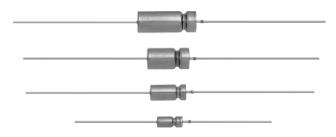


# DLA 13017

Vishay

## Wet Tantalum Capacitors, Extended Capacitance, Tantalum Case With Glass-to-Tantalum Hermetic Seal for -55 °C to +125 °C, DLA Approved



## LINKS TO ADDITIONAL RESOURCES



## PERFORMANCE CHARACTERISTICS

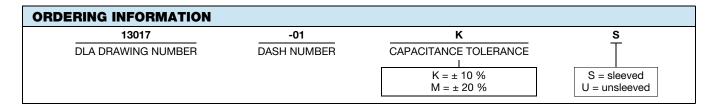
Refer to: Typical Performance Characteristics **Operating Temperature:** -55 °C to +85 °C (to +125 °C with voltage derating)

### FEATURES

- Enhanced performance, high reliability design
- Terminations: axial, standard tin / lead (Sn / Pb) plated
- The 13017 tantalum-case electrolytic capacitors provide all the advantages of Vishay's SuperTan<sup>®</sup> series devices, while offering improved reverse voltage and vibration capabilities
- · Increased thermal shock capability of 300 cycles
- Designed for the avionics and aerospace applications

Capacitance Tolerance: ± 10 %, ± 20 % standard

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



DLA LAND AND MARITIME COLUMBUS, OHIO

Drawing no. 13017

DIMENSIONS in inches [millimeters]								
Terminal Welded to Case 0.250 (6.35) $Max. \rightarrow \downarrow $								
CASE CODE	D ± 0.016 [0.41]	D MAX. INSULATED (DIA.)	L <sub>1</sub> UNINSULATED + 0.031 [0.79] - 0.016 [0.41]	E ± 0.250 [6.35] MAX				
CASE CODE	_		+ 0.031 [0.79]					
	± 0.016 [0.41]	(DIA.)	+ 0.031 [0.79] - 0.016 [0.41]	± 0.250 [6.35] MAX				
T1	<b>± 0.016 [0.41]</b> 0.188 [4.78]	(DIA.) 0.219 [5.56]	+ 0.031 [0.79] - 0.016 [0.41] 0.453 [11.51]	± 0.250 [6.35] MAX				

#### Note

Insulation sleeving will lap over the ends of the capacitor body

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CAPACITANCE	CASE	SE	MAX. ESR AT +25 °C	MAX. IMP. AT -55 °C		. DCL IA)	MAX. C	AC RIPPLE		
(μF)	CODE	PART NUMBER	120 Hz (Ω)	120 Hz (Ω)	+25 °C	+85 °C AND +125 °C	-55 °C	+85 °C		+85 °C 40 kHz (mA <sub>RMS</sub>
			25 V <sub>DC</sub> AT 85	5 °C, 15 V <sub>DC</sub> A	T 125 °C					
120	T1	13017-01(1)(2)	1.30	25	1	5	-42	8	12	1250
560	T2	13017-02(1)(2)	0.83	12	2	10	-65	14	18	2000
1200	Т3	13017-03(1)(2)	0.65	7	5	20	-70	15	20	2400
1800	T4	13017-04(1)(2)	0.50	7	6	25	-72	15	20	3000
			30 V <sub>DC</sub> AT 85	5 °C, 20 V <sub>DC</sub> A	T 125 °C					
100	T1	13017-05(1)(2)	1.30	25	1	5	-38	8	12	1200
470	T2	13017-06(1)(2)	0.85	15	2	10	-65	14	18	1800
1000	Т3	13017-07(1)(2)	0.70	7	7	25	-70	15	25	2200
1500	T4	13017-08(1)(2)	0.60	6	12	35	-72	15	25	2900
			50 V <sub>DC</sub> AT 85	5 °C, 30 V <sub>DC</sub> A	T 125 °C					
68	T1	13017-09(1)(2)	1.50	35	1	5	-25	8	15	1050
220	T2	13017-10(1)(2)	0.90	17.5	2	10	-50	8	15	1800
470	T3	13017-11(1)(2)	0.75	10	3	25	-45	8	15	2100
680	T4	13017-12(1)(2)	0.70	8	5	40	-58	10	20	2700
			60 V <sub>DC</sub> AT 85	5 °C, 40 V <sub>DC</sub> A	AT 125 °C					
47	T1	13017-13(1)(2)	2.00	44	1	5	-25	8	12	1050
150	T2	13017-14(1)(2)	1.10	20	2	10	-40	8	15	1800
390	Т3	13017-15(1)(2)	0.90	15	3	25	-45	8	15	2100
560	T4	13017-16(1)(2)	0.80	10	5	40	-58	8	15	2700
			75 V <sub>DC</sub> AT 85	5 °C, 50 V <sub>DC</sub> A	T 125 °C					
33	T1	13017-17(1)(2)	2.50	66	1	5	-25	5	9	1050
110	T2	13017-18(1)(2)	1.30	24	2	10	-35	6	10	1650
330	Т3	13017-19(1)(2)	1.00	12	3	30	-45	6	10	2100
470	T4	13017-20(1)(2)	0.90	12	5	50	-50	6	10	2700
			100 V <sub>DC</sub> AT 8	5 °C, 65 V <sub>DC</sub> .	AT 125 °C	;				
15	T1	13017-21(1)(2)	3.50	125	1	5	-18	3	10	1050
68	T2	13017-22(1)(2)	2.10	37	2	10	-30	4	12	1650
150	Т3	13017-23(1)(2)	1.60	22	3	25	-35	6	12	2100
220	T4	13017-24(1)(2)	1.20	15	5	50	-40	6	12	2700
			125 V <sub>DC</sub> AT 8	5 °C, 85 V <sub>DC</sub>	AT 125 °C	;				
10	T1	13017-25(1)(2)	5.50	175	1	5	-15	3	10	1050
47	T2	13017-26(1)(2)	2.30	47	2	10	-25	5	12	1650
82	Т3	13017-27(1)(2)	1.80	40	3	25	-35	5	12	1950
100	Т3	13017-28(1)(2)	1.80	35	3	25	-35	5	12	2100
150	T4	13017-29(1)(2)	1.60	20	5	50	-35	6	12	2700

