

# TCJ Series



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode



### FEATURES

- Conductive polymer electrode reduces ignition failure mode
- Lower ESR
- 3x reflow 260°C compatible
- CV range: 0.47-470µF / 2.5-125V
- 16 case sizes available

### APPLICATIONS

- Smart phone, Tablets, Notebook, LCD TV, Power supplies



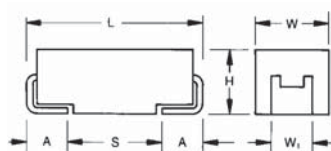
Elektra Award 2010



LEAD-FREE  
LEAD-FREE COMPATIBLE  
COMPONENT

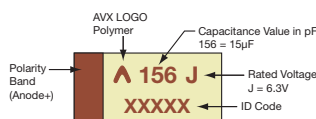


RoHS  
COMPLIANT

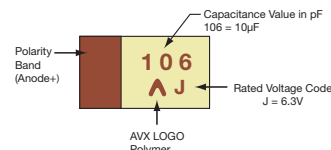


### MARKING

A, B, C, D, E, G, H, K,  
S, T, V, W, Y CASE



N, P, R CASE



### CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W±0.20 (0.008) -0.10 (0.004) | H±0.20 (0.008) -0.10 (0.004) | W1±0.20 (0.008)         | A±0.30 (0.012) -0.20 (0.008) | S Min.       |
|------|----------|------------|----------------|------------------------------|------------------------------|-------------------------|------------------------------|--------------|
| A    | 1206     | 3216-18    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.60 (0.063)                 | 1.20 (0.047)            | 0.80 (0.031)                 | 1.10 (0.043) |
| B    | 1210     | 3528-21    | 3.50 (0.138)   | 2.80 (0.110)                 | 1.90 (0.075)                 | 2.20 (0.087)            | 0.80 (0.031)                 | 1.40 (0.055) |
| C    | 2312     | 6032-28    | 6.00 (0.236)   | 3.20 (0.126)                 | 2.60 (0.102)                 | 2.20 (0.087)            | 1.30 (0.051)                 | 2.90 (0.114) |
| D    | 2917     | 7343-31    | 7.30 (0.287)   | 4.30 (0.169)                 | 2.90 (0.114)                 | 2.40 (0.094)            | 1.30 (0.051)                 | 4.40 (0.173) |
| E    | 2917     | 7343-43    | 7.30 (0.287)   | 4.30 (0.169)                 | 4.10 (0.162)                 | 2.40 (0.094)            | 1.30 (0.051)                 | 4.40 (0.173) |
| G    | 1206     | 3216-15    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.50 (0.059) max             | 1.20 (0.047)            | 0.80 (0.031)                 | 1.10 (0.043) |
| H    | 1210     | 3528-15    | 3.50 (0.138)   | 2.80 (0.110)                 | 1.50 (0.059) max             | 2.20 (0.087)            | 0.80 (0.031)                 | 1.40 (0.055) |
| K    | 1206     | 3216-10    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.00 (0.039) max             | 1.20 (0.047)            | 0.80 (0.031)                 | 1.10 (0.043) |
| N    | 0805     | 2012-10    | 2.05 (0.081)   | 1.30 (0.051)                 | 1.00 (0.039) max             | 1.00 (0.039)            | 0.50 (0.020)                 | 0.85 (0.033) |
| P    | 0805     | 2012-15    | 2.05 (0.081)   | 1.35 (0.050)                 | 1.50 (0.059) max             | 1.00±0.10 (0.039±0.004) | 0.50 (0.020)                 | 0.85 (0.033) |
| R    | 0805     | 2012-12    | 2.05 (0.081)   | 1.30 (0.051)                 | 1.20 (0.047) max             | 1.00±0.10 (0.039±0.004) | 0.50 (0.020)                 | 0.85 (0.033) |
| S    | 1206     | 3216-12    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.20 (0.047) max             | 1.20 (0.047)            | 0.80 (0.031)                 | 1.10 (0.043) |
| T    | 1210     | 3528-12    | 3.50 (0.138)   | 2.80 (0.110)                 | 1.20 (0.047) max             | 2.20 (0.087)            | 0.80 (0.031)                 | 1.40 (0.055) |
| V    | 2924     | 7361-38    | 7.30 (0.287)   | 6.10 (0.240)                 | 3.55 (0.140)                 | 3.10 (0.120)            | 1.30 (0.051)                 | 4.40 (0.173) |
| W    | 2312     | 6032-15    | 6.00 (0.236)   | 3.20 (0.126)                 | 1.50 (0.059) max             | 2.20 (0.087)            | 1.30 (0.051)                 | 2.90 (0.114) |
| Y    | 2917     | 7343-20    | 7.30 (0.287)   | 4.30 (0.169)                 | 2.00 (0.079) max             | 2.40 (0.094)            | 1.30 (0.051)                 | 4.40 (0.173) |

W1 dimension applies to the termination width for A dimensional area only.

### HOW TO ORDER

| TCJ  | A               | 226                                                                                                                | M         | 004                                                                                                    | R                                             | 0300      |
|------|-----------------|--------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------|
| Type | Case Size       | Capacitance Code                                                                                                   | Tolerance | Rated DC Voltage                                                                                       | Packaging                                     | ESR in mΩ |
|      | See table above | pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow) | M = ±20%  | 002 = 2.5Vdc<br>004 = 4Vdc<br>006 = 6.3Vdc<br>010 = 10Vdc<br>016 = 16Vdc<br>020 = 20Vdc<br>025 = 25Vdc | R = Pure Tin 7" Reel<br>S = Pure Tin 13" Reel |           |
|      |                 |                                                                                                                    |           | 035 = 35Vdc<br>050 = 50Vdc<br>063 = 63Vdc<br>075 = 75Vdc<br>100 = 100Vdc<br>125 = 125Vdc               |                                               |           |

### TECHNICAL SPECIFICATIONS (Common for all TCJ series)

|                               |                                                                                              |
|-------------------------------|----------------------------------------------------------------------------------------------|
| Technical Data:               | All technical data relate to an ambient temperature of +25°C                                 |
| Capacitance Tolerance:        | ±20%                                                                                         |
| Leakage Current DCL:          | 0.1CV                                                                                        |
| Reliability:                  | 1% per 1000 hours at 85°C, V <sub>R</sub> with 0.1Ω/V series impedance, 60% confidence level |
| Resistance to soldering heat: | 3x260°C peak for max. 10s reflow                                                             |



# TCJ Series



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### CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

