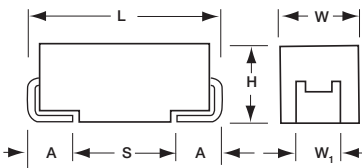


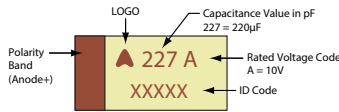
# T4J SERIES

## HRC4000 Implantable Non Life Support and Non Implantable Life Support



### MARKING

A, B, C, D, E, U, V CASE



### HOW TO ORDER

|             |                                     |  |                              |   |  |   |   |   |   |   |   |
|-------------|-------------------------------------|--|------------------------------|---|--|---|---|---|---|---|---|
| <b>T4J</b>  | <b>E</b>                            | <b>336</b>   | <b>K</b>                     | <b>035</b>  | <b>C</b>   |   | <b>L</b>                                      | <b>Q</b>  | <b>4</b>                                  | <b>^</b>  | <b>00</b>                                     |
| <b>Type</b> | <b>Case Size</b><br>See table above | <b>Capacitance Code</b><br>pF code:<br>1st two digits represent significant figures<br>3rd digit represents multiplier (number of zeros to follow) | <b>Tolerance</b><br>K = ±10% | <b>Rated DC Voltage</b><br>006 = 6.3Vdc<br>010 = 10Vdc<br>016 = 16Vdc<br>020 = 20Vdc<br>025 = 25Vdc<br>035 = 35Vdc<br>050 = 50Vdc | <b>Standard or Low ESR Range</b><br>C = Std ESR<br>L = Low ESR | <b>Packaging</b><br>R = 7" Reel<br>B = Bulk | <b>Inspection Level</b><br>L = Lab Inspection | <b>Reliability Grade</b><br>Q = Q-Process Screening | <b>Qualification Level</b><br>4 = HCR4000 | <b>Termination</b><br>7 = 100% Tin<br>9 = Gold Plated<br>H = SnPb Non RoHS<br>H,9 = (Contact Manufacturer) Non RoHS | <b>Suffix</b><br>00 = Standard<br>XX = Custom |

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

The T4J series is designed for use in Implantable - Non-Life support or Non-Implantable - Life support medical applications. These components are screened using our newly designed Q-Process to effectively remove components that may experience parametric shifts through customer processing or display instability through life testing.



For RoHS compliant products, please select correct termination style.

### FEATURES

- Dedicated to medical applications
- HRC4000 - Implantable, Non-Life support  
- Non-Implantable, Life support
- -55 to +125°C operation temperature
- Basic reliability better than 0.1%/1000hours
- Custom DCL / ESR options on selected parts

**T4J Standard** – Standard option DCL and ESR limits including Q-Process screening.

**T4J Custom** – A custom option where specific DCL and ESR parameter limits can be agreed based Q-Process statistical screening. DCL down to 0.005CV on selected codes

### APPLICATIONS

- Medical, Implantable - Non-Life support and Non-Implantable - Life support

For additional information on Q-process please consult the KYOCERA AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)

### 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) |
| 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) |
| V    | 2924     | 7361-38    | 7.30 (0.287)   | 6.10 (0.240)                 | 3.55 (0.140)                 | 3.10 (0.122)                 | 1.30 (0.051)                 | 4.40 (0.173) |

