

Solid Tantalum Surface Mount TANTAMOUNT[®], Molded Case, Hi-Rel COTS


FEATURES

- Terminations: 100 % matte tin and tin/lead
- Standard EIA 535BAAC case sizes (A through E)
- Weibull grading and surge current test options
- Standard and low ESR options
- Mounting: Surface mount
- Compliant to RoHS Directive 2002/95/EC
- Moisture sensitivity level 1


RoHS*
COMPLIANT

Note

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

PERFORMANCE/ELECTRICAL CHARACTERISTICS
www.vishay.com/doc?40088

Operating Temperature: - 55 °C to + 125 °C
(above 85 °C, voltage derating is required)

Capacitance Range: 0.1 μF to 470 μF

Capacitance Tolerance: ± 10 %, ± 20 %

Voltage Rating: 4 V_{DC} to 63 V_{DC}

ORDERING INFORMATION								
T83	D	107	K	010	E	A	A	S
TYPE	CASE CODE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	TERMINATION AND PACKAGING	RELIABILITY LEVEL	SURGE CURRENT	ESR
	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).	C: Matte tin/7" (178 mm) reels H: Matte tin/7" (178 mm), ½ reel E: Tin/lead /7" (178 mm) reel L: Tin/lead/7" (178 mm), ½ reel	A = 1.0 % B = 0.1 % C = 0.01 % S = Hi-Rel standard Z = Non-ER	A = 10 cycles at + 25 °C B = 10 cycles at - 55 °C/+ 85 °C Z = None S = 3 cycles at + 25 °C	S = Std L = Low

DIMENSIONS in inches (millimeters)							
CASE CODE	EIA SIZE	L	W	H	P	Tw	TH (MIN.)
A	3216-18	0.126 ± 0.008 [3.2 ± 0.20]	0.063 ± 0.008 [1.6 ± 0.20]	0.063 ± 0.008 [1.6 ± 0.20]	0.031 ± 0.012 [0.80 ± 0.30]	0.047 ± 0.004 [1.2 ± 0.10]	0.028 [0.70]
B	3528-21	0.138 ± 0.008 [3.5 ± 0.20]	0.110 ± 0.008 [2.8 ± 0.20]	0.075 ± 0.008 [1.9 ± 0.20]	0.031 ± 0.012 [0.80 ± 0.30]	0.087 ± 0.004 [2.2 ± 0.10]	0.028 [0.70]
C	6032-28	0.236 ± 0.012 [6.0 ± 0.30]	0.126 ± 0.012 [3.2 ± 0.30]	0.098 ± 0.012 [2.5 ± 0.30]	0.051 ± 0.012 [1.3 ± 0.30]	0.087 ± 0.004 [2.2 ± 0.10]	0.039 [1.0]
D	7343-31	0.287 ± 0.012 [7.3 ± 0.30]	0.169 ± 0.012 [4.3 ± 0.30]	0.110 ± 0.012 [2.8 ± 0.30]	0.051 ± 0.012 [1.3 ± 0.30]	0.094 ± 0.004 [2.4 ± 0.10]	0.039 [1.0]
E	7343-43	0.287 ± 0.012 [7.3 ± 0.30]	0.169 ± 0.012 [4.3 ± 0.30]	0.157 ± 0.012 [4.0 ± 0.30]	0.051 ± 0.012 [1.3 ± 0.30]	0.094 ± 0.004 [2.4 ± 0.10]	0.039 [1.0]

RATINGS AND CASE CODES									
μF	4 V	6.3 V	10 V	16 V	20 V	25 V	35 V	50 V	63 V
0.10							A	A	
0.15							A	A/B	
0.22							A	B	
0.33						A	A	B	
0.47					A	A	A/B	B/C	
0.68				A	A	B	B	C	
1.0			A	A	A	A/B	A/B	B/C	
1.5		A	A	A	B	B	B/C	C/D	
2.2	A	A		B	A/B	A/B/C	B/C	C/D	
3.3	A	A	B	B	B	B/C	B/C	D	
4.7	A	A/B	A/B	A/B	A/B/C	B/C	C/D	D	D
6.8	B	B	B	C	C	C/D	C/D	E	
10	B	B	A/C	A/B/C	B/C	B/C/D	C/D	E	E
15	B	C	A/C	B	D	C/D	D		
22		A/C	A	B/D	C/D	D	D/E		
33	A/C	B/C	B/C/D	B/C/D	D	D/E			
47	B/C	B/C/D	B/C/D	C/D	D/E	D/E			
68	D	D	D	D	D/E				
100	B/D	B/D	C/D	D/E	E				
150	D	D/E	D	E					
220		C/D/E	D/E						
330	E	E	E						
470			E						

