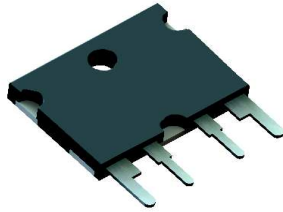
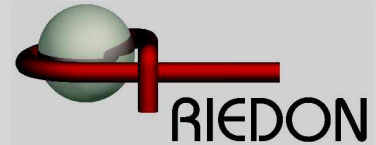


# FHR 4-2321

Current Sense Resistors



- Excellent Long Term Stability
- 0.001 to 50 Ohm
- Power Rating to 40Watt
- Resistance Tolerances to  $\pm 0.1\%$
- TCR to  $\pm 15\text{ppm}/^\circ\text{C}$
- Very Low Inductive
- Foil Technology

**Applications:** Power Modules, Current Monitoring, Frequency Converters, Switch Mode Power Supplies

## SPECIFICATIONS

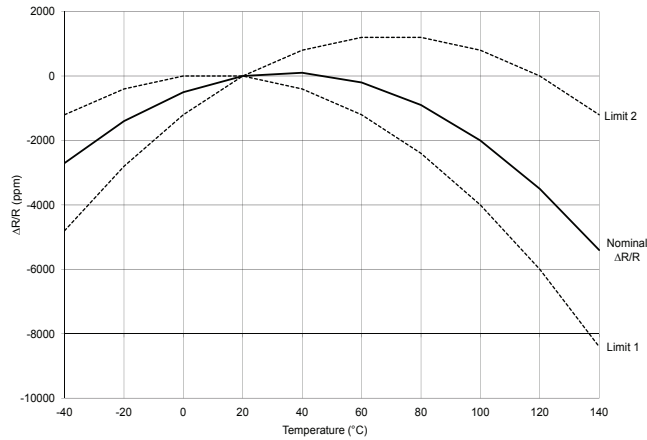
Type	FHR 4-2321
Resistance Range	0.001 to 50 Ohm
Power rating (70°C)	3 W
Power Rating with Heat Sink	40W
Tolerances: from 0.001 Ohm from 0.01 Ohm	0.5% / 1% / 2% / 5% 0.1% / 0.25% / 0.5% / 1% / 2% / 5%
Thermal Resistance	2.0 C/W
Stability (1000h)	0.1% / 0.2% / 0.5% (depends on stress)
Temperature Coefficient 0.001 to 50 Ohms Option 1 upon request for selected values	$\pm 25\text{ppm}/^\circ\text{C}$ (20 to 60°C) $\pm 15\text{ppm}/^\circ\text{C}$ (20 to 60°C) other specifications upon request
Insulation Resistance	300 VDC
Max. Current	150 A
Thermal EMF	< 1 $\mu\text{V}/\text{K}$
Operating Temperature Range	-40 to 130°C
Resistor Material	CuNiMn-Foil
Substrate	Anodized aluminium
Connector Material	Cu / tinned
Terminals	4
Max Torque	0.8 Nm

## Ordering Information

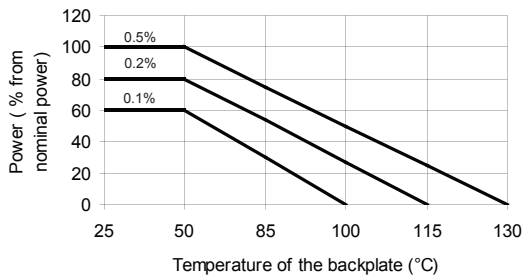
Part Description: Part Type - Resistance - Tolerance - TCR  
FHR 4-2321 0.035 Ohms 0.25% 25ppm

**SPECIFICATIONS** (continued)

**Temperature Coefficient**



**Derating**



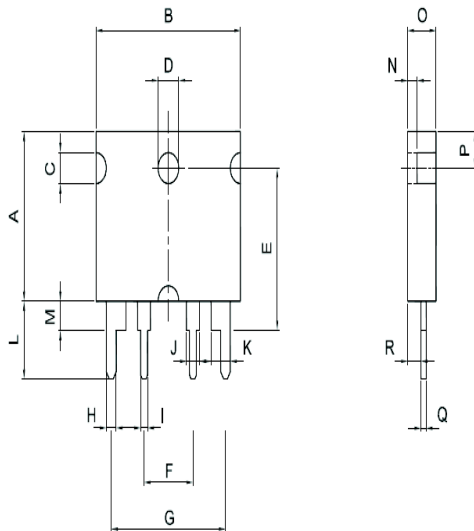
**Power Rating Notes -**

The FHR Series Resistors must be attached to a suitable heat-sink. The maximum internal resistor temperature is 130°C. 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**



Dimension	mm	tol. (±mm)	inches	tol. (±inches)
A	17.25	±0.2	0.68	±0.008
B	22.30	±0.2	0.88	±0.008
C	3.20	±0.1	0.13	±0.004
D	Ø3.20	±0.1	Ø0.13	±0.004
E	16.75	±0.008	0.66	±0.2
F	7.62	±0.008	0.30	±0.2
G	17.78	±0.008	0.70	±0.2
H	1.50	±0.2	0.06	±0.008
I	1.10	±0.008	0.04	±0.2
J	2.00	±0.004	0.08	±0.1
K	3.00	±0.004	0.12	±0.1
L	8.00	±0.008	0.31	±0.2
M	3.00	±0.008	0.12	±0.2
N	1.50	±0.004	0.06	±0.1
O	4.50	±0.004	0.18	±0.1
P	3.75	±0.008	0.15	±0.2
Q	0.80	±0.1	0.03	±0.004
R	2.10	±0.008	0.08	±0.2