

 <p>EVANS CAPACITOR Company www.evanscap.com</p>	Product Specification HYBRID[®] CAPACITOR	NUMBER	TDD SERIES
		ISSUE	01
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1.0 Scope

This document contains specific electrical, mechanical, and environmental requirements and specifications for TDD Series Tantalum case Hybrid[®] Capacitor.

2.0 Construction

2.1 General

The capacitor shall utilize sintered tantalum anodes and ruthenium oxide coated cathodes operating in aqueous with additives electrolyte. The components shall be hermetically sealed in a welded tantalum case with a glass-to-metal anode terminal seal.

2.2 Package

The configuration and dimensions shall be as per Figure 1.

2.3 Weight

See table 2

2.4 Hermetic Seal

The capacitor shall be hermetically sealed such that the case does not leak electrolyte or vent any gas when exposed to a vacuum, per MIL-STD- 202, Method 112, Condition C, Procedure IIIa.

2.5 Part Markings

The capacitor shall be permanently and legibly marked with the following information. The markings shall be resistant to solvents per MIL-STD-202, Method 215J.

- i. Manufacturer's name and cage code
- ii. Manufacturer's part identification number
- iii. Serial Number and Date / lot code

2.6 Solderability

The terminations shall 63/37 Sn/Pb coated and be solderable per ANSI J-STD-002.

2.7 Resistance To Soldering Heat

The capacitor must withstand solder dipping of the terminals at 260°C for 10 seconds per MIL-STD-202, Method 210, Condition B. The capacitor must not be visibly damaged and the electrical characteristics must not be affected.

2.8 Terminal Strength

The capacitor terminals must withstand a 5-pound pull test for 30 seconds per MIL-Std-202, Method 211, Condition A. The capacitor must not be visibly damaged and the electrical characteristics must not be affected.

2.9 Fungus Resistance

The capacitor materials shall not support fungus growth and shall not be a nutrient to fungus.

3.0 Environmental Requirements

3.1 Operating Temperature

-55°C to +85°C or 125°C with voltage de-rating (see Table 2).

3.2 Storage Temperature

-62°C to +130°C

3.3 Environmental Testing

The capacitor shall be designed to withstand environmental testing in accordance with Table 1. During testing the capacitor case shall be rigidly clamped to the test fixture with the leads upright. The capacitor must not be visibly damaged and the electrical characteristics must remain within specification.

Table 1. Environmental Testing

	TEST	TEST METHOD	CONDITION	REMARKS
1	SHOCK	MIL-STD-202 METHOD 213	G	11 mS, 50g
2	VIBRATION	MIL-STD-202 METHOD 204	D	12 Sweeps/Axis, 20g peak
3	VIBRATION	MIL-STD-202 METHOD 214	II, Letter E	1.5 Hours/Axis, 19.64g rms
4	MOISTURE RESIS.	MIL-STD-202 METHOD 106		6 V Polarity
5	THERMAL SHOCK	MIL-STD-202 METHOD 107	A	
6	ALTITUDE	MIL-STD-202 METHOD 105	D	100 000 ft test

4.0 Electrical Requirements

4.1 Capacitance

The capacitance is specified in Table 2 at 120 Hz and 25°C, ± 20%.

4.2 Working Voltage

The working voltage rating is as specified in Table 2

4.3 Surge Voltage

The test shall be 1000 cycles of rated surge voltage at 85°C. Each cycle shall consist of a 30 second surge voltage application followed by a 330 second discharge period. The part shall be charged and discharged through a 1000 ohm resistor. The capacitor must not be visibly damaged and the electrical characteristics must remain within specification.

4.4 Equivalent Series Resistance

The maximum equivalent series resistance (ESR) is specified in Table 2 at 1 kHz and 25°C.

4.5 DC Leakage Current

The maximum DC leakage current is specified in Table 2 following 5 minutes at working voltage and 25°C.

4.6 Life

The operational life shall be greater than 2000 hours at 85°C and rated voltage or greater than 2000 hours at 125°C at de-rated voltage specified in table 2. The capacitor will meet all electrical specifications at the end of life.

