20 Series

Vitreous Enamel Conformal Axial Terminal Wirewound, 5% Tolerance Std.

The 20 Series axial terminal resistors are both durable and economical. They have all the electrical attributes of the more expensive 90 Series resistors, including all-welded construction.

They offer the durability of a lead free conformal vitreous enamel coating and are ideal for computer, communications and industrial applications in which cost, quality, and reliability are key considerations.

FEATURES

- Rugged vitreous enamel coating withstands high humidity and temperature cycling.
- Durable construction, recommended for industrial applications where reliability is paramount.
- All-welded construction.
- Flame resistant lead free vitreous enamel coating.
- RoHS compliant; Add "E" suffix to part number to specify.

SERIES SPECIFICATIONS

Series	Wattage	Ohms	Max. Voltage*
21	1	1.0-3.0K	75
22	2	1.0-3.0K	65
23	3	0.1-10K	135
25	5	0.1-28K	330
27	7	0.1-25K	450
20	10	0.1-100K	720

12.5 watt size available on special order

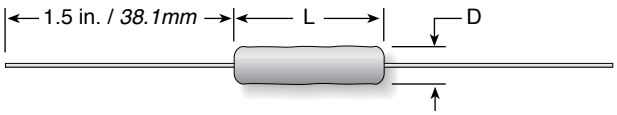
*Maximum Voltage is based on Ohm's Law [$V=\sqrt{(P*R)}$] as limited by the resistance value of specified product

CHARACTERISTICS

Coating	Conformal lead free vitreous enamel
Core	Ceramic.
Terminals	Solder-coated 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% standard; other tolerances available
Power rating	Based on 25°C free air rating (other wattages available)
Overload	Under 7 watts: 5 times rated wattage for 5 seconds; 7 watts and over: 10 times rated wattage for 5 seconds
Temperature coefficient	1 to 9.99 ohms: ±50 ppm/°C; 10 ohms and over: ±30 ppm/°C

DIMENSIONS

(in./mm max.)



Series	Wattage	Length* (max.)	Diam.* (max.)	Lead ga.
21	1	0.421 / 10.7	0.156 / 4.0	24
22	2	0.421 / 10.7	0.219 / 5.6	20
23	3	0.515 / 13.1	0.220 / 5.6	20
25	5	1.015 / 25.8	0.276 / 7.0	20
27	7	1.265 / 32.1	0.394 / 10.0	20
20	10	1.859 / 47.2	0.394 / 10.0	20

*For units below 1Ω, add 15% to body diameter, 10% to body length.

(continued)

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ORDERING INFORMATION

Standard part numbers

Ohmic value	Part No. Prefix ➤ Suffix ▼	Wattage 1 21J	2 22J	3 23J	5 25J	7 27J	10 20J
0.10	R10			✔	✔		✔
0.13	R13			✔	✔		✔
0.15	R15			✔	✔		✔
0.20	R20			✔	✔		✔
0.25	R25			✔	✔		✔
0.30	R30			✔	✔		✔
0.33	R33			✔	✔		✔
0.50	R50			✔	✔		✔
0.75	R75			✔	✔		✔
1	1R0	✔	✔	✔	✔	✔	✔
1.5	1R5	✔	✔	✔	✔	✔	✔
2	2R0	✔	✔	✔	✔	✤	✔
2.2	2R2	✔	✔	✔	✔	✤	✔
3	3R0	✔	✔	✔	✔	✔	✔
4	4R0	✔	✤	✔	✔	✤	✔
5	5R0	✔	✔	✔	✔	✤	✔
7.5	7R5	✔	✔	✔	✔	✤	✔
10	10R	✔	✔	✔	✔	✤	✔
12	12R	✤	✤	✔	✔	✤	✔
15	15R	✔	✤	✔	✤	✔	✔
18	18R	✔	✤	✔	✔	✤	✔
20	20R	✔	✔	✔	✔	✤	✔
22	22R	✔	✔	✔	✔	✤	✔
25	25R	✤	✔	✔	✔	✤	✔
27	27R	✔	✔	✔	✔	✤	✤
30	30R	✔	✔	✔	✔	✤	✔
33	33R	✔	✔	✔	✔	✔	✔
35	35R	✤	✤	✤	✔	✤	✤
39	39R	✔	✔	✔	✤	✤	✔
40	40R	✔	✤	✔	✔	✤	✔
47	47R	✔	✔	✔	✔	✤	✔
50	50R	✔	✔	✔	✔	✔	✔
56	56R	✤	✔	✔	✔	✤	✤

