

Vishay

Wet Tantalum Capacitors Surface Mount, Molded Case



PERFORMANCE CHARACTERISTICS

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

Capacitance Tolerance: at 120 Hz, +25 $^{\circ}$ C, \pm 20 $^{\circ}$ Standard, \pm 10 $^{\circ}$

DC Leakage Current (DCL Max.): at +25 °C and above: Leakage current shall not exceed the values listed in the Standard Ratings table.

Life Test: capacitors are capable of withstanding a 2000 h life test at a temperature of +85 °C or +125 °C at the applicable rated DC working voltage.

Following life test:

- 1. DCL, measured at +85 °C rated voltage, shall not be in excess of the original requirement.
- 2. The equivalent series resistance shall not exceed 150 % of the initial requirement.
- Change in capacitance shall not exceed 10 % from the initial measurement.

FEATURES

 Terminations: standard tin/lead (SnPb), 100 % tin (RoHS compliant) terminations available



• Very high capacitance, 10 μ F to 470 μ F 6 V to 125 V, -55 °C to +125 °C

RoHS

- Very low ESR
- High ripple current capability
- Low DCL
- Model M34 wet tantalum electrolytic chip capacitors incorporate the advantages of all the varieties of electrolytic capacitors and eliminate most of the disadvantages. These units have a transient reverse voltage capability and a higher ripple current capability than any other electrolytic type with similar combinations of capacitance and case size
- Material categorization: for definitions of compliance please see <u>www.vishav.com/doc?99912</u>

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

APPLICATION NOTES

- a) No continuous reverse voltage permissible.
- b) Transient reverse voltage surges are acceptable under the following conditions:
 - The peak reverse voltage does not exceed 1.5 V and the peak current times the duration of the reverse transient does not exceed 0.05 A. In addition, the repetition frequency of the reverse voltage surge is less than 10 Hz.
- c) The peak of the applied AC ripple and the applied DC voltage must not exceed the DC voltage rating of the capacitor.

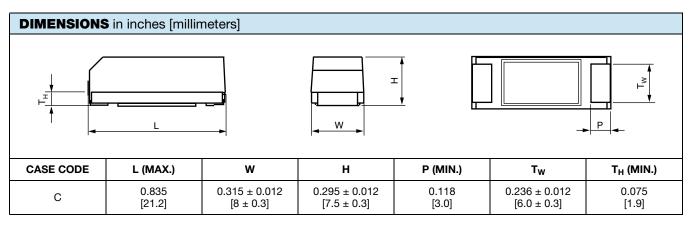
ORDERING INFORMATION								
M34	С	826	М	125	В	Z	s	S
MODEL	CASE CODE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT +85 °C	TERMINATION AND PACKAGING	RELIABILITY LEVEL I	TEMP.	ESR
	See Ratings and Case Codes table	This is expressed in picofarads. The first two digits are the	K = ± 10 % M = ± 20 %	This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating.	A = 100 % tin (RoHS compliant), bulk B = std, tin / lead, bulk	Z = non-ER	S = std.	S = std.
		significant figures. The third is the number of zeros to follow.						

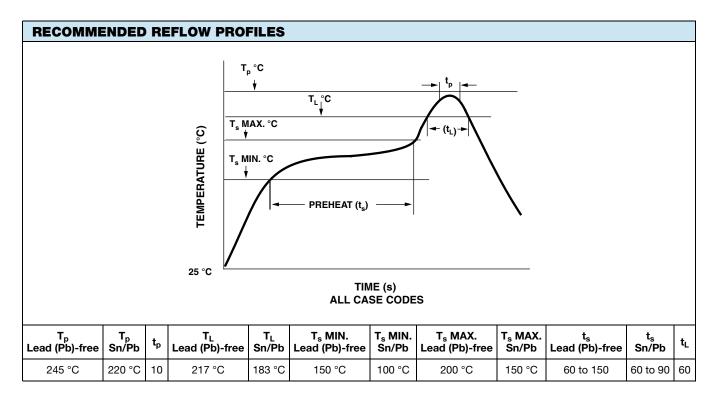
Note

· Packaging: The use of formed plastic tubes for packing bulk components is standard



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MOUNTING

Due to the size and weight of these capacitors, we recommend that a supplemental mounting restraint to be used in printed circuit board attachment in addition to the reflowed solder.

One recommendation is to use an adhesive such as defined in the J-STD-001DS.

This is the Space Application Electronic Hardware Addendum to J-STD-001 (Requirements for Solder Electrical and Electronic Assemblies).



