

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.)



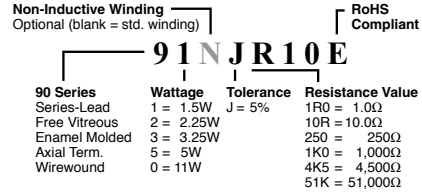
Series	Wattage	Length	Diameter	Lead gauge
91	1.5	0.452 / 11.5	0.140 / 3.6	24
92	2.25	0.405 / 10.3	0.219 / 5.6	20
93	3.25	0.577 / 14.7	0.234 / 5.9	20
95	5.0	0.968 / 24.6	0.265 / 6.7	20
96	6.5	0.952 / 24.2	0.343 / 8.7	20
90	11.0	1.811 / 46.0	0.343 / 8.7	20

(continued)

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ORDERING INFORMATION



Standard part numbers for 90 series

Ohmic value	Part No. Prefix Suffix	Wattage					Ohmic value	Part No. Prefix Suffix	Wattage					Ohmic value	Part No. Prefix Suffix	Wattage			Ohmic value	Part No. Prefix Suffix	Wattage					
		1.5	2.25	3.25	5	11			1.5	2.25	3.25	5	11			3.25	5	11			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	✓	✓	✓	1,300	—1K3	✓	✓				
7.5	—7R5	✓	✓	✓	✓	✓	130	—130	✖	✓	✓	✓	✓	1,400	—1K4	✓	✓	✓	1,400	—1K4	✓	✓				
8.2	—8R2	✖	✓	✓	✓	✓	150	—150	✓	✓	✓	✓	✓	1,500	—1K5	✓	✓	✓	1,500	—1K5	✓	✓				
9.1	—9R1	✓	✓	✓	✓	✓	160	—160	✓	✓	✓	✓	✓	1,600	—1K6	✖	✓	✓	1,600	—1K6	✓	✓				
10	—10R	✓	✓	✓	✓	✓	180	—180	✓	✓	✓	✓	✓	1,800	—1K8	✓	✓	✓	1,800	—1K8	✓	✓				
11	—11R	✓	✓	✓	✓	✓	200	—200	✓	✓	✓	✓	✓	2,000	—2K0	✓	✓	✓	2,000	—2K0	✓	✓				
12	—12R	✓	✓	✓	✓	✓	220	—220	✓	✓	✓	✓	✓	2,200	—2K2	✓	✓	✓	2,200	—2K2	✓	✓				
13	—13R	✓	✓	✓	✓	✓	240	—240	✖	✓	✓	✓	✓	2,400	—2K4	✓	✓	✓	2,400	—2K4	✓	✓				
15	—15R	✓	✓	✓	✓	✓	250	—250	✓	✓	✓	✓	✓	2,500	—2K5	✓	✓	✓	2,500	—2K5	✓	✓				
16	—16R	✓	✓	✓	✓	✓	270	—270	✓	✓	✓	✓	✓	2,700	—2K7	✖	✓	✓	2,700	—2K7	✓	✓				
18	—18R	✓	✓	✓	✓	✓	300	—300	✓	✓	✓	✓	✓	3,000	—3K0	✓	✓	✓	3,000	—3K0	✓	✓				
20	—20R	✓	✓	✓	✓	✓	330	—330	✓	✓	✓	✓	✓	3,300	—3K3	✓	✓	✓	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