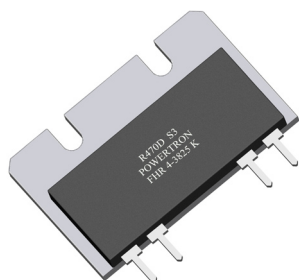


FHR 2-3025 3818

FHR 4-3825 3825H 4618

Precision Shunt Resistors



- Resistances from 0.001Ohm to 100Ohms
- Power Rating to 50Watt
- Resistance Tolerances to $\pm 0.1\%$
- TCR to $\pm 10\text{ppm/K}$
- Very Low Inductance

SPECIFICATIONS

| Type | FHR 2-3025 FHR 2-3818 | FHR 4-3825 FHR 4-3525H FHR 4-4618 |
|--|---|---|
| Resistance Range | 0.010 to 100Ohms | 0.001 to 100Ohms |
| Power rating free air 70°C for 3825H with heatsink | 3 W 40 W | 3 W 5 W 50 W |
| Thermal Resistance Rthj-c | 2.0 K/W | 1.6 K/W |
| Tolerances from 0R001 from 0R005 from 0R01 from 0R02 | 0.5% / 1% / 2% / 5% 0.25% / 0.5% / 1% / 2% / 5% | 1% / 2% / 5% 0.5% / 1% / 2% / 5% 0.1% / 0.25% / 0.5% / 1% / 2% / 5% 0.1% / 0.25% / 0.5% / 1% / 2% / 5% |
| Stability | 0.1% / 0.2% / 0.5% (depends on stress) | |
| Temperature Coefficient Standard Option 1 | $\pm 15\text{ppm/K}$ (20 to 60°C) R \leq 0R2 TCR see table A next page | $\pm 15\text{ppm/K}$ (20 to 60°C) $\pm 25\text{ppm/K}$ (20 to 60°C) for contact F $\pm 10\text{ppm/K}$ (20 to 60°C) (only contact A and K) |
| Max. Current | 150 A / 200 A for contact F | |
| Voltage Proof | 500 VDC | |
| Thermal EMF | < 0.1 $\mu\text{V/K}$ | |
| Operating Temperature Range | -40 to 130°C | |
| Resistor Material | CuNiMn-Foil | |
| Substrate | anodized aluminium | |
| Housing | Epoxy | |
| Connector Material | Cu tinned | |
| Terminals | 2 | 4 |
| Max. torque | 1 Nm | |

Ordering Information

Part Number - Resistance - Contact - Tolerance
FHR 4-4618 0.050 Ohms A 1%

SPECIFICATIONS (continued)