| Cap  |      | Rated Voltage DC (V <sub>R</sub> ) to 85°C |                                           |                                                                      |                                  |                                |                |                                      |                                   |                     |                      |         |          |          |
|------|------|--------------------------------------------|-------------------------------------------|----------------------------------------------------------------------|----------------------------------|--------------------------------|----------------|--------------------------------------|-----------------------------------|---------------------|----------------------|---------|----------|----------|
| μF   | Code | 2.5V (e)                                   | 4V (G)                                    | 6.3V (J)                                                             | 10V (A)                          | 16V (C)                        | 20V (D)        | 25V (E)                              | 35V (V)                           | 50V (T)             | 63V (J)              | 75V (P) | 100V (A) | 125V (B) |
| 0.47 | 474  |                                            |                                           |                                                                      |                                  |                                |                |                                      |                                   |                     | B(400)               |         |          |          |
| 0.68 | 684  |                                            |                                           |                                                                      |                                  |                                |                |                                      |                                   | B(400)              | B(300)               |         |          |          |
| 1.0  | 105  |                                            |                                           |                                                                      |                                  |                                |                | N*<br>P(500)                         | A(250)*                           | A*<br>B(300)        | B(300)<br>C(300)     |         |          |          |
| 1.5  | 155  |                                            |                                           |                                                                      |                                  |                                |                |                                      | B(200)                            | B(300)<br>C(300)    | C(300)               |         |          |          |
| 2.2  | 225  |                                            |                                           |                                                                      |                                  |                                |                |                                      | B(200)                            | C(300)              | C(200)               |         |          |          |
| 3.3  | 335  |                                            |                                           |                                                                      |                                  |                                |                |                                      | B(200)                            | C(200)              | C(200)               |         |          | D(250)   |
| 4.7  | 475  |                                            |                                           |                                                                      | K(500)<br>R(500)                 |                                |                | B(150)                               | B(200)<br>C(200)                  | C(200)              | C(200)<br>D(120)     | D(150)  | D(250)   |          |
| 6.8  | 685  |                                            |                                           |                                                                      |                                  | A(200)                         |                | B(90,150)                            | C(200)                            | C(200)<br>D(120)    | D(120)<br>E(100,150) | D(120)  | V(250)   |          |
| 10   | 106  |                                            |                                           | A(300)<br>N(250,500)<br>R(500)                                       | A(300)                           | A(200)<br>B(200)<br>T(150,200) |                | B(90,150)                            | B(200)<br>C(200)<br>Y(70)         | D(120)<br>E(70,100) | E(100,150)           |         |          |          |
| 15   | 156  |                                            | A(300)                                    | A(300)                                                               | A(200)                           | B(150)                         |                | B(100,150)<br>Y(70,90,200)*          | C(200)<br>D(70,100)<br>W*, Y(70)* | E(70,100)           |                      |         |          |          |
| 22   | 226  |                                            | A(300)                                    | A(300), K(400)<br>N(500), R(500)<br>S(400), T(150)                   | B(300)<br>T(70,150)              | B(150)                         | Y(70)          | B(150), C(100)<br>D(60,100)<br>Y(70) | D(70,100)<br>Y(70)*               |                     |                      |         |          |          |
| 33   | 336  |                                            | A(300)                                    | A(200)<br>B(70,200)<br>T(150)                                        | B(70,200)<br>C(100)<br>T(70,150) | Y(45,60,70)                    | Y(70)          | D(60,100)<br>Y(60,70,100)            | D(70,100)<br>E(55,70)             |                     |                      |         |          |          |
| 47   | 476  |                                            | A(200)<br>T(80)                           | A(200), B(70)<br>K(150,200,400)<br>P(500), R(500)<br>T(55,70,80,120) | B(70)<br>C(100)                  | Y(45,70)                       | D(55)<br>Y(70) | D(60,100)<br>E(50)                   | E(55)                             |                     |                      |         |          |          |
| 68   | 686  | A(250)                                     | A(250)<br>B(70)<br>T(80)                  | B(55,70)<br>C(100)<br>T(200), W(70)                                  | D(45,55)<br>Y(45,55)             | D(50)<br>Y(50)                 | D(55)<br>E(45) | E(50)                                |                                   |                     |                      |         |          |          |
| 100  | 107  | A(200)<br>B(70)                            | A(200)<br>B(70)<br>G(300)<br>T(150)       | A(70)*<br>B(45,69,70)<br>T(70,200)                                   | D(45,55)<br>Y(25,45,55)          | D(50), E(40)<br>Y(50)          | D(55)<br>E(45) | E(80)                                |                                   |                     |                      |         |          |          |
| 150  | 157  | B(70)                                      | B(70), Y(25,45)                           | B(35,45,69,70)<br>D(15,40)<br>H(200), W(40,70)<br>Y(15,25,40)        | D(25,40,45,55)<br>Y(25,40,45,55) | E(40)                          |                |                                      |                                   |                     |                      |         |          |          |
| 220  | 227  | A(35)*<br>B(35,45,70)                      | B(35,45,60,70)<br>D(15,40)<br>Y(15,25,40) | B(70,200)<br>D(25,35,40,50)<br>W(100)*<br>Y(25,35,40,50)             | D(25,40,50)<br>Y(25,40,50)       |                                |                |                                      |                                   |                     |                      |         |          |          |
| 330  | 337  | B(35,45,70)<br>Y(25,40)                    | D(25,40,50)<br>Y(25,40,50)                | D(25,40,50)<br>Y(25,40,50)                                           |                                  |                                |                |                                      |                                   |                     |                      |         |          |          |
| 470  | 477  | D(25,40,50)<br>Y(25,40,50)                 | D(25,40,50)<br>Y(25,40,50)                |                                                                      |                                  |                                |                |                                      |                                   |                     |                      |         |          |          |

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

\*Codes under development – subject to change

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

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## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### RATINGS & PART NUMBER REFERENCE