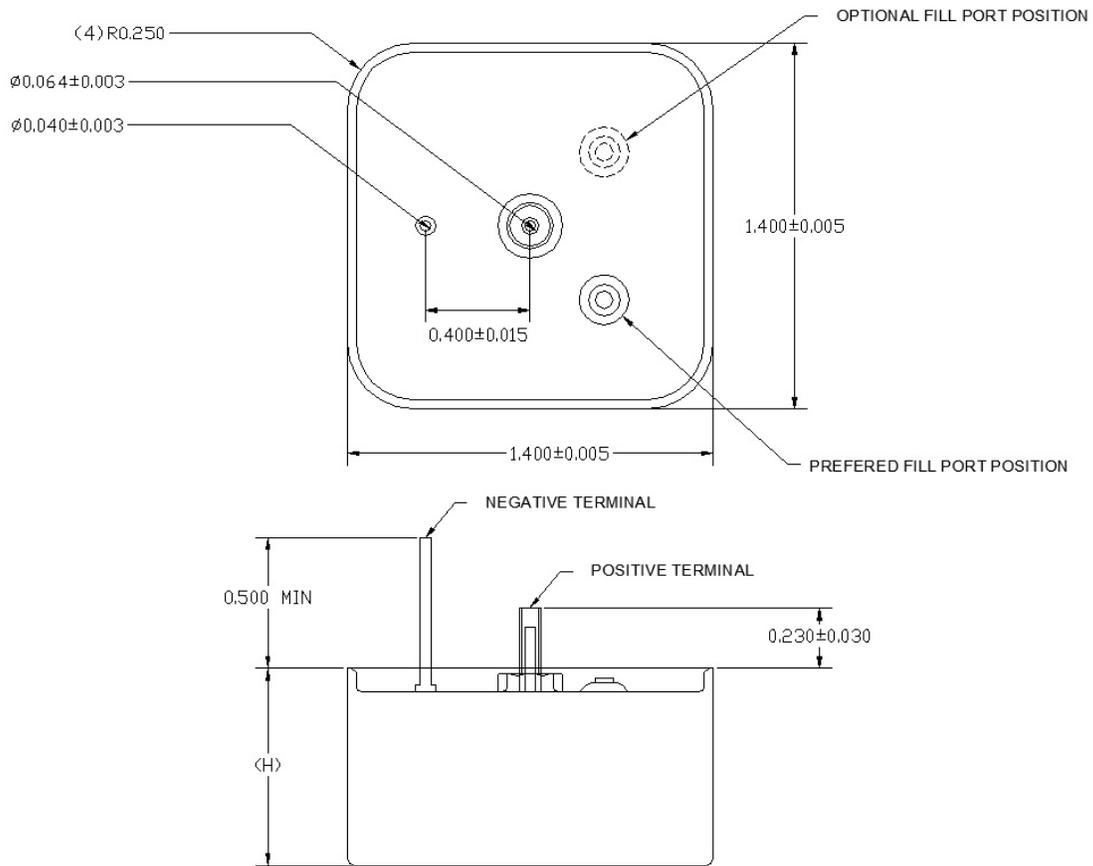
Table 2. Electrical / Mechanical Specifications

85°C (VDC)	Capacitance (µF)	Part Number	125°C (VDC)	Surge Voltage	DCL 25°C (max)	DCL 85°C (max)	ESR (max)	Weight (max)	Height (Dim H) (± 0.015)
10V	60,000	TDD1010603	6V	11V	150µA	1.5mA	.030Ω	55g	0.312
10V	120,000	TDD2010124	6V	11V	250µA	2.0mA	.020Ω	80g	0.450
10V	180,000	TDD3010184	6V	11V	350µA	2.5mA	.015Ω	108g	0.600
10V	240,000	TDD4010244	6V	11V	450µA	3.0mA	.012Ω	134g	0.755
16V	40,000	TDD1016403	9.6V	17.6V	150µA	1.5mA	.030Ω	55g	0.312
16V	80,000	TDD2016803	9.6V	17.6V	250µA	2.0mA	.020Ω	80g	0.450
16V	120,000	TDD3016124	9.6V	17.6V	350µA	2.5mA	.015Ω	108g	0.600
16V	160,000	TDD4016164	9.6V	17.6V	450µA	3.0mA	.012Ω	138g	0.755
25V	24,000	TDD1025243	15V	27.5V	150µA	1.5mA	.030Ω	55g	0.312
25V	48,000	TDD2025483	15V	27.5V	250µA	2.0mA	.020Ω	80g	0.450
25V	72,000	TDD3025723	15V	27.5V	350µA	2.5mA	.015Ω	108g	0.600
25V	96,000	TDD4025963	15V	27.5V	450µA	3.0mA	.012Ω	134g	0.755
35V	16,000	TDD1035163	21V	38.5V	150µA	1.5mA	.040Ω	55g	0.312
35V	32,000	TDD2035323	21V	38.5V	250µA	2.0mA	.020Ω	80g	0.450
35V	48,000	TDD3035483	21V	38.5V	350µA	2.5mA	.015Ω	108g	0.600
35V	64,000	TDD4035643	21V	38.5V	450µA	3.0mA	.012Ω	138g	0.755
50V	11,000	TDD1050113	30V	55V	100µA	1.0mA	.050Ω	55g	0.312
50V	22,000	TDD2050223	30V	55V	100µA	1.5mA	.025Ω	80g	0.450
50V	33,000	TDD3050333	30V	55V	200µA	2.0mA	.017Ω	108g	0.600
50V	44,000	TDD4050443	30V	55V	250µA	2.5mA	.015Ω	134g	0.755
63V	4,700	TDD1063472	38V	69V	100µA	1.0mA	.050Ω	60g	0.312
63V	9,400	TDD2063942	38V	69V	100µA	1.5mA	.025Ω	86g	0.450
63V	14,000	TDD3063143	38V	69V	200µA	2.0mA	.017Ω	115g	0.600
63V	18,000	TDD4063183	38V	69V	250µA	2.5mA	.015Ω	145g	0.755
80V	3,000	TDD1080302	48V	88V	100µA	1.0mA	.055Ω	60g	0.312
80V	6,000	TDD2080602	48V	88V	100µA	1.5mA	.027Ω	86g	0.450
80V	9,000	TDD3080902	48V	88V	200µA	2.0mA	.018Ω	115g	0.600
80V	12,000	TDD4080123	48V	88V	250µA	2.5mA	.015Ω	145g	0.755
100V	2,200	TDD1100222	60V	110V	100µA	1.0mA	.065Ω	60g	0.312
100V	4,400	TDD2100442	60V	110V	100µA	1.5mA	.030Ω	86g	0.450
100V	6,600	TDD3100662	60V	110V	200µA	2.0mA	.020Ω	115g	0.600
100V	8,800	TDD4100882	60V	110V	250µA	2.5mA	.015Ω	145g	0.755
125V	1,500	TDD1125152	75V	137.5V	100µA	1.0mA	.100Ω	60g	0.312
125V	3,000	TDD2125302	75V	137.5V	100µA	1.5mA	.050Ω	90g	0.450
125V	4,500	TDD3125452	75V	137.5V	200µA	2.0mA	.035Ω	122g	0.600
125V	6,000	TDD4125602	75V	137.5V	250µA	2.5mA	.025Ω	155g	0.755

