6%                              | 2.5                         | 1.8                      | 247                                      |
| NTC-T106K25TRDF  | 10        | 25            | 6%                              | 2.5                         | 1.2                      | 354                                      |
| NTC-T156K25TRCF  | 15        | 25            | 6%                              | 3.75                        | 1.5                      | 271                                      |
| NTC-T156K25TRDF  | 15*       | 25            | 6%                              | 3.75                        | 1.0                      | 387                                      |
| NTC-T226K25TRDF  | 22*       | 25            | 6%                              | 5.5                         | 0.8                      | 433                                      |
| NTC-T336K25TRDF  | 33        | 25            | 6%                              | 8.25                        | 0.7                      | 463                                      |
| NTC-T104K35TRAF  | 0.1       | 35            | 4%                              | 0.5                         | 18                       | 62                                       |
| NTC-T224K35TRAF  | 0.22      | 35            | 4%                              | 0.5                         | 18                       | 62                                       |
| NTC-T334K35TRAF  | 0.33      | 35            | 4%                              | 0.5                         | 15                       | 68                                       |
| NTC-T474K35TRAF  | 0.47*     | 35            | 6%                              | 0.5                         | 12                       | 76                                       |
| NTC-T474K35TRBF  | 0.47      | 35            | 4%                              | 0.5                         | 8.0                      | 100                                      |
| NTC-T105K35TRA2F | 1         | 35            | 6%                              | 0.5                         | 13                       | 62                                       |
| NTC-T105K35TRAF  | 1*        | 35            | 6%                              | 0.5                         | 8.0                      | 94                                       |
| NTC-T105K35TRBF  | 1         | 35            | 4%                              | 0.5                         | 4.8                      | 129                                      |
| NTC-T155K35TRAF  | 1.5*      | 35            | 6%                              | 0.53                        | 8.0                      | 94                                       |
| NTC-T155K35TRBF  | 1.5*      | 35            | 6%                              | 0.53                        | 4.0                      | 141                                      |
| NTC-T155K35TRCF  | 1.5       | 35            | 4%                              | 0.53                        | 3.0                      | 191                                      |
| NTC-T225K35TRAF  | 2.2       | 35            | 6%                              | 0.77                        | 5.0                      | 118                                      |
| NTC-T225K35TRBF  | 2.2*      | 35            | 6%                              | 0.77                        | 4.2                      | 138                                      |
| NTC-T225K35TRCF  | 2.2       | 35            | 4%                              | 0.77                        | 3.0                      | 191                                      |
| NTC-T335K35TRB2F | 3.3       | 35            | 6%                              | 1.16                        | 3.0                      | 153                                      |
| NTC-T335K35TRBF  | 3.3*      | 35            | 6%                              | 1.16                        | 4.0                      | 141                                      |
| NTC-T335K35TRCF  | 3.3       | 35            | 4%                              | 1.16                        | 2.5                      | 210                                      |
| NTC-T335K35TRDF  | 3.3       | 35            | 4%                              | 1.16                        | 2.0                      | 274                                      |
| NTC-T475K35TRCF  | 4.7       | 35            | 6%                              | 1.65                        | 2.2                      | 224                                      |
| NTC-T475K35TRDF  | 4.7       | 35            | 4%                              | 1.65                        | 1.5                      | 316                                      |
| NTC-T685K35TRCF  | 6.8*      | 35            | 6%                              | 2.38                        | 1.9                      | 241                                      |
| NTC-T685K35TRDF  | 6.8       | 35            | 6%                              | 2.38                        | 1.3                      | 340                                      |
| NTC-T106K35TRCF  | 10        | 35            | 6%                              | 3.5                         | 1.5                      | 271                                      |
| NTC-T106K35TRDF  | 10        | 35            | 6%                              | 3.5                         | 1.0                      | 387                                      |
| NTC-T106K35TREF  | 10*       | 35            | 6%                              | 3.5                         | 1.0                      | 406                                      |
| NTC-T156K35TRDF  | 15*       | 35            | 6%                              | 5.25                        | 0.9                      | 408                                      |
| NTC-T105K50TRCF  | 1         | 50            | 4%                              | 0.5                         | 5.5                      | 141                                      |
| NTC-T225K50TRDF  | 2.2       | 50            | 4%                              | 1.1                         | 1.8                      | 289                                      |
| NTC-T335K50TRDF  | 3.3       | 50            | 4%                              | 1.65                        | 1.4                      | 327                                      |
| NTC-T475K50TRDF  | 4.7       | 50            | 4%                              | 2.35                        | 1.4                      | 327                                      |

