

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



FEATURES

- New robust ratings for pulsed applications
- New case size offerings
- 1.2 mm to 2 mm height
- Terminations: 100 % matte tin (2) standard, tin/lead available
- Mounting: Surface mount
- Very low ESR
- 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
- Footprint compatible with EIA 535BAAC and CECC 30801
- See also 592W for additional ratings designs for pulsed applications
- 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: 1 µF to 1000 µF

Capacitance Tolerance: ± 10 %, ± 20 % standard

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

| ORDERING INFORMATION | | | | | | | |
|----------------------|--|-----------------------------------|--|----------------------------------|---|--|--|
| 591D | 106 | X0 | 010 | B | 2 | T | 15H |
| TYPE | CAPACITANCE | CAPACITANCE TOLERANCE | DC VOLTAGE RATING AT + 85 °C | CASE CODE | TERMINATION | REEL SIZE AND PACKAGING | SUFFIX |
| | This is expressed in picofarads. 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 volts. 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 | T = Tape and reel 7" [178 mm] reel W = 13" [330 mm] reel | Maximum height (mm) see Standard Ratings table |

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.

| DIMENSIONS in inches [millimeters] | | | | | | |
|------------------------------------|-------------|--|------------------------------|------------------------------|-------------|-------------|
| | | | | | | |
| CASE CODE | L MAX. | W | A | B | D REF. | J MAX. |
| A | 0.146 [3.7] | 0.071 ± 0.012 [1.8 ± 0.3] | 0.031 ± 0.012 [0.8 ± 0.3] | 0.087 ± 0.016 [2.2 ± 0.4] | 0.114 [2.9] | 0.004 [0.1] |
| B | 0.157 [4.0] | 0.110 + 0.012/- 0.016 [2.8 + 0.3/- 0.4] | 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 | 0.28 [7.1] | 0.126 ± 0.012 [3.2 ± 0.3] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.173 ± 0.024 [4.4 ± 0.6] | 0.236 [6.0] | 0.004 [0.1] |
| D | 0.295 [7.5] | 0.169 ± 0.012 [4.3 ± 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] |
| M | 0.295 [7.5] | 0.248 ± 0.012 [6.3 ± 0.3] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.200 ± 0.024 [5.1 ± 0.6] | 0.264 [6.7] | 0.004 [0.1] |
| R | 0.283 [7.2] | 0.236 + 0.012/- 0.024 [6.0 + 0.3/- 0.6] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.244 [6.2] | 0.004 [0.1] |

Notes

- The anode termination (D less B) will be a minimum of 0.012" [0.3 mm]
- (1) For package height, please refer to specific rating in the "Standard Ratings" table

| RATINGS AND CASE CODES | | | | | | | | |
|------------------------|-------|---------|-------|-------|------|-------|------|------|
| μF | 4 V | 6.3 V | 10 V | 16 V | 20 V | 25 V | 35 V | 50 V |
| 1.0 | | | | | | | A/B | B |
| 1.5 | | | | | | | B | |
| 2.2 | | | | | A | A/B | B/C | |
| 3.3 | | | A | A | A/B | C | B | C |
| 4.7 | | | A | A/B | B/C | C/D | D/R | |
| 6.8 | | A | A/B | B/C | B/D | B/D/R | R | |
| 10 | | A/B | B | B/D | C | R | | |
| 15 | A/B | A/B | A/B/C | C/D | D/R | | | |
| 22 | B | A/B/C | C/D | C/D/R | R | C | | |
| 33 | B/C | B/C/D | D/R | C/R | | | | |
| 47 | B/C/D | D/R | C/D/R | C/D | | R | | |
| 68 | D/R | B/C/D/R | B/C/D | C/D | R | | | |
| 100 | | C | | | | | | |
| 120 | | | | | | | | |
| 150 | C/R | C/D/R | C/D | D/R | | | | |
| 220 | C/D | C/D/R | D/R | R | | | | |
| 330 | C/D | C/D/R | D/R | | | | | |
| 470 | C/D/R | C/D/R | | | | | | |
| 680 | D/R | R | | | | | | |
| 1000 | R | R | | | | | | |
| 1500 | | M/R | | | | | | |



