

THC1 High Energy Tantalum Hybrid Capacitor

(Hermetic sealed & Military standard)

❖ Characteristics and application

- All tantalum case, hermetic seal, Cylindrical, radial leads, Polarized
- This product is made up of tantalum capacitor and electrochemistry capacitor
- Stable electric performance, high reliability, long life, large energy density per unit volume, store large energy, small size.
- Used as battery in energy conversion circuit and power pulse circuit,
- Widely use in aircraft, radar, ship, tank, satellite, aerospace equipment etc.
- Perform Energy storage, power-off delay in circuit.
- Standard: GJB733A-96, QJ/PWV20102-2004



❖ How to order: THC1-50V7000 μ F-M: 100pcs

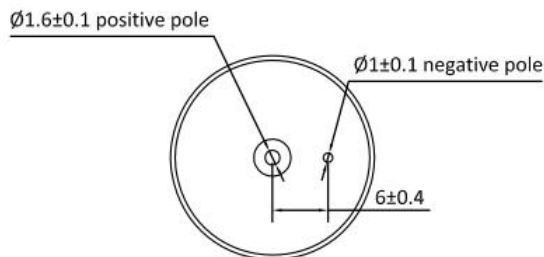
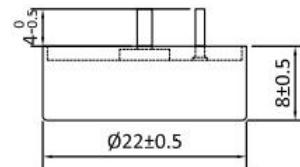
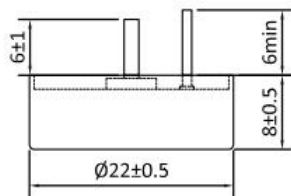
❖ Technical Performance.

Temperature range: -55 $^{\circ}$ C~+125 $^{\circ}$ C (>85 $^{\circ}$ C use derated voltage)

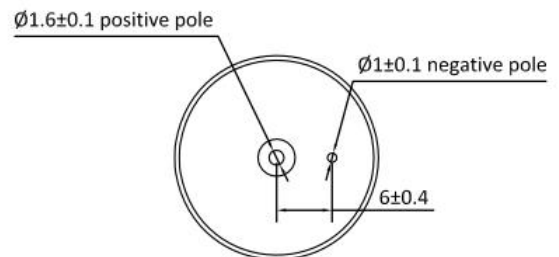
Store environment temperature: -62 $^{\circ}$ C~+130 $^{\circ}$ C

