



**THE DATASHEET OF  
TCJ5477M016R0100**



# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### FEATURES

- Conductive Polymer Electrode
- Benign Failure Mode Under Recommended Use Conditions
- Lower ESR
- 3x reflow cycles according to J-STD-020
- 100% Surge Current Tested
- CV Range: 0.47-680µF / 2.5-125V
- 17 Case Sizes Available

### APPLICATIONS

- Smart Phone, Tablets, Notebook, LCD TV, Power Supplies



Elektra Award 2010



LEAD-FREE COMPATIBLE COMPONENT



### 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) | W <sub>1</sub> ±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) |
| 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 (0.053)                 | 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) |
| U    | 2924     | 7361-43    | 7.30 (0.287)   | 6.10 (0.240)                 | 4.10 (0.162)                 | 3.10 (0.122)                 | 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) |
| X    | 2917     | 7343-15    | 7.30 (0.287)   | 4.30 (0.169)                 | 1.50 (0.059) max             | 2.40 (0.094)                 | 1.30 (0.051)                 | 4.40 (0.173) |
| 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) |
| 5    | 2917     | 7343-40    | 7.30 (0.287)   | 4.30 (0.169)                 | 3.80 (0.150)                 | 2.40 (0.094)                 | 1.30 (0.051)                 | 4.40 (0.173) |

W<sub>1</sub> dimension applies to the termination width for A dimensional area only.

### MARKING

A, B, C, D, E, H, K, S, T, U, W, X, Y, 5 CASE



### N, P, R CASE



### HOW TO ORDER

|            |                              |  |                       |  |  |             |  |
|------------|------------------------------|--|-----------------------|--|--|-------------|--|
| <b>TCJ</b> | <b>A</b>                     | <b>226</b>   | <b>M</b>              | <b>004</b>   | <b>R</b>   | <b>0300</b> | <b>E</b>   |
| Type       | Case Size<br>See table above | Capacitance Code<br>pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow) | Tolerance<br>M = ±20% | Rated DC Voltage<br>002 = 2.5Vdc 035 = 35Vdc<br>004 = 4Vdc 050 = 50Vdc<br>006 = 6.3Vdc 063 = 63Vdc<br>010 = 10Vdc 075 = 75Vdc<br>016 = 16Vdc 100 = 100Vdc<br>020 = 20Vdc 125 = 125Vdc<br>025 = 25Vdc | Packaging<br>R = Pure Tin 7" Reel<br>S = Pure Tin 13" Reel | ESR in mΩ   | Additional Character<br>E = Black resin<br>(It is possible to order PN without "E" as identical product) |

### 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  |
| Resistance to soldering heat: | 3x reflow cycles according to J-STD-020                      |

NOTE: Conductive Polymer Capacitors are designed to operate within the limits of the environmental conditions specified for each series. If operated continuously at their maximum temperature and / or humidity limit, or beyond these limits, capacitors may exhibit a parametric shift in capacitance and increases in ESR. These changes may occur earlier if the specified environmental conditions are exceeded. Similarly, their normal operational time period will be significantly extended if their general duty cycle includes operation below maximum temperature within humidity controlled environments. Careful attention should be paid to maximum temperature with associated high humidity environments as well as voltage derating, ripple current and current surges. Please reference the KYOCERA AVX Conductive Polymer Capacitor Guidelines for more information or contact factory for application assistance.

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors

### 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  |  |   |   |   |   |                                  | P (500)  |  | B(300)                     | B(300)<br>C(300)     |         |          |          |
| 1.5  | 155  |  |   |   |   |   |                                  |  | B(200)                                     | B(300)<br>C(300)           | C(300)               |         |          |          |
| 2.2  | 225  |  |   |   |   |   |                                  |  | B(200)                                     | B(300)<br>C(300)           | C(200)               |         |          |          |
| 3.3  | 335  |  |   |   |   |   |                                  |  | A(500)<br>B(200)                           | B(300)<br>C(200)           | C(200)               |         |          | D(250)   |
| 4.7  | 475  |  |   |   | K(300,500)<br>R(500)                        |   |                                  | A(500)<br>B(100,150)                               | B(150,200)<br>C(200)                       | C(200)<br>X(250)<br>Y(250) | C(200)<br>D(120)     | D(150)  | D(250)   |          |
| 6.8  | 685  |  |   |   |   | A(200)  | A(150),<br>B(150)                | A(150)<br>B(90,150)<br>T(100,150)                  | C(200)                                     | C(200)<br>D(120)           | D(120)<br>E(100,150) | D(120)  |          |          |
| 10   | 106  |  |   | A(300),<br>N(200,250,500),<br>R(500)                                | A(200,300)                                  | A(200)<br>B(100,200)<br>T(100,150,200)          | A(150)<br>B(100,150)             | A(150)<br>B(90,100,150)                            | B(150,200)<br>C(200)<br>Y(70)              | D(90,120)<br>E(70,100)     | E(100,150)           |         |          |          |
| 15   | 156  |  | A(300)  | A(300)  | A(200)<br>B(100,200)                        | A(250),<br>B(90,150)                            | B(90,150)                        | B(100,150)<br>Y(90)                                | B(200)<br>C(200)<br>D(70,100)<br>Y(70,100) | D(150)<br>E(70,100)        | E(150)               |         |          |          |
| 22   | 226  |  | A(300)  | A(300), B(70), K(400)<br>S(400), T(150)                             | A(250),<br>B(70,300)<br>T(70,150)           | A(300)<br>B(70,150)                             | B(90,150)<br>X(100)<br>Y(70)     | B(100,150)<br>C(100)<br>D(60,100)<br>X(100), Y(70) | D(70,100)<br>Y(150)                        | D(90),<br>E(75),<br>E(150) |                      |         |          |          |
| 33   | 336  |  | A(300)  | A(200)<br>B(70,200)<br>T(150)                                       | A(250),<br>B(70,200)<br>C(100)<br>T(70,150) | A(200), B(90,150)<br>H(150)<br>Y(45,60,70)      | X(100)<br>Y(70)                  | D(60,100)<br>X(70,100)<br>Y(40,60,70,100)          | D(70,100)<br>E(55,70)<br>U(70)<br>Y(100)   |                            |                      |         |          |          |
| 47   | 476  |  | A(200)<br>T(80)                                 | A(70,100,200)<br>B(55,70)<br>T(55,70,80,120)                        | B(70)<br>C(100)<br>H(100)                   | D(45,70),<br>H(150)<br>X(45,70)<br>Y(45,70)     | D(55),<br>X(55,70)<br>Y(70)      | D(60,100)<br>E(50)<br>Y(100)                       | E(55)<br>U(70)<br>Y(100)                   |                            |                      |         |          |          |
| 68   | 686  | A(250)                                     | A(250)<br>B(70)<br>T(80)                        | B(55,70)<br>C(55,100), H(100)<br>T(200), W(70)                      | D(45,55)<br>Y(45,55)                        | D(50)<br>Y(50)                                  | D(55)<br>E(45)<br>Y(50)          | D(70)<br>E(50)<br>Y(100)                           |  |                            |                      |         |          |          |
| 100  | 107  | A(200)<br>B(55,70)                         | A(200)<br>B(40,70)<br>T(70,150)                 | A(100,150)<br>B(40,45,55,70)<br>C(70,100)<br>T(200), W(70)          | D(18,25,45,55,80)<br>Y(18,25,45,55)         | D(50)<br>E(40)<br>Y(50)                         | C(70)<br>D(55)<br>E(45)<br>Y(55) | D(55,70)<br>E(40,60,80)<br>U(70)                   |  |                            |                      |         |          |          |
| 150  | 157  | B(70)                                      | B(70)<br>D(15)<br>Y(15,25,45)                   | B(35,45,55,70)<br>D(12,15,25,40)<br>H(70,200), W(70)<br>Y(15,25,40) | D(25,40,45,55)<br>Y(25,40,45,55)            | C(70)<br>D(40,50,70)<br>E(25,40)<br>Y(40,50,70) | E(50)                            | U(70)  | U(100)                                     |                            |                      |         |          |          |
| 220  | 227  | B(35,45,70)                                | B(35,45,60,70)<br>D(12,15,25,40)<br>Y(15,25,40) | B(70,200)<br>D(12,15,25,35,40,50)<br>H(170)<br>Y(15,18,25,35,40,50) | D(15,25,40,50)<br>Y(15,25,40,50)            | D(35,50)<br>E(50)                               | U(70)                            |  |  |                            |                      |         |          |          |
| 330  | 337  | B(35,45,70, Y)<br>(25,40)                  | D(15,25,40,50)<br>Y(15,25,40,50)                | D(12,15,18,25,40,50)<br>Y(15,25,40,50)                              | D(25)<br>5(35,100)                          | E(35, 50,70),<br>U(50,70),<br>5(100)            |                                  |  |  |                            |                      |         |          |          |
| 470  | 477  | D(12,15,25,40,50)<br>Y(15,25,40,50)        | D(12,15,25,40,50)<br>Y(15,25,40,50)             | D(25,45)<br>E(25)<br>X(35,50,100)                                   | E(25)                                       | 5(100)  |                                  |  |  |                            |                      |         |          |          |
| 680  | 687  |  |   | E(25)   |   |   |                                  |  |  |                            |                      |         |          |          |

Released ratings, (ESR ratings in mOhms in parentheses)

