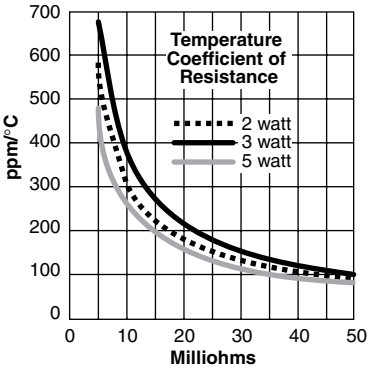
10 Series
Axial Wire Element Current Sense

RoHS Compliant

FEATURES

- Ideal for current sensing applications
- 1% Tolerance standard, others available
- Fixed resistance measuring point "M"
- Low inductance (non-inductive below 0.25Ω)
- RoHS compliant product available; add "E" suffix to part number to specify



SPECIFICATIONS

Material

Terminals: Solder-plated copper terminals or copper clad steel depending on ohmic value. RoHS solder composition is 96% Sn, 3.5% Ag, 0.5% Cu

Encapsulation: Silicone molding compound.

Derating

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

Electrical

Tolerance: ±1% standard. Others available.

Power rating: Based on 25°C free air rating.

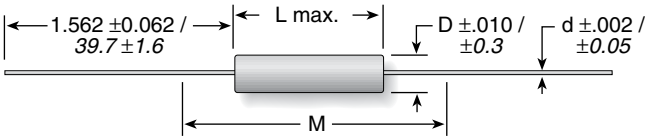
Overload: 5 times rated wattage for 5 seconds.

Dielectric withstanding voltage: 1000 VRMS for 3 and 5 watt; 500 VRMS for 2 watt.

Insulation resistance: Not less than 1000MΩ.

Thermal EMF: Less than ±2μV/°C.

Temperature range: -55°C to 275°C.



Two Terminal Axial

Series	Wattage	Ohms	Dimensions (in. / *mm*) Length	Diam.	"M"	Lead ga.
12	2	0.005-0.10	0.416 / *10.6*	0.094 / *2.4*	1.156 / *29.4*	20
13	3	0.005-0.20	0.570 / *14.5*	0.205 / *5.2*	1.310 / *33.3*	20
15	5	0.005-0.25	0.935 / *23.8*	0.330 / *8.4*	1.675 / *42.5*	18

FEATURES

- Ideal for current sensing applications
- 1% Tolerance standard, others available
- Low Inductance (non-inductive below 0.25Ω)
- Tinned Copper Leads
- RoHS Compliant

SPECIFICATIONS

Material

Terminals: Tinned Copper Leads

Encapsulation: Silicone Molding Compound

Derating

Linearly from 100% at +25˚C to 0% at +200˚C

Electrical

Resistance Range: 0.005Ω to 0.100Ω standard

Standard Tolerance: ±1%; others available

Operating Temperature Range: -55˚C to +200˚C

Temperature Coefficient of Resistance, 0˚C to 85˚C:
≥0.015Ω: ±50 PPM/˚C
<0.015Ω: ±100 PPM/˚C

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

Power rating: Based on 25˚C free air rating.

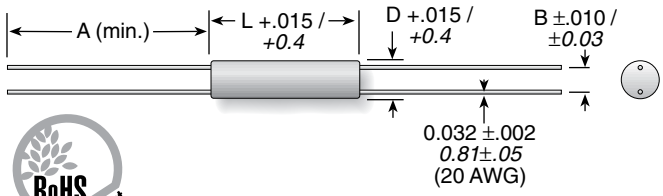
Overload: 5 times rated wattage for 5 seconds

Max. Current: 22 amps

Dielectric withstanding voltage: 1500 VAC for 4.5 and 7 watt
1000 VAC for 3 watt

Insulation resistance: Not less than 1000 MΩ

Thermal EMF: Less than ±2μV/˚C



RoHS Compliant

Four Terminal Axial

Series	Wattage	Ohms	Dimensions (in. / *mm*) Length	Diam.	A	B
13	3	0.005-0.1	0.625/*15.9*	0.200/*5.08*	1.25/*31.8*	0.125/*3.18*
14	4.5	0.005-0.1	1.060/*26.9*	0.335/*8.51*	1.50/*38.1*	0.200/*5.08*
17	7	0.005-0.1	1.500/*38.1*	0.375/*9.53*	1.50/*38.1*	0.200/*5.08*

Ohmite's Four-terminal Current-sense Resistors are specifically designed for low-resistance applications requiring the highest accuracy and temperature stability. This four-terminal version of Ohmite's 10 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.

STANDARD PART NUMBERS FOR 10 SERIES

Ohmic value	2 Terminal 2 watt	3 watt	5 watt	4 Terminal 3 watt	4.5 watt	7 watt
0.005	12FR005	13FR005	15FR005	13FPR005E	14FPR005E	17FPR005E
0.010	12FR010	13FR010	15FR010	13FPR010E	14FPR010E	17FPR010E
0.015	12FR015	13FR015	15FR015	13FPR015E	14FPR015E	17FPR015E
0.020	12FR020	13FR020	15FR020	13FPR020E	14FPR020E	17FPR020E
0.025	12FR025	13FR025	15FR025	13FPR025E	14FPR025E	17FPR025E
0.030	12FR030	13FR030	15FR030	13FPR030E	14FPR030E	17FPR030E
0.040	12FR040	13FR040	15FR040	13FPR040E	14FPR040E	17FPR040E
0.050	12FR050	13FR050	15FR050	13FPR050E	14FPR050E	17FPR050E
0.060	12FR060	13FR060	15FR060	13FPR060E	14FPR060E	17FPR060E
0.070	12FR070	13FR070	15FR070	13FPR070E	14FPR070E	17FPR070E
0.075				13FPR075E	14FPR075E	17FPR075E
0.080	12FR080	13FR080	15FR080	13FPR080E	14FPR080E	17FPR080E
0.090	12FR090	13FR090	15FR090	13FPR090E	14FPR090E	17FPR090E
0.100	12FR100	13FR100	15FR100	13FPR100E	14FPR100E	17FPR100E
0.150		13FR150	15FR150			
0.200		13FR200	15FR200			
0.250			15FR250			

ORDERING INFORMATION

Wattage — Terminals: Blank = 2 terminals, P = 4 terminals — RoHS Compliant

1 3 F P R 0 5 0 E

- **10 Series**
- **Tolerance:** F = 1%, D = 0.5%
- **Ohm Value:** Example: R050 = 0.05Ω

Check product availability at **www.ohmite.com**