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SPECIFICATIONS

Precision Metal Film Fixed Resistors

MF-Serie

Version January 2013

Precision Metal Film Fixed Resistors

Performance Specification

| | |
|---------------------------------|---|
| Temperature Coefficient | Within the maximum temperature coefficient specified. |
| Short Time Overload | $\pm(0.5\% + 0.05\Omega)$ 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 | $\pm(1.0\% + 0.05\Omega)$ Max, with no evidence of mechanical damage. |
| Terminal Strength | No evidence of mechanical damage. |
| Resistance to Soldering Heat | $\pm(1.0\% + 0.05\Omega)$ Max, with no evidence of mechanical damage. |
| Solderability | Min. 95% coverage. |
| Resistance to Solvent | No deterioration of protective coating and markings. |
| Temperature Cycling | $\pm(1.0\% + 0.05\Omega)$ Max, with no evidence of mechanical damage. |
| Humidity (Steady state) | $\pm(2.0\% + 0.05\Omega)$ Max, with no evidence of mechanical damage. |
| Load Life in Humidity | Normal type: $\pm(1.5\% + 0.05\Omega)$ Max Non-Flame type: $\pm(5.0\% + 0.05\Omega)$ Max |
| Load Life | Normal type: $\pm(1.5\% + 0.05\Omega)$ Max Non-Flame type: $\pm(5.0\% + 0.05\Omega)$ Max |

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

| M | F | 0 | W | 2 | J | J | 0 | 1 | 0 | 0 | A | 1 | 0 | | | |
|---|---|--|---|---|--|---|---|--|---|---|---|---|---|---|--|--|
| 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: <ul style="list-style-type: none"> E-24 series: 1st digit is "0" 2nd & 3rd digits are the significant figures of the resistance 4th indicates the number of zeros: "J" ~ 0.1, "K" ~ 0.01 Ex.: 4.7Ω ~ 47J, 4.7KΩ ~ 472 E-96 series: 1st to 3rd digits are the significant figures of the resistance and the 4th 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 | | | Additional Information: P = Panasert type 1 = Avisert type 2 = Avisert type 2 3 = Avisert type 3 0 = PT-52mm, PT-26mm 8 = PT-58mm 9 = PT-64mm 7 = Lead wire (H) 38mm | | |
| 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 | | | | | | | | | | | |

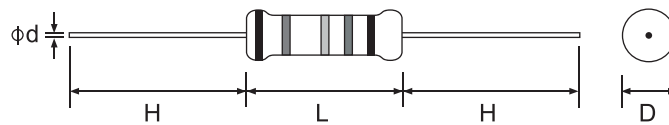
Precision Metal Film Fixed Resistors

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 | d±0.05 | H±3 | PT | |
| Normal Size | | | | | | | | |
| MF0W8 | MF 12 | 1/8W (0.125W) | 1.85 | 3.5 | 0.45 | 28 | 52 | 5,000 |
| MF0W4 | MF 25 | 1/4W (0.25W) | 2.5 | 6.8 | 0.54 ⁽²⁾ | 28 | 52 | 5,000 |
| MF0W2 | MF 50 | 1/2W (0.50W) | 3.5 | 10.0 | 0.54 | 28 | 52 | 1,000 |
| MF01W | MF 100 | 1W | 5.0 | 12.0 | 0.70 | 25 | 52 | 1,000 |
| MF02W | MF 200 | 2W | 5.5 | 16.0 | 0.70 | 28 | 64 | 1,000 |
| MF03W | MF 300 | 3W | 6.5 | 17.5 | 0.75 | 28 | 64 | 500 |
| Small Size | | | | | | | | |
| MF0S4 | MF 25-S | 1/4W (0.25W) | 1.85 | 3.5 | 0.45 | 28 | 52 | 5,000 |
| MFF04 | MF 40-SS | 0.4W | 1.9 | 3.7 | 0.45 | 28 | 52 | 5,000 |
| MFFU2 | MF 50-SS | 1/2W (0.50W) | 2.5 | 6.8 | 0.54 ⁽²⁾ | 28 | 52 | 5,000 |
| MF0S2 | MF 50-S | 1/2W (0.50W) | 3.0 | 9.0 | 0.54 | 28 | 52 | 2,000 |
| MF006 | MF 60-S | 0.6W | 2.5 | 6.8 | 0.54 ⁽²⁾ | 28 | 52 | 5,000 |
| MF0M7 | MF 75-S | 0.75W | 3.5 | 10.0 | 0.54 | 28 | 52 | 5,000 |
| MF01S | MF 100-S | 1W | 3.5 | 10.0 | 0.54 | 28 | 52 | 1,000 |
| MF02S | MF 200-S | 2W | 5.0 | 12.0 | 0.70 | 25 | 52 | 1,000 |
| MF03S | MF 300-S | 3W | 5.5 | 16.0 | 0.70 | 28 | 64 | 1,000 |

Note:

