

## Solid Tantalum Chip Capacitors TANTAMOUNT®, Hi-Rel COTS, Ultra-Low ESR, Conformal Coated Case



### FEATURES

- High reliability; Weibull failure rate grading available
- Surge current testing per MIL-PRF-55365 options available
- Ultra-low ESR
- Tin/Lead (SnPb) termination available



**RoHS\***  
COMPLIANT

### PERFORMANCE CHARACTERISTICS

**Operating Temperature:** - 55 °C to + 85 °C

(To + 125 °C with voltage derating)

**Capacitance Range:** 15 µF to 1500 µF

**Capacitance Tolerance:** ± 10 %, ± 20 % standard

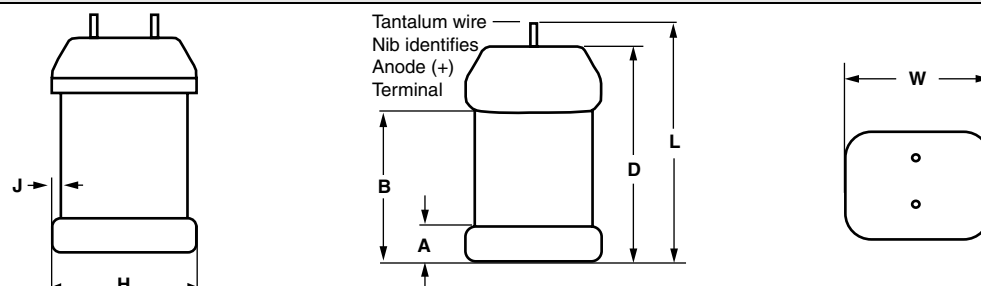
**Voltage Rating:** 4 WVDC to 63 WVDC

### ORDERING INFORMATION

T97 TYPE	R CASE CODE	227 CAPACITANCE	K CAPACITANCE TOLERANCE	020 DC VOLTAGE RATING AT + 85 °C	E TERMINATION/ PACKAGING (Available options are series dependent)	S RELIABILITY LEVEL	A SURGE CURRENT
	See Ratings and Case Codes Table.	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow.	K = ± 10 % M = ± 20 %	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).	E = Sn/Pb Solder/7" (178 mm) reel L = Sn/Pb Solder/7" (178 mm), 1/2 reel C = 100 % Tin/7" (178 mm), reel H = 100 % Tin/7" (178 mm), 1/2 reel	A = 1.0 % Weibull B = 0.1 % Weibull <sup>(1)</sup> S = 40 h Burn-in Z = Non-Established Reliability	A = 10 cycles at + 25 °C B = 10 cycles at - 55 °C/+ 85 °C S = 3 cycles at 25 °C

**Note:** <sup>(1)</sup> Available on select ratings. See ratings table on page 7.

### DIMENSIONS in inches [millimeters]

							
CASE CODE	L (MAX.)	W	H	A	B	D (REF.)	J (MAX.)
E	0.287 ± 0.012 [7.3 ± 0.3]	0.173 ± 0.016 [4.4 ± 0.4]	0.157 ± 0.016 [4.0 ± 0.4]	0.051 ± 0.012 [1.3 ± 0.3]	0.180 ± 0.025 [4.6 ± 0.6]	0.253 [6.4]	0.004 [0.1]
F	0.287 ± 0.012 [7.3 ± 0.3]	0.238 ± 0.016 [6.0 ± 0.4]	0.187 ± 0.016 [4.7 ± 0.4]	0.051 ± 0.012 [1.3 ± 0.3]	0.180 ± 0.025 [4.6 ± 0.6]	0.243 [6.2]	0.004 [0.1]
R	0.287 ± 0.012 [7.3 ± 0.3]	0.238 ± 0.016/- 0.024 [6.0 ± 0.4/- 0.6]	0.142 ± 0.016 [3.6 ± 0.4]	0.051 ± 0.012 [1.3 ± 0.3]	0.180 ± 0.025 [4.6 ± 0.6]	0.243 [6.2]	0.004 [0.1]
V	0.287 ± 0.012 [7.3 ± 0.3]	0.173 ± 0.016 [4.4 ± 0.4]	0.079 [2.0] Max.	0.051 ± 0.012 [1.3 ± 0.3]	0.180 ± 0.025 [4.6 ± 0.6]	0.253 [6.4]	0.004 [0.1]
Z	0.287 ± 0.012 [7.3 ± 0.3]	0.238 ± 0.016 [6.0 ± 0.4]	0.238 ± 0.016 [6.0 ± 0.4]	0.051 ± 0.012 [1.3 ± 0.3]	0.180 ± 0.025 [4.6 ± 0.6]	0.243 [6.2]	0.004 [0.1]

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

\* Pb containing terminations are not RoHS compliant, exemptions may apply



Solid Tantalum Chip Capacitors  
TANTAMOUNT® Hi-Rel COTS, Ultra-Low ESR,  
Conformal Coated Case