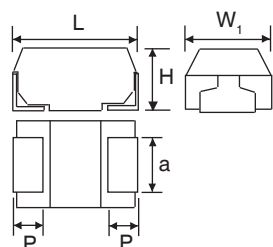
Note: 20% (M) tolerance parts available special order



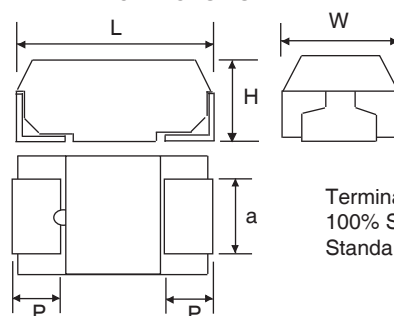
### DIMENSIONS (mm)

| Case Code | Metric Code | English Code | L         | W          | H         | P          | a         |
|-----------|-------------|--------------|-----------|------------|-----------|------------|-----------|
| J         | 1608        | 0603         | 1.6 ± 0.1 | 0.8 ± 0.1  | 0.8 ± 0.1 | 0.3 ± 0.15 | 0.6 ± 0.1 |
| P         | 2012        | 0805         | 2.0 ± 0.2 | 1.25 ± 0.2 | 1.2 MAX.  | 0.5 ± 0.2  | 0.9 ± 0.1 |
| A2        | 3216        | 1206         | 3.2 ± 0.2 | 1.6 ± 0.2  | 1.2 MAX.  | 0.8 ± 0.3  | 1.2 ± 0.1 |
| A         | 3216        | 1206         | 3.2 ± 0.2 | 1.6 ± 0.2  | 1.6 ± 0.2 | 0.8 ± 0.3  | 1.2 ± 0.1 |
| B2        | 3528        | 1411         | 3.5 ± 0.2 | 2.8 ± 0.2  | 1.2 MAX.  | 0.8 ± 0.3  | 2.3 ± 0.1 |
| B         | 3528        | 1411         | 3.5 ± 0.2 | 2.8 ± 0.2  | 1.9 ± 0.2 | 0.8 ± 0.3  | 2.2 ± 0.1 |
| C2        | 6032        | 2412         | 6.0 ± 0.3 | 3.2 ± 0.3  | 1.5 MAX.  | 1.3 ± 0.3  | 2.2 ± 0.1 |
| C         | 6032        | 2412         | 6.0 ± 0.3 | 3.2 ± 0.3  | 2.6 ± 0.3 | 1.3 ± 0.3  | 2.2 ± 0.1 |
| V         | 7343        | 2916         | 7.3 ± 0.2 | 4.3 ± 0.2  | 2.0 MAX.  | 1.3 ± 0.3  | 2.4 ± 0.1 |
| D         | 7343        | 2916         | 7.3 ± 0.2 | 4.3 ± 0.2  | 2.9 ± 0.3 | 1.3 ± 0.3  | 2.4 ± 0.1 |
| E         | 7343H       | 2917         | 7.3 ± 0.2 | 4.3 ± 0.2  | 4.1 ± 0.2 | 1.3 ± 0.3  | 2.4 ± 0.1 |

J, P, A, A2, C, C2, V, D & E CASE SIZE



B & B2 CASE SIZE



Terminations:  
100% Sn (Lead-Free)  
Standard

### CAPACITANCE CODES

| Cap. (μF) | STD<br>EIA Code | EIA Code<br>198D | Code for<br>P Case Size | Code for<br>J Case Size |      |        |       |       |
|-----------|-----------------|------------------|-------------------------|-------------------------|------|--------|-------|-------|
|           |                 |                  |                         | 2.5Vdc                  | 4Vdc | 6.3Vdc | 10Vdc | 16Vdc |
| 0.1       | 104             | A5               | -                       | -                       | -    | -      | -     | C     |
| 0.15      | 154             | E5               | -                       | -                       | -    | -      | -     | -     |
| 0.22      | 224             | J5               | -                       | -                       | -    | -      | -     | -     |
| 0.33      | 334             | N5               | N                       | -                       | -    | -      | -     | -     |
| 0.47      | 474             | S5               | S                       | -                       | -    | -      | -     | -     |
| 0.68      | 684             | W5               | W                       | -                       | -    | -      | -     | -     |
| 1.0       | 105             | A6               | A                       | -                       | -    | -      | -     | -     |
| 1.5       | 155             | E6               | E                       | -                       | -    | -      | A     | -     |
| 2.2       | 225             | J6               | J                       | -                       | -    | J      | A     | -     |
| 3.3       | 335             | N6               | N                       | -                       | -    | J      | -     | -     |
| 4.7       | 475             | S6               | S                       | -                       | -    | J      | Y     | -     |
| 6.8       | 685             | W6               | W                       | -                       | G    | J      | -     | -     |
| 10        | 106             | A7               | A                       | e                       | Q    | J      | -     | -     |
| 22        | 226             | J7               | J                       | -                       | -    | -      | -     | -     |
| 33        | 336             | N7               | N                       | -                       | -    | -      | -     | -     |
| 47        | 476             | S7               | S                       | -                       | -    | -      | -     | -     |

