

# Quantic™ Evans



## TDD Series Hybrid Capacitors

### Product Datasheet

08.03.2022

## Product Overview

The TDD series capacitors utilize sintered tantalum anodes and ruthenium oxide coated cathodes operating in aqueous electrolyte. The components are hermetically sealed in a welded tantalum case with a glass-to-metal seal.

The TDD series capacitors come in a 1.4" x 1.4" square case and has the highest power density of any tantalum capacitor technology.

## Electrical Specifications

Rated Voltage Range	10VDC to 125VDC
Capacitance Range	1,500uF to 300,000uF
Life (@85°C)	>2000 hours @ Rated Voltage

## Mechanical Specifications

Test	Method	Condition	Remarks
Shock	MIL-STD-202 METHOD 213	G	Tested for 11ms at 50g
Vibration	MIL-STD-202 METHOD 204	D	12 sweeps/axis, 20g peak
	MIL-STD-202 METHOD 214	II, Letter E	1.5 hours/axis, 19.64g peak
Moisture Resistance	MIL-STD-202 METHOD 106		6V Polarity

Solderability	To ANSI J-STD-002
Operating Temperature Range	-55°C to +85°C or 125°C with voltage derating (see page 3)
Storage Temperature Range	-62°C to +130°C

## Thermal Dissipation

In free air, TDD series capacitors exhibit a case temperature rise of approximately 20°C per watt dissipated.

## Capacitor Life

TDD series capacitors are rated for >2,000 hours at 85°C and rated voltage or 125°C at de-rated voltage. The effective life of a capacitor in a given application is based on the specific operating voltage and average temperature.

TDD series capacitors have an unlimited shelf life.

## Environmental Compliance

All TDD series capacitor ratings are RoHS 5/6 compliant to EU RoHS Directive 2011/65/EU.

- Negative terminal is 60/40 SnPb plated copper wire
- Positive Terminal is 60/40 SnPb plated Nickel Tube

## Export Classification

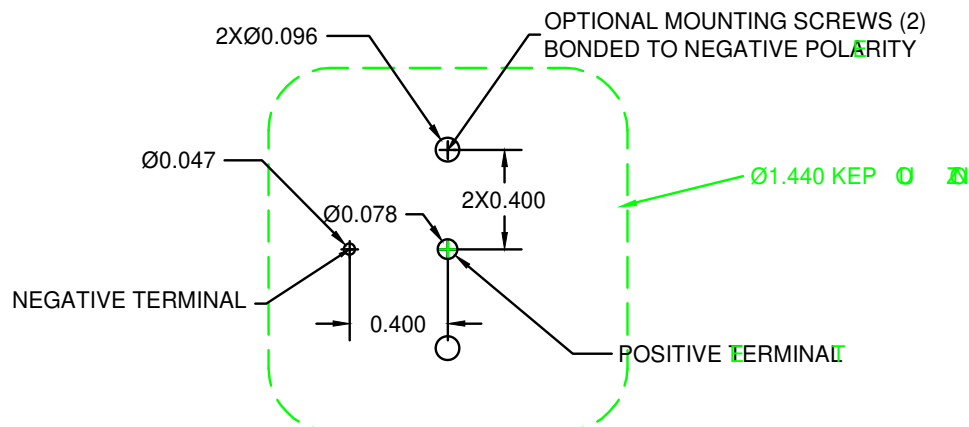
TDD series capacitors are **ECCN EAR99**

## Handling Guidelines

Attachment / Mounting by leads only is discouraged in applications exposed to mechanical shock or vibration. Always ensure capacitor is firmly secured to PWB, by either mounting studs, epoxy staking or both (preferred for vibration environments)

