

WFH Series

Aluminum Housed Wirewound Power



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.

FEATURES

- Solder lug, wire, and "Fast-on" amp terminations
- Multiple resistors in one profile possible
- Custom wire lengths available

SERIES SPECIFICATIONS

| Type | Power Rating* (watts) | Resistance Range (Ω) |
|--------|--------------------------|----------------------------------|
| WFH90 | 90 | 0.22 Ω – 6.8K |
| WFH160 | 160 | 0.47 Ω -18K |
| WFH230 | 230 | 0.82 Ω -27K |
| WFH330 | 330 | 1 Ω - 39K |

*at 40°C base plate temperature

CHARACTERISTICS

| | |
|---|--|
| Power rating | 90W-330W |
| Resistance tolerance | $\pm 5\%$, $\pm 10\%$ |
| Temperature Coefficients | Normal: 50ppm - 150ppm Low ohmic values: 400ppm |
| Dielectric strength | 2500 VAC peak |
| Working voltage | 1200 VAC |
| Test voltage | 6000 VAC |
| Lead wire | (wire terminal version only): XLPE, 600V, 125C, 18 AWG stranded |
| 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. |
| Min. Storage & Operating Temp. | -40°C |

Power Dissipation



This graph shows the maximum wattage rating for each possible resistor of standard size corresponding to the heat sink temperature. It is assumed that all resistors are equally loaded.

Thermal Resistances

Thermal Resistance ($^{\circ}\text{C}/\text{W}$) between different measuring points

| | WFH90 | WFH160 | WFH230 | WFH330 |
|------------------|-------|--------|--------|--------|
| $R_{\text{TH}1}$ | 2 | 1 | 0.75 | 0.5 |
| $R_{\text{TH}2}$ | 6.8 | 3.9 | 2.75 | 2 |
| $R_{\text{TH}3}$ | 0.1 | 0.05 | 0.03 | 0.02 |
| $R_{\text{TH}4}$ | 0.3 | 0.17 | 0.1 | 0.085 |



THIS PRODUCT IS DESIGNED FOR USE WITH PROPER HEATSINKING.

Maximum base plate temperature of the resistor must be monitored and kept within specified limits to establish the power rating. Best technique is to attach a thermocouple to the side of the base plate of the resistor. Temperature of plastic housing or heat sink cannot be used to establish rating of the resistor.

(continued)

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DESIGN INFORMATION

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). See ohmite.com for more examples.

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:

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

B. The Temperature of the Heat Sink is known,

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

Check that:

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

2. WFH is mounted without a heat sink:

Check that:

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

Where:

W_{MAX} = Maximum required load in resistor

T_{MAX} = Maximum hot spot temperature requested in resistor ($T_{MAX} < 220^{\circ}C$)

The lower T_{MAX} the higher reliability and lifetime.

T_{AMB} = Ambient temperature

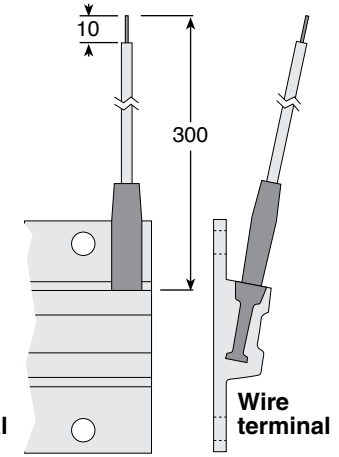
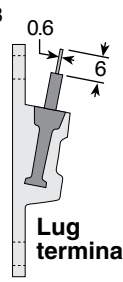
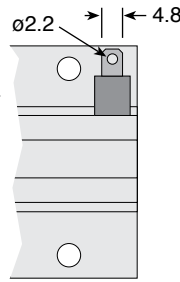
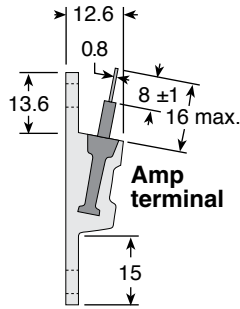
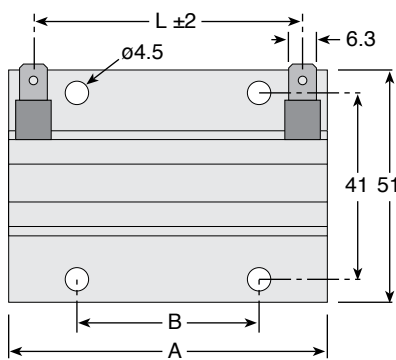
R_{TH} = Thermal resistance. Refer to table Thermal resistances

T_H = Heat sink temperature (chassis).

T = Temperature on top of the Aluminum profile.

DIMENSIONS

| (mm) | Type | Watts | A | B | L ±2 |
|------|--------|-------|-----|--------|------|
| | WFH90 | 90 | 70 | 39.7 | 53 |
| | WFH160 | 160 | 140 | 80 | 123 |
| | WFH230 | 230 | 210 | 2x 80 | 193 |
| | WFH330 | 330 | 280 | 2x 100 | 263 |



ORDERING INFORMATION

WFH160LR47KE - RoHS Compliant

| | | | | |
|--------|----------------------------------|---|-------------|-------------------|
| Series | Wattage at 40°C base plate temp. | Terminal Type | Ohms | Tolerance |
| | | L = lug terminals A = amp terminals W = 30cm insulated wire cable | R47 = 0.47Ω | J = 5% K = 10% |

Standard part numbers

| | | | | |
|-------------|--------------|--------------|--------------|--------------|
| WFH90L4R7KE | WFH160LR47KE | WFH160L1K0JE | WFH230L100JE | WFH330L50RJE |
| WFH90L10RKE | WFH160L1R0KE | WFH160L5K0JE | WFH230L150JE | WFH330L75RJE |
| WFH90L25RJE | WFH160L2R0KE | WFH160L10KJE | WFH230L250JE | WFH330L100JE |
| WFH90L50RJE | WFH160L10RKE | WFH230L1R0KE | WFH230L1K0JE | WFH330L150JE |
| WFH90L100JE | WFH160L27RJE | WFH230L2R0KE | WFH230L1K5JE | WFH330L250JE |
| WFH90L470JE | WFH160L50RJE | WFH230L5R0KE | WFH230L2K5JE | WFH330L1K0JE |
| WFH90L750JE | WFH160L75RJE | WFH230L10RKE | WFH330L1R0KE | WFH330L5K0JE |
| WFH90L1K0JE | WFH160L100JE | WFH230L27RJE | WFH330L2R0KE | WFH330L10KJE |
| WFH90L2K7JE | WFH160L150JE | WFH230L50RJE | WFH330L10RKE | |
| WFH90L5K0JE | WFH160L250JE | WFH230L75RJE | WFH330L27RJE | |



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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