

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


FEATURES

- New case size offerings
- Terminations: 100 % tin (2) standard; tin/lead available
- Extremely low ESR
- Mounting: Surface mount
- Ripple current up to 4.1 A
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS*
Available

Note

* This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information/tables in this datasheet for details.

PERFORMANCE CHARACTERISTICS
www.vishay.com/doc?40088
Operating Temperature: - 55 °C to + 125 °C
(above 85 °C, voltage derating is required)

Capacitance Range: 10 µF to 1500 µF

Capacitance Tolerance: ± 10 %, ± 20 % standard

Voltage Rating: 4 V_{DC} to 75 V_{DC}
ORDERING INFORMATION

| 597D TYPE | 687 CAPACITANCE | X0 CAPACITANCE TOLERANCE | 6R3 DC VOLTAGE RATING AT + 85 °C | E 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 8 = Solder plated (60/40) special order | T = Tape and reel 7" [178 mm] reel |

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. Low ESR solid tantalum chip capacitors allow delta ESR of 1.25 times the datasheet limits after mounting.

DIMENSIONS in inches [millimeters]

| CASE CODE | L (MAX.) | W | H | A | B | D (REF.) | J (MAX.) |
|-----------|-------------|---|---------------------------|---------------------------|---------------------------|-------------|-------------|
| V | 0.299 [7.6] | 0.173 ± 0.016 [4.4 ± 0.4] | 0.079 [2.0 max.] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.252 [6.4] | 0.004 [0.1] |
| D | 0.299 [7.6] | 0.173 ± 0.016 [4.4 ± 0.4] | 0.138 [3.5 max.] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.252 [6.4] | 0.004 [0.1] |
| E | 0.299 [7.6] | 0.173 ± 0.016 [4.4 ± 0.4] | 0.157 ± 0.016 [4.0 ± 0.4] | 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 | 0.299 [7.6] | 0.238 ± 0.016 [6.0 ± 0.4] | 0.142 ± 0.016 [3.6 ± 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] |
| F | 0.299 [7.6] | 0.238 ± 0.016 [6.0 ± 0.4] | 0.185 ± 0.016 [4.7 ± 0.4] | 0.055 ± 0.016 [1.4 ± 0.4] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.244 [6.2] | 0.004 [0.1] |
| Z | 0.299 [7.6] | 0.238 ± 0.016 [6.0 ± 0.4] | 0.236 ± 0.016 [6.0 ± 0.4] | 0.055 ± 0.016 [1.4 ± 0.4] | 0.181 ± 0.024 [4.6 ± 0.6] | 0.244 [6.2] | 0.004 [0.1] |
| M | 0.315 [8.0] | 0.260 + 0.016/- 0.024 [6.6 + 0.4/- 0.6] | 0.142 ± 0.016 [3.6 ± 0.4] | 0.051 ± 0.012 [1.3 ± 0.3] | 0.197 ± 0.024 [5.0 ± 0.6] | 0.260 [6.6] | 0.004 [0.1] |
| H | 0.315 [8.0] | 0.260 + 0.016/- 0.024 [6.6 + 0.4/- 0.6] | 0.205 ± 0.016 [5.2 ± 0.4] | 0.055 ± 0.016 [1.4 ± 0.4] | 0.197 ± 0.024 [5.0 ± 0.6] | 0.260 [6.6] | 0.004 [0.1] |

Note

- The anode termination (D less B) will be a minimum of 0.012" [0.3 mm]



| RATINGS AND CASE CODES | | | | | | | | | | |
|------------------------|-----|-------|------|------|------|------|------|------|------|------|
| µF | 4 V | 6.3 V | 10 V | 16 V | 20 V | 25 V | 35 V | 50 V | 63 V | 75 V |
| 10 | | | | | | | | | D | R |
| 15 | | | | | | | | E/R | R | |
| 22 | | | | | | | | R | F | |
| 33 | | | | | | | | F | | |
| 47 | | | | | | | R | Z | | |
| 68 | | | | | | R | F | | | |
| 100 | | | | | | F | F | | | |
| 150 | | | | | | F | | | | |
| 220 | | | | E | R | M | | | | |
| 330 | | V | E | F | H | | | | | |
| 470 | V | E | E | H | | | | | | |
| 680 | E | E | R | | | | | | | |
| 1000 | E/R | R | F | | | | | | | |
| 1500 | R | | | | | | | | | |
| 2200 | | | | | | | | | | |