### TECHNICAL SPECIFICATIONS

|                                    |   |     |    |    |    |    |    |    |  |
|------------------------------------|---|-----|----|----|----|----|----|----|--|
| Technical Data:                    | All technical data relate to an ambient temperature of +25°C                  |     |    |    |    |    |    |    |  |
| Capacitance Range:                 | 1 µF to 1000 µF   |     |    |    |    |    |    |    |  |
| Capacitance Tolerance:             | ±10%  |     |    |    |    |    |    |    |  |
| Leakage Current DCL:               | 0.01CV (Custom potential down to 0.005CV available upon request)              |     |    |    |    |    |    |    |  |
| Rated Voltage (V <sub>R</sub> )    | ≤ 85°C:   | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 |  |
| Category Voltage (V <sub>C</sub> ) | ≤125°C:   | 4   | 7  | 10 | 13 | 17 | 23 | 33 |  |
| Surge Voltage (V <sub>S</sub> )    | ≤ 85°C:   | 8   | 13 | 20 | 26 | 32 | 46 | 65 |  |
| Surge Voltage (V <sub>S</sub> )    | ≤125°C:   | 5   | 8  | 13 | 16 | 20 | 28 | 40 |  |
| Temperature Range:                 | -55°C to +125°C   |     |    |    |    |    |    |    |  |
| Reliability:                       | 0.1% / 1000hrs at 25°C, VR with 0.1Ω/V series impedance, 90% confidence level |     |    |    |    |    |    |    |  |

# T4J SERIES

## HRC4000 Implantable Non Life Support and Non Implantable Life Support



### CAPACITANCE AND RATED VOLTAGE, $V_R$ (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance   |      | Rated Voltage DC ( $V_R$ ) to 85°C (Voltage Code) |         |         |        |        |        |         |
|---------------|------|---|---------|---------|--------|--------|--------|---------|
| $\mu\text{F}$ | Code | 6.3V (J)  | 10V (A) | 16V (C) | 20 (D) | 25 (E) | 35 (V) | 50V (T) |
| 1.0           | 105  |   |         |         |        |        | A      | C       |
| 1.5           | 155  |   |         |         |        | A      | B      | C       |
| 2.2           | 225  |   |         |         |        | B      | B      | C       |
| 3.3           | 335  |   |         |         |        | B      | B      | C       |
| 4.7           | 475  |   |         |         | B      | B      | C      | D       |
| 6.8           | 685  |   | A       | B       | B      | C      | C      | D       |
| 10            | 106  | A   | A       | B       | B/C    | C      | C      | E       |
| 15            | 156  | A   | B       | B       | C      | C      | D      |         |
| 22            | 226  | B   | B       | C       | C      | D      | D      |         |
| 33            | 336  | B   | C       | C       | D      | D      | E      |         |
| 47            | 476  | B/C   | C       | D       | D      | D      |        |         |
| 68            | 686  | B/C   | C       | D       | E      |        | V      |         |
| 100           | 107  | B/C   | D       | E       | E      |        |        |         |
| 150           | 157  | D   | D       | E       |        |        |        |         |
| 220           | 227  | D   | E       | U       |        |        |        |         |
| 330           | 337  | E   | E       |         |        |        |        |         |
| 470           | 477  | E   | U       |         |        |        |        |         |
| 680           | 687  | U   |         |         |        |        |        |         |
| 1000          | 108  | V   |         |         |        |        |        |         |

Available Ratings  
Please contact the factory for codes not listed in the table.

