

MF12, MF25 & MF50 Series

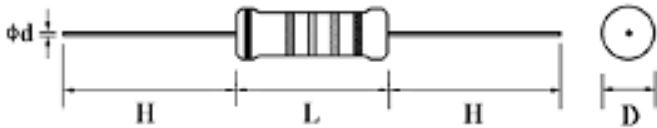
Metal Film Resistors



Materials and Features:

- EIA standard colour-coding.
- Low noise and voltage coefficient.
- Low temperature coefficient range.
- Nichrome resistor element provides stable performance in various environments.
- Multiple epoxy coating on vacuum-deposited metal film provides superior moisture protection.

Dimension:



| Style | Power Rating at 70°C (W) | D Maximum | L Maximum | d | +0.02 -0.05 | H±3 |
|-------|--------------------------|-----------|-----------|------|----------------|------|
| MF 12 | 0.125 | 1.85 | 3.5 | 0.45 | | 28.0 |
| MF 25 | 0.25 | 2.5 | 6.8 | 0.54 | | |
| MF 50 | 0.5 | 3.5 | 10.0 | | | |

Dimensions : Millimetres

Supplied bandoliered on tape (Box = 5000 pcs. for MF12 and MF25 Series)
(Box = 1000 pcs. for MF50 Series).

General Specification

| Style | Dielectric withstanding voltage (V) | Maximum working voltage (V) | Maximum overload voltage (V) | Resistance Tolerance | Temperature Coefficient | Resistance Range |
|-------|-------------------------------------|-----------------------------|------------------------------|----------------------|-------------------------|------------------|
| MF 12 | 400 | 200 | 400 | ±1% | ±50ppm/°C | 1Ω to 1MΩ |
| MF 25 | 500 | 250 | 500 | | | |
| MF 50 | 700 | 350 | 700 | | | |

Dimensions : Millimetres

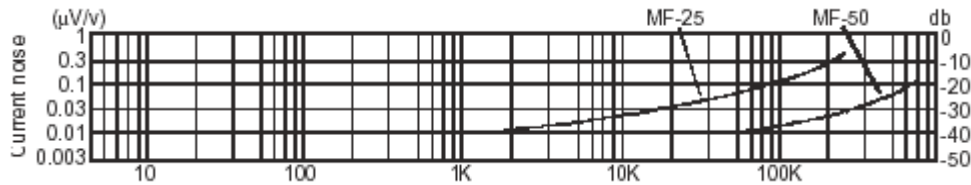


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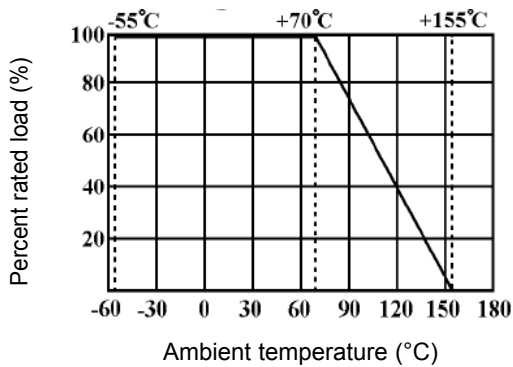
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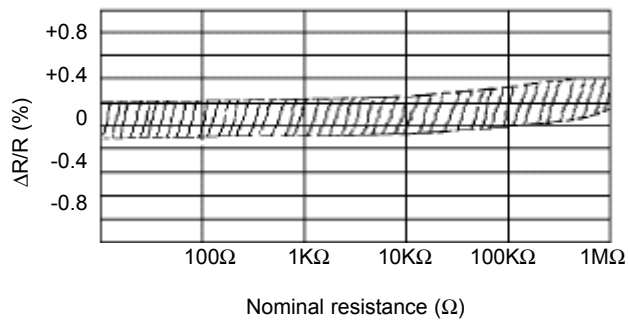
Current Noise Level