| STANDARD RATINGS | | | | | | | |
|--|-----------|-------------------------|------------------|--------------------------|-------------------------------|---------------------------------|--|
| CAPACITANCE (μF) | CASE CODE | PART NUMBER | HEIGHT MAX. (mm) | 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 | | | | | | | |
| 22 | A | 591D226(1)004A(2)(3)15H | 1.5 | 0.9 | 6 | 1.200 | 0.22 |
| 22 | B | 591D226(1)004B(2)(3)15H | 1.5 | 0.9 | 6 | 0.800 | 0.32 |
| 33 | B | 591D336(1)004B(2)(3)15H | 1.5 | 1.3 | 6 | 0.800 | 0.32 |
| 47 | B | 591D476(1)004B(2)(3)15H | 1.5 | 1.9 | 6 | 0.800 | 0.32 |
| 47 | C | 591D476(1)004C(2)(3)15H | 1.5 | 1.9 | 6 | 0.200 | 0.71 |
| 68 | B | 591D686(1)004B(2)(3)15H | 1.5 | 2.7 | 6 | 0.800 | 0.32 |
| 68 | C | 591D686(1)004C(2)(3)15H | 1.5 | 2.7 | 6 | 0.180 | 0.75 |
| 68 | D | 591D686(1)004D(2)(3)15H | 1.5 | 2.7 | 6 | 0.140 | 0.94 |
| 100 | D | 591D107(1)004D(2)(3)15H | 1.5 | 4.0 | 8 | 0.130 | 0.98 |
| 100 | R | 591D107(1)004R(2)(3)15H | 1.5 | 4.0 | 8 | 0.110 | 1.17 |
| 150 | C | 591D157(1)004C(2)(3)15H | 1.5 | 6.0 | 8 | 0.150 | 0.82 |
| 150 | R | 591D157(1)004R(2)(3)15H | 1.5 | 6.0 | 8 | 0.100 | 1.22 |
| 220 | C | 591D227(1)004C(2)(3)20H | 2.0 | 8.8 | 8 | 0.075 | 1.21 |
| 220 | D | 591D227(1)004D(2)(3)15H | 1.5 | 8.8 | 8 | 0.100 | 1.12 |
| 330 | C | 591D337(1)004C(2)(3)20H | 2.0 | 13.2 | 8 | 0.070 | 1.25 |
| 330 | D | 591D337(1)004D(2)(3)20H | 2.0 | 13.2 | 8 | 0.060 | 1.53 |
| 470 | C | 591D477(1)004C(2)(3)20H | 2.0 | 18.8 | 8 | 0.070 | 1.25 |
| 470 | D | 591D477(1)004D(2)(3)20H | 2.0 | 18.8 | 8 | 0.060 | 1.53 |
| 470 | R | 591D477(1)004R(2)(3)20H | 2.0 | 18.8 | 10 | 0.045 | 1.97 |
| 680 | D | 591D687(1)004D(2)(3)20H | 2.0 | 27.2 | 12 | 0.085 | 1.28 |
| 680 | R | 591D687(1)004R(2)(3)20H | 2.0 | 27.2 | 12 | 0.045 | 1.97 |
| 1000 | R | 591D108(1)004R(2)(3)20H | 2.0 | 40.0 | 14 | 0.050 | 1.87 |
| 6.3 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C | | | | | | | |
| 10 | A | 591D106(1)6R3A(2)(3)15H | 1.5 | 0.6 | 6 | 1.900 | 0.18 |
| 15 | A | 591D156(1)6R3A(2)(3)15H | 1.5 | 0.9 | 6 | 1.300 | 0.21 |
| 15 | B | 591D156(1)6R3B(2)(3)15H | 1.5 | 0.9 | 6 | 0.800 | 0.32 |
| 22 | A | 591D226(1)6R3A(2)(3)13H | 1.3 | 1.4 | 6 | 0.800 | 0.26 |
| 22 | B | 591D226(1)6R3B(2)(3)15H | 1.5 | 1.4 | 6 | 0.800 | 0.32 |
| 33 | A | 591D336(1)6R3A(2)(3)15H | 1.5 | 2.1 | 6 | 1.000 | 0.24 |
| 33 | B | 591D336(1)6R3B(2)(3)15H | 1.5 | 2.1 | 6 | 0.800 | 0.32 |
| 33 | C | 591D336(1)6R3C(2)(3)15H | 1.5 | 2.1 | 6 | 0.200 | 0.71 |
| 47 | B | 591D476(1)6R3B(2)(3)15H | 1.5 | 3.0 | 8 | 0.800 | 0.32 |
| 47 | C | 591D476(1)6R3C(2)(3)15H | 1.5 | 3.0 | 6 | 0.200 | 0.71 |
| 47 | D | 591D476(1)6R3D(2)(3)15H | 1.5 | 3.0 | 6 | 0.140 | 0.94 |
| 68 | D | 591D686(1)6R3D(2)(3)15H | 1.5 | 4.3 | 6 | 0.130 | 0.98 |
| 68 | R | 591D686(1)6R3R(2)(3)15H | 1.5 | 4.3 | 6 | 0.110 | 1.17 |
| 100 | B | 591D107(1)6R3B(2)(3)15H | 1.5 | 6.3 | 8 | 0.500 | 0.40 |
| 100 | C | 591D107(1)6R3C(2)(3)15H | 1.5 | 6.3 | 8 | 0.190 | 0.73 |
| 100 | D | 591D107(1)6R3D(2)(3)15H | 1.5 | 6.3 | 8 | 0.150 | 0.91 |
| 100 | R | 591D107(1)6R3R(2)(3)15H | 1.5 | 6.3 | 8 | 0.100 | 1.22 |
| 120 | C | 591D127(1)6R3C(2)(3)20H | 2.0 | 7.2 | 8 | 0.100 | 1.05 |
| 150 | C | 591D157(1)6R3C(2)(3)20H | 2.0 | 9.5 | 8 | 0.080 | 1.17 |
| 150 | D | 591D157(1)6R3D(2)(3)15H | 1.5 | 9.5 | 8 | 0.120 | 1.02 |
| 150 | R | 591D157(1)6R3R(2)(3)15H | 1.5 | 9.5 | 8 | 0.140 | 1.04 |
| 220 | C | 591D227(1)6R3C(2)(3)20H | 2.0 | 13.9 | 8 | 0.075 | 1.21 |
| 220 | D | 591D227(1)6R3D(2)(3)20H | 2.0 | 13.9 | 8 | 0.065 | 1.47 |
| 220 | R | 591D227(1)6R3R(2)(3)15H | 1.5 | 13.9 | 8 | 0.150 | 1.00 |

