

Solid Tantalum Surface Mount Capacitors TANTAMOUNT® Molded Case, High Temperature



FEATURES

- Operating temperature up to 150 °C with 50 % voltage derating
- High reliability
- RoHS compliant terminations available: Matte tin (all cases) or gold (D/E cases)
- Standard EIA 535BAAC case size (A through E)
- AEC-Q200 qualified
- 100 % surge current tested (B, C, D, E case sizes)
- Compliant to RoHS Directive 2002/95/EC
- Moisture sensitivity level 1



Note

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

PERFORMANCE CHARACTERISTICS

www.vishay.com/doc?40088

Operating Temperature: - 55 °C to + 150 °C

Capacitance Range: 0.33 μ F to 220 μ F

Capacitance Tolerance: \pm 10 %, \pm 20 %

Voltage Rating: 6.3 V_{DC} to 50 V_{DC}

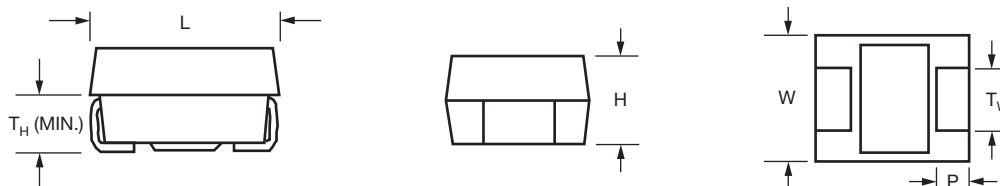
ORDERING INFORMATION						
TH3	D	106	K	035	C	0700
TYPE	CASE CODE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	TERMINATION AND PACKAGING	ESR
	See Ratings and Case Codes table.	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow.	K = \pm 10 % M = \pm 20 %	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)	A: Gold/7" (178 mm) reels ⁽¹⁾ B: Gold/13" (330 mm) reels ⁽¹⁾ C: Matte tin/7" (178 mm) reels D: Matte tin/13" (330 mm) reels E: Tin/lead/7" (178 mm) reels F: Tin/lead/13" (330 mm) reels	Maximum 100 kHz ESR 0500 = 500 m Ω 5000 = 5.0 Ω 10R0 = 10.0 Ω

Notes

- We reserve the right to supply higher voltage ratings and tighter capacitance tolerance capacitors in the same case size. Voltage substitutions will be marked with the higher voltage rating.

⁽¹⁾ Contact factory for availability

DIMENSIONS in inches [millimeters]



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

RATINGS AND CASE CODES							
μF	6.3 V	10 V	16 V	20 V	25 V	35 V	50 V
0.33						A (11.0)	
0.47					A (14.0)		
0.68							
1.0			A (6.5)	A (5.9)	A (3.0, 5.2)/ B (0.5)	A (6.6)/B (4.4)	C (3.3)
1.5			A (4.3)			B (4.2)/C (3.3)	
2.2		A (4.6)	A (3.4)/B (3.0)	A (5.9)/B (3.5)	A (5.2)/B (3.0)	B (2.5)/C (2.2)	
3.3				B (2.7)/C (3.7)	B (3.0)/C (2.0)	B (2.5, 3.5)/ C (1.7)	D (1.7)
4.7		A (2.9)/B (2.7)	A (2.9)/B (2.1)	A (5.0)/ B (2.9, 1.9)/ C (1.7)	A (5.0)/B (2.8)/ C (1.6)	B (3.1)/C (1.3)/ D (1.0)	C (1.5)/D (0.9)
6.8		A (2.6)	A (2.6, 2.0)/ B (1.8)/C (1.7)		B (2.4)/C (1.4)	C (1.8)/D (0.9)	D (0.9)
10	A (3.4, 2.7)	A (3.4)/B(1.8)/ C (1.8, 1.7)	B (2.0)/C (1.4)	C (1.1)	C (1.1)/D (0.9)	C (1.6)/ D (0.3, 0.7)	D (0.8)/E (0.5)
15	B (1.8)	A (2.9, 2.0)/ B (2.0, 1.8, 1.5)/ C (1.8, 1.4)	B (2.0)/C (1.0)	B (2.0)/C (1.0)/ D (0.9)	B (1.4, 2.0)/ C (1.2)/D (0.7)	D (0.7)	
22	B (2.0, 1.5)	B (1.5)/ C (1.5, 1.1)	B (1.9)/C (1.0)/ D (0.8)	C (1.0)/D (0.7)	D (0.6)	D (0.3, 0.6)/ E (0.5)	
33	B (1.9, 1.7)	B (1.9, 1.4)/ D (0.8)	C (0.9, 0.6)/ D (0.6)	D (0.6)	D (0.5)		
47	B (1.8)/C (0.8)	B (1.8)/ C (0.8, 0.5)/ D (0.6)	C (0.8, 0.6)/ D (0.6)	D (0.7)/E (0.6)	E (0.6)		
68	B (1.8)	C (1.0, 0.8)/ D (1.0, 0.6, 0.4)	D (0.6)	E (0.6)			
100	E (0.3)	C (0.9, 0.5)/ D (0.6)	D (0.6)/ E (0.6, 0.15)				
150		D (0.6)					
220		E (0.5)					

