

# TCJ Series



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode



### FEATURES

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

### APPLICATIONS

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



Elektra Award 2010



LEAD-FREE  
LEAD-FREE COMPATIBLE  
COMPONENT



RoHS  
COMPLIANT



### 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) |
| G    | 1206     | 3216-15    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.50 (0.059) max             | 1.20 (0.047)                 | 0.80 (0.031)                 | 1.10 (0.043) |
| H    | 1210     | 3528-15    | 3.50 (0.138)   | 2.80 (0.110)                 | 1.50 (0.059) max             | 2.20 (0.087)                 | 0.80 (0.031)                 | 1.40 (0.055) |
| K    | 1206     | 3216-10    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.00 (0.039) max             | 1.20 (0.047)                 | 0.80 (0.031)                 | 1.10 (0.043) |
| N    | 0805     | 2012-10    | 2.05 (0.081)   | 1.30 (0.051)                 | 1.00 (0.039) max             | 1.00 (0.039)                 | 0.50 (0.020)                 | 0.85 (0.033) |
| P    | 0805     | 2012-15    | 2.05 (0.081)   | 1.35 (0.050)                 | 1.50 (0.059) max             | 1.00±0.10 (0.039±0.004)      | 0.50 (0.020)                 | 0.85 (0.033) |
| R    | 0805     | 2012-12    | 2.05 (0.081)   | 1.30 (0.051)                 | 1.20 (0.047) max             | 1.00±0.10 (0.039±0.004)      | 0.50 (0.020)                 | 0.85 (0.033) |
| S    | 1206     | 3216-12    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.20 (0.047) max             | 1.20 (0.047)                 | 0.80 (0.031)                 | 1.10 (0.043) |
| T    | 1210     | 3528-12    | 3.50 (0.138)   | 2.80 (0.110)                 | 1.20 (0.047) max             | 2.20 (0.087)                 | 0.80 (0.031)                 | 1.40 (0.055) |
| V    | 2924     | 7361-38    | 7.30 (0.287)   | 6.10 (0.240)                 | 3.55 (0.140)                 | 3.10 (0.120)                 | 1.30 (0.051)                 | 4.40 (0.173) |
| W    | 2312     | 6032-15    | 6.00 (0.236)   | 3.20 (0.126)                 | 1.50 (0.059) max             | 2.20 (0.087)                 | 1.30 (0.051)                 | 2.90 (0.114) |
| 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) |

