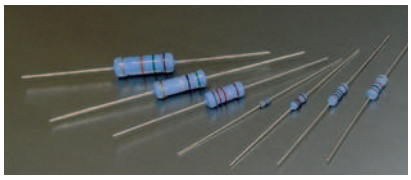
UniOhm

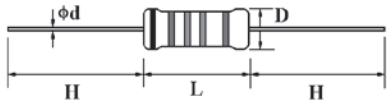
Precision Metal Film Fixed Resistors

RoHS Compliant

Feature

- EIA standard color coding
- Flame retardant type available
- Low noise & voltage coefficient
- Low temperature coefficient range
- Multiple epoxy coating on vacuum-deposited metal film provides superior moisture protection
- Nichrome resistor element provides stable performance in various environments

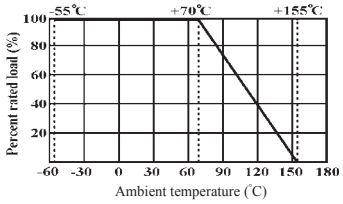




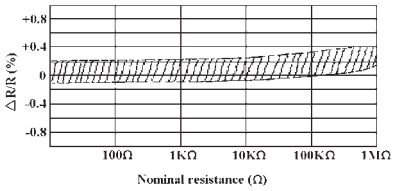
Part No.	Type	Power Rating At 70°C	Dimension (mm)			
			D Max.	L Max.	d +0.02 -0.05	H ± 3
Normal Size						
MFR0W8	MF-12	1/8W	1.85	3.5	0.5	28
MFR0W4	MF-25	1/4W	2.5	6.8	0.6	28
MFR0W2	MF-50	1/2W	3.5	10	0.6	28
MFR01W	MF-100	1W	5	12	0.7	28
MFR02W	MF-200	2W	5.5	16	0.8	28
MFR03W	MF-300	3W	6.5	17.5	0.8	28
Small Size & Extra Small Size						
MFR0S4	MF-25-S	1/4W	2	3.5	0.5	28
MFR004	MF-40-SS	0.4W	2	3.7	0.5	28
MFR0U2	MF-50-SS	1/2W	3	6.8	0.6	28
MFR0S2	MF-50-S	1/2W	3	9	0.6	28
MFR006	MF-60-S	0.6W	3	6.8	0.6	28

Standard Non-Flammable coating for Small size types (except MF-50-S).

Derating Curve



Load Life

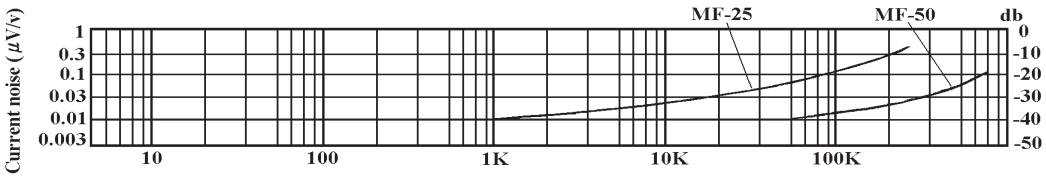


Part No.	Type	Dielectric With-standing V.	Max. Working V.	Max. Overload V.	Standard Order			Special Order		
					Tol.	T.C.R	Value Range	Tol.	T.C.R.	Value Range
MFR0W8	MF-12	400V	200V	400V	±1%	± 50	10Ω-1MΩ	± 0.25%	± 15	51.1Ω ~ 200KΩ
MFR0S4	MF-25-S	200V	200V	400V	±2%	± 100	10Ω-1MΩ	± 0.5%	± 25	51.1Ω ~ 511KΩ
MFR004	MF-40-SS				±5%	± 200	1Ω-1MΩ	± 0.5%	± 50	51.1Ω ~ 511KΩ
MFR0W4	MF-25	500V	250V	500V	±1%	± 50	10Ω-1MΩ	± 0.1%	± 15	10Ω ~ 1MΩ
MFR0U2	MF-50-SS	250V	250V	500V	±2%	± 100	1Ω-1MΩ	± 0.25%	± 25	10Ω ~ 1MΩ
MFR006	MF-60-S				±5%	± 200	1Ω-1MΩ	± 0.5%	± 50	10Ω ~ 1MΩ
MFR0S2	MF-50-S	700V	350V	700V	±1%	± 50	10Ω-1MΩ	± 0.1%	± 15	100Ω ~ 330KΩ
MFR0W2	MF-50				±2%	± 100	10Ω-1MΩ	± 0.25%	± 25	51.1Ω ~ 511KΩ
					±5%	± 200	1Ω-1MΩ	± 0.5%	± 50	10Ω ~ 1MΩ
MFR01W	MF-100	1000V	500V	1000V	±1%	± 50	51.1Ω-1MΩ	± 0.1%	± 15	100Ω~ 330KΩ
MFR02W	MF-200				±2%	± 100	51.1Ω-1MΩ	± 0.25%	± 25	51.1Ω ~ 511KΩ
MFR03W	MF-300				±5%	± 200	1Ω-1MΩ	± 0.5%	± 50	51.1Ω ~ 1MΩ

