TMCR Series (Low ESR Tantalum Chip Capacitors)

Features

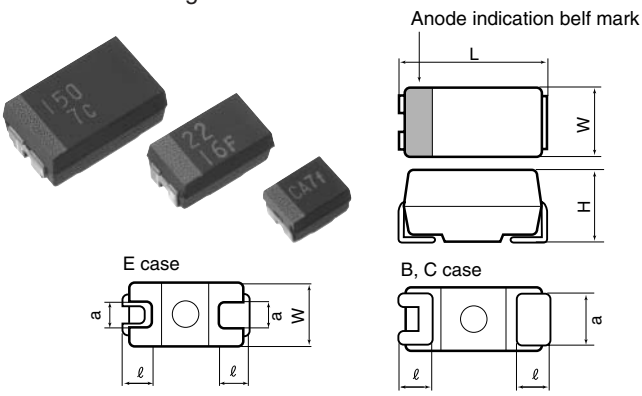
- TMCR is Low ESR tantalum chip capacitors.
- Suitable for high frequency as high speed PC, Switching Regulators, DC/DC cinverter, and etc

Product symbol : (Example) TMCR Series E case 10V 100µF ±20%

TMCR E 1A 107 M T R F

- TMCR — Type of series
- E — Case size code
- 1A — Rated voltage code
- 107 — Capacitance code
- M — Capacitance tolerance code (M : ± 20%)
- T — Packing method code (T:carrier tape)
- R — Packing polarity code
- F — Terminal code

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
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)					
		6.3	10	16	20	25	35
µF	Code	0J	1A	1C	1D	1E	1V
10	106	B/0.7	B/0.7	B/0.6	C/0.6	E/0.3	E/0.3
15	156	B/0.6	B/0.6	C/0.5	C/0.5	E/0.3	E/0.3
22	226	B/0.5	C/0.5	C/0.4	E/0.35	E/0.3	E/0.5
33	336	C/0.35	C/0.35	E/0.25	E/0.3	E/0.3	
47	476	C/0.35	E/0.25	E/0.2	E/0.2		
68	686	E/0.2	E/0.2	E/0.15			
100	107	E/0.15	E/0.1	E/0.1			
150	157	E/0.1	E/0.1				
220	227	E/0.1	E/0.1				
330	337	E/0.1	E/0.15				

Case size / ESR (Ω) at 20°C, 100KHz

Product specifications	TMCR	Test conditions JIS C5101-1:1998
Operating temperature range	–55°C ~ +125°C	
Rated voltage	DC6.3 ~ 35V	85°C
Surge voltage	DC8 ~ 45V	85°C
Derated voltage	DC4 ~ 22V	125°C
Capacitance	10 ~ 330µF	
Capacitance tolerance	±10% or 20%	Paragraph 4.7, 120 Hz
Leakage current	0.01 CV or 0.5µA, whichever is lager or less	Paragraph 4.9, in 5 minutes after the rated voltage is applied.
tanδ	10 ~ 68 0.06 or less 100 ~ 150 0.08 or less 220 0.1 or less 330 0.15 or less	Paragraph 4.8, 120Hz
ESR (100kHz)	B case 500 ~ 700mΩ^{MAX} C case 350 ~ 500mΩ^{MAX} E case 100 ~ 500mΩ^{MAX}	100kHz
Maximum permissible ripple current (100kHz,20°C)	B case 370 ~ 400mArms^{MAX} C case 400 ~ 530mArms^{MAX} E case 490 ~ 1100mArms^{MAX}	100kHz,20°C
Surge withstanding voltage	△C/C ±5% or less tanδ Specified initial value or less LC Specified initial value or less	Paragraph 4.26
Temperature characteristics	Specified initial value: –55: −12 ~ 0%; 85: 0 ~ +10%; 125: 0 ~ +12% tanδ Value shown table or less: 0.06 / 0.08 / 0.10 / 0.15 / 0.30; 0.10 / 0.12 / 0.14 / 0.22 / 0.60; 0.08 / 0.10 / 0.12 / 0.18 / 0.30; 0.10 / 0.12 / 0.14 / 0.22 / 0.40 LC: 0.01CV or 0.5µA or less; –; 0.1CV or 5µA or less; 0.125CV or 6.25µA or less	Paragraph 4.24
Solder heat resistance	△C/C ±10% or less tanδ Specified initial value or less LC Specified initial value or less	Solder Dip 260±5°C B case C, E case 10±1 sec. 5±0.5 sec. Reflow–260°C 10±1 sec.
Moisture resistance no load	△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,500hrs
High-temperature load	△C/C ±10% or less tanδ Specified initial value or less LC Specified initial value or less	Paragraph 4.23, 85°C The rated voltage is applied for 2000 hours.
Thermal shock	△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	△C/C ±10% or less tanδ Specified initial value or less LC Specified initial value or less	40°C, humidity 90 to 95%RH The rated voltage is applied for 500 hours.
Failure rate	1% / 1000hrs	85°C. The rated voltage is applied (through a protective resistor of 1 Ω/V).

