



# **TDE Series Hybrid Capacitors**

## **Product Datasheet**

A08.03.2022

## Product Overview

The TDE 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 TDE 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	60VDC to 110VDC
Capacitance Range	2,200uF to 25,000uF
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, TDE series capacitors exhibit a case temperature rise of approximately 20°C per watt dissipated.

## Capacitor Life

TDE 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.

TDE series capacitors have an unlimited Shelf life.

## Environmental Compliance

All TDE series capacitor ratings are RoHS 9/10 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

TDE series capacitors are **ECCN EAR99**

## Quantic Evans

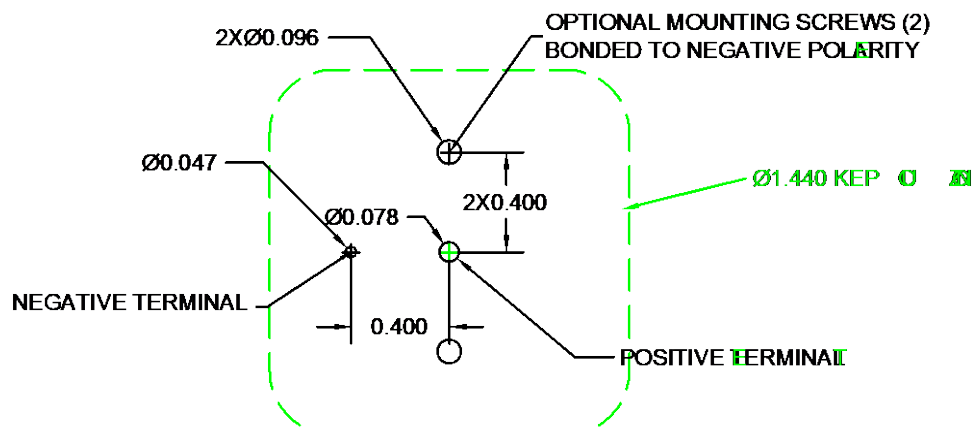
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## Handling Guidelines

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



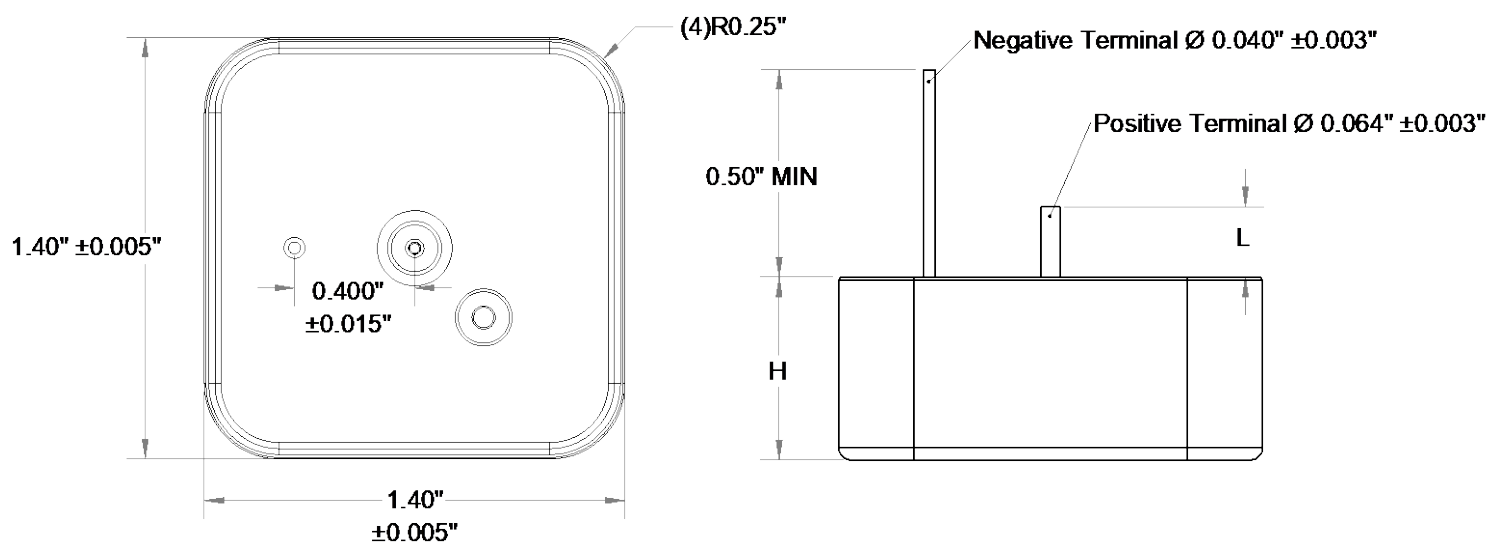
### Part Number Description

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

### Ratings Table

<b>Part Number</b>	<b>Voltage_85°C</b>	<b>Voltage_125°C</b>	<b>Cap (µF)</b>	<b>ESR (mΩ)</b>	<b>Height (in)</b>	<b>Mass (g)</b>
TDE1060632	60	36	6,300	50	0.312	60.00
TDE1075442	75	45	4,400	55	0.312	60.00
TDE1100262	100	60	2,600	65	0.312	60.00
TDE1110222	110	66	2,200	85	0.312	60.00
TDE2060133	60	36	12,600	25	0.45	86.00
TDE2075882	75	45	8,800	27	0.45	86.00
TDE2100522	100	60	5,200	30	0.45	86.00
TDE2110442	110	66	4,400	40	0.45	86.00
TDE3060193	60	36	19,000	17	0.6	115.00
TDE3075133	75	45	13,000	18	0.6	115.00
TDE3100782	100	60	7,800	20	0.6	115.00
TDE3110662	110	66	6,600	27	0.6	115.00
TDE4060253	60	36	25,000	15	0.755	145.00
TDE4075183	75	45	18,000	15	0.755	145.00
TDE4100103	100	60	10,400	15	0.755	145.00
TDE4110882	110	66	8,800	20	0.755	150.00

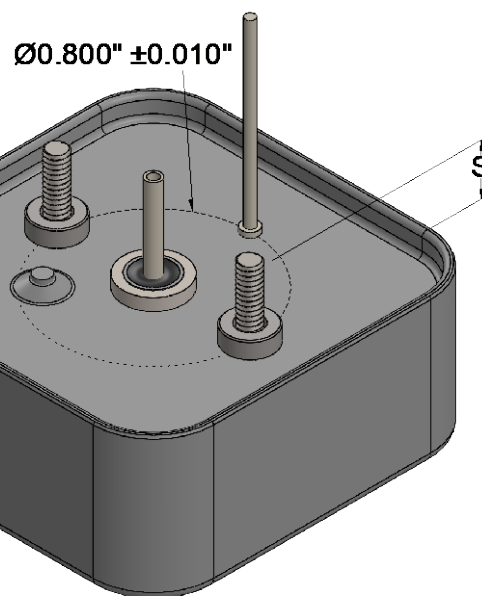
### 2D Drawing



	TDE1	TDE2	TDE3	TDE4
Case Height (H)	0.312"	0.450"	0.600"	0.755"

	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  $0.230 \pm 0.030''$   
 L(x) dimensions are  $\pm 0.010''$



**STUD MOUNT OPTION**  
**CDA752 #2-56**  
**EXAMPLE: TDEXXXXXXSM00**

SUFFIX	SM00	SM01	SM02	SM03	SM04	SM05
Stud Height (S) $\pm 0.020''$	0.21"	0.27"	0.40"	0.15"	0.18"	0.35"

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