POWERTRON
A VPG Brand

FEATURES

- Resistances from 0.001Ohm to 50Ohms
- Power Rating to 40Watt
- Resistance Tolerances to ±0.1%
- TCR to ±15ppm/K
- Very Low Inductance
- Load Stability to 0.1%

Pb-free Available

RoHS* COMPLIANT

TABLE 1—SPECIFICATIONS		
TYPE		FHR 4-2321
Resistance Range		0.001 to 50 Ohms
Power Rating	**Free air 70°C**	3W
	With heatsink	40W
Tolerances **from 0R001** **from 0R005** **from 0R01**		 1% / 2% / 5% 0.5% / 1% / 2% / 5% 0.1% / 0.25% / 0.5% / 1% / 2% / 5%
Thermal Resistance		2.0 K/W
Stability (1000h)		0.1% / 0.2% / 0.5% (depends on stress)
Temperature Coefficient **0.001 to 100 Ohms (Q)** **Option 1 (P) upon request for selected values**		 ±25ppm/K (20 to 60°C) ±15ppm/K (20 to 60°C) other specifications upon request
Voltage Proof **< 0R005** **≥ 0R005**		 300 VDC 500 VAC
Maximum Current		150 A
Thermal EMF		< 1µV/K
Operating Temperature Range		-40 to 130 °C
Resistor Material		CuNiMn-Foil
Substrate		Anodized aluminium
Housing		Epoxy or PPS
Connector Material		Cu / tinned
Terminals		4 (standard contact S)
Max. Torque		0.8 Nm

ORDERING INFORMATION

Part Number - Resistance - Contact - Tolerance - TCR
FHR 4-2321 0R002 S 1% Q

FIGURE 1—TEMPERATURE COEFFICIENT

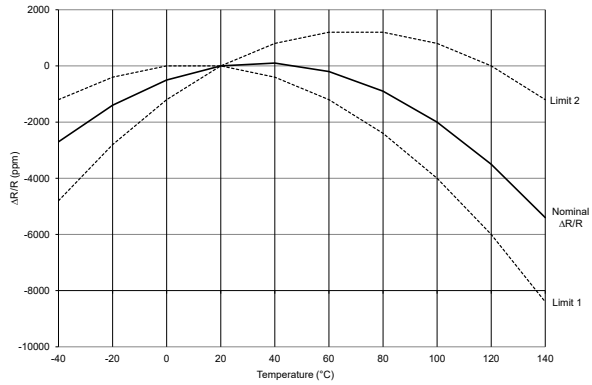
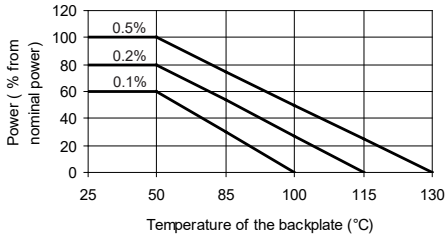


FIGURE 2—DERATING

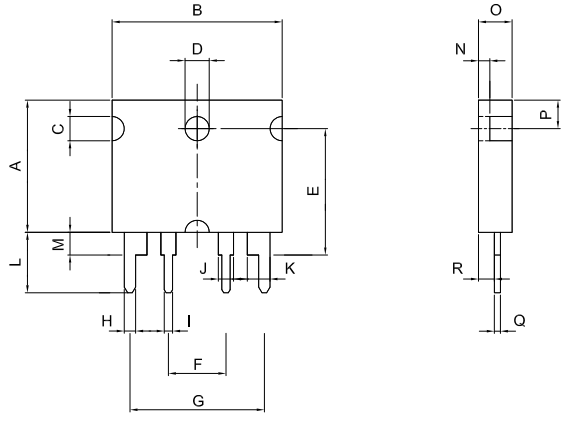


Power Rating Notes -
The FHR Series Resistors must be attached to a suitable heat-sink. The maximum internal resistor temperature is 130°C.
To specify an appropriate heatsink use the following formula :

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

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)

FIGURE 3—DIMENSIONS in mm (inches)



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

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