Temperature Coefficient

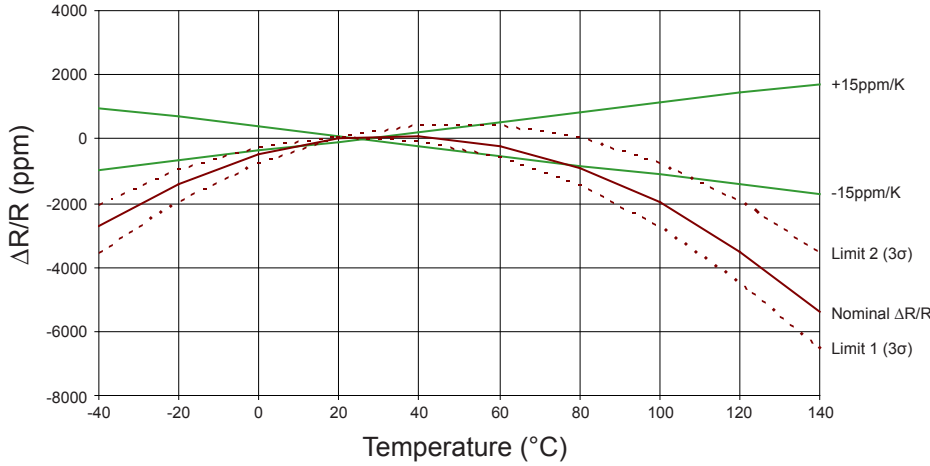
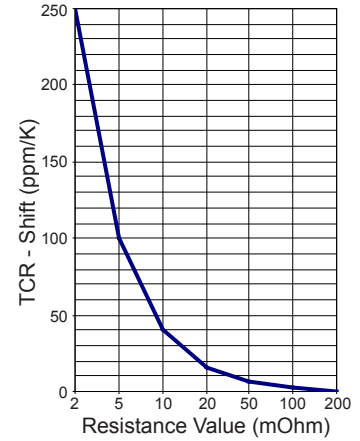
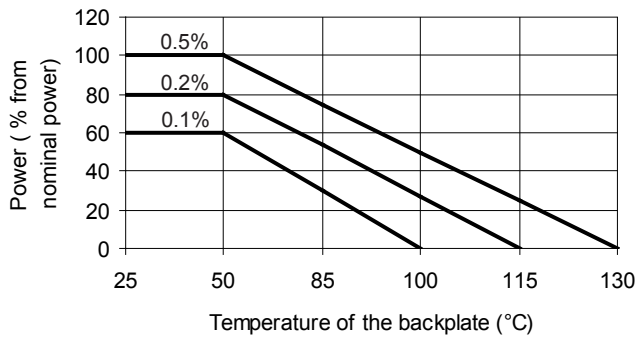


table A



Derating



Power Rating Notes -

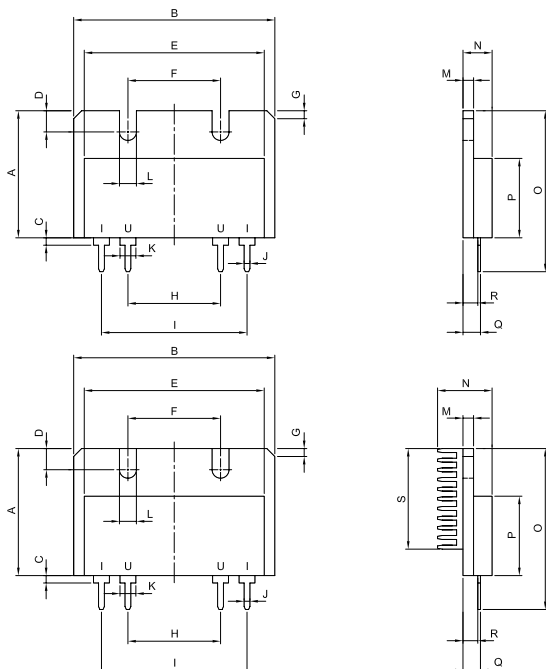
The FHR Series Resistors must be attached to a suitable heat-sink. The maximum internal resistor temperature is 130°C. To specify an appropriate heatsink use the following formula :

$$R_{0H} = \frac{T_{MAX} - (P \times R_{0R}) - T_A}{P}$$

Where: R_{0H} = Thermal Resistance of Heatsink (K/W)
 R_{0R} = 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

FHR 4-3825 / FHR 4-3825H



| Dimension | mm | tol. (±mm) | inches | tol. (±inches) |
|----------------|----------|------------|----------|----------------|
| A | 24.00 | 0.2 | 0.94 | 0.008 |
| B | 38.00 | 0.3 | 1.50 | 0.012 |
| C | 1.40 | 0.4 | 0.06 | 0.016 |
| D | 4.00 | 0.1 | 0.16 | 0.004 |
| E | 34.00 | 0.3 | 1.34 | 0.012 |
| F | 17.50 | 0.2 | 0.69 | 0.008 |
| G | 1.5x45° | 0.1 | 0.06x45° | 0.004 |
| H | 17.50 | 0.2 | 0.69 | 0.008 |
| I | 27.50 | 0.2 | 1.08 | 0.008 |
| J (A-Contact) | 1.50 | 0.1 | 0.06 | 0.004 |
| J (K-Contact) | 1.10 | 0.1 | 0.04 | 0.004 |
| K | 3.00 | 0.1 | 0.12 | 0.004 |
| L | 3.20 | 0.1 | 0.13 | 0.004 |
| M | 2.00 | 0.1 | 0.08 | 0.004 |
| N | max.5.5 | 0.2 | max.0.22 | 0.008 |
| N (Variante H) | max.10.3 | 0.2 | max.0.4 | 0.008 |
| O | 30.40 | 0.4 | 1.20 | 0.016 |
| P | 15.00 | 0.2 | 0.59 | 0.008 |
| Q (A-Contact) | 3.60 | 0.1 | 0.14 | 0.004 |
| Q (K-Contact) | 3.30 | 0.1 | 0.13 | 0.004 |
| R | 2.80 | 0.1 | 0.11 | 0.004 |
| S (Variante H) | 19.00 | 0.2 | 0.75 | 0.008 |

