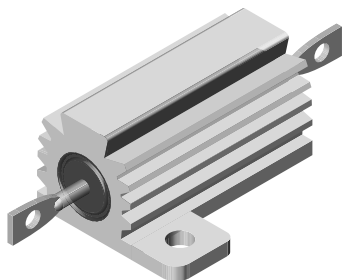


Wirewound Resistors, Military/Established Reliability MIL-PRF-39009 Qualified, Type RER, R Level



FEATURES

- Aluminum heat sink housing
- Molded construction for total environmental protection
- Qualified to MIL-PRF-39009
- Complete welded construction
- Non-inductive styles manufactured with Ayrton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect

STANDARD ELECTRICAL SPECIFICATIONS

| MILITARY MODEL | VISHAY REFERENCE MODEL | POWER RATING $P_{25^{\circ}\text{C}}$ W | RESISTANCE RANGE Ω | TOLERANCE $\pm \%$ | WEIGHT (typical) g |
|----------------|------------------------|---|------------------------------|-----------------------|--------------------------|
| RER40 | ENH05 | 5 | 1 to 1.65K | 1 | 3.3 |
| RER45 | ENH10 | 10 | 1 to 2.8K | 1 | 8.8 |
| RER50 | ENH25 | 20 | 1 to 6.04K | 1 | 16.5 |
| RER55 | ENH50 | 30 | 1 to 4.99K | 1 | 35 |
| RER60 | ERH05 | 5 | 0.10 to 3.32K | 1 | 3 |
| RER65 | ERH10 | 10 | 0.10 to 5.62K | 1 | 6 |
| RER70 | ERH25 | 20 | 0.10 to 12.1K | 1 | 13 |
| RER75 | ERH50 | 30 | 0.10 to 39.2K | 1 | 28 |

TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | RER40/RER60 | RER45/RER65 | RER50/RER70 | RER55/RER75 |
|--------------------------------|----------|--|-------------|-------------|-------------|
| Free Air Power Rating at 25 °C | W | 3 | 6 | 8 | 10 |
| Temperature Coefficient | ppm/°C | ± 20 for 20 Ω and above; ± 50 for 1 Ω to 19.9 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 | - | Meets requirements of ANSI J-STD-002 | | | |
| Operating Temperature Range | °C | -55 to +250 | | | |

