



## FEATURES

- Solid Tantalum Capacitors Molded and Coated Versions
- CECC and MIL Approved Styles
- High Reliability and Low ESR models

| PRODUCT DESCRIPTION   | TYPE CODE  | CASE CODE | CAPACITANCE RANGE<br>μF | VOLTAGE RANGE<br>V | DIMENSIONS (MM) MAX |        |        |
|---|--|-----------|-------------------------|--------------------|---------------------|--------|--------|
|   |  |           |                         |                    | WIDTH               | LENGTH | HEIGHT |
| <b>Solid Tantalum Chip Capacitors</b><br>Formally the 49BC/EC Series  | CC/EE  | A         | 0.1-6.8                 | 4-50               | 1.65                | 2.92   | 1.65   |
|   | CC/EE  | B         | 0.22-10                 | 4-50               | 1.65                | 4.19   | 1.65   |
|   | CC/EE  | C         | 0.47-15                 | 4-50               | 1.65                | 5.46   | 1.65   |
|   | CC/EE  | D         | 0.68-22                 | 4-50               | 2.92                | 4.19   | 1.65   |
|   | CC/EE  | E         | 1.0-33                  | 4-50               | 2.92                | 5.46   | 1.65   |
|   | CC/EE  | F         | 1.5-100                 | 4-50               | 3.81                | 5.97   | 2.16   |
|   | CC/EE  | G         | 3.3-150                 | 4-50               | 3.17                | 7.11   | 3.17   |
|   | CC/EE  | H         | 4.7-220                 | 4-50               | 4.19                | 7.62   | 3.17   |
| <b>Solid Tantalum Chip Capacitors</b><br>High reliability, Conformal Coated   | 194D   | A         | 0.10-3.3                | 4-50               | 1.65                | 2.92   | 1.65   |
|   | 194D   | B         | 0.22-6.8                | 4-50               | 1.65                | 4.19   | 1.65   |
|   | 194D   | C         | 0.47-10                 | 4-50               | 1.65                | 5.46   | 1.65   |
|   | 194D   | D         | 0.68-15                 | 4-50               | 2.92                | 4.19   | 1.65   |
|   | 194D   | E         | 1.0-22                  | 4-50               | 2.92                | 5.46   | 1.65   |
|   | 194D   | F         | 1.5-68                  | 4-50               | 3.81                | 5.97   | 2.16   |
|   | 194D   | G         | 3.3-68                  | 4-50               | 3.17                | 7.11   | 3.17   |
|   | 194D   | H         | 4.7-150                 | 4-50               | 4.19                | 7.62   | 3.17   |
| <b>Solid Tantalum Chip Capacitors</b><br>Conformal Coated<br><br>European Case Sizes  | 195D   | A         | 0.1-10                  | 2-50               | 1.80                | 3.00   | 1.40   |
|   | 195D   | B         | 0.22-4.7                | 4-50               | 1.70                | 4.40   | 1.60   |
|   | 195D   | D         | 0.47-10                 | 4-50               | 2.40                | 4.40   | 1.60   |
|   | 195D   | E         | 1.0-15                  | 4-50               | 2.40                | 5.80   | 1.70   |
|   | 195D   | F         | 1.5-33                  | 4-50               | 3.60                | 6.30   | 2.00   |
|   | 195D   | G         | 3.3-68                  | 4-50               | 2.90                | 7.30   | 2.80   |
|   | 195D   | H         | 4.7-100                 | 4-50               | 4.00                | 8.10   | 3.00   |
|   | <b>Solid Tantalum Chip Capacitors</b><br>Conformal Coated<br><br>U.S. Case Sizes | 195D      | C                       | 0.1-3.3            | 4 - 50              | 1.39   | 2.21   |
| 195D  |  | S         | 0.33-10                 | 4 - 50             | 2.03                | 3.63   | 1.42   |
| 195D  |  | V         | 0.47-15                 | 4 - 50             | 2.25                | 3.63   | 1.55   |
| 195D  |  | X         | 1.0-33                  | 4 - 50             | 2.90                | 7.24   | 1.55   |
| 195D  |  | Y         | 2.2-68                  | 4 - 50             | 2.90                | 7.24   | 2.00   |
| 195D  |  | Z         | 3.3-100                 | 4 - 50             | 2.90                | 7.24   | 2.90   |
| 195D  |  | R         | 6.8-330                 | 4 - 50             | 6.22                | 7.14   | 3.70   |
| <b>Molded Leadframeless Tantalum Chip Capacitor</b>   |  | 292D      | R                       | 3.3 - 22           | 4 - 10              | 1.5    | 2.2    |
|   | 292D   | P         | 4.7 - 33                | 4 - 10             | 1.55                | 2.25   | 1.6    |
| <b>Molded Tantalum Chip Capacitors</b><br>793DE CECC 30801-801<br>793DX CECC 30801-005<br>CTC3 CECC 30801-009<br>CTC4 CECC 30801-011<br><br>CWR11 MIL-C-55365/8 | 293D   | A         | 0.10-33                 | 4 - 50             | 1.80                | 3.40   | 1.80   |
|   | 293D   | B         | 0.15-150                | 4 - 50             | 3.00                | 3.70   | 2.10   |
|   | 293D   | C         | 0.47-220                | 4 - 50             | 3.50                | 6.30   | 2.80   |
|   | 293D   | D         | 2.2-470                 | 4 - 50             | 4.60                | 7.60   | 3.10   |
|   | 293D   | E         | 6.8-680                 | 4 - 50             | 4.60                | 7.60   | 4.30   |
|   | 293D   | P         | 1.0-10                  | 4-10               | 1.55                | 2.25   | 1.55   |

