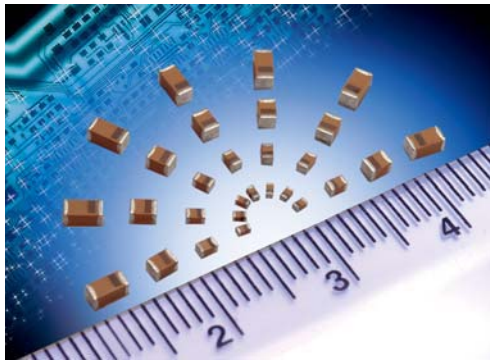


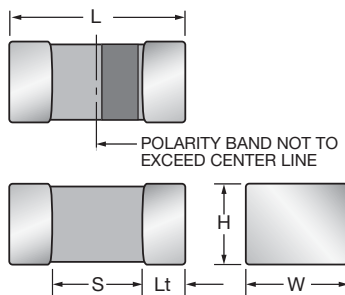
## Standard Microchip



- The world's smallest surface mount tantalum capacitor
- CV range: 0.47-150µF / 2-25V
- 5 case sizes available
- Low profile options available
- Industrial and hi-rel medical applications



### CASE DIMENSIONS: millimeters (inches)



| Code | EIA Code | EIA Metric | Length (L)  | Width (W)   | Height (H)  | Termination Spacing(S)    | Minimum Termination Length (Lt) | Average Mass |
|------|----------|------------|---|---|---|---------------------------|---------------------------------|--------------|
| A    | 1206     | 3216-18    | 3.20±0.20<br>(0.126±0.008)  | 1.60±0.20<br>(0.063±0.008)  | 1.60±0.20<br>(0.063±0.008)  | 1.80 min.<br>(0.071 min.) | 0.15<br>(0.006)                 | 44.6mg       |
| B    | 1210     | 3528-15    | 3.50 <sup>+0.20</sup> <sub>-0.20</sub><br><sup>+0.008</sup> <sub>-0.008</sub><br>(0.138 -0.008) | 2.80 <sup>+0.20</sup> <sub>-0.10</sub><br><sup>+0.008</sup> <sub>-0.004</sub><br>(0.110 -0.004) | 1.50 max.   | 2.00 min.                 | 0.15 min.                       | 90.0mg       |
| K    | 0402     | 1005-07    | 1.00 <sup>+0.20</sup> <sub>-0.00</sub><br><sup>+0.008</sup> <sub>-0.000</sub><br>(0.039 -0.000) | 0.50 <sup>+0.20</sup> <sub>-0.00</sub><br><sup>+0.008</sup> <sub>-0.000</sub><br>(0.020 -0.000) | 0.50 <sup>+0.20</sup> <sub>-0.00</sub><br><sup>+0.008</sup> <sub>-0.000</sub><br>(0.020 -0.000) | 0.40 min.<br>(0.016 min.) | 0.10<br>(0.004)                 | 2.0mg        |
| L    | 0603     | 1608-10    | 1.60 <sup>+0.20</sup> <sub>-0.00</sub><br><sup>+0.008</sup> <sub>-0.000</sub><br>(0.063 -0.000) | 0.85 <sup>+0.15</sup> <sub>-0.00</sub><br><sup>+0.006</sup> <sub>-0.000</sub><br>(0.033 -0.000) | 0.85 <sup>+0.15</sup> <sub>-0.00</sub><br><sup>+0.006</sup> <sub>-0.000</sub><br>(0.033 -0.000) | 0.55 min.<br>(0.022 min.) | 0.15<br>(0.006)                 | 8.6mg        |
| R    | 0805     | 2012-15    | 2.00 <sup>+0.20</sup> <sub>-0.00</sub><br><sup>+0.008</sup> <sub>-0.000</sub><br>(0.079 -0.000) | 1.35 <sup>+0.15</sup> <sub>-0.00</sub><br><sup>+0.006</sup> <sub>-0.000</sub><br>(0.053 -0.000) | 1.35 <sup>+0.15</sup> <sub>-0.00</sub><br><sup>+0.006</sup> <sub>-0.000</sub><br>(0.053 -0.000) | 0.70 min.<br>(0.027 min.) | 0.15<br>(0.006)                 | 29.9mg       |

