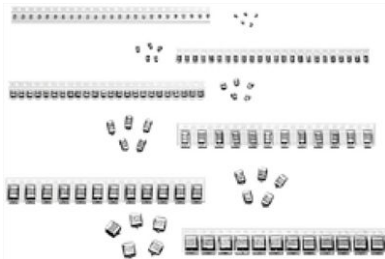


Solid Tantalum Chip Capacitors TANTAMOUNT[®], Conformal Coated, Maximum CV



FEATURES

- Large capacitance rating range
- Terminations: 100 % tin (2) standard tin/lead available
- Mounting: Surface mount
- 8 mm, 12 mm tape and reel packaging available per EIA 481 and reeling per IEC 60286-3. 7" [178 mm] standard. 13" [330 mm] available.
- Case code compatibility with EIA 535BAAC and CECC 30801
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS*
COMPLIANT

Note

* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

PERFORMANCE CHARACTERISTICS

www.vishay.com/doc?40088

Operating Temperature: - 55 °C to + 125 °C
(above 85 °C, voltage derating is required)

Capacitance Range: 0.1 μF to 1500 μF

Capacitance Tolerance: ± 10 %, ± 20 % standard

Voltage Rating: 4 V_{DC} to 50 V_{DC}

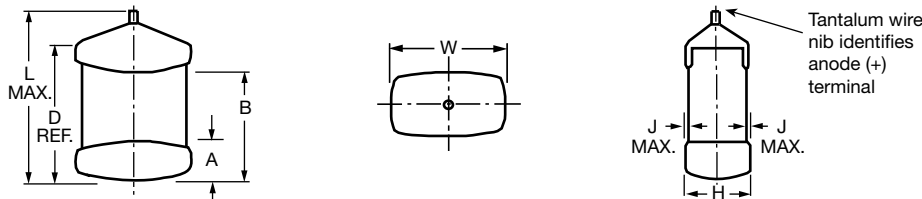
ORDERING INFORMATION

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

Note

- Preferred tolerances and reel sizes are in bold. We reserve the right to substitute form-fit-function replacement products with higher voltage rating, tighter capacitance tolerance, lower ESR (e.g., 594D series), or increased reliability screening (T95 series).

DIMENSIONS in inches [millimeters]



| CASE CODE | L MAX. | W | H | A | B | D REF. | J MAX. |
|-----------|----------------|--|--|------------------------------|--------------------------------|----------------|----------------|
| T | 0.087 [2.2] | 0.043 ± 0.012 [1.1 ± 0.3] | 0.043 ± 0.012 [1.1 ± 0.3] | 0.016 ± 0.008 [0.4 ± 0.2] | 0.042 ± 0.001 [1.07 ± 0.25] | 0.063 [1.6] | 0.004 [0.1] |
| S | 0.134 [3.4] | 0.067 ± 0.008 [1.7 ± 0.2] | 0.051 ± 0.008 [1.3 ± 0.3] | 0.031 ± 0.012 [0.8 ± 0.3] | 0.079 ± 0.012 [2.0 ± 0.3] | 0.087 [2.2] | 0.004 [0.1] |
| A | 0.146 [3.7] | 0.071 ± 0.012 [1.8 ± 0.3] | 0.055 ± 0.012 [1.4 ± 0.3] | 0.031 ± 0.012 [0.8 ± 0.3] | 0.087 ± 0.016 [2.2 ± 0.4] | 0.115 [2.9] | 0.004 [0.1] |
| M | 0.142 [3.6] | 0.106 ± 0.012 [2.7 ± 0.3] | 0.067 ± 0.012 [1.7 ± 0.3] | 0.031 ± 0.012 [0.8 ± 0.3] | 0.079 ± 0.012 [2.0 ± 0.3] | 0.253 [6.4] | 0.004 [0.1] |
| B | 0.157 [4.0] | 0.110 + 0.012/- 0.016 [2.8 + 0.3/- 0.4] | 0.075 + 0.012/- 0.024 [1.9 + 0.3/- 0.6] | 0.031 ± 0.012 [0.8 ± 0.3] | 0.098 ± 0.016 [2.5 ± 0.4] | 0.138 [3.5] | 0.004 [0.1] |
| C | 0.280 [7.1] | 0.126 ± 0.012 [3.2 ± 0.3] | 0.098 ± 0.012 [2.5 ± 0.3] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.236 [6.0] | 0.004 [0.1] |
| G | 0.220 [5.6] | 0.144 ± 0.016 [3.65 ± 0.4] | 0.087 [2.2 max.] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.134 ± 0.016 [3.4 ± 0.4] | 0.236 [6.0] | 0.004 [0.1] |
| D | 0.295 [7.5] | 0.169 ± 0.012/- 0.024 [4.3 + 0.3/- 0.6] | 0.110 ± 0.012 [2.8 ± 0.3] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.252 [6.4] | 0.004 [0.1] |
| R | 0.283 [7.2] | 0.236 + 0.012/- 0.024 [6.0 + 0.3/- 0.6] | 0.138 + 0.012/- 0.016 [3.5 + 0.3/- 0.4] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.244 [6.2] | 0.004 [0.1] |

Note

- The anode termination (D less B) will be a minimum of 0.012" [0.3 mm]. T case = 0.005" [0.13 mm] minimum.