FHR 2-3025 3818

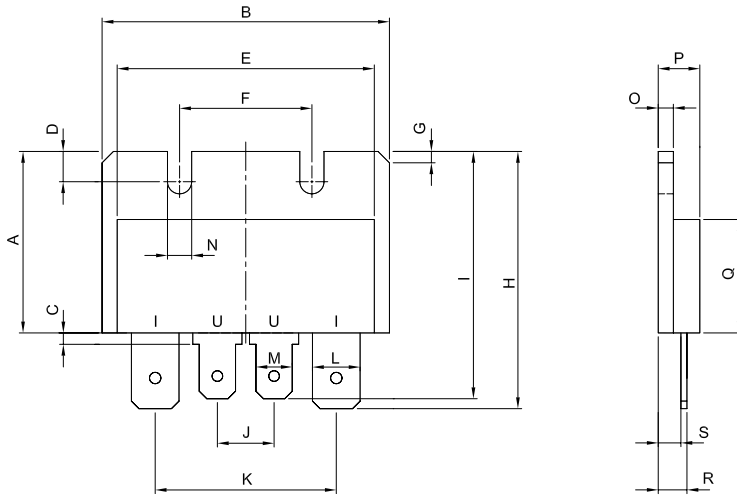
FHR 4-3825 3825H 4618

Precision Shunt Resistors



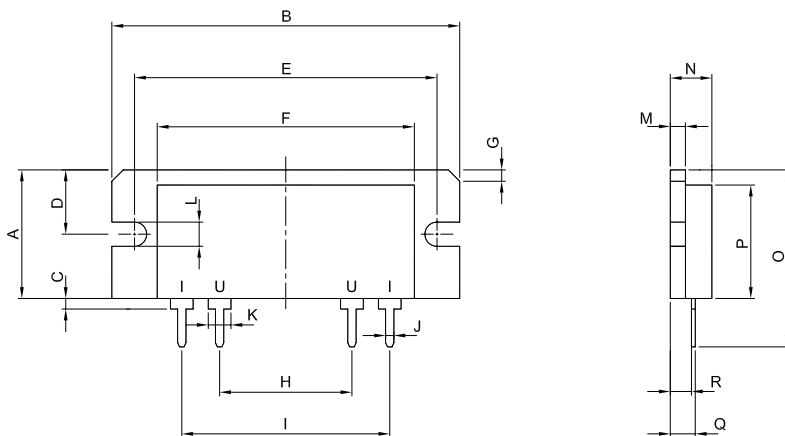
SPECIFICATIONS (continued)