| AVX<br>Part No.  | Case<br>Size | Cap<br>(µF) | Rated<br>Voltage<br>(V) | Rated<br>Temp.<br>(°C) | Category<br>Voltage<br>(V) | Category<br>Temp.<br>(°C) | DCL<br>(µA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (mΩ)<br>@ 100kHz | MSL | 100kHz RMS Current (mA) |      |       |       | Product<br>Category |
|------------------|--------------|-------------|-------------------------|------------------------|----------------------------|---------------------------|---------------------|-----------------|------------------------------|-----|-------------------------|------|-------|-------|---------------------|
|                  |              |             |                         |                        |                            |                           |                     |                 |                              |     | 25°C                    | 85°C | 105°C | 125°C |                     |
| 2.5 Volt @ 85°C  |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJA686M002#0250 | A            | 68          | 2.5                     | 85                     | 2                          | 105                       | 17.0                | 6               | 250                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJA107M002#0200 | A            | 100         | 2.5                     | 85                     | 2                          | 105                       | 25.0                | 6               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJB107M002#0070 | B            | 100         | 2.5                     | 85                     | 1.7                        | 125                       | 25.0                | 6               | 70                           | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJB157M002#0070 | B            | 150         | 2.5                     | 85                     | 2                          | 105                       | 37.5                | 6               | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJB227M002#0035 | B            | 220         | 2.5                     | 85                     | 2                          | 105                       | 55                  | 8               | 35                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJB227M002#0045 | B            | 220         | 2.5                     | 85                     | 2                          | 105                       | 55                  | 8               | 45                           | 3   | 1700                    | 1200 | 800   | –     | 105°C               |
| TCJB227M002#0070 | B            | 220         | 2.5                     | 85                     | 2                          | 105                       | 55                  | 8               | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJB337M002#0035 | B            | 330         | 2.5                     | 85                     | 2                          | 105                       | 82.5                | 8               | 35                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJB337M002#0045 | B            | 330         | 2.5                     | 85                     | 2                          | 105                       | 82.5                | 8               | 45                           | 3   | 1700                    | 1200 | 800   | –     | 105°C               |
| TCJB337M002#0070 | B            | 330         | 2.5                     | 85                     | 2                          | 105                       | 82.5                | 8               | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJY337M002#0025 | Y            | 330         | 2.5                     | 85                     | 2                          | 105                       | 82.5                | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY337M002#0040 | Y            | 330         | 2.5                     | 85                     | 2                          | 105                       | 82.5                | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJD477M002#0025 | D            | 470         | 2.5                     | 85                     | 2                          | 105                       | 117.5               | 6               | 25                           | 3   | 3000                    | 2100 | 1400  | –     | 105°C               |
| TCJD477M002#0040 | D            | 470         | 2.5                     | 85                     | 2                          | 105                       | 117.5               | 6               | 40                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD477M002#0050 | D            | 470         | 2.5                     | 85                     | 2                          | 105                       | 117.5               | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJY477M002#0025 | Y            | 470         | 2.5                     | 85                     | 2                          | 105                       | 117.5               | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY477M002#0040 | Y            | 470         | 2.5                     | 85                     | 2                          | 105                       | 117.5               | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY477M002#0050 | Y            | 470         | 2.5                     | 85                     | 2                          | 105                       | 117.5               | 6               | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| 4 Volt @ 85°C    |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJA156M004#0300 | A            | 15          | 4                       | 85                     | 2.7                        | 125                       | 6.0                 | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJA226M004#0300 | A            | 22          | 4                       | 85                     | 2.7                        | 125                       | 8.8                 | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJA336M004#0300 | A            | 33          | 4                       | 85                     | 2.7                        | 125                       | 13.2                | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJA476M004#0200 | A            | 47          | 4                       | 85                     | 3.2                        | 105                       | 18.8                | 6               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJT476M004#0080 | T            | 47          | 4                       | 85                     | 3.2                        | 105                       | 18.8                | 8               | 80                           | 3   | 1200                    | 800  | 500   | –     | 105°C               |
| TCJA686M004#0250 | A            | 68          | 4                       | 85                     | 3.2                        | 105                       | 27.2                | 6               | 250                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJB686M004#0070 | B            | 68          | 4                       | 85                     | 2.7                        | 125                       | 27.2                | 6               | 70                           | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJT686M004#0080 | T            | 68          | 4                       | 85                     | 3.2                        | 105                       | 27.2                | 8               | 80                           | 3   | 1100                    | 800  | 500   | –     | 105°C               |
| TCJA107M004#0200 | A            | 100         | 4                       | 85                     | 3.2                        | 105                       | 40.0                | 6               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJB107M004#0070 | B            | 100         | 4                       | 85                     | 2.7                        | 125                       | 40.0                | 8               | 70                           | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJG107M004#0300 | G            | 100         | 4                       | 85                     | 3.2                        | 105                       | 40.0                | 10              | 300                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJT107M004#0150 | T            | 100         | 4                       | 85                     | 3.2                        | 105                       | 40.0                | 8               | 150                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJB157M004#0070 | B            | 150         | 4                       | 85                     | 3.2                        | 105                       | 60.0                | 6               | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJY157M004#0025 | Y            | 150         | 4                       | 85                     | 3.2                        | 105                       | 60.0                | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY157M004#0045 | Y            | 150         | 4                       | 85                     | 3.2                        | 105                       | 60.0                | 6               | 45                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJB227M004#0035 | B            | 220         | 4                       | 85                     | 3.2                        | 105                       | 88.0                | 10              | 35                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJB227M004#0045 | B            | 220         | 4                       | 85                     | 3.2                        | 105                       | 88.0                | 10              | 45                           | 3   | 1700                    | 1200 | 800   | –     | 105°C               |
| TCJB227M004#0060 | B            | 220         | 4                       | 85                     | 3.2                        | 105                       | 88.0                | 10              | 60                           | 3   | 1500                    | 1100 | 700   | –     | 105°C               |
| TCJB227M004#0070 | B            | 220         | 4                       | 85                     | 3.2                        | 105                       | 88.0                | 10              | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJD227M004#0015 | D            | 220         | 4                       | 105                    | 4                          | 105                       | 88.0                | 6               | 15                           | 3   | 3700                    | 2600 | 1700  | –     | 105°C               |
| TCJD227M004#0040 | D            | 220         | 4                       | 105                    | 4                          | 105                       | 88.0                | 6               | 40                           | 3   | 2300                    | 1600 | 1000  | –     | 105°C               |
| TCJY227M004#0015 | Y            | 220         | 4                       | 105                    | 4                          | 105                       | 88.0                | 6               | 15                           | 3   | 3500                    | 2500 | 1600  | –     | 105°C               |
| TCJY227M004#0025 | Y            | 220         | 4                       | 85                     | 3.2                        | 105                       | 88.0                | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY227M004#0040 | Y            | 220         | 4                       | 85                     | 3.2                        | 105                       | 88.0                | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJD337M004#0025 | D            | 330         | 4                       | 85                     | 3.2                        | 105                       | 132                 | 6               | 25                           | 3   | 3000                    | 2100 | 1400  | –     | 105°C               |
| TCJD337M004#0040 | D            | 330         | 4                       | 85                     | 3.2                        | 105                       | 132                 | 6               | 40                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD337M004#0050 | D            | 330         | 4                       | 85                     | 3.2                        | 105                       | 132                 | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJY337M004#0025 | Y            | 330         | 4                       | 85                     | 3.2                        | 105                       | 132                 | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY337M004#0040 | Y            | 330         | 4                       | 85                     | 3.2                        | 105                       | 132                 | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY337M004#0050 | Y            | 330         | 4                       | 85                     | 3.2                        | 105                       | 132                 | 6               | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJD477M004#0025 | D            | 470         | 4                       | 85                     | 3.2                        | 105                       | 188                 | 6               | 25                           | 3   | 3000                    | 2100 | 1400  | –     | 105°C               |
| TCJD477M004#0040 | D            | 470         | 4                       | 85                     | 3.2                        | 105                       | 188                 | 6               | 40                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD477M004#0050 | D            | 470         | 4                       | 85                     | 3.2                        | 105                       | 188                 | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJY477M004#0025 | Y            | 470         | 4                       | 85                     | 3.2                        | 105                       | 188                 | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY477M004#0040 | Y            | 470         | 4                       | 85                     | 3.2                        | 105                       | 188                 | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY477M004#0050 | Y            | 470         | 4                       | 85                     | 3.2                        | 105                       | 188                 | 6               | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| 6.3 Volt @ 85°C  |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJA106M006#0300 | A            | 10          | 6.3                     | 85                     | 4                          | 125                       | 6.0                 | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJN106M006#0250 | N            | 10          | 6.3                     | 85                     | 5                          | 105                       | 6.0                 | 6               | 250                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJN106M006#0500 | N            | 10          | 6.3                     | 85                     | 5                          | 105                       | 6.0                 | 6               | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJR106M006#0500 | R            | 10          | 6.3                     | 85                     | 5                          | 105                       | 6.0                 | 6               | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJA156M006#0300 | A            | 15          | 6.3                     | 85                     | 4                          | 125                       | 9.0                 | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJA226M006#0300 | A            | 22          | 6.3                     | 85                     | 4                          | 125                       | 13.2                | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJK226M006#0400 | K            | 22          | 6.3                     | 85                     | 5                          | 105                       | 13.2                | 8               | 400                          | 3   | 500                     | 400  | 200   | –     | 105°C               |
| TCJN226M006#0500 | N            | 22          | 6.3                     | 85                     | 5                          | 105                       | 13.2                | 10              | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

ESR allowed to move up to 1.25 times catalog limit post mounting.

For typical weight and composition see page 162.

**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.



# TCJ Series



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### RATINGS & PART NUMBER REFERENCE

