

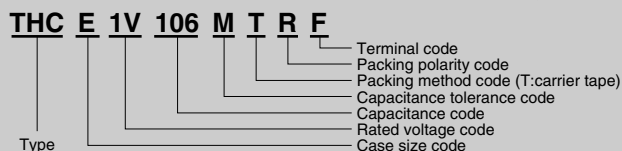
TANTALUM ELECTROLYTIC CAPACITORS

THC Series (High reliability at High temperature (up to 150°C Tantalum Chip Capacitors))

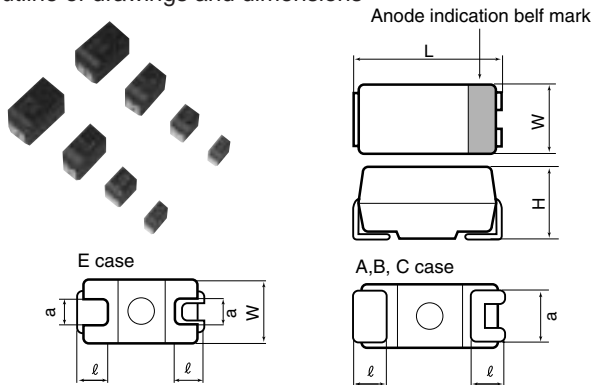
Features

The New THC series capacitor was developed based on the existing high reliability TMCH series (which is used in many Automobile applications) with an improved internal element and higher temperature resistance. The operational temperature is up to 150°C with derating voltage.

Product symbol : (Example) THC Series E case 35V 10μF ±20%



Outline of drawings and dimensions



Dimensions (Unit : mm)

Case code	Case size				
	L ^{±0.2}	W ^{±0.2}	H ^{±0.2}	ℓ ^{±0.3}	a ^{±0.2}
A	3.2	1.6	1.6	0.7	1.2
B	3.5	2.8	1.9	0.8	2.2
C	5.8	3.2	2.5	1.3	2.2
E	7.3	4.3 ^{±0.3}	2.8	1.3	2.4

Standard value and case size

Capacitance		Rated voltage (V.DC)				
		10	16	20	25	35
μF	Code	1A	1C	1D	1E	1V
0.33	334					A
0.47	474				A	
0.68	684			A		
1	105		A			B
1.5	155	A			B	
2.2	225			B		
3.3	335		B			C
4.7	475	B			C	C
6.8	685			C	C	
10	106		C	C	C/E	E
15	156	C	C	C/E	E	
22	226	C	C/E	E		
33	336	C/E	E			
47	476	E				

Product specifications	THC	Test conditions JIS C5101-3-1998																								
Operating temperature range	-55°C ~ +150°C																									
Rated voltage	DC10 ~ 35V	105°C																								
Surge voltage	DC13 ~ 45V	85°C																								
Derated voltage	DC6.3 ~ 22V	150°C																								
Capacitance	0.33 ~ 47μF																									
Capacitance tolerance	±10% or 20%	Paragraph 7.8, 120 Hz																								
Leakage current	Refer to Standard product table	Paragraph 7.7, in 5 minutes after the rated voltage is applied.																								
tanδ	Refer to Standard product table	Paragraph 7.9, 120Hz																								
Surge withstanding voltage	ΔC/C ±10% or less tanδ Specified initial value or less LC Specified initial value or less	Paragraph 7.14																								
Temperature characteristics	<table border="1"> <thead> <tr> <th>Specified initial value</th> <th>-55</th> <th>105</th> <th>150</th> </tr> </thead> <tbody> <tr> <td>ΔC/C</td> <td>-</td> <td>-10 ~ 0%</td> <td>0 ~ +10%</td> <td>0 ~ +20%</td> </tr> <tr> <td>tanδ</td> <td>0.04</td> <td>0.04</td> <td>0.06</td> <td>0.08</td> </tr> <tr> <td>Leakage rate or less</td> <td>0.06</td> <td>0.06</td> <td>0.08</td> <td>0.10</td> </tr> <tr> <td>LC</td> <td>0.005CV</td> <td>-</td> <td>0.10CV or 5μA or less</td> <td>0.125CV or 6.25μA or less</td> </tr> </tbody> </table>	Specified initial value	-55	105	150	ΔC/C	-	-10 ~ 0%	0 ~ +10%	0 ~ +20%	tanδ	0.04	0.04	0.06	0.08	Leakage rate or less	0.06	0.06	0.08	0.10	LC	0.005CV	-	0.10CV or 5μA or less	0.125CV or 6.25μA or less	Paragraph 7.12
Specified initial value	-55	105	150																							
ΔC/C	-	-10 ~ 0%	0 ~ +10%	0 ~ +20%																						
tanδ	0.04	0.04	0.06	0.08																						
Leakage rate or less	0.06	0.06	0.08	0.10																						
LC	0.005CV	-	0.10CV or 5μA or less	0.125CV or 6.25μA or less																						
Solder heat resistance	ΔC/C ±5% or less tanδ Specified initial value or less LC Specified initial value or less	Solder Dip 260±5°C A,B case C,E, case 10±1 sec. 5±0.5 sec. Reflow-260°C 10±1 sec.																								
Moisture resistance no load	ΔC/C ±5% or less tanδ 150% Specified initial value or less LC 200% Specified initial value or less	Paragraph 9.5, 85°C 85%RH, 1000hrs																								
High-temperature load	ΔC/C ±10% or less tanδ Specified initial value or less LC 125% Specified initial value or less	85°C The Rated voltage is applied for 2000hrs (Derated voltage in 150°C)																								
Thermal shock	ΔC/C ±10% or less tanδ Specified initial value or less LC 200% Specified initial value or less	Leave at -55°C, normal temperature, 125°C, and normal temperature for 30 min., 3 min., 30 min., and 3 min. Repeat this operation 1000 times running.																								
Moisture resistance load	ΔC/C ±10% or less tanδ 150% Specified initial value or less LC 200% Specified initial value or less	60°C, humidity 90 to 95%RH The rated voltage is applied for 500 hours.																								
Failure rate	0.5% / 1000hrs	85°C. The rated voltage is applied (through a protective resistor of 1Ω/V).																								