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

### MARKING

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



N, P, R CASE



### HOW TO ORDER

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

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

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



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### 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)                                   | C(300)              | C(200)               |         |          |          |
| 3.3  | 335  |  |   |  |                                  |                                |                            |  | B(200)                                   | C(200)              | C(200)               |         |          | D(250)   |
| 4.7  | 475  |  |   |  | K(500)<br>R(500)                 |                                |                            | B(100,150)                               | B(200)<br>C(200)                         | C(200)              | C(200)<br>D(120)     | D(150)  | D(250)   |          |
| 6.8  | 685  |  |   |  |                                  | A(200)                         |                            | B(90,150)<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(250,500)<br>R(500)   | A(300)                           | A(200)<br>B(200)<br>T(150,200) |                            | B(90,100,150)                            | B(200)<br>C(200)<br>Y(70)                | D(120)<br>E(70,100) | E(100,150)           | U*      | U*       |          |
| 15   | 156  |  | A(300)  | A(300)   | A(200)                           | B(150)                         |                            | B(100,150)<br>Y(90)                      | B(200), C(200)<br>D(70,100)<br>Y(70,100) | E(70,100)           |                      |         |          |          |
| 22   | 226  |  | A(300)  | A(300), K(400)<br>N(500), R(500)<br>S(400), T(150)                             | B(300)<br>T(70,150)              | B(150)                         | B(90,150)<br>Y(70)         | B(100,150), C(100)<br>D(60,100)<br>Y(70) | D(70,100)<br>Y*                          |                     |                      |         |          |          |
| 33   | 336  |  | A(300)  | A(200)<br>B(70,200)<br>T(150)  | B(70,200)<br>C(100)<br>T(70,150) | Y(45,60,70)                    | Y(70)                      | D(60,100)<br>X(70,100)<br>Y(60,70,100)   | D(70,100)<br>E(55,70)                    |                     |                      |         |          |          |
| 47   | 476  |  | A(200)<br>T(80)                                 | A(70,100,200), B(70)<br>K(150,200,400)<br>P(500), R(500)<br>T(55,69,70,80,120) | B(70)<br>C(100)                  | X(45,70)<br>Y(45,70)           | D(55)<br>X(55,70)<br>Y(70) | D(60,100)<br>E(50)                       | E(55)                                    |                     |                      |         |          |          |
| 68   | 686  | A(250)                                     | A(250)<br>B(70)<br>T(80)                        | B(55,70)<br>C(100)<br>T(200), W(70)  | D(45,55)<br>Y(45,55)             | D(50)<br>Y(50)                 | D(55)<br>E(45)             | D(70)<br>E(50)                           |  |                     |                      |         |          |          |
| 100  | 107  | A(200), B(70)                              | A(200)<br>B(40,70)<br>G(300)<br>T(150)          | A(100,150)<br>B(45,55,69,70)<br>T(70,200)                                      | D(45,55,80)<br>Y(25,45,55)       | D(50), E(40)<br>Y(50)          | D(55)<br>E(45)             | D(55,70)<br>E(80)                        |  |                     |                      |         |          |          |
| 150  | 157  | B(70)                                      | B(70), Y(25,45)                                 | B(25,35,45,55,69,70)<br>D(15,25,40)<br>H(70,200), W(40,70)<br>Y(15,25,40)      | D(25,40,45,55)<br>Y(25,40,45,55) | D(40,50)<br>E(40)<br>Y(40,50)  |                            |  |  |                     |                      |         |          |          |
| 220  | 227  | B(35,45,70)                                | B(35,45,55,60,70)<br>D(15,25,40)<br>Y(15,25,40) | B(70,200)<br>D(25,35,40,50)<br>Y(15,25,35,40,50)                               | D(15,18,25,40,50)<br>Y(25,40,50) |                                |                            |  |  |                     |                      |         |          |          |
| 330  | 337  | B(35,45,70)<br>Y(25,40)                    | D(25,40,50)<br>Y(25,40,50)                      | D(25,40,50)<br>Y(25,40,50)   |                                  | E*                             |                            |  |  |                     |                      |         |          |          |
| 470  | 477  | D(15,25,40,50)<br>Y(15,25,40,50)           | D(15,25,40,50)<br>Y(15,25,40,50)                | X(55,100)  |                                  |                                |                            |  |  |                     |                      |         |          |          |
| 3300 | 208  |  |   | U*   |                                  |                                |                            |  |  |                     |                      |         |          |          |

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

\*Codes under development – subject to change

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









# TCJ Series



## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### RATINGS & PART NUMBER REFERENCE

