

90 Series



Lead Free Vitreous Enamel Molded Axial Term. Wirewound, 5% Tolerance Standard



When you need the highest quality wirewound axial terminal resistors available, choose Ohmite's 90 Series resistors.

They are manufactured by a unique process that molds the vitreous enamel over the resistive element, helping to ensure consistent dimensions. This uniformity permits 90 Series resistors to be mounted in clips, creating a heat-sinking benefit (see next page).

The durable vitreous enamel coating, which is totally lead free, permits the 90 Series resistors to maintain a hard coating while operating at high temperatures. Mechanical integrity is enhanced by the all-welded construction.

FEATURES

- Molded Construction provides consistent shape and size (Permits mounting in clips which extends power rating).
- Meets MIL-R-26 requirements for insulated resistors.
- All-welded construction.
- Flame resistant lead free vitreous enamel coating.
- Higher ratings in smaller sizes.
- Heat sink mounting clips available.
- RoHS compliant; add "E" suffix to part number to specify.

SERIES SPECIFICATIONS

Series	Wattage*	Ohms	Voltage
91	1.5	0.1Ω-3.6K	150
92	2.25	0.1Ω-3.5K	85
93	3.25	0.1Ω-10.5K	200
95	5.0	0.1Ω-25K	495
96	6.5	0.1Ω-50K	625
90	11.0	0.1Ω-91K	1080

* 2x power ratings by using heat-sink mounting clips shown on following page.

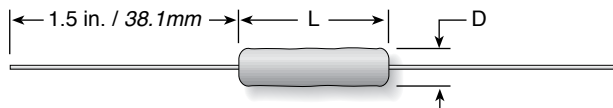
Note: Due to space restrictions, parts are stamped with wattage ratings reduced to the nearest whole number. The actual wattage ratings are as published in this catalog.

CHARACTERISTICS

Coating	Molded lead free vitreous enamel
Core	Ceramic
Terminals	Solder-coated copper clad axial. RoHS solder composition is 96% Sn, 3.5% Ag, 0.5% Cu
Derating	Linearly from 100% @ +25°C to 0% @ +350°C
Tolerance	±5% (other tolerances available)
Power rating	Based on 25°C free air rating (other wattages available*)
Maximum ohmic values	See chart
Overload	Under 11 watts: 5 times rated wattage for 5 seconds. 11 watts: 10 times rated wattage for 5 seconds
Temperature coefficient	1 to 9.99Ω: ±100 ppm/°C; 10Ω and over: ±30 ppm/°C
Dielectric withstanding voltage	500 VAC: 1W rating; 1000 VAC: 2, 3, 5 and 11W

DIMENSIONS

(in./mm max.)



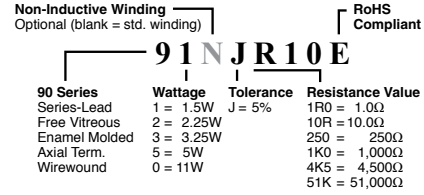
Series	Wattage	Length	Diameter	Lead gauge
91	1.5	0.452 / 11.5	0.140 / 3.6	24
92	2.25	0.405 / 10.3	0.219 / 5.6	20
93	3.25	0.577 / 14.7	0.234 / 5.9	20
95	5.0	0.968 / 24.6	0.265 / 6.7	20
96	6.5	0.952 / 24.2	0.343 / 8.7	20
90	11.0	1.811 / 46.0	0.343 / 8.7	20

(continued)

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Axial Term. Wirewound,
5% Tolerance Standard

