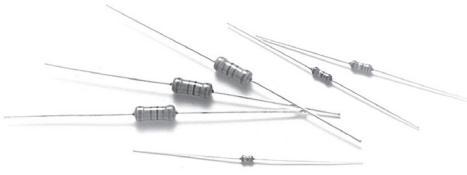


Wirewound Resistors

High Power Type

Ultra Miniature Style [PNP Series]



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 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.	±100ppm/°C, ±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.

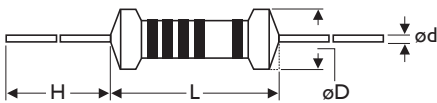
Rated Load (%)



Ambient Temperature (°C)

DIMENSIONS

Unit: mm



5th color code: violet

STYLE	DIMENSION			
	L	øD	H	ød
Ultra Miniature				
PNP100	6.3±0.5	2.5±0.3	28±2.0	0.55±0.05
PNP200	9.0±0.5	3.5±0.3	26±2.0	0.55±0.05
PNP300	11.5±1.0	4.6±0.5	35±2.0	0.8±0.05
PNP400	15.5±1.0	5.2±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
Maximum working voltage	$\sqrt{P \times R}$			
Voltage Proof on Insulation	300V			
Resistance Range (±1%)	0.22Ω - 130Ω	0.1Ω - 820Ω	0.1Ω - 2.2KΩ	0.1Ω - 2.8KΩ
Resistance Range (±5%)	0.1Ω - 130Ω	0.1Ω - 820Ω	0.1Ω - 2.2KΩ	0.1Ω - 2.8KΩ
Operating Temp. Range	-40°C to +200°C			
Temperature Coefficient	±100ppm/°C, ±300ppm/°C			

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

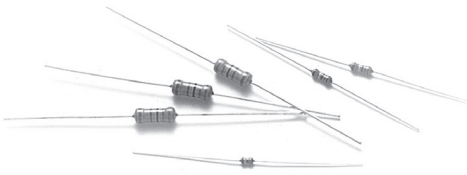
PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	IEC 60115-1 4.13	10 times rated power for 5 Sec.	±2.0%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec., test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -40°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>100MΩ
Solderability	IEC 60115-1 4.17	245±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%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV (or Umax., Whichever less) for 1,000 Hr. (1.5Hr:on, 0.5Hr: Off)	±5.0%+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±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+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) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Max. working voltage listed above, whichever less.

Wirewound Resistors

High Power Type

Normal Style [PNP V Series]



INTRODUCTION

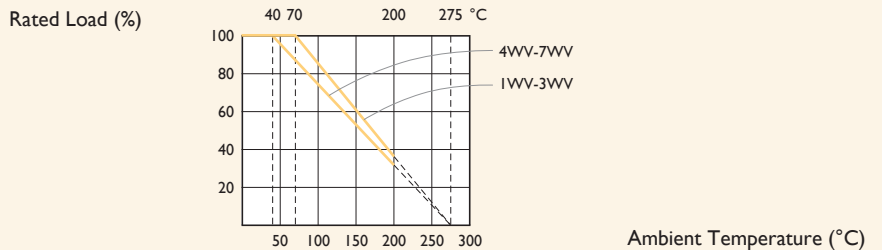
The resistor element is a resistive wire which is wound in a single layer on a ceramic rod, with tinned connecting wires of electrolytic copper welded to the end-caps. The ends of the resistive wire are connected to the caps by welding. The resistors are coated with layers of green color flame-proof lacquer. High power in small package. The 5th color band is violet to represent PNPV series.

FEATURES

Power Rating	1W, 3W, 4W, 5W, 7W
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

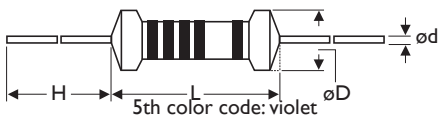
DERATING CURVE

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



DIMENSIONS

Unit: mm



STYLE	DIMENSION			
	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	17.5±1.0	6.2±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

Note:

ELECTRICAL CHARACTERISTICS

STYLE	PNPIWV	PNP3WV	PNP4WV	PNP5WV	PNP7WV
Power Rating at 40°C			4W	5W	7W
Power Rating at 70°C	1W	3W			
Maximum working voltage	$\sqrt{P \times R}$				
Voltage Proof on Insulation	300V				
Resistance Range (±1%)	0.1Ω - 1KΩ	0.1Ω - 2.8KΩ	0.1Ω - 4.3KΩ	0.1Ω - 8.2KΩ	0.1Ω - 10KΩ
Resistance Range (±5%)	0.047Ω - 1KΩ	0.047Ω - 2.8KΩ	0.047Ω - 4.3KΩ	0.047Ω - 8.2KΩ	0.1Ω - 10KΩ
Operating Temp. Range	-40°C to +200°C				
Temperature Coefficient	±100ppm/°C, ±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%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec., test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -40°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>100MΩ
Solderability	IEC 60115-1 4.17	245±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%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV (or Umax., Whichever less) for 1,000 Hr. (1.5Hr:on, 0.5Hr: Off)	±5.0%+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±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+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) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Max. working voltage listed above, whichever less.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Yageo:

[PNP300JR-73-10R](#) [PNP300JR-73-100R](#) [PNP300JR-73-4R7](#) [PNP300JR-73-2R7](#) [PNP300JR-73-27R](#) [PNP300JR-73-1R](#) [PNP300JR-73-0R56](#) [PNP300JR-73-0R1](#) [PNP300JR-73-2R2](#) [PNP5WVJT-73-5R](#) [PNP300JR-73-47R](#) [PNP300JR-73-0R47](#) [PNP300JR-73-0R33](#) [PNP300JR-73-0R12](#) [PNP300JR-73-150R](#) [PNP300JR-73-33R](#) [PNP300JR-73-75R](#) [PNP300JR-73-18R](#) [PNP300JR-73-15R](#) [PNP300JR-73-5R6](#) [PNP5WVJT-73-0R33](#) [PNP300JR-73-22R](#) [PNP300JR-73-12R](#) [PNP7WVJT-91-68R](#) [PNP300JR-73-1R8](#) [PNP300JR-73-0R39](#) [PNP300JR-73-39R](#) [PNP300JR-73-0R75](#) [PNP300JR-73-120R](#) [PNP7WVJT-91-0R15](#) [PNP300JR-73-56R](#) [PNP300JR-73-7R5](#) [PNP7WVJT-91-1R8](#) [PNP200JR-52-1R](#) [PNP200JR-52-10R](#) [PNP400JR-73-27R](#) [PNP300JR-73-1R5](#) [PNP200JR-52-27R](#) [PNP5WVJT-73-1R5](#) [PNP200JR-52-12R](#) [PNP200JR-52-75R](#) [PNP300JR-73-0R22](#) [PNP200JR-52-18R](#) [PNP300JR-73-0R18](#) [PNP300JR-73-0R27](#) [PNP200JR-52-47R](#) [PNP200JR-52-15R](#) [PNP5WVJT-73-47R](#) [PNP300JR-73-9R1](#) [PNP300JR-73-91R](#) [PNP5WVJT-73-12R](#) [PNP300JR-73-1R2](#) [PNP300JR-73-3R9](#) [PNP300JR-73-0R15](#) [PNP300JR-73-3R3](#) [PNP200JR-52-39R](#) [PNP3WVFTF73-120R](#) [PNP1WVJR-52-6R8](#) [PNP3WVJR-73-10R](#) [PNP1WVFTF52-22R](#) [PNP3WVJR-73-0R1](#) [PNP3WVJR-73-100R](#) [PNP3WVJR-73-1R](#) [PNP7WVJT-91-5R](#) [PNP3WVJR-73-220R](#) [PNP300JR-73-470R](#) [PNP5WVJT-73-2K7](#) [PNP1WVJR-52-0R15](#) [PNP1WVJR-52-0R1](#) [PNP3WVJR-73-4R7](#) [PNP100JT-52-45R](#) [PNP1WVJR-52-100R](#) [PNP1WVJT-52-0R33](#) [PNP1WVJT-52-3R3](#) [PNP7WVJT-91-2R7](#) [PNP200JR-52-4R7](#) [PNP200JR-52-22R](#) [PNP3WVJT-73-33R](#) [PNP5WVJT-73-27R](#) [PNP5WVJT-73-330R](#) [PNP1WVJT-52-1R5](#) [PNP5WVJT-73-0R82](#) [PNP5WVJT-73-110R](#) [PNP5WVJT-73-33R](#) [PNP200JR-52-3R3](#) [PNP3WVJT-73-15R](#) [PNP200JR-52-33R](#) [PNP7WVJT-91-0R22](#) [PNP7WVJT-91-6R8](#) [PNP5WVJT-73-0R27](#) [PNP5WVJT-73-0R15](#) [PNP3WVJT-73-68R](#) [PNP5WVJT-73-270R](#) [PNP5WVJT-73-0R39](#) [PNP200JR-52-6R8](#) [PNP5WVJT-73-1R8](#) [PNP5WVJT-73-0R12](#) [PNP5WVJT-73-51R](#) [PNP5WVJT-73-3R3](#) [PNP5WVJT-73-0R18](#)