MARKING																						
<p>Indicates Hi-Rel COTS</p> <p>Capacitance Code, pF</p> <p>V 104T</p> <p>Polarity Band (+)</p> <p>Voltage Code</p> <p>A Case</p>	<table border="1"> <thead> <tr> <th colspan="2">"A" CASE VOLTAGE CODE</th> </tr> <tr> <th>VOLTS</th> <th>CODE</th> </tr> </thead> <tbody> <tr><td>4.0</td><td>G</td></tr> <tr><td>6.3</td><td>J</td></tr> <tr><td>10</td><td>A</td></tr> <tr><td>16</td><td>C</td></tr> <tr><td>20</td><td>D</td></tr> <tr><td>25</td><td>E</td></tr> <tr><td>35</td><td>V</td></tr> <tr><td>50</td><td>T</td></tr> </tbody> </table>		"A" CASE VOLTAGE CODE		VOLTS	CODE	4.0	G	6.3	J	10	A	16	C	20	D	25	E	35	V	50	T
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	<p>Indicates Hi-Rel COTS</p> <p>Capacitance μF</p> <p>Voltage</p> <p>22 T10</p> <p>Polarity Band (+)</p> <p>XX ②</p> <p>Date Code</p> <p>Vishay Sprague Logo</p> <p>B, C, D, E Cases</p>																					
<p>Marking</p> <p>Capacitor marking includes an anode (+) polarity band, capacitance in microfarads and the voltage rating. "A" case capacitors use a letter code for the voltage and EIA capacitance code.</p> <p>The Vishay Sprague® trademark is included if space permits. Capacitors rated at 6.3 V are marked 6 V.</p> <p>A manufacturing date code is marked on all capacitors.</p> <p>Call the factory for further explanation.</p>																						