ORDERING INFORMATION



Standard part numbers for 90 series

Wattage						Wattage						Wattage						Wattage											
Ohmic value	Part No. Prefix Suffix	1.5	2.25	3.25	5	11	Ohmic value	Part No. Prefix Suffix	1.5	2.25	3.25	5	11	Ohmic value	Part No. Prefix Suffix	1.5	2.25	3.25	5	11	Ohmic value	Part No. Prefix Suffix	3.25	5	11	Ohmic value	Part No. Prefix Suffix	5	11
1	1R0	✓	✓	✓	✓	✓	22	22R	✓	✓	✓	✓	✓	350	350	✓	✓	✓	✓	✓	3,500	3K5	✓	✓	✓	13,000	13K	✓	✓
1.1	1R1	✓	✓	✓	✓	✓	24	24R	✓	✓	✓	✓	✓	360	360	✓	✓	✓	✓	✓	3,600	3K6	✓	✓	✓	14,000	14K	✓	✓
1.2	1R2	✓	✓	✓	✓	✓	25	25R	✓	✓	✓	✓	✓	390	390	✓	✓	✓	✓	✓	3,900	3K9	✓	✓	✓	15,000	15K	✓	✓
1.3	1R3	✓	✓	✓	✓	✓	27	27R	✓	✓	✓	✓	✓	400	400	✓	✓	✓	✓	✓	4,000	4K0	✓	✓	✓	16,000	16K	✓	✓
1.5	1R5	✓	✓	✓	✓	✓	30	30R	✓	✓	✓	✓	✓	430	430	✓	✓	✓	✓	✓	4,300	4K3	✓	✓	✓	17,000	17K	✓	✓
1.6	1R6	✓	✓	✓	✓	✓	33	33R	✓	✓	✓	✓	✓	450	450	✓	✓	✓	✓	✓	4,500	4K5	✓	✓	✓	18,000	18K	✓	✓
1.8	1R8	✓	✓	✓	✓	✓	35	35R	✓	✓	✓	✓	✓	470	470	✓	✓	✓	✓	✓	4,700	4K7	✓	✓	✓	20,000	20K	✓	✓
2	2R0	✓	✓	✓	✓	✓	36	36R	✓	✓	✓	✓	✓	500	500	✓	✓	✓	✓	✓	5,000	5K0	✓	✓	✓	22,000	22K	✓	✓
2.2	2R2	✓	✓	✓	✓	✓	39	39R	✓	✓	✓	✓	✓	510	510	✓	✓	✓	✓	✓	5,100	5K1	✓	✓	✓	24,000	24K	✓	✓
2.4	2R4	✓	✓	✓	✓	✓	40	40R	✓	✓	✓	✓	✓	560	560	✓	✓	✓	✓	✓	5,600	5K6	✓	✓	✓	25,000	25K	✓	✓
2.7	2R7	✓	✓	✓	✓	✓	43	43R	✓	✓	✓	✓	✓	600	600	✓	✓	✓	✓	✓	6,000	6K0	✓	✓	✓	27,000	27K	✓	✓
3	3R0	✓	✓	✓	✓	✓	47	47R	✓	✓	✓	✓	✓	620	620	✓	✓	✓	✓	✓	6,200	6K2	✓	✓	✓	30,000	30K	✓	✓
3.3	3R3	✓	✓	✓	✓	✓	50	50R	✓	✓	✓	✓	✓	680	680	✓	✓	✓	✓	✓	6,800	6K8	✓	✓	✓	33,000	33K	✓	✓
3.6	3R6	✓	✓	✓	✓	✓	51	51R	✓	✓	✓	✓	✓	700	700	✓	✓	✓	✓	✓	7,000	7K0	✓	✓	✓	35,000	35K	✓	✓
3.9	3R9	✓	✓	✓	✓	✓	56	56R	✓	✓	✓	✓	✓	750	750	✓	✓	✓	✓	✓	7,500	7K5	✓	✓	✓	36,000	36K	✓	✓
4	4R0	✓	✓	✓	✓	✓	62	62R	✓	✓	✓	✓	✓	800	800	✓	✓	✓	✓	✓	8,000	8K0	✓	✓	✓	39,000	39K	✓	✓
4.3	4R3	✓	✓	✓	✓	✓	68	68R	✓	✓	✓	✓	✓	820	820	✓	✓	✓	✓	✓	8,200	8K2	✓	✓	✓	40,000	40K	✓	✓
4.7	4R7	✓	✓	✓	✓	✓	75	75R	✓	✓	✓	✓	✓	900	900	✓	✓	✓	✓	✓	9,000	9K0	✓	✓	✓	43,000	43K	✓	✓
5	5R0	✓	✓	✓	✓	✓	82	82R	✓	✓	✓	✓	✓	910	910	✓	✓	✓	✓	✓	9,100	9K1	✓	✓	✓	45,000	45K	✓	✓
5.1	5R1	✓	✓	✓	✓	✓	91	91R	✓	✓	✓	✓	✓	1,000	1K0	✓	✓	✓	✓	✓	10,000	10K	✓	✓	✓	47,000	47K	✓	✓
5.6	5R6	✓	✓	✓	✓	✓	100	100	✓	✓	✓	✓	✓	1,100	1K1	✓	✓	✓	✓	✓	11,000	11K	✓	✓	✓	50,000	50K	✓	✓
6.2	6R2	✓	✓	✓	✓	✓	110	110	✓	✓	✓	✓	✓	1,200	1K2	✓	✓	✓	✓	✓	12,000	12K	✓	✓	✓	51,000	51K	✓	✓
6.8	6R8	✓	✓	✓	✓	✓	120	120	✓	✓	✓	✓	✓	1,300	1K3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7.5	7R5	✓	✓	✓	✓	✓	130	130	✓	✓	✓	✓	✓	1,400	1K4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8.2	8R2	✓	✓	✓	✓	✓	150	150	✓	✓	✓	✓	✓	1,500	1K5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9.1	9R1	✓	✓	✓	✓	✓	160	160	✓	✓	✓	✓	✓	1,600	1K6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	10R	✓	✓	✓	✓	✓	180	180	✓	✓	✓	✓	✓	1,800	1K8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	11R	✓	✓	✓	✓	✓	200	200	✓	✓	✓	✓	✓	2,000	2K0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	12R	✓	✓	✓	✓	✓	220	220	✓	✓	✓	✓	✓	2,200	2K2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	13R	✓	✓	✓	✓	✓	240	240	✓	✓	✓	✓	✓	2,400	2K4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	15R	✓	✓	✓	✓	✓	250	250	✓	✓	✓	✓	✓	2,500	2K5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	16R	✓	✓	✓	✓	✓	270	270	✓	✓	✓	✓	✓	2,700	2K7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	18R	✓	✓	✓	✓	✓	300	300	✓	✓	✓	✓	✓	3,000	3K0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	20R	✓	✓	✓	✓	✓	330	330	✓	✓	✓	✓	✓	3,300	3K3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = Standard values
✦ = Non-standard values subject to minimum handling charge per item

