

## Solid Tantalum Chip Capacitors

### TANTAMOUNT® Conformal Coated, Maximum CV



#### FEATURES

- Large capacitance rating range
- Terminations: Tin (2) standard
- 8 mm, 12 mm tape and reel packaging available per EIA 481-1 and reeling per IEC 286-3. 7" [178 mm] standard. 13" [330 mm] available.
- Case code compatibility with EIA 535BAAC and CECC30801 molded chips



RoHS\*  
COMPLIANT

#### PERFORMANCE CHARACTERISTICS

**Operating Temperature:** - 55 °C to + 85 °C  
(To + 125 °C with voltage derating)

**Note:** Refer to Doc. 40088

**Capacitance Range:** 0.1 µF to 1500 µF

**Capacitance Tolerance:** ± 10 %, ± 20 % standard

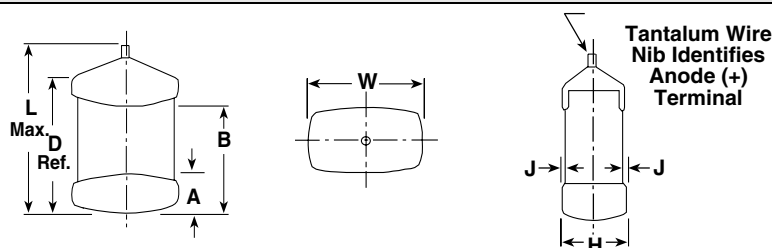
**Voltage Rating:** 4 WVDC to 50 WVDC

#### ORDERING INFORMATION

| 595D<br>TYPE | 106<br>CAPACITANCE                                                                                                             | X0<br>CAPACITANCE<br>TOLERANCE | 010<br>DC VOLTAGE RATING<br>AT + 85 °C                                                                                                                     | A<br>CASE CODE                   | 2<br>TERMINATION                                                               | T<br>PACKAGING                                                                                      |
|--------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|              | This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow. | X0 = ± 20 %<br>X9 = ± 10 %     | This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating. A decimal point is indicated by an "R" (6R3 = 6.3 volts). | See Ratings and Case Codes Table | 2 = 100 % Tin<br>4 = Gold Plated<br>8 = Solder Plated (60/40)<br>Special Order | T = Tape and Reel<br>7" [178 mm] Reel<br>W = 13" [330 mm] Reel<br>See Tape and Reel Specifications. |

**Note:** Preferred Tolerance and reel sizes are in bold.  
We reserve the right to supply higher voltage ratings and tighter capacitance tolerance capacitors in the same case size.  
Voltage substitutions will be marked with the higher voltage rating.

#### DIMENSIONS in inches [millimeters]



| CASE CODE | L (Max.)                     | W                                          | H                                          | A                              | B                              | D (REF.)       | J (MAX.)       |
|-----------|------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------|--------------------------------|----------------|----------------|
| T         | 0.087<br>[2.2]               | 0.045 ± 0.012<br>[1.1 ± 0.3]               | 0.045 ± 0.012<br>[1.1 ± 0.3]               | 0.016 ± 0.008<br>[0.4 ± 0.2]   | 0.042 ± 0.010<br>[1.07 ± 0.25] | 0.063<br>[1.6] | 0.004<br>[0.1] |
| S         | 0.126 ± 0.008<br>[3.2 ± 0.2] | 0.067 ± 0.008<br>[1.7 ± 0.2]               | 0.051 ± 0.008<br>[1.3 ± 0.2]               | 0.031 ± 0.012<br>[0.80 ± 0.30] | 0.078 ± 0.012<br>[2.0 ± 0.3]   | 0.086<br>[2.2] | 0.004<br>[0.1] |
| A         | 0.146<br>[3.7]               | 0.072 ± 0.012<br>[1.8 ± 0.3]               | 0.056 ± 0.012<br>[1.4 ± 0.3]               | 0.031 ± 0.012<br>[0.80 ± 0.30] | 0.085 ± 0.016<br>[2.2 ± 0.4]   | 0.115<br>[2.9] | 0.004<br>[0.1] |
| B         | 0.158<br>[4.0]               | 0.110 ± 0.012 - 0.016<br>[2.8 ± 0.3 - 0.4] | 0.075 ± 0.012 - 0.024<br>[1.9 ± 0.3 - 0.6] | 0.031 ± 0.012<br>[0.80 ± 0.30] | 0.097 ± 0.016<br>[2.5 ± 0.4]   | 0.138<br>[3.5] | 0.004<br>[0.1] |
| C         | 0.281<br>[7.1]               | 0.126 ± 0.012<br>[3.2 ± 0.3]               | 0.098 ± 0.012<br>[2.5 ± 0.3]               | 0.051 ± 0.012<br>[1.3 ± 0.30]  | 0.180 ± 0.024<br>[4.6 ± 0.6]   | 0.236<br>[6.0] | 0.004<br>[0.1] |
| G         | 0.205 ± 0.016<br>[5.2 ± 0.4] | 0.144 ± 0.016<br>[3.65 ± 0.4]              | 0.087<br>[2.2] Max.                        | 0.051 ± 0.012<br>[1.3 ± 0.3]   | 0.133 ± 0.016<br>[3.4 ± 0.4]   | 0.173<br>[4.4] | 0.004<br>[0.1] |
| H         | 0.205 ± 0.016<br>[5.2 ± 0.4] | 0.181 ± 0.016<br>[4.6 ± 0.4]               | 0.078<br>[2.0] Max.                        | 0.051 ± 0.012<br>[1.3 ± 0.30]  | 0.133 ± 0.016<br>[3.4 ± 0.4]   | 0.173<br>[4.4] | 0.004<br>[0.1] |
| D         | 0.293<br>[7.5]               | 0.170 ± 0.012/- 0.024<br>[4.3 ± 0.3/- 0.6] | 0.110 ± 0.012<br>[2.8 ± 0.3]               | 0.051 ± 0.012<br>[1.3 ± 0.30]  | 0.180 ± 0.024<br>[4.6 ± 0.6]   | 0.253<br>[6.4] | 0.004<br>[0.1] |
| M         | 0.129 ± 0.012<br>[3.3 ± 0.3] | 0.106 ± 0.012<br>[2.7 ± 0.3]               | 0.067 ± 0.012<br>[1.7 ± 0.3]               | 0.031 ± 0.012<br>[0.80 ± 0.3]  | 0.078 ± 0.012<br>[2.0 ± 0.3]   | 0.095<br>[2.5] | 0.004<br>[0.1] |
| R         | 0.283<br>[7.2]               | 0.235 ± 0.012/- 0.024<br>[6.0 ± 0.3/- 0.6] | 0.136 ± 0.012<br>[3.5 ± 0.3]               | 0.051 ± 0.012<br>[1.3 ± 0.30]  | 0.180 ± 0.024<br>[4.6 ± 0.6]   | 0.243<br>[6.2] | 0.004<br>[0.1] |

