

# MF12, MF25 & MF50 Series

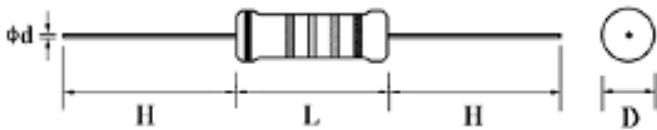
## Metal Film Resistors



### 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

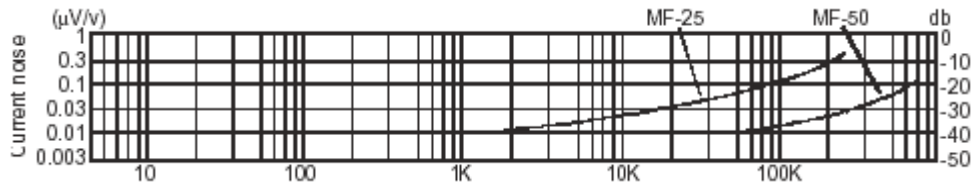


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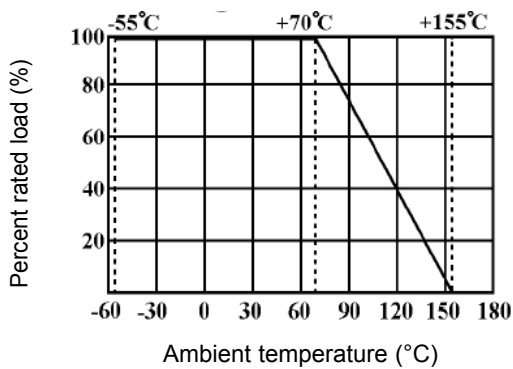
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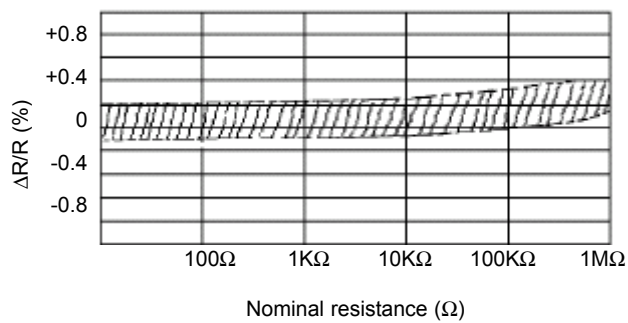
### Current Noise Level



### 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 <sub>1</sub> : Resistance value at room temperature (t <sub>1</sub> ) R <sub>2</sub> : Resistance value at room temperature plus 100°C (t <sub>2</sub> ).	Within the temperature coefficient specified below	
		<b>Maximum TCR</b> ±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		
	<b>Step</b>	<b>Temperature</b>	<b>Time</b>
	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	
Temperature cycling		Resistance change rate is ±(1% +0.05Ω). No evidence of mechanical damage.	
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><b>Direct Load:</b> Resistance to a 2.5kgs direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads.</p> <p><b>Twist test:</b> 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 $\Omega$ ). 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 <math>\pm</math>5°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.	

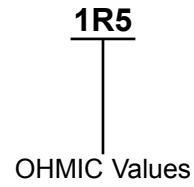
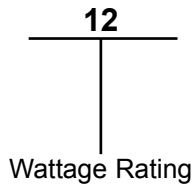
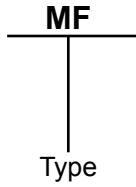
RCWV = Rated Continuous Working Voltage =  $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$

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### Part Number Explanation:



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

**OHMIC Values** : Where R = Ohms =  $\Omega$

K = Kilo ohms =  $K\Omega$ .

M = Mega ohms =  $M\Omega$ .

and replaces the decimal point.

eg : 1R5 = 1.5 $\Omega$ .

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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## Metal Film Resistors



### Notes:

### International Sales Offices:



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