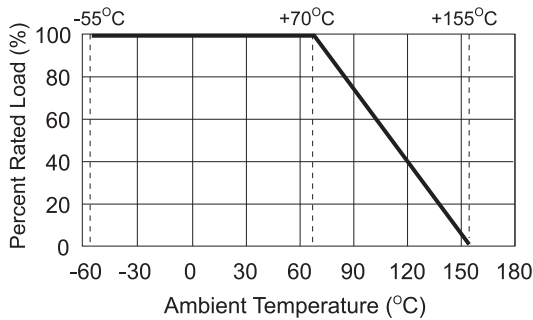
- Extra small size types (-SS) are Non flame coating (Dark Green color).
- ⁽²⁾ Lead diameter of MF0W4, MF006 & MFFU2 can be provided in 0.50mm, 0.54mm & 0.60mm

Precision Metal Film Fixed Resistors

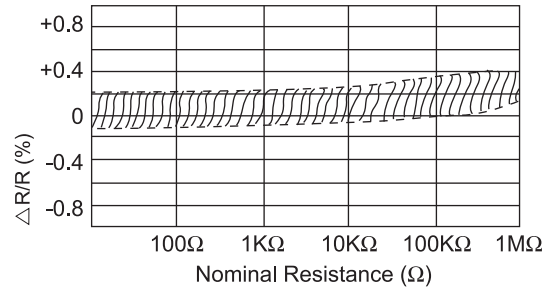
General Specification

| 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 MF0S4 | MF 12 MF 25-S | 200V | 400V | 400V | ±1% | 10Ω ~ 1MΩ | ± 50PPM/°C | ±0.25% | 51.1Ω ~ 200KΩ | ±15PPM/°C |
| | ±2% | | | | 10Ω ~ 1MΩ | ±100PPM/°C | ±25PPM/°C | | | |
| MFF04 | MF 40-SS | | | | ±5% | 1Ω ~ 1MΩ | ±200PPM/°C | ±0.5% | 51.1Ω ~ 511KΩ | ±50PPM/°C |
| MF0W4 MF006 | MF 25 MF 60-S | 250V | 500V | 500V | ±1% | 10Ω ~ 1MΩ | ± 50PPM/°C | ±0.1% | 100Ω ~ 100KΩ | ±15PPM/°C |
| | ±2% | | | | 10Ω ~ 1MΩ | ±100PPM/°C | ±25PPM/°C | | | |
| MFFU2 | MF 50-SS | | | | ±5% | 1Ω ~ 1MΩ | ±200PPM/°C | ±0.5% | 10Ω ~ 1MΩ | ±50PPM/°C |
| MF0W2 MF0S2 MF0M7 MF01S | MF 50 MF 50-S MF 75-S MF 100-S | 350V | 700V | 700V | ±1% | 10Ω ~ 1MΩ | ±50PPM/°C | ±0.1% | 100Ω ~ 330KΩ | ±15PPM/°C |
| | ±2% | | | | 10Ω ~ 1MΩ | ±100PPM/°C | ±25PPM/°C | | | |
| | ±5% | | | | 1Ω ~ 1MΩ | ±200PPM/°C | ±0.5% | 10Ω ~ 1MΩ | ±50PPM/°C | |
| MF02S MF03S MF01W MF02W MF03W | MF 200-S MF 300-S MF 100 MF 200 MF 300 | 500V | 1,000V | 1,000V | ±1% | 51.1Ω ~ 1MΩ | ±50PPM/°C | ±0.1% | 100Ω ~ 330KΩ | ±15PPM/°C |
| | ±2% | | | | 51.1Ω ~ 1MΩ | ±100PPM/°C | ±25PPM/°C | | | |
| | ±5% | | | | 10Ω ~ 1MΩ | ±200PPM/°C | ±0.5% | 51.1Ω ~ 1MΩ | ±50PPM/°C | |

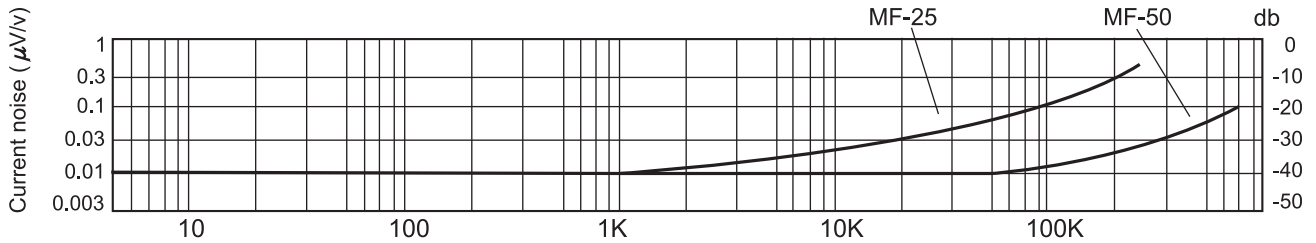
Derating Curve



Load Life



Current Noise Level



* Only for your reference