**Note:** The anode termination (D less B) will be a minimum of 0.010" (0.3 mm). T Case = 0.005" (0.13 mm) minimum.

\* Pb containing terminations are not RoHS compliant, exemptions may apply



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**RATINGS AND CASE CODES**

| µF   | 4 V | 6.3 V   | 10 V  | 16 V | 20 V | 25 V | 35 V | 50 V |
|------|-----|---------|-------|------|------|------|------|------|
| 0.10 |     |         |       |      |      |      |      | T    |
| 0.15 |     |         |       |      |      |      |      | T    |
| 0.22 |     |         |       |      |      |      |      | T    |
| 0.33 |     |         |       |      |      |      | T    | A    |
| 0.47 |     |         |       |      |      | T    | A    | A    |
| 0.68 |     |         |       |      | T    |      | A    | A/B  |
| 1.0  |     |         |       |      | T    | A    | A    | A/B  |
| 1.5  |     |         |       | T    |      | A    | A/B  | C    |
| 2.2  |     |         | T     | T/A  | A    | A    | B    | B/C  |
| 3.3  |     | T       |       | T    | A    | B/C  | C    | C    |
| 4.7  | T   |         | T     | A    | A/B  |      | B/C  | C    |
| 6.8  |     | T       |       | A    | A/B  | B    | C    | C/D  |
| 10   | T   |         | A     | A/B  | B    | B/C  | D    | D/R  |
| 15   | A   | A       | A/B   | A/B  | B    | C    | C/D  | R    |
| 22   |     | A/B     | A     | B/M  | B/C  | C/D  | D/R  | R    |
| 33   | A/B | S/A/B   | A/B   | B/C  |      | C/D  | R    |      |
| 47   | A   | A/B     | B     | B/C  | C/D  | D/R  | R    |      |
| 68   | A   | A/B     | B/C   | C/D  | D    | D/R  |      |      |
| 100  | A/B | B/C/M   | B/D   | C/D  | D/R  | R    |      |      |
| 120  | C   | C       | D     | R    | R    |      |      |      |
| 150  | B/C |         | C/D   | D/R  | R    |      |      |      |
| 180  | D   | D       | D/R   | R    |      |      |      |      |
| 220  | C/D | C/D/G/H | C/D/R | R    |      |      |      |      |
| 270  | C/D |         | R     |      |      |      |      |      |
| 330  | C*  | C/D/R   | D/R   | R    |      |      |      |      |
| 390  | D   | R       | R     |      |      |      |      |      |
| 470  | C/R | D/R     | R     |      |      |      |      |      |
| 560  |     | R       |       |      |      |      |      |      |
| 680  | D   | R       | R     |      |      |      |      |      |
| 1000 | R   | R       |       |      |      |      |      |      |
| 1500 | R   |         |       |      |      |      |      |      |

Note: \* Preliminary values, contact factory for availability

**STANDARD/EXTENDED RATINGS**

| CAPACITANCE<br>(µF)                                                       | CASE CODE | PART NUMBER     | MAX. DCL<br>AT + 25 °C<br>(µA) | MAX. DF<br>AT + 25 °C<br>120 Hz<br>(%) | MAX. ESR<br>AT + 25 °C<br>100 kHz (Ω) | MAX. RIPPLE<br>100 kHz<br>I <sub>rms</sub><br>(A) |
|---------------------------------------------------------------------------|-----------|-----------------|--------------------------------|----------------------------------------|---------------------------------------|---------------------------------------------------|
| 4 WVDC AT+ 85 °C, SURGE = 5.2 V . . . 2.7 WVDC AT + 125 °C, SURGE = 3.4 V |           |                 |                                |                                        |                                       |                                                   |
| 4.7                                                                       | T         | 595D475X_004T2T | 0.5                            | 6                                      | 7.8                                   | 0.06                                              |
| 10                                                                        | T         | 595D106X_004T2T | 0.5                            | 6                                      | 7.8                                   | 0.06                                              |
| 15                                                                        | A         | 595D156X_004A2T | 0.6                            | 6                                      | 1.4                                   | 0.23                                              |
| 33                                                                        | A         | 595D336X_004A2T | 1.3                            | 6                                      | 1.4                                   | 0.23                                              |
| 33                                                                        | B         | 595D336X_004B2T | 1.3                            | 6                                      | 0.47                                  | 0.43                                              |
| 47                                                                        | A         | 595D476X_004A2T | 1.9                            | 6                                      | 1.40                                  | 0.23                                              |
| 68                                                                        | A         | 595D686X_004A2T | 2.7                            | 6                                      | 1.30                                  | 0.24                                              |
| 100                                                                       | A         | 595D107X_004A2T | 4.0                            | 12                                     | 0.60                                  | 0.35                                              |
| 100                                                                       | B         | 595D107X_004B2T | 4.0                            | 8                                      | 0.45                                  | 0.44                                              |
| 120                                                                       | C         | 595D127X_004C2T | 4.8                            | 8                                      | 0.19                                  | 0.76                                              |

