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

Pb-free Available

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}

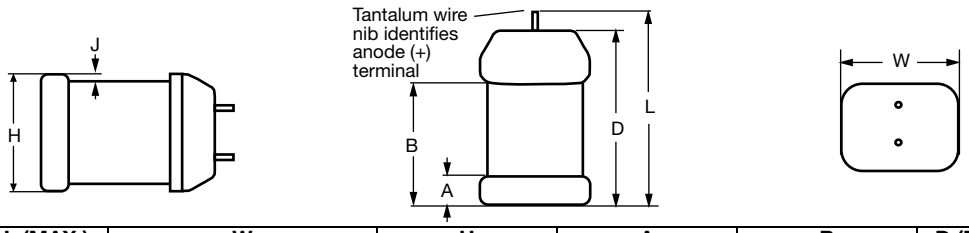
ORDERING INFORMATION

597D	687	X0	6R3	E	2	T
TYPE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	CASE CODE	TERMINATION	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:
  (1) Tolerance: For 10 % tolerance, specify “X9”, for 20 % tolerance, change to “X0”
  (2) Termination: For 100 % tin specify “2”, for solder plated 60/40 specify “8”
  (3) 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_{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:
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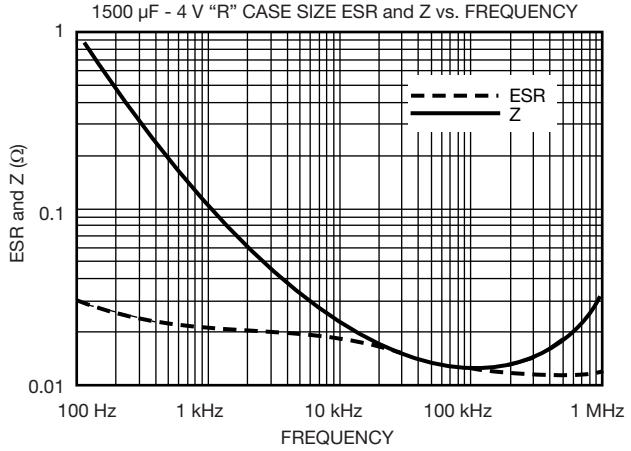
  (2) Termination: For 100 % tin specify “2”, for solder plated 60/40 specify “8”
  (3) Packaging code: For 7" reels specify “T”

RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperature below + 85 °C)

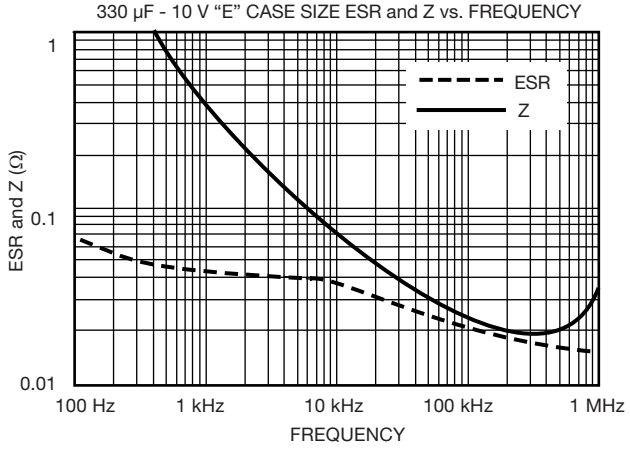
STANDARD CONDITIONS. FOR EXAMPLE: OUTPUT FILTERS	
Capacitor Voltage Rating	**Operating Voltage**
4.0	2.5
6.3	3.6
10	6.0
16	10
20	12
25	15
35	24
50	28
63	37.8
75	45
SEVERE CONDITIONS. FOR EXAMPLE: INPUT FILTERS	
Capacitor Voltage Rating	**Operating Voltage**
4.0	2.5
6.3	3.3
10	5.0
16	8.0
20	10
25	12
35	15
50	24
63	32
75	37

TYPICAL CURVES

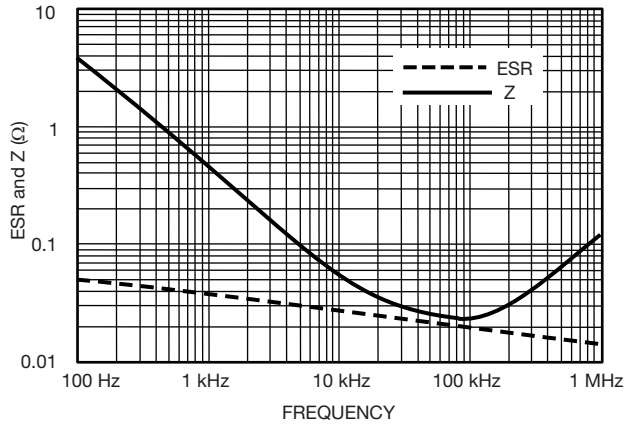
1500 µF - 4 V "R" CASE SIZE ESR and Z vs. FREQUENCY



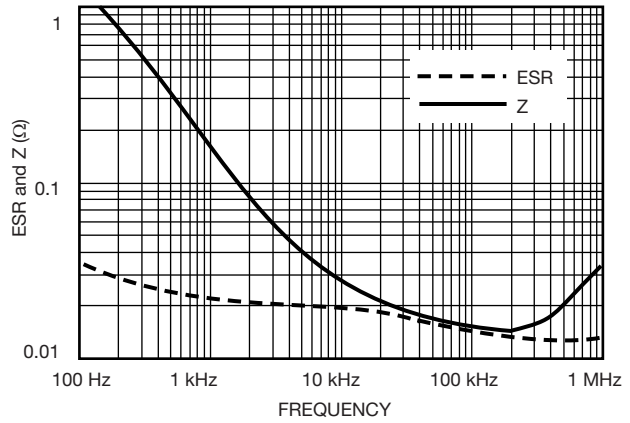
330 µF - 10 V "E" CASE SIZE ESR and Z vs. FREQUENCY



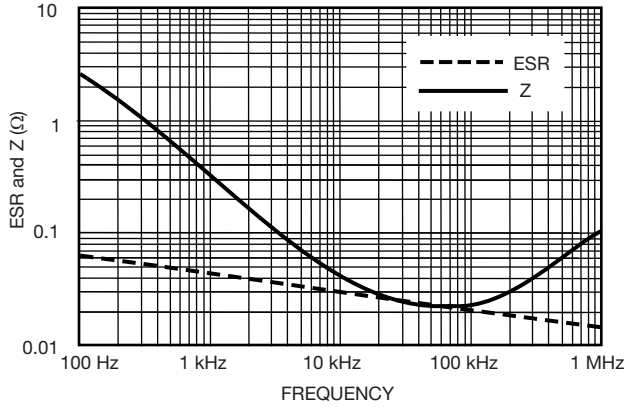
330 µF - 6.3 V "V" CASE SIZE and Z vs. FREQUENCY



1000 µF - 6.3 V "R" CASE SIZE ESR and Z vs. FREQUENCY



470 µF - 4 V "V" CASE SIZE ESR and Z vs. FREQUENCY



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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