| AVX<br>Part No.       | Case<br>Size | Cap<br>(µF) | Rated<br>Voltage<br>(V) | Rated<br>Temp.<br>(°C) | Category<br>Voltage<br>(V) | Category<br>Temp.<br>(°C) | DCL<br>(µA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (mΩ)<br>@ 100kHz | MSL | 100kHz RMS Current (mA) |      |       |       | Product<br>Category |
|-----------------------|--------------|-------------|-------------------------|------------------------|----------------------------|---------------------------|---------------------|-----------------|------------------------------|-----|-------------------------|------|-------|-------|---------------------|
|                       |              |             |                         |                        |                            |                           |                     |                 |                              |     | 25°C                    | 85°C | 105°C | 125°C |                     |
| TCJR226M006#0500      | R            | 22          | 6.3                     | 85                     | 5                          | 105                       | 13.2                | 10              | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJS226M006#0400      | S            | 22          | 6.3                     | 85                     | 5                          | 105                       | 13.2                | 8               | 400                          | 3   | 500                     | 400  | 200   | –     | 105°C               |
| TCJT226M006#0150      | T            | 22          | 6.3                     | 85                     | 5                          | 105                       | 13.2                | 6               | 150                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJA336M006#0200      | A            | 33          | 6.3                     | 85                     | 5                          | 105                       | 19.8                | 6               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJB336M006#0070      | B            | 33          | 6.3                     | 85                     | 4                          | 125                       | 19.8                | 6               | 70                           | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJB336M006#0200      | B            | 33          | 6.3                     | 85                     | 4                          | 125                       | 19.8                | 6               | 200                          | 3   | 800                     | 600  | 400   | 200   | 125°C               |
| TCJT336M006#0150      | T            | 33          | 6.3                     | 85                     | 5                          | 105                       | 19.8                | 8               | 150                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJA476M006#0200      | A            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 6               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJB476M006#0070      | B            | 47          | 6.3                     | 85                     | 4                          | 125                       | 28.2                | 6               | 70                           | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJK476M006#0150      | K            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 6               | 150                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJK476M006#0200      | K            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 6               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJK476M006#0400      | K            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 6               | 400                          | 3   | 500                     | 400  | 200   | –     | 105°C               |
| TCJP476M006#0500      | P            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 10              | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJA76M006#0500       | R            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 10              | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJT476M006#0055      | T            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 8               | 55                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJT476M006#0070      | T            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 8               | 70                           | 3   | 1200                    | 800  | 500   | –     | 105°C               |
| TCJT476M006#0080      | T            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 8               | 80                           | 3   | 1100                    | 800  | 500   | –     | 105°C               |
| TCJT476M006#0120      | T            | 47          | 6.3                     | 85                     | 5                          | 105                       | 28.2                | 8               | 120                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJB686M006#0055      | B            | 68          | 6.3                     | 85                     | 4                          | 125                       | 40.8                | 8               | 55                           | 3   | 1500                    | 1100 | 700   | 400   | 125°C               |
| TCJB686M006#0070      | B            | 68          | 6.3                     | 85                     | 4                          | 125                       | 40.8                | 8               | 70                           | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJC686M006#0100      | C            | 68          | 6.3                     | 85                     | 4                          | 125                       | 40.8                | 6               | 100                          | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJT686M006#0200      | T            | 68          | 6.3                     | 85                     | 5                          | 105                       | 40.8                | 8               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJW686M006#0070      | W            | 68          | 6.3                     | 85                     | 4                          | 125                       | 40.8                | 8               | 70                           | 3   | 1400                    | 1000 | 600   | 400   | 125°C               |
| TCJB107M006#0045      | B            | 100         | 6.3                     | 85                     | 5                          | 105                       | 60.0                | 10              | 45                           | 3   | 1700                    | 1200 | 800   | –     | 105°C               |
| TCJB107M006#0069      | B            | 100         | 6.3                     | 85                     | 5                          | 105                       | 60.0                | 10              | 69                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJB107M006#0070      | B            | 100         | 6.3                     | 85                     | 5                          | 105                       | 60.0                | 10              | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJT107M006#0070      | T            | 100         | 6.3                     | 85                     | 5                          | 105                       | 60.0                | 10              | 70                           | 3   | 1200                    | 800  | 500   | –     | 105°C               |
| TCJT107M006#0200      | T            | 100         | 6.3                     | 85                     | 5                          | 105                       | 60.0                | 10              | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJB157M006#0035      | B            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 10              | 35                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJB157M006#0045      | B            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 10              | 45                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJB157M006#0069      | B            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 10              | 69                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJB157M006#0070      | B            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 10              | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJD157M006#0015      | D            | 150         | 6.3                     | 105                    | 6                          | 105                       | 90.0                | 6               | 15                           | 3   | 3700                    | 2600 | 1700  | –     | 105°C               |
| TCJD157M006#0040      | D            | 150         | 6.3                     | 105                    | 6                          | 105                       | 90.0                | 6               | 40                           | 3   | 2300                    | 1600 | 1000  | –     | 105°C               |
| TCJH157M006#0200      | H            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 6               | 200                          | 3   | 700                     | 500  | 300   | –     | 105°C               |
| TCJW157M006#0040      | W            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 6               | 40                           | 3   | 1800                    | 1300 | 800   | –     | 105°C               |
| TCJW157M006#0070      | W            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 6               | 70                           | 3   | 1400                    | 1000 | 600   | –     | 105°C               |
| TCJY157M006#0015      | Y            | 150         | 6.3                     | 105                    | 6                          | 105                       | 90.0                | 6               | 15                           | 3   | 3500                    | 2500 | 1600  | –     | 105°C               |
| TCJY157M006#0025      | Y            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY157M006#0040      | Y            | 150         | 6.3                     | 85                     | 5                          | 105                       | 90.0                | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJB227M006#0070      | B            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 10              | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJB227M006#0200      | B            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 10              | 200                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJD227M006#0025      | D            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 25                           | 3   | 3000                    | 2100 | 1400  | –     | 105°C               |
| TCJD227M006#0035      | D            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 35                           | 3   | 2500                    | 1800 | 1100  | –     | 105°C               |
| TCJD227M006#0040      | D            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 40                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD227M006#0050      | D            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJY227M006#0025      | Y            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY227M006#0035      | Y            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 35                           | 3   | 2300                    | 1600 | 1000  | –     | 105°C               |
| TCJY227M006#0040      | Y            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY227M006#0050      | Y            | 220         | 6.3                     | 85                     | 5                          | 105                       | 132.0               | 6               | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJD337M006#0025      | D            | 330         | 6.3                     | 85                     | 5                          | 105                       | 198                 | 6               | 25                           | 3   | 3000                    | 2100 | 1400  | –     | 105°C               |
| TCJD337M006#0040      | D            | 330         | 6.3                     | 85                     | 5                          | 105                       | 198                 | 6               | 40                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD337M006#0050      | D            | 330         | 6.3                     | 85                     | 5                          | 105                       | 198                 | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJY337M006#0025      | Y            | 330         | 6.3                     | 85                     | 5                          | 105                       | 198                 | 12              | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY337M006#0040      | Y            | 330         | 6.3                     | 85                     | 5                          | 105                       | 198                 | 12              | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY337M006#0050      | Y            | 330         | 6.3                     | 85                     | 5                          | 105                       | 198                 | 12              | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| <b>10 Volt @ 85°C</b> |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJK475M010#0500      | K            | 4.7         | 10                      | 85                     | 8                          | 105                       | 4.7                 | 6               | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJR475M010#0500      | R            | 4.7         | 10                      | 85                     | 8                          | 105                       | 4.7                 | 6               | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJA106M010#0300      | A            | 10          | 10                      | 85                     | 7                          | 125                       | 10.0                | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJA156M010#0200      | A            | 15          | 10                      | 85                     | 7                          | 125                       | 15.0                | 6               | 200                          | 3   | 700                     | 500  | 300   | 200   | 125°C               |
| TCJB226M010#0300      | B            | 22          | 10                      | 85                     | 7                          | 125                       | 22.0                | 6               | 300                          | 3   | 600                     | 400  | 300   | 200   | 125°C               |
| TCJT226M010#0070      | T            | 22          | 10                      | 85                     | 8                          | 105                       | 22.0                | 6               | 70                           | 3   | 1200                    | 800  | 500   | –     | 105°C               |
| TCJT226M010#0150      | T            | 22          | 10                      | 85                     | 8                          | 105                       | 22.0                | 6               | 150                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJB336M010#0070      | B            | 33          | 10                      | 85                     | 7                          | 125                       | 33.0                | 6               | 70                           | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJB336M010#0200      | B            | 33          | 10                      | 85                     | 7                          | 125                       | 33.0                | 6               | 200                          | 3   | 800                     | 600  | 400   | 200   | 125°C               |
| TCJC336M010#0100      | C            | 33          | 10                      | 85                     | 7                          | 125                       | 33.0                | 6               | 100                          | 3   | 1300                    | 900  | 600   | 300   | 125°C               |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

ESR allowed to move up to 1.25 times catalog limit post mounting.

For typical weight and composition see page 162.

