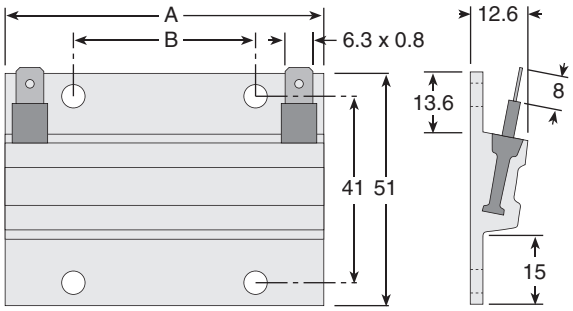
Aluminum Housed Wirewound

WFH Series Power Resistor



Type	Power Rating* (watts)	Resistance Range (Ω)	Dimension (mm) A	B
WFH90	90	0.22Ω – 6.8K	70	39.7
WFH160	160	0.47Ω-18K	140	80
WFH230	230	0.82Ω-27K	210	2x 80
WFH330	330	1Ω - 39K	280	2x 100

*at 40°C base plate temperature

Ohmite's new flat core winding technology allows for wirewound heatsinkable resistors affording a very low profile, and superior thermal transfer characteristics when compared to conventional aluminum housed wirewound resistors.
Close mounting of heat sensitive components is possible due to only a slight rise of the temperature on the aluminum profile.
No heat sink compound is required because of large mounting surface.

DESIGNING

The following equations are applied in the dimensioning of the resistors at stationary load. If more information is required please consult Ohmite. It is assumed that the air around the resistors is stationary (worst case).

1. WFH is mounted on a heat sink:

A. The thermal resistance R_{TH} of the heat sink is known,

$T = W_{MAX} \times (R_{TH4} + R_{TH})$

Check that:

$T_{MAX} = W_{MAX} \times (R_{TH} + R_{TH3} + R_{TH1}) + T_{AMB} < 220°C$

B. The Temperature of the Heat Sink is known,

$T = W_{MAX} \times R_{TH4} + T_H$

Check that:

$T_{MAX} = W_{MAX} \times (R_{TH1} + R_{TH3}) + T_H < 220°C$

2. WFH is mounted without a heat sink:

Check that:

$T_{MAX} = W_{MAX} \times (R_{TH1} + R_{TH2}) + T_{AMB} < 220°C$

Where:

W_{MAX} = Maximum reguired load in resistor
T_{MAX} = Maximum hot spot temperature reguested in resistor (T_{MAX} <220°C) The lower T_{MAX} the higher reliability and lifetime.
T_{AMB} = Ambient temperature
R_{TH} = Thermal resistance. Refer to table Thermal resistances
T_H = Heat sink temperature (chassis).
T = Temperature on top of the Aluminum profile.

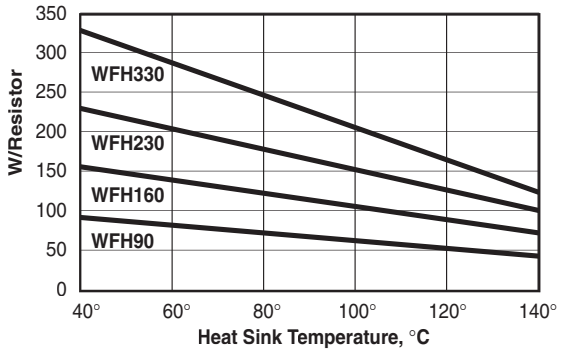
FEATURES

- Solder, Cable and "Fast-On" Termination
- More resistors in one profile possible

SPECIFICATIONS

Power rating: 12-300W
Resistance tolerance: ±5%, ±10%
Temperature Coefficients:
Normal: 50ppm - 150ppm
Low ohmic values: 400ppm
Dielectric strength: 2500 VAC peak
Working voltage: 1200 VAC
Test voltage: 6000 VAC
Insulation: Silicone Rubber & Mica. The Silicone is UL-recognised (UL 94 HB) to a working temperature of 220°C. Temperatures of up to 300°C can be endured for shorter periods. This may however cause an expansion of the silicone rubber with a possibility of reducing the dielectric strength.

POWER DISSIPATION

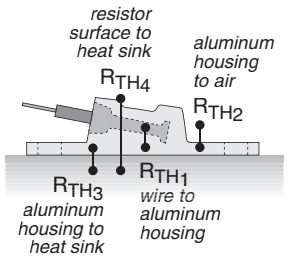


This graph shows the maximum wattage rating for each of the five possible ressistors of standard size corresponding to the heat sink temperature. It is assumed that all resistors are equally loaded. Please consult us about non-standard lengths and resistor modules.

THERMAL RESISTANCES

Thermal Resistance (°C/W) between different measuring points

	WFH90	WFH160	WFH230	WFH330
R_{TH1}	2	1	0.75	0.5
R_{TH2}	6.8	3.9	2.75	2
R_{TH3}	0.1	0.05	0.03	0.02
R_{TH4}	0.3	0.17	0.1	0.085



ORDERING INFORMATION

WFH160LR47K – Tolerance K = 10%

Series	Wattage at 40°C base plate temp.	Terminal Type	Ohms
		L = lug terminals A = amp terminals W= 6" wire terminals	R47= 0.47Ω

STOCK PART NUMBERS AVAILABLE

WFH90L4R7K	WFH160LR47K	WFH160L1K0J	WFH230L100J	WFH330L50RJ
WFH90L10RK	WFH160L1R0K	WFH160L5K0J	WFH230L150J	WFH330L75RJ
WFH90L25RJ	WFH160L2R0K	WFH160L10KJ	WFH230L250J	WFH330L100J
WFH90L50RJ	WFH160L10RK	WFH230L1R0K	WFH230L1K0J	WFH330L150J
WFH90L100J	WFH160L27RJ	WFH230L2R0K	WFH230L1K5J	WFH330L250J
WFH90L470J	WFH160L50RJ	WFH230L5R0K	WFH230L2K5J	WFH330L1K0J
WFH90L750J	WFH160L75RJ	WFH230L10RK	WFH330L1R0K	WFH330L5K0J
WFH90L1K0J	WFH160L100J	WFH230L27RJ	WFH330L2R0K	WFH330L10KJ
WFH90L2K7J	WFH160L150J	WFH230L50RJ	WFH330L10RK	
WFH90L5K0J	WFH160L250J	WFH230L75RJ	WFH330L27RJ	