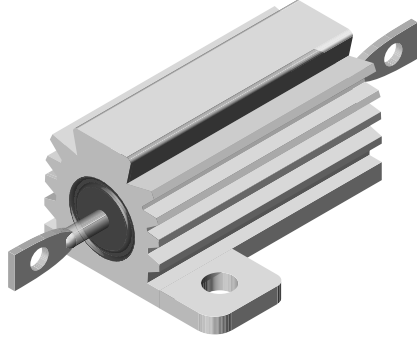


Wirewound Resistors, Military/Established Reliability

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



FEATURES

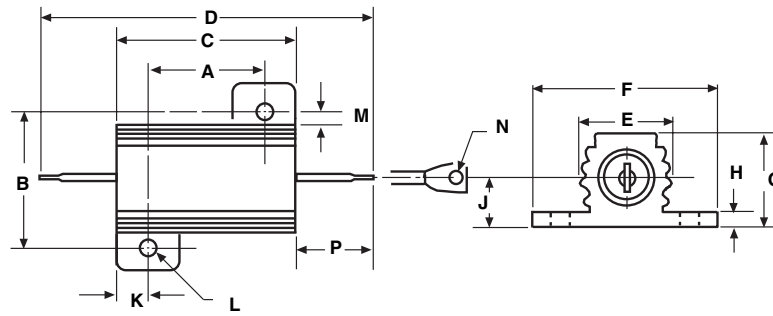
- Aluminum heat sink housing
- Molded construction for total environmental protection
- Qualified to MIL-PRF-39009
- Complete welded construction
- Available in non-inductive styles (type ENH) with Ayrton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect

| 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/°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 | °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

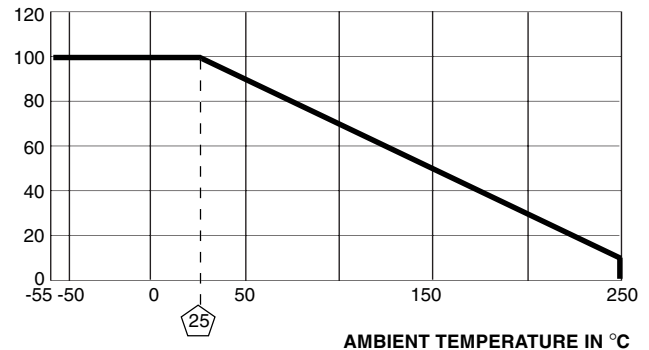
End Caps: Stainless steel

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 |