# Tantalum Capacitors

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| PRODUCT DESCRIPTION   | TYPE CODE       | CASE CODE | CAPACITANCE RANGE<br>$\mu\text{F}$ | VOLTAGE<br><b>V</b> | DIMENSIONS (MM) MAX |        |        |
|---|-----------------|-----------|------------------------------------|---------------------|---------------------|--------|--------|
|   |                 |           |                                    |                     | WIDTH               | LENGTH | HEIGHT |
| <b>Molded Solid Tantalum Chip Capacitor</b>   | 593D            | A         | 0.47 - 33                          | 4-35                | 1.80                | 3.40   | 1.80   |
|   | 593D            | B         | 1.0 - 150                          | 4-35                | 3.00                | 3.70   | 2.10   |
|   | 593D            | C         | 1.5 - 220                          | 4-50                | 3.50                | 6.30   | 2.80   |
|   | 593D            | D         | 3.3 - 470                          | 4-50                | 4.60                | 7.60   | 3.10   |
|   | 593D            | E         | 6.8 - 680                          | 4-50                | 4.60                | 7.60   | 4.30   |
| <b>Tantamount® Chip Capacitors</b><br>Conformal Coated<br>194D Pad Compatible         | 695D            | A         | 0.1 - 4.7                          | 4 - 50              | 1.65                | 3.43   | 1.65   |
|   | 695D            | B         | 0.22 - 10                          | 4 - 50              | 1.65                | 4.70   | 1.65   |
|   | 695D            | D         | 0.47 - 22                          | 4 - 50              | 2.79                | 4.70   | 1.65   |
|   | 695D            | E         | 1.5 - 33                           | 4 - 50              | 2.79                | 6.0    | 1.65   |
|   | 695D            | F         | 2.2 - 100                          | 4 - 50              | 3.81                | 6.5    | 2.16   |
|   | 695D            | G         | 4.7 - 150                          | 4 - 50              | 2.92                | 7.6    | 2.92   |
|   | 695D            | H         | 6.8 - 270                          | 4 - 50              | 4.19                | 7.7    | 3.17   |
| <b>Tantamount® Molded Case Built-in-Fuse</b><br>Electrically Activated                | 893D            | C         | 1.0-68                             | 6.3 - 50            | 3.50                | 6.30   | 2.80   |
|   | 893D            | D         | 3.3-150                            | 6.3 - 50            | 4.60                | 7.60   | 3.10   |
|   | 893D            | E         | 6.8-220                            | 6.3 - 50            | 4.60                | 7.60   | 4.30   |
| <b>Midget® Solid Electrolyte Tantalum Chip Capacitors</b><br>To MIL-C-55365/4         | CWR06           | A         | 0.1-2.2                            | 4 - 50              | 1.65                | 2.92   | 1.65   |
|   | CWR06           | B         | 0.22-4.7                           | 4 - 50              | 1.65                | 4.19   | 1.65   |
|   | CWR06           | C         | 0.47-6.8                           | 4 - 50              | 1.65                | 9.65   | 1.65   |
|   | CWR06           | D         | 0.68-10                            | 4 - 50              | 2.92                | 4.19   | 1.65   |
|   | CWR06           | E         | 1-15                               | 4 - 50              | 2.92                | 5.46   | 1.65   |
|   | CWR06           | F         | 1.5-33                             | 4 - 50              | 3.81                | 5.97   | 2.16   |
|   | CWR06           | G         | 3.3-68                             | 4 - 50              | 3.17                | 7.11   | 3.17   |
|   | CWR06           | H         | 4.7-100                            | 4 - 50              | 4.19                | 7.62   | 3.17   |
| <b>Tantamount® Molded Chip Capacitors</b><br>To MIL-PRF-55365/8                       | CWR11           | A         | 0.1-4.7                            | 4-50                | 1.8                 | 3.4    | 1.8    |
|   | CWR11           | B         | 0.15-15                            | 4-50                | 3.0                 | 3.4    | 1.9    |
|   | CWR11           | C         | 0.47-33                            | 4-50                | 3.5                 | 3.4    | 1.10   |
|   | CWR11           | D         | 2.2-100                            | 4-50                | 4.6                 | 3.4    | 1.11   |
| <b>Tantamount® Low Profile Chip Capacitors</b><br>Conformal Coated<br>Maximum CV      | 592D            | A         | 1.0 - 33                           | 4-35                | 2.1                 | 3.7    | 1.40   |
|   | 592D            | B         | 1.0 - 68                           | 4-35                | 3.1                 | 4.0    | 1.50   |
|   | 592D            | C         | 2.2 - 150                          | 4-35                | 3.5                 | 7.1    | 1.50   |
|   | 592D            | D         | 3.3 - 220                          | 4-35                | 4.6                 | 7.5    | 1.55   |
|   | 592D            | R         | 4.7 - 330                          | 4-35                | 6.3                 | 7.2    | 1.50   |
|   | 592D            | S         | 33                                 | 6.3                 | 1.4                 | 3.5    | 1.30   |
| <b>Tantamount® Low Profile Chip Capacitors</b><br>Conformal Coated Maximum CV         | 592-2mm         | T         | 22 - 150                           | 4 - 20              | 2.1                 | 4.0    | 2.0    |
|   | 592-2mm         | U         | 47 - 470                           | 4 - 16              | 3.6                 | 7.1    | 2.0    |
|   | 592-2mm         | V         | 68 - 680                           | 4 - 16              | 4.6                 | 7.5    | 2.0    |
|   | 592-2mm         | W         | 220 - 1080                         | 4 - 10              | 6.3                 | 7.2    | 2.0    |
| <b>Tantamount® Low Profile Low ESR Chip Capacitors</b><br>Maximum CV Conformal Coated | 592D X, Y Sizes | X         | 1000 - 1500                        | 4 - 6.3             | 7.62                | 14.5   | 2.0    |
|   | 592D X, Y Sizes | Y         | 1500 - 2200                        | 4 - 6.3             | 7.62                | 14.5   | 2.5    |