Note: \* Preliminary values, contact factory for availability. For 10 % tolerance, specify "9"; for 20 % tolerance, change to "0".

| STANDARD/EXTENDED RATINGS                                                  |           |                  |                                             |                                        |                                                |                                       |
|----------------------------------------------------------------------------|-----------|------------------|---------------------------------------------|----------------------------------------|------------------------------------------------|---------------------------------------|
| CAPACITANCE<br>( $\mu\text{F}$ )                                           | CASE CODE | PART NUMBER      | MAX. DCL<br>AT + 25 °C<br>( $\mu\text{A}$ ) | MAX. DF<br>AT + 25 °C<br>120 Hz<br>(%) | MAX. ESR<br>AT + 25 °C<br>100 kHz ( $\Omega$ ) | MAX. RIPPLE<br>100 kHz<br>Irms<br>(A) |
| 4 WVDC AT + 85 °C, SURGE = 5.2 V . . . 2.7 WVDC AT + 125 °C, SURGE = 3.4 V |           |                  |                                             |                                        |                                                |                                       |
| 150                                                                        | B         | 595D157X_004B2T  | 6.0                                         | 8                                      | 0.45                                           | 0.44                                  |
| 150                                                                        | C         | 595D157X_004C2T  | 6.0                                         | 8                                      | 0.18                                           | 0.78                                  |
| 180                                                                        | D         | 595D187X_004D2T  | 7.2                                         | 8                                      | 0.14                                           | 1.04                                  |
| 220                                                                        | C         | 595D227X_004C2T  | 8.8                                         | 8                                      | 0.18                                           | 0.78                                  |
| 220                                                                        | D         | 595D227X_004D2T  | 8.8                                         | 8                                      | 0.14                                           | 1.04                                  |
| 270                                                                        | C         | 595D277X_004C2T  | 10.8                                        | 8                                      | 0.17                                           | 0.80                                  |
| 270                                                                        | D         | 595D277X_004D2T  | 10.8                                        | 8                                      | 0.13                                           | 1.07                                  |
| 330*                                                                       | C*        | 595D337X_004C2T* | 13.2*                                       | 8*                                     | 0.17*                                          | 0.80*                                 |
| 390                                                                        | D         | 595D397X_004D2T  | 15.6                                        | 8                                      | 0.13                                           | 1.07                                  |
| 470                                                                        | C         | 595D477X_004C2T  | 18.8                                        | 10                                     | 0.16                                           | 0.83                                  |
| 470                                                                        | R         | 595D477X_004R2T  | 18.8                                        | 10                                     | 0.13                                           | 1.39                                  |
| 680                                                                        | D         | 595D687X_004D2T  | 27.2                                        | 12                                     | 0.13                                           | 1.07                                  |
| 1000                                                                       | R         | 595D108X_004R2T  | 40.0                                        | 16                                     | 0.07                                           | 1.88                                  |
| 1500                                                                       | R         | 595D158X_004R2T  | 60.0                                        | 20                                     | 0.07                                           | 1.88                                  |
| 6.3 WVDC AT + 85 °C, SURGE = 8 V . . . 4 WVDC AT + 125 °C, SURGE = 5 V     |           |                  |                                             |                                        |                                                |                                       |
| 3.3                                                                        | T         | 595D335X_6R3T2T  | 0.5                                         | 6                                      | 8.5                                            | 0.06                                  |
| 6.8                                                                        | T         | 595D685X_6R3T2T  | 0.5                                         | 6                                      | 8.5                                            | 0.06                                  |
| 15                                                                         | A         | 595D156X_6R3A2T  | 0.9                                         | 6                                      | 1.7                                            | 0.20                                  |
| 22                                                                         | A         | 595D226X_6R3A2T  | 1.4                                         | 6                                      | 1.7                                            | 0.20                                  |
| 22                                                                         | B         | 595D226X_6R3B2T  | 1.4                                         | 6                                      | 0.57                                           | 0.37                                  |
| 33                                                                         | A         | 595D336X_6R3A2T  | 2.1                                         | 6                                      | 1.70                                           | 0.20                                  |
| 33                                                                         | B         | 595D336X_6R3B2T  | 1.7                                         | 5                                      | 0.57                                           | 0.39                                  |