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 (μ F) | CASE CODE | PART NUMBER | HEIGHT MAX. (mm) | 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) |
| 6.3 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C | | | | | | | |
| 330 | C | 591D337(1)6R3C(2)(3)20H | 2.0 | 20.8 | 12 | 0.150 | 0.86 |
| 330 | D | 591D337(1)6R3D(2)(3)20H | 2.0 | 20.8 | 8 | 0.060 | 1.53 |
| 330 | R | 591D337(1)6R3R(2)(3)20H | 2.0 | 20.8 | 8 | 0.045 | 1.97 |
| 470 | C | 591D477X06R3C(2)(3)16H | 1.6 | 29.6 | 14 | 0.080 | 1.12 |
| 470 | C | 591D477(1)6R3C(2)(3)20H | 2.0 | 29.6 | 14 | 0.080 | 1.17 |
| 470 | D | 591D477(1)6R3D(2)(3)20H | 2.0 | 29.6 | 10 | 0.085 | 1.28 |
| 470 | R | 591D477(1)6R3R(2)(3)20H | 2.0 | 29.6 | 10 | 0.045 | 1.97 |
| 680 | R | 591D687(1)6R3R(2)(3)16H | 1.6 | 42.8 | 10 | 0.060 | 1.60 |
| 680 | R | 591D687(1)6R3R(2)(3)20H | 2.0 | 42.8 | 10 | 0.060 | 1.71 |
| 1000 | R | 591D108(1)6R3R(2)(3)20H | 2.0 | 63.0 | 29 | 0.075 | 1.53 |
| 1500 | M | 591D158X06R3M(2)(3)20H | 2.0 | 95.0 | 50 | 0.060 | 1.87 |
| 1500 | R | 591D158X06R3R(2)(3)20H | 2.0 | 95.0 | 50 | 0.060 | 1.71 |
| 10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C | | | | | | | |
| 4.7 | A | 591D475(1)010A(2)(3)15H | 1.5 | 0.5 | 6 | 4.000 | 0.12 |
| 6.8 | A | 591D685(1)010A(2)(3)15H | 1.5 | 0.7 | 6 | 4.000 | 0.12 |
| 10 | A | 591D106(1)010A(2)(3)15H | 1.5 | 1.0 | 6 | 1.300 | 0.21 |
| 10 | B | 591D106(1)010B(2)(3)15H | 1.5 | 1.0 | 6 | 0.850 | 0.31 |
| 15 | B | 591D156(1)010B(2)(3)15H | 1.5 | 1.5 | 6 | 0.800 | 0.32 |
| 22 | A | 591D226(1)010A(2)(3)13H | 1.3 | 2.2 | 6 | 0.800 | 0.27 |
| 22 | A | 591D226(1)010A(2)(3)15H | 1.5 | 2.2 | 6 | 0.900 | 0.26 |
| 22 | B | 591D226(1)010B(2)(3)15H | 1.5 | 2.2 | 6 | 0.800 | 0.32 |
| 22 | C | 591D226(1)010C(2)(3)15H | 1.5 | 2.2 | 6 | 0.200 | 0.71 |
| 33 | C | 591D336(1)010C(2)(3)15H | 1.5 | 3.3 | 6 | 0.200 | 0.71 |
| 33 | D | 591D336(1)010D(2)(3)15H | 1.5 | 3.3 | 6 | 0.140 | 0.94 |
| 47 | D | 591D476(1)010D(2)(3)15H | 1.5 | 4.7 | 6 | 0.140 | 0.94 |
| 47 | R | 591D476(1)010R(2)(3)15H | 1.5 | 4.7 | 6 | 0.120 | 1.12 |
| 68 | C | 591D686(1)010C(2)(3)15H | 1.5 | 6.8 | 6 | 0.190 | 0.73 |
| 68 | D | 591D686(1)010D(2)(3)15H | 1.5 | 6.8 | 6 | 0.130 | 0.98 |
| 68 | R | 591D686(1)010R(2)(3)15H | 1.5 | 6.8 | 6 | 0.110 | 1.17 |
| 100 | B | 591D107(1)010B(2)(3)20H | 2.0 | 10.0 | 14 | 0.250 | 0.57 |
| 100 | C | 591D107(1)010C(2)(3)20H | 2.0 | 10.0 | 8 | 0.085 | 1.14 |
| 100 | D | 591D107(1)010D(2)(3)15H | 1.5 | 10.0 | 8 | 0.130 | 0.98 |
| 150 | C | 591D157(1)010C(2)(3)15H | 1.5 | 15.0 | 8 | 0.083 | 1.10 |
| 150 | C | 591D157(1)010C(2)(3)20H | 2.0 | 15.0 | 8 | 0.080 | 1.17 |
| 150 | D | 591D157(1)010D(2)(3)15H | 1.5 | 15.0 | 8 | 0.120 | 1.02 |
| 150 | D | 591D157(1)010D(2)(3)20H | 2.0 | 15.0 | 8 | 0.075 | 1.37 |
| 220 | D | 591D227(1)010D(2)(3)20H | 2.0 | 22.0 | 8 | 0.065 | 1.47 |
| 220 | R | 591D227(1)010R(2)(3)20H | 2.0 | 22.0 | 8 | 0.055 | 1.78 |
| 330 | D | 591D337(1)010D(2)(3)20H | 2.0 | 33.0 | 8 | 0.060 | 1.53 |
| 330 | R | 591D337(1)010R(2)(3)18H | 1.8 | 33.0 | 8 | 0.050 | 1.81 |
| 330 | R | 591D337(1)010R(2)(3)20H | 2.0 | 33.0 | 8 | 0.050 | 1.87 |