#### Note

Part number definitions: •

(1) Capacitance tolerance: K = 10 %, M = 20 %(2) Case or body insulation: S = sleeved; U = unsleeved

RIPP	RIPPLE CURRENT MULTIPLIERS VS. FREQUENCY, TEMPERATURE, AND APPLIES PEAK VOLTAGE																								
APPLIE	ENCY OF D RIPPLE RRENT		120	Hz			800	Hz			1 k	Hz			10	kHz			40	kHz			100	kHz	
	NT STILL MP. IN °C	≤55	85	105	125	≤ 55	85	105	125	≤ 55	85	105	125	≤55	85	105	125	≤ 55	85	105	125	≤ 55	85	105	125
% of	100 %	0.60	0.39	-	-	0.71	0.43	-	-	0.72	0.46	-	-	0.88	0.55	-	-	1.0	0.63	-	-	1.1	0.69	-	-
85 °C	90 %	0.60	0.46	-	-	0.71	0.55	-	-	0.72	0.55	-	-	0.88	0.67	-	-	1.0	0.77	-	-	1.1	0.85	-	-
rated	80 %	0.60	0.52	0.35	-	0.71	0.62	0.42	-	0.72	0.62	0.42	-	0.88	0.76	0.52	-	1.0	0.87	0.59	-	1.1	0.96	0.65	-
peak	70 %	0.60	0.58	0.44	-	0.71	0.69	0.52	-	0.72	0.70	0.52	-	0.88	0.85	0.64	-	1.0	0.97	0.73	-	1.1	1.07	0.80	-
voltage	66 2/3 %	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32	0.88	0.88	0.68	0.40	1.0	1.0	0.77	0.45	1.1	1.1	0.85	0.50

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## TYPICAL PERFORMANCE CHARACTERISTICS OF DLA 13017 CAPACITORS

ELECTRICAL CHARACTERISTICS						
ITEM	PERFORMANCE CHARACTERISTICS					
Operating temperature range	-55 °C to +85 °C (to +125 °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					
AC ripple current	Limit per Standard Ratings table, at +85 °C and 40 kHz					
Reverse voltage	Reverse voltage shall be in accordance with MIL-PRF-39006, paragraphs 3.23 and 4.8.19					
Surge voltage	Surge voltage shall be in accordance with MIL-PRF-39006 and DLA13017. 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 a 2000 h life test at a temperature +85 °C at rated voltage, or a 1000 h life test at 125 °C test at derated voltage. After the test, the capacitors shall meet the following requirements: a) DC leakage at 85 °C and 125 °C shall not exceed 125 % of the specified value b) DC leakage at 25 °C shall not exceed the specified value c) Capacitance shall be within + 10 %, - 20 % of initial value d) ESR shall not exceed 200 % of the specified value					

ENVIRONMENTAL CHARACTERISTICS								
ITEM	CONDITION	COMMENTS						
Seal	MIL-PRF-39006	When the capacitors are tested as specified in MIL-PRF-39006, there shall be no evidence of leakage.						
Moisture resistance	MIL-PRF-39006	Moisture resistance shall be in accordance with MIL-PRF-39006. Number of cycles: 10 continuous cycles						
Barometric pressure (reduced)	MIL-STD-202, method 105, condition E	Altitude 150 000 feet						

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MECHANICAL CHARACTERISTICS							
ITEM	CONDITION	COMMENTS					
Shock (specified pulse)	MIL-STD-202, method 213, condition D (500 <i>g</i> )	The capacitors shall meet the requirements of MIL-PRF-39006.					
Vibration, high frequency	MIL-STD-202, method 204, condition E (50 <i>g</i> peak)	The capacitors shall meet the requirements of MIL-PRF-39006.					
Random vibration	MIL-STD-202, method 214, condition II-G (overall RMS 27.78 g)	The capacitors shall meet the requirements of MIL-PRF-39006.					
Thermal shock	MIL-STD-202, method 107, condition A	Thermal shock shall be in accordance with MIL-PRF-39006 when tested for 300 cycles.					
Solderability	MIL-STD-202, method 208, ANSI/J-STD-002, test A	Solderability shall be in accordance with MIL-PRF-39006.					
Terminal strength	MIL-STD-202, method 211	Terminal strength shall be in accordance with MIL-PRF-39006.					
Resistance to solder heat	MIL-STD-202, method 210, condition C	The capacitors shall meet the requirements of MIL-PRF-39006.					
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 $\mu$ F), 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				





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