## FEATURES

- Solid Tantalum and Wet Tantalum Technologies
- Axial and Radial Styles
- BS-CECC and MIL Approved Styles

| PRODUCT DESCRIPTION  | TYPE     | CASE CODE | CAPACITANCE RANGE (μF) | VOLTAGE RANGE (V) | DIMENSIONS (MM) |             |        |
|--|----------|-----------|------------------------|-------------------|-----------------|-------------|--------|
|  |          |           |                        |                   | BODY WIDTH (Ø)  | BODY LENGTH | LEAD Ø |
| <b>Solid Tantalum Chip Capacitors</b><br>Multi-Anode, Ultra Low ESR  | 597D     | E         | 330-1000               | 4-10              | 4.7             | 7.6         | 4.4    |
|  | 597D     | R         | 1000-1500              | 4                 | 6.4             | 7.6         | 3.7    |
| <b>Tantamount® Chip Capacitors</b><br>Conformal Coated<br>Low ESR  | 594D     | B         | 1.0 - 150              | 4 - 50            | 3.1             | 4.0         | 2.2    |
|  | 594D     | C         | 4.7 - 470              | 4 - 50            | 3.5             | 7.1         | 2.80   |
|  | 594D     | D         | 6.8 - 680              | 4 - 50            | 4.6             | 7.5         | 3.10   |
|  | 594D     | R         | 15 - 1500              | 4 - 50            | 6.3             | 7.2         | 3.8    |
| <b>Tantamount® Chip Capacitors</b><br>Conformal Coated<br>Max C / V Efficient  | 595D     | T         | 0.1 - 10               | 4 - 50            | 1.4             | 2.2         | 1.4    |
|  | 595D     | A         | 0.33 - 100             | 4 - 50            | 2.1             | 3.7         | 1.7    |
|  | 595D     | B         | 0.68 - 150             | 4 - 50            | 3.1             | 4.0         | 2.2    |
|  | 595D     | C         | 1.5 - 470              | 4 - 50            | 3.5             | 7.1         | 2.80   |
|  | 595D     | D         | 6.8 - 680              | 4 - 50            | 4.6             | 7.5         | 3.10   |
|  | 595D     | G         | 220                    | 6.3               | 4.05            | 5.6         | 2.2    |
|  | 595D     | R         | 10 - 1500              | 4 - 50            | 6.3             | 7.2         | 3.8    |
|  | 595D     | S         | 33                     | 6.3               | 1.9             | 3.5         | 1.6    |
|  | 595D     | M         | 100                    | 6.30              | 3.0             | 3.6         | 2.0    |
| <b>Tantamount® Low Profile Low ESR Chip Capacitors</b><br>Conformal Coated<br>Maximum CV   | 591D     | A         | 1.0 - 22               | 4 - 35            | 2.1             | 3.7         | 1.4    |
|  | 591D     | B         | 1.0 - 47               | 4 - 35            | 3.1             | 4           | 1.5    |
|  | 591D     | C         | 2.2 - 150              | 4 - 35            | 3.5             | 7.1         | 1.5    |
|  | 591D     | D         | 3.3 - 220              | 4 - 35            | 4.6             | 7.5         | 1.5    |
|  | 591D     | R         | 6.8 - 330              | 4 - 35            | 6.3             | 7.2         | 1.5    |
| <b>Tantamount® Low Profile Very Low ESR Chip Capacitors</b><br>Conformal Coated  | 591D-2mm | U         | 68 - 470               | 4 - 16            | 3.5             | 7.1         | 2.0    |
|  | 591D-2mm | V         | 220 - 680              | 4 - 16            | 4.6             | 7.5         | 2.0    |
|  | 591D-2mm | W         | 220 - 1000             | 4 - 16            | 6.3             | 7.2         | 2.0    |
| <b>Solid Electrolyte Tantalex® Capacitors</b><br>Hermetic Seal<br>Axial Lead for High Stability                                    | 150D     | A         | 0.0047-6.8             | 6-125             | 3.84            | 8.05        | 0.51   |
|  | 150D     | B         | 0.56-56                | 6-125             | 5.11            | 12.83       | 0.51   |
|  | 150D     | R         | 3.3-180                | 6-100             | 7.75            | 18.21       | 0.64   |
|  | 150D     | S         | 8.2-330                | 6-100             | 9.32            | 20.75       | 0.64   |
| <b>Solid Electrolyte Tantalex® Capacitors</b><br>Hermetic Axial Package Style<br>Extended Range<br>Operating Temp: -55°C to +125°C | 152D     | A         | 1.2-15.0               | 6-50              | 3.84            | 8.05        | 0.51   |
|  | 152D     | B         | 5.6-100.0              | 6-50              | 5.11            | 12.83       | 0.51   |
|  | 152D     | R         | 22.0-470.0             | 6-50              | 7.75            | 18.21       | 0.64   |
|  | 152D     | S         | 33.0-1000.0            | 6-50              | 9.32            | 20.75       | 0.64   |

