

TANTALUM ELECTROLYTIC CAPACITORS

TMCM Series

(Miniaturized Tantalum Chip Capacitors with Extended Capacitance Range)

Features

- A model type miniaturized chip capacitor developed on the basis of TMCS production technology ideal for high density component mounting applied in AV equipment.
- Super compact : Reduced size 1/2 to 1/3 in comparison with TMCS.

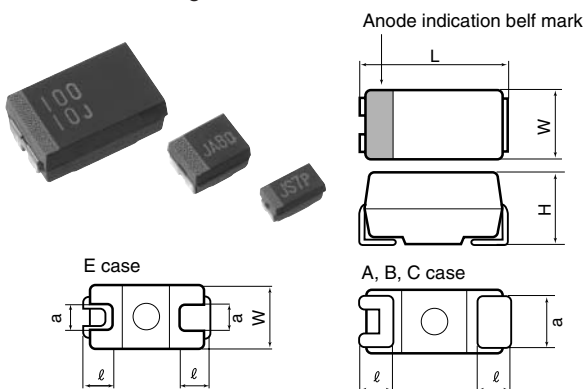
Product symbol : (Example) TMCM Series A case 7V 10 μ F $\pm$ 20%

TMCM A 0J 106 M T R E

Terminal code
Packing polarity code
Packing method code (T:carrier tape)
Capacitance tolerance code
Capacitance code
Rated voltage code
Case size code

Type of series

Outline of drawings and dimensions



Dimensions

(Unit : mm)

Case code	Case size				
	L $\pm$ 0.2	W $\pm$ 0.2	H $\pm$ 0.2	ϕ $\pm$ 0.3	a $\pm$ 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 $\pm$ 0.3	2.8	1.3	2.4

Standard value and case size

Capacitance		Rated voltage (V.DC)								
		2.5	4	6.3 (7)	10	16	20	25	35	
μ F	Code	0E	0G	0J	1A	1C	1D	1E	1V	
0.47	474								A	
0.68	684							A	A	
1.0	105						A	A	A	
1.5	155					A	A	A	A,B	
2.2	225				A	A	A	A,B	B	
3.3	335			A	A	A	A,B	A,B	B	
4.7	475		A	A	A	A,B	A,B	A,B	C	
6.8	685	A	A	A	A,B	A,B	A,B	C	C	
10	106	A	A	A,B	A,B	A,B	B	C	C,E	
15	156	A	A,B	A,B	A,B	A,B,C	B,C	C,E	E	
22	226	A,B	A,B	A,B	A,B,C	A,B,C	B,C,E	C,E	E	
33	336	A,B	A,B	A,B,C	A,B,C	B,C,E	C,E	E		
47	476	A,B	A,B,C	A,B,C	A,B,C,E	B,C,E	E	E		
68	686	A,B,C	A,B,C	A,B,C,E	B,C,E	C,E	E			
100	107	A,B,C	A,B,C,E	A,B,C,E	B,C,E	C,E				
150	157	A,B,C,E	A,B,C,E	B,C,E	C,E					
220	227	A,B,C,E	A,B,C,E	B,C,E	E					
330	337	B,C,E	B,C,E	C,E	E					
470	477	B,C,E	E	E						

For ratings not covered the table, consult Hitachi AIC.

Product specifications

Product specifications	TMCM	Test conditions JIS C5101-1:1998
Operating temperature range	-55°C ~ +125°C	
Rated voltage	DC2.5 ~ 35V	85°C
Surge voltage	DC3.2 ~ 45V	85°C
Derated voltage	DC1.6 ~ 22V	125°C
Capacitance	0.47 ~ 470μF	
Capacitance tolerance	±10% or 20%	Paragraph 4.7, 120 Hz
Leakage current	Refer to table standard product table	Paragraph 4.9, in 5 minutes after the rated voltage is applied.
tanδ	Refer to table standard product table	Paragraph 4.8, 120Hz
Surge withstanding voltage	Δ C/C ±5% or less tanδ Specified initial value or less LC Specified initial value or less	Paragraph 4.26
Temperature characteristics		
Solder heat resistance	Δ C/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	Δ C/C ±10% or less tanδ Specified initial value or less LC Specified initial value or less	Paragraph 4.22, 40°C 90 ~ 95%RH,500hours
High-temperature load	Δ C/C ±10% or less tanδ Specified initial value or less LC 125% Specified initial value or less	Paragraph 4.23, 85°C The rated voltage is applied for 2000 hours.
Thermal shock	Δ C/C ±10% or less tanδ Specified initial value or less LC 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 5 times running.
Moisture resistance load	Δ C/C ±10% or less tanδ 150% Specified initial value or less LC 200% Specified initial value or less	40°C, humidity 90 to 95%RH The rated voltage is applied for 500 hours.
Failure rate	1% / 1000hours	85°C. The rated voltage is applied (through a protective resistor of 1 Ω/V).