| AVX Part No.           | Case Size | Cap (µF) | Rated Voltage (V) | Rated Temp. (°C) | Category Voltage (V) | Category Temp. (°C) | DCL (µA) Max. | DF % Max. | ESR Max. (mΩ) @ 100kHz | MSL | 100kHz RMS Current (mA) |      |       |       | Product Category |
|------------------------|-----------|----------|-------------------|------------------|----------------------|---------------------|---------------|-----------|------------------------|-----|-------------------------|------|-------|-------|------------------|
|                        |           |          |                   |                  |                      |                     |               |           |                        |     | 25°C                    | 85°C | 105°C | 125°C |                  |
| TCJE685M063#0100       | E         | 6.8      | 63                | 85               | 50                   | 105                 | 42.8          | 6         | 100                    | 3   | 1600                    | 1100 | 700   | -     | 105°C            |
| TCJE685M063#0150       | E         | 6.8      | 63                | 85               | 50                   | 105                 | 42.8          | 6         | 150                    | 3   | 1300                    | 900  | 600   | -     | 105°C            |
| TCJE106M063#0100       | E         | 10       | 63                | 85               | 50                   | 105                 | 63            | 6         | 100                    | 3   | 1600                    | 1100 | 700   | -     | 105°C            |
| TCJE106M063#0150       | E         | 10       | 63                | 85               | 50                   | 105                 | 63            | 6         | 150                    | 3   | 1300                    | 900  | 600   | -     | 105°C            |
| <b>75 Volt @ 85°C</b>  |           |          |                   |                  |                      |                     |               |           |                        |     |                         |      |       |       |                  |
| TCJD475M075#0150       | D         | 4.7      | 75                | 85               | 60                   | 105                 | 35.3          | 6         | 150                    | 3   | 1200                    | 800  | 500   | -     | 105°C            |
| TCJD685M075#0120       | D         | 6.8      | 75                | 85               | 60                   | 105                 | 51            | 6         | 120                    | 3   | 1400                    | 1000 | 600   | -     | 105°C            |
| <b>100 Volt @ 85°C</b> |           |          |                   |                  |                      |                     |               |           |                        |     |                         |      |       |       |                  |
| TCJD475M100#0250       | D         | 4.7      | 100               | 85               | 80                   | 105                 | 47            | 8         | 250                    | 3   | 900                     | 600  | 400   | -     | 105°C            |
| <b>125 Volt @ 85°C</b> |           |          |                   |                  |                      |                     |               |           |                        |     |                         |      |       |       |                  |
| TCJD335M125#0250       | D         | 3.3      | 125               | 85               | 100                  | 105                 | 41.2          | 8         | 250                    | 3   | 900                     | 600  | 400   | -     | 105°C            |

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

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

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

For typical weight and composition see page 214.

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

### PRODUCT CATEGORY 125°C

| TEST                         | 125°C series (Temperature range -55°C to +125°C)   |               |               |                    |                                  |           |       |           |            |       |
|------------------------------|--|---------------|---------------|--------------------|----------------------------------|-----------|-------|-----------|------------|-------|
|                              | Condition  |               |               | Characteristics    |                                  |           |       |           |            |       |
| <b>Endurance</b>             | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. |               |               | Visual examination | no visible damage                |           |       |           |            |       |
|                              |  |               |               | DCL                | 1.25 x initial limit             |           |       |           |            |       |
|                              |  |               |               | ΔC/C               | within +20/-30% of initial value |           |       |           |            |       |
|                              |  |               |               | DF                 | 1.5 x initial limit              |           |       |           |            |       |
|                              |  |               |               | ESR                | 2 x initial limit                |           |       |           |            |       |
| <b>Storage Life</b>          | 125°C, 0V, 2000h   |               |               | Visual examination | no visible damage                |           |       |           |            |       |
|                              |  |               |               | DCL                | 2 x initial limit                |           |       |           |            |       |
|                              |  |               |               | ΔC/C               | within ±20% of initial value     |           |       |           |            |       |
|                              |  |               |               | DF                 | 1.5 x initial limit              |           |       |           |            |       |
|                              |  |               |               | ESR                | 2 x initial limit                |           |       |           |            |       |
| <b>Humidity</b>              | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.   |               |               | Visual examination | no visible damage                |           |       |           |            |       |
|                              |  |               |               | DCL                | 3 x initial limit                |           |       |           |            |       |
|                              |  |               |               | ΔC/C               | within +30/-20% of initial value |           |       |           |            |       |
|                              |  |               |               | DF                 | 1.5 x initial limit              |           |       |           |            |       |
|                              |  |               |               | ESR                | 2 x initial limit                |           |       |           |            |       |
| <b>Temperature Stability</b> | Step   | Temperature°C | Duration(min) |                    | +20°C                            | -55°C     | +20°C | +85°C     | +125°C     | +20°C |
|                              | 1  | +20±2         | 15            | DCL                | IL*                              | n/a       | IL*   | 10 x IL*  | 12.5 x IL* | IL*   |
|                              | 2  | -55+0/-3      | 15            |                    |                                  |           |       |           |            |       |
|                              | 3  | +20±2         | 15            | ΔC/C               | n/a                              | +0/-20%   | ±5%   | +20/-0%   | +30/-0%    | ±5%   |
|                              | 4  | +85+3/-0      | 15            |                    |                                  |           |       |           |            |       |
|                              | 5  | +125+3/-0     | 15            | DF                 | IL*                              | 1.5 x IL* | IL*   | 1.5 x IL* | 2 x IL*    | IL*   |
|                              | 6  | +20±2         | 15            |                    |                                  |           |       |           |            |       |
| <b>Surge Voltage</b>         | Test temperature: 125°C+3/0°C<br>Test voltage: Category voltage at 125°C<br>Surge voltage: 1.3 x category voltage at 125°C<br>Series protection resistance 1000±100Ω<br>Discharge resistance: 1000Ω<br>Number of cycles: 1000x<br>Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge |               |               | Visual examination | no visible damage                |           |       |           |            |       |
|                              |  |               |               | DCL                | initial limit                    |           |       |           |            |       |
|                              |  |               |               | ΔC/C               | within +20/-30% of initial value |           |       |           |            |       |
|                              |  |               |               | DF                 | 1.25 x initial limit             |           |       |           |            |       |