# Tantalum Capacitors

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| PRODUCT DESCRIPTION  | TYPE  | CASE CODE | CAPACITANCE RANGE (μF) | VOLTAGE RANGE (V) | DIMENSIONS (MM) |            |             | LEAD Ø |
|--|-------|-----------|------------------------|-------------------|-----------------|------------|-------------|--------|
|  |       |           |                        |                   | BODY THICKNESS  | BODY WIDTH | BODY HEIGHT |        |
| <b>Solid Electrolyte TANTALEX® Capacitors</b><br>Molded Case, Axial Leaded<br>Rugged Construction                                      | 173D  | U         | 0.1-10                 | 2-50              | 2.41            |            | 6.60        | 0.51   |
|  | 173D  | V         | 0.33-33                | 2-50              | 2.79            |            | 7.37        | 0.51   |
|  | 173D  | W         | 1.2-68                 | 2-50              | 4.57            |            | 8.76        | 0.51   |
|  | 173D  | X         | 2.7-68                 | 4-50              | 4.57            |            | 10.67       | 0.51   |
|  | 173D  | Y         | 5.6-330                | 6-50              | 7.11            |            | 13.97       | 0.64   |
| <b>Solid Electrolyte Tantalex® Capacitors</b><br>Resin Coated Radial Lead<br>*denotes seated height<br>TANTALEX®                       | 199D  | A         | 0.1-15                 | 3-50              | 4.40            |            | 7.11        | 8.64*  |
|  | 199D  | B         | 1-33                   | 3-50              | 5.00            |            | 7.62        | 9.14*  |
|  | 199D  | C         | 1.5-68                 | 3-50              | 5.50            |            | 9.14        | 10.67* |
|  | 199D  | D         | 3.3-150                | 3-50              | 6.00            |            | 10.16       | 11.68* |
|  | 199D  | E         | 15-330                 | 3-35              | 8.60            |            | 12.50       | 14.02* |
|  | 199D  | F         | 6.8-680                | 3-50              | 9.60            |            | 16.50       | 18.03* |
| <b>Solid Electrolyte Tantalum Chip Capacitors</b><br>Subminiature<br>Molded Case<br>*Radial Leaded = CX06<br>*Axial Leaded = CX16      | CX*6  | A         | 0.10-0.47              | 2-15              | 1.02            | 1.27       | 2.54        | 0.18   |
|  | CX*6  | B         | 0.10-2.2               | 2-20              | 1.02            | 1.78       | 3.18        | 0.25   |
|  | CX*6  | C         | 0.10-10                | 2-35              | 1.78            | 3.05       | 4.19        | 0.25   |
|  | CX*6  | D         | 0.68-22                | 3-35              | 1.91            | 4.7        | 5.72        | 0.25   |
|  | CX*6  | E         | 2.2-47                 | 4-35              | 2.79            | 5.59       | 7.37        | 0.41   |
|  | CX*6  | F         | 6.8-68                 | 4-35              | 3.3             | 5.84       | 7.87        | 0.41   |
|  | CX*6  | G         | 10-150                 | 6-35              | 3.81            | 9.53       | 12.07       | 0.41   |
| <b>Solid Electrolyte Tantalex® Capacitors</b><br>Hermetic Axial Package Style<br>To MIL M39003 / 01<br>Operating Temp: -55°C to +125°C | CSR13 | A         | 0.0047-6.8             | 6-100             | 3.84            |            | 8.05        | 0.51   |
|  | CSR13 | B         | 0.68-56.0              | 6-100             | 5.11            |            | 12.83       | 0.51   |
|  | CSR13 | C         | 3.3-180.0              | 6-100             | 7.75            |            | 18.21       | 0.64   |
|  | CSR13 | D         | 12.0-330.0             | 6-75              | 9.33            |            | 20.75       | 0.64   |
| <b>Solid Electrolyte Tantalex® Capacitors</b><br>Package Style: Hermetic Axial<br>To MIL M39003 / 09                                   | CSR21 | C         | 5.6-180                | 6-50              | 7.75            |            | 18.21       | 0.64   |
|  | CSR21 | D         | 22-330                 | 6-50              | 9.33            |            | 20.75       | 0.64   |
| <b>Solid Electrolyte Tantalex® Capacitors</b><br>Hermetic Axial Package Style<br>To MIL M39003 / 03<br>Operating Temp: -55°C to +125°C | CSR23 | A         | 1.2-12.0               | 6-50              | 3.84            |            | 8.05        | 0.51   |
|  | CSR23 | B         | 5.6-100.0              | 6-50              | 5.11            |            | 12.83       | 0.51   |
|  | CSR23 | C         | 22.0-470.0             | 6-50              | 7.75            |            | 18.21       | 0.64   |
|  | CSR23 | D         | 33.0-1000.0            | 6-50              | 9.33            |            | 20.75       | 0.64   |
| <b>Solid Electrolyte Tantalex® Capacitors</b><br>Hermetic Axial Package Style<br>To MIL M39003 / 06<br>Operating Temp: -55°C to +125°C | CSR33 | A         | 1.2-12.0               | 6-50              | 3.80            |            | 8.05        | 0.51   |
|  | CSR33 | B         | 5.6-100.0              | 6-50              | 5.10            |            | 12.83       | 0.51   |
|  | CSR33 | C         | 22.0-470.0             | 6-50              | 7.70            |            | 18.21       | 0.64   |
|  | CSR33 | D         | 33.0-1000.0            | 6-50              | 9.30            |            | 20.75       | 0.64   |