| 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/A |
| 0.33 | | | | | | | T | A |
| 0.47 | | | | | | T | A | A |
| 0.68 | | | | | T | A | A | A/B |
| 1.0 | | | | | T | A | A | A/B |
| 1.5 | | | | T | | A | A/B | B/C |
| 2.2 | | | T | T/A | A | A/B | B | B/C |
| 3.3 | | T/A | A | T | A | B | B/C | C |
| 4.7 | T | A | T/A | A | A/B | B/C | B/C | C |
| 6.8 | T | T/A | A | A | A/B | B/C | C | C/D |
| 10 | T/A | A | 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 | B/C | C/D | D/R | R |
| 33 | A/B | S/A/B/C | A/B | B/C | | C/D | R | |
| 47 | A | A/B | B /C | B/C | C/D | D/R | R | |
| 68 | A | A/B | B/C | C/D | C/D/R | D/R | | |
| 100 | A/B | M/B/C | B/C/D | C/D/R | D/R | R | | |
| 120 | C | C | C/D | R | R | | | |
| 150 | B/C | D | C/D | D/R | D/R | | | |
| 180 | D | D | D/R | R | R | | | |
| 220 | C/D | C/G/D | 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 | | | | | | | |

| STANDARD 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 I _{RMS} (A) |
| 4 V _{DC} AT + 85 °C, 2.7 V _{DC} AT + 125 °C | | | | | | |
| 4.7 | T | 595D475(1)004T(2)(3) | 0.5 | 6 | 7.80 | 0.06 |
| 6.8 | T | 595D685(1)004T(2)(3) | 0.5 | 6 | 7.80 | 0.06 |
| 10 | T | 595D106(1)004T(2)(3) | 0.5 | 6 | 7.80 | 0.06 |
| 10 | A | 595D106(1)004A(2)(3) | 0.5 | 6 | 1.90 | 0.20 |
| 15 | A | 595D156(1)004A(2)(3) | 0.6 | 6 | 1.40 | 0.23 |
| 33 | A | 595D336(1)004A(2)(3) | 1.3 | 6 | 1.40 | 0.23 |
| 33 | B | 595D336(1)004B(2)(3) | 1.3 | 6 | 0.47 | 0.43 |
| 47 | A | 595D476(1)004A(2)(3) | 1.9 | 6 | 1.40 | 0.23 |
| 68 | A | 595D686(1)004A(2)(3) | 2.7 | 6 | 1.30 | 0.24 |
| 100 | A | 595D107(1)004A(2)(3) | 4.0 | 12 | 0.60 | 0.35 |
| 100 | B | 595D107(1)004B(2)(3) | 4.0 | 8 | 0.45 | 0.43 |
| 120 | C | 595D127(1)004C(2)(3) | 4.8 | 8 | 0.19 | 0.76 |
| 150 | B | 595D157(1)004B(2)(3) | 6.0 | 8 | 0.45 | 0.43 |
| 150 | C | 595D157(1)004C(2)(3) | 6.0 | 8 | 0.18 | 0.78 |
| 180 | D | 595D187(1)004D(2)(3) | 7.2 | 8 | 0.14 | 1.04 |
| 220 | C | 595D227(1)004C(2)(3) | 8.8 | 8 | 0.18 | 0.78 |
| 220 | D | 595D227(1)004D(2)(3) | 8.8 | 8 | 0.14 | 1.04 |

Note

- Part number definitions:
 - (1) Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
 - (2) Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
 - (3) Packaging code: For 7" reels specify "T", for 13" reels specify "W"



