

# Solid Tantalum Chip Capacitors, TANTAMOUNT<sup>®</sup>, 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](http://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](http://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<sub>DC</sub> to 75 V<sub>DC</sub>
**ORDERING INFORMATION**

| 597D<br>TYPE | 687<br>CAPACITANCE   | X0<br>CAPACITANCE TOLERANCE       | 6R3<br>DC VOLTAGE RATING AT + 85 °C  | E<br>CASE CODE                   | 2<br>TERMINATION  | T<br>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. | <b>X0 = ± 20 %</b><br>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 | <b>2 = 100 % tin</b><br>8 = Solder plated (60/40) special order | <b>T = Tape and reel</b><br><b>7" [178 mm] reel</b> |

**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<br>[7.6] | 0.173 ± 0.016<br>[4.4 ± 0.4]               | 0.079<br>[2.0 max.]          | 0.051 ± 0.012<br>[1.3 ± 0.3] | 0.181 ± 0.024<br>[4.6 ± 0.6] | 0.252<br>[6.4] | 0.004<br>[0.1] |
| D         | 0.299<br>[7.6] | 0.173 ± 0.016<br>[4.4 ± 0.4]               | 0.138<br>[3.5 max.]          | 0.051 ± 0.012<br>[1.3 ± 0.3] | 0.181 ± 0.024<br>[4.6 ± 0.6] | 0.252<br>[6.4] | 0.004<br>[0.1] |
| E         | 0.299<br>[7.6] | 0.173 ± 0.016<br>[4.4 ± 0.4]               | 0.157 ± 0.016<br>[4.0 ± 0.4] | 0.051 ± 0.012<br>[1.3 ± 0.3] | 0.181 ± 0.024<br>[4.6 ± 0.6] | 0.252<br>[6.4] | 0.004<br>[0.1] |
| R         | 0.299<br>[7.6] | 0.238 ± 0.016<br>[6.0 ± 0.4]               | 0.142 ± 0.016<br>[3.6 ± 0.4] | 0.051 ± 0.012<br>[1.3 ± 0.3] | 0.181 ± 0.024<br>[4.6 ± 0.6] | 0.244<br>[6.2] | 0.004<br>[0.1] |
| F         | 0.299<br>[7.6] | 0.238 ± 0.016<br>[6.0 ± 0.4]               | 0.185 ± 0.016<br>[4.7 ± 0.4] | 0.055 ± 0.016<br>[1.4 ± 0.4] | 0.181 ± 0.024<br>[4.6 ± 0.6] | 0.244<br>[6.2] | 0.004<br>[0.1] |
| Z         | 0.299<br>[7.6] | 0.238 ± 0.016<br>[6.0 ± 0.4]               | 0.236 ± 0.016<br>[6.0 ± 0.4] | 0.055 ± 0.016<br>[1.4 ± 0.4] | 0.181 ± 0.024<br>[4.6 ± 0.6] | 0.244<br>[6.2] | 0.004<br>[0.1] |
| M         | 0.315<br>[8.0] | 0.260 + 0.016/- 0.024<br>[6.6 + 0.4/- 0.6] | 0.142 ± 0.016<br>[3.6 ± 0.4] | 0.051 ± 0.012<br>[1.3 ± 0.3] | 0.197 ± 0.024<br>[5.0 ± 0.6] | 0.260<br>[6.6] | 0.004<br>[0.1] |
| H         | 0.315<br>[8.0] | 0.260 + 0.016/- 0.024<br>[6.6 + 0.4/- 0.6] | 0.205 ± 0.016<br>[5.2 ± 0.4] | 0.055 ± 0.016<br>[1.4 ± 0.4] | 0.197 ± 0.024<br>[5.0 ± 0.6] | 0.260<br>[6.6] | 0.004<br>[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 <sub>RMS</sub> (A) |
| <b>4 V<sub>DC</sub> AT + 85 °C; 2.7 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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                                      |
| <b>6.3 V<sub>DC</sub> AT + 85 °C; 4 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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                                      |
| <b>10 V<sub>DC</sub> AT + 85 °C; 7 V<sub>DC</sub> AT + 125 °C</b>  |           |                      |                          |                               |                                  |  |
| 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                                      |
| <b>16 V<sub>DC</sub> AT + 85 °C; 10 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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                                      |
| <b>20 V<sub>DC</sub> AT + 85 °C; 13 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 220  | R         | 597D227(1)020R(2)(3) | 44                       | 8                             | 80                               | 1.8                                      |
| 330  | H         | 597D337(1)020H(2)(3) | 66                       | 10                            | 100                              | 1.6                                      |
| <b>25 V<sub>DC</sub> AT + 85 °C; 17 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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"



