

# Precision Metal Film Fixed Resistors

## Performance Specification

Temperature Coefficient	Within the maximum temperature coefficient specified.
Short Time Overload	$\pm(0.5\% + 0.05\Omega)\text{Max}$ , with no evidence of mechanical damage.
Insulation Resistance	Min. 10,000 Mega Ohm
Dielectric Withstanding Voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown.
Pulse Overload	$\pm(1.0\% + 0.05\Omega)\text{Max}$ , with no evidence of mechanical damage.
Terminal Strength	No evidence of mechanical damage.
Resistance to Soldering Heat	$\pm(1.0\% + 0.05\Omega)\text{Max}$ , with no evidence of mechanical damage.
Solderability	Min. 95% coverage.
Resistance to Solvent	No deterioration of protective coating and markings.
Temperature Cycling	$\pm(1.0\% + 0.05\Omega)\text{Max}$ , with no evidence of mechanical damage.
Humidity (Steady state)	$\pm(2.0\% + 0.05\Omega)\text{Max}$ , with no evidence of mechanical damage.
Load Life in Humidity	Normal type: $\pm(1.5\% + 0.05\Omega)\text{Max}$ Non-Flame type: $\pm(5.0\% + 0.05\Omega)\text{Max}$
Load Life	Normal type: $\pm(1.5\% + 0.05\Omega)\text{Max}$ Non-Flame type: $\pm(5.0\% + 0.05\Omega)\text{Max}$

## Ordering Procedure: Ex.: MFR 1/2W, +/-5%, 200PPM, 10Ω, T/B-1000

<b>M</b>	<b>F</b>	<b>0</b>	<b>W</b>	<b>2</b>	<b>J</b>	<b>J</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>A</b>	<b>1</b>	<b>0</b>
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**Type:**  
MF = Metal Film  
MT = Metal Film  
Tin plated  
copper steel  
lead wire

**Wattage:**  
Normal size  
W8 = 1/8W  
W4 = 1/4W  
W2 = 1/2W  
1W = 1W  
2W = 2W  
3W = 3W  
  
Small size  
S4 = 1/4W-S  
S2 = 1/2W-S  
06 = 0.6W-S  
M7 = 0.75W-S  
1S = 1W-S  
2S = 2W-S  
3S = 3W-S  
  
Extra small size  
U2 = 1/2W-SS  
04 = 0.4W-SS

**Resistance Value:**

- E-24 series:  
1<sup>st</sup> digit is "0"  
2<sup>nd</sup> & 3<sup>rd</sup> digits are the significant figures of the resistance  
4<sup>th</sup> indicates the number of zeros:  
"J" ~ 0.1, "K" ~ 0.01  
**Ex.:** 4.7Ω ~ 47J, 4.7KΩ ~ 472
- E-96 series:  
1<sup>st</sup> to 3<sup>rd</sup> digits are the significant figures of the resistance and the 4<sup>th</sup> digit indicates the number of zeros.  
**Ex.:** 1.33KΩ = 1331

**Packing Type:**  
A = Tape/Box  
T = Tape/Reel  
B = Bulk/Box  
P = Tape/Box of PT-26mm

**Packing Qty:**  
1 = 1,000 pcs.    2 = 2,000 pcs.  
4 = 4,000 pcs.    5 = 5,000 pcs.  
A = 500 pcs.    B = 2,500 pcs.  
0 = Bulk/Box

**Feature:**  
0 = Standard  
F = Non-Flame  
I = Non-Inductive

**Tolerance:**  
B =  $\pm 0.1\%$     F =  $\pm 1\%$   
C =  $\pm 0.25\%$     G =  $\pm 2\%$   
D =  $\pm 0.5\%$     J =  $\pm 5\%$

**PPM requirement:**  
B = 15ppm  
C = 25ppm  
F = 50ppm  
G = 100ppm  
J = 200ppm

**Additional Information:**  
P = Panasert type  
1 = Avisert type  
2 = Avisert type 2  
3 = Avisert type 3  
0 = PT-52mm, PT-26mm,  
Standard lead wire for Bulk/Box  
8 = PT-58mm  
9 = PT-64mm  
7 = Lead wire (H) 38mm