STANDARD RATINGS								
CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μ A)	MAX. DF AT + 25 °C 120 Hz (%)	STD. (S) MAX. ESR AT + 25 °C 100 kHz (Ω)	LOW (L) MAX. ESR AT + 25 °C 100 kHz (Ω)	AVAILABLE RELIABILITY LEVELS	
4 V_{DC} AT + 85 °C; 2.7 V_{DC} AT + 125 °C								
2.2	A	T83A225(1)004(2)(6)(4)(5)	0.5	6	7.600	6.000	A, B, C, S, Z	
3.3	A	T83A335(1)004(2)(3)(4)(5)	0.5	6	7.600	4.000	A, B, S, Z	
4.7	A	T83A475(1)004(2)(6)(4)(5)	0.5	6	6.300	3.500	A, B, C, S, Z	
6.8	B	T83B685(1)004(2)(6)(4)(5)	0.5	6	4.500	2.000	A, B, C, S, Z	
10	B	T83B106(1)004(2)(6)(4)(5)	0.5	6	3.500	1.200	A, B, C, S, Z	
15	B	T83B156(1)004(2)(6)(4)(5)	0.6	6	2.900	1.200	A, B, C, S, Z	
33	A	T83A336(1)004(2)(3)(4)(5)	1.3	6	2.900	1.500	A, B, S, Z	
33	C	T83C336(1)004(2)(6)(4)(5)	1.3	6	1.800	0.500	A, B, C, S, Z	
47	B	T83B476(1)004(2)(3)(4)(5)	1.9	6	2.500	0.600	A, B, S, Z	
47	C	T83C476(1)004(2)(3)(4)(5)	1.9	6	1.800	0.400	A, B, S, Z	
68	D	T83D686(1)004(2)(6)(4)(5)	2.7	6	0.800	0.175	A, B, C, S, Z	
100	B	T83B107(1)004(2)(3)(4)(5)	4.0	6	1.800	0.450	A, B, S, Z	
100	D	T83D107(1)004(2)(6)(4)(5)	4.0	6	0.700	0.175	A, B, C, S, Z	
150	D	T83D157(1)004(2)(3)(4)(5)	6.0	8	0.600	0.150	A, B, S, Z	
330	E	T83E337(1)004(2)(3)(4)(5)	13.2	8	0.500	0.100	A, B, S, Z	
6 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C								
1.5	A	T83A155(1)6R3(2)(6)(4)(5)	0.5	6	8.000	6.000	A, B, C, S, Z	
2.2	A	T83A225(1)6R3(2)(6)(4)(5)	0.5	6	7.600	6.000	A, B, C, S, Z	
3.3	A	T83A335(1)6R3(2)(6)(4)(5)	0.5	6	6.300	5.000	A, B, C, S, Z	
4.7	A	T83A475(1)6R3(2)(3)(4)(5)	0.5	6	5.500	3.500	A, B, S, Z	
4.7	B	T83B475(1)6R3(2)(6)(4)(5)	0.5	6	3.400	1.800	A, B, C, S, Z	
6.8	B	T83B685(1)6R3(2)(6)(4)(5)	0.5	6	3.400	1.200	A, B, C, S, Z	
10	B	T83B106(1)6R3(2)(6)(4)(5)	0.6	6	2.900	1.000	A, B, C, S, Z	
15	C	T83C156(1)6R3(2)(6)(4)(5)	0.9	6	1.800	0.600	A, B, C, S, Z	
22	A	T83A226(1)6R3(2)(3)(4)(5)	1.3	6	2.900	2.000	A, B, S, Z	
22	C	T83C226(1)6R3(2)(6)(4)(5)	1.3	6	1.800	0.500	A, B, C, S, Z	
33	B	T83B336(1)6R3(2)(3)(4)(5)	2.0	6	1.900	0.600	A, B, S, Z	
33	C	T83C336(1)6R3(2)(3)(4)(5)	2.0	6	1.500	0.400	A, B, S, Z	
47	B	T83B476(1)6R3(2)(3)(4)(5)	2.8	6	2.000	0.550	A, B, S, Z	
47	C	T83C476(1)6R3(2)(3)(4)(5)	2.8	6	1.400	0.300	A, B, S, Z	
47	D	T83D476(1)6R3(2)(6)(4)(5)	2.8	6	0.800	0.200	A, B, C, S, Z	
68	D	T83D686(1)6R3(2)(6)(4)(5)	4.1	6	0.700	0.200	A, B, C, S, Z	
100	B	T83B107(1)6R3(2)(3)(4)(5)	6.0	15	1.700	0.700	A, B, S, Z	
100	D	T83D107(1)6R3(2)(3)(4)(5)	6.0	6	0.700	0.140	A, B, S, Z	
150	D	T83D157(1)6R3(2)(3)(4)(5)	9.0	8	0.600	0.125	A, B, S, Z	
150	E	T83E157(1)6R3(2)(3)(4)(5)	9.0	8	0.500	0.100	A, B, S, Z	
220	C	T83C227(1)6R3(2)(3)(4)(5)	13.9	14	0.700	0.300	A, B, S, Z	
220	D	T83D227(1)6R3(2)(3)(4)(5)	13.2	8	0.600	0.100	A, B, S, Z	
220	E	T83E227(1)6R3(2)(3)(4)(5)	13.2	8	0.500	0.100	A, B, S, Z	
330	E	T83E337(1)6R3(2)(3)(4)(5)	19.8	8	0.500	0.100	A, B, S, Z	

Note

- Part number definitions:
 - Capacitance tolerance: K, M
 - Termination and packaging: C, E, H, L
 - Reliability level: A, B, S, Z
 - Surge current: A, B, Z, S
 - ESR: L, S
 - Reliability level: A, B, C, S, Z
 - Reliability level: A, S, Z