- Provide adequate care to protect the glass to metal seal (GTMS)
  - Avoid forces on the positive terminal, lateral, axial or torque.
  - Avoid mechanical shock to the positive terminal.
  - Secure the part to PWB before soldering
- Mounting with studs
  - #2-56 CDA-752 studs are available as a standard option.
  - Use spacers (provided) to fill the gap between PWB and leaded surface of capacitor.
  - Tighten Studs to 30-40 in-oz.
  - Secure nuts (provided) with red Loctite. Do not use lock washers.
- Potting / Epoxy Staking
  - We advise epoxy staking capacitor to PWB even when using studs, for maximum vibration tolerance.
  - In some applications it may be advisable to pot the cavity between the PWB and leaded surface.
  - Highest shock/vibration applications may require the capacitor to be fully potted.
- Soldering
  - Rim of capacitor is intended to mate directly to PWB. Advise using "no-clean" flux.
  - Utilize ANSI J-STD 001 Standard Through hole Soldering methods.
- Lead trimming
  - Provide adequate care if leads must be trimmed.
  - Trimming the positive terminal is not recommended.
  - Lead lengths available in 1/32" increments from 0.125" when measured from the rim of the capacitor.

## Recommended PWB Layout with Minimum PTH Diameters



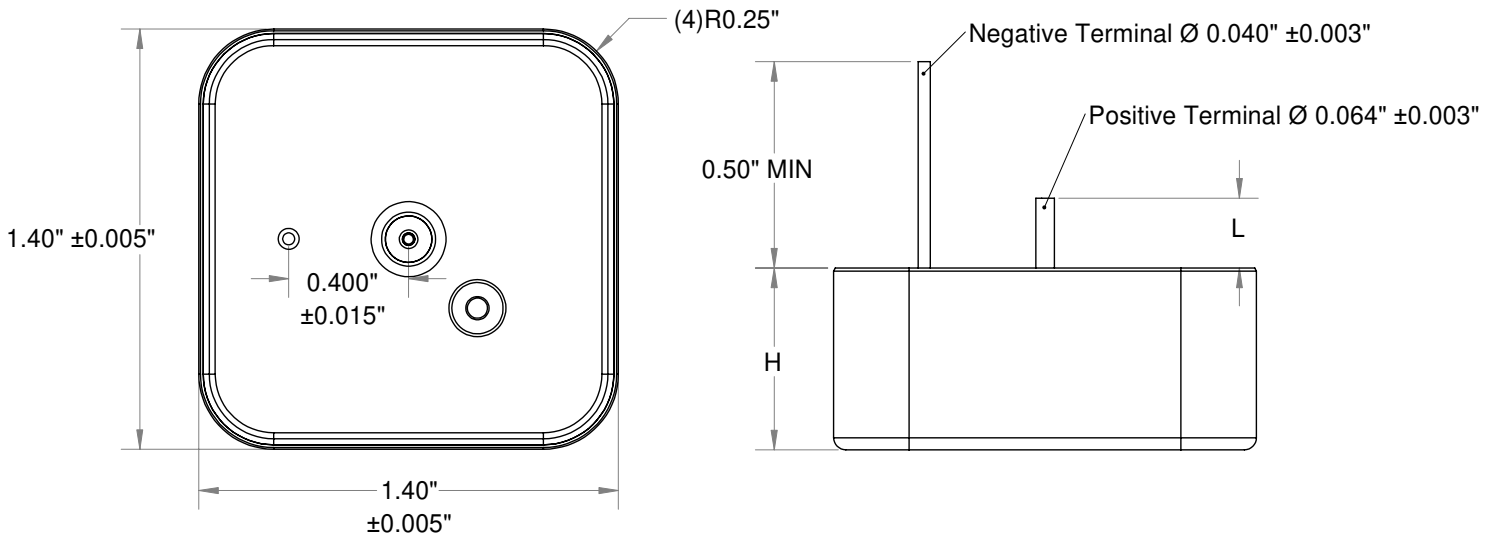
**Part Number Description**

<i>Product Series</i>	<i>Voltage Rating</i>	<i>Cap Rating</i>	<i>Option: Custom Center Lead</i>	<i>Option: ±10% Rating</i>	<i>Option: Stud Mount</i>
TDD#	XXX	XXX	LX	K	SMXX