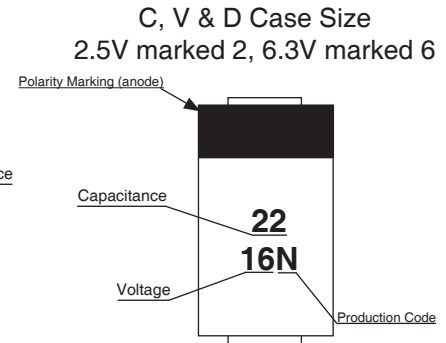
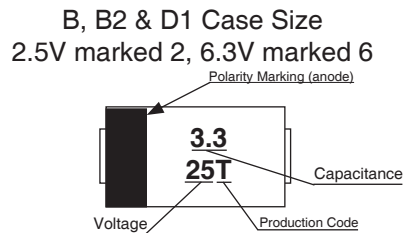
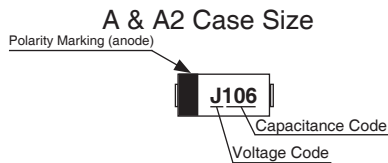
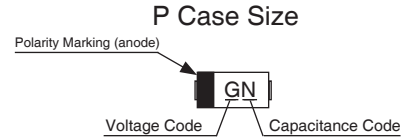
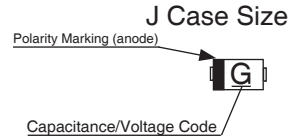
### VOLTAGE CODES

| Voltage | Code |
|---------|------|
| 2.5     | e    |
| 4       | G    |
| 6.3     | J    |
| 10      | A    |
| 16      | C    |
| 20      | D    |
| 25      | E    |
| 35      | V    |
| 50      | H    |

### PRODUCTION CODE

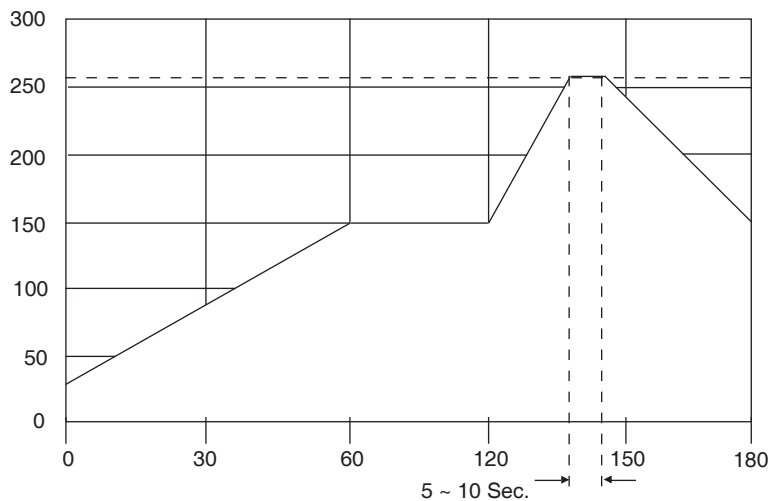
| Year | Month |     |     |     |     |     |     |     |      |     |     |     |
|------|-------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
|      | Jan   | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
| 2008 | n     | p   | q   | r   | s   | t   | u   | v   | w    | x   | y   | z   |
| 2009 | A     | B   | C   | D   | E   | F   | G   | H   | J    | K   | L   | M   |
| 2010 | N     | P   | Q   | R   | S   | T   | U   | V   | W    | X   | Y   | Z   |
| 2011 | a     | b   | c   | d   | e   | f   | g   | h   | j    | k   | l   | m   |

### COMPONENT MARKING



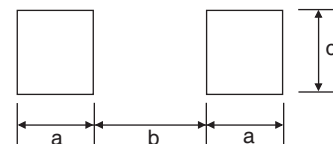
### Flow/Reflow Soldering

Maximum Temperature/Time: Flow 260°C/5 Sec.  
Reflow 260°C/10 Sec.



