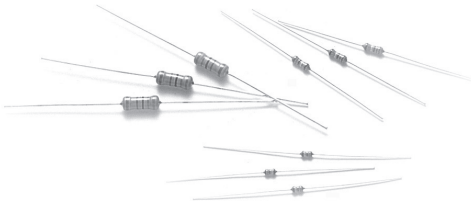


Metal Film Resistors

General Type

Normal & Miniature Style [MFR Series]



INTRODUCTION

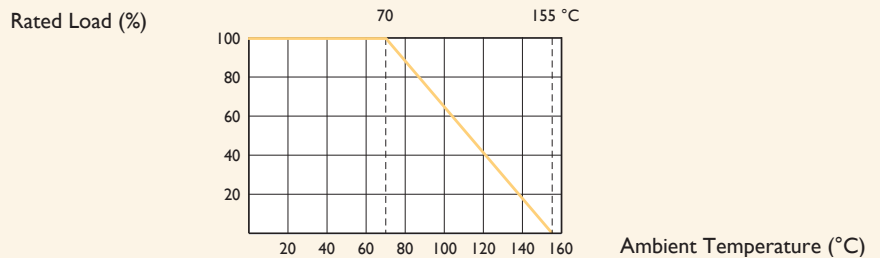
The MFR Series Metal Film Resistors are manufactured using a vacuum sputtering system to deposit multiple layers of mixed metal alloys and passivative materials onto a carefully treated high grade ceramic substrate. After a helical groove has been cut in the resistive layer, tinned connecting leads of electrolytic copper are welded to the end-caps. The resistors are coated with layers of blue color lacquer.

FEATURES

Power Rating	1/6W, 1/4W, 1/2W, 1W, 2W, 3W
Resistance Tolerance	±0.5%, ±1%, ±2%, ±5%
T.C.R.	±50ppm/°C, ±100ppm/°C

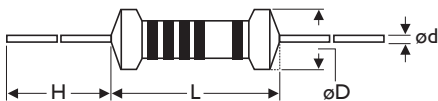
DERATING CURVE

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



DIMENSIONS

Unit: mm



STYLE		DIMENSION			
Normal	Miniature	L	øD	H	ød
MFR-12	MFR25S	3.4±0.3	1.9±0.2	28±2.0	0.45±0.05
MFR-25	MFR50S	6.3±0.5	2.4±0.2	28±2.0	0.55±0.05
MFR-50	MFR1WS	9.0±0.5	3.3±0.3	26±2.0	0.55±0.05
MFR100	MFR2WS	11.5±1.0	4.5±0.5	35±2.0	0.8±0.05
MFR200	MFR3WS	15.5±1.0	5.0±0.5	33±2.0	0.8±0.05

Note:

ELECTRICAL CHARACTERISTICS

STYLE	MFR-12	MFR25S	MFR-25	MFR50S	MFR-50	MFR1WS	MFR100	MFR2WS	MFR200	MFR3WS
Power Rating at 70°C	1/6W	1/4W		1/2W		1W		2W		3W
Maximum Working Voltage	200V		250V	300V	350V	400V	500V			
Maximum Overload Voltage	400V		500V	600V	700V	800V	1,000V			
Voltage Proof on Insulation	300V	400V	500V			700V	1,000V			
Resistance Range	1Ω - 4M7Ω & for E24 & E96 series value									
Operating Temp. Range	-55°C to +155°C									
Temperature Coefficient	±50ppm/°C, ±100ppm/°C									

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	IEC 60115-1 4.13	2.5 times RCWV for 5 sec. (Not more than maximum Overload Voltage)	±0.25%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec., test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -55°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>10,000MΩ
Solderability	IEC 60115-1 4.17	245±5°C for 3±0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5±0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16	Direct load for 10 Sec. in the direction of the terminal leads	≥2.5kg (24.5N)
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	±1.0%+0.05Ω
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	±1.5%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV (or Umax., Whichever less) for 1,000 Hr. (1.5Hr.on, 0.5Hr. Off)	±1.5%+0.05Ω
Temperature Cycling	IEC 60115-1 4.19	-55°C ⇌ Room Temp. ⇌ +155°C ⇌ Room Temp. (5 cycles)	±0.75%+0.05Ω
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±0.25%+0.05Ω

Note: RCWV(Rated Continuous Working Voltage) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Max. working voltage listed above, whichever less.