**Ratings Table**

Part Number	DLA PN	Voltage_85°C	Voltage_125°C	Cap (µF)	ESR (mΩ)	Height (in)	Mass (g)
TDD1010603	15010-01	10	6	60,000	30	0.31	55
TDD2010124	15010-02	10	6	120,000	20	0.45	80
TDD3010184	15010-03	10	6	180,000	15	0.60	108
TDD4010244	15010-04	10	6	240,000	12	0.75	134
TDD5010304		10	6	300,000	10	0.90	160
TDD1016403	15010-05	16	9.6	40,000	30	0.31	55
TDD2016803	15010-06	16	9.6	80,000	20	0.45	80
TDD3016124	15010-07	16	9.6	120,000	15	0.60	108
TDD4016164	15010-08	16	9.6	160,000	12	0.75	134
TDD5016204		16	9.6	200,000	10	0.90	160
TDD1025243	15010-09	25	15	24,000	30	0.31	55
TDD2025483	15010-10	25	15	48,000	20	0.45	80
TDD3025723	15010-11	25	15	72,000	15	0.60	108
TDD4025963	15010-12	25	15	96,000	12	0.75	134
TDD5025124		25	15	120,000	10	0.90	160
TDD1035163	15010-13	35	21	16,000	40	0.31	55
TDD2035323	15010-14	35	21	32,000	20	0.45	80
TDD3035483	15010-15	35	21	48,000	15	0.60	108
TDD4035643	15010-16	35	21	64,000	12	0.75	134
TDD5035803		35	21	80,000	10	0.90	160
TDD1050113	15010-17	50	30	11,000	50	0.31	55
TDD2050223	15010-18	50	30	22,000	25	0.45	80
TDD3050333	15010-19	50	30	33,000	17	0.60	108
TDD4050443	15010-20	50	30	44,000	15	0.75	134
TDD5050553		50	30	55,000	12	0.90	160
TDD1063472	15010-21	63	38	4,700	50	0.31	60
TDD2063942	15010-22	63	38	9,400	25	0.45	86
TDD3063143	15010-23	63	38	14,000	17	0.60	115
TDD4063183	15010-24	63	38	18,000	15	0.75	145
TDD5063223		63	38	22,700	12	0.90	170
TDD1080302	15010-25	80	48	3,000	55	0.31	60
TDD2080602	15010-26	80	48	6,000	27	0.45	86
TDD3080902	15010-27	80	48	9,000	18	0.60	115
TDD4080123	15010-28	80	48	12,000	15	0.75	145
TDD5080153		80	48	15,000	12	0.90	170
TDD1100222	15010-29	100	60	2,200	65	0.31	60
TDD2100442	15010-30	100	60	4,400	30	0.45	86
TDD3100662	15010-31	100	60	6,600	20	0.60	115
TDD4100882	15010-32	100	60	8,800	15	0.75	145
TDD5100113		100	60	11,000	12	0.90	170
TDD1110202	15010-37	110	66	2,000	85	0.31	60
TDD2110402	15010-38	110	66	4,000	40	0.45	86
TDD3110602	15010-39	110	66	6,000	27	0.60	115
TDD4110802	15010-40	110	66	8,000	20	0.75	150
TDD5110103		110	66	10,000	15	0.90	175
TDD1125152	15010-33	125	75	1,500	60	0.31	60
TDD2125302	15010-34	125	75	3,000	45	0.45	90
TDD3125452	15010-35	125	75	4,500	25	0.60	120
TDD4125602	15010-36	125	75	6,000	20	0.75	150
TDD5125752		125	75	7,500	15	0.90	180