| STANDARD 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 I_{RMS} (A) |
| 4 V_{DC} AT + 85 °C, 2.7 V_{DC} AT + 125 °C | | | | | | |
| 270 | C | 595D277(1)004C(2)(3) | 10.8 | 8 | 0.17 | 0.80 |
| 270 | D | 595D277(1)004D(2)(3) | 10.8 | 8 | 0.13 | 1.07 |
| 330 | C | 595D337(1)004C(2)(3) | 13.2 | 8 | 0.17 | 0.80 |
| 390 | D | 595D397(1)004D(2)(3) | 15.6 | 8 | 0.13 | 1.07 |
| 470 | C | 595D477(1)004C(2)(3) | 18.8 | 10 | 0.16 | 0.83 |
| 470 | R | 595D477(1)004R(2)(3) | 18.8 | 10 | 0.13 | 1.39 |
| 680 | D | 595D687(1)004D(2)(3) | 27.2 | 12 | 0.13 | 1.07 |
| 1000 | R | 595D108(1)004R(2)(3) | 40.0 | 16 | 0.07 | 1.89 |
| 1500 | R | 595D158(1)004R(2)(3) | 60.0 | 20 | 0.07 | 1.89 |
| 6.3 V_{DC} AT + 85 °C, 4 V_{DC} AT + 125 °C | | | | | | |
| 3.3 | T | 595D335(1)6R3T(2)(3) | 0.5 | 6 | 8.50 | 0.06 |
| 3.3 | A | 595D335(1)6R3A(2)(3) | 0.5 | 6 | 3.80 | 0.14 |
| 4.7 | A | 595D475(1)6R3A(2)(3) | 0.5 | 6 | 3.80 | 0.14 |
| 6.8 | T | 595D685(1)6R3T(2)(3) | 0.5 | 6 | 8.50 | 0.06 |
| 6.8 | A | 595D685(1)6R3A(2)(3) | 0.5 | 6 | 3.60 | 0.14 |
| 10 | A | 595D106(1)6R3A(2)(3) | 0.6 | 6 | 1.90 | 0.20 |
| 15 | A | 595D156(1)6R3A(2)(3) | 0.9 | 6 | 1.70 | 0.21 |
| 22 | A | 595D226(1)6R3A(2)(3) | 1.4 | 6 | 1.70 | 0.21 |
| 22 | B | 595D226(1)6R3B(2)(3) | 1.4 | 6 | 0.57 | 0.39 |
| 33 | S | 595D336(1)6R3S(2)(3) | 2.1 | 8 | 1.30 | 0.21 |
| 33 | A | 595D336(1)6R3A(2)(3) | 2.1 | 6 | 1.70 | 0.21 |
| 33 | B | 595D336(1)6R3B(2)(3) | 2.1 | 5 | 0.57 | 0.39 |
| 33 | C | 595D336(1)6R3C(2)(3) | 2.1 | 9 | 0.29 | 0.62 |
| 47 | A | 595D476(1)6R3A(2)(3) | 2.8 | 6 | 1.50 | 0.22 |
| 47 | B | 595D476(1)6R3B(2)(3) | 2.8 | 5 | 0.57 | 0.39 |
| 68 | A | 595D686(1)6R3A(2)(3) | 4.3 | 12 | 0.50 | 0.39 |
| 68 | B | 595D686(1)6R3B(2)(3) | 4.3 | 6 | 0.55 | 0.39 |
| 100 | M | 595D107(1)6R3M(2)(3) | 6.3 | 14 | 0.40 | 0.49 |
| 100 | B | 595D107(1)6R3B(2)(3) | 6.3 | 8 | 0.55 | 0.39 |
| 100 | C | 595D107(1)6R3C(2)(3) | 6.3 | 8 | 0.20 | 0.74 |
| 120 | C | 595D127(1)6R3C(2)(3) | 7.6 | 8 | 0.19 | 0.76 |
| 150 | D | 595D157(1)6R3D(2)(3) | 9.5 | 8 | 0.50 | 0.55 |
| 180 | D | 595D187(1)6R3D(2)(3) | 11.3 | 8 | 0.14 | 1.04 |
| 220 | C | 595D227(1)6R3C(2)(3) | 13.9 | 8 | 0.18 | 0.78 |
| 220 | G | 595D227(1)6R3G(2)(3) | 13.9 | 8 | 0.18 | 0.80 |
| 220 | D | 595D227(1)6R3D(2)(3) | 13.9 | 8 | 0.14 | 1.04 |
| 330 | C | 595D337(1)6R3C(2)(3) | 20.8 | 8 | 0.17 | 0.80 |
| 330 | D | 595D337(1)6R3D(2)(3) | 20.8 | 8 | 0.14 | 1.04 |
| 330 | R | 595D337(1)6R3R(2)(3) | 20.8 | 8 | 0.13 | 1.39 |
| 390 | R | 595D397(1)6R3R(2)(3) | 24.6 | 8 | 0.13 | 1.39 |
| 470 | D | 595D477(1)6R3D(2)(3) | 29.6 | 8 | 0.13 | 1.07 |
| 470 | R | 595D477(1)6R3R(2)(3) | 29.6 | 10 | 0.12 | 1.44 |
| 560 | R | 595D567(1)6R3R(2)(3) | 35.3 | 10 | 0.11 | 1.51 |
| 680 | R | 595D687(1)6R3R(2)(3) | 42.8 | 10 | 0.09 | 1.67 |
| 1000 | R | 595D108(1)6R3R(2)(3) | 63.0 | 16 | 0.07 | 1.89 |

Note

- Part number definitions:
 - (1) Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
 - (2) Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
 - (3) Packaging code: For 7" reels specify "T", for 13" reels specify "W"



