

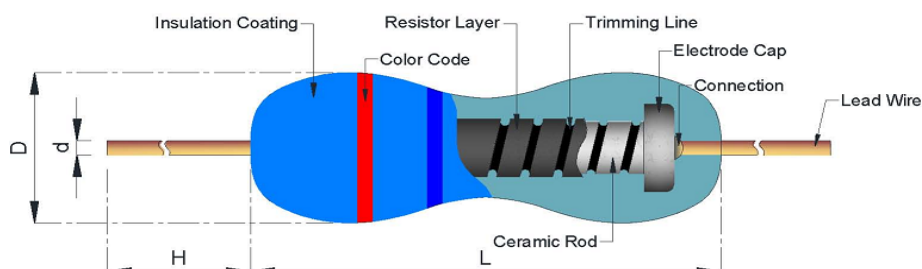
MF series Metal Film Fixed Resistors

◆ Features

- » Body Coating: Epoxy is Light Blue. Silicone Flame proof is Gray (FMF Type).
- » Body Coating of MF 5% 1W~5W is Flame proof coating(Gray)
- » Low T.C.R. 200ppm, 100ppm, 50ppm, 25ppm, 15ppm, 10ppm, 5ppm.
- » High precision 5%, 1%, 0.5%, 0.25%, 0.1%

◆ Power Ratings Dimensions

- » Standard Type: 1/8W ~ 5W
- » Miniature Type: 1/4Ws~5Ws
- » Ultra Small Size: 1/2Wss~3Wss



| Type | DIMENSION(mm) | | | |
|----------------|---------------|-----------|----------|-------------|
| | L | ØD | H | Ød |
| MF12 (1/8W) | 3.3 | 1.8 ± 0.3 | 29 ± 2.0 | 0.45 ± 0.05 |
| MF16 (1/6W) | | | | |
| MFS25 (1/4WS) | | | | |
| MF0204 (0.4W) | | | | |
| MFU50 (1/2WSS) | 6.3 ± 0.5 | 2.3 ± 0.3 | 28 ± 2.0 | 0.55 ± 0.05 |
| MF25 (1/4W) | | | | |
| MFS50 (1/2WS) | | | | |
| MF0207 (0.6W) | | | | |
| MFU100 (1WSS) | 9.0 ± 0.5 | 3.2 ± 0.5 | 26 ± 2.0 | 0.55 ± 0.05 |
| MF50 (1/2W) | | | | |
| MFS100 (1WS) | | | | |
| MFU200 (2WSS) | | | | |
| MF100 (1W) | 11.5 ± 1.0 | 4.5 ± 0.5 | 35 ± 2.0 | 0.8 ± 0.05 |
| MFS200 (2WS) | | | | |
| MFU300 (3WSS) | | | | |
| MF200 (2W) | | | | |
| MFS300 (3WS) | 15.5 ± 1.0 | 5.0 ± 0.5 | 32 ± 2.0 | 0.8 ± 0.05 |
| MF300 (3W) | | | | |
| MFS500 (5WS) | | | | |
| MF500 (5W) | | | | |
| | 24.0 ± 1.0 | 8.5 ± 0.5 | 37 ± 2.0 | 0.8 ± 0.05 |

◆ Part Number

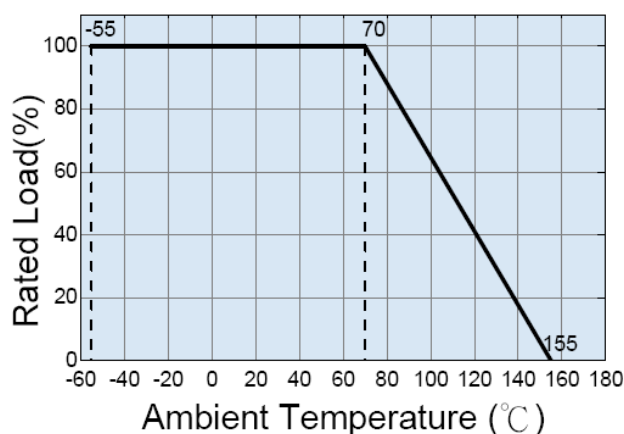
| MF | 12 | F | 2K3 | T | |
|------|-------------|-------------|------------|---|-----------------|
| Type | Watt | Tolerance | R value | Packing | TCR Value |
| MF | 1/8W = 12 | J = ± 5% | 2.3K = 2K3 | T = Taping Box | Blank = ±100ppm |
| MFS | 1/6W = 16 | F = ± 1% | 10KΩ = 10K | B = Bulk | D = ±50ppm |
| MFU | 1/4W = 25 | D = ± 0.5% | | R = Taping Reel | C = ±25ppm |
| | 0.4W = 0204 | C = ± 0.25% | | M = M Type | N = ±15ppm |
| | 1/2W = 50 | B = ± 0.1% | | MB = MB Lead Form | B = ±10ppm |
| | 0.6W = 0207 | | | MK = MK Lead Form | S = ±5ppm |
| | 1W = 100 | | | F = F Lead Form | |
| | 2W = 200 | | | FC = FC Lead Form | |
| | 3W = 300 | | | FK = FK Lead Form | |
| | 5W = 500 | | | FCK = FCK Lead Form | |
| | | | | FKK = FKK Lead Form | |
| | | | | PANA = PNAN Lead Form (Only for 1/8W & 1/4W) | |