※This catalog is designed for providing general information. Please inquire of our Sales Department to confirm specifications prior to use.

Standard product tables - TCMC series

Standard product table - TCMC series

Rated voltage V. DC	Capacitance μF	tanδ	Leakage current μA	Case code	Product name
2.5	6.8	0.06	0.5	A	TMCMA0E685
	10	0.08	0.5	A	TMCMA0E106
	15	0.08	0.5	A	TMCMA0E156
	22	0.08	0.6	A	TMCMA0E226
		0.08	0.6	B	TMCMB0E226
	33	0.08	0.8	A	TMCMA0E336
		0.08	0.8	B	TMCMB0E336
	47	0.12	1.2	A	TMCMA0E476
		0.08	1.2	B	TMCMB0E476
	68	0.18	1.7	A	TMCMA0E686
		0.08	1.7	B	TMCMB0E686
		0.08	1.7	C	TMCMA0E686
	100	0.18	5.0	A	TMCMA0E107
		0.12	2.5	B	TMCMB0E107
		0.08	2.5	C	TMCMA0E107
		0.30	7.5	A	TMCMA0E157
	150	0.18	3.8	B	TMCMB0E157
		0.08	3.8	C	TMCMA0E157
		0.08	3.8	E	TMCMA0E157
	220	0.30	27.5	A	TMCMA0E227
		0.18	5.5	B	TMCMB0E227
		0.08	5.5	C	TMCMA0E227
		0.08	5.5	E	TMCMA0E227
		0.30	16.5	B	TMCMB0E337
	330	0.18	8.3	C	TMCMA0E337
		0.10	8.3	E	TMCMA0E337
		0.30	58.8	B	TMCMB0E477
	470	0.18	11.8	C	TMCMA0E477
		0.10	11.8	E	TMCMA0E477
4	4.7	0.06	0.5	A	TMCMA0G475
	6.8	0.06	0.5	A	TMCMA0G685
	10	0.08	0.5	A	TMCMA0G106
	15	0.08	0.6	A	TMCMA0G156
		0.08	0.6	B	TMCMB0G156
	22	0.08	0.9	A	TMCMA0G226
		0.08	0.9	B	TMCMB0G226
	33	0.08	1.3	A	TMCMA0G336
		0.08	1.3	B	TMCMB0G336
	47	0.12	1.9	A	TMCMA0G476
		0.08	1.9	B	TMCMB0G476
		0.08	1.9	C	TMCMA0G476
	68	0.12	5.4	A	TMCMA0G686
		0.08	2.7	B	TMCMB0G686
		0.08	2.7	C	TMCMA0G686
		0.30	8.0	A	TMCMA0G107
	100	0.12	4.0	B	TMCMB0G107
		0.08	4.0	C	TMCMA0G107
		0.08	4.0	E	TMCMA0G107
		0.30	60.0	A	TMCMA0G157
	150	0.18	6.0	B	TMCMB0G157
		0.08	6.0	C	TMCMA0G157
		0.08	6.0	E	TMCMA0G157
		0.30	88.0	A	TMCMA0G227
	220	0.18	17.6	B	TMCMB0G227
		0.12	8.8	C	TMCMA0G227
		0.08	8.8	E	TMCMA0G227
		0.30	26.4	B	TMCMB0G337
	330	0.18	13.2	C	TMCMA0G337
		0.10	13.2	E	TMCMA0G337
		0.10	18.8	E	TMCMA0G477
6.3 (7)	3.3	0.06	0.5	A	TMCMA0J335
	4.7	0.06	0.5	A	TMCMA0J475
	6.8	0.06	0.5	A	TMCMA0J685
	10	0.08	0.7	A	TMCMA0J106
		0.08	0.7	B	TMCMB0J106
	15	0.08	1.1	A	TMCMA0J156
		0.08	1.1	B	TMCMB0J156
	22	0.08	1.5	A	TMCMA0J226
		0.08	1.5	B	TMCMB0J226
	33	0.10	2.3	A	TMCMA0J336
		0.08	2.3	B	TMCMB0J336
		0.08	2.3	C	TMCMA0J336
		0.12	5.9	A	TMCMA0J476
	47	0.08	3.3	B	TMCMB0J476