| 33                                                                         | S         | 595D336X_6R3S2T  | 2.1                                         | 8                                      | 1.30                                           | 0.20                                  |
| 47                                                                         | A         | 595D476X_6R3A2T  | 2.8                                         | 6                                      | 1.50                                           | 0.22                                  |
| 47                                                                         | B         | 595D336X_6R3B2T  | 2.4                                         | 5                                      | 0.57                                           | 0.39                                  |
| 68                                                                         | A         | 595D686X_6R3A2T  | 4.3                                         | 12                                     | 0.5                                            | 0.19                                  |
| 68                                                                         | B         | 595D686X_6R3B2T  | 4.3                                         | 6                                      | 0.55                                           | 0.38                                  |
| 100                                                                        | B         | 595D107X_6R3B2T  | 6.3                                         | 8                                      | 0.55                                           | 0.39                                  |
| 100                                                                        | C         | 595D107X_6R3C2T  | 6.3                                         | 8                                      | 0.20                                           | 0.74                                  |
| 100                                                                        | M         | 595D107X_6R3M2T  | 6.3                                         | 14                                     | 0.40                                           | 0.49                                  |
| 120                                                                        | C         | 595D127X_6R3C2T  | 7.6                                         | 8                                      | 0.19                                           | 0.76                                  |
| 180                                                                        | D         | 595D187X_6R3D2T  | 11.3                                        | 8                                      | 0.14                                           | 1.04                                  |
| 220                                                                        | C         | 595D227X_6R3C2T  | 13.9                                        | 8                                      | 0.18                                           | 0.78                                  |
| 220                                                                        | D         | 595D227X_6R3D2T  | 13.9                                        | 8                                      | 0.14                                           | 1.04                                  |
| 220                                                                        | G         | 595D227X_6R3G2T  | 13.9                                        | 8                                      | 0.18                                           | 0.75                                  |
| 220                                                                        | H         | 595D227X_6R3H2T  | 13.9                                        | 8                                      | 0.18                                           | 0.75                                  |
| 330                                                                        | C         | 595D337X_6R3C2T  | 20.8                                        | 8                                      | 0.17                                           | 0.80                                  |
| 330                                                                        | C         | 595D337X_6W3C2T  | 20.8                                        | 8                                      | 0.17                                           | 0.80                                  |
| 330                                                                        | D         | 595D337X_6R3D2T  | 20.8                                        | 8                                      | 0.14                                           | 1.04                                  |
| 330                                                                        | R         | 595D337X_6R3R2T  | 20.8                                        | 8                                      | 0.13                                           | 1.39                                  |
| 390                                                                        | R         | 595D397X_6R3R2T  | 24.6                                        | 8                                      | 0.13                                           | 1.39                                  |
| 470                                                                        | D         | 595D477X_6R3D2T  | 29.6                                        | 8                                      | 0.13                                           | 1.07                                  |
| 470                                                                        | D         | 595D477X_6W3D2T  | 29.6                                        | 10                                     | 0.12                                           | 1.44                                  |
| 470                                                                        | R         | 595D477X_6R3R2T  | 29.6                                        | 10                                     | 0.12                                           | 1.44                                  |
| 560                                                                        | R         | 595D567X_6R3R2T  | 35.3                                        | 10                                     | 0.11                                           | 1.51                                  |
| 680                                                                        | R         | 595D687X_6R3R2T  | 42.8                                        | 10                                     | 0.09                                           | 1.66                                  |
| 680                                                                        | R         | 595D687X_6W3R2T  | 42.8                                        | 10                                     | 0.09                                           | 1.66                                  |
| 1000                                                                       | R         | 595D108X_6R3R2T  | 63.0                                        | 16                                     | 0.07                                           | 1.88                                  |
| 1000                                                                       | R         | 595D108X_6W3R2T  | 63.0                                        | 16                                     | 0.07                                           | 1.88                                  |