◆ Electrical Characteristics

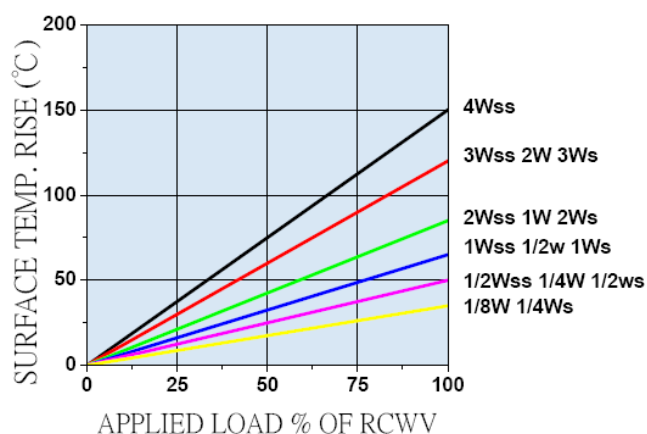
| Power rating at 70℃ | Resistance | | Operating Temp. Range | Max. Working Voltage | Max. Overload Voltage | Dielectric withstanding voltage |
|------------------------|-----------------------------|---------------------------|--------------------------|----------------------------|-----------------------------|---------------------------------------|
| | Range (Ω) 0.5% / 1% / 5% | Range (Ω) 0.25% / 0.1% | | | | |
| 1/8W | 0.1Ω~1M | 10Ω~100K | -55℃ to +155℃ | 150V | 300V | 300V |
| 1/6W | | | | 150V | 300V | |
| 0.4W | | | | 200V | 400V | |
| 1/4W | | | | 250V | 500V | 400V |
| 0.6W | | | | 300V | 500V | 400V |
| 1/2W | | | | 350V | 500V | 500V |
| 1W | | | | 500V | 700V | 700V |
| 2W | | | | 500V | 1000V | 1000V |
| 3W | 0.1Ω~100K | --- | | 500V | 1000V | 1000V |
| 5W | | --- | | 500V | 1000V | 1000V |
| 1/4WS | 0.1Ω~1M | 10Ω~100K | | 200V | 400V | 300V |
| 1/2WS | | | | 300V | 500V | 400V |
| 1WS | | | | 400V | 600V | 500V |
| 2WS | | | | 500V | 700V | 700V |
| 3WS | | | | 500V | 1000V | 1000V |
| 5WS | 0.1Ω~100K | --- | | 500V | 1000V | 1000V |
| 1/2WSS | 10K~10M | --- | | 200V | 400V | 300V |
| 1WSS | 10K~1M | | | 400V | 500V | 400V |
| 2WSS | | | | 450V | 600V | 500V |
| 3WSS | | | | 500V | 800V | 700V |

Value range for standard resistance, below or over this resistance on request.

