

# 270 Series

## Vitreous Enamel Power



Select 270 Type fixed resistors for applications requiring wattage ratings from 12 to 1000 watts. The 270 Type resistors are equipped with lug terminals suitable for soldering or sturdy bolt connection. When secure mounting is required, the hollow core of these resistors permit fastening with spring-type brackets, thru bolts or thru bolts with slotted-steel brackets.

Suitable for rugged applications, the 270 Type resistors feature all-welded construction and durable lead free vitreous enamel coating. Mounting brackets not included with resistors.

### FEATURES

- Terminals suitable for soldering or bolt connection
- High wattage applications
- Rugged lead free vitreous enamel coating
- Flame resistant coating
- All-welded construction
- RoHS compliant available
- “Fast on” option – see terminal 538, <http://www.ohmite.com/techdata/terminals.pdf>

### SERIES SPECIFICATIONS

| Series | Wattage | Ohms      | Core Code | Voltage | Std. Terminal |
|--------|---------|-----------|-----------|---------|---------------|
| L12    | 12      | 0.1-51K   | D         | 565     | 57            |
| L25    | 25      | 0.15-100K | K         | 625     | 40            |
| L50    | 50      | 0.38-260K | K         | 1625    | 40            |
| L100   | 100     | 0.23-101K | M         | 2845    | 40            |
| L175   | 175     | 0.13-101K | P         | 3595    | 46            |
| L225   | 225     | 0.16-129K | P         | 4595    | 46            |
| L500   | 500     | 0.38-218K | S         | 4970    | 45            |
| L1000  | 1000    | 0.69-392K | S         | 8900    | 45            |

Non-Inductive versions available; Other sizes available; Also available in low cost Centohm or Silicone coating; Consult Ohmite.

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

### CHARACTERISTICS

| <b>Coating</b>                                      | Lead free vitreous enamel. Large models (500 watts and up) are supplied in Silicone Ceramic. Also available in low-cost Centohm coating; Consult factory.  |              |                  |     |        |     |         |     |         |      |         |
|---|--|--------------|------------------|-----|--------|-----|---------|-----|---------|------|---------|
| <b>Core</b>   | Tubular ceramic.   |              |                  |     |        |     |         |     |         |      |         |
| <b>Terminals</b>                                    | Solder coated radial lug. RoHS solder composition is 96% Sn, 3.5% Ag, 0.5% Cu  |              |                  |     |        |     |         |     |         |      |         |
| <b>Derating</b>                                     | Linearly from 100% @ +25°C to 0% @ +350°C.   |              |                  |     |        |     |         |     |         |      |         |
| <b>Tolerance</b>                                    | ±5% 1Ω and over (J); ±10% under 1Ω (K)   |              |                  |     |        |     |         |     |         |      |         |
| <b>Power rating</b>                                 | Based on 25°C free air rating.   |              |                  |     |        |     |         |     |         |      |         |
| <b>Overload</b>                                     | 10 times rated wattage for 5 seconds.  |              |                  |     |        |     |         |     |         |      |         |
| <b>Temperature coefficient</b>                      | 1 to 20Ω: ±400 ppm/°C; Above 20Ω: ±260 ppm/°C  |              |                  |     |        |     |         |     |         |      |         |
| <b>Dielectric withstanding voltage</b>              | 1000 VAC: 12 to 100 watt rating. 3000 VAC: 175 to 225 watt rating (Measured from terminal to mounting bracket)   |              |                  |     |        |     |         |     |         |      |         |
| <b>Max. amps</b>                                    | use the formula $\sqrt{P/R}$   |              |                  |     |        |     |         |     |         |      |         |
| <b>Power limitations for high resistance values</b> | When resistance exceeds the resistance values listed, derate the Power Rating by 25% to improve reliability. <i>No power derating necessary for ratings higher than 100W.</i>  |              |                  |     |        |     |         |     |         |      |         |
|   | <table border="1"> <thead> <tr> <th>Power rating</th> <th>Resistance value</th> </tr> </thead> <tbody> <tr> <td>12W</td> <td>3,900Ω</td> </tr> <tr> <td>25W</td> <td>12,000Ω</td> </tr> <tr> <td>50W</td> <td>35,000Ω</td> </tr> <tr> <td>100W</td> <td>75,000Ω</td> </tr> </tbody> </table> | Power rating | Resistance value | 12W | 3,900Ω | 25W | 12,000Ω | 50W | 35,000Ω | 100W | 75,000Ω |
| Power rating  | Resistance value   |              |                  |     |        |     |         |     |         |      |         |
| 12W   | 3,900Ω   |              |                  |     |        |     |         |     |         |      |         |
| 25W   | 12,000Ω  |              |                  |     |        |     |         |     |         |      |         |
| 50W   | 35,000Ω  |              |                  |     |        |     |         |     |         |      |         |
| 100W  | 75,000Ω  |              |                  |     |        |     |         |     |         |      |         |