**Note:** \* Preliminary values, contact factory for availability. For 10 % tolerance, specify "9"; for 20 % tolerance, change to "0".



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| STANDARD/EXTENDED RATINGS                                                |           |                 |                                      |                                        |                                                |                                                   |
|--------------------------------------------------------------------------|-----------|-----------------|--------------------------------------|----------------------------------------|------------------------------------------------|---------------------------------------------------|
| CAPACITANCE<br>( $\mu$ F)                                                | CASE CODE | PART NUMBER     | MAX. DCL<br>AT + 25 °C<br>( $\mu$ A) | MAX. DF<br>AT + 25 °C<br>120 Hz<br>(%) | MAX. ESR<br>AT + 25 °C<br>100 kHz ( $\Omega$ ) | MAX. RIPPLE<br>100 kHz<br>I <sub>rms</sub><br>(A) |
| 10 WVDC AT + 85 °C, SURGE = 13 V . . . 7 WVDC AT + 125 °C, SURGE = 8 V   |           |                 |                                      |                                        |                                                |                                                   |
| 2.2                                                                      | T         | 595D225X_010T2T | 0.5                                  | 6                                      | 8.6                                            | 0.06                                              |
| 4.7                                                                      | T         | 595D475X_010T2T | 0.5                                  | 6                                      | 8.6                                            | 0.06                                              |
| 10                                                                       | A         | 595D106X_010A2T | 1.0                                  | 6                                      | 1.9                                            | 0.19                                              |
| 15                                                                       | A         | 595D156X_010A2T | 1.5                                  | 6                                      | 1.8                                            | 0.20                                              |
| 15                                                                       | B         | 595D156X_010B2T | 1.5                                  | 6                                      | 0.67                                           | 0.35                                              |
| 22                                                                       | A         | 595D226X_010A2T | 2.2                                  | 6                                      | 1.80                                           | 0.20                                              |
| 33                                                                       | A         | 595D336X_010A2T | 3.3                                  | 8                                      | 3.0                                            | 0.16                                              |
| 33                                                                       | B         | 595D336X_010B2T | 3.3                                  | 6                                      | 1.90                                           | 0.21                                              |
| 47                                                                       | B         | 595D476X_010B2T | 4.7                                  | 6                                      | 0.65                                           | 0.35                                              |
| 68                                                                       | B         | 595D686X_010B2T | 6.8                                  | 6                                      | 0.65                                           | 0.36                                              |
| 68                                                                       | C         | 595D686X_010C2T | 6.8                                  | 6                                      | 0.24                                           | 0.68                                              |
| 100                                                                      | B         | 595D107X_010B2T | 10.0                                 | 12                                     | 0.4                                            | 0.46                                              |
| 100                                                                      | D         | 595D107X_010D2T | 8.0                                  | 7                                      | 0.15                                           | 1.00                                              |
| 120                                                                      | D         | 595D127X_010D2T | 12.0                                 | 8                                      | 0.14                                           | 1.04                                              |
| 150                                                                      | C         | 595D157X_010C2T | 15.0                                 | 8                                      | 0.22                                           | 0.71                                              |
| 150                                                                      | D         | 595D157X_010D2T | 15.0                                 | 8                                      | 0.14                                           | 1.04                                              |
| 180                                                                      | D         | 595D187X_010D2T | 18.0                                 | 8                                      | 0.38                                           | 0.63                                              |
| 180                                                                      | R         | 595D187X_010R2T | 18.0                                 | 8                                      | 0.13                                           | 1.39                                              |
| 220                                                                      | C         | 595D227X_010C2T | 22.0                                 | 8                                      | 0.20                                           | 0.74                                              |
| 220                                                                      | D         | 595D227X_010D2T | 22.0                                 | 8                                      | 0.14                                           | 1.04                                              |
| 220                                                                      | R         | 595D227X_010R2T | 22.0                                 | 8                                      | 0.13                                           | 1.39                                              |
| 270                                                                      | R         | 595D277X_010R2T | 27.0                                 | 8                                      | 0.13                                           | 1.39                                              |
| 330                                                                      | D         | 595D337X_010D2T | 33.0                                 | 8                                      | 0.14                                           | 1.04                                              |
| 330                                                                      | R         | 595D337X_010R2T | 33.0                                 | 8                                      | 0.13                                           | 1.39                                              |
| 390                                                                      | R         | 595D397X_010R2T | 39.0                                 | 8                                      | 0.12                                           | 1.44                                              |
| 470                                                                      | R         | 595D477X_010R2T | 47.0                                 | 8                                      | 0.12                                           | 1.44                                              |
| 680                                                                      | R         | 595D687X_010R2T | 68.0                                 | 14                                     | 0.09                                           | 1.66                                              |
| 16 WVDC AT + 85 °C, SURGE = 20 V . . . 10 WVDC AT + 125 °C, SURGE = 12 V |           |                 |                                      |                                        |                                                |                                                   |
| 1.5                                                                      | T         | 595D155X_016T2T | 0.5                                  | 6                                      | 8.7                                            | 0.06                                              |
| 2.2                                                                      | T         | 595D225X_016T2T | 0.5                                  | 6                                      | 8.7                                            | 0.06                                              |
| 2.2                                                                      | A         | 595D225X_010D2T | 0.4                                  | 5                                      | 3.9                                            | 0.14                                              |
| 3.3                                                                      | T         | 595D335X_016T2T | 0.5                                  | 6                                      | 8.6                                            | 0.06                                              |
| 4.7                                                                      | A         | 595D475X_016A2T | 0.8                                  | 6                                      | 2.9                                            | 0.16                                              |
| 6.8                                                                      | A         | 595D685X_016A2T | 1.1                                  | 6                                      | 2.8                                            | 0.16                                              |
| 10                                                                       | A         | 595D106X_016A2T | 1.6                                  | 6                                      | 2.5                                            | 0.17                                              |
| 10                                                                       | B         | 595D106X_016B2T | 1.6                                  | 6                                      | 0.76                                           | 0.32                                              |
| 15                                                                       | A         | 595D156X_016A2T | 2.4                                  | 6                                      | 2.40                                           | 0.17                                              |
| 15                                                                       | B         | 595D156X_016B2T | 2.4                                  | 6                                      | 0.75                                           | 0.33                                              |
| 22                                                                       | B         | 595D226X_016B2T | 3.5                                  | 6                                      | 0.75                                           | 0.32                                              |
| 22                                                                       | M         | 595D226X_016M2T | 3.5                                  | 6                                      | 0.50                                           | 0.44                                              |
| 33                                                                       | B         | 595D336X_016B2T | 5.3                                  | 6                                      | 0.72                                           | 0.33                                              |
| 33                                                                       | C         | 595D336X_016C2T | 5.3                                  | 6                                      | 0.29                                           | 0.62                                              |
| 47                                                                       | B         | 595D476X_016B2T | 7.5                                  | 6                                      | 0.72                                           | 0.33                                              |
| 47                                                                       | C         | 595D476X_016C2T | 7.5                                  | 6                                      | 0.28                                           | 0.63                                              |
| 68                                                                       | C         | 595D686X_016C2T | 10.9                                 | 6                                      | 0.26                                           | 0.64                                              |
| 68                                                                       | D         | 595D686X_016D2T | 10.9                                 | 6                                      | 0.14                                           | 1.04                                              |
| 100                                                                      | C         | 595D107X_016C2T | 16.0                                 | 8                                      | 0.27                                           | 0.64                                              |

**Note:** \* Preliminary values, contact factory for availability. For 10 % tolerance, specify "9"; for 20 % tolerance, change to "0".

