

250 Series



'Thin' Stackohm® Vitreous Enamel Power



When limited space is a consideration, choose Ohmite's "thin" stackable 250 Type resistors. These oval-shaped ceramic-core resistors feature a low profile to permit installation in spaces with height restrictions. They are also equipped with integral mounting brackets so they can be fastened to a chassis and stacked in locations with limited surface area.

When properly fastened, the mounting brackets add a heat sinking benefit resulting in a smaller size per watt. Durable 250 Type resistors are fully welded and coated with lead free vitreous enamel.

FEATURES

- Small size-to-power ratio.
- Stackable
- Integral mounting bracket conducts heat to mounting surface.
- Low profile for use in equipment where space is limited.
- All-welded construction.
- RoHS compliant product available. Add "E" suffix to part number to specify.

SERIES SPECIFICATIONS

| Series | Wattage | Ohms | Max. Voltage* |
|--------|---------|---------|---------------|
| F10 | 10 | 1.0-15K | 187 |
| F20 | 20 | 1.0-50K | 815 |
| F30 | 30 | 1.0-10K | 281 |
| F40 | 40 | 1.0-25K | 655 |
| F55 | 55 | 1.0-30K | 1405 |

Adjustable versions and other sizes available; Consult Ohmite 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

| | |
|---|--|
| Coating | Lead free vitreous enamel |
| Core | Ceramic |
| Terminals | Tinned lug with hole. RoHS solder composition is 96% Sn, 3.5% Ag, 0.5% Cu |
| Derating | Linearly from 100% @ +25°C to 0% @ +350°C |
| Tolerance | ±5% (J) |
| Power rating | Based on mounting a single resistor on a metal surface measuring 10" (254mm) square by 0.04" (1.016mm) thick. Reduce rating by 15% when mounting on non-metallic surface |
| Overload | 10x rated wattage for 5 seconds if max. voltage is not exceeded |
| Temperature coefficient | 1 to 20Ω: ±400 ppm/°C Over 20Ω: ±260 ppm/°C |
| Dielectric with-standing voltage | 500 VAC: 10 and 20 watt rating. 1000 VAC: 30, 40 and 55 watt rating (measured from lug to mounting bracket) |
| Max. amps | To calculate, use the formula $\sqrt{P/R}$ |

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DIMENSIONS

(in. / mm)



| Series | Wattage | Length L | Length A |
|--------|---------|----------------|-----------------|
| F10 | 10 | 0.750 / 19.050 | 1.000 / 25.400 |
| F20 | 20 | 2.000 / 50.800 | 2.313 / 58.750 |
| F30 | 30 | 1.250 / 31.750 | 2.000 / 50.800 |
| F40 | 40 | 2.000 / 50.800 | 2.750 / 69.850 |
| F55 | 55 | 3.500 / 88.900 | 4.250 / 107.950 |

*Reference dimension only; varies according to resistance value.

Note: When resistors are stacked, use washers or spacers as required to insure clearance and improve power dissipation.

MOUNTING

In addition to the standard box bracket, stud type brackets are available for stacking the standard size resistors. Stud type brackets are available in two heights: standard (SS, 0.437"/11.113mm) and high (SSH, 0.531"/13.494mm). The SSH stud is recommended when stacking the adjustable Type 260, as it assures clearance for the adjustable lugs to pass each other. Spacer washer No. 6027 (O.D. 0.219"/5.556mm, I.D. 0.125"/3.175mm, thickness 0.094"/2.381mm) is recommended for use with the miniature adjustable and fixed resistors to provide clearance, as explained above, or increased wattage. See chart.