Shaded values involve very fine resistance wire and should not be used in critical applications without burn-in and/or thermal cycling.

MOUNTING CLIP



FEATURES

- Prevents severe vibration or mechanical shock to resistor
- Increases resistor wattage up to 100% when mounted on metal surface (1.5 sq. in. by 0.040 in. thick min. per watt dissipated)
- Holes in clip base permit fastening to chassis surface with machine screws, eyelets or rivets
- Sold in bags of ten (10)

Standard part numbers for mounting clip

Part No.	Resistor rating (watts)	Clip length (in./mm)	Clip width (in./mm)	Clip height (in./mm)	No. of holes	Hole centers (in./mm)	Hole diameter (in./mm)
✓ 5900	1.5	0.40 / 10.319	0.150 / 3.810	0.250 / 6.350	1		0.71 / 1.803
✓ 5902	2.25	0.35 / 8.890	0.217 / 5.500	0.275 / 6.980	2	0.156 / 3.969	0.71 / 1.803
✦ 5904	3.25	0.50 / 12.700	0.257 / 6.500	0.319 / 8.103	2	0.250 / 6.350	0.093 / 2.362
✦ 5906	5.0	0.90 / 22.860	0.237 / 6.019	0.284 / 7.214	2	0.400 / 10.160	0.103 / 2.616
✦ 5908	11.0	1.75 / 44.450	0.333 / 8.458	0.377 / 9.576	2	0.800 / 20.320	0.103 / 2.616

✦ = Most popular standard values
✓ = Standard values
✦ = Non-standard values subject to minimum handling charge per item