Rated voltage V. DC	Capacitance μF	tanδ	Leakage current μA	Case code	Product name
6.3 (7)	47	0.08	3.3	C	TMCMA0J476
	68	0.18	8.6	A	TMCMA0J686
		0.10	4.8	B	TMCMA0J686
		0.08	4.8	C	TMCMA0J686
		0.08	4.8	E	TMCMA0J686
	100	0.30	31.5	A	TMCMA0J107
		0.12	7.0	B	TMCMA0J107
		0.08	7.0	C	TMCMA0J107
		0.08	7.0	E	TMCMA0J107
	150	0.18	18.9	B	TMCMA0J157
		0.10	10.5	C	TMCMA0J157
		0.08	10.5	E	TMCMA0J157
	220	0.30	27.7	B	TMCMA0J227
		0.18	15.4	C	TMCMA0J227
		0.10	15.4	E	TMCMA0J227
	330	0.30	23.1	C	TMCMA0J337
		0.10	23.1	E	TMCMA0J337
	470	0.20	32.9	E	TMCMA0J477
10	2.2	0.06	0.5	A	TMCMA1A225
	3.3	0.06	0.5	A	TMCMA1A335
	4.7	0.06	0.5	A	TMCMA1A475
	6.8	0.06	0.7	A	TMCMA1A685
		0.06	0.7	B	TMCMA1A685
	10	0.08	1.0	A	TMCMA1A106
		0.08	1.0	B	TMCMA1A106
	15	0.08	1.5	A	TMCMA1A156
		0.08	1.5	B	TMCMA1A156
	22	0.12	4.4	A	TMCMA1A226
		0.08	2.2	B	TMCMA1A226
		0.08	2.2	C	TMCMA1A226
	33	0.18	6.6	A	TMCMA1A336
		0.08	3.3	B	TMCMA1A336
		0.08	3.3	C	TMCMA1A336
	47	0.20	9.4	A	TMCMA1A476
		0.10	4.7	B	TMCMA1A476
		0.08	4.7	C	TMCMA1A476
		0.08	4.7	E	TMCMA1A476
	68	0.18	6.8	B	TMCMA1A686
		0.08	6.8	C	TMCMA1A686
		0.08	6.8	E	TMCMA1A686
	100	0.30	20.0	B	TMCMA1A107
		0.10	10.0	C	TMCMA1A107
		0.08	10.0	E	TMCMA1A107
	150	0.18	15.0	C	TMCMA1A157
		0.08	15.0	E	TMCMA1A157
	220	0.12	22.0	E	TMCMA1A227
	330	0.20	33.0	E	TMCMA1A337
16	1.5	0.06	0.5	A	TMCMA1C155
	2.2	0.06	0.5	A	TMCMA1C225
	3.3	0.06	0.5	A	TMCMA1C335
	4.7	0.06	0.8	A	TMCMA1C475
		0.06	0.8	B	TMCMA1C475
	6.8	0.06	1.1	A	TMCMA1C685
		0.06	1.1	B	TMCMA1C685
	10	0.08	1.6	A	TMCMA1C106
		0.08	1.6	B	TMCMA1C106
	15	0.12	2.4	A	TMCMA1C156
		0.08	2.4	B	TMCMA1C156
		0.08	2.4	C	TMCMA1C156
	22	0.16	7.0	A	TMCMA1C226
		0.08	3.5	B	TMCMA1C226
		0.08	3.5	C	TMCMA1C226
	33	0.12	5.3	B	TMCMA1C336
		0.08	5.3	C	TMCMA1C336
		0.08	5.3	E	TMCMA1C336
	47	0.20	7.5	B	TMCMA1C476
		0.08	7.5	C	TMCMA1C476
		0.08	7.5	E	TMCMA1C476
	68	0.20	10.9	C	TMCMA1C686
		0.08	10.9	E	TMCMA1C686
	100	0.20	16.0	C	TMCMA1C107
		0.08	16.0	E	TMCMA1C107
20	1	0.04	0.5	A	TMCMA1D105
	1.5	0.06	0.5	A	TMCMA1D155