Note

- ESR limits in Ω are shown in parenthesis

MARKING																			
	"A" CASE VOLTAGE CODE																		
	<table border="1"> <thead> <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>	VOLTS		CODE	4.0	G	6.3	J	10	A	16	C	20	D	25	E	35	V	50
VOLTS	CODE																		
4.0	G																		
6.3	J																		
10	A																		
16	C																		
20	D																		
25	E																		
35	V																		
50	T																		
Marking 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. The Vishay Sprague® trademark is included if space permits. Capacitors rated at 6.3 V are marked 6 V. A manufacturing date code is marked on all capacitors. Call the factory for further explanation.																			



STANDARD RATINGS							
CAPACITANCE (μF)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μA)	MAX. DF AT + 25 °C (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I_{RMS} (A)	
6.3 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C; 3.15 V_{DC} AT + 150 °C							
10	A	TH3A106(1)6R3(2)3400	0.6	6	3.40	0.15	
10	A	TH3A106(1)6R3(2)2700	0.6	6	2.70	0.17	
15	B	TH3B156(1)6R3(2)1800	0.9	6	1.80	0.22	
22	B	TH3B226(1)6R3(2)2000	1.3	6	2.00	0.21	
22	B	TH3B226(1)6R3(2)1500	1.3	6	1.50	0.24	
33	B	TH3B336(1)6R3(2)1900	2.0	6	1.90	0.21	
33	B	TH3B336(1)6R3(2)1700	2.0	6	1.70	0.22	
47	B	TH3B476(1)6R3(2)1800	2.8	8	1.80	0.22	
47	C	TH3C476(1)6R3(2)0800	2.8	6	0.80	0.37	
68	B	TH3B686(1)6R3(2)1800	4.1	6	1.80	0.22	
100	E	TH3E107(1)6R3(2)0300	6.0	6	0.30	0.74	
10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C; 5 V_{DC} AT + 150 °C							
2.2	A	TH3A225(1)010(2)4600	0.5	6	4.60	0.13	
4.7	A	TH3A475(1)010(2)2900	0.5	6	2.90	0.16	
4.7	B	TH3B475(1)010(2)2700	0.5	6	2.70	0.18	
6.8	A	TH3A685(1)010(2)2600	6.8	6	2.60	0.17	
10	A	TH3A106(1)010(2)3400	1.0	6	3.40	0.15	
10	B	TH3B106(1)010(2)1800	1.0	6	1.80	0.22	
10	C	TH3C106(1)010(2)1800	1.0	6	1.80	0.25	
10	C	TH3C106(1)010(2)1700	1.0	6	1.70	0.25	
15	A	TH3A156(1)010(2)2900	1.0	6	2.90	0.16	
15	A	TH3A156(1)010(2)2000	1.0	6	2.00	0.19	
15	B	TH3B156(1)010(2)2000	1.0	6	2.00	0.21	
15	B	TH3B156(1)010(2)1800	1.0	6	1.80	0.22	
15	B	TH3B156(1)010(2)1500	1.0	6	1.50	0.24	
15	C	TH3C156(1)010(2)1800	1.0	6	1.80	0.25	
15	C	TH3C156(1)010(2)1400	1.0	6	1.40	0.28	
22	B	TH3B226(1)010(2)1500	2.2	6	1.50	0.24	
22	C	TH3C226(1)010(2)1500	2.2	6	1.50	0.27	
22	C	TH3C226(1)010(2)1100	2.2	6	1.10	0.32	
33	B	TH3B336(1)010(2)1900	3.3	6	1.90	0.21	
33	B	TH3B336(1)010(2)1400	3.3	6	1.40	0.25	
33	D	TH3D336(1)010(2)0800	3.3	6	0.80	0.43	
47	B	TH3B476(1)010(2)1800	4.7	6	1.80	0.22	
47	C	TH3C476(1)010(2)0800	4.7	6	0.80	0.37	
47	C	TH3C476(1)010(2)0500	4.7	6	0.50	0.47	
47	D	TH3D476(1)010(2)0600	4.7	6	0.60	0.50	
68	C	TH3C686(1)010(2)1000	6.8	8	1.00	0.33	
68	C	TH3C686(1)010(2)0800	6.8	8	0.80	0.37	
68	D	TH3D686(1)010(2)1000	6.8	6	1.00	0.39	
68	D	TH3D686(1)010(2)0600	6.8	6	0.60	0.50	
68	D	TH3D686(1)010(2)0400	6.8	6	0.40	0.61	
100	C	TH3C107(1)010(2)0900	10.0	6	0.90	0.35	
100	C	TH3C107(1)010(2)0500	10.0	6	0.50	0.47	
100	D	TH3D107(1)010(2)0600	10.0	8	0.60	0.50	
150	D	TH3D157(1)010(2)0600	15.0	8	0.60	0.50	
220	E	TH3E227(1)010(2)0500	22.0	8	0.50	0.61	

