

# Quantic™ Evans



## TDB Series Hybrid Capacitors

Product Datasheet

## Product Overview

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

The TDB Series comes in a 1.0" x 1.0" square case and has the highest power density of any tantalum capacitor technology.

## Electrical Specifications

Rated Voltage Range	10VDC to 125VDC
Capacitance Range	750uF to 150,000uF
Life (@85°C)	>2000 hours @ Rated Voltage

## Mechanical Specifications

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

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

## Capacitor Life

TDB 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.

TDB Series Capacitors have an unlimited Shelf life.

## Environmental Compliance

Standard TDB 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
- Lead free RoHS compliant options available upon request

## **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**

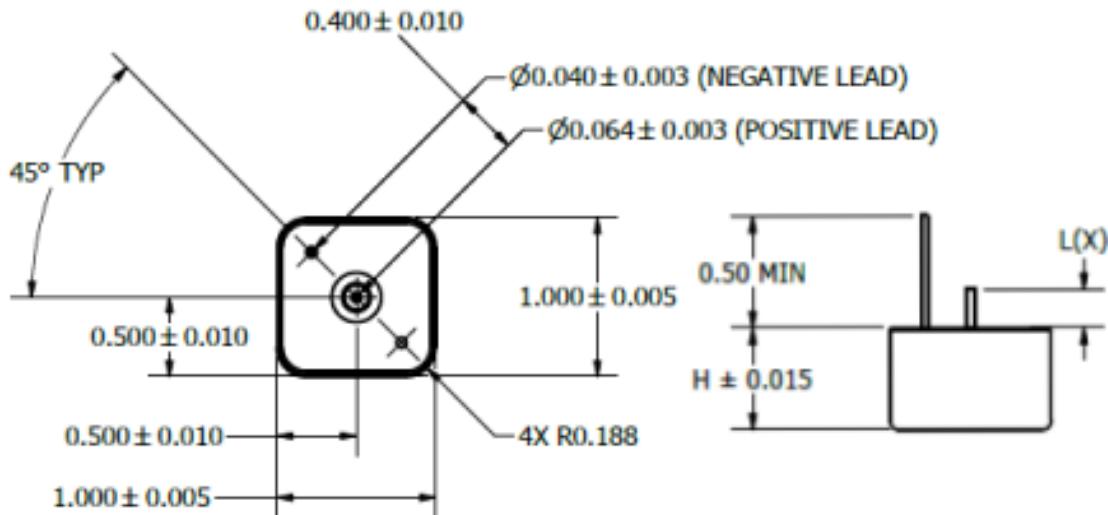
**Part Number Description**

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

**Ratings Table**

85°C (VDC)	Capacitance (μF)	Part Number	125°C (VDC)	Surge Voltage	DCL 25°C (max) <sup>1</sup>	DCL 85°C (max) <sup>1</sup>	ESR (max) <sup>1</sup>	Weight (max) <sup>1</sup>	Height (Dim H) (± 0.015)
10V	30,000	TDB1010303	6V	11V	75μA	0.75mA	55mΩ	34g	0.329
10V	60,000	TDB2010603	6V	11V	150μA	1.50mA	35mΩ	47g	0.475
10V	90,000	TDB3010903	6V	11V	225μA	2.25mA	30mΩ	61g	0.620
10V	120,000	TDB4010124	6V	11V	300μA	3.00mA	25mΩ	74g	0.766
10V	150,000	TDB5010154	6V	11V	375μA	3.75mA	20mΩ	87g	0.912
16V	20,000	TDB1016203	9.6V	17.6V	75μA	0.75mA	55mΩ	34g	0.329
16V	40,000	TDB2016403	9.6V	17.6V	150μA	1.50mA	35mΩ	47g	0.475
16V	60,000	TDB3016603	9.6V	17.6V	225μA	2.25mA	30mΩ	61g	0.620
16V	80,000	TDB4016803	9.6V	17.6V	300μA	3.00mA	25mΩ	74g	0.766
16V	100,000	TDB5016104	9.6V	17.6V	375μA	3.75mA	20mΩ	87g	0.912
25V	12,000	TDB1025123	15V	27.5V	70μA	0.70mA	55mΩ	34g	0.329
25V	24,000	TDB2025243	15V	27.5V	140μA	1.40mA	35mΩ	47g	0.475
25V	36,000	TDB3025363	15V	27.5V	210μA	2.10mA	30mΩ	61g	0.620
25V	48,000	TDB4025483	15V	27.5V	280μA	2.80mA	25mΩ	74g	0.766
25V	60,000	TDB5025603	15V	27.5V	350μA	3.50mA	20mΩ	87g	0.912
35V	7,500	TDB1035752	21V	38.5V	70μA	0.70mA	75mΩ	34g	0.329
35V	15,000	TDB2035153	21V	38.5V	140μA	1.40mA	40mΩ	47g	0.475