Engineering samples - please contact KYOCERA AVX

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

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors

### RATINGS & PART NUMBER REFERENCE

| Part Number       | Case Size | Capacitance (µF) | Rated Voltage (V) | Maximum Operating Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA) |      |       |       | Product Category | MSL |  |
|-------------------|-----------|------------------|-------------------|------------------------------------|---------------|-------------|------------------------|-------------------------|------|-------|-------|------------------|-----|--|
|                   |           |                  |                   |                                    |               |             |                        | 45°C                    | 85°C | 105°C | 125°C |                  |     |  |
| <b>2.5 Volt</b>   |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |  |
| TCJA686M002#0250E | A         | 68               | 2.5               | 105                                | 17            | 6           | 250                    | 600                     | 400  | 300   | -     | 3                | 3   |  |
| TCJA107M002#0200E | A         | 100              | 2.5               | 105                                | 25            | 6           | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |  |
| TCJB107M002#0055E | B         | 100              | 2.5               | 125                                | 25            | 6           | 55                     | 1500                    | 1100 | 700   | 400   | 0                | 3   |  |
| TCJB107M002#0070E | B         | 100              | 2.5               | 125                                | 25            | 6           | 70                     | 1300                    | 900  | 600   | 300   | 1                | 3   |  |
| TCJB157M002#0070E | B         | 150              | 2.5               | 105                                | 37.5          | 6           | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |  |
| TCJB227M002#0035E | B         | 220              | 2.5               | 105                                | 55            | 8           | 35                     | 1900                    | 1300 | 900   | -     | 3                | 3   |  |
| TCJB227M002#0045E | B         | 220              | 2.5               | 105                                | 55            | 8           | 45                     | 1700                    | 1200 | 800   | -     | 3                | 3   |  |
| TCJB227M002#0070E | B         | 220              | 2.5               | 105                                | 55            | 8           | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |  |
| TCJB337M002#0035E | B         | 330              | 2.5               | 105                                | 82.5          | 8           | 35                     | 1900                    | 1300 | 900   | -     | 3                | 3   |  |
| TCJB337M002#0045E | B         | 330              | 2.5               | 105                                | 82.5          | 8           | 45                     | 1700                    | 1200 | 800   | -     | 3                | 3   |  |
| TCJB337M002#0070E | B         | 330              | 2.5               | 105                                | 82.5          | 8           | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |  |
| TCJY337M002#0025E | Y         | 330              | 2.5               | 105                                | 82.5          | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 2                | 3   |  |
| TCJY337M002#0040E | Y         | 330              | 2.5               | 105                                | 82.5          | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |  |
| TCJD477M002#0012E | D         | 470              | 2.5               | 105                                | 117.5         | 6           | 12                     | 4300                    | 3000 | 1900  | -     | 2                | 3   |  |
| TCJD477M002#0015E | D         | 470              | 2.5               | 105                                | 117.5         | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 2                | 3   |  |
| TCJD477M002#0025E | D         | 470              | 2.5               | 105                                | 117.5         | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |  |
| TCJD477M002#0040E | D         | 470              | 2.5               | 105                                | 117.5         | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 3                | 3   |  |
| TCJD477M002#0050E | D         | 470              | 2.5               | 105                                | 117.5         | 6           | 50                     | 2100                    | 1500 | 900   | -     | 3                | 3   |  |
| TCJY477M002#0015E | Y         | 470              | 2.5               | 85                                 | 117.5         | 6           | 15                     | 3500                    | 2500 | -     | -     | 5                | 3   |  |
| TCJY477M002#0025E | Y         | 470              | 2.5               | 105                                | 117.5         | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 3                | 3   |  |
| TCJY477M002#0040E | Y         | 470              | 2.5               | 105                                | 117.5         | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |  |
| TCJY477M002#0050E | Y         | 470              | 2.5               | 105                                | 117.5         | 6           | 50                     | 1900                    | 1300 | 900   | -     | 3                | 3   |  |
| <b>4 Volt</b>     |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |  |
| TCJA156M004#0300E | A         | 15               | 4                 | 125                                | 6             | 6           | 300                    | 600                     | 400  | 300   | 200   | 1                | 3   |  |
| TCJA226M004#0300E | A         | 22               | 4                 | 125                                | 8.8           | 6           | 300                    | 600                     | 400  | 300   | 200   | 1                | 3   |  |
| TCJA336M004#0300E | A         | 33               | 4                 | 125                                | 13.2          | 6           | 300                    | 600                     | 400  | 300   | 200   | 1                | 3   |  |
| TCJA476M004#0200E | A         | 47               | 4                 | 105                                | 18.8          | 6           | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |  |
| TCJT476M004#0080E | T         | 47               | 4                 | 105                                | 18.8          | 8           | 80                     | 1100                    | 800  | 500   | -     | 3                | 3   |  |
| TCJA686M004#0250E | A         | 68               | 4                 | 105                                | 27.2          | 6           | 250                    | 600                     | 400  | 300   | -     | 3                | 3   |  |
| TCJB686M004#0070E | B         | 68               | 4                 | 125                                | 27.2          | 6           | 70                     | 1300                    | 900  | 600   | 300   | 1                | 3   |  |
| TCJT686M004#0080E | T         | 68               | 4                 | 105                                | 27.2          | 8           | 80                     | 1100                    | 800  | 500   | -     | 3                | 3   |  |
| TCJA107M004#0200E | A         | 100              | 4                 | 105                                | 40            | 6           | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |  |
| TCJB107M004#0040E | B         | 100              | 4                 | 105                                | 40            | 8           | 40                     | 1800                    | 1300 | 800   | -     | 3                | 3   |  |
| TCJB107M004#0070E | B         | 100              | 4                 | 125                                | 40            | 8           | 70                     | 1300                    | 900  | 600   | 300   | 0                | 3   |  |
| TCJT107M004#0070E | T         | 100              | 4                 | 105                                | 40            | 8           | 70                     | 1200                    | 800  | 500   | -     | 3                | 3   |  |
| TCJT107M004#0150E | T         | 100              | 4                 | 105                                | 40            | 8           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |  |
| TCJB157M004#0070E | B         | 150              | 4                 | 105                                | 60            | 6           | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |  |
| TCJD157M004#0015E | D         | 150              | 4                 | 105                                | 60            | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 2                | 3   |  |
| TCJY157M004#0015E | Y         | 150              | 4                 | 105                                | 60            | 6           | 15                     | 3500                    | 2500 | 1600  | -     | 2                | 3   |  |
| TCJY157M004#0025E | Y         | 150              | 4                 | 105                                | 60            | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 2                | 3   |  |
| TCJY157M004#0045E | Y         | 150              | 4                 | 105                                | 60            | 6           | 45                     | 2000                    | 1400 | 900   | -     | 3                | 3   |  |
| TCJB227M004#0035E | B         | 220              | 4                 | 105                                | 88            | 10          | 35                     | 1900                    | 1300 | 900   | -     | 3                | 3   |  |
| TCJB227M004#0045E | B         | 220              | 4                 | 105                                | 88            | 10          | 45                     | 1700                    | 1200 | 800   | -     | 3                | 3   |  |
| TCJB227M004#0060E | B         | 220              | 4                 | 105                                | 88            | 10          | 60                     | 1400                    | 1000 | 600   | -     | 3                | 3   |  |
| TCJB227M004#0070E | B         | 220              | 4                 | 105                                | 88            | 10          | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |  |
| TCJD227M004#0012E | D         | 220              | 4                 | 105                                | 88            | 6           | 12                     | 4300                    | 3000 | 1900  | -     | 2                | 3   |  |
| TCJD227M004#0015E | D         | 220              | 4                 | 105                                | 88            | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 2                | 3   |  |
| TCJD227M004#0025E | D         | 220              | 4                 | 105                                | 88            | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |  |
| TCJD227M004#0040E | D         | 220              | 4                 | 105                                | 88            | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 2                | 3   |  |
| TCJY227M004#0015E | Y         | 220              | 4                 | 105                                | 88            | 6           | 15                     | 3500                    | 2500 | 1600  | -     | 2                | 3   |  |
| TCJY227M004#0025E | Y         | 220              | 4                 | 105                                | 88            | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 2                | 3   |  |
| TCJY227M004#0040E | Y         | 220              | 4                 | 105                                | 88            | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |  |
| TCJD337M004#0015E | D         | 330              | 4                 | 105                                | 132           | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 2                | 3   |  |
| TCJD337M004#0025E | D         | 330              | 4                 | 105                                | 132           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |  |
| TCJD337M004#0040E | D         | 330              | 4                 | 105                                | 132           | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 3                | 3   |  |
| TCJD337M004#0050E | D         | 330              | 4                 | 105                                | 132           | 6           | 50                     | 2100                    | 1500 | 900   | -     | 3                | 3   |  |
| TCJY337M004#0015E | Y         | 330              | 4                 | 85                                 | 132           | 6           | 15                     | 3500                    | 2500 | -     | -     | 5                | 3   |  |
| TCJY337M004#0025E | Y         | 330              | 4                 | 105                                | 132           | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 3                | 3   |  |
| TCJY337M004#0040E | Y         | 330              | 4                 | 105                                | 132           | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |  |
| TCJY337M004#0050E | Y         | 330              | 4                 | 105                                | 132           | 6           | 50                     | 1900                    | 1300 | 900   | -     | 3                | 3   |  |
| TCJD477M004#0012E | D         | 470              | 4                 | 105                                | 188           | 6           | 12                     | 4300                    | 3000 | 1900  | -     | 2                | 3   |  |
| TCJD477M004#0015E | D         | 470              | 4                 | 105                                | 188           | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 2                | 3   |  |
| TCJD477M004#0025E | D         | 470              | 4                 | 105                                | 188           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |  |
| TCJD477M004#0040E | D         | 470              | 4                 | 105                                | 188           | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 2                | 3   |  |
| TCJD477M004#0050E | D         | 470              | 4                 | 105                                | 188           | 6           | 50                     | 2100                    | 1500 | 900   | -     | 2                | 3   |  |
| TCJY477M004#0015E | Y         | 470              | 4                 | 85                                 | 188           | 6           | 15                     | 3500                    | 2500 | -     | -     | 5                | 3   |  |
| TCJY477M004#0025E | Y         | 470              | 4                 | 105                                | 188           | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 3                | 3   |  |
| TCJY477M004#0040E | Y         | 470              | 4                 | 105                                | 188           | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |  |
| TCJY477M004#0050E | Y         | 470              | 4                 | 105                                | 188           | 6           | 50                     | 1900                    | 1300 | 900   | -     | 3                | 3   |  |

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### RATINGS & PART NUMBER REFERENCE