Ohmic value	Part No. Prefix ➤ Suffix ▼	Wattage 1 21J	2 22J	3 23J	5 25J	7 27J	10 20J
62	62R	✤	✤	✔	✔	✤	✔
68	68R	✔	✔	✔	✔	✤	✔
75	75R	✔	✔	✔	✔	✤	✔
82	82R	✔	✔	✔	✔	✤	✔
100	100	✔	✤	✔	✔	✔	✔
120	120	✔	✔	✔	✔	✤	✔
125	125	✤	✤	✔	✔	✔	✔
150	150	✔	✔	✔	✔	✤	✔
180	180	✔	✔	✔	✔	✤	✔
200	200	✔	✔	✔	✔	✔	✔
220	220	✔	✔	✔	✔	✤	✔
225	225	✤	✤	✤	✤	✤	✤
250	250	✔	✔	✔	✔	✤	✔
270	270	✔	✔	✔	✔	✤	✤
300	300	✔	✔	✔	✔	✤	✔
330	330	✔	✔	✔	✔	✤	✔
350	350	✤	✔	✤	✔	✤	✔
390	390	✔	✤	✔	✤	✤	✤
400	400	✤	✤	✔	✔	✤	✔
450	450	✤	✤	✤	✔	✤	✔
470	470	✔	✔	✔	✔	✤	✔
500	500	✔	✔	✔	✔	✔	✔
560	560	✔	✔	✔	✔	✤	✤
600	600	✔	✔	✔	✔	✤	✔
680	680	✔	✤	✔	✔	✤	✔
750	750	✔	✔	✔	✔	✤	✔
800	800	✔	✤	✔	✔	✤	✤
820	820	✔	✔	✔	✔	✤	✔
900	900	✤	✔	✔	✔	✤	✤
1,000	1K0	✔	✔	✔	✔	✔	✔
1,100	1K1	✤	✤	✔	✔	✤	✔
1,200	1K2	✔	✔	✔	✔	✤	✔
1,500	1K5	✔	✔	✔	✔	✤	✔

Ohmic value	Part No. Prefix ➤ Suffix ▼	Wattage 1 21J	2 22J	3 23J	5 25J	7 27J	10 20J
1,800	1K8	✔	✔	✔	✤	✤	✤
2,000	2K0	✤	✔	✔	✔	✤	✔
2,200	2K2	✔	✔	✔	✔	✤	✔
2,500	2K5	✔	✔	✔	✔	✤	✔
2,700	2K7	✔	✔	✔	✤	✤	✔
3,000	3K0	✔	✔	✔	✔	✤	✔
3,300	3K3			✔	✔	✤	✤
3,500	3K5			✤	✔	✤	✤
3,900	3K9			✔	✔	✤	✔
4,000	4K0			✔	✔	✤	✔
4,500	4K5			✤	✔	✤	✤
4,700	4K7			✔	✔	✤	✔
5,000	5K0			✔	✔	✔	✔
6,000	6K0			✔	✔	✔	✔
6,800	6K8			✔	✔	✤	✤
7,000	7K0			✔	✔	✤	✤
7,500	7K5			✔	✔	✤	✔
8,000	8K0			✔	✔	✤	✔
9,000	9K0			✔	✤	✤	✤
10,000	10K			✔	✔	✤	✔
12,000	12K				✔	✤	✔
13,000	13K					✤	✔
15,000	15K				✔	✤	✔
17,000	17K					✤	✤
20,000	20K				✔	✔	✔
22,000	22K				✔	✤	✤
25,000	25K				✔	✤	✔
30,000	30K						✔
33,000	33K						✤
35,000	35K						✤
40,000	40K						✔
50,000	50K						✔

✔ = 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.

RoHS Compliant

2 1 J R 1 0 E

20 Series	Wattage	Tolerance	Resistance Value
Vitreous Enamel	1 = 1W	J = 5%	R10 = 0.10Ω
Axial Lead	2		1R0 = 1.0Ω
Wirewound	3		10R = 10.0Ω
	5		250 = 250Ω
	7		1K0 = 1,000Ω
	0 = 10W		4K5 = 4,500Ω
			50K = 50,000Ω