Capacitance tolerance: M: \pm 20%; Q:-10%~+30%

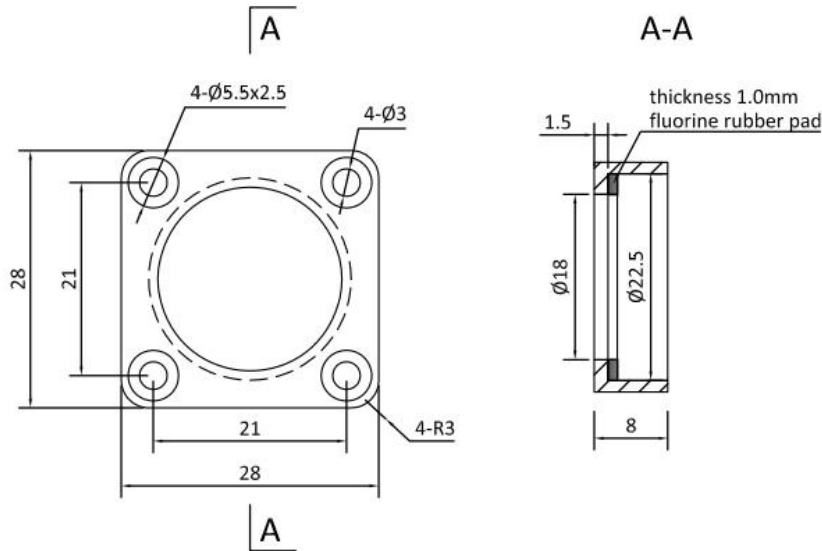
❖ Size and installation 22x8mm



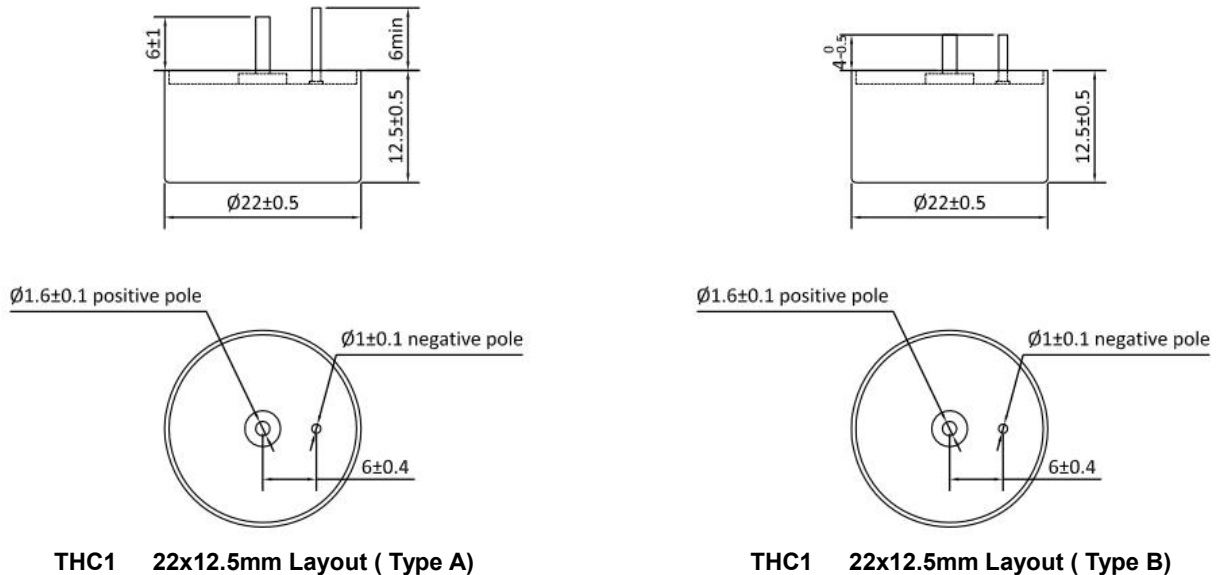
THC1 22x8mm Layout (Type A)

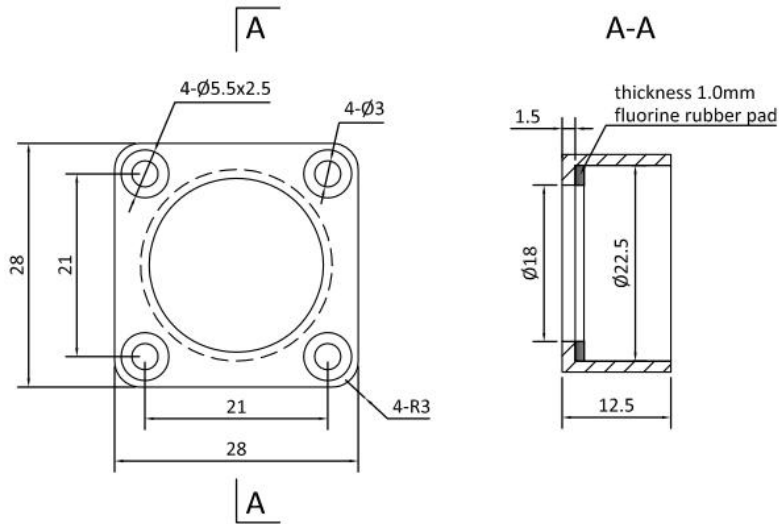


THC1 22x8mm Layout (Type B)


THC1 22x8mm Mounting Holder Layout
Table1 THC1 High Energy Tantalum Hybrid Capacitor data, Case size: 22x8 (mm)

Rated Voltage (V)	Derated Voltage (V)	Surge Voltage (V)	Capacitance (µF)	tgδ(%) 100Hz	Max. ESR (Ω) 1KHz	Max. DCL (µA)		IMP. (Ω) -55°C 100Hz	Cap. Change rate (%)		Weight Max. (g)
						25°C	85°C 125°C		25°C	-55°C	
10	6	11	8000	80	0.3	100	600	8	-80	+160	28
16	9.5	17.6	7000	70	0.3	125	750	8	-80	+160	28
25	15	27.5	5000	60	0.3	150	900	8	-75	+150	28
35	20	38.5	3500	50	0.3	150	900	8	-70	+140	28
50	30	55	2500	46	0.3	155	930	9.6	-60	+120	28
63	38	70	1200	35	0.4	85	510	11.2	-50	+80	28
80	48	88	860	30	0.4	90	540	12.8	-40	+80	28
100	60	110	400	25	0.5	25	150	14.4	-30	+60	28
110	66	121	200	20	0.5	25	150	16	-25	+50	28
125	75	138	160	20	0.6	25	150	19.2	-20	+50	28

❖ Size and installation 22x12.5mm

THC1 22x12.5mm Layout (Type A)
THC1 22x12.5mm Layout (Type B)

