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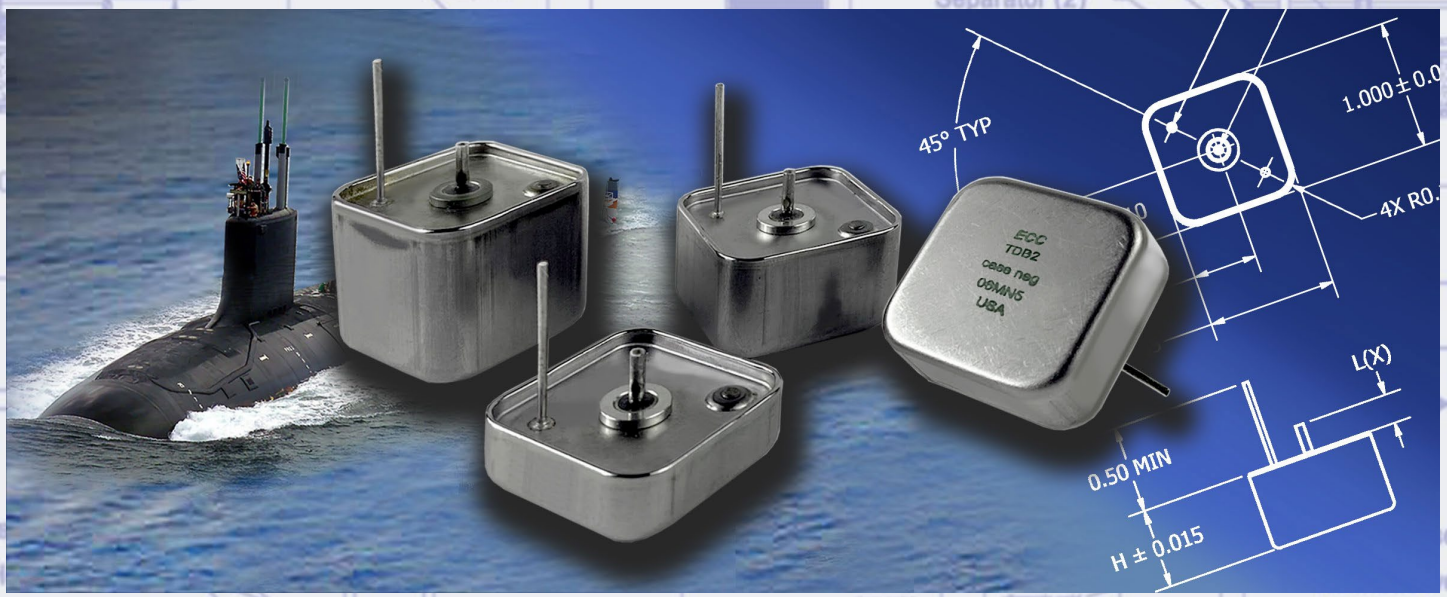
A Quantic Company



TDB Series Hybrid Capacitors

Product Datasheet

04.28.2022

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 (@85ºC)	>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	-55ºC to +85ºC or 125ºC with voltage derating (see page 3)
Storage Temperature Range	-62ºC to +130ºC

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

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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