**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.**



# TCJ Series



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### RATINGS & PART NUMBER REFERENCE

| AVX<br>Part No.  | Case<br>Size | Cap<br>(µF) | Rated<br>Voltage<br>(V) | Rated<br>Temp.<br>(°C) | Category<br>Voltage<br>(V) | Category<br>Temp.<br>(°C) | DCL<br>(µA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (mΩ)<br>@ 100kHz | MSL | 100kHz RMS Current (mA) |      |       |       | Product<br>Category |
|------------------|--------------|-------------|-------------------------|------------------------|----------------------------|---------------------------|---------------------|-----------------|------------------------------|-----|-------------------------|------|-------|-------|---------------------|
|                  |              |             |                         |                        |                            |                           |                     |                 |                              |     | 25°C                    | 85°C | 105°C | 125°C |                     |
| TCJT336M010#0070 | T            | 33          | 10                      | 85                     | 8                          | 105                       | 33.0                | 6               | 70                           | 3   | 1200                    | 800  | 500   | –     | 105°C               |
| TCJT336M010#0150 | T            | 33          | 10                      | 85                     | 8                          | 105                       | 33.0                | 6               | 150                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJB476M010#0070 | B            | 47          | 10                      | 85                     | 8                          | 105                       | 47.0                | 6               | 70                           | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJC476M010#0100 | C            | 47          | 10                      | 85                     | 7                          | 125                       | 47.0                | 6               | 100                          | 3   | 1300                    | 900  | 600   | 300   | 125°C               |
| TCJD686M010#0045 | D            | 68          | 10                      | 85                     | 8                          | 105                       | 68                  | 6               | 45                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJD686M010#0055 | D            | 68          | 10                      | 85                     | 8                          | 105                       | 68                  | 6               | 55                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY686M010#0045 | Y            | 68          | 10                      | 85                     | 8                          | 105                       | 68                  | 6               | 45                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY686M010#0055 | Y            | 68          | 10                      | 85                     | 8                          | 105                       | 68                  | 6               | 55                           | 3   | 1800                    | 1300 | 800   | –     | 105°C               |
| TCJD107M010#0045 | D            | 100         | 10                      | 85                     | 8                          | 105                       | 100                 | 6               | 45                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJD107M010#0055 | D            | 100         | 10                      | 85                     | 8                          | 105                       | 100                 | 6               | 55                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY107M010#0025 | Y            | 100         | 10                      | 85                     | 8                          | 105                       | 100                 | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY107M010#0045 | Y            | 100         | 10                      | 85                     | 8                          | 105                       | 100                 | 6               | 45                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY107M010#0055 | Y            | 100         | 10                      | 85                     | 8                          | 105                       | 100                 | 6               | 55                           | 3   | 1800                    | 1300 | 800   | –     | 105°C               |
| TCJD157M010#0025 | D            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 25                           | 3   | 3000                    | 2100 | 1400  | –     | 105°C               |
| TCJD157M010#0040 | D            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 40                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD157M010#0045 | D            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 45                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY157M010#0055 | D            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 55                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY157M010#0025 | Y            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY157M010#0040 | Y            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY157M010#0045 | Y            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 45                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY157M010#0055 | Y            | 150         | 10                      | 85                     | 8                          | 105                       | 150                 | 6               | 55                           | 3   | 1800                    | 1300 | 800   | –     | 105°C               |
| TCJD227M010#0025 | D            | 220         | 10                      | 85                     | 8                          | 105                       | 220                 | 6               | 25                           | 3   | 3000                    | 2100 | 1400  | –     | 105°C               |
| TCJD227M010#0040 | D            | 220         | 10                      | 85                     | 8                          | 105                       | 220                 | 6               | 40                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD227M010#0050 | D            | 220         | 10                      | 85                     | 8                          | 105                       | 220                 | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJY227M010#0025 | Y            | 220         | 10                      | 85                     | 8                          | 105                       | 220                 | 6               | 25                           | 3   | 2700                    | 1900 | 1200  | –     | 105°C               |
| TCJY227M010#0040 | Y            | 220         | 10                      | 85                     | 8                          | 105                       | 220                 | 6               | 40                           | 3   | 2200                    | 1500 | 1000  | –     | 105°C               |
| TCJY227M010#0050 | Y            | 220         | 10                      | 85                     | 8                          | 105                       | 220                 | 6               | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| 16 Volt @ 85°C   |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJA685M016#0200 | A            | 6.8         | 16                      | 85                     | 10                         | 125                       | 10.9                | 6               | 200                          | 3   | 700                     | 500  | 300   | 200   | 125°C               |
| TCJA106M016#0200 | A            | 10          | 16                      | 85                     | 10                         | 125                       | 16.0                | 6               | 200                          | 3   | 700                     | 500  | 300   | 200   | 125°C               |
| TCJB106M016#0200 | B            | 10          | 16                      | 85                     | 10                         | 125                       | 16.0                | 6               | 200                          | 3   | 800                     | 600  | 400   | 200   | 125°C               |
| TCJT106M016#0150 | T            | 10          | 16                      | 85                     | 10                         | 125                       | 16.0                | 6               | 150                          | 3   | 800                     | 600  | 400   | 200   | 125°C               |
| TCJT106M016#0200 | T            | 10          | 16                      | 85                     | 10                         | 125                       | 16.0                | 6               | 200                          | 3   | 700                     | 500  | 300   | 200   | 125°C               |
| TCJB156M016#0150 | B            | 15          | 16                      | 85                     | 10                         | 125                       | 24.0                | 6               | 150                          | 3   | 900                     | 600  | 400   | 200   | 125°C               |
| TCJB226M016#0150 | B            | 22          | 16                      | 85                     | 10                         | 125                       | 35.2                | 6               | 150                          | 3   | 900                     | 600  | 400   | 200   | 125°C               |
| TCJY336M016#0045 | Y            | 33          | 16                      | 105                    | 16                         | 105                       | 52.8                | 6               | 45                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY336M016#0060 | Y            | 33          | 16                      | 105                    | 16                         | 105                       | 52.8                | 6               | 60                           | 3   | 1800                    | 1300 | 800   | –     | 105°C               |
| TCJY336M016#0070 | Y            | 33          | 16                      | 105                    | 16                         | 105                       | 52.8                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJY476M016#0045 | Y            | 47          | 16                      | 105                    | 16                         | 105                       | 75.2                | 6               | 45                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY476M016#0070 | Y            | 47          | 16                      | 105                    | 16                         | 105                       | 75.2                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJD686M016#0050 | D            | 68          | 16                      | 105                    | 16                         | 105                       | 108.8               | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJY686M016#0050 | Y            | 68          | 16                      | 105                    | 16                         | 105                       | 108.8               | 6               | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJD107M016#0050 | D            | 100         | 16                      | 105                    | 16                         | 105                       | 160.0               | 6               | 50                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJE107M016#0040 | E            | 100         | 16                      | 105                    | 16                         | 105                       | 160.0               | 6               | 40                           | 3   | 2500                    | 1800 | 1100  | –     | 105°C               |
| TCJY107M016#0050 | Y            | 100         | 16                      | 105                    | 16                         | 105                       | 160.0               | 6               | 50                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJE157M016#0040 | E            | 150         | 16                      | 105                    | 16                         | 105                       | 240.0               | 6               | 40                           | 3   | 2500                    | 1800 | 1100  | –     | 105°C               |
| 20 Volt @ 85°C   |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJY226M020#0070 | Y            | 22          | 20                      | 105                    | 20                         | 105                       | 44.0                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJY336M020#0070 | Y            | 33          | 20                      | 105                    | 20                         | 105                       | 66.0                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJD476M020#0055 | D            | 47          | 20                      | 105                    | 20                         | 105                       | 94.0                | 6               | 55                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJY476M020#0070 | Y            | 47          | 20                      | 105                    | 20                         | 105                       | 94.0                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJD686M020#0055 | D            | 68          | 20                      | 85                     | 16                         | 105                       | 136.0               | 6               | 55                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJE686M020#0045 | E            | 68          | 20                      | 105                    | 20                         | 105                       | 136.0               | 6               | 45                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| TCJD107M020#0055 | D            | 100         | 20                      | 85                     | 16                         | 105                       | 200.0               | 6               | 55                           | 3   | 2000                    | 1400 | 900   | –     | 105°C               |
| TCJE107M020#0045 | E            | 100         | 20                      | 85                     | 16                         | 105                       | 200.0               | 6               | 45                           | 3   | 2400                    | 1700 | 1100  | –     | 105°C               |
| 25 Volt @ 85°C   |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJP105M025#0500 | P            | 1.0         | 25                      | 105                    | 25                         | 105                       | 2.5                 | 6               | 500                          | 3   | 400                     | 300  | 200   | –     | 105°C               |
| TCJB475M025#0150 | B            | 4.7         | 25                      | 85                     | 20                         | 105                       | 11.8                | 6               | 150                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJB685M025#0090 | B            | 6.8         | 25                      | 105                    | 25                         | 105                       | 17.0                | 6               | 90                           | 3   | 1100                    | 800  | 500   | –     | 105°C               |
| TCJB685M025#0150 | B            | 6.8         | 25                      | 85                     | 20                         | 105                       | 17.0                | 6               | 150                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJB106M025#0090 | B            | 10          | 25                      | 105                    | 25                         | 105                       | 25.0                | 6               | 90                           | 3   | 1100                    | 800  | 500   | –     | 105°C               |
| TCJB106M025#0150 | B            | 10          | 25                      | 105                    | 25                         | 105                       | 25.0                | 6               | 150                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJB156M025#0100 | B            | 15          | 25                      | 105                    | 25                         | 105                       | 37.5                | 6               | 100                          | 3   | 1100                    | 800  | 500   | –     | 105°C               |
| TCJB156M025#0150 | B            | 15          | 25                      | 105                    | 25                         | 105                       | 37.5                | 6               | 150                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJY156M025#0090 | Y            | 15          | 25                      | 105                    | 25                         | 105                       | 37.5                | 6               | 90                           | 3   | 1400                    | 1000 | 600   | –     | 105°C               |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

ESR allowed to move up to 1.25 times catalog limit post mounting.