| STANDARD 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 I_{RMS} (A) |
| 10 V_{DC} AT + 85 °C, 7 V_{DC} AT + 125 °C | | | | | | |
| 2.2 | T | 595D225(1)010T(2)(3) | 0.5 | 6 | 8.60 | 0.06 |
| 3.3 | A | 595D335(1)010A(2)(3) | 0.5 | 6 | 3.80 | 0.14 |
| 4.7 | T | 595D475(1)010T(2)(3) | 0.5 | 6 | 8.60 | 0.06 |
| 4.7 | A | 595D475(1)010A(2)(3) | 0.5 | 6 | 3.60 | 0.14 |
| 6.8 | A | 595D685(1)010A(2)(3) | 0.7 | 6 | 3.60 | 0.14 |
| 10 | A | 595D106(1)010A(2)(3) | 1.0 | 6 | 1.90 | 0.20 |
| 15 | A | 595D156(1)010A(2)(3) | 1.5 | 6 | 1.80 | 0.20 |
| 15 | B | 595D156(1)010B(2)(3) | 1.5 | 6 | 0.67 | 0.36 |
| 22 | A | 595D226(1)010A(2)(3) | 2.2 | 6 | 1.80 | 0.20 |
| 22 | B | 595D226(1)010B(2)(3) | 2.2 | 6 | 1.90 | 0.21 |
| 33 | A | 595D336(1)010A(2)(3) | 3.3 | 8 | 3.00 | 0.16 |
| 33 | B | 595D336(1)010B(2)(3) | 3.3 | 6 | 1.90 | 0.21 |
| 47 | B | 595D476(1)010B(2)(3) | 4.7 | 6 | 0.65 | 0.36 |
| 47 | C | 595D476(1)010C(2)(3) | 4.7 | 6 | 0.30 | 0.61 |
| 68 | B | 595D686(1)010B(2)(3) | 6.8 | 6 | 0.65 | 0.36 |
| 68 | C | 595D686(1)010C(2)(3) | 6.8 | 6 | 0.24 | 0.68 |
| 100 | B | 595D107(1)010B(2)(3) | 10.0 | 12 | 0.40 | 0.46 |
| 100 | C | 595D107(1)010C(2)(3) | 10.0 | 8 | 0.20 | 0.74 |
| 100 | D | 595D107(1)010D(2)(3) | 8.0 | 7 | 0.15 | 1.00 |
| 120 | C | 595D127(1)010C(2)(3) | 12.0 | 7 | 0.22 | 0.71 |
| 120 | D | 595D127(1)010D(2)(3) | 12.0 | 8 | 0.14 | 1.04 |
| 150 | C | 595D157(1)010C(2)(3) | 15.0 | 8 | 0.22 | 0.71 |
| 150 | D | 595D157(1)010D(2)(3) | 15.0 | 8 | 0.14 | 1.04 |
| 180 | D | 595D187(1)010D(2)(3) | 18.0 | 7 | 0.38 | 0.63 |
| 180 | R | 595D187(1)010R(2)(3) | 18.0 | 8 | 0.13 | 1.39 |
| 220 | C | 595D227(1)010C(2)(3) | 22.0 | 8 | 0.20 | 0.74 |
| 220 | D | 595D227(1)010D(2)(3) | 22.0 | 8 | 0.14 | 1.04 |
| 220 | R | 595D227(1)010R(2)(3) | 22.0 | 8 | 0.13 | 1.39 |
| 270 | R | 595D277(1)010R(2)(3) | 27.0 | 8 | 0.13 | 1.39 |
| 330 | D | 595D337(1)010D(2)(3) | 33.0 | 8 | 0.14 | 1.04 |
| 330 | R | 595D337(1)010R(2)(3) | 33.0 | 8 | 0.13 | 1.39 |
| 390 | R | 595D397(1)010R(2)(3) | 39.0 | 8 | 0.12 | 1.44 |
| 470 | R | 595D477(1)010R(2)(3) | 47.0 | 8 | 0.12 | 1.44 |
| 680 | R | 595D687(1)010R(2)(3) | 68.0 | 14 | 0.09 | 1.67 |
| 16 V_{DC} AT + 85 °C, 10 V_{DC} AT + 125 °C | | | | | | |
| 1.5 | T | 595D155(1)016T(2)(3) | 0.5 | 6 | 8.70 | 0.06 |
| 2.2 | T | 595D225(1)016T(2)(3) | 0.5 | 6 | 8.70 | 0.06 |
| 2.2 | A | 595D225(1)016A(2)(3) | 0.5 | 5 | 3.90 | 0.14 |
| 3.3 | T | 595D335(1)016T(2)(3) | 0.5 | 6 | 8.60 | 0.06 |
| 4.7 | A | 595D475(1)016A(2)(3) | 0.8 | 6 | 2.90 | 0.16 |
| 6.8 | A | 595D685(1)016A(2)(3) | 1.1 | 6 | 2.80 | 0.16 |
| 10 | A | 595D106(1)016A(2)(3) | 1.6 | 6 | 2.50 | 0.17 |
| 10 | B | 595D106(1)016B(2)(3) | 1.6 | 6 | 0.76 | 0.33 |
| 15 | A | 595D156(1)016A(2)(3) | 2.4 | 6 | 2.40 | 0.18 |
| 15 | B | 595D156(1)016B(2)(3) | 2.4 | 6 | 0.75 | 0.34 |

Note

- Part number definitions:
 - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
 - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
 - Packaging code: For 7" reels specify "T", for 13" reels specify "W"