Vishay Sprague

RATINGS AND CASE CODE										
μF	4 V	6.3 V	10 V	16 V	20 V	25 V	35 V	50 V	63 V	75 V
10										
15								E/R		
22								R	F*	
33								F		
47							R	Z*		
68						R				
100						F				
150										
220				E	R					
330		V	E		F*					
470	V	E	E	F*						
680	E	E	R							
1000	E/R	R								
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 IRMS (A)
4 WVDC at + 85 °C, SURGE = 5.2 V . . . 2.7 WVDC at + 125 °C, SURGE = 3.4 V						
470	V	T97V477(1)004(2)(3)(5)	19	8	30	2.2
680	E	T97E687(1)004(2)(3)(5)	27	6	25	2.9
1000	E	T97E108(1)004(2)(3)(5)	40	8	20	3.3
1000	R	T97R108(1)004(2)(3)(5)	40	8	18	3.7
1500	R	T97R158(1)004(2)(3)(5)	60	8	15	4.1
6.3 WVDC at + 85 °C, SURGE = 8 V . . . 4 WVDC at + 125 °C, SURGE = 5 V						
330	V	T97V337(1)6R3(2)(3)(5)	21	8	35	2.0
470	E	T97E477(1)6R3(2)(3)(5)	30	6	30	2.7
680	E	T97E687(1)6R3(2)(3)(5)	43	6	25	2.9
1000	R	T97R108(1)6R3(2)(3)(5)	63	8	20	3.5
10 WVDC at + 85 °C, SURGE = 13 V . . . 7 WVDC at + 125 °C, SURGE = 8 V						
330	E	T97E337(1)010(2)(3)(5)	33	6	35	2.5
470	E	T97E477(1)010(2)(3)(5)	47	6	28	2.8
680	R	T97R687(1)010(2)(3)(5)	68	6	28	2.9
16 WVDC at + 85 °C, SURGE = 20 V . . . 10 WVDC at + 125 °C, SURGE = 12 V						
220	E	T97E227(1)016(2)(3)(5)	35	8	40	2.3
470	F	T97E477(1)016(2)(3)(5)*	75	14	100	1.4
20 WVDC at + 85 °C, SURGE = 26 V . . . 13 WVDC at + 125 °C, SURGE = 16 V						
220	R	T97R227(1)020(2)(3)(5)	44	8	80	1.8
330	F	T97F337(1)020(2)(3)(5)*	66	10	100	1.4
25 WVDC at + 85 °C, SURGE = 32 V . . . 17 WVDC at + 125 °C, SURGE = 20 V						
68	R	T97R686(1)025(2)(4)(5)	17	6	100	1.6
150	F	T97F157(1)025(2)(4)(5)	38	8	80	1.8
35 WVDC at + 85 °C, SURGE = 46 V . . . 23 WVDC at + 125 °C, SURGE = 28 V						
47	R	T97R476(1)035(2)(3)(5)	17	6	80	1.8
50 WVDC at + 85 °C, SURGE = 65 V . . . 33 WVDC at + 125 °C, SURGE = 38 V						
15	E	T97E156(1)050(2)(4)(5)	8	6	300	0.8
15	R	T97R156(1)050(2)(3)(5)	8	6	250	1.0
22	R	T97R226(1)050(2)(3)(5)	11	6	170	0.8
33	F	T97F336(1)050(2)(3)(5)	17	6	150	0.8
47	Z	T97Z476(1)050(2)(3)(5)*	24	6	145	1.1
63 WVDC at + 85 °C, SURGE = 81 V . . . 42 WVDC at + 125 °C, SURGE = 54 V						
22	F	T97F226(1)063(2)(3)(5)*	14	6	200	0.9

