

Wirewound Resistors, Military, MIL-PRF-18546 Qualified, Type RE, Aluminum Housed, Chassis Mount


FEATURES

- Molded construction for total environmental protection
- Complete welded construction
- Qualified to MIL-PRF-18546
- Available in non-inductive styles (type N) with Aryton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect
- Excellent stability in operation (< 1 % change in resistance)

| STANDARD ELECTRICAL SPECIFICATIONS | | | | | |
|------------------------------------|------------------------|-----------------------------------------------|------------------------------|-----------------------|-----------------------|
| MILITARY MODEL | VISHAY REFERENCE MODEL | POWER RATING $P_{25^{\circ}\text{C}}$ W | RESISTANCE RANGE Ω | TOLERANCE $\pm \%$ | WEIGHT (typical) g |
| RE60G | RH005 | 5 | 0.10 to 3.32K | 1 | 3 |
| RE60N | NH005 | 5 | 1.0 to 1.65K | 1 | 3.3 |
| RE65G | RH010 | 10 | 0.10 to 5.62K | 1 | 6 |
| RE65N | NH010 | 10 | 1.0 to 2.8K | 1 | 8.8 |
| RE70G | RH025 | 20 | 0.10 to 12.1K | 1 | 13 |
| RE70N | NH025 | 20 | 1.0 to 6.04K | 1 | 16.5 |
| RE75G | RH050 | 30 | 0.10 to 39.2K | 1 | 28 |
| RE75N | NH050 | 30 | 1.0 to 19.6K | 1 | 35 |
| RE77G | RH100 | 75 | 0.05 to 29.4K | 1 | 350 |
| RE77N | NH100 | 75 | 1.0 to 14.7K | 1 | 385 |
| RE80G | RH250 | 120 | 0.10 to 35.7K | 1 | 630 |
| RE80N | NH250 | 120 | 1.0 to 17.4K | 1 | 690 |

| TECHNICAL SPECIFICATIONS | | |
|-----------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| PARAMETER | UNIT | RE RESISTOR CHARACTERISTICS |
| Temperature Coefficient | ppm/ $^{\circ}\text{C}$ | ± 20 for 10 Ω and above; ± 50 for 1 Ω to 9.9 Ω ; ± 100 for 0.1 Ω to 0.99 Ω |
| Maximum Working Voltage | V | $(P \times R)^{1/2}$ |
| Insulation Resistance | Ω | 10 000 M Ω minimum dry, 1000 M Ω minimum after moisture test |
| Solderability | - | MIL-PRF-18546 type - meets requirements of ANSI J-STD-002 |
| Operating Temperature Range | $^{\circ}\text{C}$ | - 55 to + 250 |

| MILITARY PART NUMBER INFORMATION | | | |
|-----------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Military Part Numbering example: RE77N1302J01 | | | |
| R | E | 7 | 7 |
| N | 1 | 3 | 0 |
| 2 | J | 0 | 1 |
| MIL TYPE | CHARACTERISTIC | RESISTANCE VALUE | PACKAGING CODE |
| RE60 RE65 RE70 RE75 RE77 RE80 | G = Inductive N = Non-inductive | 3 digit significant figure, followed by a multiplier 49R9 = 49.9 Ω 1000 = 100 Ω 1001 = 1000 Ω 1302 = 13 000 Ω | C02 = Card pack J01 = Skin pack |

Note

- Only tolerance available for RE type is $\pm 1 \%$

DIMENSIONS in inches [millimeters]



