## TMCP Series (0805 Size Tantalum Chip Capacitors)

**Features**

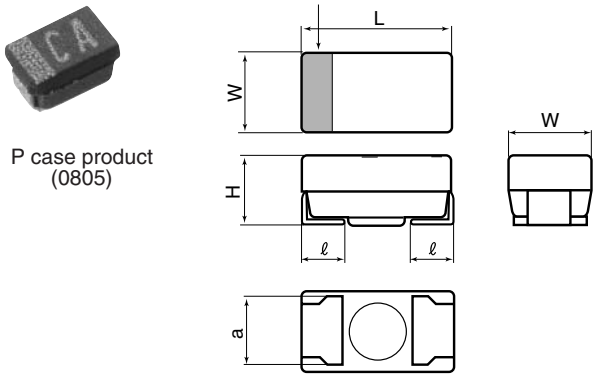
- Rendered even smaller-sized thanks to the accumulated technological knowhow (reduced to about 1/3 the cubic volume of the TMCS type).
- Suitable for high-density packaging essential to Audio Visual and other equipment downsizing.

Product symbol : (Example) TMC Series P case 6.3V 10µF ±20%

**TMC P 0J 106 M T R F**

- F — Terminal code
- R — Packing polarity code
- T — Packing method code (T:carrier tape)
- M — Capacitance tolerance code (M:±20%)
- 106 — Capacitance code
- 0J — Rated voltage code
- P — Case size code
- TMC — Type of series

Outline of drawings and dimensions




P case product (0805)

Dimensions (Unit : mm)

| Case code | Case size | | | | |
|---|---|---|---|---|---|
| | L±0.2 | W±0.2 | H MAX | ℓ ±0.2 | a±0.1 |
| P | 2.0 | 1.25 | 1.2 | 0.5 | 0.9 |

Standard value and case size

| Capacitance | | Rated voltage (V.DC) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2.5 | 4 | 6.3 | 10 | 16 | 20 | 25 |
| µF | Code | 0E | 0G | 0J | 1A | 1C | 1D | 1E |
| 0.10 | 104 | | | | | | P | P |
| 0.15 | 154 | | | | | | P | |
| 0.22 | 224 | | | | | | P | |
| 0.33 | 334 | | | | | | P | |
| 0.47 | 474 | | | | | | P | P |
| 0.68 | 684 | | | | | | P | |
| 1.0 | 105 | | | | | P | P | P |
| 1.5 | 155 | | | | P | P | P | |
| 2.2 | 225 | | | | P | P | P | |
| 3.3 | 335 | | | | P | P | | |
| 4.7 | 475 | | | P | P | P | | |
| 6.8 | 685 | | | P | P | | | |
| 10 | 106 | | | P | P | | | |
| 15 | 156 | P | P | P | | | | |
| 22 | 226 | P | P | P | | | | |
| 33 | 336 | P | P | | | | | |
| 47 | 476 | P | P | | | | | |

For ratings not covered the table, consult Hitachi AIC.

| Product specifications | TMCP | Test conditions JIS C5101-1:1998 |
|---|---|---|
| Operating temperature range | –55°C ~ +125°C | |
| Rated voltage | DC2.5 ~ 25V | 85°C |
| Surge voltage | DC3.2 ~ 32V | 85°C |
| Derated voltage | DC1.6 ~ 16V | 125°C |
| Capacitance | 0.1 ~ 47µF | |
| 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 | △C/C ±20% or less<br>tanδ Specified initial value or less<br>LC Specified initial value or less | Paragraph 4.26 |
| Temperature characteristics | See nested table below | Paragraph 4.24 |
| Solder heat resistance | △C/C ±20% or less<br>tanδ Specified initial value or less<br>LC Specified initial value or less | Solder Dip 260±5℃ 10±1 sec.<br>Reflow 260℃ 10±1 sec. |
| Moisture resistance no load | △C/C ±20% or less<br>tanδ 150%Specified initial value or less<br>LC Specified initial value or less | Paragraph 4.22, 40°C<br>90 ~ 95%RH,500hours |
| High-temperature load | △C/C ±20% or less<br>tanδ Specified initial value or less<br>LC 200% Specified initial value or less | Paragraph 4.23, 85°C<br>The rated voltage is applied<br>for 2000 hours. |
| Thermal shock | △C/C ±20% or less<br>tanδ Specified initial value or less<br>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 ±20% or less<br>tanδ 150% Specified initial value or less<br>LC 200% Specified initial value or less | 40°C, humidity 90 to 95%RH<br>The rated voltage is applied<br>for 500 hours. |
| Failure rate | 1% / 1000hours | 85°C. The rated voltage is applied (through a protective resistor of 1 Ω/V). |