Standard product tables - THC series

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Rated voltage V. DC	Capacitance μF	tanδ	Leakage current μA	Case code	Product name
10	1.5	0.06	0.25	A	THCA1A155
	4.7	0.06	0.25	B	THCB1A475
	15	0.06	0.8	C	THCC1A156
	22	0.06	1.1	C	THCC1A226
	33	0.06	1.7	C	THCC1A336
		0.06	1.7	E	THCE1A336
16	47	0.06	2.4	E	THCE1A476
	1	0.04	0.25	A	THCA1C105
	3.3	0.06	0.3	B	THCB1C335
	10	0.06	0.8	C	THCC1C106
	15	0.06	1.2	C	THCC1C156
		0.06	1.8	C	THCC1C226
20	22	0.06	1.8	E	THCE1C226
		0.06	2.6	E	THCE1C336
	0.68	0.04	0.25	A	THCA1D684
	2.2	0.06	0.25	B	THCB1D225
22	6.8	0.06	0.7	C	THCC1D685
	15	0.06	1.5	C	THCC1D156
		0.06	1.5	E	THCE1D156
	22	0.06	2.2	E	THCE1D226

Rated voltage V. DC	Capacitance μF	tanδ	Leakage current μA	Case code	Product name
25	0.47	0.04	0.25	A	THCA1E474
	1.5	0.06	0.25	B	THCB1E155
	4.7	0.06	0.6	C	THCC1E475
	6.8	0.06	0.9	C	THCC1E685
		0.08	1.3	C	THCC1E106
	10	0.06	1.3	E	THCE1E106
		0.06	1.9	E	THCE1E156
35	0.33	0.04	0.25	A	THCA1V334
	1	0.04	0.25	B	THCB1V105
	3.3	0.06	0.6	C	THCC1V335
	4.7	0.06	0.8	C	THCC1V475
	10	0.06	1.8	E	THCE1V106

Marking indication

THC * △ □ □ □ ○ ○ ○ F	
A, B case	<p>① Simplified code of nominal capacitance (A6 : 1μF) ② Lot indication (for manufacturing in January, 2005) ③ Anode indication belt mark ④ Simplified code of rated voltage (D : 20V)</p>
	<p>20V1μF A case</p> <p>③ ④ ① ②</p> <p>*When the capacitance code is the same in the same case, use the voltage code for the higher rated voltage.</p>
C, E case	<p>Nominal capacitance Value (10μF) Lot indication (for manufacturing in January, 2005) Rated voltage (16V)</p>

Lot indication

Month Year	1	2	3	4	5	6	7	8	9	10	11	12
2005	A	B	C	D	E	F	G	H	J	K	L	M
2006	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	a	b	c	d	e	f	g	h	j	k	l	m
2008	n	p	q	r	s	t	u	v	w	x	y	z