### HOW TO ORDER

|                       |                              |  |                               |  |   |   |
|-----------------------|------------------------------|--|-------------------------------|--|---|---|
| <b>TAC</b>            | <b>L</b>                     | <b>226</b>   | <b>M</b>                      | <b>004</b>   | <b>R</b>  | <b>TA</b>   |
| Type<br>TACmicrochip® | Case Size<br>See table above | Capacitance Code<br>pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow) | Tolerance<br>K=±10%<br>M=±20% | Rated DC Voltage<br>002=2Vdc<br>003=3Vdc<br>004=4Vdc<br>006=6.3Vdc<br>010=10Vdc<br>016=16Vdc<br>020=20Vdc<br>025=25Vdc | Packaging<br>R, P = 7" Standard Tin Termination Plastic Tape<br>X, Q = 4 1/4" Standard Tin Termination Plastic Tape<br>A = 7" Gold Termination Plastic Tape<br>F = 4 1/4" Gold Termination Plastic Tape | Alternative characters may be used for special requirements |

### TECHNICAL SPECIFICATIONS

|                                    |  |     |     |     |     |    |    |    |    |  |
|------------------------------------|--|-----|-----|-----|-----|----|----|----|----|--|
| Technical Data:                    | All technical data relate to an ambient temperature of +25°C                                 |     |     |     |     |    |    |    |    |  |
| Capacitance Range:                 | 0.10 µF to 150 µF  |     |     |     |     |    |    |    |    |  |
| Capacitance Tolerance:             | ±10%; ±20%   |     |     |     |     |    |    |    |    |  |
| Leakage Current DCL:               | 0.01CV or 0.5µA whichever is the greater   |     |     |     |     |    |    |    |    |  |
| Rated Voltage (V <sub>R</sub> )    | ≤ +85°C:   | 2   | 3   | 4   | 6.3 | 10 | 16 | 20 | 25 |  |
| Category Voltage (V <sub>C</sub> ) | ≤ +125°C:  | 1.3 | 2   | 2.7 | 4   | 7  | 10 | 13 | 17 |  |
| Surge Voltage (V <sub>S</sub> )    | ≤ +85°C:   | 2.7 | 3.9 | 5.2 | 8   | 13 | 20 | 26 | 32 |  |
| Surge Voltage (V <sub>S</sub> )    | ≤ +125°C:  | 1.7 | 2.6 | 3.2 | 5   | 8  | 12 | 16 | 20 |  |
| Temperature Range:                 | -55°C to +125°C  |     |     |     |     |    |    |    |    |  |
| Reliability:                       | 1% per 1000 hours at 85°C, V <sub>R</sub> with 0.1Ω/V series impedance, 60% confidence level |     |     |     |     |    |    |    |    |  |
| Termination Finish:                | Nickel and Tin Plating (standard),<br>Nickel and Gold Plating option available upon request  |     |     |     |     |    |    |    |    |  |