FHR 4-3825F



| Dimension | mm | tol. (±mm) | inches | tol. (±inches) |
|-----------|---------|------------|----------|----------------|
| A | 24.00 | 0.2 | 0.94 | 0.008 |
| B | 38.00 | 0.3 | 1.50 | 0.012 |
| C | 1.50 | 0.2 | 0.06 | 0.008 |
| D | 4.00 | 0.1 | 0.16 | 0.004 |
| E | 34.00 | 0.3 | 1.34 | 0.012 |
| F | 17.50 | 0.2 | 0.69 | 0.008 |
| G | 1.5x45° | 0.1 | 0.06x45° | 0.004 |
| H | 34.00 | 0.2 | 1.34 | 0.008 |
| I | 32.70 | 0.2 | 1.29 | 0.008 |
| J | 7.50 | 0.2 | 0.30 | 0.008 |
| K | 24.00 | 0.2 | 0.94 | 0.008 |
| L | 6.30 | 0.2 | 0.25 | 0.008 |
| M | 4.80 | 0.1 | 0.19 | 0.004 |
| N | 3.20 | 0.1 | 0.13 | 0.004 |
| O | 2.00 | 0.1 | 0.08 | 0.004 |
| P | 6.00 | 0.2 | 0.24 | 0.008 |
| Q | 15.00 | 0.2 | 0.59 | 0.008 |
| R | 4.10 | 0.7 | 0.16 | 0.028 |
| S | 3.30 | 0.7 | 0.13 | 0.028 |

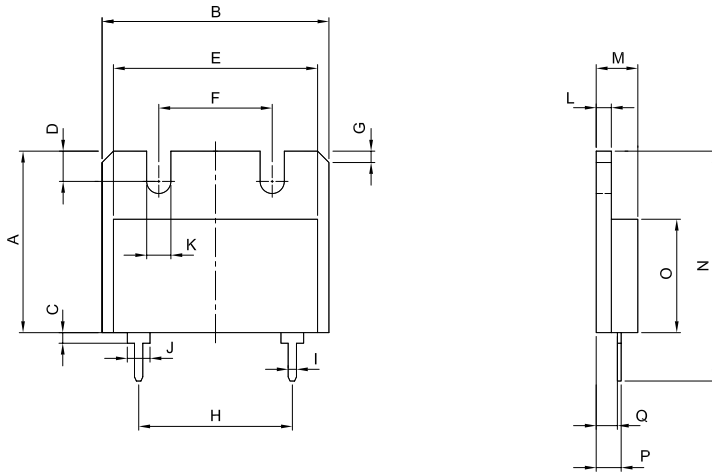
FHR 4-4618



| Dimension | mm | tol. (±mm) | inches | tol. (±inches) |
|---------------|---------|------------|----------|----------------|
| A | 17.00 | 0.1 | 0.67 | 0.004 |
| B | 46.00 | 0.3 | 1.81 | 0.012 |
| C | 1.40 | 0.4 | 0.06 | 0.016 |
| D | 8.50 | 0.2 | 0.33 | 0.008 |
| E | 40.00 | 0.3 | 1.57 | 0.012 |
| F | 34.00 | 0.3 | 1.34 | 0.012 |
| G | 1.5x45° | 0.1 | 0.06x45° | 0.004 |
| H | 17.50 | 0.2 | 0.69 | 0.008 |
| I | 27.50 | 0.2 | 1.08 | 0.008 |
| J (A-Contact) | 1.50 | 0.1 | 0.06 | 0.004 |
| J (K-Contact) | 1.10 | 0.1 | 0.04 | 0.004 |
| K | 3.00 | 0.1 | 0.12 | 0.004 |
| L | 3.20 | 0.1 | 0.13 | 0.004 |
| M | 2.00 | 0.1 | 0.08 | 0.004 |
| N | max.5.5 | 0.2 | max.0.22 | 0.008 |
| O | 23.40 | 0.4 | 0.92 | 0.016 |
| P | 15.00 | 0.2 | 0.59 | 0.008 |
| Q (A-Contact) | 3.60 | 0.1 | 0.14 | 0.004 |
| Q (K-Contact) | 3.30 | 0.1 | 0.13 | 0.004 |
| R | 2.80 | 0.2 | 0.11 | 0.008 |