Note

- Part number definitions:
 - Capacitance tolerance: K, M
 - Termination and packaging: C, D, E, F
 - Termination and packaging: A, B, C, D, E, F



STANDARD RATINGS						
CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μ A)	MAX. DF AT + 25 °C (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I_{RMS} (A)
16 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C; 8 V_{DC} AT + 150 °C						
1.0	A	TH3A105(1)016(2)6500	0.5	4	6.50	0.11
2.2	A	TH3A225(1)016(2)4300	0.5	6	4.30	0.13
3.3	A	TH3A335(1)016(2)3400	0.5	6	3.40	0.15
3.3	B	TH3B335(1)016(2)3000	0.5	6	3.00	0.17
4.7	A	TH3A475(1)016(2)2900	0.8	6	2.90	0.16
4.7	B	TH3B475(1)016(2)2100	0.8	6	2.10	0.2
6.8	A	TH3A685(1)016(2)2600	1.1	6	2.60	0.17
6.8	A	TH3A685(1)016(2)2000	1.1	6	2.00	0.19
6.8	B	TH3B685(1)016(2)1800	1.1	6	1.80	0.22
6.8	C	TH3C685(1)016(2)1700	1.1	6	1.70	0.25
10	B	TH3B106(1)016(2)2000	1.6	6	2.00	0.21
10	C	TH3C106(1)016(2)1400	1.6	6	1.40	0.28
15	B	TH3B156(1)016(2)2000	2.4	6	2.00	0.21
15	C	TH3C156(1)016(2)1000	2.4	6	1.00	0.33
22	B	TH3B226(1)016(2)1900	3.5	6	1.90	0.21
22	C	TH3C226(1)016(2)1000	3.5	6	1.00	0.33
22	D	TH3D226(1)016(3)0800	3.5	6	0.80	0.43
33	C	TH3C336(1)016(2)0900	5.3	6	0.90	0.35
33	C	TH3C336(1)016(2)0600	5.3	6	0.60	0.43
33	D	TH3D336(1)016(3)0600	5.3	6	0.60	0.50
47	C	TH3C476(1)016(2)0800	7.5	6	0.80	0.37
47	C	TH3C476(1)016(2)0600	7.5	6	0.60	0.43
47	D	TH3D476(1)016(3)0600	7.5	6	0.60	0.43
68	D	TH3D686(1)016(3)0600	10.9	6	0.60	0.50
100	D	TH3D107(1)016(3)0600	16.0	8	0.60	0.50
100	E	TH3E107(1)016(3)0600	16.0	8	0.60	0.56
100	E	TH3E107(1)016(3)0150	16.0	8	0.15	1.11
20 V_{DC} AT + 85 °C; 13 V_{DC} AT + 125 °C; 10 V_{DC} AT + 150 °C						
1.0	A	TH3A105(1)020(2)5900	0.5	4	5.90	0.11
2.2	A	TH3A225(1)020(2)5900	0.5	6	5.90	0.11
2.2	B	TH3B225(1)020(2)3500	0.5	6	3.50	0.16
3.3	B	TH3B335(1)020(2)2700	0.7	6	2.70	0.18
3.3	C	TH3C335(1)020(2)2700	0.7	6	2.70	0.20
4.7	A	TH3A475(1)020(2)5000	0.9	6	5.00	0.12
4.7	B	TH3B475(1)020(2)1900	0.9	6	2.90	0.17
4.7	B	TH3B475(1)020(2)2900	0.9	6	1.90	0.21
4.7	C	TH3C475(1)020(2)1700	0.9	6	1.70	0.25
10	C	TH3C106(1)020(2)1100	2.0	6	1.10	0.32
15	B	TH3B156(1)020(2)2000	3.0	6	2.00	0.21
15	C	TH3C156(1)020(2)1000	3.0	6	1.00	0.33
15	D	TH3D156(1)020(2)0900	3.0	6	0.90	0.41
22	C	TH3C226(1)020(2)1000	4.4	6	1.00	0.33
22	D	TH3D226(1)020(2)0700	4.4	6	0.70	0.46
33	D	TH3D336(1)020(2)0600	6.6	6	0.60	0.5
47	D	TH3D476(1)020(2)0700	9.4	6	0.70	0.46
47	E	TH3E476(1)020(2)0600	9.4	8	0.60	0.56
68	E	TH3E686(1)020(2)0600	13.6	8	0.60	0.56

