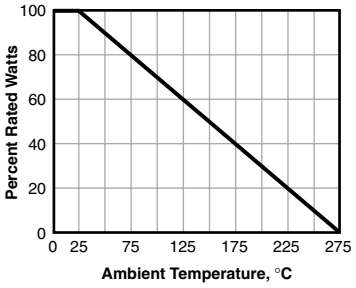
60 Series

Four Terminal Bare Element

Ohmite's Four Terminal Bare Element Resistors provide ultra low resistance values (to 0.0005Ω) for relatively high current requirements, with the advantages of a Kelvin configuration and PC Board mounting capability.

These shunt resistors are specifically designed for low resistance applications requiring the highest accuracy and temperature stability. This Four Terminal version of Ohmite's 60 Series Resistor is specially designed for use in a Kelvin configuration, in which a current is applied through two opposite terminals and sensing voltage is measured across the other two terminals.

The Kelvin configuration enables the resistance and temperature coefficient of the terminals to be effectively eliminated. The four terminal design also results in a lower Temperature Coefficient of Resistance and lower self heating drift which may be experienced on two terminal resistors. The requirement to connect to the terminals at precise test points is eliminated, allowing for tighter tolerancing on the end application.



FEATURES

- Ideal for current sensing applications
- 1% tolerance standard, others available
- Low inductance (non-inductive below 0.05Ω)
- RoHS compliant
- Radial, self-supporting, design is ideal for PC board mounting
- High Power-to-size ratio
- Decimal marked, silicone coated (650 Series only)

SPECIFICATIONS

Material

Terminals: Tinned Copper

Resistive element: Manganin Alloy

Electrical

Operating Temperature Range: -55˚C to +275˚C.

Temperature Coefficient of Resistance, 0˚C to 85˚C: ±50 PPM/˚C, .015Ω and higher ±100 PPM/˚C, .015Ω and lower

Environmental Performance: Exceeds the requirements of MIL-PRF-49465

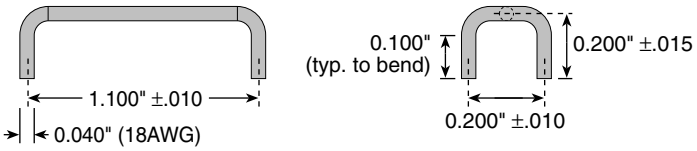
Power rating: Based on 25˚C free air rating

Overload: 5 times rated wattage for 5 seconds

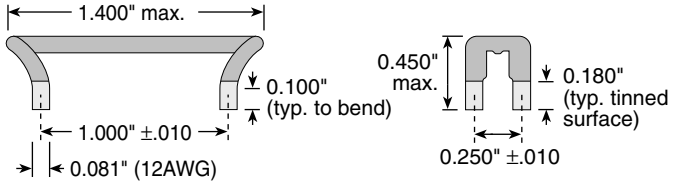
Thermal EMF: Less than ±3μV/˚C

Derating: Linearly from 100% @ +25°C to 0% @ 275°C

610 Series (1 watt)



650 Series (5 watt)



Series	Wattage	Resistance Range (Ω)*	Amps max.	Tolerance*
610	1W	0.002-0.050	32	1%
650	5W	0.002-0.005	100	1%

**Standard; others available*

ORDERING INFORMATION

Terminals
Blank = 2 terminals
P = 4 terminals

RoHS Compliant

6 1 0 F P R 0 5 0 E

- **60 Series**
- **Wattage** 10 = 1.0, 50 = 5.0
- **Tolerance** F = 1%, D = 0.5%
- **Ohm Value** Example: R050= 0.05Ω

STD. PART NUMBERS

Ohmic value	610 Series 1 watt	650 Series 5 watt
0.002	610FPR002E	650FPR002E
0.005	610FPR005E	650FPR005E
0.010	610FPR010E	–
0.015	610FPR015E	–
0.020	610FPR020E	–
0.025	610FPR025E	–
0.036	610FPR036E	–
0.050	610FPR050E	–