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 | HEIGHT MAX. (mm) | 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 | | | | | | | |
| 4.7 | A | 591D475(1)016A(2)(3)15H | 1.5 | 0.8 | 6 | 1.750 | 0.19 |
| 6.8 | A | 591D685(1)016A(2)(3)15H | 1.5 | 1.1 | 6 | 1.750 | 0.19 |
| 6.8 | B | 591D685(1)016B(2)(3)15H | 1.5 | 1.1 | 6 | 0.900 | 0.30 |
| 10 | B | 591D106(1)016B(2)(3)15H | 1.5 | 1.6 | 6 | 0.800 | 0.32 |
| 10 | C | 591D106(1)016C(2)(3)15H | 1.5 | 1.6 | 6 | 0.500 | 0.45 |
| 15 | B | 591D156(1)016B(2)(3)15H | 1.5 | 2.4 | 6 | 0.700 | 0.34 |
| 15 | D | 591D156(1)016D(2)(3)15H | 1.5 | 2.4 | 6 | 0.250 | 0.71 |
| 22 | C | 591D226(1)016C(2)(3)15H | 1.5 | 3.5 | 6 | 0.240 | 0.65 |
| 22 | D | 591D226(1)016D(2)(3)15H | 1.5 | 3.5 | 6 | 0.180 | 0.83 |
| 33 | C | 591D336(1)016C(2)(3)15H | 1.5 | 5.3 | 6 | 0.180 | 0.75 |
| 33 | D | 591D336(1)016D(2)(3)15H | 1.5 | 5.3 | 6 | 0.170 | 0.86 |
| 33 | R | 591D336(1)016R(2)(3)15H | 1.5 | 5.3 | 6 | 0.140 | 1.04 |
| 47 | C | 591D476(1)016C(2)(3)20H | 2.0 | 7.5 | 6 | 0.180 | 0.78 |
| 47 | R | 591D476(1)016R(2)(3)15H | 1.5 | 7.5 | 6 | 0.130 | 1.07 |
| 68 | C | 591D686(1)016C(2)(3)20H | 2.0 | 10.9 | 6 | 0.100 | 1.05 |
| 68 | D | 591D686(1)016D(2)(3)20H | 2.0 | 10.9 | 6 | 0.080 | 1.32 |
| 100 | C | 591D107(1)016C(2)(3)20H | 2.0 | 16.0 | 8 | 0.100 | 1.05 |
| 100 | D | 591D107(1)016D(2)(3)15H | 1.5 | 16.0 | 8 | 0.100 | 1.12 |
| 100 | D | 591D107(1)016D(2)(3)20H | 2.0 | 16.0 | 8 | 0.075 | 1.37 |
| 150 | D | 591D157(1)016D(2)(3)20H | 2.0 | 24.0 | 8 | 0.080 | 1.32 |
| 150 | R | 591D157(1)016R(2)(3)20H | 2.0 | 24.0 | 8 | 0.060 | 1.71 |
| 220 | R | 591D227(1)016R(2)(3)20H | 2.0 | 35.2 | 10 | 0.075 | 1.53 |
| 20 V_{DC} AT + 85 °C; 13 V_{DC} AT + 125 °C | | | | | | | |
| 2.2 | A | 591D225(1)020A(2)(3)15H | 1.5 | 0.5 | 6 | 4.000 | 0.12 |