| PRODUCT DESCRIPTION   | TYPE  | CASE CODE | CAPACITANCE RANGE<br>μF | VOLTAGE RANGE<br>V | DIMENSIONS (MM) |             | MAX LEAD Ø |      |
|---|---|-----------|-------------------------|--------------------|-----------------|-------------|------------|------|
|   |   |           |                         |                    | BODY WIDTH (Ø)  | BODY LENGTH |            |      |
| <b>Solid Tantalum Capacitors</b><br>Resin Coated TRIPOLE®<br>Triple Radial Lead for Fail-Safe Mounting<br>Operating Temp: -55°C to +125°C   | 299D  | A         | 0.1-15                  | 3-50               | 7.1             | 9.14        | 0.51       |      |
|   | 299D  | B         | 1.0-33                  | 3-50               | 7.1             | 9.14        | 0.51       |      |
|   | 299D  | C         | 1.5-47                  | 3-50               | 7.1             | 9.65        | 0.51       |      |
|   | 299D  | D         | 3.3-150                 | 3-50               | 7.1             | 11.17       | 0.51       |      |
|   | 299D  | E         | 15-330                  | 3-35               | 8.63            | 14.22       | 0.51       |      |
|   | 299D  | F         | 6.8-680                 | 3-50               | 9.14            | 15.74       | 0.51       |      |
| <b>Resin Coated, Solid Tantalum Capacitors</b><br>With Dipped Radial Leads<br>Operating Temp: -55°C to +85°C<br>Supplied on Tape & Reel or Ammpack<br>Several Types of Lead Styles available<br>Low Impedance and ESR at High Frequencies   | 489D  | A         | 0.1-6.8                 | 3-50               | 3.70            | 7.00        | 0.50       |      |
|   | 489D  | B         | 0.33-15                 | 3-50               | 4.00            | 7.50        | 0.50       |      |
|   | 489D  | C         | 0.68-33                 | 3-50               | 4.50            | 8.00        | 0.50       |      |
|   | 489D  | D         | 1.0-68                  | 3-50               | 5.00            | 9.00        | 0.50       |      |
|   | 489D  | E         | 1.5-100                 | 3-50               | 5.50            | 10.00       | 0.50       |      |
|   | 489D  | F         | 2.2-47                  | 16-50              | 6.00            | 11.00       | 0.50       |      |
|   | 489D  | H         | 4.7-150                 | 3-50               | 6.50            | 12.00       | 0.50       |      |
|   | 489D  | M         | 15-220                  | 3-35               | 10.00           | 14.50       | 0.50       |      |
|   | 489D  | N         | 6.8-470                 | 3-50               | 11.00           | 16.00       | 0.50       |      |
|   | 489D  | R         | 220-680                 | 3-16               | 12.00           | 19.00       | 0.50       |      |
| <b>Resin Coated Solid Tantalum Capacitors</b><br>With Dipped Radial Leads<br>Operating Temp: -55°C to +125°C<br>Supplied on Tape & Reel or Ammpack<br>Several Types of Lead Styles available<br>Low Impedance at High Frequencies   | 499D  | A         | 0.1-6.8                 | 3-50               | 3.70            | 7.00        | 0.50       |      |
|   | 499D  | B         | 0.33-15                 | 3-50               | 4.00            | 7.50        | 0.50       |      |
|   | 499D  | C         | 0.68-33                 | 3-50               | 4.50            | 8.00        | 0.50       |      |