Derating for stacked mounting

Stacked resistors should be derated to prevent excessive temperatures due to proximity. Approximate ratings are given in the table.

| No. of Resistors | Percent of Single Unit Rating | | |
|------------------|-------------------------------|-----------|--|
| | Std. or Inter. | Miniature | Miniature with 0.094" (2.381 mm) Spacer Washer |
| 2 | 70 | 70 | 75 |
| 3 | 60 | 60 | 69 |
| 4 | 50 | 50 | 60 |



(continued)

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CORE AND TERMINAL SELECTION

For Made to Order Type 250 Stackohm Resistors

| Free Air Wattage Rating* | Core Dimensions† | | | Min. Ohms | Max. Practical Ohms | Code for Core Dia. | Fig. No. | Dimension A | Dimension B | Standard Terminal |
|--------------------------------|--------------------|-------------------|------------------|--------------|---------------------------|-----------------------------|-------------|--|-------------------|----------------------|
| | Length L | Width W | Thickness T | | | | | | | |
| Miniature | | | | | | | | | | |
| 10 | 0.750" (19.050mm) | 0.375" (9.525mm) | 0.125" (3.175mm) | 1 | 15,000 | TA | 1 | 1.000" (25.400mm) | 0.375" (9.525mm) | 51 |
| 15 | 1.000" (25.400mm) | 0.375" (9.525mm) | 0.125" (3.175mm) | 1 | 25,000 | TA | 1 | 1.250" (31.750mm) | 0.375" (9.525mm) | 51 |
| 20 | 2.000" (50.800mm) | 0.375" (9.525mm) | 0.125" (3.175mm) | 1 | 50,000 | TA | 1 | 2.313" (58.750mm) | 0.375" (9.525mm) | 51 |
| 12 | 0.688" (17.463mm) | 0.594" (15.081mm) | 0.234" (5.953mm) | 1 | 20,000 | TB | ** | | | 51 |
| Intermediate | | | | | | | | | | |
| 21 | 1.000" (25.400mm) | 0.813" (20.638mm) | 0.250" (6.350mm) | 1 | 8,000 | TD | 2 | 1.313" (33.350mm) | 0.594" (15.081mm) | 51 |
| 25 | 1.500" (38.100mm) | 0.813" (20.638mm) | 0.250" (6.350mm) | 1 | 15,000 | TD | 2 | 1.813" (46.050mm) | 0.594" (15.081mm) | 51 |
| Standard | | | | | | | | | | |
| 30 | 1.250" (31.750mm) | 1.000" (25.400mm) | 0.250" (6.350mm) | 1 | 10,000 | TE | 5 3,4 | 1.750" (44.450mm) 2.000" (50.800mm) | 0.938" (23.813mm) | 57 |
| 40 | 2.000" (50.800mm) | 1.000" (25.400mm) | 0.250" (6.350mm) | 1 | 25,000 | TE | 5 3,4 | 2.500" (63.500mm) 2.750" (69.850mm) | 0.938" (23.813mm) | 57 |
| 55 | 3.500" (88.900mm) | 1.000" (25.400mm) | 0.250" (6.350mm) | 1 | 30,000 | TE | 5 3,4 | 4.000" (11.600mm) 4.250" (107.950mm) | 0.938" (23.813mm) | 57 |
| 70 | 4.750" (120.650mm) | 1.000" (25.400mm) | 0.250" (6.350mm) | 1 | 120,000‡ | TE | 5 3,4 | 5.250" (133.350mm) 5.500" (139.700mm) | 0.938" (23.813mm) | 57 |
| 95 | 6.000" (152.400mm) | 1.000" (25.400mm) | 0.250" (6.350mm) | 1 | 150,000‡ | TE | 5 3,4 | 6.500" (165.100mm) 6.750" (171.450mm) | 0.938" (23.813mm) | 57 |

*Based on mounting on steel panel 10" (254mm) x 10" x 0.040" (1.016mm).

‡These sizes are Ohmicone (silicone-ceramic) coated-type 450-460.

†Inside dimensions of core are: 0.250" (6.350mm) x 0.047" (1.191mm) for TA; 0.406" (10.319mm) x 0.047" (1.191mm) for TB; 0.438" (11.113mm) x 0.063" (1.588mm) for TD; 0.672" (17.069mm) x 0.063" (1.588mm) for TE.

