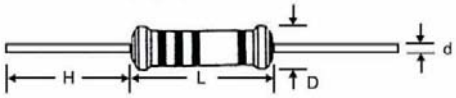
METAL FILM FIXED RESISTORS

(MF SERIES)

MF series are a group of metal film-fixed resistors applying high Aluminum content base material vacuum sputtered by Ni-Cr alloy and excellent heat-and wet-proof special resin for protective coating.
Those resistors are manufactured through integrated automatic production system and then have good stable and uniform property.Furthermore, they show excellent performance regardless open in air.

DIMENSIONS



General Specification

MIL Style	Style	Power Rating (W)		Dimensions				Max Working Voltage		Max Overload Voltage	
		70˚C	125˚C	L	D	d	H (MIN)	70˚C	125˚C	70˚C	125˚C
RN-50	MF-12	0.125W	0.05W	3.7±0.4	1.7±0.2	0.45±0.05	25	200	150	400	300
RN-50	MF-16	0.16W	0.05W	3.7±0.4	1.7±0.2	0.45±0.05	25	200	150	400	300
RN-55	MF-25	0.25W	0.1W	6.5±0.5	2.3±0.2	0.50±0.05	25	250	200	500	400
RN-60	MF-50	0.5W	0.125W	9.0±1	3.5±0.5	0.55±0.05	25	350	250	700	500
RN-65	MF-100	1W	0.25W	12±1.0	4.5±0.5	0.73±0.05	25	500	350	1000	600
RN-70	MF-200	2W	0.5W	16±1.0	5.5±0.5	0.75±0.05	25	500	350	1000	700

RESISTANCE RANGE

STYLE	MIL STYLE	TOLERANCE	TC ± 25PPM/˚C	TC ± 100PPM/˚C TC ± 50PPM/˚C	TC ±200PPM/˚C
MF-12 MF-16	RN-50	±1% ±0.5% ±0.25% ±0.1%	100Ω-100KΩ 100Ω-100KΩ 100Ω-100KΩ 100Ω-100KΩ	51.1Ω-511KΩ 51.1Ω-511KΩ 51.1Ω-511KΩ	5.11Ω-5.11M
MF-25	RN-55	±1% ±0.5% ±0.25% ±0.1%	51.1Ω-511KΩ 51.1Ω-511KΩ 100Ω-330KΩ 100Ω-100KΩ	10Ω - 1M	5.11Ω-5.11M
MF-50	RN-60	±1% ±0.5% ±0.25% ±0.1%	51.1Ω-1MΩ 51.1Ω-1MΩ 100Ω-511KΩ 100Ω-330KΩ	10Ω - 1M	5.11Ω-5.11M
MF-100	RN-65	±1% ±0.5% ±0.25% ±0.1%	51.1Ω-1MΩ 51.1Ω-1MΩ 100Ω-511MΩ 100Ω-330KΩ	10Ω - 1M	5.11Ω-5.11M
MF-200	RN-70	±1% ±0.5% ±0.25% ±0.1%	51.1Ω-1MΩ 51.1Ω-1MΩ 100Ω-511MΩ 100Ω-330KΩ	10Ω - 1M	5.11Ω-5.11M

*chmic values beyond above range are available upon request

RoHS compliant

FLAME PROOF TYPE

(FPS & FPM SERIES)

FPM and FPS series are nonflameable high performance metal film fixed resistors. By applying selected flame-overload burning-resisting resin on our regular metal film fixed resistors, those resistors improve the safeness of various kinds of electronic devices and instruments and having excellent electrical performance.