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

# T4J SERIES

## HRC4000 Implantable Non Life Support and Non Implantable Life Support



### RATINGS & PART NUMBER REFERENCE

| Part No.               | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | MSL | 100kHz RMS Current (mA) |      |       |
|------------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|-----|-------------------------|------|-------|
|                        |           |                  |                   |                        |                      |                           |               |             |                        |     | 25°C                    | 85°C | 125°C |
| <b>6.3 Volt @ 85°C</b> |           |                  |                   |                        |                      |                           |               |             |                        |     |                         |      |       |
| T4JA106K006C□LQ4^00    | A         | 10               | 6.3               | 85                     | 4                    | 125                       | 0.6           | 6           | 1500                   | 3   | 224                     | 201  | 89    |
| T4JA156K006C□LQ4^00    | A         | 15               | 6.3               | 85                     | 4                    | 125                       | 0.9           | 6           | 1500                   | 3   | 224                     | 201  | 89    |
| T4JB226K006C□LQ4^00    | B         | 22               | 6.3               | 85                     | 4                    | 125                       | 1.4           | 6           | 600                    | 3   | 376                     | 339  | 151   |
| T4JB336K006C□LQ4^00    | B         | 33               | 6.3               | 85                     | 4                    | 125                       | 2.1           | 6           | 600                    | 3   | 376                     | 339  | 151   |
| T4JB476K006C□LQ4^00    | B         | 47               | 6.3               | 85                     | 4                    | 125                       | 2.8           | 8           | 1500                   | 3   | 238                     | 214  | 95    |
| T4JC476K006C□LQ4^00    | C         | 47               | 6.3               | 85                     | 4                    | 125                       | 3.0           | 6           | 300                    | 3   | 606                     | 545  | 242   |
| T4JB686K006C□LQ4^00    | B         | 68               | 6.3               | 85                     | 4                    | 125                       | 4.0           | 8           | 900                    | 3   | 307                     | 277  | 123   |
| T4JC686K006C□LQ4^00    | C         | 68               | 6.3               | 85                     | 4                    | 125                       | 4.3           | 6           | 300                    | 3   | 606                     | 545  | 242   |
| T4JB107K006C□LQ4^00    | B         | 100              | 6.3               | 85                     | 4                    | 125                       | 3.0           | 10          | 1400                   | 3   | 246                     | 222  | 99    |
| T4JC107K006C□LQ4^00    | C         | 100              | 6.3               | 85                     | 4                    | 125                       | 6.3           | 6           | 300                    | 3   | 606                     | 545  | 242   |
| T4JD157K006C□LQ4^00    | D         | 150              | 6.3               | 85                     | 4                    | 125                       | 9.5           | 6           | 200                    | 3   | 866                     | 779  | 346   |
| T4JD227K006C□LQ4^00    | D         | 220              | 6.3               | 85                     | 4                    | 125                       | 13.9          | 8           | 200                    | 3   | 866                     | 779  | 346   |
| T4JE337K006C□LQ4^00    | E         | 330              | 6.3               | 85                     | 4                    | 125                       | 20.8          | 8           | 200                    | 3   | 908                     | 817  | 363   |
| T4JE477K006C□LQ4^00    | E         | 470              | 6.3               | 85                     | 4                    | 125                       | 29.6          | 8           | 200                    | 3   | 908                     | 817  | 363   |
| T4JU687K006C□LQ4^00    | U         | 680              | 6.3               | 85                     | 4                    | 125                       | 42.8          | 12          | 250                    | 3   | 812                     | 731  | 325   |
