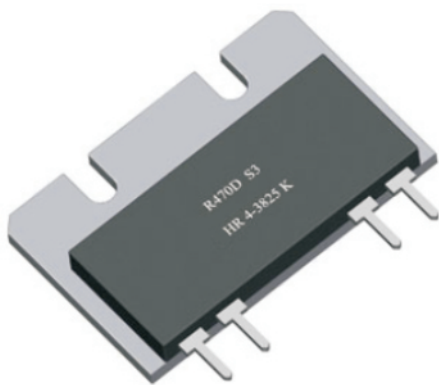


WHR Precision Shunt Resistors

Catalogue

- Features
- Specifications
- Temperature Coefficient
- Derating
- Dimensions
- Ordering Information



Feature

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

Specifications

Type	WHR 2-3025/WHR 2-3818	WHR 4-3825/WHR 4-3825/HWHR 4-4618
Resistance Range	0.01 to 100 Ohms	0.001 to 100 Ohms
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 aluminum	
Housing	Epoxy	
Connector Material	Cu tinned	
Terminals	2	4
Max. torque	1 Nm	

Temperature Coefficient

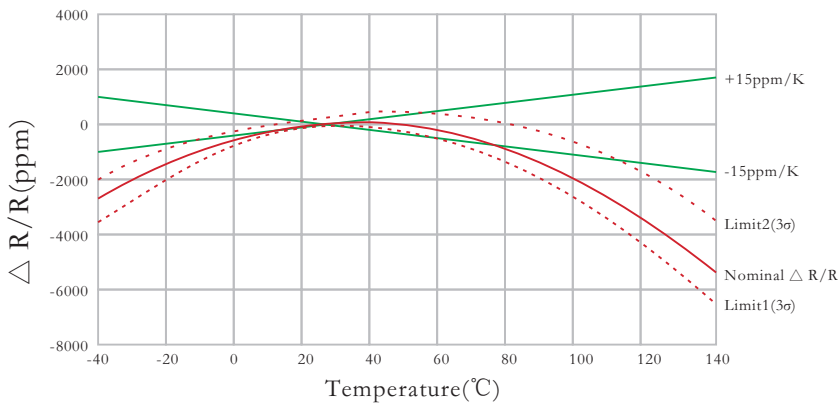
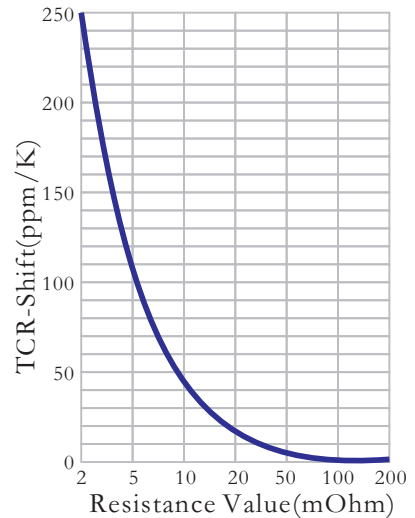
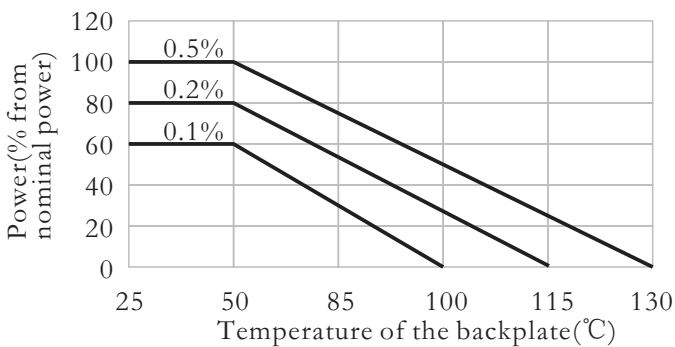


table A



Derating



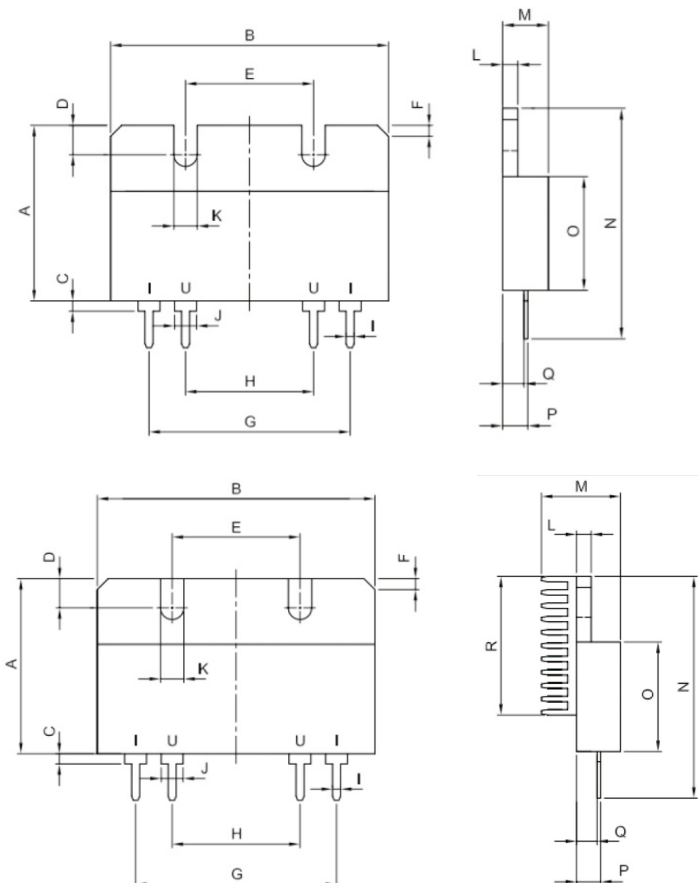
Power Rating Notes-
the FHR series resistors must be attached to a suitable heat-sink,
the maximum internal resistor temperature is 130°C.
To specify an appropriate heatsink use the following formula:

