

# Wet Tantalum Capacitors, Tantalum-Case With Glass-to-Tantalum Hermetic Seal for -55 °C to +125 °C Operation



## FEATURES

- High energy, very high capacitance design
- All tantalum, hermetically sealed case
- Utilizes Vishay proven SuperTan® technology
- Terminations: radial leded
- Approved to DLA land and maritime drawing 10011

## PERFORMANCE CHARACTERISTICS

### Operating Temperature:

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

### Capacitance Tolerance:

at 120 Hz, +25 °C ± 20 % standard

### DC Leakage Current (DCL Max.):

at +25 °C: leakage current shall not exceed the values listed in the Standard Ratings tables.

### Life Test:

capacitors are capable of withstanding a 1000 h life test at a temperature of +85 °C at the applicable rated DC working voltage.

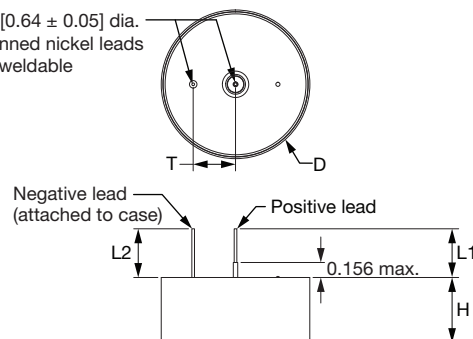
## ORDERING INFORMATION

<b>10011</b> DLA LAND AND MARITIME DRAWING	<b>-01</b> DASH NUMBER
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DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	DRAWING NUMBER 10011
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## DIMENSIONS in inches [millimeters]

0.0253 ± 0.002 [0.64 ± 0.05] dia.  
 (No. 22 AWG) tinned nickel leads  
 solderable and weldable



CASE CODE	D	HEIGHT	L <sub>2</sub> (MIN.)	L <sub>1</sub> (MIN.)	T	WEIGHT (g) (TYPICAL)
TYPE DLA 10011						
A	1.400 ± 0.005 [35.56 ± 0.127]	0.350 ± 0.015 [8.89 ± 0.381]	0.500 [12.70]	0.500 [12.70]	0.40 ± 0.015 [10.2 ± 0.38]	48.0
B	1.400 ± 0.005 [35.56 ± 0.127]	0.488 ± 0.015 [15.60 ± 0.381]	0.500 [12.70]	0.500 [12.70]	0.40 ± 0.015 [10.2 ± 0.38]	73.0
C	1.400 ± 0.005 [35.56 ± 0.127]	0.615 ± 0.015 [15.6 ± 0.4]	0.500 [12.70]	0.500 [12.70]	0.40 ± 0.015 [10.2 ± 0.38]	95.0



STANDARD RATINGS				
CAPACITANCE ( $\mu\text{F}$ )	CASE CODE	MAX. ESR AT +25 °C MAX. 1 kHz ( $\Omega$ )	MAX. DCL AT +25 °C ( $\mu\text{A}$ )	PART NUMBER
<b>25 V<sub>DC</sub> AT +85 °C; 15 V<sub>DC</sub> AT +125 °C</b>				
24 000	A	0.060	150	10011-05
18 000	A	0.060	150	10011-06
48 000	B	0.045	200	10011-03
36 000	B	0.045	200	10011-04
72 000	C	0.035	350	10011-01
54 000	C	0.035	300	10011-02
<b>50 V<sub>DC</sub> AT +85 °C; 30 V<sub>DC</sub> AT +125 °C</b>				
8000	A	0.075	170	10011-09
16 000	B	0.045	270	10011-08
24 000	C	0.035	400	10011-07
<b>63 V<sub>DC</sub> AT +85 °C; 40 V<sub>DC</sub> AT +125 °C</b>				
4000	A	0.100	170	10011-12
8000	B	0.055	270	10011-11
12 000	C	0.035	400	10011-10
<b>80 V<sub>DC</sub> AT +85 °C; 50 V<sub>DC</sub> AT +125 °C</b>				
3000	A	0.100	300	10011-16
6000	B	0.065	400	10011-15
9000	C	0.040	500	10011-13
<b>100 V<sub>DC</sub> AT +85 °C; 65 V<sub>DC</sub> AT +125 °C</b>				
1900	A	0.085	300	10011-19
3800	B	0.065	400	10011-18
5700	C	0.050	500	10011-17
<b>125 V<sub>DC</sub> AT +85 °C; 85 V<sub>DC</sub> AT +125 °C</b>				
1100	A	0.100	300	10011-22
2200	B	0.085	400	10011-21
3300	C	0.075	500	10011-20

**Note**

(1) Preliminary rating, specification subject to change. Contact marketing for availability

**PERFORMANCE CHARACTERISTICS OF HIGH ENERGY CAPACITORS**

ELECTRICAL PERFORMANCE CHARACTERISTICS	
ITEM	PERFORMANCE CHARACTERISTICS
Operating temperature range	-55 °C to +85 °C (to +125 °C with voltage derating)
Capacitor tolerance	$\pm 20\%$ at 120 Hz
ESR	Limits per Standard Ratings table
DC leakage current (DCL max.)	At 25 °C the leakage current shall not exceed values listed in the Standard Rating table.
Reverse voltage	No continuous reverse voltage permitted
Surge voltage	The test shall be at 1000 cycles at 110 % of rated voltage at 85 °C. A cycle consists of a 30 s charge and a 330 s discharge through 1000 $\Omega$ resistor.
Life test at +85 °C	1000 h at +85 °C



