

Solid TANTAMOUNT® Low ESR, Hi-Rel COTS, Built in Fuse Conformal Coated


FEATURES

- High reliability design with reliability screening available
- Surge current testing per MIL-PRF-55365 options available
- Ultra-low ESR
- Mounting: Surface mount
- Terminations: SnPb, standard. 100 % tin available
- Circuit protection for mission or safety critical systems
- Fuse characteristics: Guaranteed fuse protection at 9 A, 100 ms
- Compliant to RoHS Directive 2002/95/EC


RoHS*
COMPLIANT

Note

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

PERFORMANCE CHARACTERISTICS
www.vishay.com/doc?40088

Operating Temperature: - 55 °C to + 85 °C
(to + 125 °C with voltage derating)

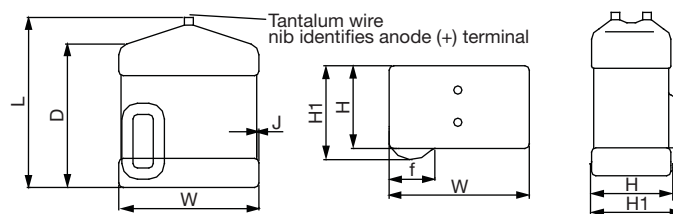
Capacitance Range: 10 µF to 1500 µF

Capacitance Tolerance: ± 10 %, ± 20 % standard

Voltage Rating: 4 V_{DC} to 75 V_{DC}

ORDERING INFORMATION

T98	R	227	K	020	E	S	A
TYPE	CASE CODE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	TERMINATION/PACKAGING (available options are series dependent)	RELIABILITY LEVEL	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	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

DIMENSIONS in inches [millimeters]


CASE CODE	L	W	H1	H	f (REF.)	D (REF.)	J (MAX.)
V	0.299 ± 0.012 [7.6 ± 0.3]	0.181 ± 0.016 [4.6 ± 0.4]	0.099 max. [2.5 max.]	0.087 [2.2] max.	0.079 [2.0]	0.256 [6.5]	0.004 [0.1]
E	0.299 ± 0.012 [7.6 ± 0.3]	0.181 ± 0.016 [4.6 ± 0.4]	0.177 ± 0.016 [4.5 ± 0.4]	0.165 ± 0.016 [4.2 ± 0.4]	0.079 [2.0]	0.256 [6.5]	0.004 [0.1]
R	0.299 ± 0.012 [7.6 ± 0.3]	0.246 ± 0.016/- 0.024 [6.2 ± 0.4/- 0.6]	0.162 ± 0.016 [4.1 ± 0.4]	0.150 ± 0.016 [3.8 ± 0.4]	0.079 [2.0]	0.248 [6.3]	0.004 [0.1]
F	0.299 ± 0.012 [7.6 ± 0.3]	0.246 ± 0.016 [6.2 ± 0.4]	0.207 ± 0.016 [5.3 ± 0.4]	0.193 ± 0.016 [4.9 ± 0.4]	0.079 [2.0]	0.248 [6.3]	0.004 [0.1]
Z	0.299 ± 0.012 [7.6 ± 0.3]	0.246 ± 0.016 [6.2 ± 0.4]	0.258 ± 0.016 [6.6 ± 0.4]	0.244 ± 0.016 [6.2 ± 0.4]	0.079 [2.0]	0.248 [6.3]	0.004 [0.1]
M	0.299 ± 0.012 [7.6 ± 0.3]	0.268 ± 0.016 [6.8 ± 0.4]	0.161 ± 0.016 [4.1 ± 0.4]	0.150 ± 0.016 [3.8 ± 0.4]	0.079 [2.0]	0.248 [6.3]	0.004 [0.1]
H	0.315 ± 0.012 [8.0 ± 0.3]	0.268 ± 0.016 [6.8 ± 0.4]	0.224 ± 0.016 [5.7 ± 0.4]	0.213 ± 0.016 [5.4 ± 0.4]	0.079 [2.0]	0.264 [6.7]	0.004 [0.1]



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										R
22									F	
47							R	Z		
68						R				
100										
150						F				
220				E	R	M				
330			E		F/H ⁽¹⁾					
470	V	E	E							
680	E	E	R							
1000	E/R	R								
1500	R									
2200										

Note

(1) Preliminary rating. Contact factory for availability.

STANDARD RATINGS						
CAPACITANCE (μF)	CASE CODE	PART NUMBER ⁽¹⁾	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	T98V477(1)004(2)(3)(4)	18.8	8	130	1.0
680	E	T98E687(1)004(2)(3)(4)	27.2	6	125	1.3
1000	E	T98E108(1)004(2)(3)(4)	40.0	8	120	1.3
1000	R	T98R108(1)004(2)(3)(4)	40.0	8	118	1.5
1500	R	T98R158(1)004(2)(3)(4)	60.0	8	115	1.5
6.3 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C						
470	E	T98E477(1)6R3(2)(3)(4)	29.6	6	130	1.3
680	E	T98E687(1)6R3(2)(3)(4)	42.8	6	125	1.3
1000	R	T98R108(1)6R3(2)(3)(4)	63.0	8	120	1.4
10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C						
330	E	T98E337(1)010(2)(3)(4)	33.0	6	135	1.3
470	E	T98E477(1)010(2)(3)(4)	47.0	6	128	1.3
680	R	T98R687(1)010(2)(3)(4)	68.0	6	128	1.4
16 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C						
220	E	T98E227(1)016(2)(3)(4)	35.2	8	160	1.2
20 V_{DC} AT + 85 °C; 13 V_{DC} AT + 125 °C						
220	R	T98R227(1)020(2)(3)(4)	44.0	8	180	1.2
330	F	T98F337(1)020(2)(3)(4)	66.0	10	200	1.1
330	H ⁽¹⁾	T98H337(1)020(2)(3)(4)	66.0	10	200	1.2
25 V_{DC} AT + 85 °C; 17 V_{DC} AT + 125 °C						
68	R	T98R686(1)025(2)(3)(4)	17.0	6	200	1.1
150	F	T98F157(1)025(2)(3)(4)	37.5	8	180	1.2
220	M	T98M227M025(2)(3)(4)	55.0	8	200	1.1
35 V_{DC} AT + 85 °C; 23 V_{DC} AT + 125 °C						
47	R	T98R476(1)035(2)(3)(4)	16.5	6	200	1.1
50 V_{DC} AT + 85 °C; 33 V_{DC} AT + 125 °C						
47	Z	T98Z476(1)050(2)(3)(4)	23.5	6	245	1.0
63 V_{DC} AT + 85 °C; 42 V_{DC} AT + 125 °C						
22	F	T98F226(1)063(2)(3)(4)	13.9	6	350	0.8
75 V_{DC} AT + 85 °C; 50 V_{DC} AT + 125 °C						
10	R	T98R106(1)075(2)(3)(4)	7.5	6	600	0.6

Notes

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



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	3.6
10	6.0
16	10
20	12
25	15
35	24
50	28
63	37.8
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

POWER DISSIPATION	
CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR
V	0.140
E	0.215
R	0.250
F	0.250
Z	0.265
M	0.250
H	0.265

STANDARD PACKAGING QUANTITY		
CASE CODE	UNITS PER REEL	
	7" FULL REEL	7" HALF REEL
V	TBD	
E	TBD	
R	300	150
F	250	125
Z	150	75
M	200	100
H	TBD	

PRODUCT INFORMATION	
Conformal Coated Guide	www.vishay.com/doc?40150
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



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