| 4.7 | A | 591D475(1)020A(2)(3)15H | 1.5 | 0.9 | 6 | 1.900 | 0.18 |
| 4.7 | B | 591D475(1)020B(2)(3)15H | 1.5 | 0.9 | 6 | 1.600 | 0.22 |
| 6.8 | B | 591D685(1)020B(2)(3)15H | 1.5 | 1.4 | 6 | 1.600 | 0.22 |
| 6.8 | C | 591D685(1)020C(2)(3)15H | 1.5 | 1.4 | 6 | 0.400 | 0.50 |
| 10 | B | 591D106(1)020B(2)(3)15H | 1.5 | 2.0 | 6 | 1.500 | 0.23 |
| 10 | D | 591D106(1)020D(2)(3)15H | 1.5 | 2.0 | 6 | 0.270 | 0.68 |
| 15 | C | 591D156(1)020C(2)(3)15H | 1.5 | 3.0 | 6 | 0.300 | 0.58 |
| 22 | D | 591D226(1)020D(2)(3)15H | 1.5 | 4.4 | 6 | 0.200 | 0.79 |
| 22 | R | 591D226(1)020R(2)(3)15H | 1.5 | 4.4 | 6 | 0.140 | 1.04 |
| 33 | R | 591D336(1)020R(2)(3)15H | 1.5 | 6.6 | 6 | 0.140 | 1.04 |
| 100 | R | 591D107(1)020R(2)(3)20H | 2.0 | 20.0 | 10 | 0.100 | 0.94 |
| 25 V_{DC} AT + 85 °C; 17 V_{DC} AT + 125 °C | | | | | | | |
| 2.2 | A | 591D225(1)025A(2)(3)15H | 1.5 | 0.6 | 6 | 5.000 | 0.11 |
| 2.2 | B | 591D225(1)025B(2)(3)15H | 1.5 | 0.6 | 6 | 3.800 | 0.15 |
| 3.3 | B | 591D335(1)025B(2)(3)15H | 1.5 | 0.8 | 6 | 3.700 | 0.15 |
| 3.3 | C | 591D335(1)025C(2)(3)15H | 1.5 | 0.8 | 6 | 1.000 | 0.32 |
| 4.7 | C | 591D475(1)025C(2)(3)15H | 1.5 | 1.2 | 6 | 0.800 | 0.35 |
| 6.8 | C | 591D685(1)025C(2)(3)15H | 1.5 | 1.7 | 6 | 0.750 | 0.37 |
| 6.8 | D | 591D685(1)025D(2)(3)15H | 1.5 | 1.7 | 6 | 0.650 | 0.44 |
| 10 | B | 591D106X0025B(2)(3)15H | 1.5 | 2.5 | 6 | 1.000 | 0.28 |
| 10 | D | 591D106(1)025D(2)(3)15H | 1.5 | 2.5 | 6 | 0.600 | 0.46 |
| 10 | R | 591D106(1)025R(2)(3)15H | 1.5 | 2.5 | 6 | 0.240 | 0.79 |
| 15 | R | 591D156(1)025R(2)(3)15H | 1.5 | 3.8 | 6 | 0.200 | 0.87 |
| 33 | C | 591D336(1)025C(2)(3)16H | 1.6 | 8.3 | 6 | 0.250 | 0.63 |
| 33 | C | 591D336(1)025C(2)(3)20H | 2.0 | 8.3 | 6 | 0.250 | 0.66 |
| 68 | R | 591D686(1)025R(2)(3)20H | 2.0 | 17.0 | 8 | 0.175 | 1.00 |

