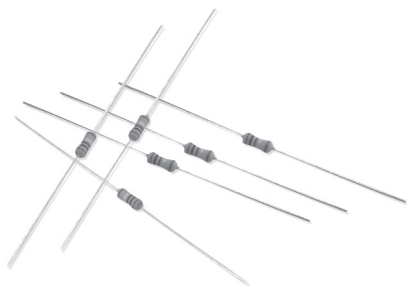


Metal Film Resistors

Flame-Proof Type

High Power Style [FMP Series]



INTRODUCTION

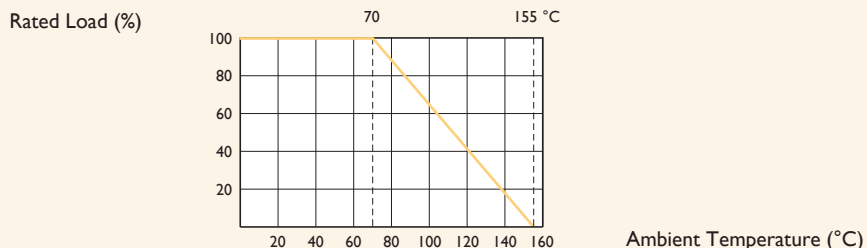
The FMP Series Metal Film Power Flame Proof Resistors are manufactured using vacuum sputtering system to deposit multiple layers of mixed metals alloy and passive materials onto a carefully treated high grade ceramic substrate. After a helical groove has been cut in the resistive layer; tinned connecting leads of electrolytic copper are welded to the end-caps. The resistors are coated with layers of pink color lacquer.

FEATURES

Power Rating	1/2W, 1W, 2W, 3W, 4W
Resistance Tolerance	$\pm 1\%$, $\pm 5\%$
T.C.R.	$\pm 100\text{ppm}/^\circ\text{C}$
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

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	L	ϕD	H	ϕd
FMP-50	3.4 ± 0.3	1.9 ± 0.2	28 ± 2.0	0.45 ± 0.05
FMP100	6.3 ± 0.5	2.4 ± 0.2	28 ± 2.0	0.55 ± 0.05
FMP200	9.0 ± 0.5	3.9 ± 0.3	26 ± 2.0	0.55 ± 0.05
FMP3WS	11.5 ± 1.0	4.5 ± 0.5	35 ± 2.0	0.8 ± 0.05
FMP300	15.5 ± 1.0	5.0 ± 0.5	33 ± 2.0	0.8 ± 0.05
FMP4WV	17.0 ± 1.0	7.5 ± 0.5	32 ± 2.0	0.8 ± 0.05

Note:

ELECTRICAL CHARACTERISTICS

STYLE	FMP-50	FMP100	FMP200	FMP3WS	FMP300	FMP4WV
Power Rating at 70°C	1/2W	1W	2W	3W		
Maximum Working Voltage	200V	350V	500V		750V	
Maximum Overload Voltage	400V	600V	700V		1,000V	
Dielectric Withstanding Voltage	300V	500V			750V	
Resistance Range	1 Ω - 10M Ω & 0 Ω for E24 & E96 series value					
Operating Temp. Range	-55°C to +155°C					
Temperature Coefficient	± 100 ppm/°C					

Note: Special value is available on request.

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	JIS-C-5202 5.5	2.5 times RCWV for 5 Sec.	$\pm 0.5\% + 0.05 \Omega$
Dielectric Withstanding Voltage	JIS-C-5202 5.7	in V-Block for 60 Sec.	By type
Temperature Coefficient	JIS-C-5202 5.2	-55°C to +155°C	By type
Insulation Resistance	JIS-C-5202 5.6	in V-Block	$> 1,000M \Omega$
Solderability	JIS-C-5202 6.5	260 ± 5 °C for 5 ± 0.5 Sec.	95% Min. coverage
Resistance to Solvent	JIS-C-5202 6.9	IPA for 1 Min. with ultrasonic	No deterioration of coatings and markings
Terminal Strength	JIS-C-5202 6.1	Direct load for 10 Sec. in the direction of the terminal leads	≥ 2.5 kg (24.5N)
Pulse Overload	JIS-C-5202 5.8	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	$\pm 1.0\% + 0.05 \Omega$
Load Life in Humidity	JIS-C-5202 7.9	40 ± 2 °C, 90-95% RH at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	$\pm 2.0\% + 0.05 \Omega$
Load Life	JIS-C-5202 7.10	70°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	$\pm 2.0\% + 0.05 \Omega$
Temperature Cycling	JIS-C-5202 7.4	-55°C $\Rightarrow$ Room Temp. $\Rightarrow$ +155°C $\Rightarrow$ Room Temp. (5 cycles)	$\pm 1.0\% + 0.05 \Omega$
Resistance to Soldering Heat	JIS-C-5202 6.4	350 ± 10 °C for 3 ± 0.5 Sec.	$\pm 0.25\% + 0.05 \Omega$
Overload Flame Retardant	JIS-C-5202 7.12	4 times RCWV for 1 Min.	No evidence of flaming or arcing

Note: Rated Continuous Working Voltage (RCWV) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$