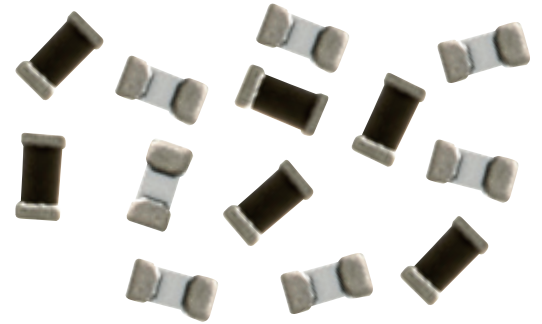


Metal Foil on Ceramic Chip Resistors

MFC Series

- Small size down to 0603
- TCR down to $\pm 30\text{ppm}/^\circ\text{C}$
- Current sensing for power electronics
- High power density



MFC2817 Not Recommended for New Designs

All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

| | | 0603 | 2817 |
|-----------------------|--------|-----------------|---------------|
| Power rating @70°C | W | 0.5 | 5 |
| Overload rating 5s | W | 2.5 | 25 |
| Resistance range | mΩ | 5 to 20 | 3 to 150 |
| Standard values | mΩ | 5, 7, 9, 10, 20 | E24 preferred |
| Tolerance | % | $\pm 1, 5$ | ± 1 |
| TCR (+25°C to +125°C) | ppm/°C | ± 50 | ± 30 |
| Operating temperature | °C | -55 to +155 | |

Physical Data

| Dimensions in mm and nominal weight in mg | | | | | | |
|---|-----------------|-----------------|-----------------|----------|---------------|-----------|
| Size | L ± 0.30 | W ± 0.25 | H ± 0.20 | A max | B | Wt. nom |
| 0603 | 1.6 | 0.8 | 0.6 | 0.6 | 0.4 \pm 0.2 | 3.3 |
| 2817 | 7.1 | 4.2 | 0.7 | 1.0 | 1.3 \pm 0.5 | 80 to 140 |

Construction

Metal foil resistor material is bonded onto a 96% alumina substrate and protected. Wrap-around terminations have an electroplated nickel barrier and solder coating. 0603 size parts have the foil on the upper surface whilst 2817 size parts have the foil on the lower surface.

Marking

0603 size parts are not marked. 2817 size parts are marked with ohmic value only. Reels are marked with type, value, tolerance, date code and quantity.

Solvent Resistance

The body protection is resistant to all normal industrial cleaning solvents suitable for printed circuits.

Recommended Pad Dimensions

| All dimensions in mm | | | | |
|----------------------|---------------|-----|-----|------|
| Size | Resistance mΩ | A | L | B |
| 0603 | 5 & 20 | 1.0 | 2.8 | 0.6 |
| | Others | | | 0.85 |
| 2817 | All | 4.6 | 8.0 | 4.6 |

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

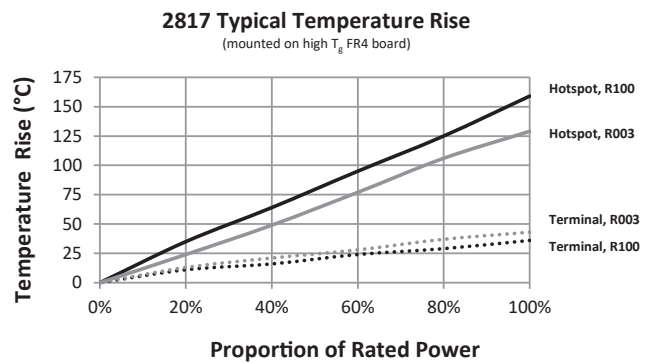
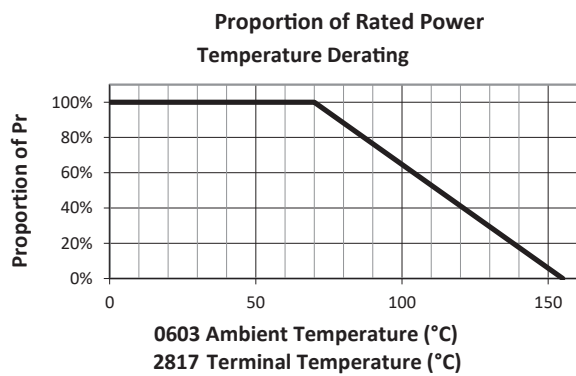
Metal Foil on Ceramic Chip Resistors

MFC Series

Performance Data

| Parameter | | Maximum (+0.001Ω) | |
|--|------|-------------------|------|
| | | 0603 | 2817 |
| Load at rated power: 1000 hours at 70°C, cyclic load | ±ΔR% | 1 | 5 |
| Overload: 5 x rated power for 5 seconds | ±ΔR% | 1 | 5 |
| Moisture: No load, 1000 hours 85°C, 85% RH | ±ΔR% | 1 | |
| Temperature rapid change: 100 cycles, -55°C & 155°C | ±ΔR% | 1 | 0.5 |
| High temperature exposure: 1000 hours at 155°C | ±ΔR% | 1 | |
| Low temperature exposure: 1000 hours at -55°C | ±ΔR% | 1 | |
| Bend strength: 2mm deflection | ±ΔR% | 0.5 | 1 |
| Resistance to solder heat: 260±5°C for 10s | ±ΔR% | 0.5 | |
| Solderability: 245±5°C for 2s | | ≥95% coverage | |
| Insulation resistance: 100V DC for 1min | ohms | >100M | |

Thermal Data



Ordering Procedure

Example: **MFC0603-R005FT5** (MFC0603, 5 milliohms ±1%, Pb-free)

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | F | C | 0 | 6 | 0 | 3 | - | R | 0 | 0 | 5 | F | T | 5 |
| 1 | | 2 | | 3 | | | 4 | | 5 | | | | | |

| 1 | 2 | 3 | 4 | 5 |
|--------|------|----------------------------|-----------|-------------------|
| Series | Size | Value | Tolerance | Packing |
| MFC | 0603 | 3/4 characters R = ohms | F = ±1% | T5 0603 5000/reel |
| | 2817 | | J = ±5% | T1 2817 1000/reel |

Packaging

0603 size resistors are supplied on 8mm paper carrier tape and 2817 size resistors are supplied on 12mm embossed carrier tape, all on 7 inch reels as per IEC 286-3.

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