

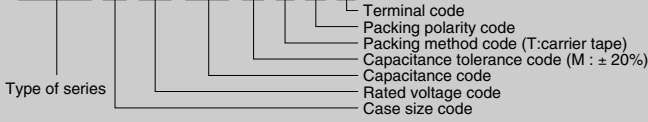
TMCR Series (Low ESR Tantalum Chip Capacitors)

Features

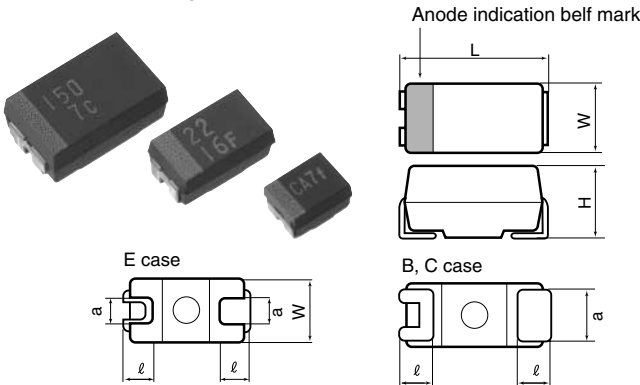
- TMCR is Low ESR tantalum chip capacitors.
- Suitable for high frequency as high speed PC, Switching Regulators, DC/DC inverter, and etc

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 | l \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) | | | | | | | |
|-------------|----------------------|--------|--------|--------|--------|-------|-------|-------|
| | μ F | Code | 6.3 | 10 | 16 | 20 | 25 | 35 |
| 10 | 106 | B/0.7 | B/0.7 | B/0.6 | C/0.6 | E/0.3 | 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 | 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 ~ 330 μ F | |
| Capacitance tolerance | \pm 10% or 20% | Paragraph 4.7, 120 Hz |
| Leakage current | 0.01 CV or 0.5 μ A, whichever is larger or less | Paragraph 4.9, 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 4.8, 120Hz |
| ESR (100kHz) | B case 500 ~ 700m Ω ^{MAX} C case 350 ~ 500m Ω ^{MAX} E case 100 ~ 500m Ω ^{MAX} | 100kHz |
| Maximum permissible ripple current (100kHz, 20°C) | B case 370 ~ 400mA ^{MAX} C case 400 ~ 530mA ^{MAX} E case 490 ~ 1100mA ^{MAX} | 100kHz, 20°C |
| Temperature characteristics | Δ C/C | Paragraph 4.24 |
| | tan δ | |
| | LC | |
| | LC | |
| | LC | |
| 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 4.22, 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 4.23, 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). |

※ 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) mA _{rms} |
|------------------------|-------------------|------|-----------------------|--------------|--------------|-------------------|---|
| 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 | TMCR0J336M | 0.35 | 530 |
| | 47 | 0.06 | 3.0 | C | TMCR0J476M | 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 | TMCR1A226M | 0.50 | 440 |
| | 33 | 0.06 | 3.3 | C | TMCR1A336M | 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 | TMCR1C156M | 0.50 | 440 |
| | 22 | 0.06 | 3.5 | C | TMCR1C226M | 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 | TMCR1D106M | 0.60 | 400 |
| | 15 | 0.06 | 3.0 | C | TMCR1D156M | 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 | | ① Anode indication belt mark ② Simplified code of rated voltage (G : 4V) ③ Simplified code of nominal capacitance (A7 : 10μF) ④ Marking code |
| | | ① Anode indication belt mark ② Nominal capacitance Value (15μF) ③ Rated voltage (16V) ④ Marking code |

Marking code

| Month Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---------------|---|---|---|---|---|---|---|---|---|----|----|----|
| 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 |
| 2013 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2014 | N | P | Q | R | S | T | U | V | W | X | Y | Z |