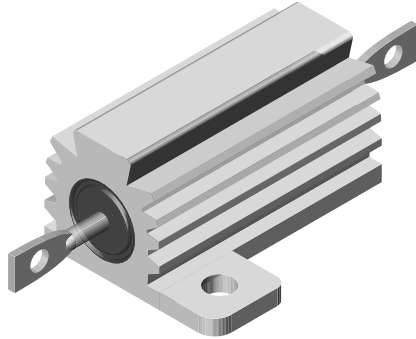


Wirewound Resistors, Military/Established Reliability

MIL-PRF-39009 Qualified, Type RER, R Level



FEATURES

- Aluminum heat sink housing
- Molded construction for total environmental protection
- Qualified to MIL-PRF-39009
- Complete welded construction
- Available in non-inductive styles (type ENH) with Ayrton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect

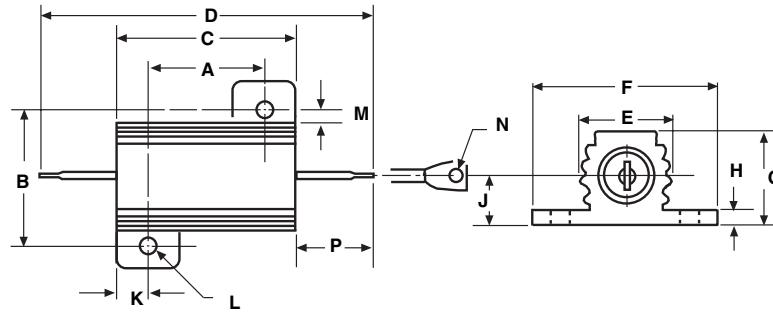
| STANDARD ELECTRICAL SPECIFICATIONS | | | | | |
|---|-----------------------|---|----------|---|--------------------------|
| MODEL | MIL-PRF-39009 TYPE | POWER RATING $P_{25^{\circ}\text{C}}$ W | | MILITARY RESISTANCE RANGE $\pm 1\%$ Ω | WEIGHT (Typical) g |
| | | MOUNTED | FREE AIR | | |
| ENH-5 | RER40 | 5 | 3 | 1 - 1.65k | 3.3 |
| ENH-10 | RER45 | 10 | 6 | 1 - 2.8k | 8.8 |
| ENH-25 | RER50 | 20 | 8 | 1 - 6.04k | 16.5 |
| ENH-50 | RER55 | 30 | 10 | 1 - 4.99k | 35 |
| ERH-5 | RER60 | 5 | 3 | 0.10 - 3.32k | 3 |
| ERH-10 | RER65 | 10 | 6 | 0.10 - 5.62k | 6 |
| ERH-25 | RER70 | 20 | 8 | 0.10 - 12.1k | 13 |
| ERH-50 | RER75 | 30 | 10 | 0.10 - 39.2k | 28 |

| TECHNICAL SPECIFICATIONS | | |
|---------------------------------|-------------------------|---|
| PARAMETER | UNIT | ERH, ENH RESISTOR CHARACTERISTICS |
| Temperature Coefficient | ppm/ $^{\circ}\text{C}$ | ± 100 for 0.1 Ω to 0.99 Ω , ± 50 for 1 Ω to 19.9 Ω , ± 20 for 20 Ω and above |
| Dielectric Withstanding Voltage | V_{AC} | 1000 for ERH-5 ERH-10 and ERH-25, 2000 for ERH-50 |
| Short Time Overload | - | 5 x rated power for 5 seconds |
| Maximum Working Voltage | V | $(P \times R)^{1/2}$ |
| Insulation Resistance | Ω | 10,000 Megohm minimum dry, 1000 Megohm minimum after moisture test |
| Terminal Strength | lb | 5 pull for ERH-5 and ERH-10, 10 pull for ERH-25 and ERH-50 |
| Solderability | - | Meets requirements of ANSI J-STD-002 |
| Operating Temperature Range | $^{\circ}\text{C}$ | - 55/+ 250 |

| ORDERING INFORMATION | | | |
|-----------------------------|----------------|--------------------|----------------------|
| RER50 MILITARY TYPE | F TOLERANCE | 49R9 RESISTANCE | R FAILURE RATE |