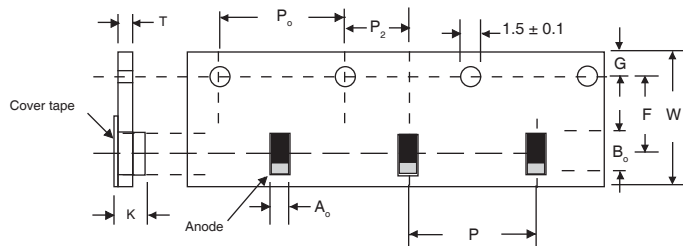
### RECOMMENDED LAND PATTERN DIMENSIONS (mm)

| Case Size | a    | b    | c    |
|-----------|------|------|------|
| J         | 0.90 | 0.70 | 1.00 |
| P         | 1.05 | 0.50 | 1.20 |
| A & A2    | 1.35 | 1.10 | 1.50 |
| B & B2    | 1.35 | 1.40 | 2.70 |
| C         | 2.00 | 2.90 | 2.70 |
| D         | 2.05 | 4.10 | 2.90 |
| D         | 2.05 | 4.10 | 2.90 |



### TAPE DIMENSIONS (mm)

| Metric Code | Case Code | $A_0 \pm 0.2$ | $B_0 \pm 0.2$ | $W \pm 0.3$ | $F \pm 0.05$ | $P_0 \pm 0.1$ | $P_0 \pm 0.1$ | $P_0 \pm 0.05$ | $G \pm 0.1$ | $K \pm 0.2$ | T   | 7" Reel |
|-------------|-----------|---------------|---------------|-------------|--------------|---------------|---------------|----------------|-------------|-------------|-----|---------|
| 1608        | J         | 1.0           | 1.8           | 8.0         | 3.5          | 4.0           | 2.0           | 2.0            | 1.75        | 1.1         | 0.2 | 4000    |
| 2012        | P         | 1.4           | 2.2           | 8.0         | 3.5          | 4.0           | 4.0           | 2.0            | 1.75        | 1.4         | 0.2 | 3000    |
| 3216        | A2        | 1.9           | 3.5           | 8.0         | 3.5          | 4.0           | 4.0           | 2.0            | 1.75        | 1.4         | 0.2 | 3000    |
| 3216        | A         | 1.9           | 3.5           | 8.0         | 3.5          | 4.0           | 4.0           | 2.0            | 1.75        | 1.9         | 0.2 | 2000    |
| 3528        | B2        | 3.2           | 3.8           | 8.0         | 3.5          | 4.0           | 4.0           | 2.0            | 1.75        | 1.4         | 0.2 | 3000    |
| 3528        | B         | 3.2           | 3.8           | 8.0         | 3.5          | 4.0           | 4.0           | 2.0            | 1.75        | 2.1         | 0.2 | 2000    |
| 6032        | C2        | 3.7           | 6.4           | 12.0        | 5.65         | 4.0           | 8.0           | 2.0            | 1.5         | 1.7         | 0.3 | 500     |
| 6032        | C         | 3.7           | 6.4           | 12.0        | 5.65         | 4.0           | 8.0           | 2.0            | 1.5         | 3.0         | 0.3 | 500     |
| 7343        | V         | 4.8           | 7.7           | 12.0        | 5.65         | 4.0           | 8.0           | 2.0            | 1.5         | 2.4         | 0.3 | 500     |
| 7343        | D         | 4.8           | 7.7           | 12.0        | 5.65         | 4.0           | 8.0           | 2.0            | 1.5         | 3.3         | 0.3 | 500     |
| 7343H       | E         | 4.7           | 7.7           | 12.0        | 5.5          | 4.0           | 8.0           | 2.0            | 1.5         | 4.5         | 0.6 | 500     |



### Cover tape peel-off specification

1. Peel-off speed : 300 mm/min.
2. Peel-off force :  $F = 30 - 75g$
3. Peel-off angle :  $\Theta = 0 - 15^\circ$

Peel-off speed  
(F) = 50mm/Sec.

### REEL DIMENSIONS (mm)

| Tape Width | A             | C            | D            | E             | N       | $W_1$          | $W_2$     |
|------------|---------------|--------------|--------------|---------------|---------|----------------|-----------|
| 8mm        | $178 \pm 2.0$ | $13 \pm 0.5$ | $21 \pm 0.5$ | $2.0 \pm 0.5$ | 50 min. | $10 \pm 2.0$   | 14.5 max. |
| 12mm       | $178 \pm 2.0$ | $13 \pm 0.5$ | $21 \pm 0.5$ | $2.0 \pm 0.5$ | 50 min. | $14.5 \pm 2.0$ | 18.5 max. |