| Part Number       | Case Size | Capacitance (µF) | Rated Voltage (V) | Maximum Operating Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA) |      |       |       | Product Category | MSL |
|-------------------|-----------|------------------|-------------------|------------------------------------|---------------|-------------|------------------------|-------------------------|------|-------|-------|------------------|-----|
|                   |           |                  |                   |                                    |               |             |                        | 45°C                    | 85°C | 105°C | 125°C |                  |     |
| <b>6.3 Volt</b>   |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJA106M006#0300E | A         | 10               | 6.3               | 125                                | 6             | 6           | 300                    | 600                     | 400  | 300   | 200   | 1                | 3   |
| TCJN106M006#0200E | N         | 10               | 6.3               | 125                                | 6             | 6           | 200                    | 200                     | 600  | 300   | -     | 3                | 3   |
| TCJN106M006#0250E | N         | 10               | 6.3               | 125                                | 6             | 6           | 250                    | 250                     | 600  | 300   | -     | 3                | 3   |
| TCJN106M006#0500E | N         | 10               | 6.3               | 125                                | 6             | 6           | 500                    | 500                     | 400  | 200   | -     | 3                | 3   |
| TCJR106M006#0500E | R         | 10               | 6.3               | 125                                | 6             | 6           | 500                    | 500                     | 400  | 200   | -     | 3                | 3   |
| TCJA156M006#0300E | A         | 15               | 6.3               | 125                                | 9             | 6           | 300                    | 600                     | 400  | 300   | 200   | 1                | 3   |
| TCJA226M006#0300E | A         | 22               | 6.3               | 125                                | 13.2          | 6           | 300                    | 600                     | 400  | 300   | 200   | 1                | 3   |
| TCJB226M006#0070E | B         | 22               | 6.3               | 125                                | 13.2          | 6           | 70                     | 1300                    | 900  | 600   | 300   | 0                | 3   |
| TCJK226M006#0400E | K         | 22               | 6.3               | 105                                | 13.2          | 8           | 400                    | 500                     | 400  | 200   | -     | 3                | 3   |
| TCJS226M006#0400E | S         | 22               | 6.3               | 105                                | 13.2          | 8           | 400                    | 500                     | 400  | 200   | -     | 3                | 3   |
| TCJT226M006#0150E | T         | 22               | 6.3               | 105                                | 13.2          | 6           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJA336M006#0200E | A         | 33               | 6.3               | 105                                | 19.8          | 6           | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |
| TCJB336M006#0070E | B         | 33               | 6.3               | 125                                | 19.8          | 6           | 70                     | 1300                    | 900  | 600   | 300   | 0                | 3   |
| TCJB336M006#0200E | B         | 33               | 6.3               | 125                                | 19.8          | 6           | 200                    | 800                     | 600  | 400   | 200   | 0                | 3   |
| TCJT336M006#0150E | T         | 33               | 6.3               | 105                                | 19.8          | 8           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJA476M006#0070E | A         | 47               | 6.3               | 105                                | 28.2          | 6           | 70                     | 1200                    | 800  | 500   | -     | 3                | 3   |
| TCJA476M006#0100E | A         | 47               | 6.3               | 105                                | 28.2          | 6           | 100                    | 1000                    | 700  | 500   | -     | 3                | 3   |
| TCJA476M006#0200E | A         | 47               | 6.3               | 105                                | 28.2          | 6           | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |
| TCJB476M006#0055E | B         | 47               | 6.3               | 105                                | 28.2          | 6           | 55                     | 1500                    | 1100 | 700   | -     | 2                | 3   |
| TCJB476M006#0070E | B         | 47               | 6.3               | 125                                | 28.2          | 6           | 70                     | 1300                    | 900  | 600   | 300   | 1                | 3   |
| TCJT476M006#0055E | T         | 47               | 6.3               | 105                                | 28.2          | 8           | 55                     | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJT476M006#0070E | T         | 47               | 6.3               | 105                                | 28.2          | 8           | 70                     | 1200                    | 800  | 500   | -     | 3                | 3   |
| TCJT476M006#0080E | T         | 47               | 6.3               | 105                                | 28.2          | 8           | 80                     | 1100                    | 800  | 500   | -     | 3                | 3   |
| TCJT476M006#0120E | T         | 47               | 6.3               | 105                                | 28.2          | 8           | 120                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJB686M006#0055E | B         | 68               | 6.3               | 125                                | 40.8          | 8           | 55                     | 1500                    | 1100 | 700   | 400   | 1                | 3   |
| TCJB686M006#0070E | B         | 68               | 6.3               | 125                                | 40.8          | 8           | 70                     | 1300                    | 900  | 600   | 300   | 1                | 3   |
| TCJC686M006#0055E | C         | 68               | 6.3               | 125                                | 40.8          | 6           | 55                     | 1800                    | 1300 | 800   | 500   | 1                | 3   |
| TCJC686M006#0100E | C         | 68               | 6.3               | 125                                | 40.8          | 6           | 100                    | 1300                    | 900  | 600   | 300   | 1                | 3   |
| TCJH686M006#0100E | H         | 68               | 6.3               | 105                                | 40.8          | 6           | 100                    | 1000                    | 700  | 500   | -     | 3                | 3   |
| TCJT686M006#0200E | T         | 68               | 6.3               | 105                                | 40.8          | 8           | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |
| TCJW686M006#0070E | W         | 68               | 6.3               | 125                                | 40.8          | 8           | 70                     | 1400                    | 1000 | 600   | 400   | 1                | 3   |
| TCJA107M006#0100E | A         | 100              | 6.3               | 105                                | 60            | 10          | 100                    | 1000                    | 700  | 500   | -     | 3                | 3   |
| TCJA107M006#0150E | A         | 100              | 6.3               | 105                                | 60            | 10          | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJB107M006#0040E | B         | 100              | 6.3               | 105                                | 60            | 10          | 40                     | 1800                    | 1300 | 800   | -     | 3                | 3   |
| TCJB107M006#0045E | B         | 100              | 6.3               | 105                                | 60            | 10          | 45                     | 1700                    | 1200 | 800   | -     | 3                | 3   |
| TCJB107M006#0055E | B         | 100              | 6.3               | 105                                | 60            | 10          | 55                     | 1500                    | 1100 | 700   | -     | 3                | 3   |
| TCJB107M006#0070E | B         | 100              | 6.3               | 105                                | 60            | 10          | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJC107M006#0070E | C         | 100              | 6.3               | 105                                | 60            | 6           | 70                     | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJC107M006#0100E | C         | 100              | 6.3               | 105                                | 60            | 6           | 100                    | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJT107M006#0200E | T         | 100              | 6.3               | 105                                | 60            | 10          | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |
| TCJW107M006#0070E | W         | 100              | 6.3               | 105                                | 60            | 6           | 70                     | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJB157M006#0035E | B         | 150              | 6.3               | 105                                | 90            | 10          | 35                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJB157M006#0045E | B         | 150              | 6.3               | 105                                | 90            | 10          | 45                     | 1700                    | 1200 | 800   | -     | 3                | 3   |
| TCJB157M006#0055E | B         | 150              | 6.3               | 105                                | 90            | 10          | 55                     | 1500                    | 1100 | 700   | -     | 3                | 3   |
| TCJB157M006#0070E | B         | 150              | 6.3               | 105                                | 90            | 10          | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJD157M006#0012E | D         | 150              | 6.3               | 105                                | 90            | 6           | 12                     | 4300                    | 3000 | 1900  | -     | 2                | 3   |
| TCJD157M006#0015E | D         | 150              | 6.3               | 105                                | 90            | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 2                | 3   |
| TCJD157M006#0025E | D         | 150              | 6.3               | 105                                | 90            | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |
| TCJD157M006#0040E | D         | 150              | 6.3               | 105                                | 90            | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 2                | 3   |
| TCJH157M006#0070E | H         | 150              | 6.3               | 105                                | 90            | 6           | 70                     | 1200                    | 800  | 500   | -     | 3                | 3   |
| TCJH157M006#0200E | H         | 150              | 6.3               | 105                                | 90            | 6           | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |
| TCJW157M006#0070E | W         | 150              | 6.3               | 105                                | 90            | 6           | 70                     | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJY157M006#0015E | Y         | 150              | 6.3               | 105                                | 90            | 6           | 15                     | 3500                    | 2500 | 1600  | -     | 2                | 3   |
| TCJY157M006#0025E | Y         | 150              | 6.3               | 105                                | 90            | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 2                | 3   |
| TCJY157M006#0040E | Y         | 150              | 6.3               | 105                                | 90            | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJB227M006#0070E | B         | 220              | 6.3               | 105                                | 132           | 10          | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJB227M006#0200E | B         | 220              | 6.3               | 105                                | 132           | 10          | 200                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJD227M006#0012E | D         | 220              | 6.3               | 105                                | 132           | 6           | 12                     | 4300                    | 3000 | 1900  | -     | 2                | 3   |
| TCJD227M006#0015E | D         | 220              | 6.3               | 105                                | 132           | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 2                | 3   |
| TCJD227M006#0025E | D         | 220              | 6.3               | 105                                | 132           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |
| TCJD227M006#0035E | D         | 220              | 6.3               | 105                                | 132           | 6           | 35                     | 2500                    | 1800 | 1100  | -     | 3                | 3   |
| TCJD227M006#0040E | D         | 220              | 6.3               | 105                                | 132           | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 3                | 3   |
| TCJD227M006#0050E | D         | 220              | 6.3               | 105                                | 132           | 6           | 50                     | 2100                    | 1500 | 900   | -     | 3                | 3   |
| TCJH227M006#0170E | H         | 220              | 6.3               | 105                                | 132           | 10          | 170                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJY227M006#0015E | Y         | 220              | 6.3               | 85                                 | 132           | 6           | 15                     | 3500                    | 2500 | -     | -     | 5                | 3   |
| TCJY227M006#0018E | Y         | 220              | 6.3               | 105                                | 132           | 6           | 18                     | 3200                    | 2200 | 1400  | -     | 3                | 3   |
| TCJY227M006#0025E | Y         | 220              | 6.3               | 105                                | 132           | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 2                | 3   |
| TCJY227M006#0035E | Y         | 220              | 6.3               | 105                                | 132           | 6           | 35                     | 2300                    | 1600 | 1000  | -     | 2                | 3   |
| TCJY227M006#0040E | Y         | 220              | 6.3               | 105                                | 132           | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 2                | 3   |
| TCJY227M006#0050E | Y         | 220              | 6.3               | 105                                | 132           | 6           | 50                     | 1900                    | 1300 | 900   | -     | 2                | 3   |

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### RATINGS & PART NUMBER REFERENCE