Derating Curve



Load Life



Performance Specification

| Characteristics | Test Methods | Limits | | |
|---------------------------------|--|--|--------------------|---------------|
| Temperature coefficient | Natural resistance change per temperature degree centigrade. $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (ppm/°C)}$ R ₁ : Resistance value at room temperature (t ₁) R ₂ : Resistance value at room temperature plus 100°C (t ₂). | Within the temperature coefficient specified below | | |
| | | Maximum TCR ±50ppm/°C | | |
| Dielectric withstanding voltage | Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at AC potential respectively specified in the above list for 60 +10/-0 seconds. | No evidence of flashover mechanical damage, arcing or insulation break down. | | |
| Temperature cycling | Resistance change after continuous five cycles for duty cycle specified | Resistance change rate is ±(1% +0.05Ω). No evidence of mechanical damage. | | |
| | Step | | Temperature | Time |
| | 1 | | -55°C ±3°C | 30 minutes |
| | 2 | | Room temperature | 10-15 minutes |
| | 3 | | +155°C ±3°C | 30 minutes |
| 4 | Room temperature | 10-15 minutes | | |
| Short-time overload | Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds. | Resistance change rate is ±(0.5% +0.05Ω). No evidence of mechanical damage. | | |
| Pulse overload | Resistance change after 10,000 cycles (1 second "on", 25 seconds "off") at 4 times RCWV. | Resistance change rate is ±(1% +0.05Ω). No evidence of mechanical damage. | | |



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Performance Specification

| Characteristics | Test Methods | Limits | |
|------------------------------|--|--|--------------|
| | | Resistance Value | $\Delta R/R$ |
| Load life in humidity | Resistance change after 1000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity test chamber controlled at 40°C \pm 2°C and 90 to 95% relative humidity. | Normal type | \pm 1.5% |
| Load life | Permanent resistance change after 1000 hours operating at RCWV with duty cycle of 1.5 hours "on" 0.5 hours "off" at 70°C \pm 2°C ambient. | Normal type | \pm 1.5% |
| Terminal strength | <p>Direct Load: Resistance to a 2.5kgs direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads.</p> <p>Twist test: Terminal leads shall be bent through 90° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating direction for a total of 3 rotations.</p> | No evidence of mechanical damage. | |
| Resistance to soldering heat | Permanent resistance change when leads immersed to 3.2 - 4.8mm from the body in 350°C \pm 10°C solder for 3 \pm 0.5 seconds. | Resistance change rate is \pm (1% +0.05 Ω). No evidence of mechanical damage. | |
| Solderability | <p>The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes.</p> <p>Test temperature of solder : 235°C \pm5°C.</p> <p>Dwell time in solder : 3+0.5/-0 seconds.</p> | 95% coverage Minimum. | |
| Resistance to solvent | Specimens shall be immersed in a bath of trichroethane completely for 3 minutes with ultrasonic. | No deterioration of protective coating and markings. | |

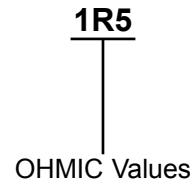
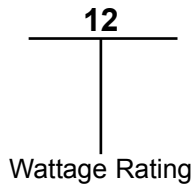
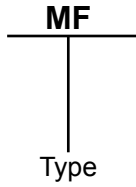
RCWV = Rated Continuous Working Voltage = $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$

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Part Number Explanation:



Wattage Rating : 12 = 0.125W, 25 = 0.25W and 50 = 0.5W.

OHMIC Values : Where R = Ohms = Ω

K = Kilo ohms = $K\Omega$.

M = Mega ohms = $M\Omega$.

and replaces the decimal point.

eg : 1R5 = 1.5 Ω .

4K5 = 4.5 $K\Omega$.

6M8 = 6.8 $M\Omega$.

Stocked Values

| Tolerance | Wattage | Range Value |
|-----------|---------|-------------|
| 1% | 0.125W | 1R - 1M |
| 1% | 0.25W | 1R - 1M |
| 1% | 0.5W | 1R - 1M |

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Notes:

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