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 | HEIGHT MAX. (mm) | 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) |
| 35 V_{DC} AT + 85 °C; 23 V_{DC} AT + 125 °C | | | | | | | |
| 1.0 | A | 591D105(1)035A(2)(3)15H | 1.5 | 0.5 | 4 | 5.000 | 0.11 |
| 1.0 | B | 591D105(1)035B(2)(3)15H | 1.5 | 0.5 | 4 | 4.400 | 0.13 |
| 1.5 | B | 591D155(1)035B(2)(3)15H | 1.5 | 0.5 | 4 | 3.800 | 0.15 |
| 2.2 | B | 591D225(1)035B(2)(3)15H | 1.5 | 0.8 | 6 | 4.000 | 0.14 |
| 2.2 | C | 591D225(1)035C(2)(3)15H | 1.5 | 0.8 | 6 | 2.000 | 0.22 |
| 3.3 | B | 591D335(1)035B(2)(3)15H | 1.5 | 1.2 | 6 | 3.500 | 0.15 |
| 3.3 | C | 591D335(1)035C(2)(3)15H | 1.5 | 1.2 | 6 | 1.900 | 0.23 |
| 3.3 | D | 591D335(1)035D(2)(3)15H | 1.5 | 1.2 | 6 | 1.500 | 0.29 |
| 4.7 | B | 591D475(1)035B(2)(3)15H | 1.5 | 1.6 | 6 | 0.800 | 0.32 |
| 6.8 | D | 591D685(1)035D(2)(3)15H | 1.5 | 2.4 | 6 | 0.950 | 0.36 |
| 6.8 | R | 591D685(1)035R(2)(3)15H | 1.5 | 2.4 | 6 | 0.750 | 0.45 |
| 10 | R | 591D106(1)035R(2)(3)15H | 1.5 | 3.5 | 6 | 0.600 | 0.50 |
| 50 V_{DC} AT + 85 °C; 33 V_{DC} AT + 125 °C | | | | | | | |
| 1.0 | B | 591D155(1)050B(2)(3)15H | 1.5 | 0.8 | 6 | 6.500 | 0.11 |
| 4.7 | C | 591D475(1)050C(2)(3)20H | 2.0 | 23.5 | 6 | 6.000 | 0.14 |