| Part Number       | Case Size | Capacitance (µF) | Rated Voltage (V) | Maximum Operating Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA) |      |       |       | Product Category | MSL |
|-------------------|-----------|------------------|-------------------|------------------------------------|---------------|-------------|------------------------|-------------------------|------|-------|-------|------------------|-----|
|                   |           |                  |                   |                                    |               |             |                        | 45°C                    | 85°C | 105°C | 125°C |                  |     |
| TCJD337M006#0012E | D         | 330              | 6.3               | 105                                | 198           | 6           | 12                     | 4300                    | 3000 | 1900  | -     | 3                | 3   |
| TCJD337M006#0015E | D         | 330              | 6.3               | 105                                | 198           | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 3                | 3   |
| TCJD337M006#0018E | D         | 330              | 6.3               | 105                                | 198           | 6           | 18                     | 3500                    | 2500 | 1600  | -     | 3                | 3   |
| TCJD337M006#0025E | D         | 330              | 6.3               | 105                                | 198           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 3                | 3   |
| TCJD337M006#0040E | D         | 330              | 6.3               | 105                                | 198           | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 2                | 3   |
| TCJD337M006#0050E | D         | 330              | 6.3               | 105                                | 198           | 6           | 50                     | 2100                    | 1500 | 900   | -     | 2                | 3   |
| TCJY337M006#0015E | Y         | 330              | 6.3               | 85                                 | 198           | 12          | 15                     | 3500                    | 2500 | -     | -     | 5                | 3   |
| TCJY337M006#0025E | Y         | 330              | 6.3               | 105                                | 198           | 10          | 25                     | 2700                    | 1900 | 1200  | -     | 3                | 3   |
| TCJY337M006#0040E | Y         | 330              | 6.3               | 105                                | 198           | 12          | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJY337M006#0050E | Y         | 330              | 6.3               | 105                                | 198           | 12          | 50                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJD477M006#0025E | D         | 470              | 6.3               | 105                                | 282           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |
| TCJD477M006#0045E | D         | 470              | 6.3               | 105                                | 282           | 6           | 45                     | 2200                    | 1500 | 1000  | -     | 2                | 3   |
| TCJE477M006#0025E | E         | 470              | 6.3               | 125                                | 296.1         | 10          | 25                     | 3200                    | 2200 | 1400  | 800   | 0                | 3   |
| TCJX477M006#0035E | X         | 470              | 6.3               | 105                                | 282           | 6           | 35                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJX477M006#0050E | X         | 470              | 6.3               | 105                                | 282           | 6           | 50                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJX477M006#0100E | X         | 470              | 6.3               | 105                                | 282           | 6           | 100                    | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJE687M006#0025E | E         | 680              | 6.3               | 125                                | 428.4         | 10          | 25                     | 3200                    | 2200 | 1400  | 800   | 0                | 3   |
| <b>10 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJK475M010#0300E | K         | 4.7              | 10                | 105                                | 4.7           | 6           | 300                    | 500                     | 400  | 200   | -     | 3                | 3   |
| TCJK475M010#0500E | K         | 4.7              | 10                | 105                                | 4.7           | 6           | 500                    | 400                     | 300  | 200   | -     | 3                | 3   |
| TCJR475M010#0500E | R         | 4.7              | 10                | 105                                | 4.7           | 6           | 500                    | 400                     | 300  | 200   | -     | 3                | 3   |
| TCJA106M010#0200E | A         | 10               | 10                | 125                                | 10            | 6           | 200                    | 700                     | 500  | 300   | 200   | 1                | 3   |
| TCJA106M010#0300E | A         | 10               | 10                | 125                                | 10            | 6           | 300                    | 600                     | 400  | 300   | 200   | 1                | 3   |
| TCJA156M010#0200E | A         | 15               | 10                | 125                                | 15            | 6           | 200                    | 700                     | 500  | 300   | 200   | 1                | 3   |
| TCJB156M010#0100E | B         | 15               | 10                | 125                                | 15            | 6           | 100                    | 1100                    | 800  | 500   | 300   | 0                | 3   |
| TCJB156M010#0200E | B         | 15               | 10                | 125                                | 15            | 6           | 200                    | 800                     | 600  | 400   | 200   | 0                | 3   |
| TCJA226M010#0250E | A         | 22               | 10                | 125                                | 22            | 8           | 250                    | 600                     | 400  | 300   | 200   | 1                | 3   |
| TCJB226M010#0070E | B         | 22               | 10                | 125                                | 22            | 6           | 70                     | 1300                    | 900  | 600   | 300   | 0                | 3   |
| TCJB226M010#0300E | B         | 22               | 10                | 125                                | 22            | 6           | 300                    | 600                     | 400  | 300   | 200   | 0                | 3   |
| TCJT226M010#0070E | T         | 22               | 10                | 105                                | 22            | 6           | 70                     | 1200                    | 800  | 500   | -     | 3                | 3   |
| TCJT226M010#0150E | T         | 22               | 10                | 105                                | 22            | 6           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJA336M010#0250E | A         | 33               | 10                | 125                                | 33            | 8           | 250                    | 600                     | 400  | 300   | 200   | 1                | 3   |
| TCJB336M010#0070E | B         | 33               | 10                | 125                                | 33            | 6           | 70                     | 1300                    | 900  | 600   | 300   | 0                | 3   |
| TCJB336M010#0200E | B         | 33               | 10                | 125                                | 33            | 6           | 200                    | 800                     | 600  | 400   | 200   | 0                | 3   |
| TCJC336M010#0100E | C         | 33               | 10                | 125                                | 33            | 6           | 100                    | 1300                    | 900  | 600   | 300   | 1                | 3   |
| TCJT336M010#0070E | T         | 33               | 10                | 105                                | 33            | 6           | 70                     | 1200                    | 800  | 500   | -     | 3                | 3   |
| TCJT336M010#0150E | T         | 33               | 10                | 105                                | 33            | 6           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJB476M010#0070E | B         | 47               | 10                | 105                                | 47            | 6           | 70                     | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJC476M010#0100E | C         | 47               | 10                | 125                                | 47            | 6           | 100                    | 1300                    | 900  | 600   | 300   | 1                | 3   |
| TCJH476M010#0100E | H         | 47               | 10                | 105                                | 47            | 6           | 100                    | 1000                    | 700  | 500   | -     | 3                | 3   |
| TCJD686M010#0045E | D         | 68               | 10                | 125                                | 68            | 6           | 45                     | 2200                    | 1500 | 1000  | 600   | 0                | 3   |
| TCJD686M010#0055E | D         | 68               | 10                | 125                                | 68            | 6           | 55                     | 2000                    | 1400 | 900   | 500   | 0                | 3   |
| TCJY686M010#0045E | Y         | 68               | 10                | 105                                | 68            | 6           | 45                     | 2000                    | 1400 | 900   | -     | 3                | 3   |
| TCJY686M010#0055E | Y         | 68               | 10                | 105                                | 68            | 6           | 55                     | 1800                    | 1300 | 800   | -     | 3                | 3   |
| TCJD107M010#0018E | D         | 100              | 10                | 105                                | 100           | 6           | 18                     | 3500                    | 2500 | 1600  | -     | 2                | 3   |
| TCJD107M010#0025E | D         | 100              | 10                | 105                                | 100           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |
| TCJD107M010#0045E | D         | 100              | 10                | 105                                | 100           | 6           | 45                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJD107M010#0055E | D         | 100              | 10                | 105                                | 100           | 6           | 55                     | 2000                    | 1400 | 900   | -     | 3                | 3   |
| TCJD107M010#0080E | D         | 100              | 10                | 105                                | 100           | 6           | 80                     | 1700                    | 1200 | 800   | -     | 3                | 3   |
| TCJY107M010#0018E | Y         | 100              | 10                | 105                                | 100           | 6           | 18                     | 3200                    | 2200 | 1400  | -     | 2                | 3   |
| TCJY107M010#0025E | Y         | 100              | 10                | 105                                | 100           | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 2                | 3   |
| TCJY107M010#0045E | Y         | 100              | 10                | 105                                | 100           | 6           | 45                     | 2000                    | 1400 | 900   | -     | 3                | 3   |
| TCJY107M010#0055E | Y         | 100              | 10                | 105                                | 100           | 6           | 55                     | 1800                    | 1300 | 800   | -     | 3                | 3   |
| TCJD157M010#0025E | D         | 150              | 10                | 105                                | 150           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 3                | 3   |
| TCJD157M010#0040E | D         | 150              | 10                | 105                                | 150           | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 3                | 3   |
| TCJD157M010#0045E | D         | 150              | 10                | 105                                | 150           | 6           | 45                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJD157M010#0055E | D         | 150              | 10                | 105                                | 150           | 6           | 55                     | 2000                    | 1400 | 900   | -     | 3                | 3   |
| TCJY157M010#0025E | Y         | 150              | 10                | 105                                | 150           | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 3                | 3   |
| TCJY157M010#0040E | Y         | 150              | 10                | 105                                | 150           | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJY157M010#0045E | Y         | 150              | 10                | 105                                | 150           | 6           | 45                     | 2000                    | 1400 | 900   | -     | 3                | 3   |
| TCJY157M010#0055E | Y         | 150              | 10                | 105                                | 150           | 6           | 55                     | 1800                    | 1300 | 800   | -     | 3                | 3   |
| TCJD227M010#0015E | D         | 220              | 10                | 105                                | 220           | 6           | 15                     | 3900                    | 2700 | 1800  | -     | 3                | 3   |
| TCJD227M010#0025E | D         | 220              | 10                | 105                                | 220           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 3                | 3   |
| TCJD227M010#0040E | D         | 220              | 10                | 105                                | 220           | 6           | 40                     | 2400                    | 1700 | 1100  | -     | 3                | 3   |
| TCJD227M010#0050E | D         | 220              | 10                | 105                                | 220           | 6           | 50                     | 2100                    | 1500 | 900   | -     | 3                | 3   |
| TCJY227M010#0015E | Y         | 220              | 10                | 85                                 | 220           | 6           | 15                     | 3500                    | 2500 | -     | -     | 5                | 3   |
| TCJY227M010#0025E | Y         | 220              | 10                | 105                                | 220           | 6           | 25                     | 2700                    | 1900 | 1200  | -     | 3                | 3   |
| TCJY227M010#0040E | Y         | 220              | 10                | 105                                | 220           | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJY227M010#0050E | Y         | 220              | 10                | 105                                | 220           | 6           | 50                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJD337M010#0025E | D         | 330              | 10                | 105                                | 330           | 6           | 25                     | 3000                    | 2100 | 1400  | -     | 2                | 3   |
| TCJ5337M010#0035E | 5         | 330              | 10                | 105                                | 330           | 10          | 35                     | 2600                    | 1800 | 1200  | -     | 2                | 3   |

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### RATINGS & PART NUMBER REFERENCE