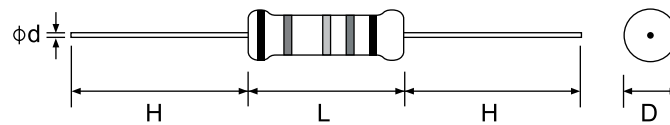
## Precision Metal Film Fixed Resistors

### Features

- EIA standard color coding
- Non-Flame type available
- Low noise & voltage coefficient
- Low temperature coefficient range
- Wide precision range in small package
- Too low or too high ohmic value can be supplied on a case to case basis
- Nichrome resistor element provides stable performance in various environment
- Multiple epoxy coating on vacuum deposited metal film provides superior moisture protection



Standard : 2% ,5% ,10% -- E-24 series  
1% -- E-96 series



Part No.	Style	Power Rating at 70°C	Dimension (mm)					Std Packing Qty
			D Max	L Max	H±3	d±0.05	PT	
<b>Normal Size</b>								
MF0W8	MF 12	1/8W (0.125W)	1.85	3.5	28	0.45	52	5,000
MF0W4	MF 25	1/4W (0.25W)	2.5	6.8	28	0.54 <sup>(1)</sup>	52	5,000
MF0W2	MF 50	1/2W (0.50W)	3.5	10.0	28	0.54	52	1,000
MF01W	MF 100	1W	5.0	12.0	25	0.70	52	1,000
MF02W	MF 200	2W	5.5	16.0	28	0.70	64	1,000
MF03W	MF 300	3W	6.5	17.5	28	0.75	64	500
<b>Small Size</b>								
MF0S4	MF 25-S	1/4W (0.25W)	1.85	3.5	28	0.45	52	5,000
MFF04	MF 40-SS	0.4W	1.9	3.7	28	0.45	52	5,000
MFFU2	MF 50-SS	1/2W (0.50W)	2.5	6.8	28	0.54 <sup>(1)</sup>	52	5,000
MF0S2	MF 50-S	1/2W (0.50W)	3.0	9.0	28	0.54	52	4,000
MF006	MF 60-S	0.6W	2.5	6.8	28	0.54 <sup>(1)</sup>	52	5,000
MF0M7	MF 75-S	0.75W	3.5	10.0	28	0.54	52	1,000
MF01S	MF 100-S	1W	3.5	10.0	28	0.54	52	1,000
MF02S	MF 200-S	2W	5.0	12.0	25	0.70	52	1,000
MF03S	MF 300-S	3W	5.5	16.0	28	0.70	64	1,000

**Note:**

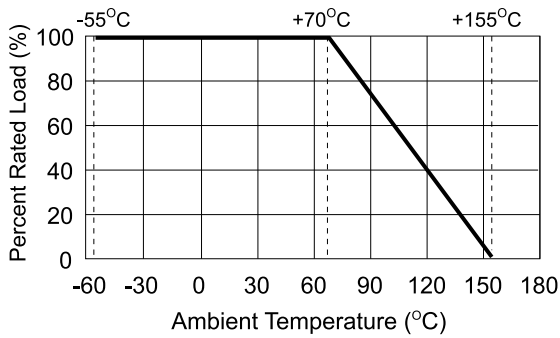
- Extra small size types (-SS) are Non flame coating (Dark Green color).
- <sup>(1)</sup> Lead diameter of MF0W4, MF006 & MFFU2 can be provided in 0.50mm, 0.54mm & 0.60mm