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 temperatures 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 |



| CASE CODE/PART NUMBER X-REF | |
|-----------------------------|--------|
| OLD | NEW |
| A2_ | A2_15H |
| B2_ | B2_15H |
| C2_ | C2_15H |
| D2_ | D2_15H |
| R2_ | R2_15H |
| U2_ | C2_20H |
| V2_ | D2_20H |
| W2_ | R2_20H |



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

“A” CASE



“B” CASE



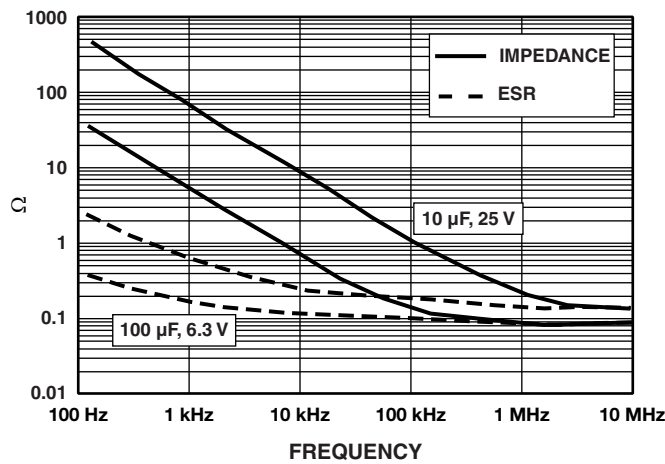
“C” CASE



“D” CASE



“R” CASE





| POWER DISSIPATION | | |
|-------------------|--------|--|
| CASE CODE | HEIGHT | MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR |
| A | 13H | 0.055 |
| A | 15H | 0.060 |
| B | 15H | 0.080 |
| B | 20H | 0.085 |
| C | 15H | 0.100 |
| C | 16H | 0.100 |
| C | 20H | 0.110 |
| D | 15H | 0.125 |
| D | 20H | 0.140 |
| M | 20H | 0.175 |
| R | 15H | 0.150 |
| R | 16H | 0.155 |
| R | 18H | 0.165 |
| R | 20H | 0.175 |

| STANDARD PACKAGING QUANTITY | | | |
|-----------------------------|---------------|----------------|----------|
| CASE CODE | HEIGHT | UNITS PER REEL | |
| | | 7" REEL | 13" REEL |
| A | Any | 2500 | 10 000 |
| B | Any | 2000 | 8000 |
| C | Any | 1000 | 4000 |
| D | Any | 1000 | 4000 |
| M | 20H | 1000 | 2500 |
| R | 15H | 1000 | 4000 |
| R | 16H; 18H; 20H | 1000 | 2500 |

| PRODUCT INFORMATION | |
|--|--|
| Conformal Coated Guide • Recommended Pad Layouts • Carrier Tape Information • Reflow Profiles | 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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- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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JONHON

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