MILITARY PART NUMBER INFORMATION

Military Part Numbering example: RER65F1001RC02

R E R 6 5 F 1 0 0 1 R C 0 2

MIL TYPE

RER40
RER45
RER50
RER55
RER60
RER65
RER70
RER75

TOLERANCE CODE

F = $\pm 1.0 \%$

RESISTANCE VALUE

3 digit significant figure, followed by a multiplier

49R9 = 49.9 Ω
1000 = 100 Ω
1001 = 1000 Ω

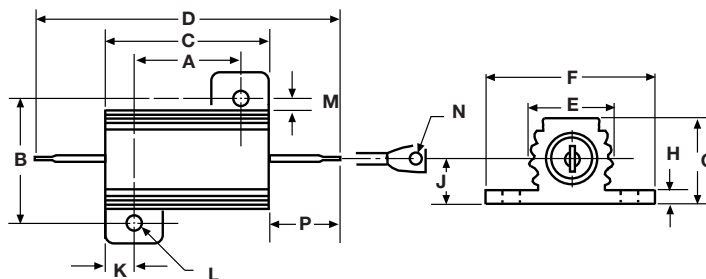
FAILURE RATE

M = 1.0 %/1000 h
P = 0.1 %/1000 h
R = 0.01 %/1000 h

PACKAGING CODE

C02 = tin/lead, card pack
CSL = tin/lead, card pack, single lot date code

DIMENSIONS



| MILITARY MODEL | DIMENSIONS in inches [millimeters] | | | | | | | | | | | | | |
|-------------------|------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| RER40 RER60 | 0.444 | 0.490 | 0.600 | 1.125 | 0.334 | 0.646 | 0.320 | 0.065 | 0.133 | 0.078 | 0.093 | 0.078 | 0.050 | 0.266 |
| | ± 0.005 | ± 0.005 | ± 0.031 | ± 0.062 | ± 0.015 | ± 0.015 | ± 0.015 | ± 0.010 | ± 0.010 | ± 0.010 | ± 0.005 | ± 0.015 | ± 0.005 | ± 0.062 |
| | [11.280 ± 0.127] | [12.450 ± 0.127] | [15.240 ± 0.787] | [28.580 ± 1.570] | [8.480 ± 0.381] | [16.410 ± 0.381] | [8.130 ± 0.381] | [1.650 ± 0.254] | [3.380 ± 0.254] | [1.980 ± 0.254] | [2.360 ± 0.127] | [1.980 ± 0.381] | [1.270 ± 0.127] | [6.760 ± 1.570] |
| RER45 RER65 | 0.562 | 0.625 | 0.750 | 1.375 | 0.420 | 0.800 | 0.390 | 0.075 | 0.165 | 0.093 | 0.094 | 0.102 | 0.085 | 0.312 |
| | ± 0.005 | ± 0.005 | ± 0.031 | ± 0.062 | ± 0.015 | ± 0.015 | ± 0.015 | ± 0.010 | ± 0.010 | ± 0.010 | ± 0.005 | ± 0.015 | ± 0.005 | ± 0.062 |
| | [14.270 ± 0.127] | [15.880 ± 0.127] | [19.050 ± 0.787] | [34.930 ± 1.570] | [10.670 ± 0.381] | [20.320 ± 0.381] | [9.910 ± 0.381] | [1.900 ± 0.254] | [4.190 ± 0.254] | [2.360 ± 0.254] | [2.390 ± 0.127] | [2.590 ± 0.381] | [2.160 ± 0.127] | [7.920 ± 1.570] |
| RER50 RER70 | 0.719 | 0.781 | 1.062 | 1.938 | 0.550 | 1.080 | 0.546 | 0.075 | 0.231 | 0.172 | 0.125 | 0.115 | 0.085 | 0.438 |
| | ± 0.005 | ± 0.005 | ± 0.031 | ± 0.062 | ± 0.015 | ± 0.015 | ± 0.015 | ± 0.010 | ± 0.010 | ± 0.010 | ± 0.005 | ± 0.015 | ± 0.005 | ± 0.062 |
| | [18.260 ± 0.127] | [19.840 ± 0.127] | [26.970 ± 0.787] | [49.230 ± 1.570] | [13.970 ± 0.381] | [27.430 ± 0.381] | [13.870 ± 0.381] | [1.900 ± 0.254] | [5.870 ± 0.254] | [4.370 ± 0.254] | [3.180 ± 0.127] | [2.920 ± 0.381] | [2.160 ± 0.127] | [11.130 ± 1.570] |
| RER55 RER75 | 1.562 | 0.844 | 1.968 | 2.781 | 0.630 | 1.140 | 0.610 | 0.088 | 0.260 | 0.196 | 0.125 | 0.107 | 0.085 | 0.438 |
| | ± 0.005 | ± 0.005 | ± 0.031 | ± 0.062 | ± 0.015 | ± 0.015 | ± 0.015 | ± 0.010 | ± 0.010 | ± 0.010 | ± 0.005 | ± 0.015 | ± 0.005 | ± 0.062 |
| | [39.670 ± 0.127] | [21.440 ± 0.127] | [49.990 ± 0.787] | [70.640 ± 1.570] | [16.000 ± 0.381] | [28.960 ± 0.381] | [15.490 ± 0.381] | [2.240 ± 0.254] | [6.600 ± 0.254] | [4.980 ± 0.254] | [3.180 ± 0.127] | [2.720 ± 0.381] | [2.160 ± 0.127] | [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

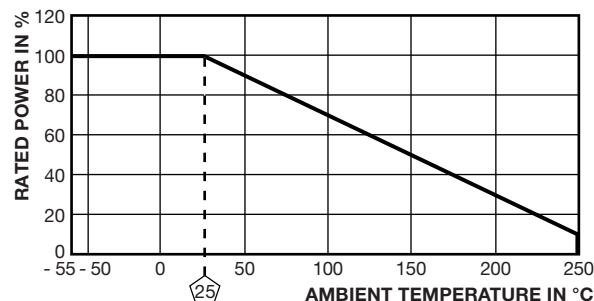
POWER RATING

Vishay RER resistor wattage ratings are based on mounting to the proper heat sink.

RER40, RER45, RER60, RER65: 4" x 6" x 2" x 0.040" thick aluminum chassis

RER50, RER55, RER70, RER75: 5" x 7" x 2" x 0.040" thick aluminum chassis

DERATING



| 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 min to 30 min | ± (0.5 % + 0.01 Ω) ΔR |
| Short Time Overload | 5 x rated power for 5 s | ± (0.3 % + 0.01 Ω) ΔR |
| Dielectric Withstanding Voltage | 1000 V _{RMS} (RER40, RER45, RER50, RER60, RER65, RER70), 2000 V _{RMS} (RER55 and RER75), 1 min duration | ± (0.2 % + 0.01 Ω) ΔR |
| Low Temperature Storage | -55 °C for 24 h | ± (0.3 % + 0.01 Ω) ΔR |
| High Temperature Exposure | 250 °C for 2000 h | ± (1.0 % + 0.01 Ω) ΔR |
| Moisture Resistance | MIL-STD-202, method 106 | ± (0.5 % + 0.01 Ω) ΔR |
| Shock, Specified Pulse | MIL-STD-202, method 213, condition I | ± (0.2 % + 0.01 Ω) ΔR |
| Vibration, High Frequency | MIL-STD-202, method 204, condition D | ± (0.2 % + 0.01 Ω) ΔR |
| Load Life | 2000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF" | ± (1.0 % + 0.01 Ω) ΔR |
| Extended Life | 10 000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF" | ± (2.0 % + 0.01 Ω) ΔR |
| Terminal Strength | MIL-STD-202, method 211, condition A 5 pound (RER40, RER45, RER60, RER65), 10 pound (RER50, RER55, RER70, RER75) | ± (0.2 % + 0.01 Ω) ΔR |



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