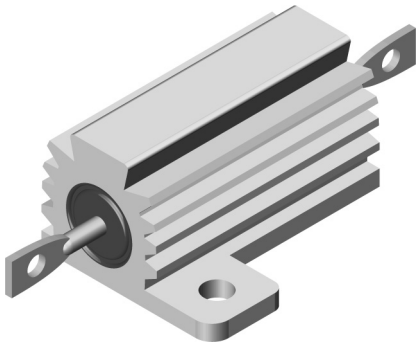
Wirewound Resistors, Military/Established Reliability
MIL-PRF-39009 Qualified, Type RER, R Level



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 Aryton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	MIL-PRF-39009 TYPE	POWER RATING $P_{25\,°C}$ W		MILITARY RESISTANCE RANGE ± 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 s
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Insulation Resistance	Ω	10 000 MΩ minimum dry, 1000 MΩ 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 to + 250

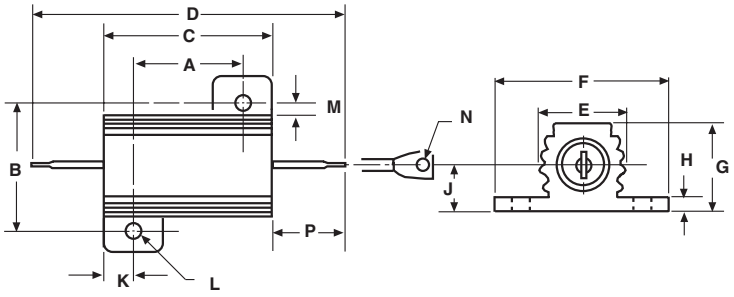
GLOBAL PART NUMBER INFORMATION

Global/Military Part Numbering: 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

DIMENSIONS



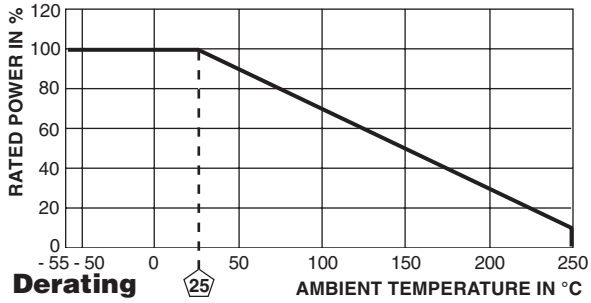
MODEL	DIMENSIONS in inches [millimeters]													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
ERH-5 ENH-5	0.444 ± 0.005 [11.280 ± 0.127]	0.490 ± 0.005 [12.450 ± 0.127]	0.600 ± 0.031 [15.240 ± 0.787]	1.125 ± 0.062 [28.580 ± 1.570]	0.334 ± 0.015 [8.480 ± 0.381]	0.646 ± 0.015 [16.410 ± 0.381]	0.320 ± 0.015 [8.130 ± 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

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



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.

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 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} (RER 40, 45, 50, 60, 65, 70), 2000 V_{rms} (RER55 and 75), 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 1	± (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"	± (2.0 % + 0.01 Ω) Δ*R*
Terminal Strength	MIL-STD-202, Method 211, condition A 5 pound (RER40, 45, 60, 65), 10 pound (RER50, 55, 70, 75)	± (0.2 % + 0.01 Ω) Δ*R*

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