Note

- Part number definitions:
 - (1) Capacitance tolerance: K, M
 - (2) Termination and packaging: C, D, E, F
 - (3) Termination and packaging: A, B, C, D, E, F

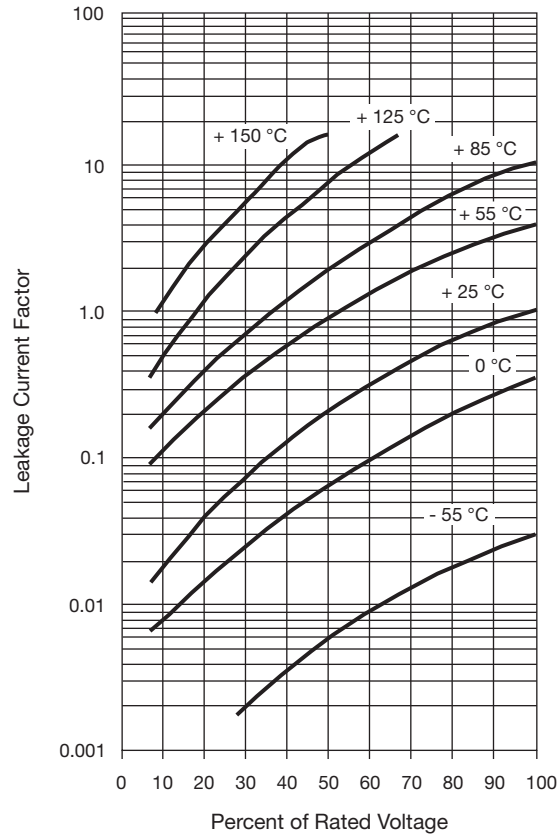


STANDARD RATINGS						
CAPACITANCE (μ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C (μ A)	MAX. DF AT + 25 °C (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I_{RMS} (A)
25 V_{DC} AT + 85 °C; 17 V_{DC} AT + 125 °C; 12.5 V_{DC} AT + 150 °C						
0.47	A	TH3A474(1)025(2)14R0	0.5	4	14.00	0.073
1.0	A	TH3A105(1)025(2)5200	0.5	4	5.20	0.12
1.0	A	TH3A105(1)025(2)3000	0.5	4	3.00	0.16
1.0	B	TH3B105(1)025(2)5000	0.5	4	5.00	0.13
2.2	A	TH3A225(1)025(2)5200	0.6	6	5.20	0.12
2.2	B	TH3B225(1)025(2)3000	0.6	6	3.00	0.17
3.3	B	TH3B335(1)025(2)3000	0.8	6	3.00	0.17
3.3	C	TH3C335(1)025(2)2000	0.8	6	2.00	0.23
4.7	A	TH3A475(1)025(2)5000	1.2	6	5.00	0.12
4.7	B	TH3B475(1)025(2)2800	1.2	6	2.80	0.17
4.7	C	TH3C475(1)025(2)1600	1.2	6	1.60	0.26
6.8	B	TH3B685(1)025(2)2400	1.7	6	2.40	0.19
6.8	C	TH3C685(1)025(2)1400	1.7	6	1.40	0.28
10	C	TH3C106(1)025(2)1100	2.5	6	1.10	0.32
10	D	TH3D106(1)025(2)0900	2.5	6	0.90	0.41
15	B	TH3B156(1)025(2)2000	3.8	6	2.00	0.21
15	B	TH3B156(1)025(2)1400	3.8	6	1.40	0.25
15	C	TH3C156(1)025(2)1200	3.8	6	1.20	0.30
15	D	TH3D156(1)025(2)0700	3.8	6	0.70	0.46
22	D	TH3D226(1)025(2)0600	5.5	6	0.60	0.50
33	D	TH3D336(1)025(2)0500	8.3	6	0.50	0.55
47	E	TH3E476(1)025(2)0600	11.8	6	0.60	0.56
35 V_{DC} AT + 85 °C; 23 V_{DC} AT + 125 °C; 17.5 V_{DC} AT + 150 °C						
0.33	A	TH3A334(1)035(2)11R0	0.5	4	11.00	0.08
1.0	A	TH3A105(1)035(2)6600	0.5	4	6.60	0.11
1.0	B	TH3B105(1)035(2)4400	0.5	4	4.40	0.14
1.5	B	TH3B155(1)035(2)4200	0.5	6	4.20	0.14
1.5	C	TH3C155(1)035(2)3300	0.5	6	3.30	0.18
2.2	B	TH3B225(1)035(2)2500	0.8	6	2.50	0.18
2.2	C	TH3C225(1)035(2)2200	0.8	6	2.20	0.22
3.3	B	TH3B335(1)035(2)3500	1.2	6	3.50	0.16
3.3	B	TH3B335(1)035(2)2500	1.2	6	2.50	0.18
3.3	C	TH3C335(1)035(2)1700	1.2	6	1.70	0.25
4.7	B	TH3B475(1)035(2)3100	1.7	6	3.10	0.17
4.7	C	TH3C475(1)035(2)1300	1.6	6	1.30	0.29
4.7	D	TH3D475(1)035(2)1000	1.6	6	1.00	0.39
6.8	C	TH3C685(1)035(2)1800	2.4	6	1.80	0.25
6.8	D	TH3D685(1)035(2)0900	2.4	6	0.90	0.41