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

Ratings Table

85°C (VDC)	Capacitance (µF)	Part Number	125°C (VDC)	Surge Voltage	DCL 25°C (max)[1]	DCL 85°C (max)[1]	ESR (max)[1]	Weight (max)[1]	Height (Dim H) (± 0.015)
10V	30,000	TDB1010303RD	6V	11V	75µA	0.75mA	55mΩ	34g	0.329
10V	60,000	TDB2010603RD	6V	11V	150µA	1.50mA	35mΩ	47g	0.475
10V	90,000	TDB3010903RD	6V	11V	225µA	2.25mA	30mΩ	61g	0.620
10V	120,000	TDB4010124RD	6V	11V	300µA	3.00mA	25mΩ	74g	0.766
10V	150,000	TDB5010154RD	6V	11V	375µA	3.75mA	20mΩ	87g	0.912
16V	20,000	TDB1016203RD	9.6V	17.6V	75µA	0.75mA	55mΩ	34g	0.329
16V	40,000	TDB2016403RD	9.6V	17.6V	150µA	1.50mA	35mΩ	47g	0.475
16V	60,000	TDB3016603RD	9.6V	17.6V	225µA	2.25mA	30mΩ	61g	0.620
16V	80,000	TDB4016803RD	9.6V	17.6V	300µA	3.00mA	25mΩ	74g	0.766
16V	100,000	TDB5016104RD	9.6V	17.6V	375µA	3.75mA	20mΩ	87g	0.912
25V	12,000	TDB1025123RD	15V	27.5V	70µA	0.70mA	55mΩ	34g	0.329
25V	24,000	TDB2025243RD	15V	27.5V	140µA	1.40mA	35mΩ	47g	0.475
25V	36,000	TDB3025363RD	15V	27.5V	210µA	2.10mA	30mΩ	61g	0.620
25V	48,000	TDB4025483RD	15V	27.5V	280µA	2.80mA	25mΩ	74g	0.766
25V	60,000	TDB5025603RD	15V	27.5V	350µA	3.50mA	20mΩ	87g	0.912
35V	7,500	TDB1035752RD	21V	38.5V	70µA	0.70mA	75mΩ	34g	0.329
35V	15,000	TDB2035153RD	21V	38.5V	140µA	1.40mA	40mΩ	47g	0.475
35V	22,500	TDB3035230RD	21V	38.5V	210µA	2.10mA	35mΩ	61g	0.620
35V	30,000	TDB4035303RD	21V	38.5V	280µA	2.80mA	30mΩ	74g	0.766
35V	37,500	TDB5035383RD	21V	38.5V	350µA	3.50mA	25mΩ	87g	0.912
50V	5,000	TDB1050502RD	30V	55V	70µA	0.70mA	90mΩ	35g	0.329
50V	10,000	TDB2050103RD	30V	55V	140µA	1.40mA	50mΩ	47g	0.475
50V	15,000	TDB3050153RD	30V	55V	210µA	2.10mA	40mΩ	61g	0.620
50V	20,000	TDB4050203RD	30V	55V	280µA	2.80mA	30mΩ	74g	0.766
50V	25,000	TDB5050253RD	30V	55V	350µA	3.50mA	25mΩ	87g	0.912
60V	3,100	TDB1063312RD	36V	66V	50µA	0.50mA	125mΩ	35g	0.329
60V	6,200	TDB2063622RD	36V	66V	75µA	0.75mA	75mΩ	50g	0.475
60V	9,300	TDB3063932RD	36V	66V	100µA	1.00mA	60mΩ	65g	0.620
60V	12,400	TDB4063123RD	36V	66V	125µA	1.25mA	35mΩ	80g	0.766
60V	15,500	TDB5063163RD	36V	66V	150µA	1.50mA	30mΩ	95g	0.912
75V	2,100	TDB1080212RD	45V	82.5V	50µA	0.50mA	125mΩ	35g	0.329
75V	4,200	TDB2080422RD	45V	82.5V	75µA	0.75mA	75mΩ	50g	0.475
75V	6,300	TDB3080632RD	45V	82.5V	100µA	1.00mA	60mΩ	65g	0.620
75V	8,400	TDB4080842RD	45V	82.5V	125µA	1.25mA	35mΩ	80g	0.766
75V	10,500	TDB5080113RD	45V	82.5V	150µA	1.50mA	30mΩ	95g	0.912
100V	1,300	TDB1100132RD	60V	110V	50µA	0.50mA	125mΩ	35g	0.329
100V	2,600	TDB2100262RD	60V	110V	75µA	0.75mA	75mΩ	50g	0.475
100V	3,900	TDB3100392RD	60V	110V	100µA	1.00mA	60mΩ	65g	0.620
100V	5,200	TDB4100522RD	60V	110V	125µA	1.25mA	35mΩ	80g	0.766
100V	6,500	TDB5100652RD	60V	110V	150µA	1.50mA	30mΩ	95g	0.912
110V	1,000	TDB1110102RD	66V	121V	50µA	0.50mA	125mΩ	35g	0.329
110V	2,000	TDB2110202RD	66V	121V	150µA	1.50mA	75mΩ	50g	0.475
110V	3,000	TDB3110302RD	66V	121V	200µA	2.00mA	60mΩ	65g	0.620
110V	4,000	TDB4110402RD	66V	121V	250µA	2.50mA	35mΩ	80g	0.766
110V	5,000	TDB5110502RD	66V	121V	300µA	3.00mA	30mΩ	95g	0.912
125V	750	TDB1125751RD	75V	137.5V	50µA	0.50mA	125mΩ	35g	0.329
125V	1,500	TDB2125152RD	75V	137.5V	75µA	0.75mA	75mΩ	50g	0.475
125V	2,250	TDB3125232RD	75V	137.5V	100µA	1.00mA	60mΩ	65g	0.620
125V	3,000	TDB4125302RD	75V	137.5V	125µA	1.25mA	35mΩ	80g	0.766
125V	3,750	TDB5125382RD	75V	137.5V	150µA	1.50mA	30mΩ	95g	0.912

