TMCH Series (High Reliability Tantalum Chip Capacitors)

Features

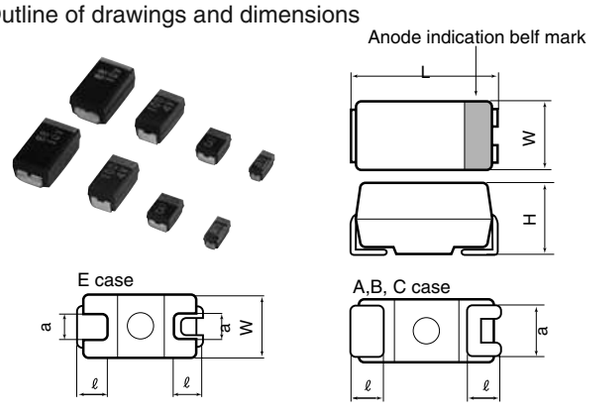
- A moulded type chip capacitor developed on the basis of TMC production technology especially for car electronics applications. Also usable for use in office automation and other computer-based equipment which is required to offer high reliability.
- High heat resistance and high reliability: Improved over the predecessor in high-temperature (125℃) reliability, moisture resistance, and temperature cycling test resistance.

Product symbol : (Example) TMCH Series A case 16V 1μF ±20%

TMCH A 1C 105 M T R F

- F — Terminal code
- R — Packing polarity code
- T — Packing method code (T:carrier tape)
- M — Capacitance tolerance code
- 105 — Capacitance code
- 1C — Rated voltage code
- A — Case size code
- TMCH — Type of series

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
P	2.0	1.25	1.2	0.5	0.9
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)						
		4	7	10	16	20	25	35
μF	Code	0G	0J	1A	1C	1D	1E	1V
0.10	104							A
0.15	154							A
0.22	224							A
0.33	334					P		A
0.47	474				P		A	A,B
0.68	684				P	A	A	A,B
1.0	105				P,A	A		A,B
1.5	155			P,A	A	A	B	B,C
2.2	225		A	P,A	A	A,B	B	B,C
3.3	335	A	A	P,A	A,B	B	B	B,C
4.7	475	A	A	P,A,B	A,B	B	B,C	C,E
6.8	685		P,A,B	B	B	B,C	C	C,E
10	106	B	P,(A),B	(A),B	B,C	C	(C),E	(C),E
15	156	B	B	B,C	C	C,E	E	E
22	226		B,C	C	C,E	E	E	(E)
33	336	C	C	C,E	C,E	E		
47	476	C	C,E	C,E	C,E			
68	686	E	E	(C),E				
100	107	E	E					

Product specifications	TMCH	P case and the other	Test conditions JIS C5101-3-1998
Operating temperature range	–55℃ ~ +125℃		
Rated voltage	DC4 ~ 35V		85℃
Surge voltage	DC5 ~ 45V		85℃
Derated voltage	DC2.5 ~ 22V		125℃
Capacitance	0.1 ~ 100μF		
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	△C/C ±5% or less tan δ Specified initial value or less LC Specified initial value or less	△C/C ±10% or less tan δ Specified initial value or less LC Specified initial value or less	Paragraph 7.14
Temperature characteristics	Rated voltage (V.DC) 4 7 10 16 20 25 35 △C/C — −10~0% 0~+10% 0~+12% tan δ Value shown table or less 0.04 0.04 0.05 0.05 / 0.06 0.06 0.07 0.07 / 0.08 0.08 0.10 0.12 LC 0.01CV or 0.25μA or less — 0.05CV or 2.5μA or less 0.125CV or 3.12μA or less	Rated voltage (V.DC) 4 7 10 16 20 25 35 △C/C — −20~0% 0~+10% 0~+12% tan δ Value shown table or less 0.06 0.10 0.06 0.10 / 0.08 0.10 0.10 0.12 LC 0.06CV or 0.25μA or less — 0.05CV or 2.5μA or less 0.125CV or 3.12μA or less	Paragraph 7.12
Solder heat resistance	△C/C ±5% or less tan δ Specified initial value or less LC Specified initial value or less	△C/C ±5% or less tan δ Specified initial value or less LC Specified initial value or less	Solder Dip 260±5℃ A, B case C, E case 10±1 sec. 5±0.5 sec. Reflow–260℃ 10±1 sec.
Moisture resistance no load	△C/C ±5% or less tan δ 150% Specified initial value or less LC 200% Specified initial value or less	△C/C ±10% or less tan δ 200% Specified initial value or less LC 500% Specified initial value or less	Paragraph 9.5, 85℃ 85%RH,1000hrs
High-temperature load	△C/C ±10% or less tan δ Specified initial value or less LC 125% Specified initial value or less	△C/C ±20% or less tan δ Specified initial value or less LC 125% Specified initial value or less	Paragraph 9.10, 125℃ The derated voltage is applied for 2000 hours.
Thermal shock	△C/C ±5% or less tan δ Specified initial value or less LC 200% Specified initial value or less	△C/C ±20% or less tan δ Specified initial value or less LC 200% Specified initial value or less	Leave at -55℃, normal temperature, 125℃, and normal temperature for 30 min., 3 min., 30 min., and 3 min. Repeat this operation 1000 times running.
Moisture resistance load	△C/C ±5% or less tan δ 150% Specified initial value or less LC 200% Specified initial value or less	△C/C ±12% or less tan δ 200% Specified initial value or less LC 500% Specified initial value or less	40℃, humidity 90 to 95%RH The rated voltage is applied for 500 hrs.
High temperature load	△C/C ±10% or less tan δ 150% Specified initial value or less LC 200% Specified initial value or less	△C/C ±10% or less tan δ 200% Specified initial value or less LC 500% Specified initial value or less	(At 150C with no load)
Failure rate	0.5% / 1000hrs	0.5% / 1000hrs	85℃. The rated voltage is applied (through a protective resistor of 1 Ω/V).