Revision: 2020

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Yageo:

[MFR-25FTE52-4K7](#) [MFR-25FBF52-698K](#) [MFR-25FBF52-90K9](#) [MFR-25FTE52-51R](#) [MFR-25FBF52-23R](#) [MFR-25FBF52-23R2](#) [MFR-25FBF52-23R5](#) [MFR-25FBF52-23R7](#) [MFR-25FBF52-240K](#) [MFR-25FBF52-240R](#) [MFR-25FBF52-243K](#) [MFR-25FBF52-243R](#) [MFR-25FBF52-249K](#) [MFR-25FBF52-249R](#) [MFR-25FBF52-24K](#) [MFR-25FBF52-24K3](#) [MFR-25FBF52-24K9](#) [MFR-25FBF52-24R](#) [MFR-25FBF52-24R3](#) [MFR-25FBF52-24R5](#) [MFR-25FBF52-24R9](#) [MFR-25FBF52-255K](#) [MFR-25FBF52-255R](#) [MFR-25FBF52-25K5](#) [MFR-25FBF52-25R](#) [MFR-25FBF52-25R5](#) [MFR-25FBF52-261K](#) [MFR-25FBF52-261R](#) [MFR-25FBF52-267K](#) [MFR-25FBF52-267R](#) [MFR-25FBF52-26K1](#) [MFR-25FBF52-26K7](#) [MFR-25FBF52-26R](#) [MFR-25FBF52-26R1](#) [MFR-25FBF52-26R5](#) [MFR-25FBF52-26R7](#) [MFR-25FBF52-270K](#) [MFR-25FBF52-270R](#) [MFR-25FBF52-271R](#) [MFR-25FBF52-274K](#) [MFR-25FBF52-274R](#) [MFR-25FBF52-27K](#) [MFR-25FBF52-27K1](#) [MFR-25FBF52-27K4](#) [MFR-25FBF52-27R](#) [MFR-25FBF52-27R4](#) [MFR-25FBF52-27R5](#) [MFR-25FBF52-280K](#) [MFR-25FBF52-280R](#) [MFR-25FBF52-287K](#) [MFR-25FBF52-287R](#) [MFR-25FBF52-28K](#) [MFR-25FBF52-28K7](#) [MFR-25FBF52-28R](#) [MFR-25FBF52-28R5](#) [MFR-25FBF52-28R7](#) [MFR-25FBF52-294K](#) [MFR-25FBF52-294R](#) [MFR-25FBF52-29K1](#) [MFR-25FBF52-29K4](#) [MFR-25FBF52-29R](#) [MFR-25FBF52-29R4](#) [MFR-25FBF52-29R5](#) [MFR-25FBF52-2K](#) [MFR-25FBF52-2K05](#) [MFR-25FBF52-2K1](#) [MFR-25FBF52-2K15](#) [MFR-25FBF52-2K2](#) [MFR-25FBF52-2K21](#) [MFR-25FBF52-2K26](#) [MFR-25FBF52-2K32](#) [MFR-25FBF52-2K37](#) [MFR-25FBF52-2K4](#) [MFR-25FBF52-2K43](#) [MFR-25FBF52-2K49](#) [MFR-25FBF52-2K55](#) [MFR-25FBF52-2K61](#) [MFR-25FBF52-2K67](#) [MFR-25FBF52-2K7](#) [MFR-25FBF52-2K74](#) [MFR-25FBF52-2K8](#) [MFR-25FBF52-2K87](#) [MFR-25FBF52-2K94](#) [MFR-25FBF52-2M](#) [MFR-25FBF52-2M2](#) [MFR-25FBF52-2M26](#) [MFR-25FBF52-2M32](#) [MFR-25FBF52-2M43](#) [MFR-25FBF52-2M49](#) [MFR-25FBF52-2M55](#) [MFR-25FBF52-2M7](#) [MFR-25FBF52-2M74](#) [MFR-25FBF52-2M8](#) [MFR-25FBF52-2M87](#) [MFR-25FBF52-2R](#) [MFR-25FBF52-2R1](#) [MFR-25FBF52-2R5](#) [MFR-25FBF52-300K](#) [MFR-25FBF52-300R](#) [MFR-25FBF52-301K](#)