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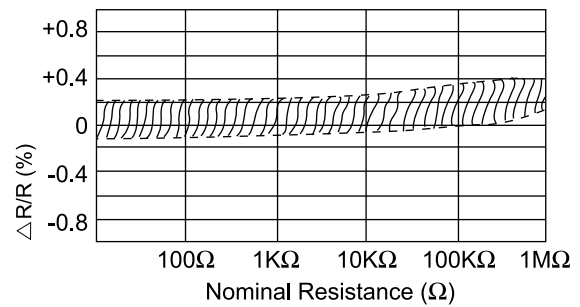
Part No.	Style	Max Working Voltage	Max Overload Voltage	Dielectric Withstanding Voltage	Tolerance %	Resistance Range	T.C.R.	Special Order		
								Tolerance %	Resistance Range	T.C.R.
MF0W8	MF 12	200V	400V	400V	±1%	10Ω ~ 1MΩ	± 50PPM/°C	±0.25%	51.1Ω ~ 200KΩ	±15PPM/°C
MF0S4	MF 25-S				±2%	10Ω ~ 1MΩ	±100PPM/°C	±0.5%	51.1Ω ~ 511KΩ	±25PPM/°C
MFF04	MF 40-SS				±5%	1Ω ~ 1MΩ	±200PPM/°C		±50PPM/°C	
MF0W4	MF 25	250V	500V	500V	±1%	10Ω ~ 1MΩ	± 50PPM/°C	±0.1%	100Ω ~ 100KΩ	±15PPM/°C
MF006	MF 60-S				±2%	10Ω ~ 1MΩ	±100PPM/°C	±0.25%	51.1Ω ~ 330KΩ	±25PPM/°C
MFFU2	MF 50-SS				±5%	1Ω ~ 1MΩ	±200PPM/°C	±0.5%	10Ω ~ 1MΩ	±50PPM/°C
MF0W2	MF 50	350V	700V	700V	±1%	10Ω ~ 1MΩ	±50PPM/°C	±0.1%	100Ω ~ 330KΩ	±15PPM/°C
MF0S2	MF 50-S				±2%	10Ω ~ 1MΩ	±100PPM/°C	±0.25%	51.1Ω ~ 511KΩ	±25PPM/°C
MF0M7	MF 75-S				±5%	1Ω ~ 1MΩ	±200PPM/°C	±0.5%	10Ω ~ 1MΩ	±50PPM/°C
MF01S	MF 100-S									
MF02S	MF 200-S	500V	1,000V	1,000V	±1%	51.1Ω ~ 1MΩ	±50PPM/°C	±0.1%	100Ω ~ 330KΩ	±15PPM/°C
MF03S	MF 300-S				±2%	51.1Ω ~ 1MΩ	±100PPM/°C	±0.25%	51.1Ω ~ 511KΩ	±25PPM/°C
MF01W	MF 100				±5%	10Ω ~ 1MΩ	±200PPM/°C	±0.5%	51.1Ω ~ 1MΩ	±50PPM/°C
MF02W	MF 200									
MF03W	MF 300									

Note: MFFU2 (MF50-SS) Dielectric Withstanding Voltage Non flame 250V  
Epoxy 500V

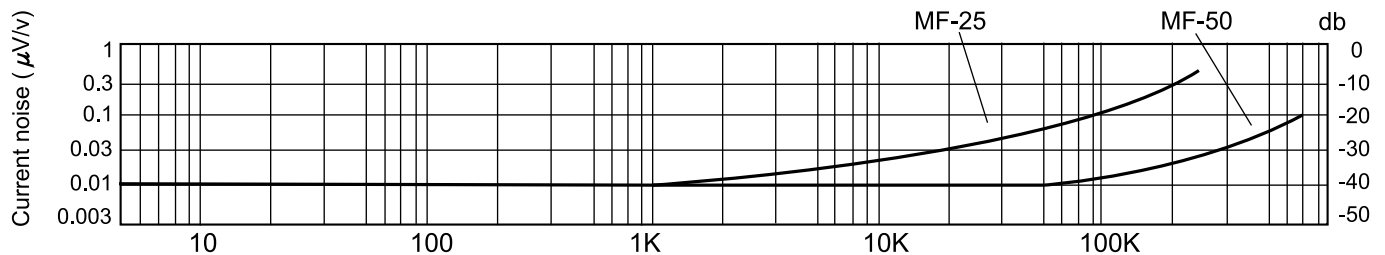
Derating Curve



Load Life



Current Noise Level



\* Only for your reference