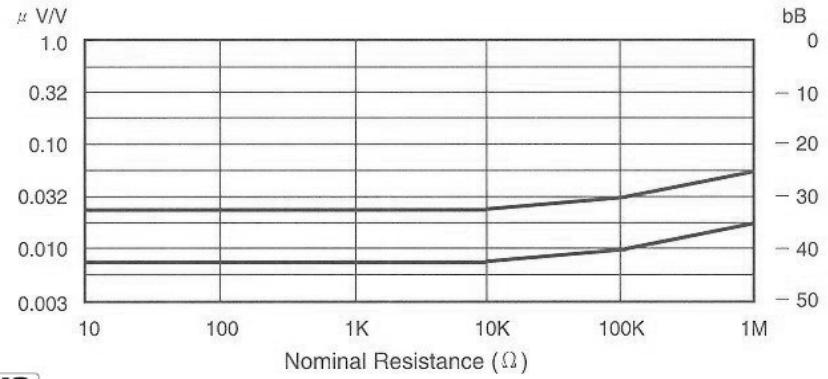
General Specification

Style		Dimensions				Max Working Voltage	Max Overload Voltage
FPS	FPM	L	D	d	H (MIN)		
—	0.125W FPM-16	3.7±0.4	1.7±0.2	0.45±0.05	25	200	400
0.5W FPS-50	0.25W FPM-25	6.5±0.5	2.3±0.2	0.50±0.05	25	250	500
1.0W FPS-100	0.5W FPM-50	9±1	3.5±0.5	0.55±0.05	25	350	700
2.0W FPS-200	1.0W FPM-100	12.0±1	4.5±0.5	0.73±0.05	25	350	700
3.0W FPS-300	2.0W FPM-200	16.0±1	5.0±0.5	0.75±0.05	25	350	700

Characteristics

Requirements	Characteristics	Test Method
Non-Combustibility	Flame Resistance Not burns continuously for more than 5 seconds. Overload burning Resistance Not fume under the overload of less than 5 time of rated power. The volume of fumes emitted under the overload of more than 5 time of rated power is less than of stilled fumes emitted by one cigarette. During the test the height of fumes does not over 3mm and the burning does not cintinue for more than 3 seconds.	MIL-STD-02 Method 111 JIS C 5202 7.12 EIAJ-RC 2658 5.1

Current Noise



RoHS compliant

Characteristics	Specification	Test Method
		(All resistance measurememts should be perfomed after stabilization or conditioning periods)
Dc Resistance	Within specified tolerance	MIL-STD-202 Method 303
Temperature Coefficient	As buyer requested ± 25PPM˚C ± 100PPM˚C ± 50PPM˚C ± 200PPM˚C	MIL-STD-202 Method 304
Dielectric Strength	No flashover or damage	MIL-STD-202 Method 301 1/8W,1/6W 300V 1 minute 1/4W 500V 1 minute 1/2W 700V 1 minute 1,2W 750V 1 minute
Insulation Resistance	At least 1,000MΩ	MIL-STD-202 Method 302 100V 1 minute
Current Noise Test	below 10KVbelow 0.05 μ V/V 10KΩ~below 0.1 μ V/V below 1M 7 below 0.2 μ V/V	MIL-STD-202 Method 308
Terminal Strength	lead is not break or loose	MIL-STD-202 Method211
Resistance to Soldering Heat	△R within ±(0.25%+0.05Ω)	MIL-STD-202 Method210 350˚C, 3 ± 0.05 sec.
Solderability	At least 95% coverage	MIL-STD-202 Method218 260˚C, 5 sec.
Termal Shock	△R within ±(0.5%+0.05Ω)	MIL-STD-202 Method107 - 55˚C, 3 + 155˚C 5 cycles
Short Time Overload	△R within ±(0.5%+0.05Ω)	MIL-R-10509 Para 4,6,6 2.5 times rated working voltage,5 seconds
Humidity	△R within ±(1%+0.05Ω) No mechanical damage	MIL-STD-202 Method103 40˚C, RH95% 1000 hours
Low Temperature Operation	△R within ±(0.5%+0.05Ω)	MIL-R-10509 Para 4,6,5 rated working voltage,at-65˚C 45 minutes.

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Load Life	△R within ±(1%+0.05Ω)	MIL-STD-202 Method108 Rated working voltage 1 1/2hours on. 1/2 hours off for total 1000 hours
Resistance to Solvent	Color bands legible No mechanical damage	MIL-STD-202 Method215

Parts Number system

MF — 25 1002 J T E

	Wattages	Resistance	Tolerance	Packing Code	T.C.R
MF-Metal film resistor FPM-Metal film resistor with flameproof coating FPS - Metal film resistor small size with flameproof coating		4-digit codes for ≤ 1% 1002 = 10K ohm 3-digit codes for 2% and 5 % 103= 10K ohm	J=5% F=1% D=0.5% B=0.1%	T=AMMO tape/ box R=Tape reel B=Bulk pack	K= 100 ppm C= 50 ppm E= 25 ppm T= 10 ppm NO TCR marked on P/N for 5% tolerance

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