STANDARD RATINGS							
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μA)	MAX. DF AT + 25 °C 120 Hz (%)	STD. (S) MAX. ESR AT + 25 °C 100 kHz (Ω)	LOW (L) MAX. ESR AT + 25 °C 100 kHz (Ω)	AVAILABLE RELIABILITY LEVELS
10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C							
1.0	A	T83A105(1)010(2)(6)(4)(5)	0.5	4	9.300	6.000	A, B, C, S, Z
1.5	A	T83A155(1)010(2)(6)(4)(5)	0.5	6	8.000	6.000	A, B, C, S, Z
3.3	B	T83B335(1)010(2)(6)(4)(5)	0.5	6	3.500	2.500	A, B, C, S, Z
4.7	A	T83A475(1)010(2)(3)(4)(5)	0.5	6	5.000	3.000	A, B, S, Z
4.7	B	T83B475(1)010(2)(6)(4)(5)	0.5	6	3.400	1.500	A, B, C, S, Z
6.8	B	T83B685(1)010(2)(6)(4)(5)	0.7	6	2.900	1.200	A, B, C, S, Z
10	A	T83A106(1)010(2)(3)(4)(5)	1.0	6	3.400	2.000	A, B, S, Z
10	C	T83C106(1)010(2)(3)(4)(5)	1.0	6	1.800	0.550	A, B, S, Z
15	A	T83A156(1)010(2)(3)(4)(5)	1.5	6	2.900	2.000	A, B, S, Z
15	C	T83C156(1)010(2)(6)(4)(5)	1.5	6	1.800	0.500	A, B, C, S, Z
22	A	T83A226(1)010(2)(3)(4)(5)	2.2	8	2.500	1.500	A, B, S, Z
33	B	T83B336(1)010(2)(3)(4)(5)	3.3	6	1.900	0.600	A, B, S, Z
33	C	T83C336(1)010(2)(3)(4)(5)	3.3	6	1.400	0.350	A, B, S, Z
33	D	T83D336(1)010(2)(6)(4)(5)	3.3	6	0.800	0.250	A, B, S, Z
47	B	T83B476(1)010(2)(3)(4)(5)	4.7	6	1.800	0.600	A, B, S, Z
47	C	T83C476(1)010(2)(3)(4)(5)	4.7	6	1.100	0.300	A, B, S, Z
47	D	T83D476(1)010(2)(6)(4)(5)	4.7	6	0.700	0.200	A, B, C, S, Z
68	D	T83D686(1)010(2)(3)(4)(5)	6.8	6	0.700	0.150	A, B, S, Z
100	C	T83C107(1)010(2)(3)(4)(5)	10.0	8	0.900	0.200	A, B, S, Z
100	D	T83D107(1)010(2)(3)(4)(5)	10.0	8	0.600	0.100	A, B, S, Z
150	D	T83D157(1)010(2)(3)(4)(5)	15.0	8	0.600	0.100	A, B, S, Z
220	D	T83D227(1)010(2)(3)(4)(5)	22.0	8	0.600	0.360	A, B, S, Z
220	E	T83E227(1)010(2)(3)(4)(5)	22.0	8	0.500	0.100	A, B, S, Z
330	E	T83E337(1)010(2)(3)(4)(5)	33.0	10	0.500	0.100	A, B, S, Z
470	E	T83E477(1)010(2)(3)(4)(5)	47.0	15	0.500	0.100	A, B, S, Z
16 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C							
0.68	A	T83A684(1)016(2)(3)(4)(5)	0.5	4	11.000	8.000	A, B, S, Z
1.0	A	T83A105(1)016(2)(3)(4)(5)	0.5	4	9.300	6.000	A, B, S, Z
1.5	A	T83A155(1)016(2)(3)(4)(5)	0.5	6	6.700	6.000	A, B, S, Z
2.2	B	T83B225(1)016(2)(3)(4)(5)	0.5	6	4.600	2.500	A, B, S, Z
3.3	B	T83B335(1)016(2)(3)(4)(5)	0.5	6	3.500	2.000	A, B, S, Z
4.7	A	T83A475(1)016(2)(3)(4)(5)	0.8	6	5.000	3.500	A, B, S, Z
4.7	B	T83B475(1)016(2)(3)(4)(5)	0.8	6	2.900	1.500	A, B, S, Z
6.8	C	T83C685(1)016(2)(3)(4)(5)	1.1	6	1.900	0.600	A, B, S, Z
10	A	T83A106(1)016(2)(3)(4)(5)	1.6	6	3.000	1.700	A, B, S, Z
10	B	T83B106(1)016(2)(3)(4)(5)	1.6	6	2.800	0.800	A, B, S, Z