| STANDARD/EXTENDED RATINGS                                                |           |                 |                                      |                                        |                                                |                                                   |
|--------------------------------------------------------------------------|-----------|-----------------|--------------------------------------|----------------------------------------|------------------------------------------------|---------------------------------------------------|
| CAPACITANCE<br>( $\mu$ F)                                                | CASE CODE | PART NUMBER     | MAX. DCL<br>AT + 25 °C<br>( $\mu$ A) | MAX. DF<br>AT + 25 °C<br>120 Hz<br>(%) | MAX. ESR<br>AT + 25 °C<br>100 kHz ( $\Omega$ ) | MAX. RIPPLE<br>100 kHz<br>I <sub>rms</sub><br>(A) |
| 16 WVDC AT + 85 °C, SURGE = 20 V . . . 10 WVDC AT + 125 °C, SURGE = 12 V |           |                 |                                      |                                        |                                                |                                                   |
| 100                                                                      | D         | 595D107X_016D2T | 16.0                                 | 8                                      | 0.14                                           | 1.04                                              |
| 120                                                                      | R         | 595D127X_016R2T | 19.2                                 | 8                                      | 0.14                                           | 1.34                                              |
| 150                                                                      | D         | 595D157X_016D2T | 24.0                                 | 8                                      | 0.14                                           | 1.04                                              |
| 150                                                                      | R         | 595D157X_016R2T | 24.0                                 | 8                                      | 0.13                                           | 1.39                                              |
| 180                                                                      | R         | 595D187X_016R2T | 28.8                                 | 8                                      | 0.13                                           | 1.39                                              |
| 220                                                                      | R         | 595D227X_016R2T | 35.2                                 | 8                                      | 0.12                                           | 1.44                                              |
| 330                                                                      | R         | 595D337X_016R2T | 52.8                                 | 14                                     | 0.11                                           | 1.51                                              |
| 20 WVDC AT + 85 °C, SURGE = 26 V . . . 13 WVDC AT + 125 °C, SURGE = 16 V |           |                 |                                      |                                        |                                                |                                                   |
| 0.68                                                                     | T         | 595D684X_020T2T | 0.5                                  | 4                                      | 10.8                                           | 0.05                                              |
| 1.0                                                                      | T         | 595D105X_020T2T | 0.5                                  | 4                                      | 9.0                                            | 0.06                                              |
| 2.2                                                                      | A         | 595D225X_020A2T | 0.5                                  | 6                                      | 3.8                                            | 0.14                                              |
| 3.3                                                                      | A         | 595D335X_020A2T | 0.7                                  | 6                                      | 3.8                                            | 0.14                                              |
| 4.7                                                                      | A         | 595D475X_020A2T | 0.9                                  | 6                                      | 3.1                                            | 0.15                                              |
| 4.7                                                                      | B         | 595D475X_020B2T | 0.9                                  | 6                                      | 0.95                                           | 0.29                                              |
| 6.8                                                                      | A         | 595D685X_020A2T | 1.4                                  | 6                                      | 3.0                                            | 0.15                                              |
| 6.8                                                                      | B         | 595D685X_020B2T | 1.4                                  | 6                                      | 0.95                                           | 0.29                                              |
| 10                                                                       | B         | 595D106X_020B2T | 2.0                                  | 6                                      | 1.0                                            | 0.28                                              |
| 15                                                                       | B         | 595D156X_020B2T | 3.0                                  | 6                                      | 1.0                                            | 0.28                                              |
| 22                                                                       | B         | 595D226X_020B2T | 4.4                                  | 6                                      | 0.90                                           | 0.31                                              |
| 22                                                                       | C         | 595D226X_020C2T | 4.4                                  | 6                                      | 0.38                                           | 0.54                                              |
| 47                                                                       | C         | 595D476X_020C2T | 9.4                                  | 6                                      | 0.35                                           | 0.56                                              |
| 47                                                                       | D         | 595D476X_020D2T | 9.4                                  | 6                                      | 0.19                                           | 0.89                                              |
| 68                                                                       | D         | 595D686X_020D2T | 12.2                                 | 6                                      | 0.19                                           | 0.89                                              |
| 100                                                                      | D         | 595D107X_020D2T | 20.0                                 | 8                                      | 0.18                                           | 0.91                                              |
| 100                                                                      | R         | 595D107X_020R2T | 20.0                                 | 8                                      | 0.14                                           | 1.34                                              |
| 120                                                                      | R         | 595D127X_020R2T | 24.0                                 | 8                                      | 0.14                                           | 1.34                                              |
| 150                                                                      | R         | 595D157X_020R2T | 30.0                                 | 8                                      | 0.14                                           | 1.34                                              |
| 25 WVDC AT + 85 °C, SURGE = 32 V . . . 17 WVDC AT + 125 °C, SURGE = 20 V |           |                 |                                      |                                        |                                                |                                                   |
| 0.47                                                                     | T         | 595D474X_025T2T | 0.5                                  | 4                                      | 13.5                                           | 0.05                                              |
| 1                                                                        | A         | 595D105X_025A2T | 0.4                                  | 4                                      | 4.2                                            | 0.13                                              |
| 1.5                                                                      | A         | 595D155X_025A2T | 0.5                                  | 6                                      | 3.8                                            | 0.14                                              |
| 2.2                                                                      | A         | 595D225X_025A2T | 0.6                                  | 6                                      | 3.8                                            | 0.14                                              |
| 3.3                                                                      | B         | 595D335X_025B2T | 0.8                                  | 6                                      | 1.9                                            | 0.21                                              |
| 4.7                                                                      | C         | 595D475X_025C2T | 1.3                                  | 5                                      | 0.68                                           | 0.40                                              |
| 6.8                                                                      | B         | 595D685X_025B2T | 1.7                                  | 6                                      | 1.5                                            | 0.23                                              |
| 10                                                                       | B         | 595D106X_025B2T | 2.5                                  | 6                                      | 1.5                                            | 0.23                                              |
| 10                                                                       | C         | 595D106X_025C2T | 2.5                                  | 6                                      | 0.57                                           | 0.44                                              |
| 15                                                                       | C         | 595D156X_025C2T | 3.8                                  | 6                                      | 0.56                                           | 0.44                                              |
| 22                                                                       | C         | 595D226X_025C2T | 5.5                                  | 6                                      | 0.50                                           | 0.47                                              |
| 22                                                                       | D         | 595D226X_025D2T | 5.5                                  | 6                                      | 0.28                                           | 0.73                                              |
| 33                                                                       | C         | 595D336X_025C2T | 8.3                                  | 6                                      | 0.45                                           | 0.49                                              |
| 33                                                                       | D         | 595D336X_025D2T | 8.3                                  | 6                                      | 0.27                                           | 0.75                                              |
| 47                                                                       | D         | 595D476X_025D2T | 11.8                                 | 6                                      | 0.26                                           | 0.76                                              |
| 47                                                                       | R         | 595D476X_025R2T | 11.8                                 | 6                                      | 0.20                                           | 1.12                                              |
| 68                                                                       | D         | 595D686X_025D2T | 17.0                                 | 8                                      | 0.26                                           | 0.76                                              |
| 68                                                                       | R         | 595D686X_025R2T | 17.0                                 | 6                                      | 0.20                                           | 1.12                                              |
| 100                                                                      | R         | 595D107X_025R2T | 25.0                                 | 8                                      | 0.20                                           | 1.12                                              |