| MILITARY MODEL | DIMENSIONS in inches [millimeters] | | | | | | | | | | | | | |
|----------------|----------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| RE60 | 0.444 ± 0.005 [11.28 ± 0.127] | 0.490 ± 0.005 [12.45 ± 0.127] | 0.600 ± 0.030 [15.24 ± 0.787] | 1.125 ± 0.062 [28.58 ± 1.57] | 0.334 ± 0.015 [8.48 ± 0.381] | 0.646 ± 0.015 [16.41 ± 0.381] | 0.320 ± 0.015 [8.13 ± 0.381] | 0.065 ± 0.010 [1.65 ± 0.254] | 0.133 ± 0.010 [3.38 ± 0.254] | 0.078 ± 0.010 [1.98 ± 0.254] | 0.093 ± 0.005 [2.36 ± 0.127] | 0.078 ± 0.015 [1.98 ± 0.381] | 0.050 ± 0.005 [1.27 ± 0.127] | 0.266 ± 0.062 [6.76 ± 1.57] |
| RE65 | 0.562 ± 0.005 [14.27 ± 0.127] | 0.625 ± 0.005 [15.88 ± 0.127] | 0.750 ± 0.031 [19.05 ± 0.787] | 1.375 ± 0.062 [34.93 ± 1.57] | 0.420 ± 0.015 [10.67 ± 0.381] | 0.800 ± 0.015 [20.32 ± 0.381] | 0.390 ± 0.015 [9.91 ± 0.381] | 0.075 ± 0.010 [1.91 ± 0.254] | 0.165 ± 0.010 [4.19 ± 0.254] | 0.093 ± 0.010 [2.36 ± 0.254] | 0.094 ± 0.005 [2.39 ± 0.127] | 0.102 ± 0.015 [2.59 ± 0.381] | 0.085 ± 0.005 [2.16 ± 0.127] | 0.312 ± 0.062 [7.92 ± 1.57] |
| RE70 | 0.719 ± 0.005 [18.26 ± 0.127] | 0.781 ± 0.005 [19.84 ± 0.127] | 1.062 ± 0.031 [26.97 ± 0.787] | 1.938 ± 0.062 [49.23 ± 1.57] | 0.550 ± 0.015 [13.97 ± 0.381] | 1.080 ± 0.015 [27.43 ± 0.381] | 0.546 ± 0.015 [13.87 ± 0.381] | 0.075 ± 0.010 [1.91 ± 0.254] | 0.231 ± 0.010 [5.87 ± 0.254] | 0.172 ± 0.010 [4.37 ± 0.254] | 0.125 ± 0.005 [3.18 ± 0.127] | 0.115 ± 0.015 [2.92 ± 0.381] | 0.085 ± 0.005 [2.16 ± 0.127] | 0.438 ± 0.062 [11.13 ± 1.57] |
| RE75 | 1.562 ± 0.005 [39.67 ± 0.127] | 0.844 ± 0.005 [21.44 ± 0.127] | 1.968 ± 0.031 [49.99 ± 0.787] | 2.781 ± 0.062 [70.64 ± 1.57] | 0.630 ± 0.015 [16.00 ± 0.381] | 1.140 ± 0.015 [28.96 ± 0.381] | 0.610 ± 0.015 [15.49 ± 0.381] | 0.088 ± 0.010 [2.24 ± 0.254] | 0.260 ± 0.010 [6.60 ± 0.254] | 0.196 ± 0.010 [4.98 ± 0.254] | 0.125 ± 0.005 [3.18 ± 0.127] | 0.107 ± 0.015 [2.72 ± 0.381] | 0.085 ± 0.005 [2.16 ± 0.127] | 0.438 ± 0.062 [11.13 ± 1.57] |

DIMENSIONS in inches [millimeters]

RE77



RE80





POWER RATING

Vishay RE resistor wattage ratings are based on mounting to the following heat sink:

- RE60 and RE65: 4" x 6" x 2" x 0.040" thick aluminum chassis
- RE70 and RE75: 5" x 7" x 2" x 0.040" thick aluminum chassis
- RE77 and RE80: 7" x 9" x 2" x 0.060" thick aluminum chassis

| FREE AIR POWER RATING | | | | | | |
|-----------------------|------|------|------|------|------|------|
| MILITARY MODEL | RE60 | RE65 | RE70 | RE75 | RE77 | RE80 |
| W at 25 °C | 3 | 6 | 8 | 10 | 30 | 75 |

AMBIENT TEMPERATURE DERATING

Derating is required for ambient temperatures above 25 °C when mounted to specified heat sink, see the following graph.



REDUCED HEAT SINK DERATING

Derating is also required when recommended heat sink area is reduced.





MATERIAL SPECIFICATIONS

Element: Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

Core: Ceramic, steatite or alumina, depending on physical size

Encapsulant: Silicone molded construction

Housing: Aluminum with hard anodic coating

End Caps: Stainless steel

Standard Terminals: For RE77 and RE80 terminals are threaded stainless steel. All others are 60/40 tin/lead (Sn/Pb) w/Nickel underplate on copper clad steel core terminal.

Part Marking: Dale, model, wattage, value, tolerance, date code

NON-INDUCTIVE (TYPE N)

Models of equivalent physical and electrical specifications are available with non-inductive (Aryton-Perry) winding. They are identified by substituting the letter N for G in the model number (RE60N, for example).

| PERFORMANCE | | |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| TEST | CONDITIONS OF TEST | TEST LIMITS |
| Thermal Shock | Rated power applied until thermally stable, then a minimum of 15 min at - 55 °C | $\pm (0.5 \% + 0.05 \Omega) \Delta R$ |
| Short Time Overload | 5 x rated power for 5 s | $\pm (0.5 \% + 0.05 \Omega) \Delta R$ |
| Dielectric Withstanding Voltage | 1000 V _{rms} for RE60, RE65 and RE70; 2000 V _{rms} for RE75; 4500 V _{rms} for RE77 and RE80; duration 1 min | $\pm (0.2 \% + 0.05 \Omega) \Delta R$ |
| Temperature | 250 °C for 2 h | $\pm (0.5 \% + 0.05 \Omega) \Delta R$ |
| Moisture Resistance | MIL-STD-202 Method 106, 7b not applicable | $\pm (1.0 \% + 0.05 \Omega) \Delta R$ |
| Shock, Specified Pulse | MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks | $\pm (0.2 \% + 0.05 \Omega) \Delta R$ |
| Vibration, High Frequency | Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each | $\pm (0.2 \% + 0.05 \Omega) \Delta R$ |
| Load Life | 1000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF" | $\pm (1.0 \% + 0.05 \Omega) \Delta R$ |
| Terminal Strength | 30 s, 5 pound pull test for RE60 and RE65, 10 pound pull test for other sizes; torque test - 24 pound inch for RE77 and 32 pound inch for RE80 | $\pm (0.2 \% + 0.05 \Omega) \Delta R$ |



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