| Part Number       | Case Size | Capacitance (µF) | Rated Voltage (V) | Maximum Operating Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA) |      |       |       | Product Category | MSL |
|-------------------|-----------|------------------|-------------------|------------------------------------|---------------|-------------|------------------------|-------------------------|------|-------|-------|------------------|-----|
|                   |           |                  |                   |                                    |               |             |                        | 45°C                    | 85°C | 105°C | 125°C |                  |     |
| TCJ5337M010#0100E | 5         | 330              | 10                | 105                                | 330           | 10          | 100                    | 1500                    | 1100 | 700   | -     | 2                | 3   |
| TCJE477M010#0025E | E         | 470              | 10                | 125                                | 470           | 10          | 25                     | 3200                    | 2200 | 1400  | 800   | 0                | 3   |
| <b>16 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJA685M016#0200E | A         | 6.8              | 16                | 125                                | 10.9          | 6           | 200                    | 700                     | 500  | 300   | 200   | 1                | 3   |
| TCJA106M016#0200E | A         | 10               | 16                | 125                                | 16            | 6           | 200                    | 700                     | 500  | 300   | 200   | 1                | 3   |
| TCJB106M016#0100E | B         | 10               | 16                | 125                                | 16            | 6           | 100                    | 1100                    | 800  | 500   | 300   | 1                | 3   |
| TCJB106M016#0200E | B         | 10               | 16                | 125                                | 16            | 6           | 200                    | 800                     | 600  | 400   | 200   | 1                | 3   |
| TCJT106M016#0100E | T         | 10               | 16                | 125                                | 16            | 6           | 100                    | 1000                    | 700  | 500   | 300   | 1                | 3   |
| TCJT106M016#0150E | T         | 10               | 16                | 125                                | 16            | 6           | 150                    | 800                     | 600  | 400   | 200   | 1                | 3   |
| TCJT106M016#0200E | T         | 10               | 16                | 125                                | 16            | 6           | 200                    | 700                     | 500  | 300   | 200   | 1                | 3   |
| TCJA156M016#0250E | A         | 15               | 16                | 125                                | 24            | 8           | 250                    | 600                     | 400  | 300   | 200   | 1                | 3   |
| TCJB156M016#0090E | B         | 15               | 16                | 125                                | 24            | 6           | 90                     | 1200                    | 800  | 500   | 300   | 0                | 3   |
| TCJB156M016#0150E | B         | 15               | 16                | 125                                | 24            | 6           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJA226M016#0300E | A         | 22               | 16                | 105                                | 35.2          | 10          | 300                    | 600                     | 400  | 300   | -     | 3                | 3   |
| TCJB226M016#0070E | B         | 22               | 16                | 125                                | 35.2          | 8           | 70                     | 1300                    | 900  | 600   | 300   | 0                | 3   |
| TCJB226M016#0150E | B         | 22               | 16                | 125                                | 35.2          | 6           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJA336M016#0200E | A         | 33               | 16                | 105                                | 52.8          | 10          | 200                    | 700                     | 500  | 300   | -     | 3                | 3   |
| TCJB336M016#0090E | B         | 33               | 16                | 125                                | 52.8          | 8           | 90                     | 1200                    | 800  | 500   | 300   | 0                | 3   |
| TCJB336M016#0150E | B         | 33               | 16                | 125                                | 52.8          | 8           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJH336M016#0150E | H         | 33               | 16                | 105                                | 52.8          | 6           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJY336M016#0045E | Y         | 33               | 16                | 105                                | 52.8          | 6           | 45                     | 2000                    | 1400 | 900   | -     | 2                | 3   |
| TCJY336M016#0060E | Y         | 33               | 16                | 105                                | 52.8          | 6           | 60                     | 1800                    | 1300 | 800   | -     | 2                | 3   |
| TCJY336M016#0070E | Y         | 33               | 16                | 105                                | 52.8          | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJD476M016#0045E | D         | 47               | 16                | 125                                | 75.2          | 6           | 45                     | 2200                    | 1500 | 1000  | 600   | 0                | 3   |
| TCJD476M016#0070E | D         | 47               | 16                | 125                                | 75.2          | 6           | 70                     | 1800                    | 1300 | 800   | 500   | 0                | 3   |
| TCJH476M016#0150E | H         | 47               | 16                | 105                                | 75.2          | 6           | 150                    | 800                     | 600  | 400   | -     | 3                | 4   |
| TCJX476M016#0045E | X         | 47               | 16                | 105                                | 75.2          | 6           | 45                     | 2000                    | 1400 | 900   | -     | 2                | 3   |
| TCJX476M016#0070E | X         | 47               | 16                | 105                                | 75.2          | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJY476M016#0045E | Y         | 47               | 16                | 105                                | 75.2          | 6           | 45                     | 2000                    | 1400 | 900   | -     | 2                | 3   |
| TCJY476M016#0070E | Y         | 47               | 16                | 105                                | 75.2          | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJD686M016#0050E | D         | 68               | 16                | 105                                | 108.8         | 6           | 50                     | 2100                    | 1500 | 900   | -     | 2                | 3   |
| TCJY686M016#0050E | Y         | 68               | 16                | 105                                | 108.8         | 6           | 50                     | 1900                    | 1300 | 900   | -     | 2                | 3   |
| TCJD107M016#0050E | D         | 100              | 16                | 105                                | 160           | 6           | 50                     | 2100                    | 1500 | 900   | -     | 2                | 3   |
| TCJE107M016#0040E | E         | 100              | 16                | 105                                | 160           | 6           | 40                     | 2500                    | 1800 | 1100  | -     | 2                | 3   |
| TCJY107M016#0050E | Y         | 100              | 16                | 105                                | 160           | 6           | 50                     | 2320                    | 2320 | 580   | -     | 2                | 3   |
| TCJC157M016#0070E | C         | 150              | 16                | 125                                | 240           | 10          | 70                     | 1600                    | 1100 | 700   | 400   | 0                | 3   |
| TCJD157M016#0040E | D         | 150              | 16                | 85                                 | 240           | 6           | 40                     | 2400                    | 1700 | -     | -     | 5                | 3   |
| TCJD157M016#0050E | D         | 150              | 16                | 85                                 | 240           | 6           | 50                     | 2100                    | 1500 | -     | -     | 5                | 3   |
| TCJD157M016#0070E | D         | 150              | 16                | 105                                | 240           | 6           | 70                     | 1800                    | 1300 | 800   | -     | 3                | 3   |
| TCJE157M016#0025E | E         | 150              | 16                | 125                                | 240           | 8           | 25                     | 3200                    | 2200 | 1400  | 800   | 0                | 3   |
| TCJE157M016#0040E | E         | 150              | 16                | 125                                | 240           | 10          | 40                     | 2500                    | 1800 | 1100  | 600   | 0                | 3   |
| TCJY157M016#0040E | Y         | 150              | 16                | 105                                | 240           | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJY157M016#0050E | Y         | 150              | 16                | 105                                | 240           | 6           | 50                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJY157M016#0070E | Y         | 150              | 16                | 105                                | 240           | 6           | 70                     | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJD227M016#0035E | D         | 220              | 16                | 105                                | 352           | 10          | 35                     | 2500                    | 1800 | 1100  | -     | 2                | 3   |
| TCJD227M016#0050E | D         | 220              | 16                | 105                                | 352           | 10          | 50                     | 2100                    | 1500 | 900   | -     | 2                | 3   |
| TCJE227M016#0050E | E         | 220              | 16                | 125                                | 352           | 10          | 50                     | 2200                    | 1500 | 1000  | 600   | 0                | 3   |
| TCJE337M016#0035E | E         | 330              | 16                | 105                                | 528           | 10          | 35                     | 2700                    | 1900 | 1200  | -     | 2                | 3   |
| TCJE337M016#0050E | E         | 330              | 16                | 105                                | 528           | 10          | 50                     | 2200                    | 1500 | 1000  | -     | 2                | 3   |
| TCJE337M016#0070E | E         | 330              | 16                | 105                                | 528           | 10          | 70                     | 1900                    | 1300 | 900   | -     | 2                | 3   |
| TCJU337M016R0050E | U         | 330              | 16                | 125                                | 528           | 12          | 50                     | 2800                    | 2000 | 1300  | 700   | 1                | 3   |
| TCJU337M016R0070E | U         | 330              | 16                | 125                                | 528           | 12          | 70                     | 2300                    | 1600 | 1000  | 600   | 1                | 3   |
| TCJ5337M016#0100E | 5         | 330              | 16                | 105                                | 528           | 10          | 100                    | 1500                    | 1100 | 700   | -     | 2                | 3   |
| TCJ5477M016R0100E | 5         | 470              | 16                | 105                                | 752           | 10          | 100                    | 1500                    | 1100 | 700   | -     | 3                | 3   |
| <b>20 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJA685M020#0150E | A         | 6.8              | 20                | 125                                | 13.6          | 6           | 150                    | 800                     | 600  | 400   | 200   | 1                | 3   |
| TCJB685M020#0150E | B         | 6.8              | 20                | 105                                | 13.6          | 8           | 150                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJA106M020#0150E | A         | 10               | 20                | 125                                | 20            | 6           | 150                    | 800                     | 600  | 400   | 200   | 1                | 3   |
| TCJB106M020#0100E | B         | 10               | 20                | 125                                | 20            | 8           | 100                    | 1100                    | 800  | 500   | 300   | 0                | 3   |
| TCJB106M020#0150E | B         | 10               | 20                | 125                                | 20            | 8           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJB156M020#0090E | B         | 15               | 20                | 125                                | 30            | 8           | 90                     | 1200                    | 800  | 500   | 300   | 0                | 3   |
| TCJB156M020#0150E | B         | 15               | 20                | 125                                | 30            | 8           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJB226M020#0090E | B         | 22               | 20                | 105                                | 44            | 6           | 90                     | 1200                    | 800  | 500   | 300   | 0                | 3   |
| TCJB226M020#0150E | B         | 22               | 20                | 105                                | 44            | 6           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJX226M020#0100E | X         | 22               | 20                | 105                                | 44            | 8           | 100                    | 1300                    | 900  | 600   | -     | 2                | 3   |
| TCJY226M020#0070E | Y         | 22               | 20                | 105                                | 44            | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJX336M020#0100E | X         | 33               | 20                | 105                                | 66            | 6           | 100                    | 1300                    | 900  | 600   | -     | 2                | 3   |
| TCJY336M020#0070E | Y         | 33               | 20                | 105                                | 66            | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJD476M020#0055E | D         | 47               | 20                | 105                                | 94            | 6           | 55                     | 2000                    | 1400 | 900   | -     | 2                | 3   |
| TCJX476M020#0055E | X         | 47               | 20                | 105                                | 94            | 6           | 55                     | 1800                    | 1300 | 800   | -     | 3                | 3   |
| TCJX476M020#0070E | X         | 47               | 20                | 105                                | 94            | 6           | 70                     | 1600                    | 1100 | 700   | -     | 3                | 3   |

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### RATINGS & PART NUMBER REFERENCE