**Note:** \* Preliminary values, contact factory for availability. For 10 % tolerance, specify "9"; for 20 % tolerance, change to "0".

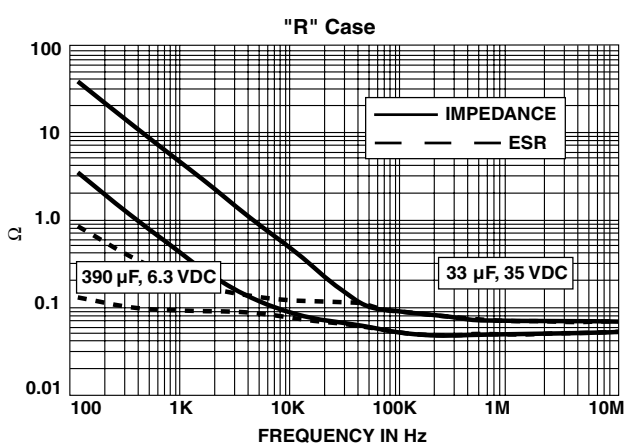
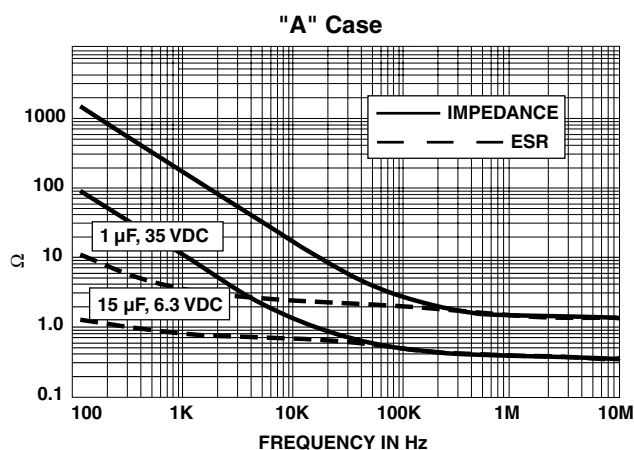
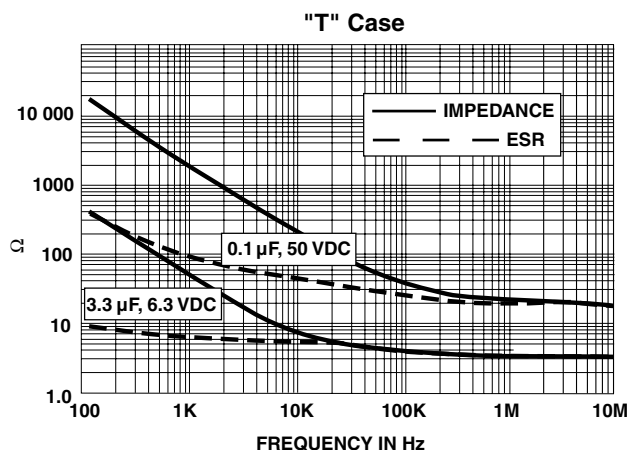