For typical weight and composition see page 162.

**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.





# TCJ Series



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### RATINGS & PART NUMBER REFERENCE

| AVX<br>Part No.       | Case<br>Size | Cap<br>(µF) | Rated<br>Voltage<br>(V) | Rated<br>Temp.<br>(°C) | Category<br>Voltage<br>(V) | Category<br>Temp.<br>(°C) | DCL<br>(µA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (mΩ)<br>@ 100kHz | MSL | 100kHz RMS Current (mA) |      |       |       | Product<br>Category |
|-----------------------|--------------|-------------|-------------------------|------------------------|----------------------------|---------------------------|---------------------|-----------------|------------------------------|-----|-------------------------|------|-------|-------|---------------------|
|                       |              |             |                         |                        |                            |                           |                     |                 |                              |     | 25°C                    | 85°C | 105°C | 125°C |                     |
| TCJB226M025#0150      | B            | 22          | 25                      | 85                     | 20                         | 105                       | 55.0                | 6               | 150                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJC226M025#0100      | C            | 22          | 25                      | 85                     | 20                         | 105                       | 55.0                | 6               | 100                          | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJD226M025#0060      | D            | 22          | 25                      | 85                     | 20                         | 105                       | 55.0                | 6               | 60                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJD226M025#0100      | D            | 22          | 25                      | 85                     | 20                         | 105                       | 55.0                | 6               | 100                          | 3   | 1500                    | 1100 | 700   | –     | 105°C               |
| TCJY226M025#0070      | Y            | 22          | 25                      | 85                     | 20                         | 105                       | 55.0                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJD336M025#0060      | D            | 33          | 25                      | 105                    | 25                         | 105                       | 82.5                | 6               | 60                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJD336M025#0100      | D            | 33          | 25                      | 105                    | 25                         | 105                       | 82.5                | 6               | 100                          | 3   | 1500                    | 1100 | 700   | –     | 105°C               |
| TCJY336M025#0060      | Y            | 33          | 25                      | 105                    | 25                         | 105                       | 82.5                | 6               | 60                           | 3   | 1800                    | 1300 | 800   | –     | 105°C               |
| TCJY336M025#0070      | Y            | 33          | 25                      | 105                    | 25                         | 105                       | 82.5                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJY336M025#0100      | Y            | 33          | 25                      | 105                    | 25                         | 105                       | 82.5                | 6               | 100                          | 3   | 1400                    | 1000 | 600   | –     | 105°C               |
| TCJD476M025#0060      | D            | 47          | 25                      | 85                     | 20                         | 105                       | 117.5               | 6               | 60                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJD476M025#0100      | D            | 47          | 25                      | 85                     | 20                         | 105                       | 117.5               | 6               | 100                          | 3   | 1500                    | 1100 | 700   | –     | 105°C               |
| TCJE476M025#0050      | E            | 47          | 25                      | 85                     | 20                         | 105                       | 117.5               | 6               | 50                           | 3   | 2300                    | 1600 | 1000  | –     | 105°C               |
| TCJE686M025#0050      | E            | 68          | 25                      | 85                     | 20                         | 105                       | 170.0               | 6               | 50                           | 3   | 2300                    | 1600 | 1000  | –     | 105°C               |
| TCJE107M025#0080      | E            | 100         | 25                      | 105                    | 25                         | 105                       | 250.0               | 6               | 80                           | 3   | 1800                    | 1300 | 800   | –     | 105°C               |
| <b>35 Volt @ 85°C</b> |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJB155M035#0200      | B            | 1.5         | 35                      | 105                    | 35                         | 105                       | 5.3                 | 6               | 200                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJB225M035#0200      | B            | 2.2         | 35                      | 85                     | 28                         | 105                       | 7.7                 | 6               | 200                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJB335M035#0200      | B            | 3.3         | 35                      | 85                     | 28                         | 105                       | 11.6                | 6               | 200                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJB475M035#0200      | B            | 4.7         | 35                      | 85                     | 28                         | 105                       | 16.5                | 6               | 200                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJC475M035#0200      | C            | 4.7         | 35                      | 85                     | 28                         | 105                       | 16.5                | 6               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJC685M035#0200      | C            | 6.8         | 35                      | 85                     | 28                         | 105                       | 23.8                | 6               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJB106M035#0200      | B            | 10          | 35                      | 85                     | 28                         | 105                       | 35.0                | 6               | 200                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJC106M035#0200      | C            | 10          | 35                      | 85                     | 28                         | 105                       | 35.0                | 6               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJY106M035#0070      | Y            | 10          | 35                      | 105                    | 35                         | 105                       | 35.0                | 6               | 70                           | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJC156M035#0200      | C            | 15          | 35                      | 85                     | 28                         | 105                       | 52.5                | 6               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJD156M035#0070      | D            | 15          | 35                      | 85                     | 28                         | 105                       | 52.5                | 6               | 70                           | 3   | 1700                    | 1200 | 800   | –     | 105°C               |
| TCJD156M035#0100      | D            | 15          | 35                      | 85                     | 28                         | 105                       | 52.5                | 6               | 100                          | 3   | 1500                    | 1100 | 700   | –     | 105°C               |
| TCJD226M035#0070      | D            | 22          | 35                      | 105                    | 35                         | 105                       | 77.0                | 6               | 70                           | 3   | 1700                    | 1200 | 800   | –     | 105°C               |
| TCJD226M035#0100      | D            | 22          | 35                      | 105                    | 35                         | 105                       | 77.0                | 6               | 100                          | 3   | 1500                    | 1100 | 700   | –     | 105°C               |
| TCJD336M035#0070      | D            | 33          | 35                      | 85                     | 28                         | 105                       | 115.5               | 6               | 70                           | 3   | 1700                    | 1200 | 800   | –     | 105°C               |
| TCJD336M035#0100      | D            | 33          | 35                      | 85                     | 28                         | 105                       | 115.5               | 6               | 100                          | 3   | 1500                    | 1100 | 700   | –     | 105°C               |
| TCJE336M035#0055      | E            | 33          | 35                      | 85                     | 28                         | 105                       | 115.5               | 6               | 55                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| TCJE336M035#0070      | E            | 33          | 35                      | 85                     | 28                         | 105                       | 115.5               | 6               | 70                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJE476M035#0055      | E            | 47          | 35                      | 85                     | 28                         | 105                       | 164.5               | 6               | 55                           | 3   | 2100                    | 1500 | 900   | –     | 105°C               |
| <b>50 Volt @ 85°C</b> |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJB684M050#0400      | B            | 0.68        | 50                      | 85                     | 40                         | 105                       | 3.4                 | 6               | 400                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJB105M050#0300      | B            | 1.0         | 50                      | 85                     | 40                         | 105                       | 5.0                 | 6               | 300                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJB155M050#0300      | B            | 1.5         | 50                      | 85                     | 40                         | 105                       | 7.5                 | 6               | 300                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJC155M050#0300      | C            | 1.5         | 50                      | 85                     | 40                         | 105                       | 7.5                 | 6               | 300                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJC225M050#0300      | C            | 2.2         | 50                      | 85                     | 40                         | 105                       | 11.0                | 6               | 300                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJC335M050#0200      | C            | 3.3         | 50                      | 85                     | 40                         | 105                       | 16.5                | 8               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJC475M050#0200      | C            | 4.7         | 50                      | 85                     | 40                         | 105                       | 23.5                | 8               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJC685M050#0200      | C            | 6.8         | 50                      | 85                     | 40                         | 105                       | 34.0                | 8               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJD685M050#0120      | D            | 6.8         | 50                      | 85                     | 40                         | 105                       | 34.0                | 10              | 120                          | 3   | 1400                    | 1000 | 600   | –     | 105°C               |
| TCJD106M050#0120      | D            | 10          | 50                      | 85                     | 40                         | 105                       | 50.0                | 10              | 120                          | 3   | 1400                    | 1000 | 600   | –     | 105°C               |
| TCJE106M050#0070      | E            | 10          | 50                      | 85                     | 40                         | 105                       | 50.0                | 6               | 70                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJE106M050#0100      | E            | 10          | 50                      | 85                     | 40                         | 105                       | 50.0                | 6               | 100                          | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJE156M050#0070      | E            | 15          | 50                      | 85                     | 40                         | 105                       | 75.0                | 6               | 70                           | 3   | 1900                    | 1300 | 900   | –     | 105°C               |
| TCJE156M050#0100      | E            | 15          | 50                      | 85                     | 40                         | 105                       | 75.0                | 6               | 100                          | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| <b>63 Volt @ 85°C</b> |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJB474M063#0400      | B            | 0.47        | 63                      | 85                     | 50                         | 105                       | 3.0                 | 8               | 400                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJB684M063#0300      | B            | 0.68        | 63                      | 85                     | 50                         | 105                       | 4.3                 | 8               | 300                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJB105M063#0300      | B            | 1.0         | 63                      | 85                     | 50                         | 105                       | 6.3                 | 8               | 300                          | 3   | 600                     | 400  | 300   | –     | 105°C               |
| TCJC105M063#0300      | C            | 1.0         | 63                      | 85                     | 50                         | 105                       | 6.3                 | 6               | 300                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJC155M063#0300      | C            | 1.5         | 63                      | 85                     | 50                         | 105                       | 9.5                 | 6               | 300                          | 3   | 800                     | 600  | 400   | –     | 105°C               |
| TCJC225M063#0200      | C            | 2.2         | 63                      | 85                     | 50                         | 105                       | 13.9                | 6               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJC335M063#0200      | C            | 3.3         | 63                      | 85                     | 50                         | 105                       | 20.8                | 6               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJC475M063#0200      | C            | 4.7         | 63                      | 85                     | 50                         | 105                       | 29.6                | 6               | 200                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJD475M063#0120      | D            | 4.7         | 63                      | 85                     | 50                         | 105                       | 29.6                | 6               | 120                          | 3   | 1400                    | 1000 | 600   | –     | 105°C               |
| TCJD685M063#0120      | D            | 6.8         | 63                      | 85                     | 50                         | 105                       | 42.8                | 6               | 120                          | 3   | 1400                    | 1000 | 600   | –     | 105°C               |
| TCJE685M063#0100      | E            | 6.8         | 63                      | 85                     | 50                         | 105                       | 42.8                | 6               | 100                          | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJE685M063#0150      | E            | 6.8         | 63                      | 85                     | 50                         | 105                       | 42.8                | 6               | 150                          | 3   | 1300                    | 900  | 600   | –     | 105°C               |
| TCJE106M063#0100      | E            | 10          | 63                      | 85                     | 50                         | 105                       | 63.0                | 6               | 100                          | 3   | 1600                    | 1100 | 700   | –     | 105°C               |
| TCJE106M063#0150      | E            | 10          | 63                      | 85                     | 50                         | 105                       | 63.0                | 6               | 150                          | 3   | 1300                    | 900  | 600   | –     | 105°C               |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