| Part Number       | Case Size | Capacitance (µF) | Rated Voltage (V) | Maximum Operating Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA) |      |       |       | Product Category | MSL |
|-------------------|-----------|------------------|-------------------|------------------------------------|---------------|-------------|------------------------|-------------------------|------|-------|-------|------------------|-----|
|                   |           |                  |                   |                                    |               |             |                        | 45°C                    | 85°C | 105°C | 125°C |                  |     |
| TCJY476M020#0070E | Y         | 47               | 20                | 125                                | 94            | 6           | 70                     | 1600                    | 1100 | 700   | 400   | 0                | 3   |
| TCJD686M020#0055E | D         | 68               | 20                | 105                                | 136           | 6           | 55                     | 2000                    | 1400 | 900   | -     | 3                | 3   |
| TCJE686M020#0045E | E         | 68               | 20                | 105                                | 136           | 6           | 45                     | 2400                    | 1700 | 1100  | -     | 2                | 3   |
| TCJY686M020#0050E | Y         | 68               | 20                | 105                                | 136           | 6           | 50                     | 1900                    | 1300 | 900   | -     | 2                | 3   |
| TCJC107M020#0070E | C         | 100              | 20                | 125                                | 200           | 10          | 70                     | 1600                    | 1100 | 700   | 400   | 0                | 3   |
| TCJD107M020#0055E | D         | 100              | 20                | 105                                | 200           | 6           | 55                     | 2000                    | 1400 | 900   | -     | 2                | 3   |
| TCJE107M020#0045E | E         | 100              | 20                | 125                                | 200           | 10          | 45                     | 2400                    | 1700 | 1100  | 600   | 0                | 3   |
| TCJY107M020#0055E | Y         | 100              | 20                | 105                                | 200           | 6           | 55                     | 1800                    | 1300 | 800   | -     | 2                | 3   |
| TCJE157M020#0050E | E         | 150              | 20                | 125                                | 300           | 6           | 50                     | 2200                    | 1500 | 1000  | 600   | 0                | 3   |
| TCJU227M020R0070E | U         | 220              | 20                | 105                                | 440           | 12          | 70                     | 2300                    | 1600 | 1000  | -     | 2                | 3   |
| <b>25 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJP105M025#0500E | P         | 1.0              | 25                | 105                                | 2.5           | 6           | 500                    | 400                     | 300  | 200   | -     | 2                | 3   |
| TCJA475M025#0500E | A         | 4.7              | 25                | 125                                | 11.8          | 8           | 500                    | 400                     | 300  | 200   | 100   | 1                | 3   |
| TCJB475M025#0100E | B         | 4.7              | 25                | 105                                | 11.8          | 6           | 100                    | 1100                    | 800  | 500   | -     | 3                | 3   |
| TCJB475M025#0150E | B         | 4.7              | 25                | 105                                | 11.8          | 6           | 150                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJA685M025#0150E | A         | 6.8              | 25                | 105                                | 17            | 6           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJB685M025#0090E | B         | 6.8              | 25                | 105                                | 17            | 6           | 90                     | 1200                    | 800  | 500   | -     | 2                | 3   |
| TCJB685M025#0150E | B         | 6.8              | 25                | 105                                | 17            | 6           | 150                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJT685M025#0100E | T         | 6.8              | 25                | 105                                | 17            | 6           | 100                    | 1000                    | 700  | 500   | -     | 3                | 3   |
| TCJT685M025#0150E | T         | 6.8              | 25                | 105                                | 17            | 6           | 150                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJA106M025#0150E | A         | 10               | 25                | 105                                | 25            | 6           | 150                    | 800                     | 600  | 400   | -     | 2                | 3   |
| TCJB106M025#0090E | B         | 10               | 25                | 105                                | 25            | 6           | 90                     | 1200                    | 800  | 500   | -     | 2                | 3   |
| TCJB106M025#0100E | B         | 10               | 25                | 105                                | 25            | 6           | 100                    | 1100                    | 800  | 500   | -     | 2                | 3   |
| TCJB106M025#0150E | B         | 10               | 25                | 105                                | 25            | 6           | 150                    | 900                     | 600  | 400   | -     | 2                | 3   |
| TCJB156M025#0100E | B         | 15               | 25                | 105                                | 37.5          | 6           | 100                    | 1400                    | 1400 | 900   | -     | 2                | 3   |
| TCJB156M025#0150E | B         | 15               | 25                | 105                                | 37.5          | 6           | 150                    | 900                     | 600  | 400   | -     | 2                | 3   |
| TCJY156M025#0090E | Y         | 15               | 25                | 105                                | 37.5          | 6           | 90                     | 1400                    | 1000 | 600   | -     | 2                | 3   |
| TCJB226M025#0100E | B         | 22               | 25                | 105                                | 55            | 6           | 100                    | 1100                    | 800  | 500   | -     | 2                | 3   |
| TCJB226M025#0150E | B         | 22               | 25                | 105                                | 55            | 6           | 150                    | 900                     | 600  | 400   | -     | 2                | 3   |
| TCJC226M025#0100E | C         | 22               | 25                | 105                                | 55            | 6           | 100                    | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJD226M025#0060E | D         | 22               | 25                | 105                                | 55            | 6           | 60                     | 1900                    | 1300 | 900   | -     | 2                | 3   |
| TCJD226M025#0100E | D         | 22               | 25                | 105                                | 55            | 6           | 100                    | 1500                    | 1100 | 700   | -     | 2                | 3   |
| TCJX226M025#0100E | X         | 22               | 25                | 105                                | 55            | 8           | 100                    | 1300                    | 900  | 600   | -     | 2                | 3   |
| TCJY226M025#0070E | Y         | 22               | 25                | 105                                | 55            | 6           | 70                     | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJD336M025#0060E | D         | 33               | 25                | 105                                | 82.5          | 6           | 60                     | 1900                    | 1300 | 900   | -     | 2                | 3   |
| TCJD336M025#0100E | D         | 33               | 25                | 105                                | 82.5          | 6           | 100                    | 1500                    | 1100 | 700   | -     | 2                | 3   |
| TCJX336M025#0070E | X         | 33               | 25                | 105                                | 82.5          | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJX336M025#0100E | X         | 33               | 25                | 105                                | 82.5          | 6           | 100                    | 1300                    | 900  | 600   | -     | 2                | 3   |
| TCJY336M025#0040E | Y         | 33               | 25                | 105                                | 82.5          | 6           | 40                     | 2200                    | 1500 | 1000  | -     | 2                | 3   |
| TCJY336M025#0060E | Y         | 33               | 25                | 105                                | 82.5          | 6           | 60                     | 1800                    | 1300 | 800   | -     | 2                | 3   |
| TCJY336M025#0070E | Y         | 33               | 25                | 105                                | 82.5          | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJY336M025#0100E | Y         | 33               | 25                | 105                                | 82.5          | 6           | 100                    | 1400                    | 1000 | 600   | -     | 2                | 3   |
| TCJD476M025#0060E | D         | 47               | 25                | 105                                | 117.5         | 6           | 60                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJD476M025#0100E | D         | 47               | 25                | 105                                | 117.5         | 6           | 100                    | 1500                    | 1100 | 700   | -     | 3                | 3   |
| TCJE476M025#0050E | E         | 47               | 25                | 105                                | 117.5         | 6           | 50                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJY476M025#0100E | Y         | 47               | 25                | 105                                | 117.5         | 6           | 100                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJD686M025#0070E | D         | 68               | 25                | 105                                | 170           | 6           | 70                     | 1800                    | 1300 | 800   | -     | 2                | 3   |
| TCJE686M025#0050E | E         | 68               | 25                | 105                                | 170           | 6           | 50                     | 2200                    | 1500 | 1000  | -     | 3                | 3   |
| TCJY686M025#0100E | Y         | 68               | 25                | 105                                | 170           | 6           | 100                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJD107M025#0055E | D         | 100              | 25                | 105                                | 250           | 6           | 55                     | 2000                    | 1400 | 900   | -     | 2                | 3   |
| TCJD107M025#0070E | D         | 100              | 25                | 105                                | 250           | 6           | 70                     | 1800                    | 1300 | 800   | -     | 2                | 3   |
| TCJE107M025#0040E | E         | 100              | 25                | 125                                | 250           | 6           | 40                     | 2500                    | 1800 | 1100  | 600   | 0                | 3   |
| TCJE107M025#0060E | E         | 100              | 25                | 125                                | 250           | 6           | 60                     | 2000                    | 1400 | 900   | 500   | 0                | 3   |
| TCJE107M025#0080E | E         | 100              | 25                | 125                                | 250           | 6           | 80                     | 1800                    | 1300 | 800   | 500   | 0                | 3   |
| TCJU107M025R0070E | U         | 100              | 25                | 125                                | 250           | 12          | 70                     | 2300                    | 1600 | 1000  | 600   | 1                | 3   |
| TCJU157M025R0070E | U         | 150              | 25                | 105                                | 375           | 12          | 70                     | 2300                    | 1600 | 1000  | -     | 2                | 3   |
| <b>35 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJB155M035#0200E | B         | 1.5              | 35                | 105                                | 5.3           | 6           | 200                    | 800                     | 600  | 400   | -     | 2                | 3   |
| TCJB225M035#0200E | B         | 2.2              | 35                | 105                                | 7.7           | 6           | 200                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJA335M035#0500E | A         | 3.3              | 35                | 125                                | 11.6          | 8           | 500                    | 400                     | 300  | 200   | 100   | 1                | 3   |
| TCJB335M035#0200E | B         | 3.3              | 35                | 105                                | 11.6          | 6           | 200                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJB475M035#0150E | B         | 4.7              | 35                | 125                                | 16.5          | 6           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJB475M035#0200E | B         | 4.7              | 35                | 125                                | 16.5          | 6           | 200                    | 800                     | 600  | 400   | 200   | 0                | 3   |
| TCJC475M035#0200E | C         | 4.7              | 35                | 105                                | 16.5          | 6           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJC685M035#0200E | C         | 6.8              | 35                | 105                                | 23.8          | 6           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJB106M035#0150E | B         | 10               | 35                | 125                                | 35            | 6           | 150                    | 900                     | 600  | 400   | 200   | 0                | 3   |
| TCJB106M035#0200E | B         | 10               | 35                | 105                                | 35            | 6           | 200                    | 800                     | 600  | 400   | -     | 2                | 3   |
| TCJC106M035#0200E | C         | 10               | 35                | 105                                | 35            | 6           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJY106M035#0070E | Y         | 10               | 35                | 105                                | 35            | 6           | 70                     | 1600                    | 1100 | 700   | -     | 2                | 3   |
| TCJB156M035#0200E | B         | 15               | 35                | 105                                | 52.5          | 6           | 200                    | 800                     | 600  | 400   | -     | 2                | 3   |
| TCJC156M035#0200E | C         | 15               | 35                | 105                                | 52.5          | 6           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### RATINGS & PART NUMBER REFERENCE

