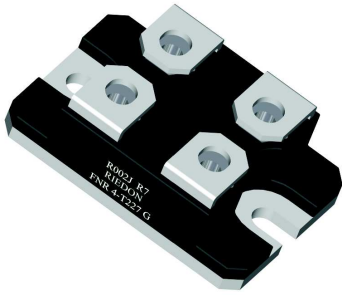
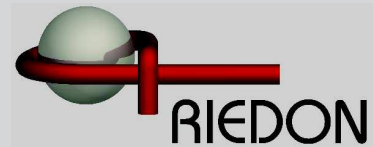


# FPR FNR 2-T227 4-T227

Foil Power Resistors



- Resistances from 0.001Ohm to 100Ohms
- Power Rating to 80Watt
- Resistance Tolerances to  $\pm 0.1\%$
- TCR to  $\pm 25\text{ppm}/^\circ\text{C}$
- Load Stability to 0.1%

## SPECIFICATIONS

| Type                                  | FPR 2-T227                                                                                                                                     | FPR 4-T227               | FNR 2-T227            | FNR 4-T227               |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------|--------------------------|
| Terminals                             | 2                                                                                                                                              | 4<br>(kelvin connection) | 2                     | 4<br>(kelvin connection) |
| Resistance Range                      | 0.01 to 100 Ohms                                                                                                                               | 0.001 to 50 Ohms         | 0.01 to 100 Ohms      | 0.001 to 50 Ohms         |
| Power Rating<br>(with heatsink)       | 60W                                                                                                                                            |                          | 80W                   |                          |
| Thermal Resistance Rthj-c             | 1.3 K/W                                                                                                                                        |                          | 1.0 K/W               |                          |
| Tolerances<br>(depends on resistance) | 0.1% <sup>1</sup> / 1% / 2% / 5%<br>(others upon request)                                                                                      |                          |                       |                          |
| Stability                             | 0.1% / 0.2% / 0.5%<br>(depends on stress)                                                                                                      |                          |                       |                          |
| Temperature Coefficient <sup>2</sup>  | ±25 ppm/K (20 to 60°C)<br>±50 ppm/K (- 40 to 130°C)<br>FPR 2-T227 / FNR 2-T227 TK Shift depends from<br>resistance value (see graph next page) |                          |                       |                          |
| Voltage Proof                         | 1.5 kV DC ( higher upon request )                                                                                                              |                          |                       |                          |
| Thermal EMF                           | < 1 µV/K                                                                                                                                       |                          |                       |                          |
| Max. Current                          | 45A (85A on request)                                                                                                                           |                          | 50A (100A on 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<br>terminals: 1.3 Nm                                                                                                          |                          |                       |                          |
| MSL Level                             | MSL 1                                                                                                                                          |                          |                       |                          |

<sup>1</sup> Please inquire for low ohm values

<sup>2</sup> Contact office for additional TCR values

## Ordering Information

Part Description: Part Type - Resistance - Tolerance

FPR 2-T227 1.1 Ohms 1%

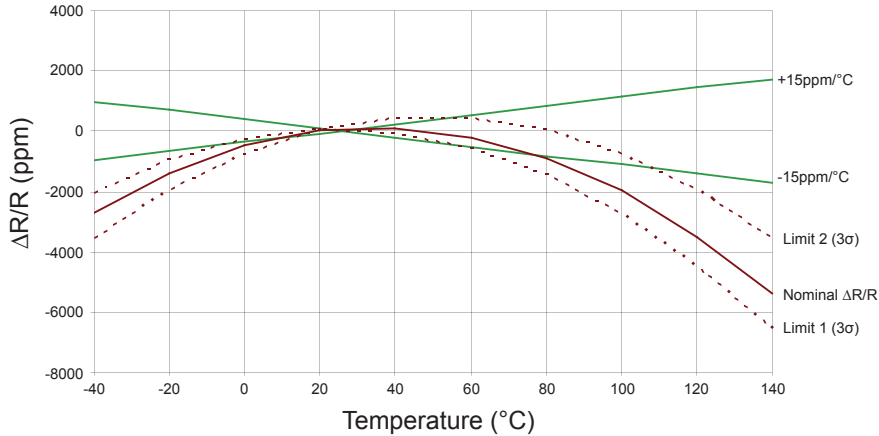
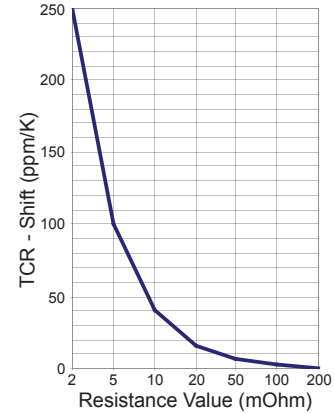
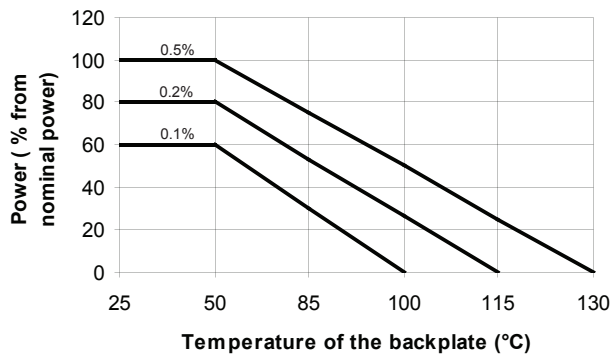
**SPECIFICATIONS** (continued)**Temperature Coefficient**

table A

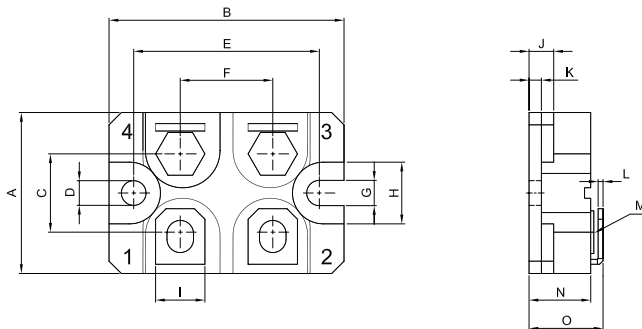
**Derating and Stability****Power Rating Notes -**

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**

FPR/FNR 2-T227

FPR/FNR 4-T227

| 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          |