Performance Specifications

Temperature coefficient	Within the maximum temperature coefficient specified in page 16.
Short-time overload	$\Delta R/R \leq \pm(0.5\%+0.05\Omega)$, with no evidence of mechanical damage.
Dielectric withstanding voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown.
Pulse overload	$\Delta R/R \leq \pm(1\%+0.05\Omega)$, with no evidence of mechanical damage.
Terminal strength	No evidence of mechanical damage.
Resistance to Soldering heat	$\Delta R/R \leq \pm(1\%+0.05\Omega)$, with no evidence of mechanical damage.
Solderability	Min. 95% coverage.
Resistance to solvent	No deterioration of protective coating and markings.
Temperature cycling	$\Delta R/R \leq \pm(1\%+0.05\Omega)$, with no evidence of mechanical damage.
Load life in humidity	Normal type: $\Delta R/R \leq \pm 1.5\%$; Flame retardant type: $\Delta R/R \leq \pm 5\%$.
Load life	Normal type: $\Delta R/R \leq \pm 1.5\%$; Flame retardant type: $\Delta R/R \leq \pm 5\%$.

Current Noise Level:



Ordering Procedure (Example: MFR 1/8W 1% 50PPM 47.5KΩ T/R-5000)

M F R 0 W 8 F 4 7 5 2 T 5 0

Product Type:
MFR = Metal Film Fixed Resistors

Special Features:
0 = Standard product
F = Flame Retardant
I = Non - Inductive

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

Tolerance:
B=±0.1% 15PPM, C=±0.25% 25PPM,
D=±0.5% 50PPM, F=±1% 50PPM,
G=±2% 100PPM, J=±5% 200PPM
For special tolerance – PPM requirement. Please indicate it in the purchase order (P.O.)
Example : ±1% 15PPM

Resistance Value:
E-24 series (2% & 5% Tol.):
The 1st digit will be "0"; the 2nd & 3rd digits are for the significant figures of the resistance and the 4th digit indicate the numbers of zeros following
E-96 series (1% Tol.) :
The 1st digit to 3rd digit are for the significant figures of the resistance and the 4th digit denotes number of zero following

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

Packing Quantity:
1 = 1,000pcs
2 = 2,000pcs
3 = 3,000pcs
4 = 4,000pcs
5 = 5,000pcs
A = 500pcs
B = 2,500pcs,
0 = for Bulk/Box packing

Additional Information:
0 = NIL

Four Band Color Code (Available for CFR, MOR, KNP & 2% or 5% of MFR Products)

1 2 3 4

4th Band	
Red	= ±2%
Gold	= ±5%
Silver	= ±10%

1st Band		2nd Band		3rd Band	
Black	= 0	Black	= 0	Black	= Multiply by 1 (10^0)
Brown	= 1	Brown	= 1	Brown	= Multiply by 10 (10^1)
Red	= 2	Red	= 2	Red	= Multiply by 100 (10^2)
Orange	= 3	Orange	= 3	Orange	= Multiply by 1,000 (10^3)
Yellow	= 4	Yellow	= 4	Yellow	= Multiply by 10,000 (10^4)
Green	= 5	Green	= 5	Green	= Multiply by 100,000 (10^5)
Blue	= 6	Blue	= 6	Blue	= Multiply by 1,000,000 (10^6)
Violet	= 7	Violet	= 7	Violet	= Multiply by 10,000,000 (10^7)
Grey	= 8	Grey	= 8	Gold	= Multiply by 0.1 (10^{-1})
White	= 9	White	= 9	Silver	= Multiply by 0.01 (10^{-2})

Five Band Color Code (Available for MFR 1% & FRN Products)

1 2 3 4 5

5th Band	
Violet	= ±0.1%
Blue	= ±0.25%
Green	= ±0.5%
Brown	= ±1%

1st Band		2nd Band		3rd Band		4th Band	
Black	= 0	Black	= 0	Black	= 0	Black	= Multiply by 1 (100)
Brown	= 1	Brown	= 1	Brown	= 1	Brown	= Multiply by 10 (101)
Red	= 2	Red	= 2	Red	= 2	Red	= Multiply by 100 (102)
Orange	= 3	Orange	= 3	Orange	= 3	Orange	= Multiply by 1,000 (103)
Yellow	= 4	Yellow	= 4	Yellow	= 4	Yellow	= Multiply by 10,000 (104)
Green	= 5	Green	= 5	Green	= 5	Green	= Multiply by 100,000 (105)
Blue	= 6	Blue	= 6	Blue	= 6	Blue	= Multiply by 1,000,000 (106)
Violet	= 7	Violet	= 7	Violet	= 7	Violet	= Multiply by 10,000,000 (107)
Grey	= 8	Grey	= 8	Grey	= 8	Gold	= Multiply by 0.1 (10-1)
White	= 9	White	= 9	White	= 9	Silver	= Multiply by 0.01 (10-2)