### STANDARD COMMERCIAL RANGE (EIA SIZES) (LETTER DENOTES CASE SIZE)

| Capacitance          |                   | Voltage Rating DC (V <sub>R</sub> ) at 85°C                       |   |   |   |   |        |                                      |     |     |
|----------------------|-------------------|---|---|---|---|---|--------|--------------------------------------|-----|-----|
| µF                   | Code              | 2.0V  | 3.0V  | 4.0V  | 6.3V  | 10V   | 16V    | 20V                                  | 25V | 50V |
| 0.10<br>0.15<br>0.22 | 104<br>154<br>224 |   |   |   |   |   |        | K*                                   |     |     |
| 0.33<br>0.47<br>0.68 | 334<br>474<br>684 |   |   |   |   | K <sup>(M)</sup> /L<br>K <sup>(M)</sup> /L                | L<br>L |                                      |     |     |
| 1.0<br>1.5<br>2.2    | 105<br>155<br>225 |   | K <sup>(M)</sup> /L                             | L<br>L  | K/L<br>L<br>K <sup>(M)</sup> /L                 | K/L<br>L<br>L   | L<br>L |                                      | R   | A*  |
| 3.3<br>4.7<br>6.8    | 335<br>475<br>685 | K <sup>(M)</sup> /L<br>K <sup>(M)</sup> /L<br>K <sup>(M)</sup> /L | K <sup>(M)</sup> /L<br>K <sup>(M)</sup> /L<br>L | L<br>L<br>L                                       | L<br>L<br>L/R                                   | L/R<br>L/R<br>L/R   | R*     | R <sup>(M)</sup><br>R <sup>(M)</sup> | A*  |     |
| 10<br>15<br>22       | 106<br>156<br>226 | K <sup>(M)</sup> /L<br>R<br>R                                     | L<br>R<br>L <sup>(M)</sup> /R                   | L/R<br>L <sup>(M)</sup> /R<br>L <sup>(M)</sup> /R | L <sup>(M)</sup> /R<br>L <sup>(M)</sup> /R<br>R | L/R<br>R<br>R   | R      |                                      |     |     |
| 33<br>47<br>68       | 336<br>476<br>686 | R<br>R<br>R <sup>(M)</sup>  | R<br>R<br>R <sup>(M)</sup>                      | R<br>R<br>A <sup>(M)</sup>                        | R<br>A/R <sup>(M)</sup><br>A <sup>(M)*</sup>    | A <sup>(M)</sup> /B <sup>(M)</sup> /R <sup>(M)</sup><br>B |        |                                      |     |     |
| 100<br>150<br>220    | 107<br>157<br>227 | A <sup>(M)</sup>  | A <sup>(M)</sup> /R <sup>(M)</sup>              | A <sup>(M)</sup> /R <sup>(M)</sup>                | A <sup>(M)</sup>                                |   |        |                                      |     |     |

Released codes <sup>(M tolerance only)</sup>

\*Codes under development - subject to change.

