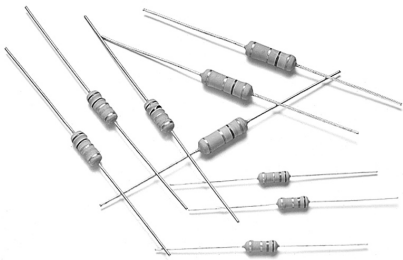


Power Wirewound Resistors

Flame-Proof Type

High Power Style [PNP Series]



INTRODUCTION

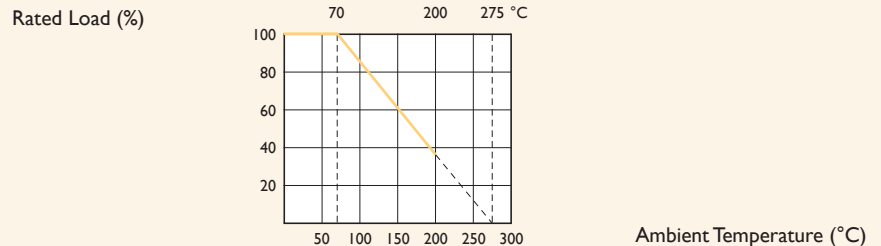
The resistor element is a resistive wire which is wound in a single layer on a ceramic rod, tinned connecting wires of electrolytic copper are welded to the end-caps. The ends of the resistance wire and the leads are connected to the caps by welding. The resistors are coated with layers of green color flame proof lacquer. High power in small packages.

FEATURES

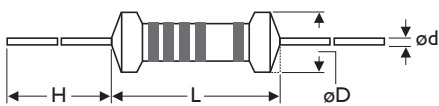
Power Rating	1W, 2W, 3W, 4W
Resistance Tolerance	±1%, ±5%
T.C.R.	±300ppm/°C
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

DERATING CURVE

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



DIMENSIONS



5th color code: violet

Unit: mm

STYLE	DIMENSION			
	L	øD	H	ød
Ultra Miniature				
PNP100	6.3±0.5	2.4±0.2	28±2.0	0.55±0.05
PNP200	9.0±0.5	3.3±0.3	26±2.0	0.55±0.05
PNP300	11.5±1.0	4.5±0.5	35±2.0	0.8±0.05
PNP400	15.5±1.0	5.0±0.5	33±2.0	0.8±0.05

Note:

ELECTRICAL CHARACTERISTICS

STYLE	PNP100	PNP200	PNP300	PNP400
Power Rating at 70°C	1W	2W	3W	4W
Dielectric Withstanding Voltage	300V			
Resistance Range	0.1 Ω - 33 Ω	0.1 Ω - 100 Ω	0.1 Ω - 150 Ω	0.1 Ω - 330 Ω
Operating Temp. Range	-40°C to +200°C			
Temperature Coefficient	±300ppm/°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.	±2.0%+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	-40°C to +200°C	By type
Insulation Resistance	JIS-C-5202 5.6	in V-Block	> 100M 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 10 Sec. in the direction of the terminal leads	≥2.5kg (24.5N)
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)	±5.0%+0.05 Ω
Load Life	JIS-C-5202 7.10	20°C at RCWV for 1,000 Hr. (1.5 Hr: on, 0.5 Hr: off)	±5.0%+0.05 Ω
Temperature Cycling	JIS-C-5202 7.4	-55°C ⇄ Room Temp.g+ 155°C ⇄ Room Temp. (5 cycles)	±1.0%+0.05 Ω
Resistance to Soldering Heat	JIS-C-5202 6.4	350±10°C for 3±0.5 Sec.	±1.0%+0.05 Ω
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) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$