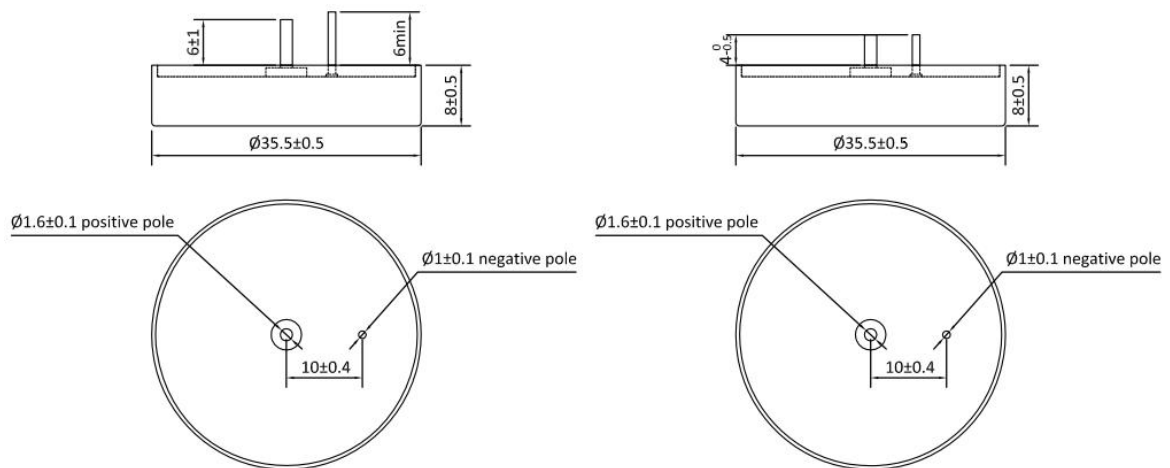


THC1 22x12.5mm Mounting Holder Layout

Table2 THC1 High Energy Tantalum Hybrid Capacitor data, Case size: $\phi 22 \times 12.5$ (mm)

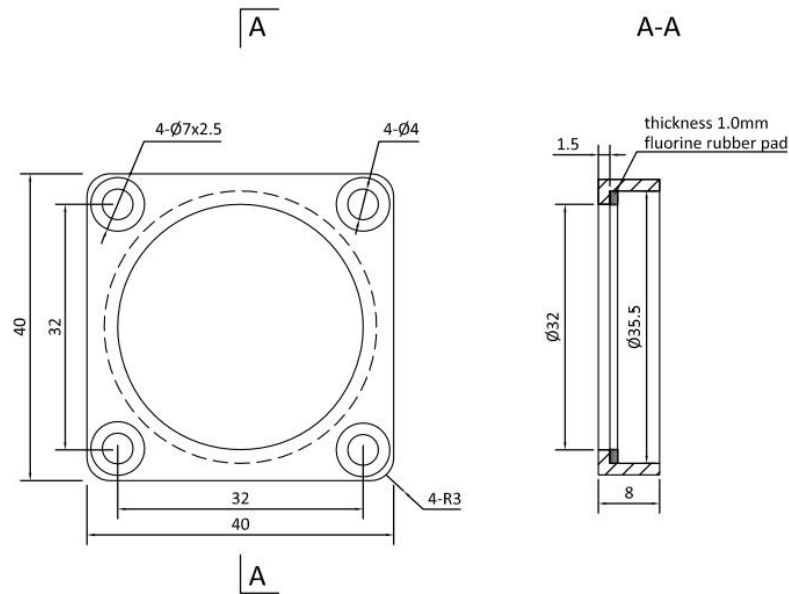
Rated Voltage (V)	Derated Voltage (V)	Surge Voltage (V)	Capacitance (μF)	$\text{tg}\delta$ (%) 100Hz	Max. ESR (Ω) 1KHz	Max. DCL (μA)		IMP. (Ω) -55°C 100Hz	Cap. Change rate (%)		Weight Max. (g)
						25°C	85°C 125°C		25°C	-55°C	
10	6	11	20000	90	0.1	150	900	2.5	-80	+16	35
16	9.5	17.6	18000	80	0.1	150	900	2.5	-80	+160	35
25	15	27.5	13000	70	0.1	150	900	2.5	-75	+150	35
35	20	38.5	9000	60	0.1	170	1000	2.5	-70	+140	35
50	30	55	6800	65	0.1	170	1000	1.2	-45	+120	35
63	38	70	2800	55	0.2	170	1000	3.5	-50	+80	35
80	48	88	2000	45	0.2	200	1200	3.5	-40	+80	35
100	60	110	1000	40	0.2	200	1200	4.0	-30	+60	38
110	66	121	800	30	0.2	200	1200	4.0	-25	+50	38
125	75	138	600	30	0.3	200	1200	4.0	-20	+50	38

