

## High Power Precision Shunt Resistor, Up to 500W



RoHS  
COMPLIANT



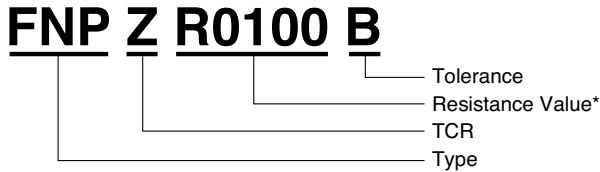
- CAUTION** — tighten screws at
- current terminals: <math>< 5.2\text{N} \cdot \text{m}</math>
  - voltage terminals: <math>< 0.0195\text{N} \cdot \text{m}</math>

### CONSTRUCTION OF MATERIALS

- Base plate: Nickel-plated Copper
- Current terminal: Nickel-plated Copper (T = 1.0 mm)
- Voltage and Pt terminals: Nickel-plated Copper (T = 0.5 mm)
- Package: PPS Injection-molded case

### COMPOSITION OF TYPE NUMBER

Example:



\* R is a dual-purpose letter that designates both the value range (R for ohmic) and the location of decimal point.

### TCR – RESISTANCE VS. TOLERANCE

Tolerance of Built-in Pt100 Sensor:  
 $\pm[0.8 + 0.008(t)]^{\circ}\text{C}$

| TCR (ppm/°C)                               | Resistance Range (Ω) | Tolerance (%)                                 | Rated Power (W)        |
|--|----------------------|---|------------------------|
| 0 ±1 (Z)<br>0 ±2.5 (Y)<br>(+25°C to +60°C) | 0.001 to 10**        | ±0.05 (A)<br>±0.1 (B)<br>±0.5 (D)<br>±1.0 (F) | 500<br>(on heat sink*) |
| 0 ±5 (X)<br>(-25°C to +125°C)              |                      |   |                        |

\* Keep temperature of element surface less than 125°C.