| 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 (mΩ) | MAX. RIPPLE 100 kHz I _{RMS} (A) |
| 4 V_{DC} AT + 85 °C; 2.7 V_{DC} AT + 125 °C | | | | | | |
| 470 | V | 597D477(1)004V(2)(3) | 19 | 8 | 60 | 2.2 |
| 680 | E | 597D687(1)004E(2)(3) | 27 | 6 | 25 | 2.9 |
| 1000 | E | 597D108(1)004E(2)(3) | 40 | 8 | 20 | 3.3 |
| 1000 | R | 597D108(1)004R(2)(3) | 40 | 8 | 18 | 3.7 |
| 1500 | R | 597D158(1)004R(2)(3) | 60 | 8 | 24 | 2.9 |
| 6.3 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C | | | | | | |
| 330 | V | 597D337(1)6R3V(2)(3) | 21 | 8 | 56 | 2.0 |
| 470 | E | 597D477(1)6R3E(2)(3) | 30 | 6 | 30 | 2.7 |
| 680 | E | 597D687(1)6R3E(2)(3) | 43 | 6 | 25 | 2.9 |
| 1000 | R | 597D108(1)6R3R(2)(3) | 63 | 8 | 31 | 2.8 |
| 10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C | | | | | | |
| 330 | E | 597D337(1)010E(2)(3) | 33 | 6 | 35 | 2.5 |
| 470 | E | 597D477(1)010E(2)(3) | 47 | 6 | 28 | 2.8 |
| 680 | R | 597D687(1)010R(2)(3) | 68 | 6 | 28 | 3.0 |
| 1000 | F | 597D108(1)010F(2)(3) | 100 | 20 | 120 | 1.4 |
| 16 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C | | | | | | |
| 220 | E | 597D227(1)016E(2)(3) | 35 | 8 | 60 | 2.3 |
| 330 | F | 597D337(1)016F(2)(3) | 53 | 10 | 100 | 1.6 |
| 470 | H | 597D477(1)016H(2)(3) | 75 | 14 | 100 | 1.4 |
| 20 V_{DC} AT + 85 °C; 13 V_{DC} AT + 125 °C | | | | | | |
| 220 | R | 597D227(1)020R(2)(3) | 44 | 8 | 80 | 1.8 |
| 330 | H | 597D337(1)020H(2)(3) | 66 | 10 | 100 | 1.6 |
| 25 V_{DC} AT + 85 °C; 17 V_{DC} AT + 125 °C | | | | | | |
| 68 | R | 597D686(1)025R(2)(3) | 17 | 6 | 100 | 1.6 |
| 100 | F | 597D107(1)025F(2)(3) | 25 | 8 | 100 | 1.6 |