Solid Tantalum Chip Capacitors  
TANTAMOUNT® Conformal Coated,  
Maximum CV

Vishay Sprague

| STANDARD/EXTENDED RATINGS                                                |           |                 |                                      |                                        |                                                |                                                   |
|--------------------------------------------------------------------------|-----------|-----------------|--------------------------------------|----------------------------------------|------------------------------------------------|---------------------------------------------------|
| CAPACITANCE<br>( $\mu$ F)                                                | CASE CODE | PART NUMBER     | MAX. DCL<br>AT + 25 °C<br>( $\mu$ A) | MAX. DF<br>AT + 25 °C<br>120 Hz<br>(%) | MAX. ESR<br>AT + 25 °C<br>100 kHz ( $\Omega$ ) | MAX. RIPPLE<br>100 kHz<br>I <sub>rms</sub><br>(A) |
| 35 WVDC AT + 85 °C, SURGE = 46 V . . . 23 WVDC AT + 125 °C, SURGE = 28 V |           |                 |                                      |                                        |                                                |                                                   |
| 0.33                                                                     | T         | 595D334X_035T2T | 0.5                                  | 4                                      | 14.4                                           | 0.05                                              |
| 0.47                                                                     | A         | 595D474X_035A2T | 0.5                                  | 4                                      | 4.3                                            | 0.13                                              |
| 0.68                                                                     | A         | 595D684X_035A2T | 0.5                                  | 4                                      | 4.2                                            | 0.13                                              |
| 1.0                                                                      | A         | 595D105X_035A2T | 0.5                                  | 4                                      | 4.1                                            | 0.13                                              |
| 1.5                                                                      | A         | 595D155X_035A2T | 0.5                                  | 6                                      | 3.8                                            | 0.14                                              |
| 1.5                                                                      | B         | 595D155X_035B2T | 0.5                                  | 6                                      | 2.8                                            | 0.17                                              |
| 2.2                                                                      | B         | 595D225X_035B2T | 0.8                                  | 6                                      | 2.3                                            | 0.19                                              |
| 3.3                                                                      | C         | 595D335X_035C2T | 1.2                                  | 6                                      | 0.75                                           | 0.38                                              |
| 4.7                                                                      | B         | 595D475X_035B2T | 1.6                                  | 6                                      | 2.2                                            | 0.19                                              |
| 4.7                                                                      | C         | 595D475X_035C2T | 1.6                                  | 6                                      | 0.66                                           | 0.41                                              |
| 6.8                                                                      | C         | 595D685X_035C2T | 2.4                                  | 6                                      | 0.63                                           | 0.42                                              |
| 10                                                                       | D         | 595D106X_035D2T | 3.5                                  | 6                                      | 0.43                                           | 0.59                                              |
| 15                                                                       | C         | 595D156X_035C2T | 5.3                                  | 6                                      | 0.60                                           | 0.43                                              |
| 15                                                                       | D         | 595D156X_035D2T | 5.3                                  | 6                                      | 0.41                                           | 0.60                                              |
| 22                                                                       | D         | 595D226X_035D2T | 7.7                                  | 6                                      | 0.32                                           | 0.68                                              |
| 22                                                                       | R         | 595D226X_035R2T | 7.7                                  | 6                                      | 0.28                                           | 0.94                                              |
| 33                                                                       | R         | 595D336X_035R2T | 11.6                                 | 6                                      | 0.28                                           | 0.94                                              |
| 47                                                                       | R         | 595D476X_035R2T | 16.5                                 | 6                                      | 0.28                                           | 0.94                                              |
| 50 WVDC AT + 85 °C, SURGE = 65 V . . . 33 WVDC AT + 125 °C, SURGE = 38 V |           |                 |                                      |                                        |                                                |                                                   |
| 0.10                                                                     | T         | 595D104X_050T2T | 0.5                                  | 4                                      | 22.5                                           | 0.04                                              |
| 0.15                                                                     | T         | 595D154X_050T2T | 0.5                                  | 4                                      | 18.0                                           | 0.04                                              |
| 0.22                                                                     | T         | 595D224X_050T2T | 0.5                                  | 4                                      | 15.3                                           | 0.04                                              |
| 0.33                                                                     | A         | 595D334X_050A2T | 0.5                                  | 4                                      | 8.1                                            | 0.09                                              |
| 0.47                                                                     | A         | 595D474X_050A2T | 0.5                                  | 4                                      | 7.2                                            | 0.10                                              |
| 0.68                                                                     | A         | 595D684X_050A2T | 0.5                                  | 4                                      | 6.1                                            | 0.11                                              |
| 0.68                                                                     | B         | 595D684X_050B2T | 0.5                                  | 4                                      | 5.4                                            | 0.12                                              |
| 1.0                                                                      | A         | 595D105X_050A2T | 0.5                                  | 4                                      | 6.0                                            | 0.11                                              |
| 1.0                                                                      | B         | 595D105X_050B2T | 0.5                                  | 4                                      | 5.0                                            | 0.13                                              |
| 1.5                                                                      | C         | 595D155X_050C2T | 0.8                                  | 6                                      | 1.8                                            | 0.25                                              |
| 2.2                                                                      | B         | 595D225X_050B2T | 1.1                                  | 6                                      | 3.2                                            | 0.16                                              |
| 2.2                                                                      | C         | 595D225X_050C2T | 1.1                                  | 6                                      | 1.7                                            | 0.25                                              |
| 3.3                                                                      | C         | 595D335X_050C2T | 1.7                                  | 6                                      | 1.6                                            | 0.26                                              |
| 4.7                                                                      | C         | 595D475X_050C2T | 2.4                                  | 6                                      | 1.4                                            | 0.28                                              |
| 6.8                                                                      | C         | 595D685X_050C2T | 3.4                                  | 6                                      | 1.3                                            | 0.29                                              |
| 6.8                                                                      | D         | 595D685X_050D2T | 3.4                                  | 6                                      | 0.82                                           | 0.43                                              |
| 10                                                                       | D         | 595D106X_050D2T | 5.0                                  | 6                                      | 0.80                                           | 0.43                                              |
| 10                                                                       | R         | 595D106X_050R2T | 5.0                                  | 6                                      | 0.65                                           | 0.62                                              |
| 15                                                                       | R         | 595D156X_050R2T | 7.5                                  | 6                                      | 0.40                                           | 0.79                                              |
| 22                                                                       | R         | 595D226X_050R2T | 11.0                                 | 6                                      | 0.39                                           | 0.80                                              |

## TYPICAL CURVES AT + 25 °C, IMPEDANCE AND ESR VS. FREQUENCY





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