## Notes:

\* Contact factory for availability

(1) Capacitance Tolerance: K, M

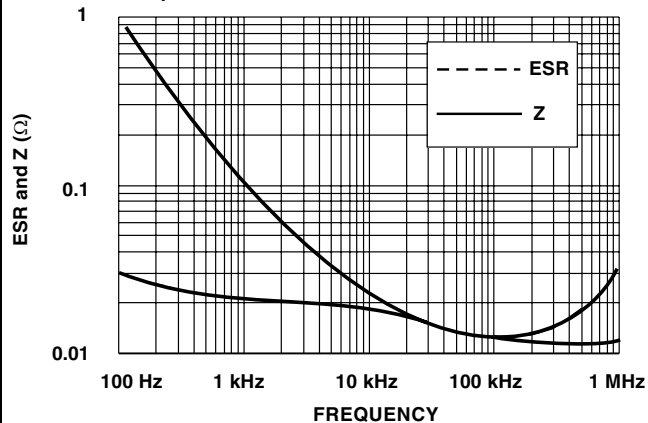
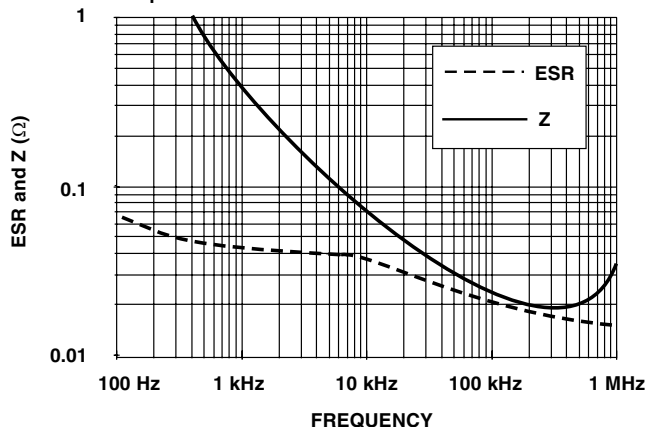
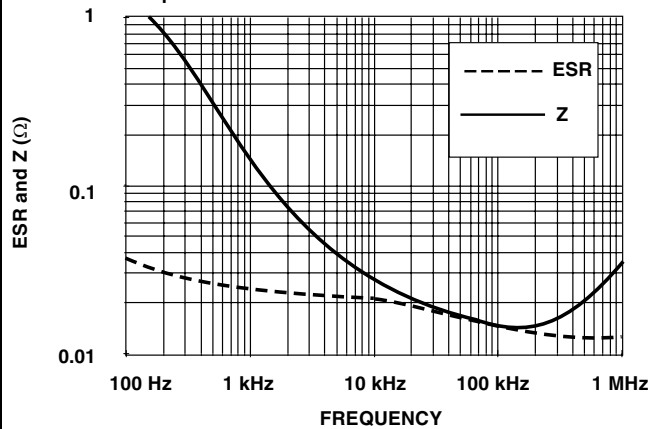
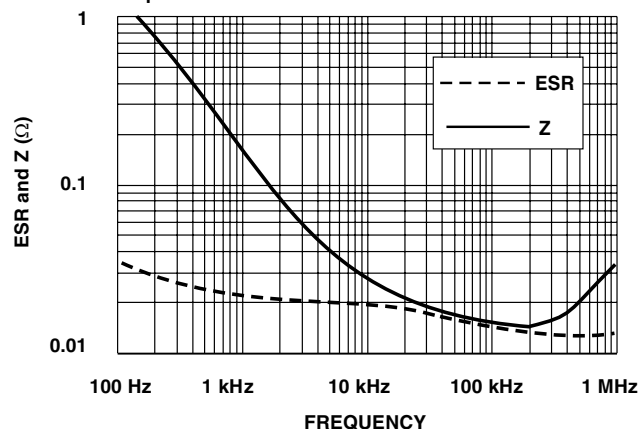
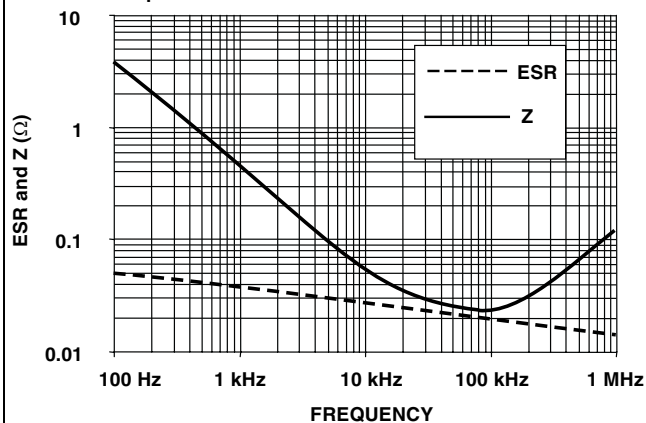
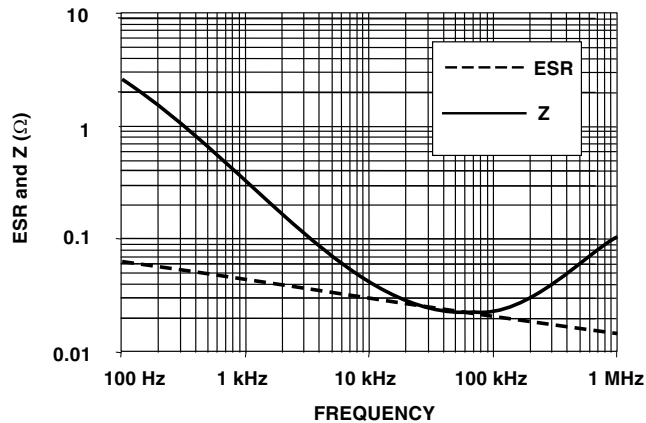
(2) Termination and Packaging: C, E, H, L

(3) Reliability Level: A, S, Z

(4) Reliability Level: A,B, S, Z

(5) Surge Current: A, B, S

## TYPICAL CURVES

T97 1500  $\mu$ F - 4 V 'R' CASE SIZE ESR and Z vs. FREQUENCYT97 330  $\mu$ F - 10 V 'E' CASE SIZE ESR and Z vs. FREQUENCYT97 1000  $\mu$ F - 4 V 'E' CASE SIZE ESR and Z vs. FREQUENCYT97 1000  $\mu$ F - 6.3 V 'R' CASE SIZE ESR and Z vs. FREQUENCYT97 330  $\mu$ F - 6.3 V 'V' CASE SIZE ESR and Z vs. FREQUENCYT97 470  $\mu$ F - 4 V 'V' CASE SIZE ESR and Z vs. FREQUENCY



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