Note

- Part number definitions:
 - Capacitance tolerance: K, M
 - Termination and packaging: C, E, H, L
 - Reliability level: A, B, S, Z
 - Surge current: A, B, Z, S
 - ESR: L, S
 - Reliability level: A, B, C, S, Z
 - Reliability level: A, S, Z



STANDARD RATINGS							
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μA)	MAX. DF AT + 25 °C 120 Hz (%)	STD. (S) MAX. ESR AT + 25 °C 100 kHz (Ω)	LOW (L) MAX. ESR AT + 25 °C 100 kHz (Ω)	AVAILABLE RELIABILITY LEVELS
16 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C							
10	C	T83C106(1)016(2)(3)(4)(5)	1.6	6	1.800	0.450	A, B, S, Z
15	B	T83B156(1)016(2)(3)(4)(5)	2.4	6	0.800	2.000	A, B, S, Z
22	B	T83B226(1)016(2)(3)(4)(5)	3.5	6	1.000	1.900	A, B, S, Z
22	D	T83D226(1)016(2)(3)(4)(5)	3.5	6	0.800	0.250	A, B, S, Z
33	B	T83B336(1)016(2)(3)(4)(5)	5.3	6	1.800	0.500	A, B, S, Z
33	C	T83C336(1)016(2)(3)(4)(5)	5.3	6	1.100	0.300	A, B, S, Z
33	D	T83D336(1)016(2)(3)(4)(5)	5.3	6	0.700	0.225	A, B, S, Z
47	C	T83C476(1)016(2)(3)(4)(5)	1.5	6	1.000	0.300	A, B, S, Z
47	D	T83D476(1)016(2)(3)(4)(5)	7.5	6	0.700	0.150	A, B, S, Z
68	D	T83D686(1)016(2)(3)(4)(5)	10.9	6	0.600	0.150	A, B, S, Z
100	D	T83D107(1)016(2)(3)(4)(5)	16.0	8	0.600	0.125	A, B, S, Z
100	E	T83E107(1)016(2)(3)(4)(5)	16.0	8	0.600	0.100	A, B, S, Z
150	E	T83E157(1)016(2)(3)(4)(5)	24.0	8	0.500	0.150	A, B, S, Z
20 V_{DC} AT + 85 °C; 13 V_{DC} AT + 125 °C							
0.47	A	T83A474(1)020(2)(3)(4)(5)	0.5	4	12.000	9.000	A, B, S, Z
0.68	A	T83A684(1)020(2)(6)(4)(5)	0.5	4	10.000	8.000	A, B, C, S, Z
1.0	A	T83A105(1)020(2)(6)(4)(5)	0.5	4	8.400	5.500	A, B, C, S, Z
1.5	B	T83B155(1)020(2)(3)(4)(5)	0.5	6	4.600	2.500	A, B, S, Z
2.2	A	T83A225(1)020(2)(3)(4)(5)	0.5	6	5.900	4.000	A, B, S, Z
2.2	B	T83B225(1)020(2)(6)(4)(5)	0.5	6	3.500	1.500	A, B, C, S, Z
3.3	B	T83B335(1)020(2)(6)(4)(5)	0.7	6	3.000	1.300	A, B, C, S, Z
4.7	A	T83A475(1)020(2)(3)(4)(5)	0.9	6	5.000	3.500	A, B, S, Z
4.7	B	T83B475(1)020(2)(3)(4)(5)	0.9	6	2.900	1.000	A, B, S, Z
4.7	C	T83C475(1)020(2)(3)(4)(5)	0.9	6	2.300	0.600	A, B, S, Z
6.8	C	T83C685(1)020(2)(6)(4)(5)	1.4	6	1.900	0.550	A, B, C, S, Z
10	B	T83B106(1)020(2)(3)(4)(5)	2.0	6	2.500	1.000	A, B, S, Z
10	C	T83C106(1)020(2)(3)(4)(5)	2.0	6	1.700	0.450	A, B, S, Z
15	D	T83D156(1)020(2)(6)(4)(5)	3.0	6	0.900	0.300	A, B, C, S, Z
22	C	T83C226(1)020(2)(3)(4)(5)	4.4	6	1.100	0.375	A, B, S, Z
22	D	T83D226(1)020(2)(6)(4)(5)	4.4	6	0.700	0.225	A, B, C, S, Z
33	D	T83D336(1)020(2)(3)(4)(5)	6.6	6	0.700	0.200	A, B, S, Z
47	D	T83D476(1)020(2)(3)(4)(5)	9.4	6	0.700	0.200	A, B, S, Z
47	E	T83E476(1)020(2)(3)(4)(5)	9.4	6	0.600	0.150	A, B, S, Z
68	D	T83D686(1)020(2)(3)(4)(5)	13.6	6	0.700	0.175	A, B, S, Z
68	E	T83E686(1)020(2)(3)(4)(5)	13.6	6	0.600	0.150	A, B, S, Z
100	E	T83E107(1)020(2)(3)(4)(5)	20.0	8	0.500	0.150	A, B, S, Z