|   | 499D  | D         | 1.0-68                  | 3-50               | 5.00            | 9.00        | 0.50       |      |
|   | 499D  | E         | 1.5-100                 | 3-50               | 5.50            | 10.00       | 0.50       |      |
|   | 499D  | F         | 2.2-47                  | 16-50              | 6.00            | 11.00       | 0.50       |      |
|   | 499D  | H         | 4.7-150                 | 3-50               | 6.50            | 12.00       | 0.50       |      |
|   | 499D  | M         | 15-220                  | 3-35               | 10.00           | 14.50       | 0.50       |      |
|   | 499D  | N         | 6.8-470                 | 3-50               | 11.00           | 16.00       | 0.50       |      |
|   | 499D  | R         | 220-680                 | 3-16               | 12.00           | 19.00       | 0.50       |      |
| <b>Tantalum Capacitors</b><br>Axial Lead, Hermetically Sealed for High Frequency Power Supplies<br>Dimensions are bare case size, (in brackets with plastic film insulation)<br>CSR21 MIL-C-39003/09<br>CTS 21 CECC 30201-040   | 550D  | R         | 5.6-180                 | 6-50               | 7.75            | 18.21       | 0.64       |      |
|   | 550D  | S         | 2.2-330                 | 6-50               | 9.32            | 20.75       | 0.64       |      |
|   | CTS21   | C         | 5.6-180                 | 6.3-50             | 7.75            | 18.21       | 0.64       |      |
|   | CTS21   | D         | 2.2-330                 | 6.3-50             | 9.32            | 20.75       | 0.64       |      |
| <b>Solid Tantalum Capacitors</b><br>Hermetically Sealed Axial Lead<br>Order Style CECC Specification<br>749DX 30201-001/-011/-012<br>-029: BS9073-N001<br>752DE 30201-041/-801<br>CTS1 30201-002:<br>IECQ:30201/FR001<br>CTS13 30201-005<br>CTS23 30201-025<br>CTS32 30201-019<br>CTS33 30201-026 | 749DX   | A         | 0.068-15                | 6.3-63             | 3.84            | 8.05        | 0.51       |      |
|   | 749DX   | B         | 0.82-120                | 6.3-63             | 5.11            | 12.83       | 0.51       |      |
|   | 749DX   | C         | 4.7-470                 | 6.3-63             | 7.75            | 18.21       | 0.64       |      |
|   | 749DX   | D         | 12-1000                 | 6.3-63             | 9.32            | 20.75       | 0.64       |      |
|   | 752DE   | A         | 0.068-15                | 6.3-63             | 3.84            | 8.05        | 0.51       |      |
|   | 752DE   | B         | 0.82-120                | 6.3-63             | 5.11            | 12.83       | 0.51       |      |
|   | 752DE   | C         | 4.7-470                 | 6.3-63             | 7.75            | 18.21       | 0.64       |      |
|   | 752DE   | D         | 12-1000                 | 6.3-63             | 9.32            | 20.75       | 0.64       |      |
|   | <b>Solid Tantalum Capacitors</b><br>Radial Molded,<br>Op. Temp: -55°C- +125°C | 790D      | A                       | 0.1-22             | 6.3-50          | 4.70        | 7.30       | 0.50 |
|   |   | 790D      | B                       | 1.5-68             | 6.3-50          | 7.30        | 10.50      | 0.50 |
| 790D  |   | C         | 6.8-220                 | 6.3-50             | 12.30           | 10.50       | 0.60       |      |
| 790D  |   | D         | 22-330                  | 6.3-50             | 12.30           | 10.50       | 0.60       |      |

