10 Series

Axial Wire Element Current Sense
Two Terminal Axial

FEATURES

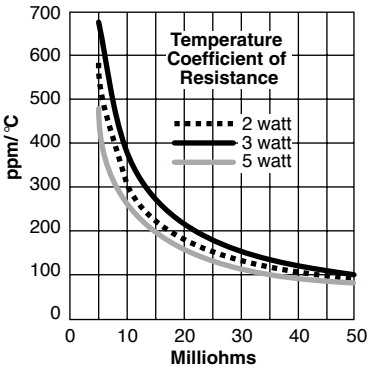
- Ideal for current sensing applications
- 1% Tolerance standard, others available
- Fixed resistance measuring point “M”
- Low inductance (non-inductive below 0.25Ω)
- RoHS compliant product available; add “E” suffix to part number to specify

SERIES SPECIFICATIONS

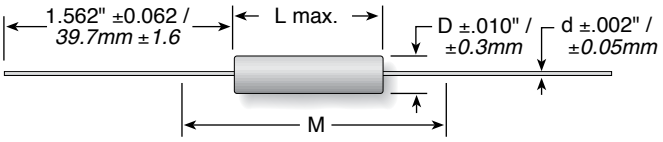
Series	Wattage	Ohms
12	2	0.005-0.10
13	3	0.005-0.20
15	5	0.005-0.25

CHARACTERISTICS

Terminals	Solder-plated copper terminals or copper clad steel depending on ohmic value. RoHS solder is 96% Sn, 3.5% Ag, 0.5% Cu
Encapsulation	Silicone molding compound
Derating	Linearly from 100% @ +25°C to 0% @ +275°C
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



DIMENSIONS



Series	Wattage	Length “L”	Diam. “D”	“M”	“d” (lead ga.)
12	2	0.416 / 10.6	0.094 / 2.4	1.156 / 29.4	20
13	3	0.570 / 14.5	0.205 / 5.2	1.310 / 33.3	20
15	5	0.935 / 23.8	0.330 / 8.4	1.675 / 42.5	18

ORDERING INFORMATION

Standard part numbers

Ohmic value	2 watt	3 watt	5 watt
0.005	12FR005E	13FR005E	15FR005E
0.010	12FR010E	13FR010E	15FR010E
0.015	12FR015E	13FR015E	15FR015E
0.020	12FR020E	13FR020E	15FR020E
0.025	12FR025E	13FR025E	15FR025E
0.030	12FR030E	13FR030E	15FR030E
0.040	12FR040E	13FR040E	15FR040E
0.050	12FR050E	13FR050E	15FR050E
0.060	12FR060E	13FR060E	15FR060E
0.070	12FR070E	13FR070E	15FR070E
0.080	12FR080E	13FR080E	15FR080E
0.090	12FR090E	13FR090E	15FR090E
0.100	12FR100E	13FR100E	15FR100E
0.150		13FR150E	15FR150E
0.200		13FR200E	15FR200E
0.250			15FR250E

Wattage — RoHS Compliant

1 3 F R 0 5 0 E

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

(continued)

10 Series

Axial Wire Element Current Sense Four Terminal Axial

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.

FEATURES

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

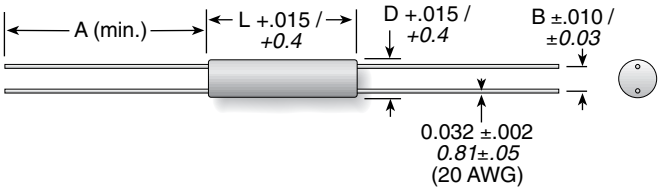
SERIES SPECIFICATIONS

Series	Wattage	Ohms
13	3	0.005-0.1
14	4.5	0.005-0.1
17	7	0.005-0.1

CHARACTERISTICS

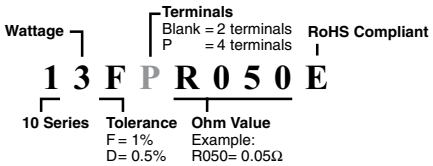
Terminals	Tinned Copper Leads
Encapsulation	Silicone Molding Compound
Derating	Linearly from 100% at +25°C to 0% at +200°C
Resistance Range	0.005Ω to 0.100Ω standard
Standard Tolerance	±1%; others available
Operating Temp. Range	-55°C to +200°C
Temperature Coefficient of Resistance	(0°C to 85°C) ≥0.015Ω: ±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
Dialectric 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

DIMENSIONS



Series	Wattage	Length	Diam.	A	B
13	3	0.625/15.9	0.200/5.08	1.25/31.8	0.125/3.18
14	4.5	1.060/26.9	0.335/8.51	1.50/38.1	0.200/5.08
17	7	1.500/38.1	0.375/9.53	1.50/38.1	0.200/5.08

ORDERING INFORMATION



Standard part numbers

Ohmic value	3 watt	4.5 watt	7 watt
0.005	13FPR005E	14FPR005E	17FPR005E
0.010	13FPR010E	14FPR010E	17FPR010E
0.015	13FPR015E	14FPR015E	17FPR015E
0.020	13FPR020E	14FPR020E	17FPR020E
0.025	13FPR025E	14FPR025E	17FPR025E
0.030	13FPR030E	14FPR030E	17FPR030E
0.040	13FPR040E	14FPR040E	17FPR040E
0.050	13FPR050E	14FPR050E	17FPR050E
0.060	13FPR060E	14FPR060E	17FPR060E
0.070	13FPR070E	14FPR070E	17FPR070E
0.075	13FPR075E	14FPR075E	17FPR075E
0.080	13FPR080E	14FPR080E	17FPR080E
0.090	13FPR090E	14FPR090E	17FPR090E
0.100	13FPR100E	14FPR100E	17FPR100E