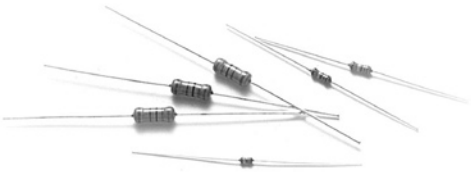
Wirewound Resistors

High Power Type

Normal Style [PNP V Series]



FEATURES

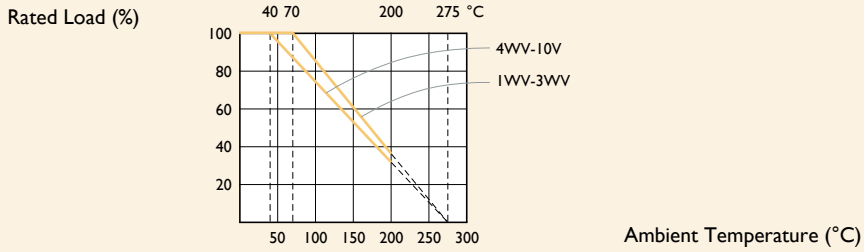
Power Rating	1W, 3W, 4W, 5W, 7W, 10W
Resistance Tolerance	±1%, ±5%
T.C.R.	±100ppm/°C, ±300ppm/°C
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

INTRODUCTION

The resistor element is a resistive wire which is wound in a single layer on a ceramic rod, with tinned connecting wires of electrolytic copper welded to the end-caps. The ends of the resistive 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 package. The 5th color band is violet to represent PNP V series.

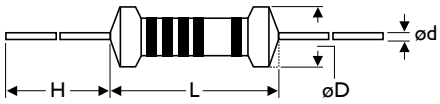
DERATING CURVE

For resistors operated in ambient temperatures above 40°C, power rating must be derated in accordance with the curve below.



DIMENSIONS

Unit: mm



5th color code: violet

STYLE	DIMENSION			
Normal	**L**	**øD**	**H**	**ød**
PNP1WV	10±1.0	4.3±0.5	26±2.0	0.8±0.05
PNP3WV	13±1.0	5.5±0.5	34±2.0	0.8±0.05
PNP4WV	17±1.0	5.5±0.5	32±2.0	0.8±0.05
PNP5WV	17±1.0	7.5±0.5	32±2.0	0.8±0.05
PNP7WV	25±1.0	7.5±0.5	38±2.0	0.8±0.05
PNP10V	44±1.0	8.0±0.5	28±2.0	0.8±0.05

Note:

ELECTRICAL CHARACTERISTICS

STYLE	PNP1WV	PNP3WV	PNP4WV	PNP5WV	PNP7WV	PNP10V
Power Rating at 40°C			4W	5W	7W	10W
Power Rating at 70°C	1W	3W				
Voltage Proof	300V					
Resistance Range (±1%)	0.1 Ω - 1K Ω	0.1 Ω - 2.8K Ω	0.1 Ω - 4.3K Ω	0.1 Ω - 8.2K Ω	0.1 Ω - 10K Ω	0.1 Ω - 17K Ω
Resistance Range (±5%)	0.03 Ω - 1K Ω	0.015 Ω - 2.8K Ω	0.02 Ω - 4.3K Ω	0.025 Ω - 8.2K Ω	0.03 Ω - 10K Ω	0.1 Ω - 17K 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	IEC 60115-1 4.13	10 times rated power for 5 Sec.	±2.0%+0.05 Ω
Voltage Proof	IEC 60115-1 4.7	in V-block for 60 Sec., test voltage by type	By type
Temperature Coefficient	IEC 60115-1 4.8	-55°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>100M Ω
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)
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	±5.0%+0.05 Ω
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)	±5.0%+0.05 Ω
Temperature Cycling	IEC 60115-1 4.19	-55°C ⇨ Room Temp. ⇨ +155°C ⇨ Room Temp. (5 cycles)	±1.0%+0.05 Ω
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05 Ω
Accidental Overload Test	IEC 60115-1 4.26	4 times RCWV for 1 Min.	No evidence of flaming or arcing

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

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