\*Initial Limit

## Tantalum Solid Electrolytic Chip Capacitors with Conductive Polymer Electrode

### PRODUCT CATEGORY 105°C

| TEST                  | 105°C series (Temperature range -55°C to +105°C)   |               |               |                            |                                  |  |  |  |
|-----------------------|--|---------------|---------------|----------------------------|----------------------------------|--|--|--|
|                       | Condition  |               |               | Characteristics            |                                  |  |  |  |
| Endurance             | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine after application of 105°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. |               |               | Visual examination         | no visible damage                |  |  |  |
|                       |  |               |               | DCL                        | 1.25 x initial limit             |  |  |  |
|                       |  |               |               | ΔC/C                       | within +20/-30% of initial value |  |  |  |
|                       |  |               |               | DF                         | 1.5 x initial limit              |  |  |  |
|                       |  |               |               | ESR                        | 2 x initial limit                |  |  |  |
| Storage Life          | 105°C, 0V, 2000h   |               |               | Visual examination         | no visible damage                |  |  |  |
|                       |  |               |               | DCL (V <sub>R</sub> ≤ 75V) | 1.25 x initial limit             |  |  |  |
|                       |  |               |               | DCL (V <sub>R</sub> > 75V) | 2 x initial limit                |  |  |  |
|                       |  |               |               | ΔC/C                       | within ±20% of initial value     |  |  |  |
|                       |  |               |               | DF                         | 1.5 x initial limit              |  |  |  |
|                       |  |               |               | ESR                        | 2 x initial limit                |  |  |  |
| Humidity              | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.   |               |               | Visual examination         | no visible damage                |  |  |  |
|                       |  |               |               | DCL                        | 3 x initial limit                |  |  |  |
|                       |  |               |               | ΔC/C                       | within +30/-20% of initial value |  |  |  |
|                       |  |               |               | DF                         | 1.5 x initial limit              |  |  |  |
|                       |  |               |               | ESR                        | 2 x initial limit                |  |  |  |
| Temperature Stability | Step   | Temperature°C | Duration(min) |                            |                                  |  |  |  |
|                       | 1  | +20±2         | 15            |                            |                                  |  |  |  |
|                       | 2  | -55+0/-3      | 15            |                            |                                  |  |  |  |
|                       | 3  | +20±2         | 15            |                            |                                  |  |  |  |
|                       | 4  | +85+3/-0      | 15            |                            |                                  |  |  |  |
|                       | 5  | +105+3/-0     | 15            |                            |                                  |  |  |  |
|                       | 6  | +20±2         | 15            |                            |                                  |  |  |  |
| Surge Voltage         | Test temperature: 105°C+3/0°C<br>Test voltage: Category voltage at 105°C<br>Surge voltage: 1.3 x category voltage at 105°C<br>Series protection resistance 1000±100Ω<br>Discharge resistance: 1000Ω<br>Number of cycles: 1000x<br>Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge                   |               |               | Visual examination         | no visible damage                |  |  |  |
|                       |  |               |               | DCL                        | initial limit                    |  |  |  |
|                       |  |               |               | ΔC/C                       | within +20/-30% of initial value |  |  |  |
|                       |  |               |               | DF                         | 1.25 x initial limit             |  |  |  |