| T4JV108K006C□LQ4^00    | V         | 1000             | 6.3               | 85                     | 4                    | 125                       | 60.0          | 16          | 200                    | 3   | 1118                    | 1006 | 447   |
| <b>10 Volt @ 85°C</b>  |           |                  |                   |                        |                      |                           |               |             |                        |     |                         |      |       |
| T4JA685K010C□LQ4^00    | A         | 6.8              | 10                | 85                     | 7                    | 125                       | 0.7           | 6           | 2000                   | 3   | 194                     | 174  | 77    |
| T4JA106K010C□LQ4^00    | A         | 10               | 10                | 85                     | 7                    | 125                       | 1             | 6           | 2000                   | 3   | 194                     | 174  | 77    |
| T4JB156K010C□LQ4^00    | B         | 15               | 10                | 85                     | 7                    | 125                       | 1.5           | 6           | 700                    | 3   | 348                     | 314  | 139   |
| T4JB226K010C□LQ4^00    | B         | 22               | 10                | 85                     | 7                    | 125                       | 2.2           | 6           | 700                    | 3   | 348                     | 314  | 139   |
| T4JC336K010C□LQ4^00    | C         | 33               | 10                | 85                     | 7                    | 125                       | 3.3           | 6           | 300                    | 3   | 606                     | 545  | 242   |
| T4JC476K010C□LQ4^00    | C         | 47               | 10                | 85                     | 7                    | 125                       | 4.7           | 6           | 300                    | 3   | 606                     | 545  | 242   |
| T4JC686K010C□LQ4^00    | C         | 68               | 10                | 85                     | 7                    | 125                       | 6.8           | 6           | 300                    | 3   | 606                     | 545  | 242   |
| T4JD107K010C□LQ4^00    | D         | 100              | 10                | 85                     | 7                    | 125                       | 10.0          | 6           | 150                    | 3   | 1000                    | 900  | 400   |
| T4JD157K010C□LQ4^00    | D         | 150              | 10                | 85                     | 7                    | 125                       | 15.0          | 8           | 150                    | 3   | 1000                    | 900  | 400   |
| T4JE227K010C□LQ4^00    | E         | 220              | 10                | 85                     | 7                    | 125                       | 22.0          | 8           | 150                    | 3   | 1049                    | 944  | 420   |
| T4JE337K010C□LQ4^00    | E         | 330              | 10                | 85                     | 7                    | 125                       | 33.0          | 8           | 150                    | 3   | 1049                    | 944  | 420   |
| T4JU477K010C□LQ4^00    | U         | 470              | 10                | 85                     | 7                    | 125                       | 47.0          | 12          | 200                    | 3   | 908                     | 817  | 363   |
| <b>16 Volt @ 85°C</b>  |           |                  |                   |                        |                      |                           |               |             |                        |     |                         |      |       |
| T4JB685K016C□LQ4^00    | B         | 6.8              | 16                | 85                     | 10                   | 125                       | 1.1           | 6           | 1200                   | 3   | 266                     | 240  | 106   |
| T4JB106K016C□LQ4^00    | B         | 10               | 16                | 85                     | 10                   | 125                       | 1.6           | 6           | 1200                   | 3   | 266                     | 240  | 106   |
| T4JB156K016C□LQ4^00    | B         | 15               | 16                | 85                     | 10                   | 125                       | 2.4           | 6           | 1200                   | 3   | 266                     | 240  | 106   |
