

	<b>Product Specification</b>  <b>HYBRID<sup>®</sup> CAPACITOR</b>	<b>NUMBER</b>	<b>THQ1</b>
		<b>ISSUE</b>	<b>01</b>
		<b>REVISION</b>	<b>M</b>
		<b>DATE</b>	<b>10/11/18</b>

## 1.0 Scope

This document contains specific electrical, mechanical, and environmental requirements and specifications for THQ1 series Tantalum case Hybrid<sup>®</sup> Capacitors. These specifications are subject to change without notice.

## 2.0 Construction

### 2.1 General

The capacitor shall utilize a sintered tantalum anode and ruthenium oxide coated cathodes operating in aqueous electrolyte with additives. 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 Mass

0-50 volt parts:  $41 \pm 3$  grams; 63-125 volt parts:  $47 \pm 3$  grams.

### 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 labeled with the following information. The markings shall be resistant to solvents per MIL-STD-202, Method 215J.

- |   |                          |
|---|--------------------------|
| i. Manufacturer's name and cage code          | v. Date/lot code         |
| ii. Manufacturer's part identification number | vi. Unique Serial Number |
| iii. Capacitance                              | vii. Polarity            |
| iv. Working voltage                           |                          |

### 2.6 Solderability

The terminations shall 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 derating (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 23°C, ± 20%.

### 4.2 Working Voltage

The working voltage rating is from 0 to V as specified in Table 2.

### 4.3 Surge Voltage

The test shall be 1000 cycles at 110% of rated 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 23°C.

#### 4.5 DC Leakage Current

The maximum DC leakage current is specified in Table 2 following 5 minutes at working voltage and 23°C.

#### 5.0 Life Testing

The operational life shall be greater than 2000 hours at 85°C and rated voltage or greater than 2000 hours at 125°C rated voltage.

**Table 2. Electrical Specifications**

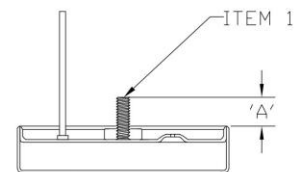
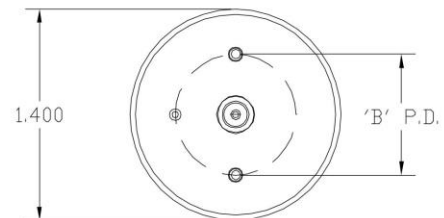
V (VDC) 85°C	Capacitance	Part Number	V (VDC) 125°C	DCL (max)	ESR (max)
10 V	50,000 µF	THQ1010503	6 V	150 µA	0.050 Ω
16 V	30,000 µF	THQ1016303	9.5 V	150 µA	0.050 Ω
25 V	18,000 µF	THQ1025183	15 V	150 µA	0.050 Ω
35 V	12,000 µF	THQ1035123	20 V	150 µA	0.050 Ω
50 V	8,000 µF	THQ1050802	30 V	170 µA	0.060 Ω
63 V	4,000 µF	THQ1063402	38 V	170 µA	0.100 Ω
80 V	2,800 µF	THQ1080282	48 V	200 µA	0.100 Ω
100 V	1,900 µF	THQ1100192	60 V	200 µA	0.125 Ω
110 V	1,500 µF	THQ1110152	65 V	200 µA	0.200 Ω
125 V	1,100 µF	THQ1125112	75 V	200 µA	0.200 Ω

PART NUMBER DESCRIPTION: (THQ1) (XXX) (XXX) (K) (SMXX)

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

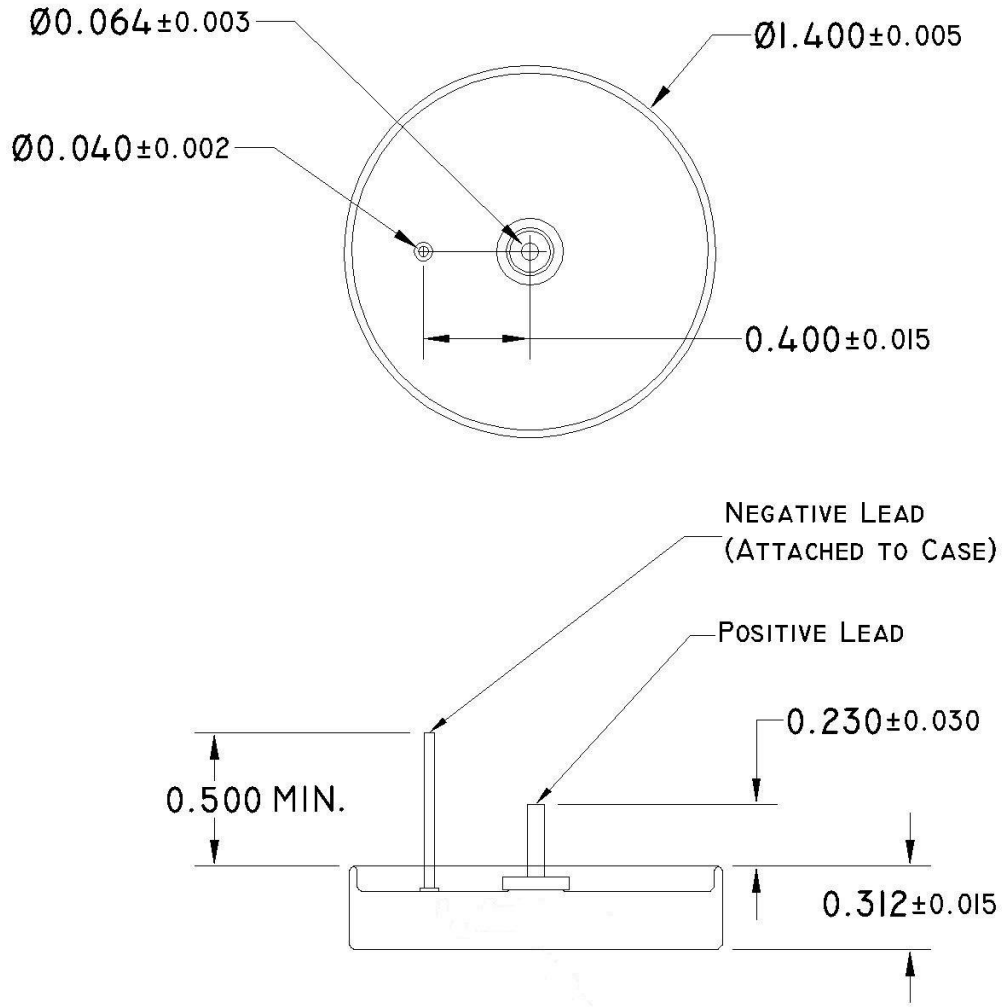
#### OPTIONAL STUD MOUNT (DIM B = 0.80")

PART NUMBERS	STUD LENGTH (DIM A)
THQ1XXXXXXXXSM00	0.22 INCH
THQ1XXXXXXXXSM01	0.28 INCH
THQ1XXXXXXXXSM02	0.41 INCH
THQ1XXXXXXXXSM03	0.16 INCH
THQ1XXXXXXXXSM04	0.19 INCH
THQ1XXXXXXXXSM05	0.36 INCH



STUDS ARE #2 – 56 CDA 752

Figure 1. Part Sketch.



EVANS CAPACITOR COMPANY THQ1 SERIES CAPACITOR SPECIFICATION