| STANDARD RATINGS | | | | | | |
|--|-----------|----------------------|--------------------------------------|--|---|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT + 25 °C (μ A) | MAX. DF AT + 25 °C 120 Hz (%) | MAX. ESR AT + 25 °C 100 kHz (Ω) | MAX. RIPPLE 100 kHz I_{RMS} (A) |
| 16 V_{DC} AT + 85 °C, 10 V_{DC} AT + 125 °C | | | | | | |
| 22 | M | 595D226(1)016M(2)(3) | 3.5 | 6 | 0.50 | 0.44 |
| 22 | B | 595D226(1)016B(2)(3) | 3.5 | 6 | 0.75 | 0.34 |
| 33 | B | 595D336(1)016B(2)(3) | 5.3 | 6 | 0.72 | 0.34 |
| 33 | C | 595D336(1)016C(2)(3) | 5.3 | 6 | 0.29 | 0.62 |
| 47 | B | 595D476(1)016B(2)(3) | 7.5 | 6 | 0.72 | 0.34 |
| 47 | C | 595D476(1)016C(2)(3) | 7.5 | 6 | 0.28 | 0.63 |
| 68 | C | 595D686(1)016C(2)(3) | 10.9 | 6 | 0.26 | 0.65 |
| 68 | D | 595D686(1)016D(2)(3) | 10.9 | 6 | 0.14 | 1.04 |
| 100 | C | 595D107(1)016C(2)(3) | 16.0 | 8 | 0.27 | 0.64 |
| 100 | D | 595D107(1)016D(2)(3) | 16.0 | 8 | 0.14 | 1.04 |
| 100 | R | 595D107(1)016R(2)(3) | 16.0 | 8 | 0.14 | 1.30 |
| 120 | R | 595D127(1)016R(2)(3) | 19.2 | 8 | 0.14 | 1.34 |
| 150 | D | 595D157(1)016D(2)(3) | 24.0 | 8 | 0.14 | 1.04 |
| 150 | R | 595D157(1)016R(2)(3) | 24.0 | 8 | 0.13 | 1.39 |
| 180 | R | 595D187(1)016R(2)(3) | 28.8 | 8 | 0.13 | 1.39 |
| 220 | R | 595D227(1)016R(2)(3) | 35.2 | 8 | 0.12 | 1.44 |
| 330 | R | 595D337(1)016R(2)(3) | 52.8 | 14 | 0.11 | 1.51 |
| 20 V_{DC} AT + 85 °C, 13 V_{DC} AT + 125 °C | | | | | | |
| 0.68 | T | 595D684(1)020T(2)(3) | 0.5 | 4 | 10.80 | 0.05 |
| 1.0 | T | 595D105(1)020T(2)(3) | 0.5 | 4 | 9.00 | 0.06 |
| 2.2 | A | 595D225(1)020A(2)(3) | 0.5 | 6 | 3.80 | 0.14 |
| 3.3 | A | 595D335(1)020A(2)(3) | 0.7 | 6 | 3.80 | 0.14 |
| 4.7 | A | 595D475(1)020A(2)(3) | 0.9 | 6 | 3.10 | 0.16 |
| 4.7 | B | 595D475(1)020B(2)(3) | 0.9 | 6 | 0.95 | 0.30 |
| 6.8 | A | 595D685(1)020A(2)(3) | 1.4 | 6 | 3.00 | 0.16 |
| 6.8 | B | 595D685(1)020B(2)(3) | 1.4 | 6 | 0.95 | 0.30 |
| 10 | B | 595D106(1)020B(2)(3) | 2.0 | 6 | 1.00 | 0.29 |
| 15 | B | 595D156(1)020B(2)(3) | 3.0 | 6 | 1.00 | 0.29 |
| 22 | B | 595D226(1)020B(2)(3) | 4.4 | 6 | 0.90 | 0.31 |
| 22 | C | 595D226(1)020C(2)(3) | 4.4 | 6 | 0.38 | 0.54 |
| 47 | C | 595D476(1)020C(2)(3) | 9.4 | 6 | 0.35 | 0.56 |
| 47 | D | 595D476(1)020D(2)(3) | 9.4 | 6 | 0.19 | 0.89 |
| 68 | C | 595D686(1)020C(2)(3) | 13.6 | 6 | 0.19 | 0.76 |
| 68 | D | 595D686(1)020D(2)(3) | 13.6 | 6 | 0.19 | 0.89 |
| 68 | R | 595D686(1)020R(2)(3) | 13.6 | 6 | 0.20 | 1.12 |
| 100 | D | 595D107(1)020D(2)(3) | 20.0 | 8 | 0.18 | 0.91 |
| 100 | R | 595D107(1)020R(2)(3) | 20.0 | 8 | 0.14 | 1.34 |
| 120 | R | 595D127(1)020R(2)(3) | 24.0 | 8 | 0.14 | 1.34 |
| 150 | D | 595D157(1)020D(2)(3) | 30.0 | 12 | 0.20 | 0.87 |
| 150 | R | 595D157(1)020R(2)(3) | 30.0 | 8 | 0.14 | 1.34 |
| 180 | R | 595D187(1)020R(2)(3) | 36.0 | 8 | 0.14 | 1.34 |
| 25 V_{DC} AT + 85 °C, 17 V_{DC} AT + 125 °C | | | | | | |
| 0.47 | T | 595D474(1)025T(2)(3) | 0.5 | 4 | 13.50 | 0.05 |
| 1.0 | A | 595D105(1)025A(2)(3) | 0.5 | 4 | 4.20 | 0.13 |
| 1.5 | A | 595D155(1)025A(2)(3) | 0.5 | 6 | 3.80 | 0.14 |
| 2.2 | A | 595D225(1)025A(2)(3) | 0.6 | 6 | 3.80 | 0.14 |
| 2.2 | B | 595D225(1)025B(2)(3) | 0.6 | 6 | 2.30 | 0.19 |
| 3.3 | B | 595D335(1)025B(2)(3) | 0.8 | 6 | 1.90 | 0.21 |