| Part Number       | Case Size | Capacitance (µF) | Rated Voltage (V) | Maximum Operating Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA) |      |       |       | Product Category | MSL |
|-------------------|-----------|------------------|-------------------|------------------------------------|---------------|-------------|------------------------|-------------------------|------|-------|-------|------------------|-----|
|                   |           |                  |                   |                                    |               |             |                        | 45°C                    | 85°C | 105°C | 125°C |                  |     |
| TCJD156M035#0070E | D         | 15               | 35                | 105                                | 52.5          | 6           | 70                     | 1800                    | 1300 | 800   | -     | 3                | 3   |
| TCJD156M035#0100E | D         | 15               | 35                | 105                                | 52.5          | 6           | 100                    | 1500                    | 1100 | 700   | -     | 3                | 3   |
| TCJY156M035#0070E | Y         | 15               | 35                | 105                                | 52.5          | 6           | 70                     | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJY156M035#0100E | Y         | 15               | 35                | 105                                | 52.5          | 6           | 100                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJD226M035#0070E | D         | 22               | 35                | 105                                | 77            | 6           | 70                     | 1800                    | 1300 | 800   | -     | 2                | 3   |
| TCJD226M035#0100E | D         | 22               | 35                | 105                                | 77            | 6           | 100                    | 1500                    | 1100 | 700   | -     | 2                | 3   |
| TCJY226M035#0150E | Y         | 22               | 35                | 105                                | 77            | 6           | 150                    | 1100                    | 800  | 500   | -     | 3                | 3   |
| TCJD336M035#0070E | D         | 33               | 35                | 105                                | 115.5         | 6           | 70                     | 1800                    | 1300 | 800   | -     | 2                | 3   |
| TCJD336M035#0100E | D         | 33               | 35                | 105                                | 115.5         | 6           | 100                    | 1500                    | 1100 | 700   | -     | 2                | 3   |
| TCJE336M035#0055E | E         | 33               | 35                | 105                                | 115.5         | 6           | 55                     | 2100                    | 1500 | 900   | -     | 3                | 3   |
| TCJE336M035#0070E | E         | 33               | 35                | 105                                | 115.5         | 6           | 70                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJU336M035R0070E | U         | 33               | 35                | 125                                | 115.5         | 12          | 70                     | 2300                    | 1600 | 1000  | 600   | 1                | 3   |
| TCJY336M035#0100E | Y         | 33               | 35                | 105                                | 115.5         | 6           | 100                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJE476M035#0055E | E         | 47               | 35                | 105                                | 164.5         | 6           | 55                     | 2100                    | 1500 | 900   | -     | 2                | 3   |
| TCJU476M035R0070E | U         | 47               | 35                | 125                                | 164.5         | 12          | 70                     | 2300                    | 1600 | 1000  | 600   | 1                | 3   |
| TCJY476M035#0100E | Y         | 47               | 35                | 105                                | 164.5         | 6           | 100                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJU157M035#0100E | U         | 150              | 35                | 105                                | 525           | 10          | 100                    | 1900                    | 1300 | 900   | -     | 2                | 3   |
| <b>50 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJB684M050#0400E | B         | 0.68             | 50                | 105                                | 3.4           | 6           | 400                    | 600                     | 400  | 300   | -     | 3                | 3   |
| TCJB105M050#0300E | B         | 1.0              | 50                | 105                                | 5             | 6           | 300                    | 600                     | 400  | 300   | -     | 3                | 3   |
| TCJB155M050#0300E | B         | 1.5              | 50                | 105                                | 7.5           | 6           | 300                    | 600                     | 400  | 300   | -     | 3                | 3   |
| TCJC155M050#0300E | C         | 1.5              | 50                | 105                                | 7.5           | 6           | 300                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJB225M050#0300E | B         | 2.2              | 50                | 125                                | 11            | 8           | 300                    | 600                     | 400  | 300   | 200   | 0                | 3   |
| TCJC225M050#0300E | C         | 2.2              | 50                | 105                                | 11            | 6           | 300                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJB335M050#0300E | B         | 3.3              | 50                | 125                                | 16.5          | 8           | 300                    | 600                     | 400  | 300   | 200   | 0                | 3   |
| TCJC335M050#0200E | C         | 3.3              | 50                | 105                                | 16.5          | 8           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJC475M050#0200E | C         | 4.7              | 50                | 105                                | 23.5          | 8           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJX475M050#0250E | X         | 4.7              | 50                | 105                                | 23.5          | 6           | 250                    | 800                     | 600  | 400   | -     | 2                | 5   |
| TCJY475M050#0250E | Y         | 4.7              | 50                | 105                                | 23.5          | 6           | 250                    | 900                     | 600  | 400   | -     | 2                | 3   |
| TCJC685M050#0200E | C         | 6.8              | 50                | 105                                | 34            | 8           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJD685M050#0120E | D         | 6.8              | 50                | 105                                | 34            | 10          | 120                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJD106M050#0090E | D         | 10               | 50                | 105                                | 50            | 10          | 90                     | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJD106M050#0120E | D         | 10               | 50                | 105                                | 50            | 10          | 120                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJE106M050#0070E | E         | 10               | 50                | 105                                | 50            | 6           | 70                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJE106M050#0100E | E         | 10               | 50                | 105                                | 50            | 6           | 100                    | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJD156M050#0150E | D         | 15               | 50                | 125                                | 75            | 8           | 150                    | 1200                    | 800  | 500   | 300   | 1                | 3   |
| TCJE156M050#0070E | E         | 15               | 50                | 105                                | 75            | 6           | 70                     | 1900                    | 1300 | 900   | -     | 3                | 3   |
| TCJE156M050#0100E | E         | 15               | 50                | 105                                | 75            | 6           | 100                    | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJD226M050#0090E | D         | 22               | 50                | 125                                | 110           | 8           | 90                     | 1600                    | 1100 | 700   | 400   | 1                | 3   |
| TCJE226M050#0075E | E         | 22               | 50                | 125                                | 110           | 8           | 75                     | 1800                    | 1300 | 800   | 500   | 1                | 3   |
| TCJE226M050#0150E | E         | 22               | 50                | 105                                | 110           | 8           | 150                    | 1300                    | 900  | 600   | -     | 2                | 3   |
| <b>63 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJB474M063#0400E | B         | 0.47             | 63                | 105                                | 3             | 8           | 400                    | 600                     | 400  | 300   | -     | 3                | 3   |
| TCJB684M063#0300E | B         | 0.68             | 63                | 105                                | 4.3           | 8           | 300                    | 600                     | 400  | 300   | -     | 3                | 3   |
| TCJB105M063#0300E | B         | 1.0              | 63                | 105                                | 6.3           | 8           | 300                    | 600                     | 400  | 300   | -     | 3                | 3   |
| TCJC105M063#0300E | C         | 1.0              | 63                | 105                                | 6.3           | 6           | 300                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJC155M063#0300E | C         | 1.5              | 63                | 105                                | 9.5           | 6           | 300                    | 800                     | 600  | 400   | -     | 3                | 3   |
| TCJC225M063#0200E | C         | 2.2              | 63                | 105                                | 13.9          | 6           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJC335M063#0200E | C         | 3.3              | 63                | 105                                | 20.8          | 6           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJC475M063#0200E | C         | 4.7              | 63                | 105                                | 29.6          | 6           | 200                    | 900                     | 600  | 400   | -     | 3                | 3   |
| TCJD475M063#0120E | D         | 4.7              | 63                | 105                                | 29.6          | 6           | 120                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJD685M063#0120E | D         | 6.8              | 63                | 105                                | 42.8          | 6           | 120                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| TCJE685M063#0100E | E         | 6.8              | 63                | 105                                | 42.8          | 6           | 100                    | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJE685M063#0150E | E         | 6.8              | 63                | 105                                | 42.8          | 6           | 150                    | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJE106M063#0100E | E         | 10               | 63                | 105                                | 63            | 6           | 100                    | 1600                    | 1100 | 700   | -     | 3                | 3   |
| TCJE106M063#0150E | E         | 10               | 63                | 105                                | 63            | 6           | 150                    | 1300                    | 900  | 600   | -     | 3                | 3   |
| TCJE156M063#0150E | E         | 15               | 63                | 105                                | 94.5          | 8           | 150                    | 1300                    | 900  | 600   | -     | 2                | 3   |
| <b>75 Volt</b>    |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJD475M075#0150E | D         | 4.7              | 75                | 105                                | 35.3          | 6           | 150                    | 1200                    | 800  | 500   | -     | 3                | 3   |
| TCJD685M075#0120E | D         | 6.8              | 75                | 105                                | 51            | 6           | 120                    | 1400                    | 1000 | 600   | -     | 3                | 3   |
| <b>100 Volt</b>   |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJD475M100#0250E | D         | 4.7              | 100               | 105                                | 47            | 8           | 250                    | 900                     | 600  | 400   | -     | 4                | 3   |
| <b>125 Volt</b>   |           |                  |                   |                                    |               |             |                        |                         |      |       |       |                  |     |
| TCJD335M125#0250E | D         | 3.3              | 125               | 105                                | 41.2          | 8           | 250                    | 900                     | 600  | 400   | -     | 4                | 3   |

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 253.

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

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors

### RECOMMENDED DERATING FACTOR

Voltage and temperature derating as percentage of Vr

**Product Category 0**



**Product Category 1**



**Product Category 2**



**Product Category 3, 4**



**Product Category 5**



# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### PRODUCT CATEGORY 0, 1 (TEMPERATURE RANGE -55°C TO +125°C)

| TEST                         | Condition  |                |                | Characteristics                |                                   |           |           |           |            |           |  |
|------------------------------|--|----------------|----------------|--------------------------------|-----------------------------------|-----------|-----------|-----------|------------|-----------|--|
| <b>Endurance</b>             | Apply rated voltage (Ur) at 85°C (CATEGORY 1) or 105°C (CATEGORY 0) or 2/3 rated voltage (Ur) at 125°C (all CATEGORIES) for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$ . Stabilize at room temperature for 1-2 hours before measuring. |                |                | <b>Visual examination</b>      | no visible damage                 |           |           |           |            |           |  |
|                              |  |                |                | <b>DCL</b>                     | 1.25 x initial limit              |           |           |           |            |           |  |
|                              |  |                |                | <b><math>\Delta C/C</math></b> | within +10/-20% of initial value  |           |           |           |            |           |  |
|                              |  |                |                | <b>DF</b>                      | 1.5 x initial limit               |           |           |           |            |           |  |
|                              |  |                |                | <b>ESR</b>                     | 2 x initial limit                 |           |           |           |            |           |  |
| <b>Storage Life</b>          | Store at 125°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.  |                |                | <b>Visual examination</b>      | no visible damage                 |           |           |           |            |           |  |
|                              |  |                |                | <b>DCL</b>                     | 2 x initial limit                 |           |           |           |            |           |  |
|                              |  |                |                | <b><math>\Delta C/C</math></b> | within +10/-20% of initial value  |           |           |           |            |           |  |
|                              |  |                |                | <b>DF</b>                      | 1.5 x initial limit               |           |           |           |            |           |  |
|                              |  |                |                | <b>ESR</b>                     | 2 x initial limit                 |           |           |           |            |           |  |
| <b>Humidity</b>              | Store at 65°C and 95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring.   |                |                | <b>Visual examination</b>      | no visible damage                 |           |           |           |            |           |  |
|                              |  |                |                | <b>DCL</b>                     | 3 x initial limit                 |           |           |           |            |           |  |
|                              |  |                |                | <b><math>\Delta C/C</math></b> | within +35/-5% of initial value   |           |           |           |            |           |  |
|                              |  |                |                | <b>DF</b>                      | 1.5 x initial limit               |           |           |           |            |           |  |
|                              |  |                |                | <b>ESR</b>                     | 2 x initial limit                 |           |           |           |            |           |  |
| <b>Temperature Stability</b> | Step   | Temperature °C | Duration (min) |                                | +20°C                             | -55°C     | +20°C     | +85°C     | +125°C     | +20°C     |  |
|                              | 1  | +20            | 15             | <b>DCL</b>                     | IL*                               | n/a       | IL*       | 10 x IL*  | 12.5 x IL* | IL*       |  |
|                              | 2  | -55            | 15             |                                |                                   |           |           |           |            |           |  |
|                              | 3  | +20            | 15             | <b><math>\Delta C/C</math></b> | n/a                               | +0/-20%   | $\pm 5\%$ | +20/-0%   | +30/-0%    | $\pm 5\%$ |  |
|                              | 4  | +85            | 15             | <b>DF</b>                      | IL*                               | 1.5 x IL* | IL*       | 1.5 x IL* | 2 x IL*    | IL*       |  |
|                              | 5  | +125           | 15             |                                |                                   |           |           |           |            |           |  |
| 6                            | +20  | 15             |                |                                |                                   |           |           |           |            |           |  |
| <b>Surge Voltage</b>         | Apply 1.3x 2/3x rated voltage (Ur) at 125°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000 $\Omega$   |                |                | <b>Visual examination</b>      | no visible damage                 |           |           |           |            |           |  |
|                              |  |                |                | <b>DCL</b>                     | initial limit                     |           |           |           |            |           |  |
|                              |  |                |                | <b><math>\Delta C/C</math></b> | within +10/-20% of initial value  |           |           |           |            |           |  |
|                              |  |                |                | <b>DF</b>                      | 1.25 x initial limit              |           |           |           |            |           |  |
|                              |  |                |                | <b>ESR</b>                     | 1.25 x initial limit              |           |           |           |            |           |  |
| <b>Mechanical Shock</b>      | MIL-STD-202, Method 213, Condition C   |                |                | <b>Visual examination</b>      | no visible damage                 |           |           |           |            |           |  |
|                              |  |                |                | <b>DCL</b>                     | initial limit                     |           |           |           |            |           |  |
|                              |  |                |                | <b><math>\Delta C/C</math></b> | within $\pm 5\%$ of initial value |           |           |           |            |           |  |
|                              |  |                |                | <b>DF</b>                      | initial limit                     |           |           |           |            |           |  |
|                              |  |                |                | <b>ESR</b>                     | 1.25 x initial limit              |           |           |           |            |           |  |
| <b>Vibration</b>             | MIL-STD-202, Method 204, Condition D   |                |                | <b>Visual examination</b>      | no visible damage                 |           |           |           |            |           |  |
|                              |  |                |                | <b>DCL</b>                     | initial limit                     |           |           |           |            |           |  |
|                              |  |                |                | <b><math>\Delta C/C</math></b> | within $\pm 5\%$ of initial value |           |           |           |            |           |  |
|                              |  |                |                | <b>DF</b>                      | initial limit                     |           |           |           |            |           |  |
|                              |  |                |                | <b>ESR</b>                     | 1.25 x initial limit              |           |           |           |            |           |  |

\*Initial Limit

Initial measurement max. 1hr after the removal from dry pack or after pretreatment at 85°C for 24 hours.