35V	22,500	TDB3035230	21V	38.5V	210μA	2.10mA	35mΩ	61g	0.620
35V	30,000	TDB4035303	21V	38.5V	280μA	2.80mA	30mΩ	74g	0.766
35V	37,500	TDB5035383	21V	38.5V	350μA	3.50mA	25mΩ	87g	0.912
50V	5,000	TDB1050502	30V	55V	70μA	0.70mA	90mΩ	35g	0.329
50V	10,000	TDB2050103	30V	55V	140μA	1.40mA	50mΩ	47g	0.475
50V	15,000	TDB3050153	30V	55V	210μA	2.10mA	40mΩ	61g	0.620
50V	20,000	TDB4050203	30V	55V	280μA	2.80mA	30mΩ	74g	0.766
50V	25,000	TDB5050253	30V	55V	350μA	3.50mA	25mΩ	87g	0.912
60V	3,100	TDB1060312	36V	66V	50μA	0.50mA	125mΩ	35g	0.329
60V	6,200	TDB2060622	36V	66V	75μA	0.75mA	75mΩ	50g	0.475
60V	9,300	TDB3060932	36V	66V	100μA	1.00mA	60mΩ	65g	0.620
60V	12,400	TDB4060123	36V	66V	125μA	1.25mA	35mΩ	80g	0.766
60V	15,500	TDB5060163	36V	66V	150μA	1.50mA	30mΩ	95g	0.912
75V	2,100	TDB1080212	45V	82.5V	50μA	0.50mA	125mΩ	35g	0.329
75V	4,200	TDB2080422	45V	82.5V	75μA	0.75mA	75mΩ	50g	0.475
75V	6,300	TDB3080632	45V	82.5V	100μA	1.00mA	60mΩ	65g	0.620
75V	8,400	TDB4080842	45V	82.5V	125μA	1.25mA	35mΩ	80g	0.766
75V	10,500	TDB5080113	45V	82.5V	150μA	1.50mA	30mΩ	95g	0.912
100V	1,300	TDB1100132	60V	110V	50μA	0.50mA	125mΩ	35g	0.329
100V	2,600	TDB2100262	60V	110V	75μA	0.75mA	75mΩ	50g	0.475
100V	3,900	TDB3100392	60V	110V	100μA	1.00mA	60mΩ	65g	0.620
100V	5,200	TDB4100522	60V	110V	125μA	1.25mA	35mΩ	80g	0.766
100V	6,500	TDB5100652	60V	110V	150μA	1.50mA	30mΩ	95g	0.912
110V	1,000	TDB1110102	66V	121V	50μA	0.50mA	125mΩ	35g	0.329
110V	2,000	TDB2110202	66V	121V	150μA	1.50mA	75mΩ	50g	0.475
110V	3,000	TDB3110302	66V	121V	200μA	2.00mA	60mΩ	65g	0.620
110V	4,000	TDB4110402	66V	121V	250μA	2.50mA	35mΩ	80g	0.766
110V	5,000	TDB5110502	66V	121V	300μA	3.00mA	30mΩ	95g	0.912
125V	750	TDB1125751	75V	137.5V	50μA	0.50mA	125mΩ	35g	0.329
125V	1,500	TDB2125152	75V	137.5V	75μA	0.75mA	75mΩ	50g	0.475
125V	2,250	TDB3125232	75V	137.5V	100μA	1.00mA	60mΩ	65g	0.620
125V	3,000	TDB4125302	75V	137.5V	125μA	1.25mA	35mΩ	80g	0.766
125V	3,750	TDB5125382	75V	137.5V	150μA	1.50mA	30mΩ	95g	0.912

### 2D Drawing

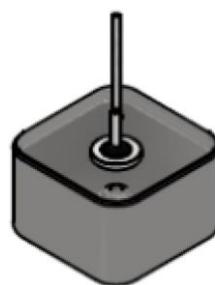
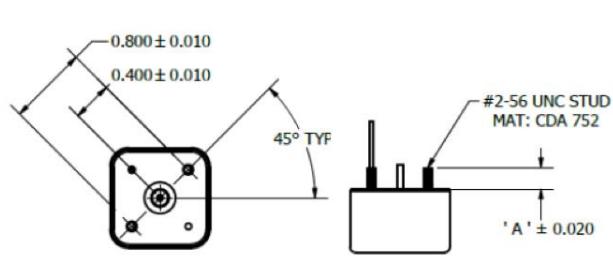


	TDB1	TDB2	TDB3	TDB4	TDB5
Case Height (H)	0.329"	0.475"	0.620"	0.766"	0.912"

	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: TDBXXXXXXSM00

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