Note

- Part number definitions:
 - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
 - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
 - Packaging code: For 7" reels specify "T", for 13" reels specify "W"



| STANDARD 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 I_{RMS} (A) |
| 25 V_{DC} AT + 85 °C, 17 V_{DC} AT + 125 °C | | | | | | |
| 4.7 | B | 595D475(1)025B(2)(3) | 1.2 | 6 | 1.80 | 0.22 |
| 4.7 | C | 595D475(1)025C(2)(3) | 1.3 | 5 | 0.68 | 0.40 |
| 6.8 | B | 595D685(1)025B(2)(3) | 1.7 | 6 | 1.50 | 0.24 |
| 6.8 | C | 595D685(1)025C(2)(3) | 1.7 | 6 | 0.63 | 0.42 |
| 10 | B | 595D106(1)025B(2)(3) | 2.5 | 6 | 1.50 | 0.24 |
| 10 | C | 595D106(1)025C(2)(3) | 2.5 | 6 | 0.57 | 0.44 |
| 15 | C | 595D156(1)025C(2)(3) | 3.8 | 6 | 0.56 | 0.44 |
| 22 | C | 595D226(1)025C(2)(3) | 5.5 | 6 | 0.50 | 0.47 |
| 22 | D | 595D226(1)025D(2)(3) | 5.5 | 6 | 0.28 | 0.73 |
| 33 | C | 595D336(1)025C(2)(3) | 8.3 | 6 | 0.45 | 0.49 |
| 33 | D | 595D336(1)025D(2)(3) | 8.3 | 6 | 0.27 | 0.75 |
| 47 | D | 595D476(1)025D(2)(3) | 11.8 | 6 | 0.26 | 0.76 |
| 47 | R | 595D476(1)025R(2)(3) | 11.8 | 6 | 0.20 | 1.12 |
| 68 | D | 595D686(1)025D(2)(3) | 17.0 | 8 | 0.26 | 0.76 |
| 68 | R | 595D686(1)025R(2)(3) | 17.0 | 6 | 0.20 | 1.12 |
| 100 | R | 595D107(1)025R(2)(3) | 25.0 | 8 | 0.20 | 1.12 |
| 35 V_{DC} AT + 85 °C, 23 V_{DC} AT + 125 °C | | | | | | |
| 0.33 | T | 595D334(1)035T(2)(3) | 0.5 | 4 | 14.40 | 0.05 |
| 0.47 | A | 595D474(1)035A(2)(3) | 0.5 | 4 | 4.30 | 0.13 |
| 0.68 | A | 595D684(1)035A(2)(3) | 0.5 | 4 | 4.20 | 0.13 |
| 1.0 | A | 595D105(1)035A(2)(3) | 0.5 | 4 | 4.10 | 0.14 |
| 1.5 | A | 595D155(1)035A(2)(3) | 0.5 | 6 | 3.80 | 0.14 |
| 1.5 | B | 595D155(1)035B(2)(3) | 0.5 | 6 | 2.80 | 0.17 |
| 2.2 | B | 595D225(1)035B(2)(3) | 0.8 | 6 | 2.30 | 0.19 |
| 3.3 | B | 595D335(1)035B(2)(3) | 1.2 | 6 | 2.40 | 0.19 |
| 3.3 | C | 595D335(1)035C(2)(3) | 1.2 | 6 | 0.75 | 0.38 |
| 4.7 | B | 595D475(1)035B(2)(3) | 1.6 | 6 | 2.20 | 0.20 |
| 4.7 | C | 595D475(1)035C(2)(3) | 1.6 | 6 | 0.66 | 0.41 |
| 6.8 | C | 595D685(1)035C(2)(3) | 2.4 | 6 | 0.63 | 0.42 |
| 10 | D | 595D106(1)035D(2)(3) | 3.5 | 6 | 0.43 | 0.59 |
| 15 | C | 595D156(1)035C(2)(3) | 5.3 | 6 | 0.60 | 0.43 |
| 15 | D | 595D156(1)035D(2)(3) | 5.3 | 6 | 0.41 | 0.60 |
| 22 | D | 595D226(1)035D(2)(3) | 7.7 | 6 | 0.32 | 0.68 |
| 22 | R | 595D226(1)035R(2)(3) | 7.7 | 6 | 0.28 | 0.94 |
| 33 | R | 595D336(1)035R(2)(3) | 11.6 | 6 | 0.28 | 0.94 |
| 47 | R | 595D476(1)035R(2)(3) | 16.5 | 6 | 0.28 | 0.94 |
| 50 V_{DC} AT + 85 °C, 33 V_{DC} AT + 125 °C | | | | | | |
| 0.10 | T | 595D104(1)050T(2)(3) | 0.5 | 4 | 22.50 | 0.04 |
| 0.15 | T | 595D154(1)050T(2)(3) | 0.5 | 4 | 18.00 | 0.04 |
| 0.22 | T | 595D224(1)050T(2)(3) | 0.5 | 4 | 15.30 | 0.04 |
| 0.22 | A | 595D224(1)050A(2)(3) | 0.5 | 4 | 9.00 | 0.09 |
| 0.33 | A | 595D334(1)050A(2)(3) | 0.5 | 4 | 8.10 | 0.10 |

Note

- Part number definitions:
 - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
 - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
 - Packaging code: For 7" reels specify "T", for 13" reels specify "W"