Temperature characteristics

| | Specified initial value | –55 | 85 | 125 |
|---|---|---|---|---|
| △C/C | – | -20 ~ 0% | 0 ~ +20% | 0 ~ +20% |
| tanδ Value shown table or less | 0.06 | 0.10 | 0.08 | 0.10 |
| | 0.08 | 0.12 | 0.10 | 0.12 |
| | 0.10 | 0.14 | 0.12 | 0.14 |
| | 0.12 | 0.16 | 0.14 | 0.16 |
| | 0.20 | 0.24 | 0.22 | 0.24 |
| | 0.30 | 0.60 | 0.30 | 0.40 |
| LC | Refer to standard product table | – | 1000% or less specified initial value or less | 1250% or less specified initial value or less |

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

## Standard product tables - TMCP series

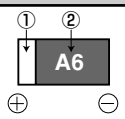
Standard product table - TMCP series

| Rated voltage V. DC | Capacitance μF | tanδ | Leakage current μA | Case code | Product name |
|---|---|---|---|---|---|
| 2.5 | 15 | 0.08 | 0.5 | P | TMCP0E156 |
| | 22 | 0.10 | 0.6 | P | TMCP0E226 |
| | 33 | 0.20 | 0.8 | P | TMCP0E336 |
| | 47 | 0.30 | 11.8 | P | TMCP0E476 |
| 4 | 15 | 0.08 | 0.6 | P | TMCP0G156 |
| | 22 | 0.10 | 0.9 | P | TMCP0G226 |
| | 33 | 0.30 | 13.2 | P | TMCP0G336 |
| | 47 | 0.30 | 18.8 | P | TMCP0G476 |
| 6.3 | 4.7 | 0.08 | 0.5 | P | TMCP0J475 |
| | 6.8 | 0.08 | 0.5 | P | TMCP0J685 |
| | 10 | 0.08 | 0.7 | P | TMCP0J106 |
| | 15 | 0.12 | 1.9 | P | TMCP0J156 |
| | 22 | 0.30 | 13.9 | P | TMCP0J226 |
| 10 | 1.5 | 0.08 | 0.5 | P | TMCP1A155 |
| | 2.2 | 0.08 | 0.5 | P | TMCP1A225 |
| | 3.3 | 0.08 | 0.5 | P | TMCP1A335 |
| | 4.7 | 0.08 | 0.5 | P | TMCP1A475 |
| | 6.8 | 0.20 | 6.8 | P | TMCP1A685 |
| | 10 | 0.20 | 10.0 | P | TMCP1A106 |
| 16 | 1.0 | 0.06 | 0.5 | P | TMCP1C105 |
| | 1.5 | 0.08 | 0.5 | P | TMCP1C155 |
| | 2.2 | 0.08 | 0.5 | P | TMCP1C225 |
| | 3.3 | 0.08 | 0.6 | P | TMCP1C335 |
| | 4.7 | 0.08 | 0.8 | P | TMCP1C475 |
| 20 | 0.1 | 0.06 | 0.5 | P | TMCP1D104 |
| | 0.15 | 0.06 | 0.5 | P | TMCP1D154 |
| | 0.22 | 0.06 | 0.5 | P | TMCP1D224 |
| | 0.33 | 0.06 | 0.5 | P | TMCP1D334 |
| | 0.47 | 0.06 | 0.5 | P | TMCP1D474 |
| | 0.68 | 0.06 | 0.5 | P | TMCP1D684 |
| | 1.0 | 0.08 | 0.5 | P | TMCP1D105 |
| | 1.5 | 0.08 | 0.5 | P | TMCP1D155 |
| | 2.2 | 0.08 | 0.5 | P | TMCP1D225 |
| 25 | 0.1 | 0.06 | 0.5 | P | TMCP1E104 |
| | 0.47 | 0.06 | 0.5 | P | TMCP1E474 |
| | 1.0 | 0.06 | 0.5 | P | TMCP1E105 |

Marking indication

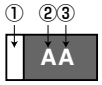
TMCP ∗ △△□□□○○○F

(Example 1) 6.3V1μF




①Anode indication belt mark
②Simplified code of nominal capacitance (A6 : 1μF)

(Example 2) 10V1μF




①Anode indication belt mark
②Simplified code of rated voltage (A : 10V)
③Simplified code of nominal capacitance (A : 1μF)

∗When the capacitance code is the same, use the voltage code for the higher rated voltage.

∗When indicating both rated voltage and nominal capacitance by code, omit the multiplier of the capacitance code.