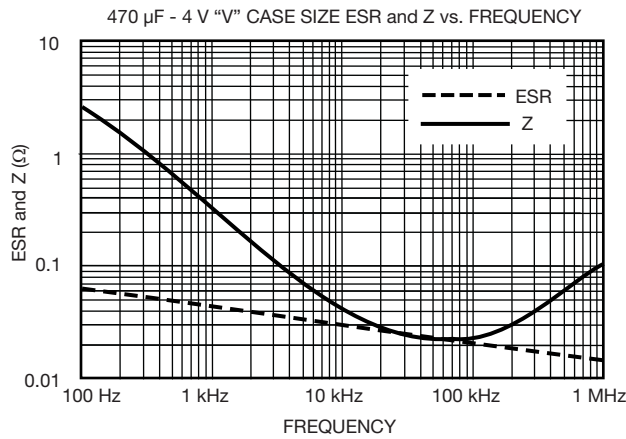
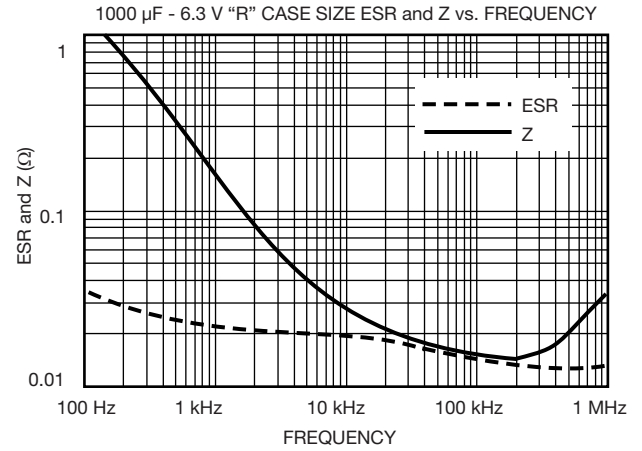
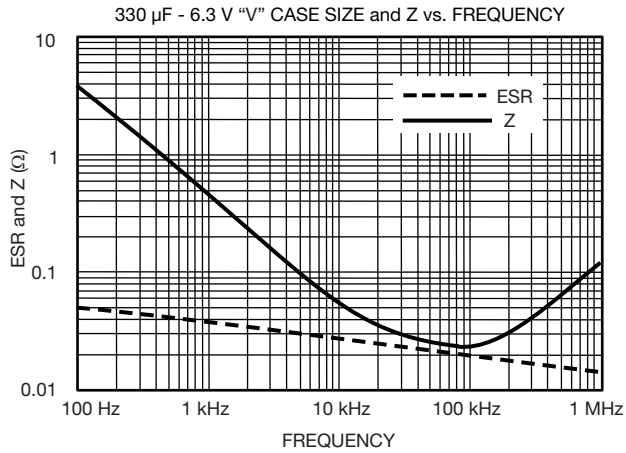
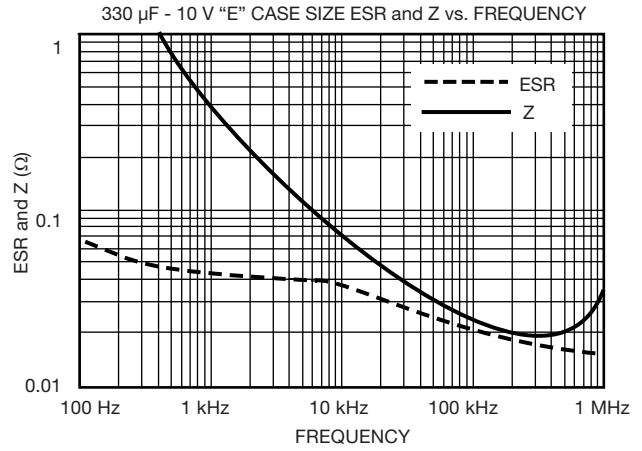
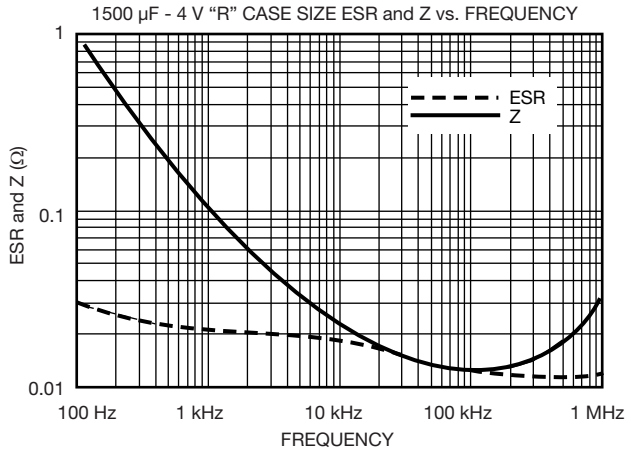
| STANDARD RATINGS   |           |                      |                          |                               |                                  |  |
|--|-----------|----------------------|--------------------------|-------------------------------|----------------------------------|--|
| CAPACITANCE (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 (mΩ) | MAX. RIPPLE 100 kHz I <sub>RMS</sub> (A) |
| <b>25 V<sub>DC</sub> AT + 85 °C; 17 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 150  | F         | 597D157(1)025F(2)(3) | 38                       | 8                             | 80                               | 1.8                                      |
| 220  | M         | 597D227(1)025M(2)(3) | 55                       | 8                             | 100                              | 1.6                                      |
| <b>35 V<sub>DC</sub> AT + 85 °C; 23 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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                                      |
| <b>50 V<sub>DC</sub> AT + 85 °C; 33 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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                                      |
| <b>63 V<sub>DC</sub> AT + 85 °C; 42 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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                                      |
| <b>75 V<sub>DC</sub> AT + 85 °C; 50 V<sub>DC</sub> AT + 125 °C</b> |           |                      |                          |                               |                                  |  |
| 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**





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

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

| <b>PRODUCT INFORMATION</b>    |  |
|-------------------------------|--|
| Conformal Coated Guide        | <a href="http://www.vishay.com/doc?40150">www.vishay.com/doc?40150</a> |
| Pad Dimensions                |  |
| Packaging Dimensions          |  |
| Moisture Sensitivity          | <a href="http://www.vishay.com/doc?40135">www.vishay.com/doc?40135</a> |
| <b>SELECTOR GUIDES</b>        |  |
| Solid Tantalum Selector Guide | <a href="http://www.vishay.com/doc?49053">www.vishay.com/doc?49053</a> |
| <b>FAQ</b>                    |  |
| Frequently Asked Questions    | <a href="http://www.vishay.com/doc?40110">www.vishay.com/doc?40110</a> |



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**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

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- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- 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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(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«**FORSTAR**» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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