Standard Height Profile: A, B, K, L, R Case

Low Profile: H, J, T, U, V Case

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

### RATINGS & PART NUMBER REFERENCE

| AVX Part No.                            | EIA Code | EIA Metric | Case Size | Cap (µF) | Rated Voltage (V) | DCL (µA) Max. | DF % Max. | ESR Max. (Ω) @100kHz |
|---|----------|------------|-----------|----------|-------------------|---------------|-----------|----------------------|
| <b>2 Volt @ 85°C (1.3 Volt @ 125°C)</b> |          |            |           |          |                   |               |           |                      |
| TACK335M002#TA                          | 0402     | 1005-07    | K         | 3.3      | 2                 | 0.5           | 8         | 15                   |
| TACL335*002#TA                          | 0603     | 1608-10    | L         | 3.3      | 2                 | 0.5           | 6         | 7.5                  |
| TACK475M002#TA                          | 0402     | 1005-07    | K         | 4.7      | 2                 | 0.5           | 12        | 15                   |
| TACL475*002#TA                          | 0603     | 1608-10    | L         | 4.7      | 2                 | 0.5           | 6         | 7.5                  |
| TACK685M002#TA                          | 0402     | 1005-07    | K         | 6.8      | 2                 | 0.5           | 20        | 15                   |
| TACL685*002#TA                          | 0603     | 1608-10    | L         | 6.8      | 2                 | 0.5           | 6         | 7.5                  |
| TACK106M002#TA                          | 0402     | 1005-07    | K         | 10       | 2                 | 0.5           | 15        | 15                   |
| TACL106*002#TA                          | 0603     | 1608-10    | L         | 10       | 2                 | 0.5           | 10        | 7.5                  |
| TACR226*002#TA                          | 0805     | 2012-15    | R         | 22       | 2                 | 0.5           | 8         | 5                    |
| TACR336*002#TA                          | 0805     | 2012-15    | R         | 33       | 2                 | 0.7           | 10        | 5                    |
| TACR476*002#TA                          | 0805     | 2012-15    | R         | 47       | 2                 | 0.9           | 10        | 5                    |
| TACR686M002#TA                          | 0805     | 2012-15    | R         | 68       | 2                 | 1.4           | 14        | 5                    |
| TACA157M002#TA                          | 1206     | 3216-18    | A         | 150      | 2                 | 3             | 20        | 1                    |
| <b>3 Volt @ 85°C (2 Volt @ 125°C)</b>   |          |            |           |          |                   |               |           |                      |
| TACK225M003#TA                          | 0402     | 1005-07    | K         | 2.2      | 3                 | 0.5           | 6         | 15                   |
| TACL225*003#TA                          | 0603     | 1608-10    | L         | 2.2      | 3                 | 0.5           | 6         | 7.5                  |
| TACK335M003#TA                          | 0402     | 1005-07    | K         | 3.3      | 3                 | 0.5           | 8         | 15                   |
| TACL335*003#TA                          | 0603     | 1608-10    | L         | 3.3      | 3                 | 0.5           | 6         | 7.5                  |
| TACK475M003#TA                          | 0402     | 1005-07    | K         | 4.7      | 3                 | 0.5           | 12        | 15                   |
| TACL475*003#TA                          | 0603     | 1608-10    | L         | 4.7      | 3                 | 0.5           | 6         | 7.5                  |
| TACL685*003#TA                          | 0603     | 1608-10    | L         | 6.8      | 3                 | 0.5           | 6         | 7.5                  |
| TACL106*003#TA                          | 0603     | 1608-10    | L         | 10       | 3                 | 0.5           | 10        | 7.5                  |
| TACR156*003#TA                          | 0805     | 2012-15    | R         | 15       | 3                 | 0.5           | 8         | 5                    |
| TACL226M003#TA                          | 0603     | 1608-10    | L         | 22       | 3                 | 0.7           | 20        | 7.5                  |
| TACR226*003#TA                          | 0805     | 2012-15    | R         | 22       | 3                 | 0.7           | 8         | 5                    |
