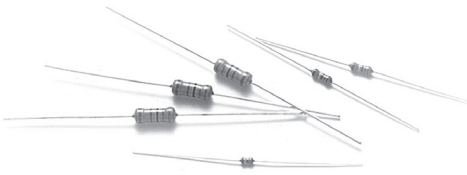


Wirewound Resistors

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.

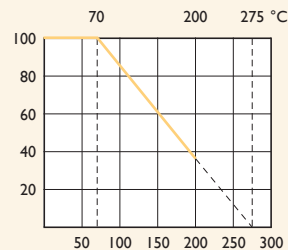
FEATURES

| | |
|----------------------------------------|------------------------|
| 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.

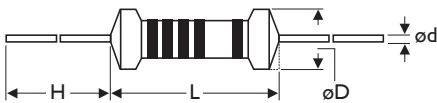
Rated Load (%)



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

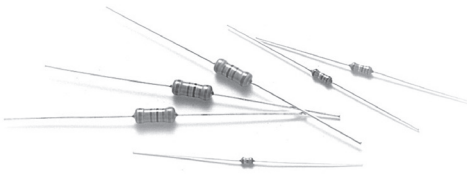
| PERFORMANCE TEST | TEST METHOD | | APPRAISE |
|-------------------------------|------------------|--------------------------------------------------------------------------------|-------------------------------------------|
| Short Time Overload | IEC 60115-1 4.13 | 10 times rated power for 5 Sec. | ±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

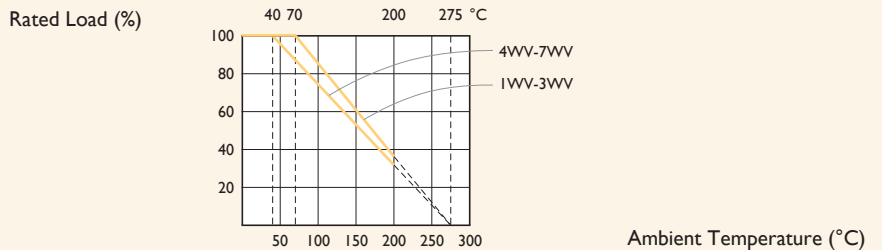
The resistor element is a resistive wire which is wound in a single layer on a ceramic rod, with tinned connecting wires of electrolytic copper welded to the end-caps. The ends of the resistive wire are connected to the caps by welding. The resistors are coated with layers of green color flame-proof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

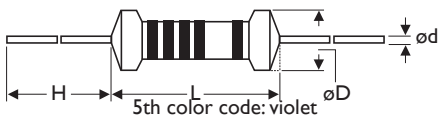
DERATING CURVE

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.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Yageo](#) manufacturer:

Other Similar products are found below :

[CC1812KKX7RDBB103](#) [PHG1-KIT](#) [PR03/15K](#) [RL1206FR-070R25L](#) [MRS25/470R/1](#) [2238-580-15641](#) [2238-580-15648](#) [2238-580-16618](#)
[2238-586-15639](#) [2238-586-15641](#) [2238-586-15646](#) [2238-586-15648](#) [2238-587-15623](#) [2238-861-15108](#) [2238-861-15121](#) [2238-861-15129](#)
[2238-861-15689](#) [2238-863-55331](#) [2238-867-15128](#) [2238-867-15181](#) [2238-867-15479](#) [2238-867-15561](#) [2238-867-15621](#) [2322-702-60229](#)
[2322-702-60271](#) [2322-702-60683](#) [2322-704-61101](#) [2322-704-61109](#) [2322-704-61209](#) [2322-704-61303](#) [2322-704-61604](#) [2322-704-62202](#)
[2322-704-62404](#) [2322-704-62702](#) [2322-704-62942](#) [2322-704-63012](#) [2322-704-64303](#) [2322-704-65492](#) [2322-704-66202](#) [2322-704-66204](#)
[2322-704-67501](#) [2322-704-68201](#) [2322-711-41301](#) [2322-711-61109](#) [2322-711-61124](#) [2322-711-61223](#) [2322-711-61229](#) [2322-711-61272](#)
[2322-711-61339](#) [2322-711-61681](#)