$$R_{OH} = \frac{T_{MAX} - (P \times R_{OH}) - T_A}{P}$$

Where: R_{OH} = Thermal resistance of heatsink (K/W)
 R_{SH} = Thermal resistance of heatsink (K/W)
 T_{MAX} = Maximum temperature of resistor
 T_A = Ambient temperature of heatsink (°C)
 P = Power through resistor (W)

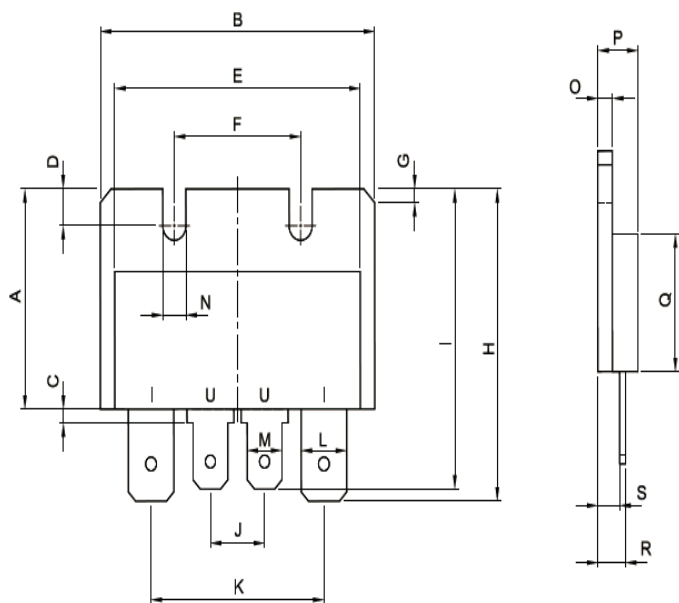
Dimensions

WHR 4-3825/WHR 4-3825H



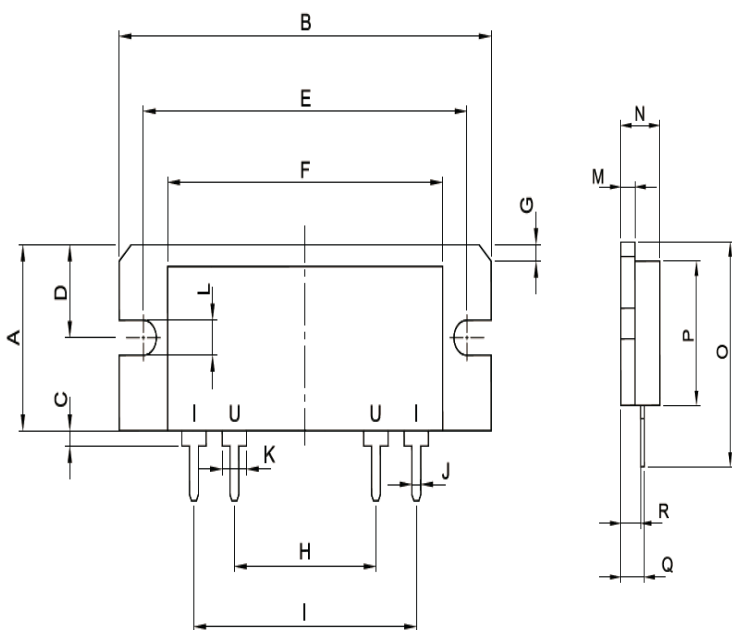
Dimension	mm	tol. (± mm)	inches	tol. (± inches)
A	24.00	0.2	0.94	0.008
B	38.00	0.3	1.50	0.012
C	1.40	0.4	0.03	0.016
D	4.00	0.1	0.16	0.004
E	17.50	0.2	0.69	0.008
F	1.5x45	0.1	0.06x45	0.004
G	27.50	0.2	1.08	0.008
H	17.50	0.2	0.69	0.008
I(A-Contact)	1.50	0.1	0.06	0.004
I(K-Contact)	1.10	0.1	0.04	0.004
J	3.00	0.1	0.12	0.004
K	3.20	0.1	0.13	0.004
L	2.00	0.1	0.08	0.004
M	6.00	0.2	0.25	0.008
M(Variante H)	10.8	0.2	0.43	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(L-Contact)	3.30	0.1	0.13	0.004
Q	2.80	0.1	0.11	0.004
R	19.00	0.2	0.75	0.008