**User supplies brackets.

ORDERING INFORMATION



Made-to-order Parts

See website for custom core info

Terminal Type: See "Resistor Terminals for Tubular Cores"

Tolerance: J = 5% | RoHS Compliant

2 5 3 0 T E 5 7 B 1 R 0 0 J E

Series: Vitreous enamel: 25 = 250 Fixed, 26 = 260 Adjustable; Silicone ceramic: 45 = 450 Fixed, 46 = 460 Adjustable

Wattage & Core Code: See "Core and Terminal Selection"

Mounting Brackets: (user supplies bracket for core TB) B = Stacking box, S = Stacking stud, std. height, H = Stacking stud high, U = Unit type

Ohms: Example: 1R00 = 1Ω, 250R = 250Ω, 1K00 = 1,000Ω, 25K0 = 25,000Ω, 25K5 = 25,500Ω

Standard Values

| Ohmic value | Part No. Prefix Suffix | Wattage | | | | | Ohmic value | Part No. Prefix Suffix | Wattage | | | | | Ohmic value | Part No. Prefix Suffix | Wattage | | | | | | |
|-------------|------------------------|---------|----|----|----|----|-------------|------------------------|---------|----|----|----|----|-------------|------------------------|---------|----|----|----|----|---|---|
| | | 10 | 20 | 30 | 40 | 55 | | | 10 | 20 | 30 | 40 | 55 | | | 10 | 20 | 30 | 40 | 55 | | |
| 1 | —1R0E | ✓ | ✓ | ✓ | ✓ | ✓ | 50 | —50RE | ✓ | | ✓ | ✓ | ✓ | ✓ | 1,500 | —1K5E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ = Standard values; check availability at www.ohmite.com |
| 1.5 | —1R5E | | | ✓ | ✓ | ✓ | 75 | —75RE | | | ✓ | ✓ | ✓ | ✓ | 2,000 | —2K0E | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 2 | —2R0E | ✓ | ✓ | ✓ | ✓ | ✓ | 100 | —100E | ✓ | ✓ | ✓ | ✓ | ✓ | 2,500 | —2K5E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 3 | —3R0E | | | ✓ | ✓ | ✓ | 150 | —150E | | | ✓ | ✓ | ✓ | 3,000 | —3K0E | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| 4 | —4R0E | | | | ✓ | ✓ | 200 | —200E | ✓ | | ✓ | ✓ | ✓ | 4,000 | —4K0E | | | ✓ | ✓ | ✓ | ✓ | |
| 5 | —5R0E | ✓ | ✓ | ✓ | ✓ | ✓ | 250 | —250E | | ✓ | ✓ | ✓ | ✓ | 5,000 | —5K0E | | | ✓ | | | | |
| 7.5 | —7R5E | ✓ | | | ✓ | ✓ | 300 | —300E | | ✓ | | | | 6,000 | —6K0E | | | | | | | |
| 10 | —10RE | ✓ | ✓ | | ✓ | ✓ | 400 | —400E | ✓ | | | | | 7,500 | —7K5E | | ✓ | | | | | |
| 15 | —15RE | ✓ | ✓ | | ✓ | ✓ | 500 | —500E | ✓ | ✓ | ✓ | ✓ | ✓ | 10,000 | —10KE | | | | | ✓ | ✓ | |
| 20 | —20RE | ✓ | | | ✓ | ✓ | 750 | —750E | | ✓ | ✓ | ✓ | | 15,000 | —15KE | | | | | ✓ | ✓ | |
| 25 | —25RE | ✓ | ✓ | ✓ | ✓ | ✓ | 800 | —800E | | ✓ | | | | 20,000 | —20KE | | | | | ✓ | | |
| 30 | —30RE | ✓ | | | ✓ | ✓ | 1,000 | —1K0E | ✓ | ✓ | ✓ | ✓ | ✓ | 25,000 | —25KE | | | | | ✓ | | |
| 40 | —40RE | | | | ✓ | | 1,250 | —1K25E | ✓ | ✓ | ✓ | | | 40,000 | —40KE | ✓ | | | | | | |