

## 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

| <b>ORDERING INFORMATION</b>  |  |                             |  |                                  |  |   |
|--|--|-----------------------------|--|----------------------------------|--|---|
| 595D<br>TYPE   | 106<br>CAPACITANCE   | X0<br>CAPACITANCE TOLERANCE | 010<br>DC VOLTAGE RATING 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. |
| <p><b>Note:</b> 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.</p> |  |                             |  |                                  |  |   |

| <b>DIMENSIONS</b> 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 (µF)  | CASE CODE | PART NUMBER     | MAX. DCL AT + 25 °C (µA) | MAX. DF AT + 25 °C 120 Hz (%) | MAX. ESR AT + 25 °C 100 kHz (Ω) | MAX. RIPPLE 100 kHz Irms (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>( $\mu$ 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) |
| <b>4 WVDC AT + 85 °C, SURGE = 5.2 V . . . 2.7 WVDC AT + 125 °C, SURGE = 3.4 V</b> |           |                  |                                      |  |  |   |
| 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  |
| <b>6.3 WVDC AT + 85 °C, SURGE = 8 V . . . 4 WVDC AT + 125 °C, SURGE = 5 V</b>     |           |                  |                                      |  |  |   |
| 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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| <b>STANDARD/EXTENDED RATINGS</b>  |           |                 |                                      |  |  |   |  |
|---|-----------|-----------------|--------------------------------------|--|--|---|--|
| 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) |  |
| <b>10 WVDC AT + 85 °C, SURGE = 13 V . . . 7 WVDC AT + 125 °C, SURGE = 8 V</b>   |           |                 |                                      |  |  |   |  |
| 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  |  |
| <b>16 WVDC AT + 85 °C, SURGE = 20 V . . . 10 WVDC AT + 125 °C, SURGE = 12 V</b> |           |                 |                                      |  |  |   |  |
| 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".



| <b>STANDARD/EXTENDED RATINGS</b>  |           |                 |   |  |  |   |  |
|---|-----------|-----------------|---|--|--|---|--|
| 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>I <sub>rms</sub><br>(A) |  |
| <b>16 WVDC AT + 85 °C, SURGE = 20 V . . . 10 WVDC AT + 125 °C, SURGE = 12 V</b> |           |                 |   |  |  |   |  |
| 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  |  |
| <b>20 WVDC AT + 85 °C, SURGE = 26 V . . . 13 WVDC AT + 125 °C, SURGE = 16 V</b> |           |                 |   |  |  |   |  |
| 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  |  |
| <b>25 WVDC AT + 85 °C, SURGE = 32 V . . . 17 WVDC AT + 125 °C, SURGE = 20 V</b> |           |                 |   |  |  |   |  |
| 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".



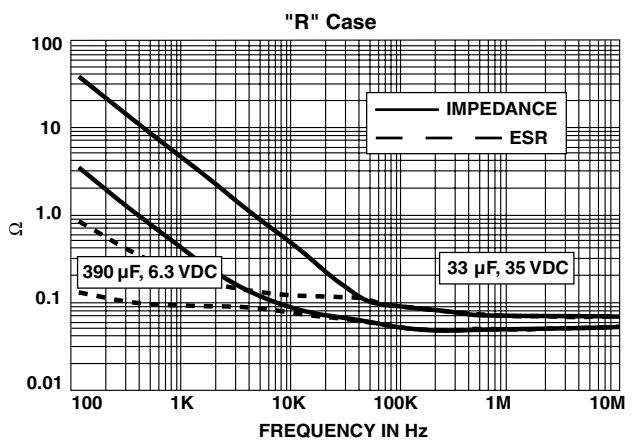
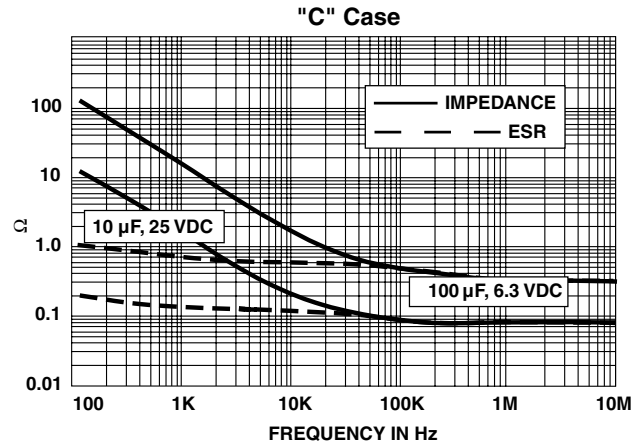
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| <b>STANDARD/EXTENDED RATINGS</b>  |                  |                    |  |  |  |  |
|---|------------------|--------------------|--|--|--|--|
| <b>CAPACITANCE<br/>(<math>\mu</math>F)</b>                                      | <b>CASE CODE</b> | <b>PART NUMBER</b> | <b>MAX. DCL<br/>AT + 25 °C<br/>(<math>\mu</math>A)</b> | <b>MAX. DF<br/>AT + 25 °C<br/>120 Hz<br/>(%)</b> | <b>MAX. ESR<br/>AT + 25 °C<br/>100 kHz (<math>\Omega</math>)</b> | <b>MAX. RIPPLE<br/>100 kHz<br/>I<sub>rms</sub><br/>(A)</b> |
| <b>35 WVDC AT + 85 °C, SURGE = 46 V . . . 23 WVDC AT + 125 °C, SURGE = 28 V</b> |                  |                    |  |  |  |  |
| 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   |
| <b>50 WVDC AT + 85 °C, SURGE = 65 V . . . 33 WVDC AT + 125 °C, SURGE = 38 V</b> |                  |                    |  |  |  |  |
| 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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