| T4JC226K016C□LQ4^00    | C         | 22               | 16                | 85                     | 10                   | 125                       | 3.5           | 6           | 350                    | 3   | 561                     | 505  | 224   |
| T4JC336K016C□LQ4^00    | C         | 33               | 16                | 85                     | 10                   | 125                       | 5.3           | 6           | 350                    | 3   | 561                     | 505  | 224   |
| T4JD476K016C□LQ4^00    | D         | 47               | 16                | 85                     | 10                   | 125                       | 7.5           | 6           | 200                    | 3   | 866                     | 779  | 346   |
| T4JD686K016C□LQ4^00    | D         | 68               | 16                | 85                     | 10                   | 125                       | 10.9          | 6           | 200                    | 3   | 866                     | 779  | 346   |
| T4JE107K016C□LQ4^00    | E         | 100              | 16                | 85                     | 10                   | 125                       | 16.0          | 6           | 150                    | 3   | 1049                    | 944  | 420   |
| T4JE157K016C□LQ4^00    | E         | 150              | 16                | 85                     | 10                   | 125                       | 24.0          | 6           | 150                    | 3   | 1049                    | 944  | 420   |
| T4JU227K016C□LQ4^00    | U         | 220              | 16                | 85                     | 10                   | 125                       | 35.2          | 12          | 200                    | 3   | 908                     | 817  | 363   |
| <b>20 Volt @ 85°C</b>  |           |                  |                   |                        |                      |                           |               |             |                        |     |                         |      |       |
| T4JB475K020C□LQ4^00    | B         | 4.7              | 20                | 85                     | 13                   | 125                       | 1.0           | 6           | 1000                   | 3   | 292                     | 262  | 117   |
| T4JB685K020C□LQ4^00    | B         | 6.8              | 20                | 85                     | 13                   | 125                       | 1.4           | 6           | 1000                   | 3   | 292                     | 262  | 117   |
| T4JB106K020C□LQ4^00    | B         | 10               | 20                | 85                     | 13                   | 125                       | 1.0           | 6           | 1000                   | 3   | 292                     | 262  | 117   |
| T4JB106K020L□LQ4^00    | B         | 10               | 20                | 85                     | 13                   | 125                       | 1.0           | 6           | 500                    | 3   | 412                     | 371  | 165   |
| T4JC106K020C□LQ4^00    | C         | 10               | 20                | 85                     | 13                   | 125                       | 2.0           | 6           | 500                    | 3   | 469                     | 422  | 188   |
| T4JC156K020C□LQ4^00    | C         | 15               | 20                | 85                     | 13                   | 125                       | 3.0           | 6           | 500                    | 3   | 469                     | 422  | 188   |
| T4JC226K020C□LQ4^00    | C         | 22               | 20                | 85                     | 13                   | 125                       | 4.4           | 6           | 500                    | 3   | 469                     | 422  | 188   |
| T4JD336K020C□LQ4^00    | D         | 33               | 20                | 85                     | 13                   | 125                       | 6.6           | 6           | 250                    | 3   | 775                     | 697  | 310   |
| T4JD476K020C□LQ4^00    | D         | 47               | 20                | 85                     | 13                   | 125                       | 9.4           | 6           | 250                    | 3   | 775                     | 697  | 310   |
| T4JE686K020C□LQ4^00    | E         | 68               | 20                | 85                     | 13                   | 125                       | 13.6          | 6           | 200                    | 3   | 908                     | 817  | 363   |
| T4JE107K020C□LQ4^00    | E         | 100              | 20                | 85                     | 13                   | 125                       | 20.0          | 6           | 200                    | 3   | 908                     | 817  | 363   |