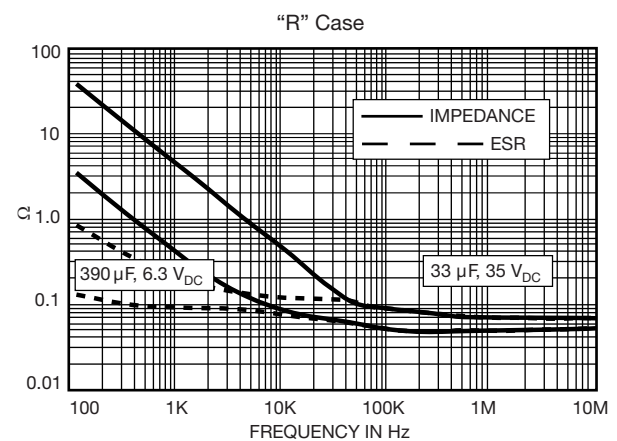
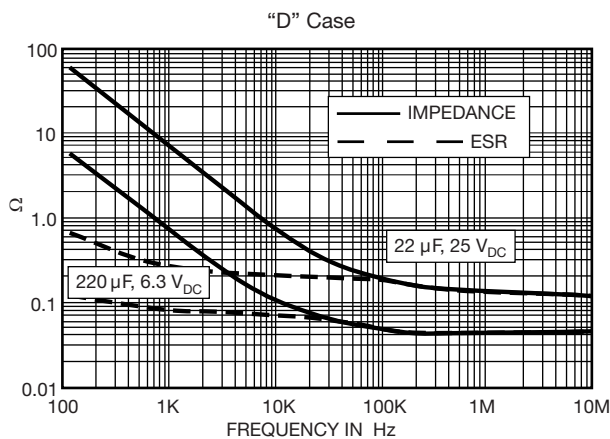
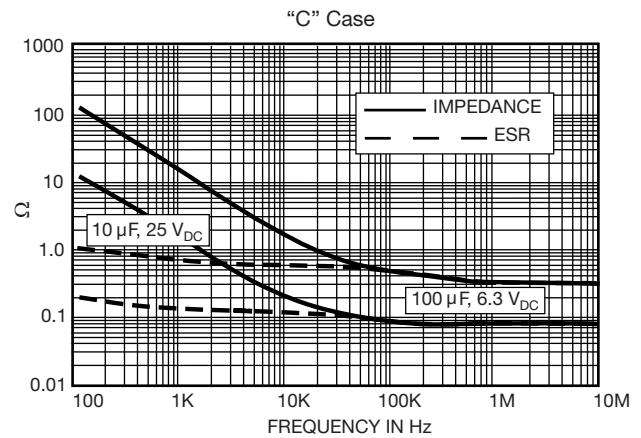
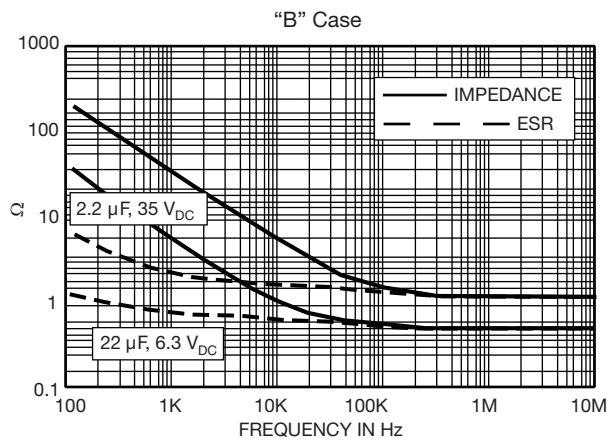
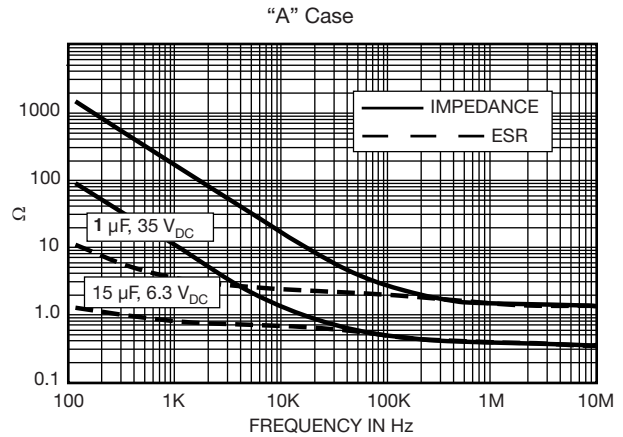
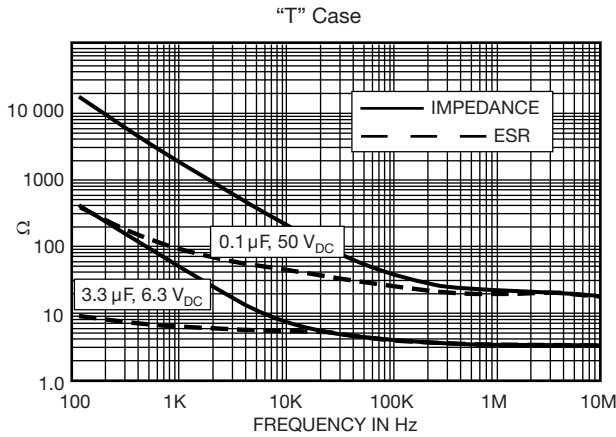
| STANDARD RATINGS | | | | | | |
|---|-----------|----------------------|--------------------------|-------------------------------|---------------------------------|--|
| CAPACITANCE (μF) | CASE CODE | PART NUMBER | MAX. DCL AT + 25 °C (μA) | MAX. DF AT + 25 °C 120 Hz (%) | MAX. ESR AT + 25 °C 100 kHz (Ω) | MAX. RIPPLE 100 kHz I _{RMS} (A) |
| 50 V _{DC} AT + 85 °C, 33 V _{DC} AT + 125 °C | | | | | | |
| 0.47 | A | 595D474(1)050A(2)(3) | 0.5 | 4 | 7.20 | 0.10 |
| 0.68 | A | 595D684(1)050A(2)(3) | 0.5 | 4 | 6.10 | 0.11 |
| 0.68 | B | 595D684(1)050B(2)(3) | 0.5 | 4 | 5.40 | 0.13 |
| 1.0 | A | 595D105(1)050A(2)(3) | 0.5 | 4 | 6.00 | 0.11 |
| 1.0 | B | 595D105(1)050B(2)(3) | 0.5 | 4 | 5.00 | 0.13 |
| 1.5 | B | 595D155(1)050B(2)(3) | 0.8 | 6 | 4.10 | 0.14 |
| 1.5 | C | 595D155(1)050C(2)(3) | 0.8 | 6 | 1.80 | 0.25 |
| 2.2 | B | 595D225(1)050B(2)(3) | 1.1 | 6 | 3.20 | 0.16 |
| 2.2 | C | 595D225(1)050C(2)(3) | 1.1 | 6 | 1.70 | 0.25 |
| 3.3 | C | 595D335(1)050C(2)(3) | 1.7 | 6 | 1.60 | 0.26 |
| 4.7 | C | 595D475(1)050C(2)(3) | 2.4 | 6 | 1.40 | 0.28 |
| 6.8 | C | 595D685(1)050C(2)(3) | 3.4 | 6 | 1.30 | 0.29 |
| 6.8 | D | 595D685(1)050D(2)(3) | 3.4 | 6 | 0.82 | 0.43 |
| 10 | D | 595D106(1)050D(2)(3) | 5.0 | 6 | 0.80 | 0.43 |
| 10 | R | 595D106(1)050R(2)(3) | 5.0 | 6 | 0.65 | 0.62 |
| 15 | R | 595D156(1)050R(2)(3) | 7.5 | 6 | 0.40 | 0.79 |
| 22 | R | 595D226(1)050R(2)(3) | 11.0 | 6 | 0.39 | 0.80 |