# Wet Tantalum Capacitors



Vishay

## FEATURES

- Tantalum electrolytic capacitors are the preferred capacitor type where high reliability and long service life are paramount considerations.
- Rating for rating, tantalum capacitors tend to have as much as three times better capacitance/volume efficiency than aluminum electrolytic capacitors.
- The Vishay range includes: Wet-electrolyte, sintered anode tantalum capacitors; and Solid Electrolyte sintered anode tantalum capacitors.

| PRODUCT DESCRIPTION   | TYPE         | CASE CODE | CAPACITANCE RANGE<br>μF | VOLTAGE RANGE<br>V | BODY DIMENSIONS (MM) |             | MAX LEAD Ø |
|---|--------------|-----------|-------------------------|--------------------|----------------------|-------------|------------|
|   |              |           |                         |                    | BODY / DIAMETER Ø    | BODY LENGTH |            |
| <b>Wet Tantalum Capacitors</b><br>Silver Case: Hermetic Axial<br><b>MIL 39006 / 09</b>  | <b>CLR65</b> | T1        | 1.7-68                  | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>CLR65</b> | T2        | 9-270                   | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>CLR65</b> | T3        | 18-560                  | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>CLR65</b> | T4        | 56-1200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Silver Case: Hermetic Axial<br><b>MIL M39006 / 21</b>   | <b>CLR69</b> | T1        | 6.8-220                 | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>CLR69</b> | T2        | 27-820                  | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>CLR69</b> | T3        | 47-1500                 | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>CLR69</b> | T4        | 82-2200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Tantalum Case: Hermetic Axial<br><b>MIL M39006 / 22</b>   | <b>CLR79</b> | T1        | 1.7-68                  | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>CLR79</b> | T2        | 9-270                   | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>CLR79</b> | T3        | 18-560                  | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>CLR79</b> | T4        | 56-1200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Tantalum Case: Hermetic Axial<br><b>MIL 39006 / 25</b>  | <b>CLR81</b> | T1        | 6.8-220                 | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>CLR81</b> | T2        | 27-820                  | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>CLR81</b> | T3        | 47-1500                 | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>CLR81</b> | T4        | 82-2200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Tantalum Case: Hermetic Axial<br>Low ESR<br><b>MIL 39006 / 30</b>                                     | <b>CLR90</b> | T1        | 1.7-6.8                 | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>CLR90</b> | T2        | 9-270                   | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>CLR90</b> | T3        | 18-560                  | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>CLR90</b> | T4        | 56-1200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Tantalum Case: Hermetic Axial<br>Low ESR<br><b>MIL 39006 / 31</b>                                     | <b>CLR91</b> | T1        | 6.8-220                 | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>CLR91</b> | T2        | 27-820                  | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>CLR91</b> | T3        | 47-1500                 | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>CLR91</b> | T4        | 82-2200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Tantalum Case: Hermetic Axial<br>Super Tan (ST)<br>Ultra High C/V<br>DSCC 93026                       | <b>ST</b>    | T1        | 10-470                  | 6-125              | 5.56                 | 12.3        | 0.64       |
|   | <b>ST</b>    | T2        | 47-1500                 | 6-125              | 7.92                 | 17.07       | 0.64       |
|   | <b>ST</b>    | L2        | 90-1100                 | 25-125             | 7.92                 | 25.60       | 0.64       |
|   | <b>ST</b>    | T3        | 100-3300                | 6-125              | 10.31                | 20.25       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Silver Case<br>Elastomer Sealed, Axial<br>Insulated or Uninsulated<br>Operating Temp: -55°C to +125°C | <b>109D</b>  | C         | 1.7-200                 | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>109D</b>  | F         | 9-820                   | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>109D</b>  | T         | 14-1500                 | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>109D</b>  | K         | 56-2200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Silver Case: Hermetic Axial   | <b>138D</b>  | C         | 1.7-200                 | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>138D</b>  | F         | 6.8-820                 | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>138D</b>  | T         | 14-1500                 | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>138D</b>  | K         | 56-2200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Tantalum Case: Hermetic Axial<br>Ultra High Performance<br>Operating Temp: -55°C to +200°C            | <b>135D</b>  | C         | 1.7-220                 | 6-125              | 5.56                 | 13.08       | 0.64       |
|   | <b>135D</b>  | F         | 9-820                   | 6-125              | 7.92                 | 17.86       | 0.64       |
|   | <b>135D</b>  | T         | 18-1500                 | 6-125              | 10.31                | 21.03       | 0.64       |
|   | <b>135D</b>  | K         | 56-2200                 | 6-125              | 10.31                | 28.58       | 0.64       |
| <b>Wet Tantalum Capacitors</b><br>Subminiature<br>Axial Lead<br>Operating Temperature:<br>-55°C to +85°C                                | <b>MTP</b>   | D         | 3.3-15                  | 6-60               | 2.92                 | 7.62        | 0.51       |
|   | <b>MTP</b>   | A         | 4.7-47                  | 6-60               | 2.92                 | 10.23       | 0.51       |
|   | <b>MTP</b>   | B         | 10-180                  | 6-60               | 3.68                 | 15.24       | 0.51       |
|   | <b>MTP</b>   | C         | 33-470                  | 6-60               | 5.72                 | 19.76       | 0.51       |