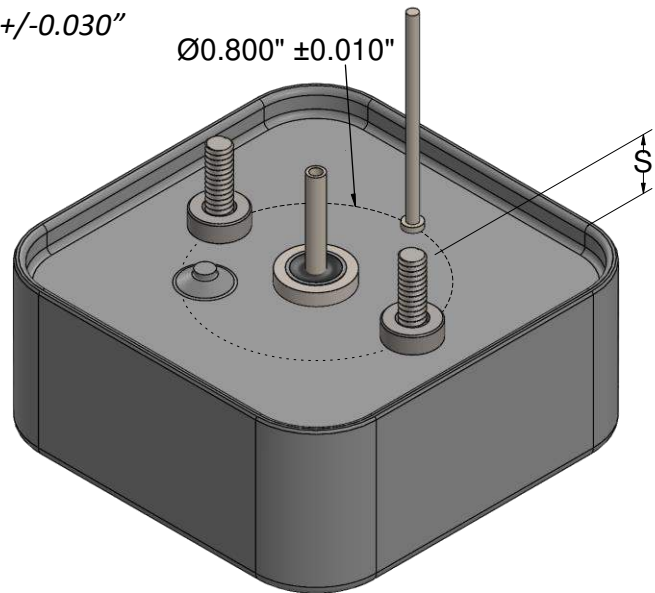
## 2D Drawing



	TDD1	TDD2	TDD3	TDD4	TDD5
Case Height (H)	0.312"	0.450"	0.600"	0.755"	0.905"

	L0	L1	L2	L3	Standard	L4	L5	L6
Length L(x)	0.125"	0.156"	0.188"	0.219"	*0.230"	0.250"	0.281"	0.313"

\*If unspecified, standard center lead length is 0.230+/-0.030"  
L(x) dimensions are +/-0.010"

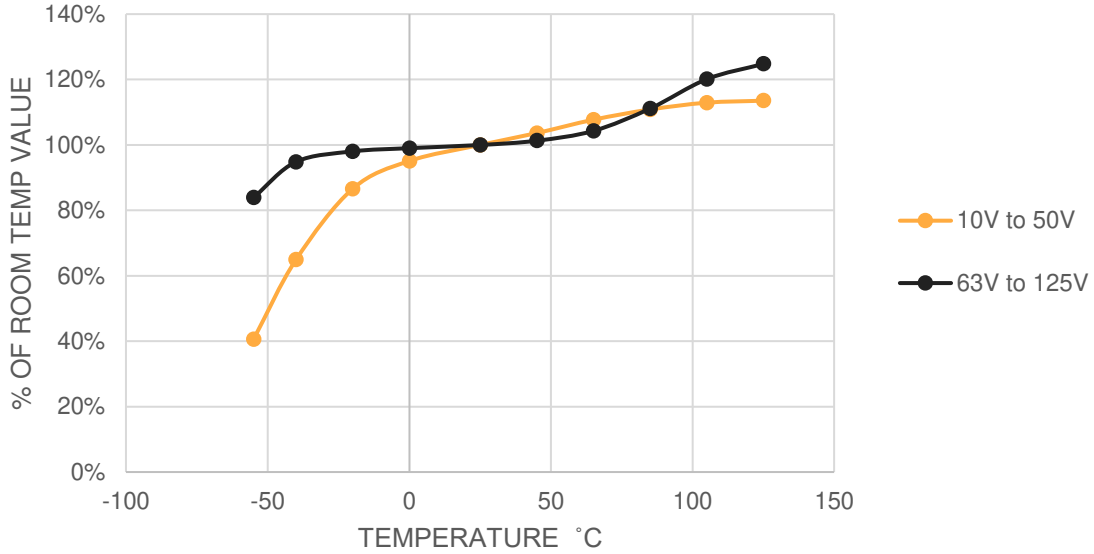


**STUD MOUNT OPTION**  
**CDA752 #2-56**  
**EXAMPLE: TDDXXXXXXSM00**

SUFFIX	SM00	SM01	SM02	SM03	SM04	SM05
Stud Height (S) +/- 0.020"	0.21"	0.27"	0.40"	0.15"	0.18"	0.35"

**Average Electrical Performance**

Typical Capacitance vs Temperature  
120 Hz



Typical ESR vs Temperature  
1 KHz