# T4J SERIES

## HRC4000 Implantable Non Life Support and Non Implantable Life Support



| Part No.              | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | MSL | 100kHz RMS Current (mA) |      |       |
|-----------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|-----|-------------------------|------|-------|
|                       |           |                  |                   |                        |                      |                           |               |             |                        |     | 25°C                    | 85°C | 125°C |
| <b>25 Volt @ 85°C</b> |           |                  |                   |                        |                      |                           |               |             |                        |     |                         |      |       |
| T4JA155K025C□LQ4^00   | A         | 1.5              | 25                | 85                     | 17                   | 125                       | 0.4           | 6           | 3000                   | 3   | 158                     | 142  | 63    |
| T4JB225K025C□LQ4^00   | B         | 2.2              | 25                | 85                     | 17                   | 125                       | 0.6           | 6           | 2000                   | 3   | 206                     | 186  | 82    |
| T4JB335K025C□LQ4^00   | B         | 3.3              | 25                | 85                     | 17                   | 125                       | 0.8           | 6           | 2000                   | 3   | 206                     | 186  | 82    |
| T4JB475K025C□LQ4^00   | B         | 4.7              | 25                | 85                     | 17                   | 125                       | 1.2           | 6           | 2000                   | 3   | 206                     | 186  | 82    |
| T4JC685K025C□LQ4^00   | C         | 6.8              | 25                | 85                     | 17                   | 125                       | 1.7           | 6           | 600                    | 3   | 428                     | 385  | 171   |
| T4JC106K025C□LQ4^00   | C         | 10               | 25                | 85                     | 17                   | 125                       | 2.5           | 6           | 600                    | 3   | 428                     | 385  | 171   |
| T4JC156K025C□LQ4^00   | C         | 15               | 25                | 85                     | 17                   | 125                       | 3.8           | 6           | 600                    | 3   | 428                     | 385  | 171   |
| T4JD226K025C□LQ4^00   | D         | 22               | 25                | 85                     | 17                   | 125                       | 5.5           | 6           | 400                    | 3   | 612                     | 551  | 245   |
| T4JD336K025C□LQ4^00   | D         | 33               | 25                | 85                     | 17                   | 125                       | 8.3           | 6           | 400                    | 3   | 612                     | 551  | 245   |
| T4JD476K025C□LQ4^00   | D         | 47               | 25                | 85                     | 17                   | 125                       | 11.8          | 6           | 400                    | 3   | 612                     | 551  | 245   |
| <b>35 Volt @ 85°C</b> |           |                  |                   |                        |                      |                           |               |             |                        |     |                         |      |       |
| T4JA105K035C□LQ4^00   | A         | 1.0              | 35                | 85                     | 23                   | 125                       | 0.4           | 6           | 3000                   | 3   | 158                     | 142  | 63    |
| T4JA105K035L□LQ4^00   | A         | 1.0              | 35                | 85                     | 23                   | 125                       | 0.2           | 6           | 1000                   | 3   | 274                     | 246  | 110   |
| T4JB155K035C□LQ4^00   | B         | 1.5              | 35                | 85                     | 23                   | 125                       | 0.5           | 6           | 2500                   | 3   | 184                     | 166  | 74    |
| T4JB225K035C□LQ4^00   | B         | 2.2              | 35                | 85                     | 23                   | 125                       | 0.8           | 6           | 2500                   | 3   | 184                     | 166  | 74    |
| T4JB335K035C□LQ4^00   | B         | 3.3              | 35                | 85                     | 23                   | 125                       | 1.2           | 6           | 2500                   | 3   | 184                     | 166  | 74    |
| T4JC475K035C□LQ4^00   | C         | 4.7              | 35                | 85                     | 23                   | 125                       | 1.6           | 6           | 600                    | 3   | 428                     | 385  | 171   |
| T4JC685K035C□LQ4^00   | C         | 6.8              | 35                | 85                     | 23                   | 125                       | 2.4           | 6           | 600                    | 3   | 428                     | 385  | 171   |
| T4JC106K035C□LQ4^00   | C         | 10               | 35                | 85                     | 23                   | 125                       | 3.5           | 6           | 600                    | 3   | 428                     | 385  | 171   |
| T4JD156K035C□LQ4^00   | D         | 15               | 35                | 85                     | 23                   | 125                       | 5.3           | 6           | 400                    | 3   | 612                     | 551  | 245   |
| T4JD226K035C□LQ4^00   | D         | 22               | 35                | 85                     | 23                   | 125                       | 7.7           | 6           | 400                    | 3   | 612                     | 551  | 245   |
| T4JE336K035C□LQ4^00   | E         | 33               | 35                | 85                     | 23                   | 125                       | 11.6          | 6           | 250                    | 3   | 812                     | 731  | 325   |
| T4JV686K035C□LQ4^00   | V         | 68               | 35                | 85                     | 23                   | 125                       | 23.8          | 6           | 500                    | 3   | 707                     | 636  | 283   |
| <b>50 Volt @ 85°C</b> |           |                  |                   |                        |                      |                           |               |             |                        |     |                         |      |       |
| T4JC105K050C□LQ4^00   | C         | 1                | 50                | 85                     | 33                   | 125                       | 0.5           | 4           | 1500                   | 3   | 271                     | 244  | 108   |
| T4JC155K050C□LQ4^00   | C         | 1.5              | 50                | 85                     | 33                   | 125                       | 0.8           | 6           | 1500                   | 3   | 271                     | 244  | 108   |
| T4JC225K050C□LQ4^00   | C         | 2.2              | 50                | 85                     | 33                   | 125                       | 1.1           | 6           | 1500                   | 3   | 271                     | 244  | 108   |
| T4JC335K050C□LQ4^00   | C         | 3.3              | 50                | 85                     | 33                   | 125                       | 1.7           | 6           | 1500                   | 3   | 271                     | 244  | 108   |
| T4JD475K050C□LQ4^00   | D         | 4.7              | 50                | 85                     | 33                   | 125                       | 2.4           | 4.5         | 600                    | 3   | 500                     | 450  | 200   |
| T4JD685K050C□LQ4^00   | D         | 6.8              | 50                | 85                     | 33                   | 125                       | 3.4           | 4.5         | 600                    | 3   | 500                     | 450  | 200   |
| T4JE106K050C□LQ4^00   | E         | 10               | 50                | 85                     | 33                   | 125                       | 5.0           | 4.5         | 400                    | 3   | 642                     | 578  | 257   |

