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.

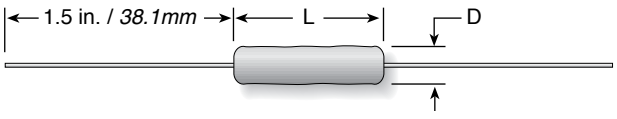
Note: Due to space restrictions, parts are stamped with wattage ratings reduced to the nearest whole number. The actual wattage ratings are as published in this catalog.

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)

90 Series

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ORDERING INFORMATION

Non-Inductive Winding
Optional (blank = std. winding)

RoHS Compliant

91NJR10E

90 Series	Wattage	Tolerance	Resistance Value
Series-Lead	1 = 1.5W	J = 5%	1R0 = 1.0Ω
Free Vitreous	2 = 2.25W		10R = 10.0Ω
Enamel Molded	3 = 3.25W		250 = 250Ω
Axial Term.	5 = 5W		1K0 = 1,000Ω
Wirewound	0 = 11W		4K5 = 4,500Ω
			51K = 51,000Ω

Standard part numbers for 90 series

Ohmic value	Part No. Prefix ➤ / Suffix ▼	Wattage 1.5 (91J)	2.25 (92J)	3.25 (93J)	5 (95J)	11 (90J)
1	1R0	✔	✔	✔	✔	✤
1.1	1R1	✔	✤	✤	✔	✤
1.2	1R2	✔	✔	✔	✔	✤
1.3	1R3	✤	✔	✔	✤	✔
1.5	1R5	✔	✔	✔	✔	✔
1.6	1R6	✤	✤	✤	✤	✤
1.8	1R8	✔	✤	✤	✔	✔
2	2R0	✔	✔	✔	✔	✔
2.2	2R2	✔	✔	✔	✔	✔
2.4	2R4	✔	✤	✔	✔	✔
2.7	2R7	✔	✔	✔	✔	✔
3	3R0	✔	✔	✔	✔	✔
3.3	3R3	✔	✔	✔	✔	✔
3.6	3R6	✤	✤	✤	✔	✤
3.9	3R9	✔	✔	✔	✔	✔
4	4R0	✔	✔	✔	✔	✔
4.3	4R3	✤	✔	✤	✔	✔
4.7	4R7	✔	✔	✔	✔	✔
5	5R0	✔	✔	✔	✔	✔
5.1	5R1	✤	✔	✔	✤	✤
5.6	5R6	✔	✔	✔	✔	✔
6.2	6R2	✤	✔	✔	✔	✔
6.8	6R8	✔	✤	✔	✔	✔
7.5	7R5	✤	✔	✔	✔	✔
8.2	8R2	✤	✔	✔	✔	✔
9.1	9R1	✤	✤	✔	✔	✤
10	10R	✔	✔	✔	✔	✔
11	11R	✤	✤	✤	✔	✔
12	12R	✔	✔	✔	✔	✔
13	13R	✤	✤	✔	✔	✤
15	15R	✔	✔	✔	✔	✔
16	16R	✔	✤	✔	✔	✔
18	18R	✔	✔	✔	✔	✔
20	20R	✔	✔	✔	✔	✔
22	22R	✔	✔	✔	✔	✔
24	24R	✤	✤	✔	✔	✤
25	25R	✤	✔	✔	✔	✔
27	27R	✔	✔	✔	✔	✔
30	30R	✔	✔	✔	✔	✔
33	33R	✔	✤	✔	✔	✔
35	35R	✔	✤	✔	✔	✔
36	36R	✔	✤	✤	✔	✤
39	39R	✔	✔	✔	✔	✔
40	40R	✤	✔	✔	✔	✔
43	43R	✤	✔	✔	✔	✔
47	47R	✔	✔	✔	✔	✔
50	50R	✔	✔	✔	✔	✔
51	51R	✤	✤	✔	✔	✤
56	56R	✔	✔	✔	✔	✔
62	62R	✔	✔		✔	✔
68	68R	✔	✔	✔	✔	✔
75	75R	✔	✔	✔	✔	✔