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STANDARD RATINGS										
CAPACITANCE	CASE CODE	PART NUMBER		MAX. ESR AT -55 °C	MAX. DCL (μA) AT		MAX. CAPACITANCE CHANGE (%) AT			MAX. RIPPLE
(μF)			120 Hz (Ω)	120 Hz (Ω)	.25 °C	+85 °C +125 °C	-55 °C	+85 °C	+125 °C	40 kHz RMS (mA)
		6	V _{DC} AT +85	°C; 4 V _{DC} A1	+125 °C					
470	С	M34C477(1)006(2)ZSS	0.9	12	1.0	3.0	- 75	+ 10	+ 20	1500
		10	V _{DC} AT +85	°C; 7 V _{DC} A	T +125 °C					
330	С	M34C337(1)010(2)ZSS	1.0	15	1.0	3.0	- 70	+ 8	+ 20	1400
		15	V _{DC} AT +85	°C; 10 V _{DC} A	T +125 °C	;				
150	С	M34C157(1)015(2)ZSS	1.1	25	1.0	3.0	- 45	+ 8	+ 20	1400
		25	V _{DC} AT +85	°C; 15 V _{DC} A	T +125 °C	;				
120	С	M34C127(1)025(2)ZSS	1.3	25	1.0	5.0	- 42	+ 8	+ 12	1250
		30	V _{DC} AT +85	°C; 20 V _{DC} A	T +125 °C	;				
100	С	M34C107(1)030(2)ZSS	1.3	25	1.0	5.0	- 38	+ 8	+ 12	1200
		50	V_{DC} AT +85	°C; 30 V _{DC} A	T +125 °C	;				
68	С	M34C686(1)050(2)ZSS	1.5	35	1.0	5.0	- 25	+ 8	+ 15	1050
		60	V_{DC} AT +85	°C; 40 V _{DC} A	T +125 °C	;				
47	С	M34C476(1)060(2)ZSS	2.0	44	1.0	5.0	- 25	+ 8	+ 12	1050
		75	V_{DC} AT +85	°C; 50 V _{DC} A	T +125 °C	;				
33	С	M34C336(1)075(2)ZSS	2.5	66	1.0	5.0	- 25	+ 5	+ 9	1050
		100	V _{DC} AT +85	°C; 65 V _{DC} /	AT +125 °C					
15	С	M34C156(1)100(2)ZSS	3.5	125	1.0	5.0	- 18	+ 3	+ 10	1050
		125	V _{DC} AT +85	°C; 85 V _{DC} A	AT +125 °C					
10	С	M34C106(1)125(2)ZSS	5.5	175	1.0	5.0	- 15	+ 3	+ 10	1050

Note

(1) Capacitance tolerance: K, M

(2) Termination / packaging: A = 100 % tin (RoHS compliant), bulk; B = Std, tin/lead, bulk Reliability level: Z = non-ER

Temperature: S = std

ESR: S = std

PERFORMANCE CHARACTERISTICS OF M34 CAPACITORS

ITEM	PERFORMANCE CHARACTERISTICS
Operating temperature range	-55 °C to +125 °C
Capacitor tolerance	± 20 %, ± 10 %, at 120 Hz
Capacitance change (maximum)	Limits per standard ratings table
ESR	Limits per standard ratings table
AC ripple current	Limits per standard ratings table
DCL (maximum leakage current)	Limits per standard ratings table
Impedance (maximum)	Limits per standard ratings table
Reverse voltage	Reverse voltage shall be in accordance with DSCC drawing 93026. There shall be no continuous reverse voltage. Transient reverse voltage surges are acceptable under the following conditions: a) Peak reverse voltage is equal to or less than 1.5 V and the product of the peak current times the duration of the reverse transient is 0.05 A or less. b) The repetition rate of the reverse voltage surges is less than 10 Hz.
Surge voltage	Surge voltage shall be in accordance with MIL-PRF-39006 and Table I of DSCC93026. The DC rated surge voltage is the maximum voltage to which the capacitors should be subjected under any conditions. This includes transcients and ripple at the highest line voltage. The surge voltage is 115 % of rated DC working voltage.
Life test	The capacitors shall be capable of withstanding a 2000 h life test at 85 °C at rated voltage

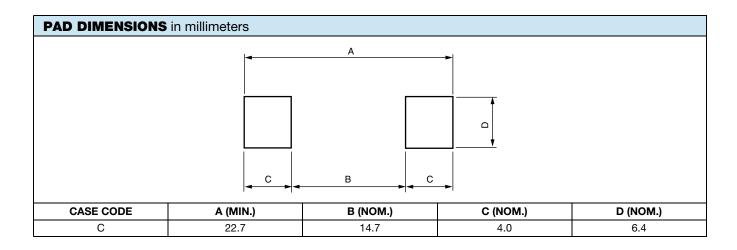
Part number definitions:



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ENVIRONMENTAL CHARACTERISTICS				
ITEM	CONDITION	COMMENTS		
Hermeticity	MIL-PRF-39006	There shall be no evidence of leakage after testing to MIL-PRF-39006 specifications.		
Moisture resistance	MIL-PRF-39006	Tested in accordance to MIL-PRF-39006 for 30 cycles.		
Altitude	MIL-STD-202G, method 105 D	100 000 feet test		

MECHANICAL CHARACTERISTICS				
ITEM	CONDITION	COMMENTS		
Thermal shock	MIL-STD-202G, method 107 A	Per M39006 and DSCC93026, 30 cycles		
Shock	MIL-STD-202G, method 213 I	Per M39006 and DSCC93026, 100 g		
Vibration (high frequency)	MIL-STD-202G, method 204 D	Per M39006 and DSCC93026, 20 g		
Resistance to solder heat	MIL-STD-202G, method 210 F	Terminals at 260 °C for 10 s. The capacitor must not be visibly damaged and the electrical characteristics must not be affected.		
Solderability	ANSI J-STD-002	The terminations must be solderable per the MIL standard.		
Terminals	MIL-STD-1276	All terminals shall be permanently secured internally and externally, as applicable. All external joints shall be welded.		
Part markings	MIL-STD-1285	The part marking shall include Vishay name, trademark, capacitance, voltage, date code and lot symbol.		
Weight (typical) in g	3.5			



STANDARD PACKAGING QUANTITY					
SERIES	CASE CODE	BULK/TUBE			
M34	С	10 pcs			



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