

# FPR FNR 2-T227 4-T227

Foil Power Resistors



- Resistances from 0.001Ohm to 100Ohms
- Power Rating to 80Watt
- Resistance Tolerances to  $\pm 0.1\%$
- TCR to  $\pm 15\text{ppm/K}$
- Load Stability to 0.1%

## SPECIFICATIONS

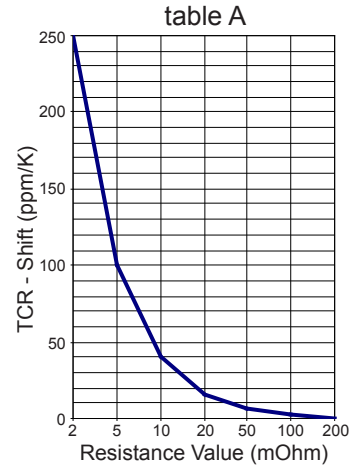
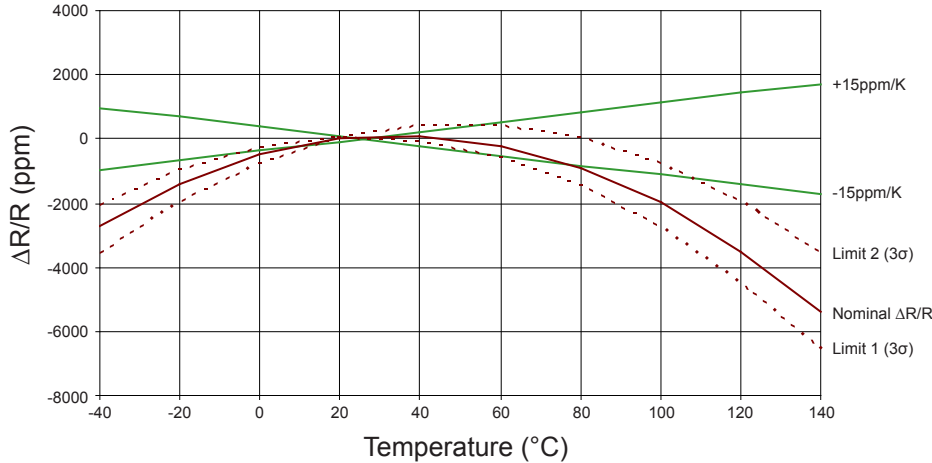
Type	FPR 2-T227	FPR 4-T227	FNR 2-T227	FNR 4-T227
Terminals	2	4 (kelvin connection)	2	4 (kelvin connection)
Resistance Range	0.01 to 100 Ohms	0.001 to 100 Ohms	0.01 to 100 Ohms	0.001 to 100 Ohms
Power Rating (with heatsink)	60W		80W	
Thermal Resistance Rthj-c	1.3 K/W		1.0 K/W	
Tolerances	0.1% / 1% / 2% / 5% (others upon request)			
Stability	0.1% / 0.2% / 0.5% (depends on stress)			
Temperature Coefficient	$\pm 15\text{ ppm/K}$ (20 to 60°C) from R < 0.02 Ohms $\pm 20\text{ ppm/K}$ (20 to 60°C) FPR 2-T227 / FNR 2-T227 TK Shift depends from resistance value (see graph next page)			
Voltage Proof	2.5 kV DC			
Thermal EMF	< 1 $\mu\text{V/K}$			
Max. Current	50A (higher upon request)			
Operating Temperature	-40°C to 130°C			
Resistor Material	Metalfoil CuNiMn (DIN 17471)			
Substrate	Al <sub>2</sub> O <sub>3</sub>		AlN	
Housing	Epoxy			
Connector Material	Cu / tinned or nickel plated			
Max. Torque	backplate: 1.5Nm terminals: 1.3 Nm			

## Ordering Information

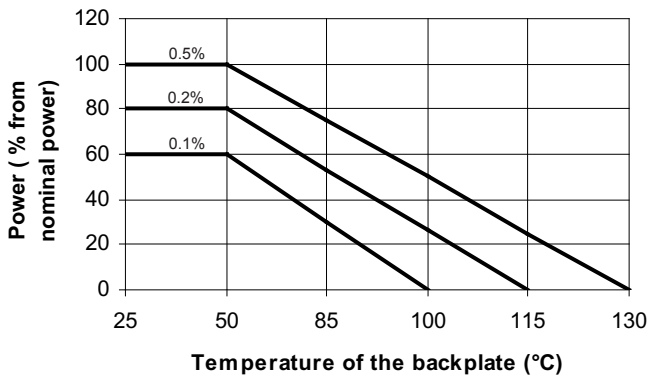
Part Number - Resistance - Tolerance  
FPR 2-T227 1.1 Ohms 1%

**SPECIFICATIONS** (continued)

**Temperature Coefficient**



**Derating and Stability**



Power Rating Notes -

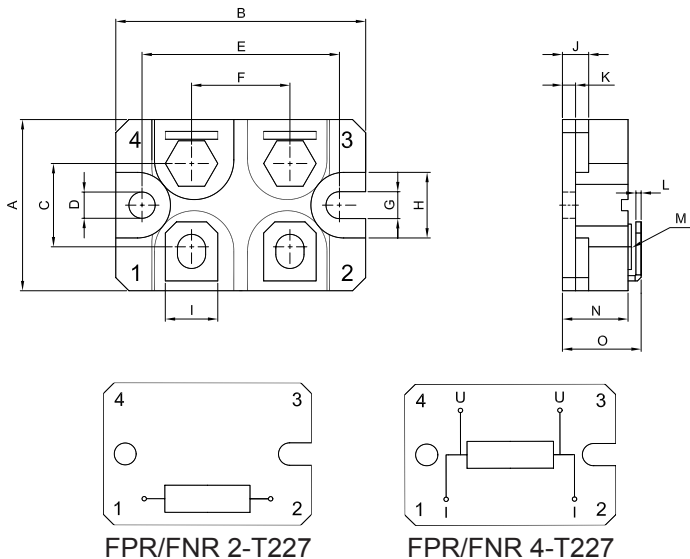
The FPR/FNR Series Foil Resistors must be attached to a suitable heatsink. The maximum internal resistor temperature is 130°C for a 0.5% stability part.

To specify an appropriate heatsink use the following formula :

$$R_{\theta H} = \frac{T_{MAX} - (P \times R_{\theta R}) - T_A}{P}$$

Where:  $R_{\theta H}$  = Thermal Resistance of Heatsink ( K/W )  
 $R_{\theta R}$  = Thermal Resistance of Resistor ( K/W )  
 $T_{MAX}$  = Maximum Temperature of Resistor  
 $T_A$  = Ambient Temperature of Heatsink ( °C )  
 $P$  = Power Through Resistor ( W )

**Dimensions and Attachment Variations**



Dimension	mm	tol. (±mm)	inches	tol. (±inches)
A	26	0.5	1.02	0.020
B	38	0.5	1.50	0.020
C	12.7	0.2	0.50	0.008
D	4	0.2	0.16	0.008
E	30	0.2	1.18	0.008
F	15	0.2	0.59	0.008
G	4.1	0.2	0.16	0.008
H	10	0.2	0.39	0.008
I	8	0.2	0.31	0.008
J	4	0.2	0.16	0.008
K	2	0.2	0.08	0.008
L	0.8	0.1	0.03	0.004
M	M4		M4	
N	10	0.2	0.39	0.008
O	11.9	0.2	0.47	0.008