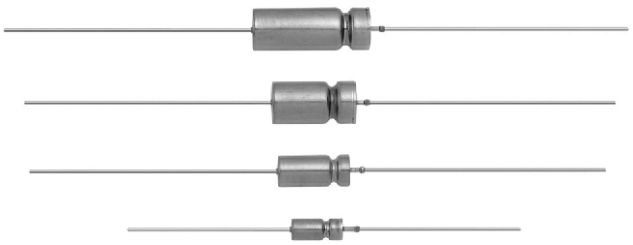
Wet Tantalum High Performance HI-TMP® Capacitors for -55 °C to +200 °C Operation



FEATURES

- High capacitance, high performance (shock and vibration)
- Hermetically sealed, tantalum case
- +200 °C high temperature
- Terminations: axial, standard tin / lead (SnPb)
- 100 % tin (RoHS-compliant) available
- Mounting: through-hole
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS* Available

HALOGEN FREE GREEN (5-2008) Available

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

PERFORMANCE CHARACTERISTICS

Operating Temperature: -55 °C to +85 °C
(to +200 °C with voltage derating)

Capacitance Tolerance: at 120 Hz, +25 °C; ± 20 % standard; ± 10 %

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

Life Test: capacitors are capable of withstanding life test at 200 °C at the applicable derated DC working voltage.

APPLICATIONS

- Industrial
- Petroleum exploration
- High temperature / high stress environment

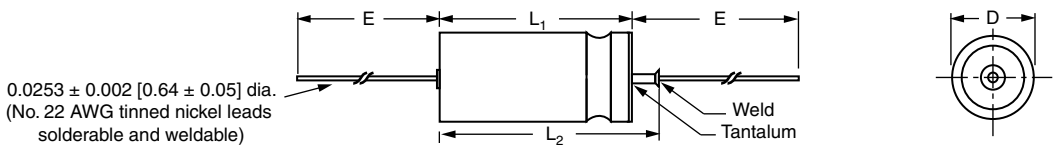
ORDERING INFORMATION

T34	C	826	M	125	B	Z	6	S
MODEL	CASE CODE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	TERMINATION AND PACKAGING	RELIABILITY LEVEL	STYLE NUMBER	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 = 100 % tin (RoHS compliant), bulk B = std., tin / lead, bulk	Z = non-ER	High temperature 8 = no outer insulating sleeve 6 = high temperature film insulation (above +125 °C)	S = std.

Note

- Packaging: The use of formed plastic trays for packing bulk components is standard

DIMENSIONS in inches [millimeters]



CASE CODE		D	L_1 (1)	L_2 (Max.)	E	WEIGHT (g) (Max.)
TYPE T34	CLR 79 / 81 EQUIV.					
A	T1	0.188 ± 0.016 [4.78 ± 0.41]	0.453 + 0.031 / - 0.016 [11.51 + 0.79 / - 0.41]	0.734 [18.64]	1.500 ± 0.250 [38.10 ± 6.35]	2.6
B	T2	0.281 ± 0.016 [7.14 ± 0.41]	0.641 + 0.031 / - 0.016 [16.28 + 0.79 / - 0.41]	0.922 [23.42]	2.250 ± 0.250 [57.15 ± 6.35]	6.2
C	T3	0.375 ± 0.016 [9.53 ± 0.41]	0.766 + 0.031 / - 0.016 [19.46 + 0.79 / - 0.41]	1.047 [26.59]	2.250 ± 0.250 [57.15 ± 6.35]	11.6
D	T4	0.375 ± 0.016 [9.53 ± 0.41]	1.062 + 0.031 / - 0.016 [26.97 + 0.79 / - 0.41]	1.343 [34.11]	2.250 ± 0.250 [57.15 ± 6.35]	17.7

Note

(1) For insulated parts, add 0.015 inches [0.38 mm] to the diameter. The insulation shall lap over the ends of the capacitor body.

