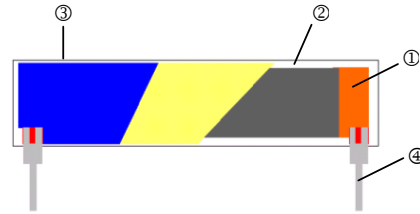


Thin Film Precision High Wattage Resistor – PHW Series

Construction



| | | | |
|---|------------------------|---|-------------------|
| ① | Inner Electrode (Ag) | ③ | Overcoat (Epoxy) |
| ② | Resistor Layer (Ni/Cr) | ④ | Terminal (Cu/ Sn) |

Features

- High power rating up to 3 Watts
- Resistance range from 5 ohm to 10K ohm.
- Low TCR down to ± 15 PPM/ $^{\circ}$ C
- Tight tolerance down to $\pm 0.1\%$

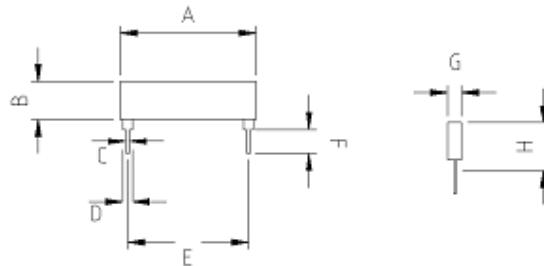
Dimensions

Unit: mm

| Type | A | B | C | D | E | F | G | H max. | Weight (g) (1000pcs) |
|----------|--------------|----------------|-----|-----|--------------|---------------|----------------|--------|----------------------|
| PHW 2500 | 28 \pm 0.2 | 6.35 \pm 0.2 | 0.5 | 1.4 | 25 \pm 0.5 | 3.3 \pm 0.7 | 0.55 \pm 0.1 | 8.5 | 0.38 |

Applications

- Medical Surge Protection
- Ideal Replacement of MELF Resistors
- Measurement Equipment



Part Numbering

| | | | | | | | |
|--------------|------------------|---|----------------|---|--------------|--|-------------------------------------|
| PHW | 2500 | F | B | D | R | 1001 | N |
| Product Type | Dimensions (AxB) | Resistance Tolerance | Packaging Code | TCR (PPM/ $^{\circ}$ C) | Power Rating | Resistance | Marking |
| | 2500: 28x6.35 | B: $\pm 0.1\%$ C: $\pm 0.25\%$ D: $\pm 0.5\%$ F: $\pm 1\%$ | B: Bulk | B: ± 15 C: ± 25 D: ± 50 | R: 3W | 0050: 5 Ω 1001: 1K Ω 1004: 1M Ω | : Standard Marking N: No Marking |

Electrical Characteristics Specifications

| Item Type | Power Rating at 70 $^{\circ}$ C | Operating Temp. Range | Max. Operating Voltage | Max. Overload Voltage | Resistance Range | | | | TCR (PPM/ $^{\circ}$ C) |
|-----------|---------------------------------|------------------------|------------------------|-----------------------|---------------------------|--------------|-------------|-----------|----------------------------------|
| | | | | | $\pm 0.1\%$ | $\pm 0.25\%$ | $\pm 0.5\%$ | $\pm 1\%$ | |
| PHW2500 | 3W | -40 ~ +85 $^{\circ}$ C | 200V | 400V | 5 Ω - 10K Ω | | | | ± 15 ± 25 ± 50 |

Operating Voltage= $\sqrt{(P^*R)}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5^*\sqrt{(P^*R)}$ or Max. overload voltage listed above, whichever is lower.

■ Environmental Characteristics

| Item | Requirement | Test Method |
|--|-----------------------|--|
| Temperature Coefficient of Resistance (T.C.R.) | As Spec. | +25/-55/+25/+125/+25°C |
| Short Time Overload | $\Delta R \pm 0.5\%$ | RCWV*2.5 or Max. overload voltage for 5 seconds |
| Insulation Resistance | >1000M Ω | Apply 100V _{DC} for 1 minute |
| Endurance | $\Delta R \pm 0.5\%$ | 70 $\pm 2^\circ\text{C}$, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" |
| Damp Heat with Load | $\Delta R \pm 0.3\%$ | 40 $\pm 2^\circ\text{C}$, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" |
| Dry Heat | $\Delta R \pm 0.2\%$ | at +155°C for 1000 hrs |
| Bending Strength | $\Delta R \pm 0.2\%$ | Bending amplitude 3mm for 10 seconds |
| Solderability | 90% min. coverage | 245 $\pm 5^\circ\text{C}$ for 3 seconds |
| Resistance to Soldering Heat | $\Delta R \pm 0.2\%$ | 260 $\pm 5^\circ\text{C}$ for 10 seconds |
| Dielectric Withstand Voltage | By Type | Apply Max. overload voltage for 1 minute |
| Thermal Shock | $\Delta R \pm 0.25\%$ | -55°C~150°C, 100 cycles |
| Low Temperature Operation | $\Delta R \pm 0.2\%$ | 1 hour, -65°C, followed by 45 minutes of RCWV |

■ Reference Standards: MIL-STD-202, JIS-C 5201-1

■ Storage Temperature: 25 $\pm 3^\circ\text{C}$; Humidity < 80%RH