Note

- Part number definitions:
 - Capacitance tolerance: K, M
 - Termination and packaging: C, E, H, L
 - Reliability level: A, B, S, Z
 - Surge current: A, B, Z, S
 - ESR: L, S
 - Reliability level: A, B, C, S, Z
 - Reliability level: A, S, Z



STANDARD RATINGS							
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μA)	MAX. DF AT + 25 °C 120 Hz (%)	STD. (S) MAX. ESR AT + 25 °C 100 kHz (Ω)	LOW (L) MAX. ESR AT + 25 °C 100 kHz (Ω)	AVAILABLE RELIABILITY LEVELS
25 V_{DC} AT + 85 °C; 17 V_{DC} AT + 125 °C							
0.33	A	T83A334(1)025(2)(3)(4)(5)	0.5	4	14.000	10.000	A, B, S, Z
0.47	A	T83A474(1)025(2)(3)(4)(5)	0.5	4	12.000	9.000	A, B, S, Z
0.68	B	T83B684(1)025(2)(3)(4)(5)	0.5	4	7.000	5.000	A, B, S, Z
1.0	A	T83A105(1)025(2)(3)(4)(5)	0.5	4	6.100	3.200	A, B, S, Z
1.0	B	T83B105(1)025(2)(6)(4)(5)	0.5	4	5.000	2.000	A, B, C, S, Z
1.5	B	T83B155(1)025(2)(6)(4)(5)	0.5	6	4.600	2.000	A, B, C, S, Z
2.2	A	T83A225(1)025(2)(3)(4)(5)	0.6	6	6.300	4.000	A, B, S, Z
2.2	B	T83B225(1)025(2)(3)(4)(5)	0.6	6	3.800	2.300	A, B, S, Z
2.2	C	T83C225(1)025(2)(6)(4)(5)	0.6	6	2.900	1.000	A, B, C, S, Z
3.3	B	T83B335(1)025(2)(3)(4)(5)	0.8	6	3.100	1.500	A, B, S, Z
3.3	C	T83C335(1)025(2)(3)(4)(5)	0.8	6	2.300	1.000	A, B, S, Z
4.7	B	T83B475(1)025(2)(3)(4)(5)	1.2	6	2.800	1.500	A, B, S, Z
4.7	C	T83C475(1)025(2)(6)(4)(5)	1.2	6	2.000	0.525	A, B, C, S, Z
6.8	C	T83C685(1)025(2)(3)(4)(5)	1.7	6	1.700	0.500	A, B, S, Z
6.8	D	T83D685(1)025(2)(6)(4)(5)	1.7	6	1.200	0.350	A, B, C, S, Z
10	B	T83B106(1)025(2)(3)(4)(5)	2.5	6	2.300	1.300	A, B, S, Z
10	C	T83C106(1)025(2)(3)(4)(5)	2.5	6	1.500	0.450	A, B, S, Z
10	D	T83D106(1)025(2)(6)(4)(5)	2.5	6	1.000	0.300	A, B, C, S, Z
15	C	T83C156(1)025(2)(3)(4)(5)	3.8	6	1.200	0.430	A, B, S, Z
15	D	T83D156(1)025(2)(6)(4)(5)	3.8	6	0.800	0.250	A, B, C, S, Z
22	D	T83D226(1)025(2)(3)(4)(5)	5.5	6	0.700	0.200	A, B, S, Z
33	D	T83D336(1)025(2)(3)(4)(5)	8.3	6	0.700	0.300	A, B, S, Z
33	E	T83E336(1)025(2)(3)(4)(5)	8.3	6	0.600	0.200	A, B, S, Z
47	D	T83D476(1)025(2)(6)(4)(5)	11.8	8	0.700	0.350	A, B, C, S, Z
47	E	T83E476(1)025(2)(3)(4)(5)	11.8	6	0.600	0.300	A, B, S, Z
35 V_{DC} AT + 85 °C; 23 V_{DC} AT + 125 °C							
0.10	A	T83A104(1)035(2)(6)(4)(5)	0.5	4	20.000	10.000	A, B, C, S, Z
0.15	A	T83A154(1)035(2)(6)(4)(5)	0.5	4	18.000	6.000	A, B, C, S, Z
0.22	A	T83A224(1)035(2)(6)(4)(5)	0.5	4	15.000	6.000	A, B, C, S, Z
0.33	A	T83A334(1)035(2)(6)(4)(5)	0.5	4	13.000	6.000	A, B, C, S, Z
0.47	A	T83A474(1)035(2)(3)(4)(5)	0.5	4	10.000	4.000	A, B, S, Z
0.47	B	T83B474(1)035(2)(6)(4)(5)	0.5	4	8.000	2.500	A, B, C, S, Z
0.68	B	T83B684(1)035(2)(6)(4)(5)	0.5	4	6.500	2.500	A, B, C, S, Z
1.0	A	T83A105(1)035(2)(3)(4)(5)	0.5	4	7.500	6.000	A, B, S, Z
1.0	B	T83B105(1)035(2)(6)(4)(5)	0.5	4	5.000	2.000	A, B, C, S, Z
1.5	B	T83B155(1)035(2)(3)(4)(5)	0.5	6	4.200	3.000	A, B, S, Z
1.5	C	T83C155(1)035(2)(3)(4)(5)	0.5	6	3.800	1.500	A, B, S, Z
2.2	B	T83B225(1)035(2)(3)(4)(5)	0.8	6	3.800	2.300	A, B, S, Z
2.2	C	T83C225(1)035(2)(6)(4)(5)	0.8	6	2.900	0.900	A, B, C, S, Z