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, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

# T4J SERIES

## HRC4000 Implantable Non Life Support and Non Implantable Life Support



### QUALIFICATION TABLE

| TEST                  | T4J HRC4000 (Temperature range -55°C to +125°C)  |               |                |                    |                              |           |            |            |            |            |
|-----------------------|--|---------------|----------------|--------------------|------------------------------|-----------|------------|------------|------------|------------|
|                       | Condition  |               |                | Characteristics    |                              |           |            |            |            |            |
| Endurance             | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. |               |                | Visual examination | no visible damage            |           |            |            |            |            |
|                       |  |               |                | DCL                | 1.25 x initial limit         |           |            |            |            |            |
|                       |  |               |                | ΔC/C               | within ±10% of initial value |           |            |            |            |            |
|                       |  |               |                | DF                 | initial limit                |           |            |            |            |            |
|                       |  |               |                | ESR                | 1.25 x initial limit         |           |            |            |            |            |
| Storage Life          | 125°C, 0V, 2000h   |               |                | Visual examination | no visible damage            |           |            |            |            |            |
|                       |  |               |                | DCL                | 1.25 x initial limit         |           |            |            |            |            |
|                       |  |               |                | ΔC/C               | within ±10% of initial value |           |            |            |            |            |
|                       |  |               |                | DF                 | initial limit                |           |            |            |            |            |
|                       |  |               |                | ESR                | 1.25 x initial limit         |           |            |            |            |            |
| Temperature Stability | 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             | ΔC/C               | n/a                          | +0/-10%   | ±5%        | +10/-0%    | +12/-0%    | ±5%        |
|                       | 3  | +20±2         | 15             | DF                 | IL*                          | 1.5 x IL* | IL*        | 1.5 x IL*  | 2 x IL*    | IL*        |
|                       | 4  | +85+3/-0      | 15             | ESR                | 1.25 x IL*                   | 2.5 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* |
|                       | 5  | +125+3/-0     | 15             |                    |                              |           |            |            |            |            |
|                       | 6  | +20±2         | 15             |                    |                              |           |            |            |            |            |
| Surge Voltage         | Test temperature: 125°C±3/0°C<br>Test voltage: Category voltage at 125°C<br>Surge voltage: 1.3x category voltage at 125°C<br>Series protection resistance 1000±100Ω<br>Discharge resistance: 1000Ω<br>Number of cycles: 1000x<br>Cycle duration: 6min; 30 sec charge,<br>5min 30 sec discharge |               |                | Visual examination | no visible damage            |           |            |            |            |            |
|                       |  |               |                | DCL                | initial limit                |           |            |            |            |            |
|                       |  |               |                | ΔC/C               | within ±5% of initial value  |           |            |            |            |            |
|                       |  |               |                | DF                 | initial limit                |           |            |            |            |            |
|                       |  |               |                | ESR                | 1.25 x initial limit         |           |            |            |            |            |

\*Initial Limit

### LOT ACCEPTANCE TESTING

| TEST                | T4J HRC4000 (Temperature range -55°C to +125°C)   |                    |                             |
|---------------------|---|--------------------|-----------------------------|
|                     | Condition   | Characteristics    |                             |
| Lot Acceptance Test | 25 Pieces from each lot<br>• Read and Record Initial Electricals<br>• Bake Out @ 125°C for 2 Hours<br>• Mount using KYOCERA AVX recommended profile<br>• Read and Record Post Mounting Electricals<br>• Life Test: 6 hours, 2/3 R.V., 125°C<br>• Read and Record Post Electricals | DCL                | initial limit               |
|                     |   | ΔC/C               | within ±5% of initial value |
|                     |   | DF                 | initial limit               |
|                     |   | ESR                | 1.25 x initial limit        |
|                     |   | 0 Failures Allowed |                             |