DIMENSIONS



| MODEL | DIMENSIONS in inches [millimeters] | | | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|--|--|--|--|--|--|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| ERH-5 ENH-5 | 0.444 ± 0.005 [11.280 ± 0.127] | 0.490 ± 0.005 [12.450 ± 0.127] | 0.600 ± 0.031 [15.240 ± 0.787] | 1.125 ± 0.062 [28.580 ± 1.570] | 0.334 ± 0.015 [8.480 ± 0.381] | 0.646 ± 0.015 [16.410 ± 0.381] | 0.320 ± 0.015 [8.130 ± 0.381] | 0.065 ± 0.010 [1.650 ± 0.254] | 0.133 ± 0.010 [3.380 ± 0.254] | 0.078 ± 0.010 [1.980 ± 0.254] | 0.093 ± 0.005 [2.360 ± 0.127] | 0.078 ± 0.015 [1.980 ± 0.381] | 0.050 ± 0.005 [1.270 ± 0.127] | 0.266 ± 0.062 [6.760 ± 1.570] |
| ERH-10 ENH-10 | 0.562 ± 0.005 [14.270 ± 0.127] | 0.625 ± 0.005 [15.880 ± 0.127] | 0.750 ± 0.031 [19.050 ± 0.787] | 1.375 ± 0.062 [34.930 ± 1.570] | 0.420 ± 0.015 [10.670 ± 0.381] | 0.800 ± 0.015 [20.320 ± 0.381] | 0.390 ± 0.015 [9.910 ± 0.381] | 0.075 ± 0.010 [1.900 ± 0.254] | 0.165 ± 0.010 [4.190 ± 0.254] | 0.093 ± 0.010 [2.360 ± 0.254] | 0.094 ± 0.005 [2.390 ± 0.127] | 0.102 ± 0.015 [2.590 ± 0.381] | 0.085 ± 0.005 [2.160 ± 0.127] | 0.312 ± 0.062 [7.920 ± 1.570] |
| ERH-25 ENH-25 | 0.719 ± 0.005 [18.260 ± 0.127] | 0.781 ± 0.005 [19.840 ± 0.127] | 1.062 ± 0.031 [26.970 ± 0.787] | 1.938 ± 0.062 [49.230 ± 1.570] | 0.550 ± 0.015 [13.970 ± 0.381] | 1.080 ± 0.015 [27.430 ± 0.381] | 0.546 ± 0.015 [13.870 ± 0.381] | 0.075 ± 0.010 [1.900 ± 0.254] | 0.231 ± 0.010 [5.870 ± 0.254] | 0.172 ± 0.010 [4.370 ± 0.254] | 0.125 ± 0.005 [3.180 ± 0.127] | 0.115 ± 0.015 [2.920 ± 0.381] | 0.085 ± 0.005 [2.160 ± 0.127] | 0.438 ± 0.062 [11.130 ± 1.570] |
| ERH-50 ENH-50 | 1.562 ± 0.005 [39.670 ± 0.127] | 0.844 ± 0.005 [21.440 ± 0.127] | 1.968 ± 0.031 [49.990 ± 0.787] | 2.781 ± 0.062 [70.640 ± 1.570] | 0.630 ± 0.015 [16.000 ± 0.381] | 1.140 ± 0.015 [28.960 ± 0.381] | 0.610 ± 0.015 [15.490 ± 0.381] | 0.088 ± 0.010 [2.240 ± 0.254] | 0.260 ± 0.010 [6.600 ± 0.254] | 0.196 ± 0.010 [4.980 ± 0.254] | 0.125 ± 0.005 [3.180 ± 0.127] | 0.107 ± 0.015 [2.720 ± 0.381] | 0.085 ± 0.005 [2.160 ± 0.127] | 0.438 ± 0.062 [11.130 ± 1.570] |

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

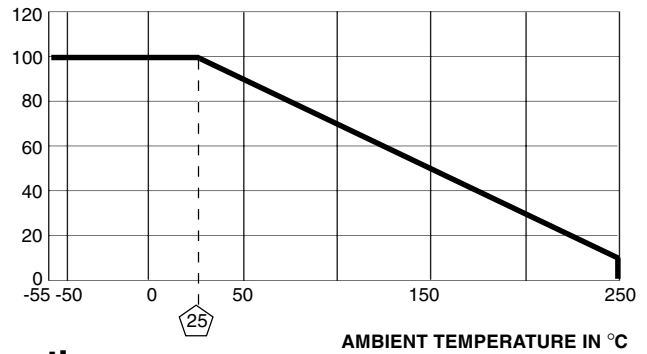
End Caps: Stainless steel

Standard Terminals: Tinned Copperweld®

Part Marking: Source Code, JAN, Military PIN, Date/Lot Code

APPLICABLE MIL SPECIFICATION

MIL-PRF-39009: This is the military specification covering housed chassis mount established reliability power wirewound resistors. Vishay ERH and ENH resistors are listed as qualified on the MIL-PRF-39009 QPL.



Derating

POWER RATING

Vishay ERH and ENH resistor wattage ratings are based on mounting to the proper heat sink.

ERH-5 and ERH-10: 4" x 6" x 2" x 0.040" thick aluminum chassis

ERH-25 and ERH-50: 5" x 7" x 2" x 0.040" thick aluminum chassis

| PERFORMANCE | | |
|---------------------------------|---|---------------------|
| TEST | CONDITIONS OF TEST | TEST LIMITS |
| Low Temperature Operation | Apply rated power until thermal stability, remove power subject to air temperature of - 55°C for 15 to 30 minutes | ± (0.5% + 0.01Ω) ΔR |
| Short Time Overload | 5 x rated power for 5 seconds | ± (0.3% + 0.01Ω) ΔR |
| Dielectric Withstanding Voltage | 1000Vrms (RER 40, 45, 50, 60, 65, 70), 2000Vrms (RER55 and 75), one minute duration | ± (0.2% + 0.01Ω) ΔR |
| Low Temperature Storage | - 55°C for 24 hours | ± (0.3% + 0.01Ω) ΔR |
| High Temperature Exposure | 250°C for 2000 hours | ± (1.0% + 0.01Ω) ΔR |
| Moisture Resistance | MIL-STD-202 Method 106 | ± (0.5% + 0.01Ω) ΔR |
| Shock, Specified Pulse | MIL-STD-202 Method 213, Condition 1 | ± (0.2% + 0.01Ω) ΔR |
| Vibration, High Frequency | MIL-STD-202, Method 204, Condition D | ± (0.2% + 0.01Ω) ΔR |
| Load Life | 2000 hours at rated power, + 25°C, 1.5 hours "ON", 0.5 hours "OFF" | ± (1.0% + 0.01Ω) ΔR |
| Extended Life | 10,000 hours at rated power, + 25°C, 1.5 hours "ON", 0.5 hours "OFF" | ± (2.0% + 0.01Ω) ΔR |
| Terminal Strength | MIL-STD-202, Method 211, Condition A 5 pound (RER40, 45, 60, 65), 10 pound (RER50, 55, 70, 75) | ± (0.2% + 0.01Ω) ΔR |



Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.