❖ Size and installation 35.5x8mm



THC1 35.5x8mm Layout (Type A)

THC1 35.5x8mm Layout (Type B)



THC1 35.5x8mm Mounting Holder Layout

Table3 THC1 High Energy Tantalum Hybrid Capacitor data,Case size: 35.5x8 (mm)

Rated Voltage (V)	Derated Voltage (V)	Surge Voltage (V)	Capacitance (μF)	tgδ(%) 100Hz	Max. ESR (Ω) 1KHz	Max. DCL (μA)		IMP. (Ω) -55°C 100Hz	Cap. Change rate (%)		Weight Max. (g)
						25°C	85°C 125°C		25°C	-55°C	
10	6	11	50000	180	0.05	150	900	1	-75	+140	52
16	9.5	17.6	30000	160	0.05	150	900	1	-70	+140	52
25	15	27.5	18000	120	0.05	150	900	1	-65	+120	52
35	20	38.5	12000	90	0.065	150	900	1	-50	+120	52
50	30	55	8000	65	0.07	170	1000	1.2	-40	+120	52
50	30	55	9000	65	0.07	170	1000	1.2	-45	+120	52
63	38	70	1800	40	0.2	126	1000	1.4	-20	+60	52
63	38	70	4000	45	0.1	170	1000	1.4	-30	+80	52
80	48	88	1600	20	0.15	100	1000	1.6	-20	+60	52
80	48	88	2800	40	0.1	200	1200	1.6	-30	+80	52
100	60	110	1200	35	0.125	200	1200	1.8	-25	+60	52
100	60	110	1900	35	0.125	200	1200	1.8	-25	+60	52
110	66	121	580	35	0.2	200	1200	2	-20	+50	52
110	66	121	1500	35	0.2	200	1200	2	-20	+50	52
125	75	138	560	35	0.2	200	1200	2.4	-15	+50	52
125	75	138	1100	35	0.2	200	1200	2.4	-15	+50	52



❖ Environmental and mechanical performance characteristics

Environmental Characteristics		
Item	Test and Condition	Method and Requirement
Hermeticity	GJB360B, method 112, test condition D	The capacitor surface shall have no continuous bubbles within 20s from it dipped into fluorocarbon oil, two areas are not included (a. the gaps between positive tantalum wires and sleeves b. gaps between stainless steel and tantalum shell). Test should keep on if there are bubbles from the two areas to check bubbles stop or go on after 5min. Hermeticity unqualified if it still bubbling. Take the capacitor out of fluorocarbon oil if bubbling stopped and check areas around positive wire and bubbling areas with PH paper. The capacitor hermeticity unqualified if PH paper turn red as acidic.
Moisture resistance	GJB360, method 106	6V polarity
Altitude	GJB360B , method 105, test condition E	Height: 45720m Air pressure: 0.15kPa,

Mechanical Performance Characteristics		
Item	Test and Condition	Method and Requirement
Thermal shock	GJB360B-2009, method 107, test condition A	-55℃~125℃
(Pules) Shock	GJB360B-2009, method 213, test condition G	Final peak saw-tooth shock, last 11ms, peak 50g
Vibration - high frequency	GJB360B-2009, method 204, test condition D	Accelerated speed 20g, frequency range: 10~2000Hz
Vibration - random	GJB360A-96, method 214, test condition I -D	The acceleration root mean square value as 12g,1.5h
Resistance to solder heat	GJB360B-2009, method 210, test condition B	The capacitor must withstand solder dipping of the terminals at 260 °C for 10s. The capacitor must not be visibly damaged and the electrical characteristics must not be affected.
Solderability	GJB360B-2009, method 208	
Terminal strength	GJB360B-2009, method 208, test condition A	The capacitor terminals must withstand a 14N pull for 30s. The capacitor must not be visibly damaged and the electrical characteristics must not be affected.
Part markings		Marks should be clearly marked on the circumference of the case of capacitor.

Notes:

- Tantalum capacitors can't been measured by multimeter.(Easily cause irreversible damage and lead to reject when reversed polarity);
- Capacitance, DF measure frequency: 100Hz,DC offset voltage $U_+ = 2.2^{0.10}V$,Exchange offset voltage $U_- = 1.0^{0.05}V$ (effective value), measure method is by series equivalent circuit.
- Measure the leakage current at 125℃,please use derated voltage. DCL. value read at 5 minute.
- Special size and big capacitance products, please consult with GTCAP.