| PRODUCT DESCRIPTION  | TYPE                            | CASE CODE  | CAPACITANCE RANGE<br>μF | VOLTAGE RANGE<br>V | DIMENSIONS (MM) MAX |             |        |
|--|---------------------------------|--|-------------------------|--------------------|---------------------|-------------|--------|
|  |                                 |  |                         |                    | BODY WIDTH Ø        | BODY LENGTH | LEAD Ø |
| <b>Wet Tantalum Capacitors</b><br>Cylindrical Body   | XTK<br>XTM<br>XTL<br>XTH<br>XTV | Hermetically Sealed Wet Tantalum Capacitors for use in applications where high operating temperatures are required to + 175°C.<br>2μF to 2200μF - 8 to 630VDC at 85°C.   |                         |                    |                     |             |        |
| <b>Tantalex® Components</b><br>and Capacitor Assemblies  | 200D<br>202D                    | TANTAPAK® Wet Sintered Anode Capacitor Assemblies are widely used in filter, coupling, bypass and time delay circuits in computers, missiles, airborne equipment, radar and fixed control systems  |                         |                    |                     |             |        |
| <b>Wet Tantalum Capacitors</b><br>Package Style: Hermetic Axial<br>Ultra High Performance<br>Operating Temp: -55°C to +200°C<br>735D = 30201-001<br>735DE= 30201-801 | 735D / DE                       | A  | 2.7-160                 | 6-125              | 5.56                | 13.08       | 0.64   |
|  | 735D / DE                       | B  | 14-560                  | 6-125              | 7.92                | 17.86       | 0.64   |
|  | 735D / DE                       | C  | 25-1500                 | 6-125              | 10.31               | 21.03       | 0.64   |
|  | 735D / DE                       | D  | 56-2200                 | 6-125              | 10.31               | 28.58       | 0.64   |
| <b>Wet Tantalum Capacitors</b><br>Package Style: Hermetic Axial<br>BS /9073-FO18<br>Operating Temp: -55°C to +175°C  | 738D                            | A  | 3.3-68                  | 6.3-125            | 5.56                | 13.08       | 0.64   |
|  | 738D                            | B  | 10-270                  | 6.3-125            | 7.92                | 17.86       | 0.64   |
|  | 738D                            | C  | 18-560                  | 6.3-125            | 10.31               | 21.03       | 0.64   |
|  | 738D                            | D  | 39-1200                 | 6.3-125            | 10.31               | 28.58       | 0.64   |
| <b>Wet Tantalum Capacitors</b><br>Package Style:<br>Epoxy End-Fill Axial<br>CECC 30202-013 available<br>Operating Temp: -55°C to +125°C                              | 769D                            | A  | 3.6-220                 | 6-125              | 5.30                | 14.40       | 0.64   |
|  | 769D                            | B  | 9-820                   | 6-125              | 7.60                | 19.20       | 0.64   |
|  | 769D                            | C  | 25-1500                 | 6-125              | 10.00               | 22.30       | 0.64   |
|  | 769D                            | D  | 80-2200                 | 6-125              | 10.00               | 29.50       | 0.64   |
| <b>Wet Tantalum Capacitors</b><br>Package Style: Hermetic Axial<br>True Glass to Tantalum Seal<br>Operating Temp: -55°C to +125°C<br>CECC 30202-004                  | CT9                             | A  | 3.9-180                 | 63-125             | 5.56                | 13.08       | 0.64   |
|  | CT9                             | B  | 15-820                  | 63-125             | 7.92                | 17.86       | 0.64   |
|  | CT9                             | C  | 27-1500                 | 63-125             | 10.31               | 21.03       | 0.64   |
|  | CT9                             | D  | 56-2200                 | 63-125             | 10.31               | 28.58       | 0.64   |
| <b>Wet Tantalum Capacitors</b><br>Package Style: Hermetic Axial<br>Ultra High Performance<br>Operating Temp: -55°C to +200°C<br>CECC 30202-005                       | CT79                            | A  | 1.7-150                 | 6.3-125            | 5.56                | 13.08       | 0.64   |
|  | CT79                            | B  | 9-500                   | 6.3-125            | 7.92                | 17.86       | 0.64   |
|  | CT79                            | C  | 18-1500                 | 6.3-125            | 10.31               | 21.03       | 0.64   |
|  | CT79                            | D  | 56-2200                 | 6.3-125            | 10.31               | 28.58       | 0.64   |
| <b>TANTAPAK Component Assemblies in Custom-Design Resin-Filled Cases</b>   | <b>TANTAPAK ASSEMBLIES</b>      | <p>TANTAPAK passive component assemblies offer the user the superior stability and reliability of Vishay Sprague tantalum-capacitor elements in customer-specified resin-filled cases that meet demanding requirements of non-standard circuit layouts.</p> <p>These assemblies can withstand severe environmental conditions of humidity, altitude, shock and vibration. The modules are rated for operation over the temperature range of -55°C to +125°C (+200°C on request).</p> <p>For applications requiring the exceptional performance characteristics of tantalum electrolytic capacitors we manufacture a large variety of wet-slug tantalum capacitor sections. This capability enables us to produce economical custom assemblies in packages that fit irregular spaces and in configurations that perform in extraordinary circuit conditions</p> |                         |                    |                     |             |        |