82	82R	✔	✔	✔	✔	✔
91	91R	✔	✤	✔	✔	✔
100	100	✔	✔	✔	✔	✔
110	110	✔	✔	✔	✔	✔
120	120	✔	✔	✔	✔	✔
130	130	✤	✔	✔	✔	✔
150	150	✔	✔	✔	✔	✔
160	160	✔	✤	✔	✔	✔
180	180	✔	✔	✔	✔	✔
200	200	✔	✔	✔	✔	✔
220	220	✔	✔	✔	✔	✔
240	240	✤	✤	✔	✔	✔
250	250	✔	✔	✔	✔	✔
270	270	✔	✔	✔	✔	✔
300	300	✔	✔	✔	✔	✔
330	330	✔	✔	✔	✔	✔
350	350	✔	✔	✔	✔	✤
360	360	✔	✔	✔	✔	✤
390	390	✔	✔	✔	✔	✔
400	400	✔	✔	✔	✔	✔
430	430	✔	✔	✔	✔	✤
450	450	✤	✔	✔	✤	✤
470	470	✔	✔	✔	✔	✔
500	500	✔	✔	✔	✔	✔
510	510	✤	✔	✔	✔	✤
560	560	✔	✔	✔	✔	✔
600	600	✔	✤	✔	✔	✔
620	620	✔	✤	✔	✤	✤
680	680	✔	✔	✔	✔	✔
700	700	✤	✔	✔	✔	✤
750	750	✔	✔	✔	✔	✔
800	800	✔	✤	✔	✔	✔
820	820	✔	✔	✔	✔	✔
900	900	✤	✤	✔	✔	✤
910	910	✤	✤	✔	✤	✤
1,000	1K0	✔	✔	✔	✔	✔
1,100	1K1	✤	✔	✔	✤	✤
1,200	1K2	✔	✔	✔	✔	✔
1,300	1K3	✔	✔	✔	✔	✔
1,400	1K4	✤	✔	✤	✤	✔
1,500	1K5	✔	✔	✔	✔	✔
1,600	1K6	✤	✤	✔	✔	✔
1,800	1K8	✔	✔	✔	✔	✔
2,000	2K0	✔	✔	✔	✔	✔
2,200	2K2	✔	✔	✔	✔	✔
2,400	2K4	✔	✔	✔	✔	✤
2,500	2K5	✔	✔	✔	✔	✔
2,700	2K7	✤	✔	✔	✔	✔
3,000	3K0	✔	✔	✔	✔	✔
3,300	3K3			✔	✔	✔
3,500	3K5			✔	✔	✔
3,600	3K6			✔	✔	✔
3,900	3K9			✔	✔	✔
4,000	4K0			✔	✔	✔
4,300	4K3			✤	✔	✔
4,500	4K5			✔	✔	✔
4,700	4K7			✔	✔	✔
5,000	5K0			✔	✔	✔
5,100	5K1			✤	✔	✔
5,600	5K6			✔	✔	✔
6,000	6K0			✔	✔	✔
6,200	6K2			✔	✔	✤
6,800	6K8			✔	✔	✔
7,000	7K0			✔	✔	✔
7,500	7K5			✔	✔	✔
8,000	8K0			✔	✔	✔
8,200	8K2			✔	✔	✔
9,000	9K0			✔	✔	✤
9,100	9K1			✔		✤
10,000	10K			✔	✔	✔
11,000	11K				✔	✤
12,000	12K				✔	✔
13,000	13K				✔	✤
14,000	14K				✔	✤
15,000	15K				✔	✔
16,000	16K				✔	✤
17,000	17K				✤	✤
18,000	18K				✔	✔
20,000	20K				✔	✔
22,000	22K				✔	✔
24,000	24K				✤	✤
25,000	25K				✔	✔
27,000	27K					✔
30,000	30K					✔
33,000	33K					✔
35,000	35K					✤
36,000	36K					✔
39,000	39K					✔
40,000	40K					✔
43,000	43K					✔
45,000	45K					✤
47,000	47K					✔
50,000	50K					✔
51,000	51K					✤

✔ = 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