

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

### FEATURES AND BENEFITS

- **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



Available  
**RoHS**  
COMPLIANT



### APPLICATIONS

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

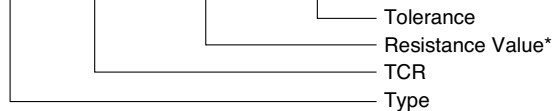
### CONSTRUCTION OF MATERIALS

- 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 MODEL NUMBER

Example:

**FNP Z R0100 B**



\* 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

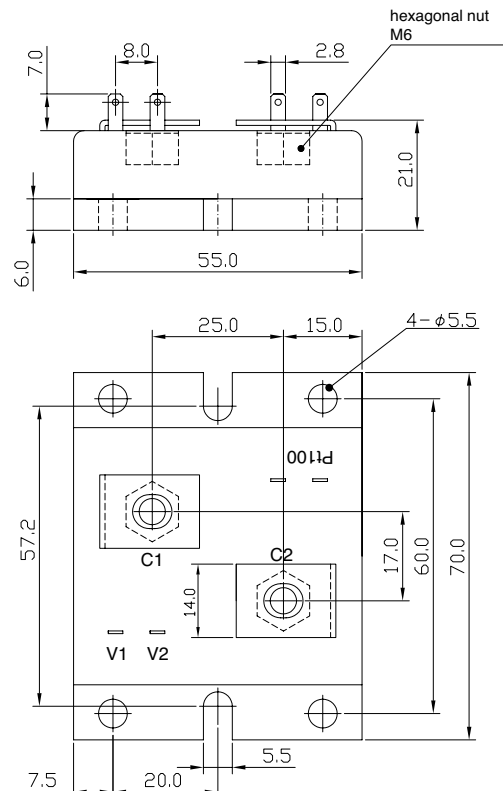
Tolerance of Built-in Pt100 Sensor:  
 $\pm[0.8 + 0.008(t)]^{\circ}\text{C}$

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

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

\*\* Please contact us for higher resistance value

### CONFIGURATION – Dimensions in millimeters



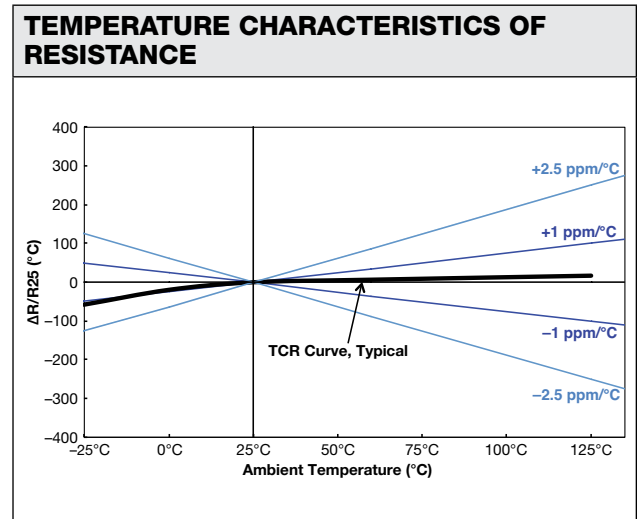
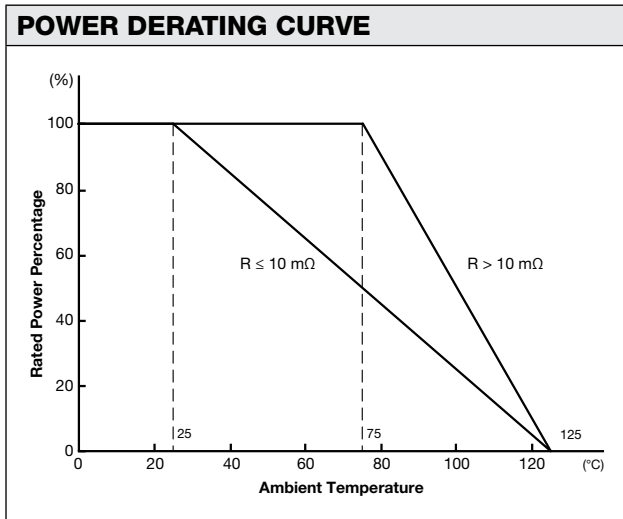


TABLE 2 – PERFORMANCE	
PARAMETERS	SPECIFICATION
Maximum Rated Operating Temperature	$25^\circ\text{C}$ ( $R \leq 10 \text{ m}\Omega$ ) $75^\circ\text{C}$ ( $R > 10 \text{ m}\Omega$ )
Working Temperature Range	$-55^\circ\text{C}$ to $+125^\circ\text{C}$
Maximum Working Current	320 A
Single Pulse Power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