Note

- Part number definitions:
 - (1) Capacitance tolerance: K, M
 - (2) Termination and packaging: C, E, H, L
 - (3) Reliability level: A, B, S, Z
 - (4) Surge current: A, B, Z, S
 - (5) ESR: L, S
 - (6) Reliability level: A, B, C, S, Z
 - (7) Reliability level: A, S, Z



STANDARD RATINGS							
CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μ A)	MAX. DF AT + 25 °C 120 Hz (%)	STD. (S) MAX. ESR AT + 25 °C 100 kHz (Ω)	LOW (L) MAX. ESR AT + 25 °C 100 kHz (Ω)	AVAILABLE RELIABILITY LEVELS
35 V_{DC} AT + 85 °C; 23 V_{DC} AT + 125 °C							
3.3	B	T83B335(1)035(2)(3)(4)(5)	1.2	6	3.500	1.500	A, B, S, Z
3.3	C	T83C335(1)035(2)(6)(4)(5)	1.2	6	2.100	0.700	A, B, C, S, Z
4.7	C	T83C475(1)035(2)(3)(4)(5)	1.6	6	1.900	0.600	A, B, S, Z
4.7	D	T83D475(1)035(2)(3)(4)(5)	1.6	6	1.300	0.600	A, B, S, Z
6.8	C	T83C685(1)035(2)(3)(4)(5)	2.4	6	1.800	0.900	A, B, S, Z
6.8	D	T83D685(1)035(2)(6)(4)(5)	2.4	6	1.100	0.300	A, B, C, S, Z
10	C	T83C106(1)035(2)(3)(4)(5)	3.5	6	1.600	0.850	A, B, S, Z
10	D	T83D106(1)035(2)(3)(4)(5)	3.5	6	0.800	0.300	A, B, S, Z
15	D	T83D156(1)035(2)(3)(4)(5)	5.3	6	0.800	0.300	A, B, S, Z
22	D	T83D226(1)035(2)(3)(4)(5)	7.7	6	0.600	0.400	A, B, S, Z
22	E	T83E226(1)035(2)(3)(4)(5)	7.7	6	0.600	0.300	A, B, S, Z
50 V_{DC} AT + 85 °C; 33 V_{DC} AT + 125 °C							
0.10	A	T83A104(1)050(2)(6)(4)(5)	0.5	4	19.000	10.000	A, B, C, S, Z
0.15	A	T83A154(1)050(2)(3)(4)(5)	0.5	4	17.000	10.000	A, B, S, Z
0.15	B	T83B154(1)050(2)(3)(4)(5)	0.5	4	14.000	9.000	A, B, S, Z
0.22	B	T83B224(1)050(2)(6)(4)(5)	0.5	4	12.000	8.500	A, B, C, S, Z
0.33	B	T83B334(1)050(2)(6)(4)(5)	0.5	4	10.000	4.500	A, B, C, S, Z
0.47	B	T83B474(1)050(2)(3)(4)(5)	0.5	4	8.400	4.000	A, B, S, Z
0.47	C	T83C474(1)050(2)(3)(4)(5)	0.5	4	6.700	1.800	A, B, S, Z