ESR allowed to move up to 1.25 times catalog limit post mounting.

For typical weight and composition see page 162.

**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.**



# TCJ Series



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### RATINGS & PART NUMBER REFERENCE

| AVX<br>Part No.  | Case<br>Size | Cap<br>(μF) | Rated<br>Voltage<br>(V) | Rated<br>Temp.<br>(°C) | Category<br>Voltage<br>(V) | Category<br>Temp.<br>(°C) | DCL<br>(μA)<br>Max. | DF<br>%<br>Max. | ESR<br>Max. (mΩ)<br>@ 100kHz | MSL | 100kHz RMS Current (mA) |      |       |       | Product<br>Category |
|------------------|--------------|-------------|-------------------------|------------------------|----------------------------|---------------------------|---------------------|-----------------|------------------------------|-----|-------------------------|------|-------|-------|---------------------|
|                  |              |             |                         |                        |                            |                           |                     |                 |                              |     | 25°C                    | 85°C | 105°C | 125°C |                     |
| 75 Volt @ 85°C   |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJD475M075#0150 | D            | 4.7         | 75                      | 85                     | 60                         | 105                       | 35.3                | 6               | 150                          | 3   | 1200                    | 800  | 500   | –     | 105°C               |
| TCJD685M075#0120 | D            | 6.8         | 75                      | 85                     | 60                         | 105                       | 51.0                | 6               | 120                          | 3   | 1400                    | 1000 | 600   | –     | 105°C               |
| 100 Volt @ 85°C  |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJD475M100#0250 | D            | 4.7         | 100                     | 85                     | 80                         | 105                       | 47.0                | 8               | 250                          | 3   | 900                     | 600  | 400   | –     | 105°C               |
| TCJV685M100#0250 | V            | 6.8         | 100                     | 85                     | 80                         | 105                       | 68.0                | 8               | 250                          | 3   | 1200                    | 800  | 500   | –     | 105°C               |
| 125 Volt @ 85°C  |              |             |                         |                        |                            |                           |                     |                 |                              |     |                         |      |       |       |                     |
| TCJD335M125#0250 | D            | 3.3         | 125                     | 85                     | 100                        | 105                       | 41.2                | 8               | 250                          | 3   | 900                     | 600  | 400   | –     | 105°C               |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

ESR allowed to move up to 1.25 times catalog limit post mounting.

For typical weight and composition see page 162.

**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.**

### PRODUCT CATEGORY 125°C

| TEST                  | 125°C series (Temperature range -55°C to +125°C)                                                                                                                                                                                                                                               |               |               |                    |                                  |           |     |           |          |     |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------------|----------------------------------|-----------|-----|-----------|----------|-----|
|                       | Condition                                                                                                                                                                                                                                                                                      |               |               | Characteristics    |                                  |           |     |           |          |     |
| Endurance             | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤3Ω.     |               |               | Visual examination | no visible damage                |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DCL                | 1.25 x initial limit             |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | ΔC/C               | within +20/-30% of initial value |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DF                 | 1.5 x initial limit              |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | ESR                | 2 x initial limit                |           |     |           |          |     |
| Storage Life          | 125°C, 0V, 2000h                                                                                                                                                                                                                                                                               |               |               | Visual examination | no visible damage                |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DCL                | 2 x initial limit                |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | ΔC/C               | within ±20% of initial value     |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DF                 | 1.5 x initial limit              |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | ESR                | 2 x initial limit                |           |     |           |          |     |
| Humidity              | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1- 2 hours at room temperature.                                                                                                                                          |               |               | Visual examination | no visible damage                |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DCL                | 3 x initial limit                |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | ΔC/C               | within +30/-20% of initial value |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DF                 | 1.5 x initial limit              |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | ESR                | 2 x initial limit                |           |     |           |          |     |
| Temperature Stability | Step                                                                                                                                                                                                                                                                                           | Temperature°C | Duration(min) |                    |                                  |           |     |           |          |     |
|                       | 1                                                                                                                                                                                                                                                                                              | +20±2         | 15            |                    |                                  |           |     |           |          |     |
|                       | 2                                                                                                                                                                                                                                                                                              | -55+0/-3      | 15            | DCL                | IL*                              | n/a       | IL* | 10 x IL*  | 12.5xIL* | IL* |
|                       | 3                                                                                                                                                                                                                                                                                              | +20±2         | 15            |                    |                                  |           |     |           |          |     |
|                       | 4                                                                                                                                                                                                                                                                                              | +85+3/-0      | 15            | ΔC/C               | n/a                              | +0/-20%   | ±5% | +20/-0%   | +30/-0%  | ±5% |
|                       | 5                                                                                                                                                                                                                                                                                              | +125+3/-0     | 15            | DF                 | IL*                              | 1.5 x IL* | IL* | 1.5 x IL* | 2xIL*    | IL* |
|                       | 6                                                                                                                                                                                                                                                                                              | +20±2         | 15            |                    |                                  |           |     |           |          |     |
| Surge Voltage         | Test temperature: 125°C+3/0°C<br>Test voltage: Category voltage at 125°C<br>Surge voltage: 1.3 x category voltage at 125°C<br>Series protection resistance 1000±100Ω<br>Discharge resistance: 1000Ω<br>Number of cycles: 1000x<br>Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge |               |               | Visual examination | no visible damage                |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DCL                | initial limit                    |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | ΔC/C               | within +20/-30% of initial value |           |     |           |          |     |
|                       |                                                                                                                                                                                                                                                                                                |               |               | DF                 | 1.25 x initial limit             |           |     |           |          |     |