WHR 4-3825F



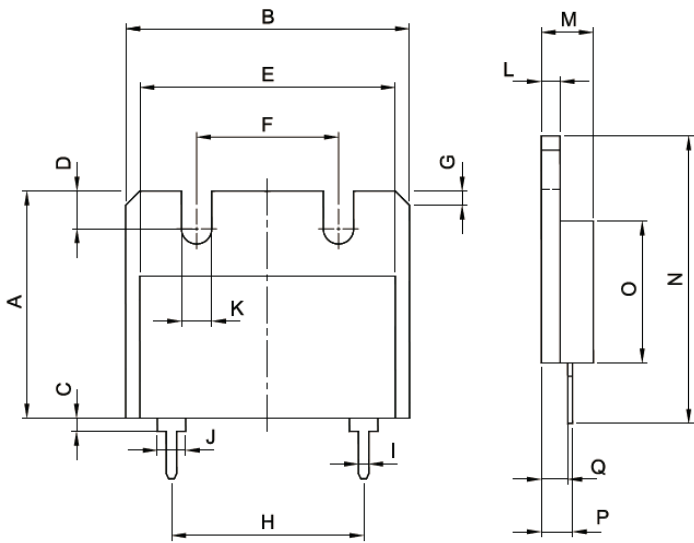
Dimension	mm	tol. (± mm)	inches	tol. (± inches)
A	24.00	0.2	0.94	0.008
B	38.00	0.3	1.50	0.012
C	1.50	0.2	0.06	0.008
D	4.00	0.1	0.16	0.004
E	34.00	0.3	1.34	0.012
F	17.50	0.2	0.69	0.008
G	1.5x45	0.1	0.06x45	0.004
H	34.00	0.2	1.34	0.008
I	32.70	0.2	1.29	0.008
J	7.50	0.2	0.30	0.008
K	24.00	0.2	0.94	0.008
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

WHR 4-4618



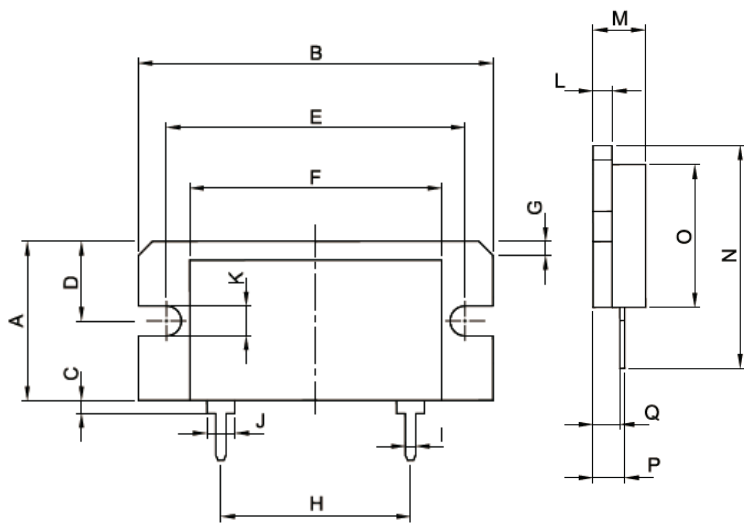
Dimension	mm	tol. (± mm)	inches	tol. (± inches)
A	17.00	0.1	0.67	0.004
B	46.00	0.3	1.81	0.012
C	1.40	0.4	0.06	0.016
D	8.50	0.2	0.33	0.008
E	40.00	0.3	1.57	0.012
F	34.00	0.3	1.34	0.012
G	1.5x45	0.1	0.06x45	0.004
H	17.50	0.2	0.69	0.008
I	27.50	0.2	1.08	0.008
J(A-Contact)	1.50	0.1	0.06	0.004
J(K-Contact)	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(L-Contact)	3.30	0.1	0.13	0.004
R	2.80	0.2	0.11	0.008

WHR 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(L-Contact)	3.30	0.1	0.13	0.004
Q	2.80	0.2	0.11	0.008

WHR 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(L-Contact)	3.30	0.1	0.13	0.004
Q	2.80	0.2	0.11	0.008

Ordering Information

Example

WHR2-3025	0R001	F	C5	Boxes
Type	Resistance(Ω)	Tolerance	T.C.R	Packing
	0R001=0.001Ω	F ±1% D ±0.5% B ±0.1% W ±0.05% P ±0.02%	C8 ±3ppm C7 ±5ppm C6 ±10ppm C5 ±15ppm	