| TACR336*003#TA                          | 0805     | 2012-15    | R         | 33       | 3                 | 1             | 10        | 5                    |
| TACR476*003#TA                          | 0805     | 2012-15    | R         | 47       | 3                 | 1.5           | 10        | 5                    |
| TACR686M003#TA                          | 0805     | 2012-15    | R         | 68       | 3                 | 2             | 14        | 5                    |
| TACA107M003#TA                          | 1206     | 3216-18    | A         | 100      | 3                 | 3             | 15        | 1                    |
| TACR107M003#TA                          | 0805     | 2012-15    | R         | 100      | 3                 | 3             | 30        | 5                    |
| <b>4 Volt @ 85°C (2.7 Volt @ 125°C)</b> |          |            |           |          |                   |               |           |                      |
| TACL155*004#TA                          | 0603     | 1608-10    | L         | 1.5      | 4                 | 0.5           | 6         | 7.5                  |
| TACL225*004#TA                          | 0603     | 1608-10    | L         | 2.2      | 4                 | 0.5           | 6         | 7.5                  |
| TACL335*004#TA                          | 0603     | 1608-10    | L         | 3.3      | 4                 | 0.5           | 6         | 7.5                  |
| TACL475*004#TA                          | 0603     | 1608-10    | L         | 4.7      | 4                 | 0.5           | 6         | 7.5                  |
| TACL685*004#TA                          | 0603     | 1608-10    | L         | 6.8      | 4                 | 0.5           | 8         | 7.5                  |
| TACL106*004#TA                          | 0603     | 1608-10    | L         | 10       | 4                 | 0.5           | 10        | 7.5                  |
| TACR106*004#TA                          | 0805     | 2012-15    | R         | 10       | 4                 | 0.5           | 8         | 5                    |
| TACL156M004#TA                          | 0603     | 1608-10    | L         | 15       | 4                 | 0.6           | 20        | 7.5                  |
| TACR156*004#TA                          | 0805     | 2012-15    | R         | 15       | 4                 | 0.6           | 8         | 5                    |
| TACL226M004#TA                          | 0603     | 1608-10    | L         | 22       | 4                 | 0.9           | 20        | 7.5                  |
| TACR226*004#TA                          | 0805     | 2012-15    | R         | 22       | 4                 | 0.9           | 8         | 5                    |
| TACR336*004#TA                          | 0805     | 2012-15    | R         | 33       | 4                 | 1.3           | 10        | 5                    |
| TACR476*004#TA                          | 0805     | 2012-15    | R         | 47       | 4                 | 1.9           | 14        | 5                    |
| TACA686M004#TA                          | 1206     | 3216-18    | A         | 68       | 4                 | 2.7           | 15        | 1                    |
| TACA107M004#TA                          | 1206     | 3216-18    | A         | 100      | 4                 | 4             | 20        | 1                    |
| TACR107M004#TA                          | 0805     | 2012-15    | R         | 100      | 4                 | 4             | 30        | 5                    |
| <b>6.3 Volt @ 85°C (4 Volt @ 125°C)</b> |          |            |           |          |                   |               |           |                      |
| TACK105*006#TA                          | 0402     | 1005-07    | K         | 1        | 6.3               | 0.5           | 6         | 15                   |
| TACL105*006#TA                          | 0603     | 1608-10    | L         | 1        | 6.3               | 0.5           | 6         | 7.5                  |
| TACL155*006#TA                          | 0603     | 1608-10    | L         | 1.5      | 6.3               | 0.5           | 6         | 7.5                  |
| TACK225M006#TA                          | 0402     | 1005-07    | K         | 2.2      | 6.3               | 0.5           | 8         | 15                   |
| TACL225*006#TA                          | 0603     | 1608-10    | L         | 2.2      | 6.3               | 0.5           | 6         | 7.5                  |

