

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

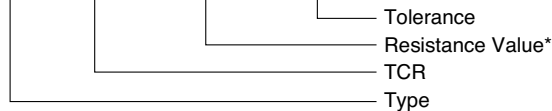
CONSTRUCTION OF MATERIALS

- 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

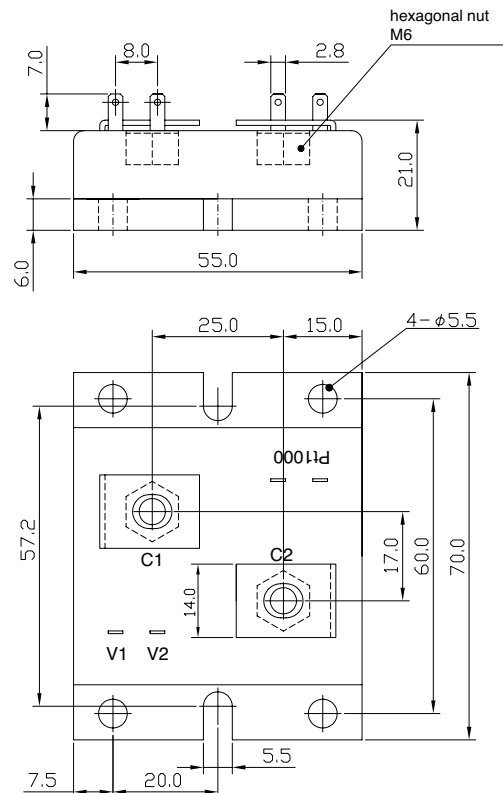
Tolerance of Built-in Pt100 Sensor:
 $\pm[0.8 + 0.008(t)]^{\circ}\text{C}$

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



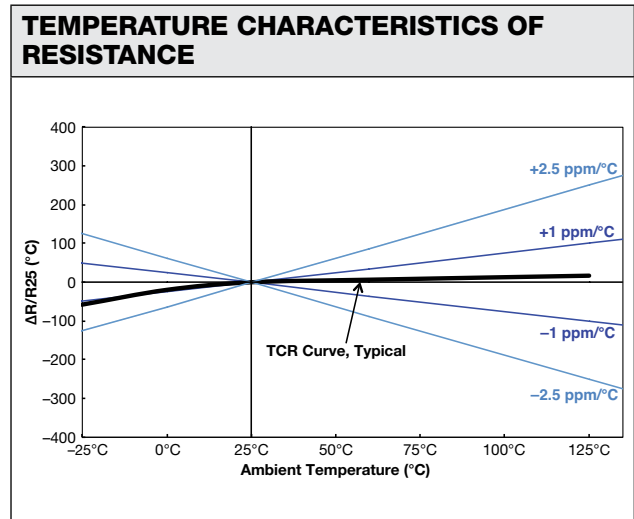
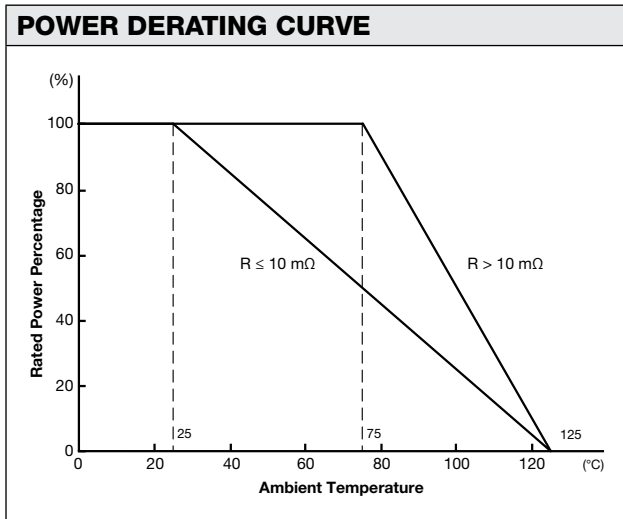
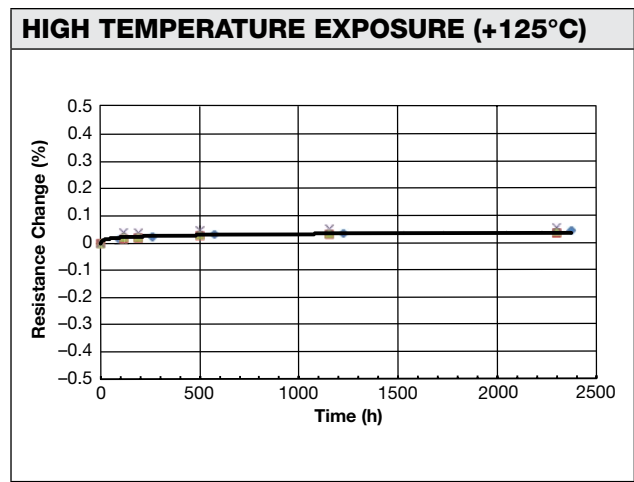
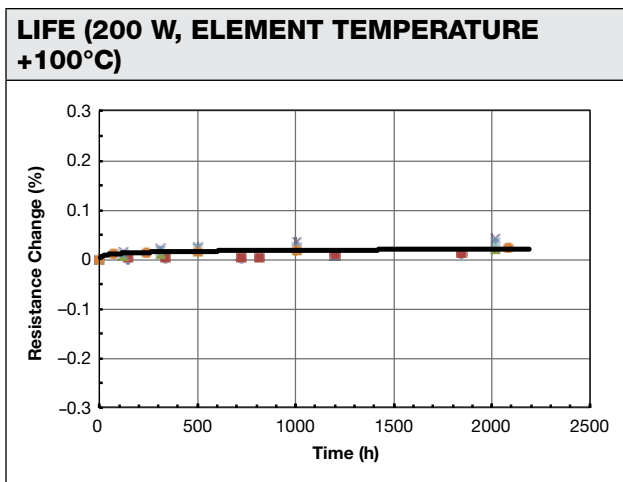


TABLE 2 – PERFORMANCE	
PARAMETERS	SPECIFICATION
Maximum Rated Operating Temperature	25°C (R ≤ 10 mΩ) 75°C (R > 10 mΩ)
Working Temperature Range	-55°C to +125°C
Maximum Working Current	320 A
Single Pulse Power Load	50 J (tp < 10 msec)
Dielectric Withstanding Voltage	AC 500 V
Inductance	< 10 nH
Internal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