

## Metal Film Resistors

# High Precision Type

## Normal Style [ MHP Series ]



### INTRODUCTION

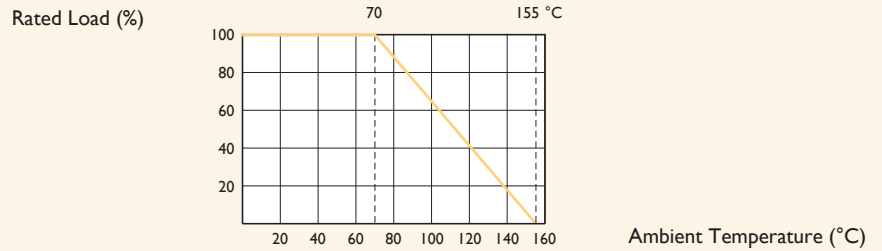
The MHP Series Metal Film High Precision Resistors are manufactured using vacuum sputtering system to deposit multiple layers of mixed metals alloy and passive materials onto a carefully treated high grade ceramic substrate. After a helical groove has been cut in the resistive layer; tinned connecting leads of electrolytic copper are welded to the end-caps. The resistors are coated with layers of blue color lacquer. Ultra high precision resistors, ultra high stability, ultra low temperature coefficient.

### FEATURES

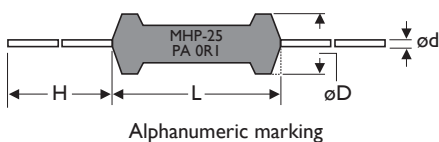
Power Rating	1/4W, 1/2W
Resistance Tolerance	±0.02%, ±0.05%
T.C.R.	±5ppm/°C, ±10ppm/°C

### 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

STYEL	DIMENSION			
	L	øD	H	ød
Normal				
MHP-25	6.2±0.3	1.8±0.3	36±2.0	0.63±0.05
MHP-50	9.1±0.3	2.1±0.3	36±3.0	0.63±0.05

Note:

## ELECTRICAL CHARACTERISTICS

STYLE	MHP-25	MHP-50
Power Rating at 70°C	1/4W	1/2W
Maximum Working Voltage	200V	250V
Maximum Overload Voltage	400V	500V
Dielectric Withstanding Voltage	300V	500V
Resistance Range	100 Ω - 500K Ω for E192 series value	
Operating Temp. Range	-55°C to +150°C	
Temperature Coefficient	±5ppm/°C, ±10ppm/°C	

Note: Special value is available on request.

## ENVIRONMENTAL CHARACTERISTIC

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	JIS-C-5202 5.5	2.5 times RCWV for 5 Sec.	±0.25%+0.05 Ω
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 +150°C	By type
Insulation Resistance	JIS-C-5202 5.6	in V-Block	>10,000M Ω
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 5 Sec. In the direction of the terminal leads	≥2.5kg (24.5N)
Pulse Overload	JIS-C-5202 5.8	4 times RCWV for 10,000 cycles (1 Sec. on, 25 Sec.off)	±1.0%+0.05 Ω
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)	±0.5%+0.05 Ω
Load Life	JIS-C-5202 7.10	70°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	±0.5%+0.05 Ω
Temperature Cycling	JIS-C-5202 7.4	-55°C ⇄ Room Temp. ⇄ +155°C ⇄ Room Temp. (5 cycles)	±0.015%+0.05 Ω
Resistance to Soldering Heat	JIS-C-5202 6.4	350±10°C for 3±0.5 Sec.	±0.1%+0.05 Ω

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