\*\* Please contact us for higher resistance value

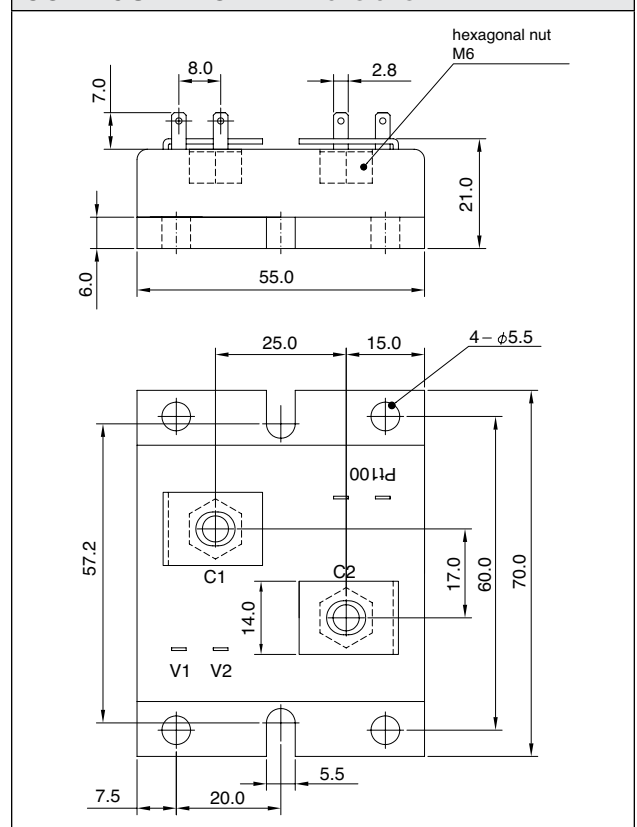
### FEATURES

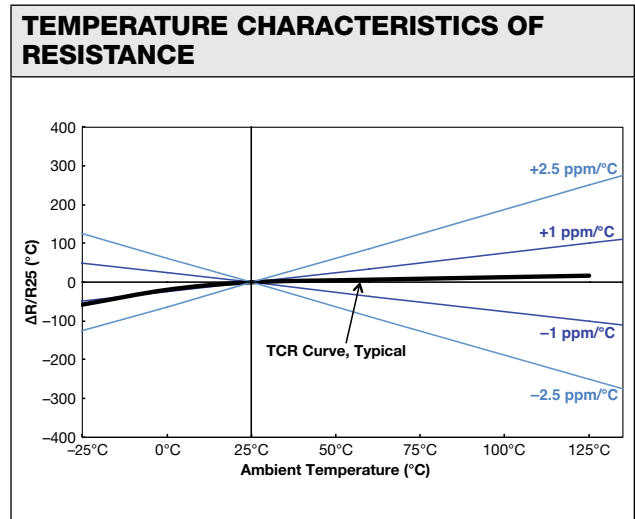
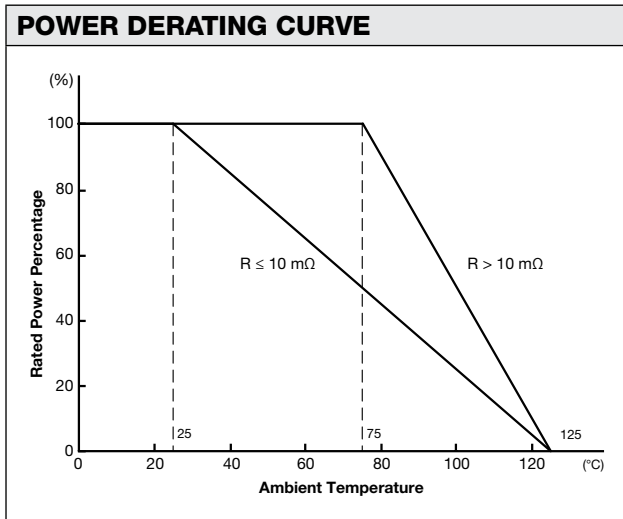
- Temperature coefficient of resistance (TCR)
  - +25°C to +60°C, +25°C ref.: 0 ±1 ppm/°C
  - 25°C to +125°C, +25°C ref.: 0 ±5 ppm/°C
- Utilizing Ni-Cr Bulk Metal® Foil Technology for realizing low TCR
- Low thermal resistance with Copper plate
  - Improved to 0.1°C/W from 0.3°C/W (conventional model)
  - Maximum rated power up to 500W on heat sink
- Extended max. ambient temperature to 125°C (85°C with conventional model)
- Built-in Pt100 sensor monitor temperature of resistive element
  - Easily define size of suitable heat sink
  - As safety function for continuous operation

### APPLICATIONS

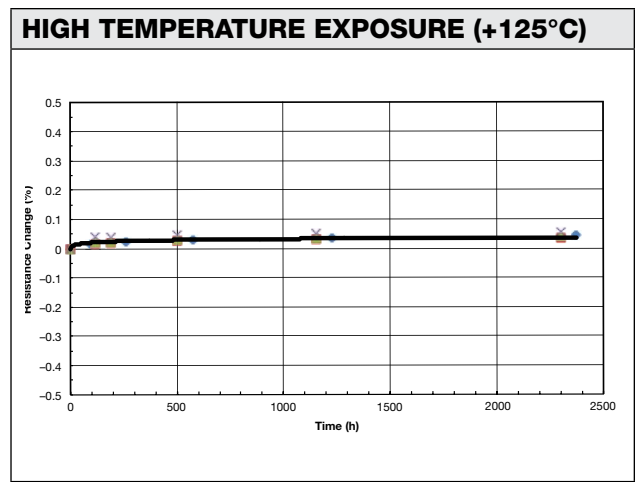
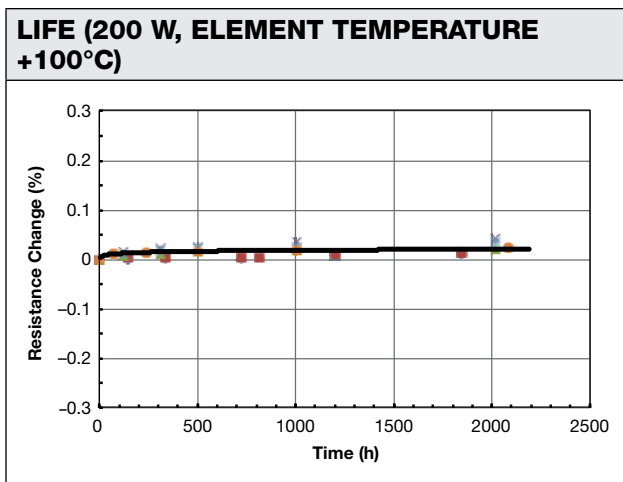
- Output reference of precision power supply
- Reference of charge-discharge test for high capacity batteries

### CONFIGURATION – Dimensions in mm





| TABLE 2 – PERFORMANCE                            |  |
|--|--|
| PARAMETERS                                       | SPECIFICATION  |
| Maximum Rated Operating Temperature              | 25°C (R ≤ 10 mΩ)   75°C (R > 10 mΩ)  |
| Working Temperature Range                        | -55°C to +125°C  |
| Maximum Working Current                          | 320 A  |
| Single Pulse Power Load                          | 50 J (tp < 10 msec)  |
| Dielectric Withstanding Voltage                  | AC 500 V   |
| Inductance                                       | < 10 nH  |
| Internal Thermal Resistance (element/base plate) | $R_{\theta} < 0.1^{\circ}\text{C}/\text{W}$ (R > 10 mΩ)<br>$R_{\theta} < 0.2^{\circ}\text{C}/\text{W}$ (R ≤ 10 mΩ) |
| Life (200 W, Element Temperature 100°C)          | ±0.2% (2000 h)   |
| High Temperature Exposure (125°C)                | ±0.2% (2000 h)   |





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