

## **PRECISION WIRE WOUND RESISTORS ALUMINIUM HOUSED WIRE WOUND RESISTORS**

### FEATURES

- Advanced Isabellenhütte alloy technology
- Very low TCR: lower than  $\pm 10\text{ppm}/^\circ\text{C}$ .
- Tolerance up to  $\pm 0.1\%$
- Excellent overall stability: Class 1
- Very low noise and voltage coefficient
- Non-inductance winding available under request
- Perfect pulse loading capability: over 25 times rated power loading
- Extremely high dielectric strength: stand over  $3000\text{V}_{\text{DC}}$  insulation voltage

### APPLICATIONS

- Current sensor for test and measuring instruments
- Power supply with high reliability
- Components burn-in devices
- Pulse load and in rush current protector
- Medical equipment
- Military electronics



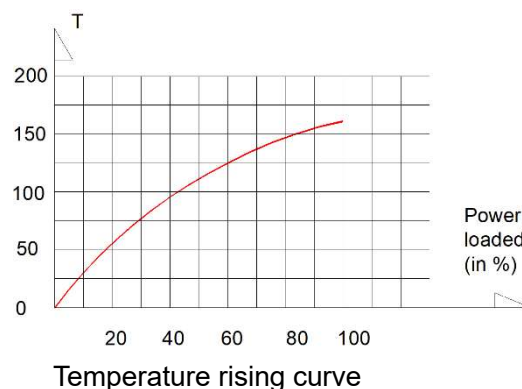
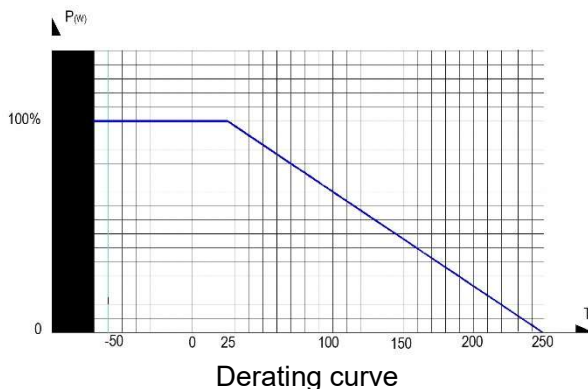
## 4. ELECTRICAL CHARACTERISTICS

|                             |   |
|-----------------------------|---|
| Type: high precision series | HS150   |
| Resistance range            | 0.05Ω ~90k  |
| Resistance tolerance        | B(±0.1%); C(±0.25%); D(±0.5%); F(±1.0%); J(±5.0%);            |
| Type: Non-inductance series | NI150   |
| Resistance range            | 5Ω ~ 200Ω   |
| Resistance tolerance        | D(±0.5%); F(±1.0%); J(±5.0%);                                 |
| Rated dissipation $P_{25}$  | with heat sink: 150W; without heat sink: 55W                  |
| Temperature coefficient     | ±20 for R>10Ω ; ±50 for R=1Ω ~ 9.9Ω, ±100 for R= 0.5Ω ~ 0.99Ω |
| Insulation voltage          | >3000V  |
| Standard heatsink area      | >1000   |
| Standard heatsink thickness | 3   |

- \* Unless otherwise specified, all values are tested at the following condition:  
Temperature: 21°C to 25°C; Relative humidity: 45% to 70%;
- \* Rated Continuous Working Voltage (RCWV) =  $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$
- \* Resistance out of range is available upon request.
- \* High insulating requirement is available upon request.
- \* Non-inductance wound is available on request.

## 5. DERATING CURVE AND TEMPERATURE RISING CURVE

For resistors working at an ambience temperature of 25°C or above, the power rating shall be derated in accordance with the following curve.



## 6. ENVIRONMENTAL CHARACTERISTICS

### (1) Insulation Resistance

IEC 60115-1, 4.6: in V-block for 60 seconds, the test resistance should be high than 10,000 M Ohm.

### (2) Dielectric Withstanding Voltage

IEC 60115-1 4.7: Place resistors in V-block for 60 Seconds, no breakdown or flashover.

### (3) Temperature Coefficient Test

IEC 60115-1, 4.8: Test of resistors at room temperature and 60°C or 100°C on request above room temperature. Then measure the resistance. The Temperature Coefficient is calculated by the following equation and its value should be within the range requested.

$$\text{Resistor Temperature Coefficient} = \frac{R - R_0}{R_0} \times \frac{1}{t - t_0} \times 10^6$$

R = Resistance value under the testing temperature

R<sub>0</sub> = Resistance value at the room temperature

t = the 2<sup>nd</sup> testing temperature

t<sub>0</sub> = Room temperature

### (4) Short Time Over Load Test

IEC60115-1 4.13: At 10 times rated power or 2 times the maximum working voltage whichever is lower for 5 seconds, the resistor should be free from defects. The change of the resistance value should be within  $\pm(0.25\%+0.05 \Omega)$  for precision type and  $\pm(1.0\%+0.05 \Omega)$  for commercial type as compared with the value before the test.

### (5) Climatic sequence

IEC 60115-1, 4.19: -55°C to Room Temp. to +155°C to Room Temp. (5 cycles). The change of the resistance value shall be within  $\pm(2.0\%+0.05 \Omega)$  for commercial type as compared with the value before the test.

### (6) Load Life Test

IEC 60115-1, 4.25: 25±2°C at RCWV or the maximum working voltage whichever is lower for 1,000+48/-0 Hr. (1.5Hr. on, 0.5Hr. off). The resistors shall be arranged not much effected mutually by the temperature of others and the excessive ventilation shall not be performed. The change of the resistance value should be within  $\pm(2.0\%+0.05 \Omega)$  for commercial type as compared with the value before the test.

## Disclaimer

*All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.*

*Thunder Precision Resistors makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product to the maximum extent permitted by applicable law.*