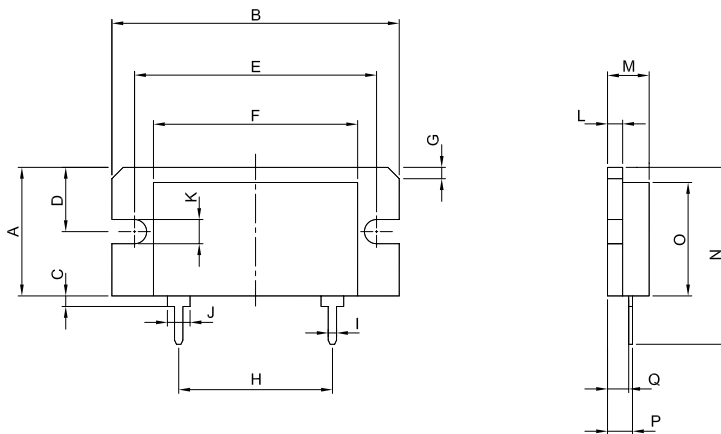
SPECIFICATIONS (continued)

FHR 2-3025



| Dimension | mm | tol. (±mm) | inches | tol. (±inches) |
|---------------|---------|------------|----------|----------------|
| A | 24.00 | 0.2 | 0.94 | 0.008 |
| B | 30.00 | 0.2 | 1.18 | 0.008 |
| C | 1.40 | 0.4 | 0.06 | 0.016 |
| D | 4.00 | 0.1 | 0.16 | 0.004 |
| E | 27.00 | 0.2 | 1.06 | 0.008 |
| F | 15.00 | 0.2 | 0.59 | 0.008 |
| G | 1.5x45° | 0.1 | 0.06x45° | 0.004 |
| H | 20.32 | 0.2 | 0.80 | 0.008 |
| I (A-Contact) | 1.50 | 0.1 | 0.06 | 0.004 |
| I (K-Contact) | 1.10 | 0.1 | 0.04 | 0.004 |
| J | 1.10 | 0.1 | 0.04 | 0.004 |
| K | 3.20 | 0.1 | 0.13 | 0.004 |
| L | 2.00 | 0.1 | 0.08 | 0.004 |
| M | max.5.5 | 0.2 | max.0.22 | 0.008 |
| N | 30.40 | 0.4 | 1.20 | 0.016 |
| O | 15.00 | 0.2 | 0.59 | 0.008 |
| P (A-Contact) | 3.60 | 0.1 | 0.14 | 0.004 |
| P (K-Contact) | 3.30 | 0.1 | 0.13 | 0.004 |
| Q | 2.80 | 0.2 | 0.11 | 0.008 |

FHR 2-3818



| Dimension | mm | tol. (±mm) | inches | tol. (±inches) |
|---------------|---------|------------|----------|----------------|
| A | 17.00 | 0.2 | 0.67 | 0.008 |
| B | 38.00 | 0.3 | 1.50 | 0.012 |
| C | 1.40 | 0.4 | 0.06 | 0.016 |
| D | 8.50 | 0.2 | 0.33 | 0.008 |
| E | 32.00 | 0.3 | 1.26 | 0.012 |
| F | 27.00 | 0.2 | 1.06 | 0.008 |
| G | 1.5x45° | 0.1 | 0.06x45° | 0.004 |
| H | 20.32 | 0.2 | 0.80 | 0.008 |
| I (A-Contact) | 1.50 | 0.1 | 0.06 | 0.004 |
| I (K-Contact) | 1.10 | 0.1 | 0.04 | 0.004 |
| J | 1.10 | 0.1 | 0.04 | 0.004 |
| K | 3.20 | 0.1 | 0.13 | 0.004 |
| L | 2.00 | 0.1 | 0.08 | 0.004 |
| M | max.5.5 | 0.2 | max.0.22 | 0.008 |
| N | 23.40 | 0.4 | 0.92 | 0.016 |
| O | 15.00 | 0.2 | 0.59 | 0.008 |
| P (A-Contact) | 3.60 | 0.1 | 0.14 | 0.004 |
| P (K-Contact) | 3.30 | 0.1 | 0.13 | 0.004 |
| Q | 2.80 | 0.2 | 0.11 | 0.008 |