\* Insert K for ±10% and M for ±20% Capacitance Tolerance

# Refers to termination finished and packaging reel size

MSL level: See page 123 (6. Moisture Sensitivity Level) or packaging and reel label.

| AVX Part No.                            | EIA Code | EIA Metric | Case Size | Cap (µF) | Rated Voltage (V) | DCL (µA) Max. | DF % Max. | ESR Max. (Ω) @100kHz |
|---|----------|------------|-----------|----------|-------------------|---------------|-----------|----------------------|
| <b>10 Volt @ 85°C (7 Volt @ 125°C)</b>  |          |            |           |          |                   |               |           |                      |
| TACL335*006#TA                          | 0603     | 1608-10    | L         | 3.3      | 6.3               | 0.5           | 6         | 7.5                  |
| TACL475*006#TA                          | 0603     | 1608-10    | L         | 4.7      | 6.3               | 0.5           | 8         | 7.5                  |
| TACL685*006#TA                          | 0603     | 1608-10    | L         | 6.8      | 6.3               | 0.5           | 10        | 7.5                  |
| TACR685*006#TA                          | 0805     | 2012-15    | R         | 6.8      | 6.3               | 0.5           | 8         | 5                    |
| TACL106M006#TA                          | 0603     | 1608-10    | L         | 10       | 6.3               | 0.6           | 10        | 6                    |
| TACR106*006#TA                          | 0805     | 2012-15    | R         | 10       | 6.3               | 0.6           | 8         | 5                    |
| TACL156M006#TA                          | 0603     | 1608-10    | L         | 15       | 6.3               | 0.9           | 20        | 7.5                  |
| TACR156*006#TA                          | 0805     | 2012-15    | R         | 15       | 6.3               | 0.9           | 8         | 5                    |
| TACR226*006#TA                          | 0805     | 2012-15    | R         | 22       | 6.3               | 1.4           | 10        | 5                    |
| TACR336*006#TA                          | 0805     | 2012-15    | R         | 33       | 6.3               | 2.1           | 12        | 5                    |
| TACA476*006#TA                          | 1206     | 3216-18    | A         | 47       | 6.3               | 3             | 15        | 1                    |
| TACR476M006#TA                          | 0805     | 2012-15    | R         | 47       | 6.3               | 3             | 20        | 5                    |
| TACA686M006#TA                          | 1206     | 3216-18    | A         | 68       | 6.3               | 4.3           | 15        | 1                    |
| TACA107M006#TA                          | 1206     | 3216-18    | A         | 100      | 6.3               | 6.3           | 20        | 1                    |
| <b>16 Volt @ 85°C (10 Volt @ 125°C)</b> |          |            |           |          |                   |               |           |                      |
| TACK474M010#TA                          | 0402     | 1005-07    | K         | 0.47     | 10                | 0.5           | 6         | 15                   |
| TACL474*010#TA                          | 0603     | 1608-10    | L         | 0.47     | 10                | 0.5           | 6         | 7.5                  |
| TACK684M010#TA                          | 0402     | 1005-07    | K         | 0.68     | 10                | 0.5           | 8         | 15                   |
| TACL684*010#TA                          | 0603     | 1608-10    | L         | 0.68     | 10                | 0.5           | 6         | 7.5                  |
| TACK105*010#TA                          | 0402     | 1005-07    | K         | 1        | 10                | 0.5           | 6         | 15                   |
| TACL105*010#TA                          | 0603     | 1608-10    | L         | 1        | 10                | 0.5           | 6         | 7.5                  |
| TACL155*010#TA                          | 0603     | 1608-10    | L         | 1.5      | 10                | 0.5           | 6         | 7.5                  |
| TACL225*010#TA                          | 0603     | 1608-10    | L         | 2.2      | 10                | 0.5           | 6         | 7.5                  |
| TACL335*010#TA                          | 0603     | 1608-10    | L         | 3.3      | 10                | 0.5           | 8         | 7.5                  |
| TACR335*010#TA                          | 0805     | 2012-15    | R         | 3.3      | 10                | 0.5           | 8         | 5                    |
| TACL475*010#TA                          | 0603     | 1608-10    | L         | 4.7      | 10                | 0.5           | 10        | 6                    |
| TACR475*010#TA                          | 0805     | 2012-15    | R         | 4.7      | 10                | 0.5           | 8         | 6                    |
| TACL685*010#TA                          | 0603     | 1608-10    | L         | 6.8      | 10                | 0.7           | 20        | 7.5                  |
| TACR685*010#TA                          | 0805     | 2012-15    | R         | 6.8      | 10                | 0.7           | 8         | 5                    |
| TACL106*010#TA                          | 0603     | 1608-10    | L         | 10       | 10                | 1             | 20        | 7.5                  |
| TACR106*010#TA                          | 0805     | 2012-15    | R         | 10       | 10                | 1             | 8         | 5                    |
| TACR156*010#TA                          | 0805     | 2012-15    | R         | 15       | 10                | 1.5           | 10        | 5                    |
| TACR226*010#TA                          | 0805     | 2012-15    | R         | 22       | 10                | 2.2           | 14        | 5                    |
| TACA336M010#TA                          | 1206     | 3216-18    | A         | 33       | 10                | 3.3           | 12        | 1                    |
| TACB336*010#TA                          | 1210     | 3528-15    | B         | 33       | 10                | 3.3           | 15        | 1                    |
| TACR336M010#TA                          | 0805     | 2012-15    | R         | 33       | 10                | 3.3           | 20        | 5                    |
| TACB476*010#TA                          | 1210     | 3528-15    | B         | 47       | 10                | 4.7           | 15        | 1                    |
| <b>20 Volt @ 85°C (13 Volt @ 125°C)</b> |          |            |           |          |                   |               |           |                      |
| TACL474*016#TA                          | 0603     | 1608-10    | L         | 0.47     | 16                | 0.5           | 6         | 7.5                  |
| TACL684*016#TA                          | 0603     | 1608-10    | L         | 0.68     | 16                | 0.5           | 6         | 7.5                  |
| TACL105*016#TA                          | 0603     | 1608-10    | L         | 1        | 16                | 0.5           | 6         | 7.5                  |
| TACL225*016#TA                          | 0603     | 1608-10    | L         | 2.2      | 16                | 0.5           | 10        | 7.5                  |
| TACR335*016#TA                          | 0805     | 2012-15    | R         | 3.3      | 16                | 0.5           | 8         | 5                    |
| TACR106*016#TA                          | 0805     | 2012-15    | R         | 10       | 16                | 1.6           | 10        | 5                    |
| <b>25 Volt @ 85°C (17 Volt @ 125°C)</b> |          |            |           |          |                   |               |           |                      |
| TACK104*020#TA                          | 0402     | 1005-07    | K         | 0.10     | 20                | 0.5           | 6         | 40                   |
| TACR335M020#TA                          | 0805     | 2012-15    | R         | 3.3      | 20                | 0.7           | 8         | 5                    |
| TACR475M020#TA                          | 0805     | 2012-15    | R         | 4.7      | 20                | 0.9           | 8         | 5                    |
| <b>50 Volt @ 85°C (33 Volt @ 125°C)</b> |          |            |           |          |                   |               |           |                      |
| TACA105*050#TA                          | 1206     | 3216-18    | A         | 1.0      | 50                | 0.5           | 6         | 1                    |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

**NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.**