Note

- Part number definitions:
 - Tolerance: For 10 % tolerance, specify "X9"; for 20 % tolerance, change to "X0"
 - Termination: For 100 % tin specify "2"; for gold plated specify "4", for solder plated 60/40 specify "8"
 - Packaging code: For 7" reels specify "T", for 13" reels specify "W"

| RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperature below + 85 °C) | |
|---|-------------------|
| STANDARD CONDITIONS. FOR EXAMPLE: OUTPUT FILTERS | |
| Capacitor Voltage Rating | Operating Voltage |
| 4.0 | 2.5 |
| 6.3 | 3.6 |
| 10 | 6.0 |
| 16 | 10 |
| 20 | 12 |
| 25 | 15 |
| 35 | 24 |
| 50 | 28 |
| SEVERE CONDITIONS. FOR EXAMPLE: INPUT FILTERS | |
| Capacitor Voltage Rating | Operating Voltage |
| 4.0 | 2.5 |
| 6.3 | 3.3 |
| 10 | 5.0 |
| 16 | 8.0 |
| 20 | 10 |
| 25 | 12 |
| 35 | 15 |
| 50 | 24 |

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





| POWER DISSIPATION | |
|-------------------|--|
| CASE CODE | MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR |
| A | 0.075 |
| B | 0.085 |
| C | 0.110 |
| D | 0.150 |
| G | 0.115 |
| M | 0.095 |
| R | 0.250 |
| S | 0.060 |
| T | 0.030 |

| STANDARD PACKAGING QUANTITY | | |
|-----------------------------|----------------|----------|
| CASE CODE | UNITS PER REEL | |
| | 7" REEL | 13" REEL |
| A | 2000 | 9000 |
| B | 2000 | 8000 |
| C | 500 | 3000 |
| D | 500 | 2500 |
| G | 500 | 2500 |
| M | 2000 | 8000 |
| R | 600 | n/a |
| S | 2500 | 10 000 |
| T | 2500 | 10 000 |

| PRODUCT INFORMATION | |
|--------------------------------|--|
| Conformal Coated Guide | www.vishay.com/doc?40150 |
| Moisture Sensitivity | www.vishay.com/doc?40135 |
| SELECTOR GUIDES | |
| Solid Tantalum Selector Guide | www.vishay.com/doc?49053 |
| Solid Tantalum Chip Capacitors | www.vishay.com/doc?40091 |
| FAQ | |
| Frequently Asked Questions | www.vishay.com/doc?40110 |



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