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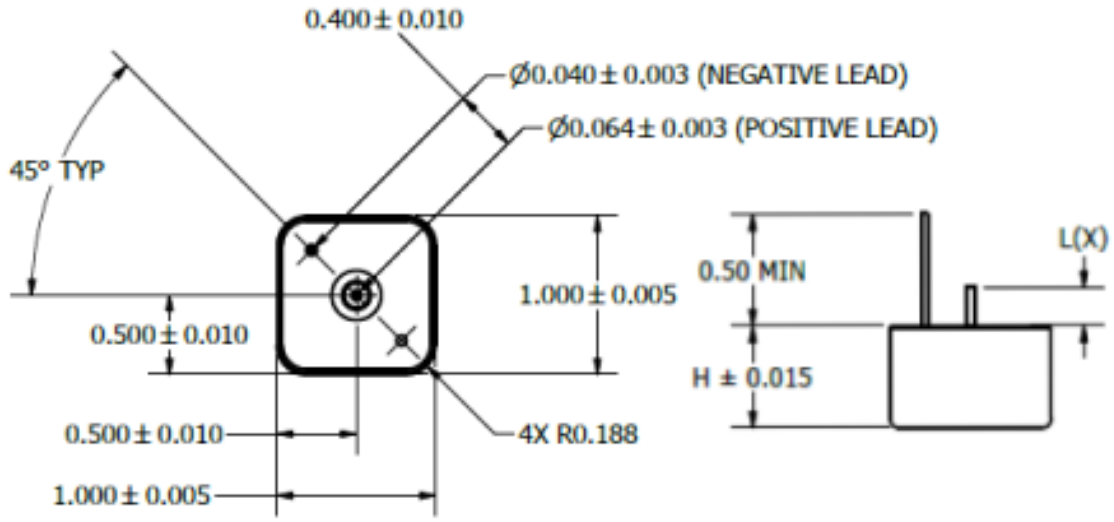
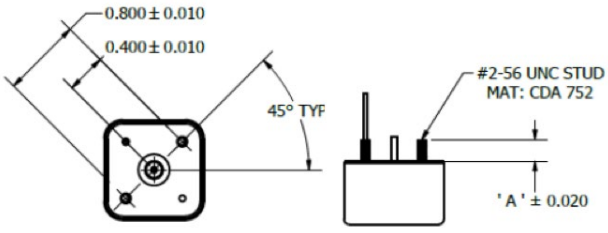
2D Drawing

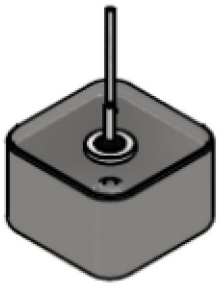


	TDB1	TDB2	TDB3	TDB4	TDB5
Case Height (H)	0.312"	0.450”	0.600”	0.755”	0.905”

	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: 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”

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