● POWER GRAPH



● HOT-SPOT TEMPERATURE

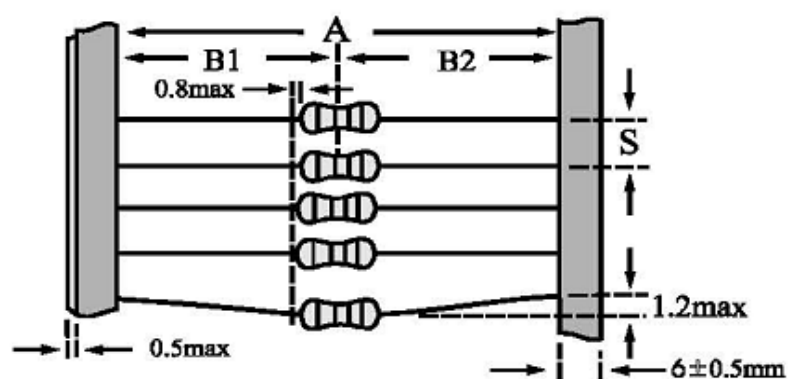


◆ Environmental Characteristics

| Performance Test | Test Method | Appraise |
|---------------------------------|--|---|
| SHORT TIME OVERLOAD | 2.5 times RCWV for 5 seconds | ±(0.25%+0.05Ω) |
| TEMPERATURE COEFFICIENT(T.C.R.) | Resistance value at room Temperature and room Temperature+100℃ | By Type |
| VOLTAGE PROOF | In V-Block for 60 seconds | By Type |
| PULSE OVERLOAD | 4 times RCWV for 10000 cycles (1sec.on · 25secs.off) | ±(0.75%+0.05Ω) |
| INSULATION RESISTANCE | In V-Block | > 10000MΩ |
| LOAD LIFE | 70℃ at RCWV for 1000hrs.(1.5hrs. on · 0.5hrs.off) | ±(1.5%+0.05Ω) |
| LOAD LIFE IN HUMIDITY | 40±2℃ 90~95%RH at RCWV for 1000hrs. (1.5hrs. on · 0.5hrs.off) | ±(1.5%+0.05Ω) |
| TEMPERATURE CYCLING | -40℃/85℃ with 1000 cycles. (20min for both low and high Temperature , transfer time less 30s) | ±(0.75%+0.05Ω) |
| SOLDER ABILITY | 260±5℃ for 2±0.5 seconds | 95% min. coverage |
| RESISTANCE TO SOLDERING HEAT | The solder iron heated to 350℃ ±10℃ and applied to the termination for a duration of 4 seconds to 5 seconds. | ±(0.25%+0.05Ω) |
| RESISTANCE TO SOLVENT | Trichloroethane for 1 min. with ultrasonic | No deterioration of coatings and markings |
| TERMINAL STRENGTH | Direct load for 10 sec. In the direction off the terminal leads. | Tensile: ≥2.5kg |

Rated continuous Working Voltage (RCWV) = $\sqrt{\text{POWER. RATING} * \text{RESISTANCE. VALUE}}$

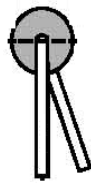
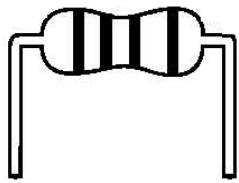
◆ Packing Methods Bandoleer for Axial leads



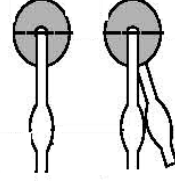
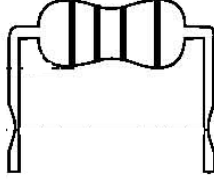
| Type | Dimensions (mm) | | | | |
|--|-----------------|----|-------|-------------|---------------------------|
| | A | | B1-B2 | S (spacing) | Max. deviation of spacing |
| 1/8W 1/6W 1/4WS 0.4W (0204) 1/2WSS | 52 | +1 | 1.2 | 5 | 1 mm per 10 spacing |
| | | -0 | | | |
| | 26 | +1 | 1 | | |
| | | -0 | | | |
| 1/4W 1/2WS 0.6W(0207) 1WSS | 52 | +1 | 1.2 | 5 | |
| | | -0 | | | |
| | 26 | +1 | 1 | | |
| | | -0 | | | |
| 1/3W | 52 | +1 | 1.2 | 5 | |
| | | -0 | | | |
| 1/2W 1WS 2WSS | 52 | +1 | 1.2 | 5 | |
| | | -0 | | | |
| 1W 2WS 3WSS | 52 | +1 | 1.5 | 5 | |
| | | -0 | | | |
| | 73 | +1 | | | |
| | | -0 | | | |
| 2W 3WS 4WSS | 52 | +1 | 1.5 | 10 | |
| | | -0 | | | |
| | 73 | +1 | | | |
| | | -0 | | | |
| 3W 5WS | 52 | +1 | 1.5 | 10 | |
| | | -0 | | | |
| | 73 | +1 | | | |
| | | -0 | | | |
| 5W 7WS | 88 | +1 | 1.5 | 10 | |
| | | -0 | | | |

◆ Lead Forming

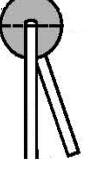
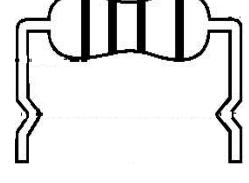
M Lead Form



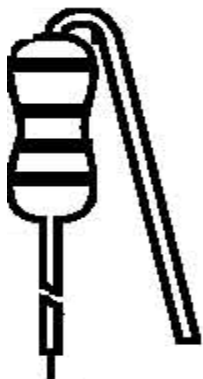
MB Lead Form



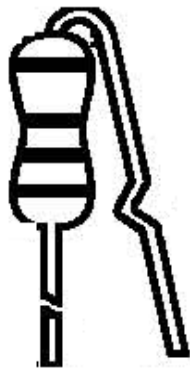
MK Lead Form



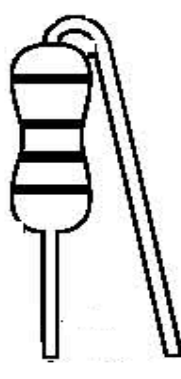
F Lead Form



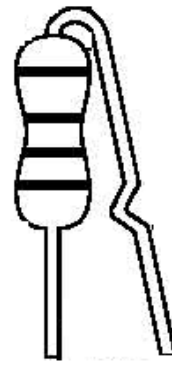
FK Lead Form



FC Lead Form



FCK Lead Form



FKK Lead Form