**Mounting Hardware** see <http://www.ohmite.com/techdata/lug-mounting.php>

(continued)

# 270 Series

## Vitreous Enamel Power

### DIMENSIONS

in./mm



| Series | Wattage | L    |       | D     |      | C            | Core Code* | Std. Term.** |
|--------|---------|------|-------|-------|------|--------------|------------|--------------|
| L12    | 12      | 1.75 | 44.4  | 0.313 | 7.94 | 0.188 / 4.76 | D          | 57           |
| L25    | 25      | 2.0  | 50.8  | 0.562 | 14.3 | 0.313 / 7.94 | K          | 40           |
| L50    | 50      | 4.0  | 101.6 | 0.562 | 14.3 | 0.313 / 7.94 | K          | 40           |
| L100   | 100     | 6.5  | 165.1 | 0.750 | 19.1 | 0.50 / 12.7  | M          | 40           |
| L175   | 175     | 8.5  | 215.9 | 1.125 | 28.6 | 0.75 / 19.1  | P          | 46           |
| L225   | 225     | 10.5 | 266.7 | 1.125 | 28.6 | 0.75 / 19.1  | P          | 46           |
| L500   | 500     | 12.0 | 304.8 | 2.50  | 63.5 | 1.75 / 44.5  | S          | 45           |
| L1000  | 1000    | 20.0 | 508.0 | 2.50  | 63.5 | 1.75 / 44.5  | S          | 45           |

\* <http://www.ohmite.com/techdata/200-210-270-custom.pdf>

\*\* <http://www.ohmite.com/techdata/terminals.pdf>

### ORDERING INFORMATION

#### Standard

|  |  |   |
|--|--|---|
| F = Fast on (optional)                                     | Non-inductive<br>Blank = Standard<br>N = Non-inductive | RoHS Compliant  |
| <b>L</b>   | <b>25</b>  | <b>J 100 E</b>  |
| Series   | Wattage  | Tolerance   |
| Coating<br>Blank = Vitreous<br>C = Centohm<br>S = Silicone |  | J = 5%<br>K = 10%   |
|  |  | Ohms<br>1R0 = 1Ω<br>250 = 250Ω<br>1K0 = 1,000Ω<br>25K = 25,000Ω<br>25K5 = 25,500Ω |

#### Made-to-order

|  |   |  |
|--|---|--|
| Non-inductive<br>Blank = Standard<br>N = Non-inductive | Core Diameter<br>See "Core and Terminal Selection"          | RoHS Compliant   |
| <b>270</b>   | <b>50</b>   | <b>K 405 R 00 J E</b>  |
| Coating<br>270 = Vitreous<br>470 = Silicone Ceramic    | Wattage   | Ohms   |
|  |   | R500 = 0.500Ω<br>1R00 = 1Ω<br>250R = 250Ω<br>1K00 = 1,000Ω<br>25K0 = 25,000Ω<br>25K5 = 25,500Ω |
|  | Terminal Type<br>See "Resistor Terminals for Tubular Cores" | Tolerance<br>J = 5%<br>K = 10%   |