\*Initial Limit



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### PRODUCT CATEGORY 105°C

| TEST                  | 105°C series (Temperature range -55°C to +105°C)                                                                                                                                                                                                                                                             |               |               |                        |                                  |           |       |           |          |       |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------------------------|----------------------------------|-----------|-------|-----------|----------|-------|
|                       | Condition                                                                                                                                                                                                                                                                                                    |               |               | Characteristics        |                                  |           |       |           |          |       |
| Endurance             | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine after application of 105°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤3Ω. |               |               | Visual examination     | no visible damage                |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DCL                    | 1.25 x initial limit             |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | ΔC/C                   | within +20/-30% of initial value |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DF                     | 1.5 x initial limit              |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | ESR                    | 2 x initial limit                |           |       |           |          |       |
| Storage Life          | 105°C, 0V, 2000h                                                                                                                                                                                                                                                                                             |               |               | Visual examination     | no visible damage                |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DCL ( $V_R \leq 75V$ ) | 1.25 x initial limit             |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DCL ( $V_R > 75V$ )    | 2 x initial limit                |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | ΔC/C                   | within ±20% of initial value     |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DF                     | 1.5 x initial limit              |           |       |           |          |       |
| Humidity              | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.                                                                                                                                                         |               |               | Visual examination     | no visible damage                |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DCL                    | 3 x initial limit                |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | ΔC/C                   | within +30/-20% of initial value |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DF                     | 1.5 x initial limit              |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | ESR                    | 2 x initial limit                |           |       |           |          |       |
| Temperature Stability | Step                                                                                                                                                                                                                                                                                                         | Temperature°C | Duration(min) |                        | +20°C                            | -55°C     | +20°C | +85°C     | +105°C   | +20°C |
|                       | 1                                                                                                                                                                                                                                                                                                            | +20±2         | 15            | DCL                    | IL*                              | n/a       | IL*   | 10 x IL*  | 12.5xIL* | IL*   |
|                       | 2                                                                                                                                                                                                                                                                                                            | -55+0/-3      | 15            |                        |                                  |           |       |           |          |       |
|                       | 3                                                                                                                                                                                                                                                                                                            | +20±2         | 15            | ΔC/C                   | n/a                              | +0/-20%   | ±5%   | +20/-0%   | +30/-0%  | ±5%   |
|                       | 4                                                                                                                                                                                                                                                                                                            | +85+3/-0      | 15            |                        |                                  |           |       |           |          |       |
|                       | 5                                                                                                                                                                                                                                                                                                            | +105+3/-0     | 15            | DF                     | IL*                              | 1.5 x IL* | IL*   | 1.5 x IL* | 2xIL*    | IL*   |
|                       | 6                                                                                                                                                                                                                                                                                                            | +20±2         | 15            |                        |                                  |           |       |           |          |       |
| Surge Voltage         | Test temperature: 105°C+3/0°C<br>Test voltage: Category voltage at 105°C<br>Surge voltage: 1.3 x category voltage at 105°C<br>Series protection resistance 1000±100Ω<br>Discharge resistance: 1000Ω<br>Number of cycles: 1000x<br>Cycle duration: 6 min; 30 sec charge,<br>5 min 30 sec discharge            |               |               | Visual examination     | no visible damage                |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DCL                    | initial limit                    |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | ΔC/C                   | within +20/-30% of initial value |           |       |           |          |       |
|                       |                                                                                                                                                                                                                                                                                                              |               |               | DF                     | 1.25 x initial limit             |           |       |           |          |       |

\*Initial Limit

### PRODUCT CATEGORY 85°C

| TEST                  | 85°C series (Temperature range -55°C to +85°C)                                                                                                                                                                                                                          |               |               |                    |                                  |           |       |           |       |  |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------------|----------------------------------|-----------|-------|-----------|-------|--|
|                       | Condition                                                                                                                                                                                                                                                               |               |               | Characteristics    |                                  |           |       |           |       |  |
| Endurance             | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤3Ω.                                                                                                          |               |               | Visual examination | no visible damage                |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DCL                | 1.25 x initial limit             |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | ΔC/C               | within +20/-30% of initial value |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DF                 | 1.5 x initial limit              |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | ESR                | 2 x initial limit                |           |       |           |       |  |
| Storage Life          | 85°C, 0V, 2000h                                                                                                                                                                                                                                                         |               |               | Visual examination | no visible damage                |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DCL                | 1.25 x initial limit             |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | ΔC/C               | within ±20% of initial value     |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DF                 | 1.5 x initial limit              |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | ESR                | 2 x initial limit                |           |       |           |       |  |
| Humidity              | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.                                                                                                                    |               |               | Visual examination | no visible damage                |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DCL                | 5 x initial limit                |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | ΔC/C               | within +40/-20% of initial value |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DF                 | 1.5 x initial limit              |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | ESR                | 2 x initial limit                |           |       |           |       |  |
| Temperature Stability | Step                                                                                                                                                                                                                                                                    | Temperature°C | Duration(min) |                    | +20°C                            | -55°C     | +20°C | +85°C     | +20°C |  |
|                       | 1                                                                                                                                                                                                                                                                       | +20±2         | 15            | DCL                | IL*                              | n/a       | IL*   | 10 x IL*  | IL*   |  |
|                       | 2                                                                                                                                                                                                                                                                       | -55+0/-3      | 15            |                    |                                  |           |       |           |       |  |
|                       | 3                                                                                                                                                                                                                                                                       | +20±2         | 15            | ΔC/C               | n/a                              | +0/-20%   | ±5%   | +20/-0%   | ±5%   |  |
|                       | 4                                                                                                                                                                                                                                                                       | +85+3/-0      | 15            |                    |                                  |           |       |           |       |  |
|                       | 5                                                                                                                                                                                                                                                                       | +20±2         | 15            | DF                 | IL*                              | 1.5 x IL* | IL*   | 1.5 x IL* | IL*   |  |
| Surge Voltage         | Test temperature: 85+3/0°C<br>Test voltage: Rated voltage<br>Surge voltage: 1.3 x rated voltage<br>Series protection resistance 1000±100Ω.<br>Discharge resistance: 1000Ω<br>Number of cycles: 1000x<br>Cycle duration: 6 min; 30 sec charge,<br>5 min 30 sec discharge |               |               | Visual examination | no visible damage                |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DCL                | initial limit                    |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | ΔC/C               | within +20/-30% of initial value |           |       |           |       |  |
|                       |                                                                                                                                                                                                                                                                         |               |               | DF                 | 1.25 x initial limit             |           |       |           |       |  |

\*Initial Limit