

TANTALUM ELECTROLYTIC CAPACITORS

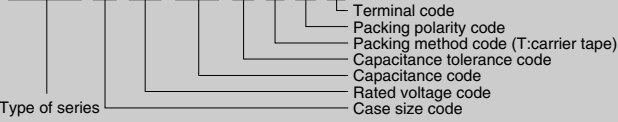
TMCR Series (Low ESR Tantalum Chip Capacitors)

Features

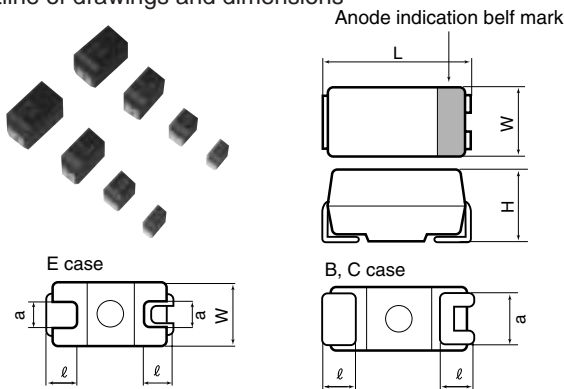
- TMCR is Ultra ESR tantalum chip capacitors.
- Suitable for high frequency as high speed PC, Switching Regulators, DC/DC inverter, and etc

Product symbol : (Example) TMCR Series E case 10V 100 μ F \pm 20%

TMCR E 1A 107 M T R F



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
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)					
		6.3	10	16	20	25	35
μ F	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/0.1	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					

Case size / ESR (Ω) at 20°C, 100KHz

Product specifications	TMCR	Test conditions JIS C5101-3-1998																													
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 ~ 330 μ F																														
Capacitance tolerance	\pm 10% or 20%	Paragraph 7.8, 120 Hz																													
Leakage current	0.01CV or less	Paragraph 7.7, in 5 minutes after the rated voltage is applied.																													
tan δ	10 ~ 68 0.06 or less 100 ~ 150 0.08 or less 220 0.1 or less 330 0.15 or less	Paragraph 7.9, 120Hz																													
ESR (100kHz)	B case 500 ~ 700 Ω ^{MAX} C case 350 ~ 500 Ω ^{MAX} E case 100 ~ 500 Ω ^{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	Δ C/C \pm 5% or less tan δ 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>85</th> <th>125</th> </tr> </thead> <tbody> <tr> <td>ΔC/C</td> <td>-</td> <td>-10 ~ 0%</td> <td>0 ~ +10%</td> <td>0 ~ +12%</td> </tr> <tr> <td>tanδ</td> <td>0.06</td> <td>0.10</td> <td>0.08</td> <td>0.10</td> </tr> <tr> <td>Leakage current or less</td> <td>0.08</td> <td>0.12</td> <td>0.10</td> <td>0.12</td> </tr> <tr> <td></td> <td>0.10</td> <td>0.14</td> <td>0.12</td> <td>0.14</td> </tr> <tr> <td></td> <td>0.15</td> <td>0.22</td> <td>0.18</td> <td>0.22</td> </tr> </tbody> </table>	Specified initial value	-55	85	125	Δ C/C	-	-10 ~ 0%	0 ~ +10%	0 ~ +12%	tan δ	0.06	0.10	0.08	0.10	Leakage current or less	0.08	0.12	0.10	0.12		0.10	0.14	0.12	0.14		0.15	0.22	0.18	0.22	Paragraph 7.12
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LC	0.01CV	-	0.1CV	0.125CV																											
Solder heat resistance	Δ C/C \pm 10% or less tan δ Specified initial value or less LC Specified initial value or less	Solder Dip 260 \pm 5°C B case C, E case 10 \pm 1 sec. 5 \pm 0.5 sec. Reflow-260°C 10 \pm 1 sec.																													
Moisture resistance no load	Δ C/C \pm 10% or less tan δ Specified initial value or less LC Specified initial value or less	Paragraph 9.5, 40°C 90 ~ 95%RH, 500hrs																													
High-temperature load	Δ C/C \pm 10% or less tan δ Specified initial value or less LC Specified initial value or less	Paragraph 9.10, 85°C The rated voltage is applied for 2000 hours.																													
Thermal shock	Δ C/C \pm 10% or less tan δ 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 \pm 10% or less tan δ 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).																													