Note

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



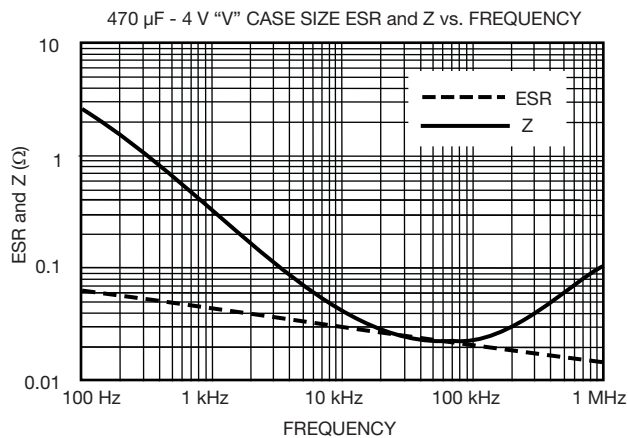
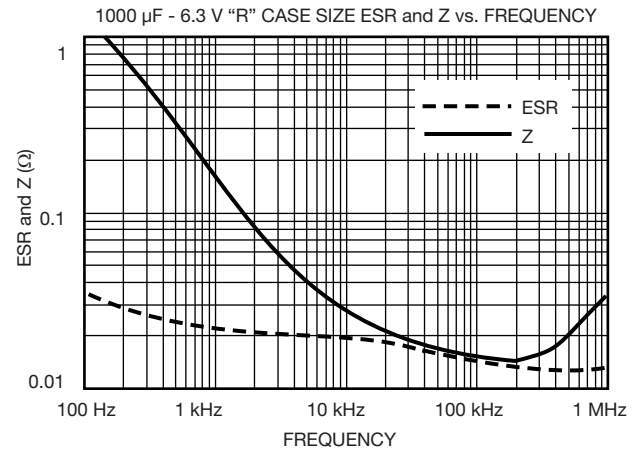
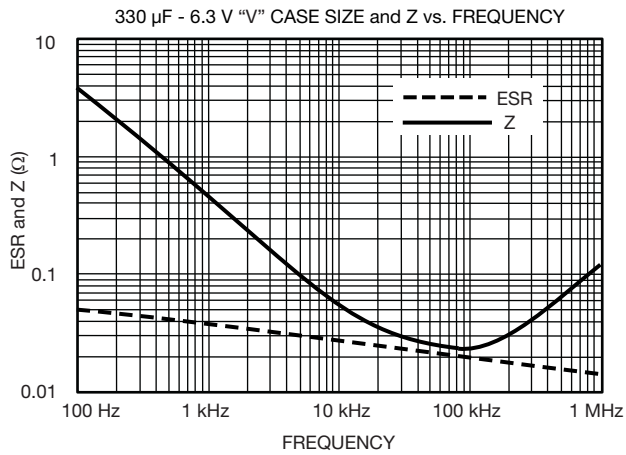
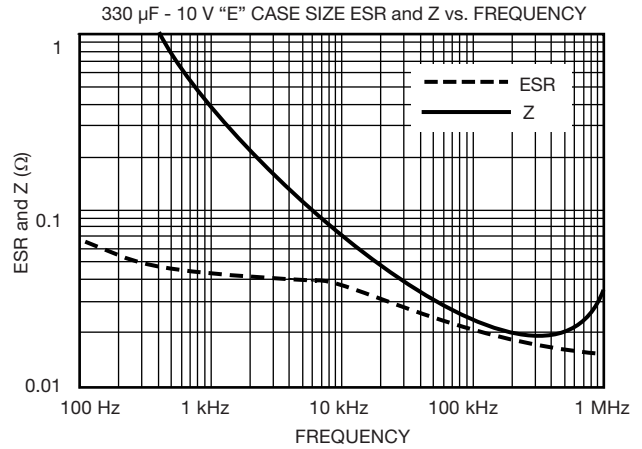
| STANDARD RATINGS | | | | | | |
|--|-----------|----------------------|---|--|--|---|
| CAPACITANCE (μF) | CASE CODE | PART NUMBER | MAX. DCL AT + 25 °C (μA) | MAX. DF AT + 25 °C 120 Hz (%) | MAX. ESR AT + 25 °C 100 kHz (m Ω) | MAX. RIPPLE 100 kHz I_{RMS} (A) |
| 25 V_{DC} AT + 85 °C; 17 V_{DC} AT + 125 °C | | | | | | |
| 150 | F | 597D157(1)025F(2)(3) | 38 | 8 | 80 | 1.8 |
| 220 | M | 597D227(1)025M(2)(3) | 55 | 8 | 100 | 1.6 |
| 35 V_{DC} AT + 85 °C; 23 V_{DC} AT + 125 °C | | | | | | |
| 47 | R | 597D476(1)035R(2)(3) | 17 | 6 | 100 | 1.6 |
| 68 | F | 597D686(1)035F(2)(3) | 24 | 6 | 100 | 1.6 |
| 100 | F | 597D107X0035F(2)(3) | 35 | 8 | 100 | 1.6 |
| 50 V_{DC} AT + 85 °C; 33 V_{DC} AT + 125 °C | | | | | | |
| 15 | E | 597D156(1)050E(2)(3) | 8 | 6 | 300 | 0.9 |
| 15 | R | 597D156(1)050R(2)(3) | 8 | 6 | 250 | 1.0 |
| 22 | R | 597D226(1)050R(2)(3) | 11 | 6 | 220 | 1.1 |
| 33 | F | 597D336(1)050F(2)(3) | 17 | 6 | 150 | 1.3 |
| 47 | Z | 597D476(1)050Z(2)(3) | 24 | 6 | 240 | 1.1 |
| 63 V_{DC} AT + 85 °C; 42 V_{DC} AT + 125 °C | | | | | | |
| 10 | D | 597D106(1)063D(2)(3) | 10 | 6 | 400 | 0.6 |
| 15 | R | 597D156(1)063R(2)(3) | 10 | 6 | 400 | 0.8 |
| 22 | F | 597D226(1)063F(2)(3) | 14 | 6 | 250 | 1.0 |
| 75 V_{DC} AT + 85 °C; 50 V_{DC} AT + 125 °C | | | | | | |
| 10 | R | 597D106(1)075R(2)(3) | 8 | 6 | 500 | 0.7 |

Note

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

| 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 |
| 63 | 37.8 |
| 75 | 45 |
| 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 |
| 63 | 32 |
| 75 | 37 |

TYPICAL CURVES





| POWER DISSIPATION | |
|--------------------------|---|
| CASE CODE | MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR |
| V | 0.141 |
| D | 0.215 |
| E | 0.240 |
| R, F, M | 0.250 |
| Z | 0.265 |
| H | 0.265 |

| STANDARD PACKAGING QUANTITY | |
|------------------------------------|--------------------------|
| CASE CODE | UNITS PER 7" REEL |
| V | 1000 |
| D | 400 |
| E | 500 |
| R | 300 |
| F | 250 |
| Z | 250 |
| M | 200 |
| H | 200 |

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



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JONHON

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