Part Number Description: (TDD#) (XXX) (XXX) (K) (SMXX)

Part Series Voltage Rating Cap Rating Optional ± 10% Tolerance Optional Stud Mount

Figure 1



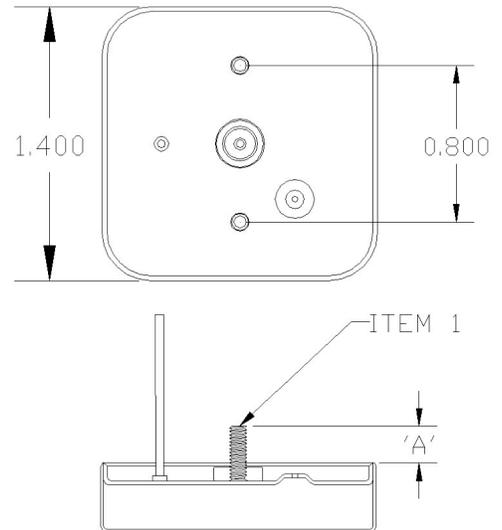
TDD SERIES CAPACITOR SPECIFICATION

TABLE 3. OPTIONAL STUD MOUNT

PART NUMBERS	STUD LENGTH (DIM A)
TDD#XXXXXXSM00	0.21 INCH
TDD#XXXXXXSM01	0.27 INCH
TDD#XXXXXXSM02	0.40 INCH
TDD#XXXXXXSM03	0.15 INCH
TDD#XXXXXXSM04	0.18 INCH
TDD#XXXXXXSM05	0.35 INCH

STUDS ARE #2 – 56 CDA 752

Figure 2



RECOMMENDED PWB LAYOUT WITH MINIMUM PTH DIAMETERS

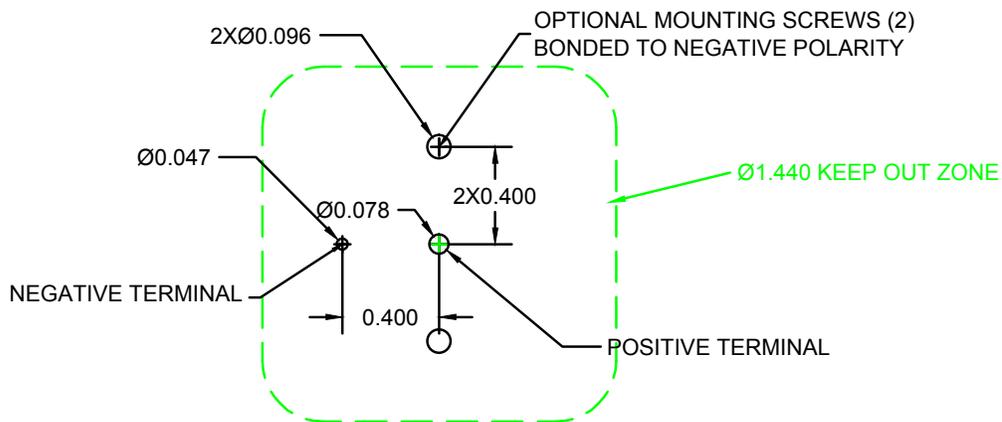


Figure 3