ENVIRONMENTAL CHARACTERISTICS		
ITEM	TEST AND CONDITIONS	COMMENTS
Hermeticity	MIL-STD-202, method 112 C/IIIa	The capacitor shall be hermetically sealed such that the case does not leak electrolyte or vent any gas when exposed to a vacuum.
Moisture resistance	MIL-STD-202, method 106	6 V polarity
Altitude	MIL-STD-202, method 105 C, test condition D	100 000 feet test

MECHANICAL PERFORMANCE CHARACTERISTICS		
ITEM	TEST AND CONDITIONS	COMMENTS
Thermal shock	MIL-STD-202, method 107 G	Test condition A
Shock	MIL-STD-202, method 213 B test condition G	11 ms, 50 g
Vibration - high frequency	MIL-STD-202, method 204 D test condition D	12 sweeps/axis, 20 g peak
Vibration - random	MIL-STD-202, method 214 A test condition I, Letter D	1.5 h/axis, 12 g
Resistance to solder heat	MIL-STD-202, method 210 F	The capacitor must withstand solder dipping of the terminals at 260 °C for 10 s. The capacitor must not be visibly damaged and the electrical characteristics must not be affected.
Solderability	MIL-STD-202, method 208	
Terminal strength	MIL-STD-202, method 211 A	The capacitor terminals must withstand a 5 pound pull test for 5 s to 10 s. The capacitor must not be visibly damaged and the electrical characteristics must not be affected.
Resistance to solvents	MIL-STD-202, method 215 J	The capacitor shall be permanently and legibly marked on the circumference of the case. The markings shall be resistant to solvents.
Weight (mass)		See dimensions table

**DLA 10011 MOUNTING OPTIONS**

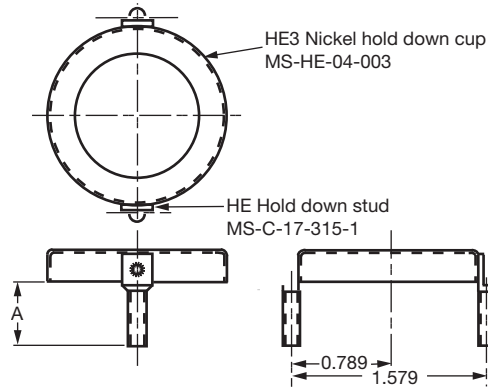
The DLA 10011 capacitor can be mounted with many commercially available methods. Vishay offers the optional mounting hardware outlined below.

**THROUGH-HOLE**

If mounted through-hole, the glass-to-metal seal must be protected from potential mounting and application stress. The HE3 can be mounted termination down through the HE3 SPC001 spacer into the PCB. The proper size bracket HE3BKT00\* can then be utilized to hold the DLA 10011 rigidly to the PCB.

**TERMINATIONS UP**

If mounted with terminations facing up for attachment to wiring, the spacer is not needed. The DLA 10011 can be reverse with terminations facing upward through the center of the HE3BKT00\* bracket, which is then mounted through the PCB.



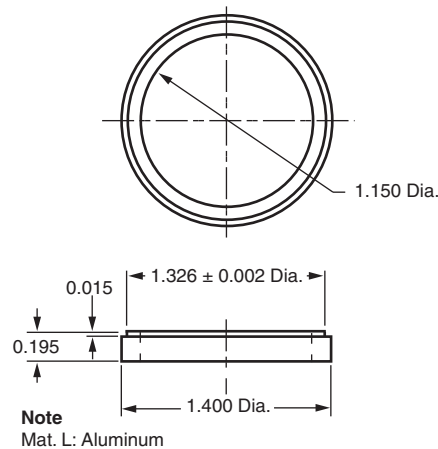
**Notes**

- Spot weld, 2 places
- Mounting bolt:
  1. Material - Stainless steel
  2. Thread - 6-32 NC-2A

PART NUMBER <sup>(1)</sup>	STUD	A ± 0.010
HE3BKT001	HE3A	0.391
HE3BKT002	HE3B	0.518
HE3BKT003	HE3C	0.605
HE3BKT004	HE3A W/spacer	0.572
HE3BKT005	HE3B W/spacer	0.699
HE3BKT006	HE3C W/spacer	0.831

**Note**

<sup>(1)</sup> The part numbers shown are for ordering the mounting bracket and / or spacer. The DLA 10011 capacitor must be ordered separately using the correct part number as outlined in Ordering Information and in the Standard Ratings table



PART NUMBER <sup>(1)</sup>
HE3SPC001

**Note**

<sup>(1)</sup> The part numbers shown are for ordering the mounting bracket and / or spacer. The HE3 capacitor must be ordered separately using the correct part number as outlined in Ordering Information and in the Standard Ratings table



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