Rated voltage V. DC	Capacitance μF	$\tan\delta$	Leakage current μA	Case code	Product name
20	2.2	0.06	0.5	A	TMCMA1D225
		0.06	0.7	A	TMCMA1D335
	3.3	0.06	0.7	B	TMCMB1D335
		0.06	0.9	A	TMCMA1D475
	4.7	0.06	0.9	B	TMCMB1D475
		0.06	1.4	B	TMCMB1D685
	10	0.08	2.0	B	TMCMB1D106
		0.08	2.0	C	TMCMC1D106
	15	0.08	3.0	B	TMCMB1D156
		0.08	3.0	C	TMCMC1D156
	22	0.08	4.4	B	TMCMB1D226
		0.08	4.4	C	TMCMC1D226
		0.08	4.4	E	TMCME1D226
	33	0.08	6.6	C	TMCMC1D336
		0.08	6.6	E	TMCME1D336
	47	0.08	9.4	E	TMCME1D476
	68	0.08	13.6	E	TMCME1D686
25	0.68	0.04	0.5	A	TMCMA1E684
	1	0.04	0.5	A	TMCMA1E105
	1.5	0.06	0.5	A	TMCMA1E155
	2.2	0.06	0.6	A	TMCMA1E225
		0.06	0.6	B	TMCMB1E225
	3.3	0.06	0.8	A	TMCMA1E335
		0.06	0.8	B	TMCMB1E335
	4.7	0.08	1.2	A	TMCMA1E475
		0.06	1.2	B	TMCMB1E475
	6.8	0.06	1.7	C	TMCMC1E685
	10	0.08	2.5	C	TMCMC1E106
	15	0.08	3.8	C	TMCMC1E156
		0.08	3.8	E	TMCME1E156
	22	0.08	5.5	C	TMCMC1E226
		0.08	5.5	E	TMCME1E226
	33	0.08	8.3	E	TMCME1E336
	47	0.08	11.8	E	TMCME1E476
35	0.47	0.04	0.5	A	TMCMA1V474
	0.68	0.04	0.5	A	TMCMA1V684
	1	0.04	0.5	A	TMCMA1V105
	1.5	0.06	0.5	A	TMCMA1V155
		0.06	0.5	B	TMCMB1V155
	2.2	0.06	0.8	B	TMCMB1V225
	3.3	0.06	1.2	B	TMCMB1V335
	4.7	0.06	1.6	C	TMCMC1V475
	6.8	0.06	2.4	C	TMCMC1V685
	10	0.08	3.5	C	TMCMC1V106
		0.08	3.5	E	TMCME1V106
	15	0.08	5.3	E	TMCME1V156
	22	0.08	7.7	E	TMCME1V226

Month Year	1	2	3	4	5	6	7	8	9	10	11	12
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
2009	A	B	C	D	E	F	G	H	J	K	L	M
2010	N	P	Q	R	S	T	U	V	W	X	Y	Z

TMCMM * $\triangle \triangle \square \square \bigcirc \bigcirc \bigcirc \bigcirc$ F	
A, B case	Anode indication belt mark Simplified code of rated voltage (G : 4V) Lot indication (for manufacturing in January, 2007) Simplified code of nominal capacitance (A7 : 10μF)
C, E case	Anode indication belt mark Nominal capacitance Value (15μF) Lot indication (for manufacturing in January, 2007) Rated voltage (16V)