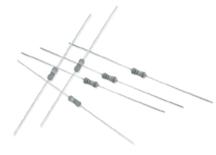
Metal Film Resistors



INTRODUCTION

The FMP Series Metal Film High Power 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 pink color lacquer:

High Power & Flame-Proof Type

Ultra Miniature Style [FMP Series]

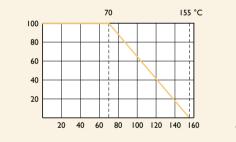
FEATURES

Power Rating	1/2W, 1W, 2W, 3W,4W
Resistance Tolerance	±1%, ±5%
T.C.R.	±100ppm/°C
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

DERATING CURVE

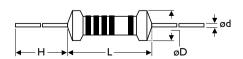
Rated Load (%)

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



Ambient Temperature (°C)

DIMENSIONS



STYLE	DIMENSION					
Ultra Miniature	L	øD	Н	ød		
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		
FMP4VVV	17.0±1.0	7.5±0.5	32±2.0	0.8±0.05		

Unit: mm

Note:			
Note.			

ELECTRICAL CHARACTERISTICS

STYLE	FMP-50	FMP100	FMP200	FMP3WS	FMP300	FMP4WV
Power Rating at 70°C	1/2W	IW	2W	3W		4W
Maximum Working Voltage	200V	350V	500V		750V	
Maximum Overload Voltage	400V	600V	700V		1,000V	
Voltage Proof on Insulation	300V	500V				
Resistance Range	IΩ - 10MΩ & 0Ω for E24 & E96 series value					
Operating Temp. Range	-55°C to +155°C					
Temperature Coefficient	±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.	±0.5%+0.05Ω	
Voltage Proof on Insulation	IEC 60115-1 4.7	in V-block for 60 Sec., test voltage by type	By type	
Temperature Coefficient	IEC 60115-14.8	-55°C to +155°C	By type	
Insulation Resistance	IEC 60115-14.6	in V-block for 60 Sec.	>1,000ΜΩ	
Solderability	IEC 60115-1 4.17	235±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	±2.0%+0.05Ω	
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	±2.0%+0.05Ω	
Temperature Cycling	IEC 60115-1 4.19	-55°C ⇔ Room Temp. ⇔ +155°C ⇔ Room Temp. (5 cycles)	±1.0%+0.05Ω	
Resistance to Soldering Heat	IEC 60115-1 4.18	260 \pm 3°C for 10 \pm 1 Sec., immersed to a point 3 \pm 0.5mm from the body	±0.25%+0.05Ω	
Accidental Overload Test	IEC 60115-1 4.26	4 times RCWV for 1 Min.	No evidence of flaming or arcing	

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

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