See website for custom core and terminal info

#### Standard part numbers for 270 series

| Ohmic value | 12 Watt  |           | Ohmic value | 12 Watt  |          | Ohmic value | Wattage  |        |          |        |          |        |          |        |   |         |       |   |   |   |   |   |
|-------------|----------|-----------|-------------|----------|----------|-------------|----------|--------|----------|--------|----------|--------|----------|--------|---|---------|-------|---|---|---|---|---|
|             | Part No. | Prefix    |             | Part No. | Prefix   |             | Part No. | Prefix | Part No. | Prefix | Part No. | Prefix | Part No. | Prefix |   |         |       |   |   |   |   |   |
| 0.51        | ✓        | L12JKR51E | 180         | ✓        | L12J180E | 1           | 1R0E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 2,500   | 2K5E  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1           | ✓        | L12J1R0E  | 270         | ✓        | L12J270E | 2           | 2R0E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 3,000   | 3K0E  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3.3         | ✓        | L12J3R3E  | 330         | ✓        | L12J330E | 3           | 3R0E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 3,500   | 3K5E  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4.7         | ✓        | L12J4R7E  | 390         | ✓        | L12J390E | 4           | 4R0E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 4,000   | 4K0E  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10          | ✓        | L12J10RE  | 470         | ✓        | L12J470E | 5           | 5R0E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 5,000   | 5K0E  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 12          | ✓        | L12J12RE  | 560         | ✓        | L12J560E | 10          | 10RE     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 6,000   | 6K0E  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 15          | ✓        | L12J15RE  | 1000        | ✓        | L12J1K0E | 15          | 15RE     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 7,500   | 7K5E  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 22          | ✓        | L12J22RE  | 1200        | ✓        | L12J1K2E | 25          | 25RE     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 10,000  | 10KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 27          | ✓        | L12J27RE  | 1500        | ✓        | L12J1K5E | 50          | 50RE     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 12,000  | 12KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 33          | ✓        | L12J33RE  | 2200        | ✓        | L12J2K2E | 75          | 75RE     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 15,000  | 15KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 47          | ✓        | L12J47RE  | 2700        | ✓        | L12J2K7E | 100         | 100E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 20,000  | 20KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 68          | ✓        | L12J68RE  | 4700        | ✓        | L12J4K7E | 125         | 125E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 25,000  | 25KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 82          | ✓        | L12J82RE  | 10000       | ✓        | L12J10KE | 150         | 150E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 30,000  | 30KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 100         | ✓        | L12J100E  | 18000       | ✓        | L12J18KE | 200         | 200E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 35,000  | 35KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 150         | ✓        | L12J150E  | 22000       | ✓        | L12J22KE | 250         | 250E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 40,000  | 40KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
|             |          |           | 51000       | ✓        | L12J51KE | 500         | 500E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 50,000  | 50KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
|             |          |           |             |          |          | 750         | 750E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 60,000  | 60KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
|             |          |           |             |          |          | 800         | 800E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 75,000  | 75KE  | ✓ | ✓ | ✓ | ✓ | ✓ |
|             |          |           |             |          |          | 1,000       | 1K0E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 100,000 | 100KE | ✓ | ✓ | ✓ | ✓ | ✓ |
|             |          |           |             |          |          | 1,500       | 1K5E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 150,000 | 150KE | ✓ | ✓ | ✓ | ✓ | ✓ |
|             |          |           |             |          |          | 2,000       | 2K0E     | ✓      | ✓        | ✓      | ✓        | ✓      | ✓        | ✓      | ✓ | 200,000 | 200KE | ✓ | ✓ | ✓ | ✓ | ✓ |
|             |          |           |             |          |          |             |          |        |          |        |          |        |          |        |   | 250,000 | 250KE | ✓ | ✓ | ✓ | ✓ | ✓ |

✓ = Standard values; check availability using the worldwide inventory search at [www.ohmite.com](http://www.ohmite.com)

Red outlined values supplied in Silicone-Ceramic coatings instead of vitreous enamel.