STANDARD RATINGS

CAPACITANCE AT 25 °C 120 Hz (µF)	V_{DC} AT 200 °C	CASE CODE	PART NUMBER	MAX. ESR 120 Hz (Ω)	MAX. DCL (µA)		LIFE TEST PERFORMANCE (h AT +200 °C)
					25 °C	85 °C / 125 °C	
50 V_{DC} AT +85 °C							
470	25	C (1)	T34C477(1)050(2)(3)(4)(5)	0.75	3	25	1000
75 V_{DC} AT +85 °C							
33	45	A (1)	T34A336(1)075(2)(3)(4)(5)	2.5	1	5	1000
100 V_{DC} AT +85 °C							
68	60	B (1)	T34B686(1)100(2)(3)(4)(5)	2.1	2	10	1000
125 V_{DC} AT +85 °C							
10	70	A (1)	T34A106(1)125(2)(3)(4)(5)	5.5	1	5	1000
350	62	D	T34D357(1)125(2)(3)(4)(5)	0.8	25	250	1000

Notes

- Part number definitions:
  (1) Capacitance tolerance: K, M
  (2) Termination and packaging: A = 100 % tin, bulk; B = std., tin / lead, bulk
  (3) Reliability level: Z = non-ER
  (4) Style number: 6 = high temperature film insulation, 8 = no film insulation
  (5) ESR: S = std.

(1) Rating in development, contact factory for availability

TYPICAL PERFORMANCE CHARACTERISTICS OF T34 CAPACITORS

ELECTRICAL CHARACTERISTICS

ITEM	PERFORMANCE CHARACTERISTICS
Operating temperature range	-55 °C to +85 °C (to +200 °C with voltage derating)
Capacitor tolerance	± 20 %, ± 10 % at 120 Hz, at +25 °C
Capacitor change by temperature	Limit per Standard Ratings table
ESR	Limit per Standard Ratings table, at +25 °C, 120 Hz
Impedance	Limit per Standard Ratings table, at -55 °C, 120 Hz
DCL (leakage current)	Limit per Standard Ratings table
Reverse voltage	None
Surge voltage	The DC rated surge voltage is the maximum voltage to which the capacitors can be subjected under any conditions including transients and peak ripple at the highest line voltage. The DC surge voltage is 115 % of rated DC voltage.

PERFORMANCE CHARACTERISTICS	
ITEM	**PERFORMANCE CHARACTERISTICS**
Life testing	Capacitors shall be capable of withstanding life test at a temperature +200 °C at derated voltage.

ENVIRONMENTAL CHARACTERISTICS		
ITEM	**CONDITION**	**COMMENTS**
Seal	MIL-STD-202, method 112, condition C	When the capacitors are tested as specified there will be no evidence of leakage.
Moisture resistance	MIL-STD-202, method 106	10 continuous cycles, 6 V_{DC}
Barometric pressure (reduced)	MIL-STD-202, method 105, condition E	Altitude 150 000 feet

MECHANICAL CHARACTERISTICS		
ITEM	**CONDITION**	**COMMENTS**
Shock (specified pulse)	MIL-STD-202, method 213	Test condition D (500 *g*)
Vibration, high frequency	MIL-STD-202, method 204	Test condition H (80 *g*)
Random vibration	MIL-STD-202, method 214	Test condition II-G (27.8 *g*)
Thermal shock	MIL-STD-202, method 107	Test condition A, 30 cycles
Solderability	MIL-STD-202, method 208	ANSI / J-STD-002, test A
Terminal strength	MIL-STD-202, method 211	Condition A
Resistance to solder heat	MIL-STD-202, method 210	Condition C
Terminals	MIL-STD-1276	Terminals shall be as specified in MIL-STD-1276. The length and diameter of the terminals shall be as specified in Dimensions table. All terminals shall be permanently secured internally and externally, as applicable. All external joints shall be welded.
Marking	MIL-STD-1285	Marking of capacitors conforms to method I of MIL-STD-1285 and include capacitance (in µF), capacitance tolerance letter, rated voltage, date code, lot symbol and Vishay trademark.

SELECTOR GUIDES	
Tantalum Selector Guide	www.vishay.com/doc?49054
Parameter Comparison Guide	www.vishay.com/doc?42088

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. 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.