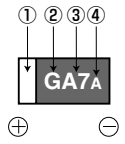
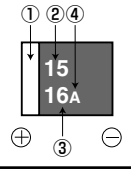
※This catalog is designed for providing general information. Please inquire of our Sales Department to confirm specifications prior to use.

Standard product tables - TMCR series

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Rated voltage V. DC	Capacitance μF	tanδ	Leakage current μA	Case code	Product name	ESR (100kHz) Ω	Maximum permissible ripple current (20°C 100kHz) mArms
6.3	10	0.06	0.6	B	TMCRB0J106M	0.70	370
	15	0.06	0.9	B	TMCRB0J156M	0.60	400
	22	0.06	1.4	B	TMCRB0J226M	0.50	440
	33	0.06	2.1	C	TMCRC0J336M	0.35	530
	47	0.06	3.0	C	TMCRC0J476M	0.35	530
	68	0.06	4.3	E	TMCRE0J686M	0.20	770
	100	0.08	6.3	E	TMCRE0J107M	0.15	890
	150	0.08	9.5	E	TMCRE0J157M	0.10	1100
	220	0.10	13.9	E	TMCRE0J227M	0.10	1100
	330	0.15	20.8	E	TMCRE0J337M	0.10	1100
10	10	0.06	1.0	B	TMCRB1A106M	0.70	370
	15	0.06	1.5	B	TMCRB1A156M	0.60	400
	22	0.06	2.2	C	TMCRC1A226M	0.50	440
	33	0.06	3.3	C	TMCRC1A336M	0.35	530
	47	0.06	4.7	E	TMCRE1A476M	0.25	690
	68	0.06	6.8	E	TMCRE1A686M	0.20	770
	100	0.08	10.0	E	TMCRE1A107M	0.10	1100
	150	0.08	15.0	E	TMCRE1A157M	0.10	1100
	220	0.10	22.0	E	TMCRE1A227M	0.10	1100
	330	0.30	33.0	E	TMCRE1A337M	0.15	890
16	10	0.06	1.6	B	TMCRB1C106M	0.60	400
	15	0.06	2.4	C	TMCRC1C156M	0.50	440
	22	0.06	3.5	C	TMCRC1C226M	0.40	500
	33	0.06	5.3	E	TMCRE1C336M	0.25	690
	47	0.06	7.5	E	TMCRE1C476M	0.20	770
	68	0.06	10.9	E	TMCRE1C686M	0.15	890
	100	0.08	16.0	E	TMCRE1C107M	0.10	1100
20	10	0.06	2.0	C	TMCRC1D106M	0.60	400
	15	0.06	3.0	C	TMCRC1D156M	0.50	440
	22	0.06	4.4	E	TMCRE1D226M	0.35	580
	33	0.06	6.6	E	TMCRE1D336M	0.30	680
	47	0.06	9.4	E	TMCRE1D476M	0.20	830
25	10	0.06	2.5	E	TMCRE1E106M	0.30	630
	15	0.06	3.8	E	TMCRE1E156M	0.30	630
	22	0.06	5.5	E	TMCRE1E226M	0.30	630
	33	0.06	8.3	E	TMCRE1E336M	0.30	630
35	10	0.06	3.5	E	TMCRE1V106M	0.30	630
	15	0.06	5.3	E	TMCRE1V156M	0.30	630
	22	0.06	7.7	E	TMCRE1V226M	0.50	490

Marking indication

	TMCR ＊△△□□□○○○F	
B case		①Anode indication belt mark ②Simplified code of rated voltage (G : 4V) ③Simplified code of nominal capacitance (A7 : 10μF) ④Lot indication (A :f or manufacturing in January, 2009)
C, E case		①Anode indication belt mark ②Nominal capacitance Volue (15μF) ③Rated voltage (16V) ④Lot indication (A : for manufacturing in January, 2009)

Lot indication

Year \ Month	1	2	3	4	5	6	7	8	9	10	11	12
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
2011	a	b	c	d	e	f	g	h	j	k	l	m
2012	n	p	q	r	s	t	u	v	w	x	y	z