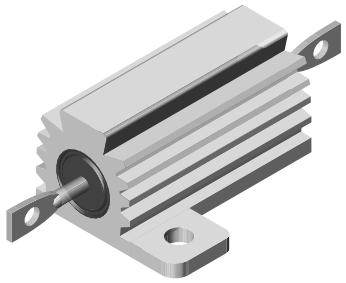
Wirewound Resistors, Military/Established Reliability MIL-PRF-39009 Qualified, Type RER, R Level



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 $P_{25\ °C}$ W	RESISTANCE RANGE Ω	TOLERANCE ± %	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 MΩ minimum dry, 1000 MΩ 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	TOLERANCE CODE	RESISTANCE VALUE	FAILURE RATE	PACKAGING CODE
RER40 **RER45** **RER50** **RER55** **RER60** **RER65** **RER70** **RER75**	**F** = ± 1.0 %	3 digit significant figure, followed by a multiplier **49R9** = 49.9 Ω **1000** = 100 Ω **1001** = 1000 Ω	**M** = 1.0 %/1000 h **P** = 0.1 %/1000 h **R** = 0.01 %/1000 h	**C02** = tin/lead, card pack **CSL** = tin/lead, card pack, single lot date code

For technical questions, contact: ww2aresistors@vishay.com

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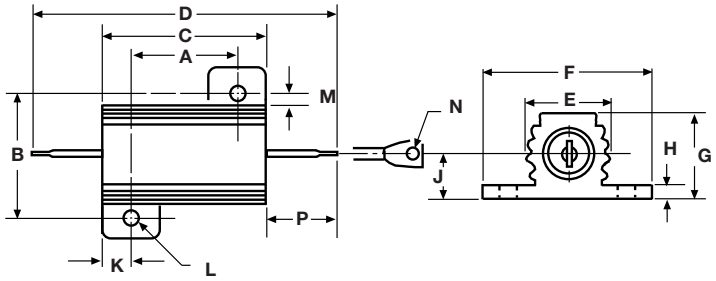
DIMENSIONS



MILITARY MODEL	DIMENSIONS in inches [millimeters]													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
RER40 RER60	0.444 ± 0.005 [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]
RER45 RER65	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]
RER50 RER70	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]
RER55 RER75	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

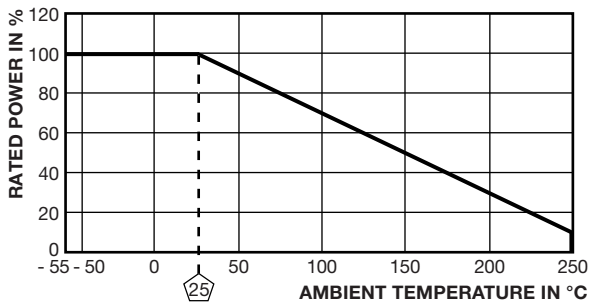
Standard Terminals: tinned Copperweld®

Part Marking: source code, JAN, military PIN, date/lot code

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) Δ*R*
Short Time Overload	5 x rated power for 5 s	± (0.3 % + 0.01 Ω) Δ*R*
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) Δ*R*
Low Temperature Storage	-55 °C for 24 h	± (0.3 % + 0.01 Ω) Δ*R*
High Temperature Exposure	250 °C for 2000 h	± (1.0 % + 0.01 Ω) Δ*R*
Moisture Resistance	MIL-STD-202, method 106	± (0.5 % + 0.01 Ω) Δ*R*
Shock, Specified Pulse	MIL-STD-202, method 213, condition I	± (0.2 % + 0.01 Ω) Δ*R*
Vibration, High Frequency	MIL-STD-202, method 204, condition D	± (0.2 % + 0.01 Ω) Δ*R*
Load Life	2000 h at rated power, +25 °C, 1.5 h “ON”, 0.5 h “OFF”	± (1.0 % + 0.01 Ω) Δ*R*
Extended Life	10 000 h at rated power, +25 °C, 1.5 h “ON”, 0.5 h “OFF”	± (0.2 % + 0.01 Ω) Δ*R*
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) Δ*R*

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