\*Initial Limit

### PRODUCT CATEGORY 85°C

| TEST                  | 85°C series (Temperature range -55°C to +85°C)   |               |               |                    |                                  |  |  |  |
|-----------------------|--|---------------|---------------|--------------------|----------------------------------|--|--|--|
|                       | Condition  |               |               | Characteristics    |                                  |  |  |  |
| Endurance             | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.   |               |               | Visual examination | no visible damage                |  |  |  |
|                       |  |               |               | DCL                | 1.25 x initial limit             |  |  |  |
|                       |  |               |               | ΔC/C               | within +20/-30% of initial value |  |  |  |
|                       |  |               |               | DF                 | 1.5 x initial limit              |  |  |  |
|                       |  |               |               | ESR                | 2 x initial limit                |  |  |  |
| Storage Life          | 85°C, 0V, 2000h  |               |               | Visual examination | no visible damage                |  |  |  |
|                       |  |               |               | DCL                | 1.25 x initial limit             |  |  |  |
|                       |  |               |               | ΔC/C               | within ±20% of initial value     |  |  |  |
|                       |  |               |               | DF                 | 1.5 x initial limit              |  |  |  |
|                       |  |               |               | ESR                | 2 x initial limit                |  |  |  |
|                       |  |               |               |                    |                                  |  |  |  |
| Humidity              | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature.   |               |               | Visual examination | no visible damage                |  |  |  |
|                       |  |               |               | DCL                | 5 x initial limit                |  |  |  |
|                       |  |               |               | ΔC/C               | within +40/-20% of initial value |  |  |  |
|                       |  |               |               | DF                 | 1.5 x initial limit              |  |  |  |
|                       |  |               |               | ESR                | 2 x initial limit                |  |  |  |
| Temperature Stability | Step   | Temperature°C | Duration(min) |                    |                                  |  |  |  |
|                       | 1  | +20±2         | 15            |                    |                                  |  |  |  |
|                       | 2  | -55+0/-3      | 15            |                    |                                  |  |  |  |
|                       | 3  | +20±2         | 15            |                    |                                  |  |  |  |
|                       | 4  | +85+3/-0      | 15            |                    |                                  |  |  |  |
|                       | 5  | +20±2         | 15            |                    |                                  |  |  |  |
| Surge Voltage         | Test temperature: 85+3/0°C<br>Test voltage: Rated voltage<br>Surge voltage: 1.3 x rated voltage<br>Series protection resistance 1000±100Ω.<br>Discharge resistance: 1000Ω<br>Number of cycles: 1000x<br>Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge |               |               | Visual examination | no visible damage                |  |  |  |
|                       |  |               |               | DCL                | initial limit                    |  |  |  |
|                       |  |               |               | ΔC/C               | within +20/-30% of initial value |  |  |  |
|                       |  |               |               | DF                 | 1.25 x initial limit             |  |  |  |

\*Initial Limit



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А