10	C	TH3C106(1)035(2)1600	3.5	6	1.60	0.26
10	D	TH3D106(1)035(2)0700	3.5	6	0.70	0.46
10	D	TH3D106(1)035(2)0300	3.5	6	0.30	0.71
15	D	TH3D156(1)035(2)0700	5.3	6	0.70	0.46
22	D	TH3D226(1)035(2)0600	7.7	6	0.60	0.50
22	D	TH3D226(1)035(2)0300	7.7	6	0.30	0.71
22	E	TH3E226(1)035(2)0500	7.7	6	0.50	0.61
50 V_{DC} AT + 85 °C; 33 V_{DC} AT + 125 °C; 25 V_{DC} AT + 150 °C						
1.0	C	TH3C105(1)050(2)3300	0.5	4	3.30	0.18
3.3	D	TH3D335(1)050(2)1700	1.7	6	1.70	0.30
4.7	C	TH3C475(1)050(2)1500	2.4	6	1.50	0.27
4.7	D	TH3D475(1)050(2)0900	2.4	6	0.90	0.41
6.8	D	TH3D685(1)050(2)0900	3.4	6	0.90	0.41
10	D	TH3D106(1)050(2)0800	5.0	6	0.80	0.43
10	E	TH3E106(1)050(2)0500	5.0	6	0.50	0.61

Note

- Part number definitions:
 - Capacitance tolerance: K, M
 - Termination and packaging: C, D, E, F
 - Termination and packaging: A, B, C, D, E, F

TYPICAL LEAKAGE CURRENT FACTOR



Note

- At + 25 °C, the leakage current shall not exceed the value listed in the Standard Ratings table.
- At + 85 °C, the leakage current shall not exceed 10 times the value listed in the Standard Ratings table.
- At + 125 °C, the leakage current shall not exceed 12 times the value listed in the Standard Ratings table.
- At + 150 °C, the leakage current shall not exceed 15 times the value listed in the Standard Ratings table.

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

STANDARD CONDITIONS. FOR EXAMPLE: OUTPUT FILTERS

Capacitor Voltage Rating	Operating Voltage
6.3	3.6
10	6.0
16	10
20	12
25	15
35	24
50	28

SEVERE CONDITIONS. FOR EXAMPLE: INPUT FILTERS

Capacitor Voltage Rating	Operating Voltage
6.3	3.3
10	5.0
16	8.0
20	10
25	12
35	15
50	24



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" REEL	13" REEL
A	2000	9000
B	2000	8000
C	500	3000
D	500	2500
E	400	1500

PRODUCT INFORMATION	
Guide for Molded Tantalum Capacitors	www.vishay.com/doc?40074
Pad Dimensions	
Package Dimensions	
Moisture Sensitivity	www.vishay.com/doc?40135
SELECTOR GUIDES	
Solid Tantalum Selector Guide	www.vishay.com/doc?49053
Solid Tantalum Chip Capacitors	www.vishay.com/doc?40091
FAQ	
Frequently Asked Questions	www.vishay.com/doc?40110



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.