

Melf Metal Film Resistors

High Power Type

Ultra Miniature Style [MMP Series]



INTRODUCTION

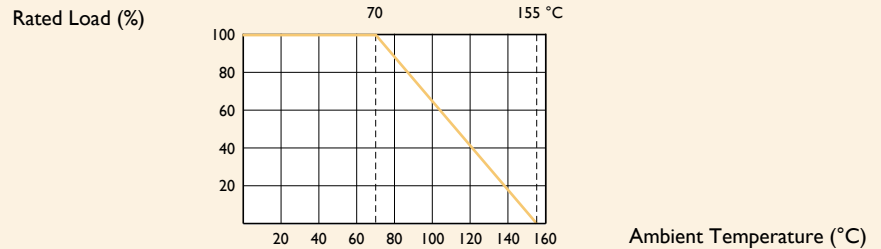
The MMP Series Melf Metal Film High Power Resistors are manufactured using a vacuum sputtering system to deposit multiple layers of mixed metal alloys and passivative materials onto a carefully treated high grade ceramic substrate. After a helical groove has been cut in the resistive layer, SMD enabled structure and high power in small packages. The resistors are coated with layers of lacquer:

FEATURES

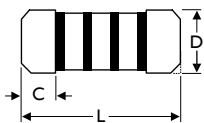
| | |
|----------------------|-----------------------------------|
| Power Rating | 1W, 2W |
| Resistance Tolerance | ±1%, ±2%, ±5% |
| T.C.R. | ±50ppm/°C, ±100ppm/°C, ±200ppm/°C |

DERATING CURVE

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



DIMENSIONS



Unit: mm

| STYLE | DIMENSION | | |
|-----------------|-----------|---------|--------|
| | L | D | C Min. |
| Ultra Miniature | | | |
| MMP100 | 5.9±0.2 | 2.2±0.1 | 0.5 |
| MMP200 | 8.5±0.2 | 3.2±0.2 | 0.5 |

Note:

ELECTRICAL CHARACTERISTICS

| STYLE | MMP100 | MMP200 |
|--------------------------|---|--------|
| Power Rating at 70°C | 1W | 2W |
| Maximum Working Voltage | 350V | |
| Maximum Overload Voltage | 700V | |
| Voltage Proof | 500V | |
| Resistance Range | 1 Ω - 1M Ω & 0 Ω for E24 & E96 series value | |
| Operating Temp. Range | -55°C to +155°C | |
| Temperature Coefficient | ±50ppm/°C, ±100ppm/°C, ±200ppm/°C | |

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

| PERFORMANCE TEST | TEST METHOD | APPRAISE |
|-------------------------------|---|---|
| Short Time Overload | IEC 60115-1 4.13 2.5 times RCWV for 5 Sec. | ±0.5%+0.05 Ω |
| Voltage Proof | IEC 60115-1 4.7 in V-block for 60 Sec., test voltage by type | By type |
| Temperature Coefficient | IEC 60115-1 4.8 -55°C to +155°C | By type |
| Insulation Resistance | IEC 60115-1 4.6 in V-block for 60 Sec. | >10,000M Ω |
| Solderability | IEC 60115-1 4.17 235±5°C for 3±0.5 Sec. | 95% Min. coverage |
| Solvent Resistance of Marking | IEC 60115-1 4.30 IPA for 5±0.5 Min. with ultrasonic | No deterioration of coatings and markings |
| Periodic-pulse Overload | IEC 60115-1 4.39 4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off) | ±1.0%+0.05 Ω |
| Damp Heat Steady State | IEC 60115-1 4.24 40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV | ±2.0%+0.1 Ω |
| Endurance at 70°C | IEC 60115-1 4.25 70±2°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off) | ±2.0%+0.1 Ω |
| Temperature Cycling | IEC 60115-1 4.19 -55°C ⇄ Room Temp. ⇄ +155°C ⇄ Room Temp. (5 cycles) | ±0.75%+0.05 Ω |
| Resistance to Soldering Heat | IEC 60115-1 4.18 260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body | ±0.5%+0.05 Ω |

Note: Rated Continuous Working Voltage (RCWV) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$