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### PRODUCT CATEGORY 2, 3, 4 (TEMPERATURE RANGE -55°C TO +105°C)

| TEST                         | Condition   |                |                | Characteristics                        |                                   |           |           |           |            |           |  |
|------------------------------|---|----------------|----------------|--|-----------------------------------|-----------|-----------|-----------|------------|-----------|--|
| <b>Endurance</b>             | Apply rated voltage (Ur) at 85°C for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$ (all CATEGORIES). And/or apply rated voltage (Ur) (CATEGORY 2) or 0.8x rated voltage (CATEGORY 3, 4) at 105°C for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$ Always stabilize at room temperature for 1-2 hours before measuring. |                |                | <b>Visual examination</b>              | no visible damage                 |           |           |           |            |           |  |
|                              |   |                |                | <b>DCL</b>                             | 1.25 x initial limit              |           |           |           |            |           |  |
|                              |   |                |                | <b><math>\Delta C/C</math></b>         | within +10/-20% of initial value  |           |           |           |            |           |  |
|                              |   |                |                | <b>DF</b>                              | 1.5 x initial limit               |           |           |           |            |           |  |
|                              |   |                |                | <b>ESR</b>                             | 2 x initial limit                 |           |           |           |            |           |  |
| <b>Storage Life</b>          | Store at 105°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.   |                |                | <b>Visual examination</b>              | no visible damage                 |           |           |           |            |           |  |
|                              |   |                |                | <b>DCL (<math>V_R \leq 75V</math>)</b> | 1.25 x initial limit              |           |           |           |            |           |  |
|                              |   |                |                | <b>DCL (<math>V_R &gt; 75V</math>)</b> | 2 x initial limit                 |           |           |           |            |           |  |
|                              |   |                |                | <b><math>\Delta C/C</math></b>         | within +10/-20% of initial value  |           |           |           |            |           |  |
|                              |   |                |                | <b>DF</b>                              | 1.5 x initial limit               |           |           |           |            |           |  |
|                              |   |                |                | <b>ESR</b>                             | 2 x initial limit                 |           |           |           |            |           |  |
| <b>Humidity</b>              | Store at 65°C and 95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring.  |                |                | <b>Visual examination</b>              | no visible damage                 |           |           |           |            |           |  |
|                              |   |                |                | <b>DCL</b>                             | 3 x initial limit                 |           |           |           |            |           |  |
|                              |   |                |                | <b><math>\Delta C/C</math></b>         | within +35/-5% of initial value   |           |           |           |            |           |  |
|                              |   |                |                | <b>DF</b>                              | 1.5 x initial limit               |           |           |           |            |           |  |
|                              |   |                |                | <b>ESR</b>                             | 2 x initial limit                 |           |           |           |            |           |  |
| <b>Temperature Stability</b> | Step  | Temperature °C | Duration (min) |  | +20°C                             | -55°C     | +20°C     | +85°C     | +105°C     | +20°C     |  |
|                              | 1   | +20            | 15             | <b>DCL</b>                             | IL*                               | n/a       | IL*       | 10 x IL*  | 12.5 x IL* | IL*       |  |
|                              | 2   | -55            | 15             |  |                                   |           |           |           |            |           |  |
|                              | 3   | +20            | 15             | <b><math>\Delta C/C</math></b>         | n/a                               | +0/-20%   | $\pm 5\%$ | +20/-0%   | +30/-0%    | $\pm 5\%$ |  |
|                              | 4   | +85            | 15             |  |                                   |           |           |           |            |           |  |
|                              | 5   | +105           | 15             | <b>DF</b>                              | IL*                               | 1.5 x IL* | IL*       | 1.5 x IL* | 2 x IL*    | IL*       |  |
| 6                            | +20   | 15             |                |  |                                   |           |           |           |            |           |  |
| <b>Surge Voltage</b>         | Apply 1.3x rated voltage (Ur) at 105°C for CATEGORY 2, or apply 1.3x 0.8x rated voltage (Ur) at 105°C for CATEGORY 3, 4 for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000 $\Omega$  |                |                | <b>Visual examination</b>              | no visible damage                 |           |           |           |            |           |  |
|                              |   |                |                | <b>DCL</b>                             | initial limit                     |           |           |           |            |           |  |
|                              |   |                |                | <b><math>\Delta C/C</math></b>         | within +10/-20% of initial value  |           |           |           |            |           |  |
|                              |   |                |                | <b>DF</b>                              | 1.25 x initial limit              |           |           |           |            |           |  |
| <b>Mechanical Shock</b>      | MIL-STD-202, Method 213, Condition C  |                |                | <b>Visual examination</b>              | no visible damage                 |           |           |           |            |           |  |
|                              |   |                |                | <b>DCL</b>                             | initial limit                     |           |           |           |            |           |  |
|                              |   |                |                | <b><math>\Delta C/C</math></b>         | within $\pm 5\%$ of initial value |           |           |           |            |           |  |
|                              |   |                |                | <b>DF</b>                              | initial limit                     |           |           |           |            |           |  |
|                              |   |                |                | <b>ESR</b>                             | 1.25 x initial limit              |           |           |           |            |           |  |
| <b>Vibration</b>             | MIL-STD-202, Method 204, Condition D  |                |                | <b>Visual examination</b>              | no visible damage                 |           |           |           |            |           |  |
|                              |   |                |                | <b>DCL</b>                             | initial limit                     |           |           |           |            |           |  |
|                              |   |                |                | <b><math>\Delta C/C</math></b>         | within $\pm 5\%$ of initial value |           |           |           |            |           |  |
|                              |   |                |                | <b>DF</b>                              | initial limit                     |           |           |           |            |           |  |
|                              |   |                |                | <b>ESR</b>                             | 1.25 x initial limit              |           |           |           |            |           |  |

\*Initial Limit

Initial measurement max. 1hr after the removal from dry pack or after pretreatment at 85°C for 24 hours.

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors



### PRODUCT CATEGORY 5 (TEMPERATURE RANGE -55°C TO +85°C)

| TEST                         | Condition  |               |               | Characteristics                |                                   |           |           |           |           |  |
|------------------------------|--|---------------|---------------|--------------------------------|-----------------------------------|-----------|-----------|-----------|-----------|--|
| <b>Endurance</b>             | Apply rated voltage (Ur) at 85°C for 2000 hours through a circuit impedance of $\leq 0.1\Omega/V$ . Stabilize at room temperature for 1-2 hours before measuring.        |               |               | <b>Visual examination</b>      | no visible damage                 |           |           |           |           |  |
|                              |  |               |               | <b>DCL</b>                     | 1.25 x initial limit              |           |           |           |           |  |
|                              |  |               |               | <b><math>\Delta C/C</math></b> | within +10/-20% of initial value  |           |           |           |           |  |
|                              |  |               |               | <b>DF</b>                      | 1.5 x initial limit               |           |           |           |           |  |
|                              |  |               |               | <b>ESR</b>                     | 2 x initial limit                 |           |           |           |           |  |
| <b>Storage Life</b>          | Store at 85°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.   |               |               | <b>Visual examination</b>      | no visible damage                 |           |           |           |           |  |
|                              |  |               |               | <b>DCL</b>                     | 1.25 x initial limit              |           |           |           |           |  |
|                              |  |               |               | <b><math>\Delta C/C</math></b> | within +10/-20% of initial value  |           |           |           |           |  |
|                              |  |               |               | <b>DF</b>                      | 1.5 x initial limit               |           |           |           |           |  |
|                              |  |               |               | <b>ESR</b>                     | 2 x initial limit                 |           |           |           |           |  |
| <b>Humidity</b>              | Store at 65°C and 95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring.               |               |               | <b>Visual examination</b>      | no visible damage                 |           |           |           |           |  |
|                              |  |               |               | <b>DCL</b>                     | 5 x initial limit                 |           |           |           |           |  |
|                              |  |               |               | <b><math>\Delta C/C</math></b> | within +35/-5% of initial value   |           |           |           |           |  |
|                              |  |               |               | <b>DF</b>                      | 1.5 x initial limit               |           |           |           |           |  |
|                              |  |               |               | <b>ESR</b>                     | 2 x initial limit                 |           |           |           |           |  |
| <b>Temperature Stability</b> | Step   | Temperature°C | Duration(min) |                                | +20°C                             | -55°C     | +20°C     | +85°C     | +20°C     |  |
|                              | 1  | +20           | 15            | <b>DCL</b>                     | IL*                               | n/a       | IL*       | 10 x IL*  | IL*       |  |
|                              | 2  | -55           | 15            | <b><math>\Delta C/C</math></b> | n/a                               | +0/-20%   | $\pm 5\%$ | +20/-0%   | $\pm 5\%$ |  |
|                              | 3  | +20           | 15            | <b>DF</b>                      | IL*                               | 1.5 x IL* | IL*       | 1.5 x IL* | IL*       |  |
|                              | 4  | +85           | 15            |                                |                                   |           |           |           |           |  |
|                              | 5  | +125          | 15            |                                |                                   |           |           |           |           |  |
| <b>Surge Voltage</b>         | Apply 1.3x rated voltage (Ur) at 85°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000 $\Omega$ |               |               | <b>Visual examination</b>      | no visible damage                 |           |           |           |           |  |
|                              |  |               |               | <b>DCL</b>                     | initial limit                     |           |           |           |           |  |
|                              |  |               |               | <b><math>\Delta C/C</math></b> | within +10/-20% of initial value  |           |           |           |           |  |
|                              |  |               |               | <b>DF</b>                      | 1.25 x initial limit              |           |           |           |           |  |
|                              |  |               |               |                                |                                   |           |           |           |           |  |
| <b>Mechanical Shock</b>      | MIL-STD-202, Method 213, Condition C   |               |               | <b>Visual examination</b>      | no visible damage                 |           |           |           |           |  |
|                              |  |               |               | <b>DCL</b>                     | initial limit                     |           |           |           |           |  |
|                              |  |               |               | <b><math>\Delta C/C</math></b> | within $\pm 5\%$ of initial value |           |           |           |           |  |
|                              |  |               |               | <b>DF</b>                      | initial limit                     |           |           |           |           |  |
|                              |  |               |               | <b>ESR</b>                     | 1.25 x initial limit              |           |           |           |           |  |
| <b>Vibration</b>             | MIL-STD-202, Method 204, Condition D   |               |               | <b>Visual examination</b>      | no visible damage                 |           |           |           |           |  |
|                              |  |               |               | <b>DCL</b>                     | initial limit                     |           |           |           |           |  |
|                              |  |               |               | <b><math>\Delta C/C</math></b> | within $\pm 5\%$ of initial value |           |           |           |           |  |
|                              |  |               |               | <b>DF</b>                      | initial limit                     |           |           |           |           |  |
|                              |  |               |               | <b>ESR</b>                     | 1.25 x initial limit              |           |           |           |           |  |

\*Initial Limit

Initial measurement max. 1hr after the removal from dry pack or after pretreatment at 85°C for 24 hours.

# TCJ Series

## Conductive Polymer Solid Electrolytic Chip Capacitors

### SOLID ELECTROLYTIC CAPACITOR ROADMAP



### FIVE CAPACITOR CONSTRUCTION STYLES



### SERIES LINE UP : Conductive Polymer



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