0.68	C	T83C684(1)050(2)(6)(4)(5)	0.5	4	5.900	1.600	A, B, C, S, Z
1.0	B	T83B105(1)050(2)(3)(4)(5)	0.5	4	6.700	2.000	A, B, S, Z
1.0	C	T83C105(1)050(2)(6)(4)(5)	0.5	4	4.600	1.600	A, B, C, S, Z
1.5	C	T83C155(1)050(2)(3)(4)(5)	0.8	6	3.400	1.500	A, B, S, Z
1.5	D	T83D155(1)050(2)(6)(4)(5)	0.8	6	2.900	1.000	A, B, C, S, Z
2.2	C	T83C225(1)050(2)(3)(4)(5)	1.1	6	2.900	1.500	A, B, S, Z
2.2	D	T83D225(1)050(2)(6)(4)(5)	1.1	6	2.100	0.800	A, B, C, S, Z
3.3	D	T83D335(1)050(2)(6)(4)(5)	1.7	6	1.700	0.800	A, B, C, S, Z
4.7	D	T83D475(1)050(2)(6)(4)(5)	2.4	6	1.200	0.600	A, B, C, S, Z
6.8	E	T83E685(1)050(2)(3)(4)(5)	3.4	6	0.900	0.540	A, B, S, Z
10	E	T83E106(1)050(2)(3)(4)(5)	5.0	6	0.800	0.550	A, B, S, Z
63 V_{DC} AT + 85 °C; 41.6 V_{DC} AT + 125 °C							
4.7	D	T83D475(1)063(2)(7)(4)(5)	3.0	6	1.100	0.700	A, S, Z
10	E	T83E106(1)063(2)(7)(4)(5)	6.3	6	1.000	0.600	A, S, Z

Note

- Part number definitions:
 - (1) Capacitance tolerance: K, M
 - (2) Termination and packaging: C, E, H, L
 - (3) Reliability level: A, B, S, Z
 - (4) Surge current: A, B, Z, S
 - (5) ESR: L, S
 - (6) Reliability level: A, B, C, S, Z
 - (7) Reliability level: A, S, Z



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	3.3
10	5.0
16	8.0
20	10
25	12
35	15
50	24
63	32
SEVERE CONDITIONS. FOR EXAMPLE: INPUT 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	38

POWER DISSIPATION	
CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR
A	0.075
B	0.085
C	0.110
D	0.150
E	0.165

STANDARD PACKAGING QUANTITY		
CASE CODE	UNITS PER REEL	
	7" FULL REEL	7" HALF REEL
A	2000	1000
B	2000	1000
C	500	250
D	500	250
E	400	200

PRODUCT INFORMATION	
COTS Guide for Tantalum Capacitors	www.vishay.com/doc?40083
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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