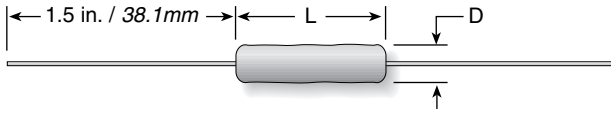


90 Series

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

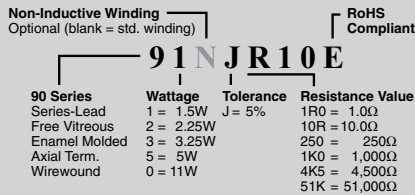


| Series | Wattage* | Ohms | Dimensions (in. / mm) | | Voltage | Lead ga. |
|--------|----------|------------|-----------------------|-------------|---------|----------|
| | | | Length | Diam. | | |
| 91 | 1.5 | 0.1Ω-3.6K | 0.437 / 11.1 | 0.150 / 3.6 | 150 | 24 |
| 92 | 2.25 | 0.1Ω-3.5K | 0.390 / 9.9 | 0.219 / 5.6 | 85 | 20 |
| 93 | 3.25 | 0.1Ω-10.5K | 0.562 / 14.3 | 0.234 / 5.9 | 200 | 20 |
| 95 | 5.0 | 0.1Ω-25K | 0.953 / 24.2 | 0.234 / 5.9 | 495 | 20 |
| 90 | 11.0 | 0.1Ω-91K | 1.796 / 45.6 | 0.343 / 8.7 | 1080 | 20 |

* 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.

ORDERING INFORMATION



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.

SPECIFICATIONS

Material

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.

Electrical

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

STANDARD PART NUMBERS FOR 90 SERIES

| Wattage | | | | | | Wattage | | | | | | Wattage | | | | | | Wattage | | | | | | Wattage | | | | | |
|-------------|------------------------|---------|------|------|---|---------|-------------|------------------------|---------|------|------|---------|----|-------------|------------------------|---------|------|---------|---|----|-------------|------------------------|---------|---------|----|-------------|------------------------|---|----|
| 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 | | | 1.5 | 2.25 | 3.25 | 5 | 11 | | | 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.

Check product availability at www.ohmite.com

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)



Mounting Clip

For 90 Series

STANDARD PART NUMBERS FOR 90 SERIES 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 | ✦ = Most popular standard values |
| ✓ 5902 | 2.25 | 0.35 / 8.890 | 0.217 / 5.500 | 0.275 / 6.980 | 2 | 0.156 / 3.969 | 0.71 / 1.803 | ✓ = Standard values |
| ✦ 5904 | 3.25 | 0.50 / 12.700 | 0.257 / 6.500 | 0.319 / 8.103 | 2 | 0.250 / 6.350 | 0.093 / 2.362 | ✦ = Non-standard values subject to minimum handling charge per item |
| ✦ 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 | |