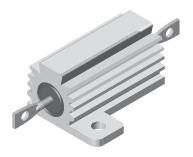
Vishay Dale



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

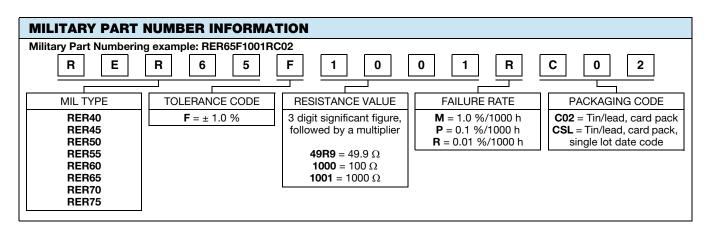


# **FEATURES**

- · Aluminum heat sink housing
- Molded construction for total environmental protection
- Qualified to MIL-PRF-39009
- Complete welded construction
- Non-inductive styles manufactured with Aryton-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 <sub>25 °C</sub> W	$\begin{array}{c c} \textbf{RESISTANCE RANGE} & \textbf{TOLERANCE} \\ \Omega & & \pm \ \% \end{array}$		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	$\pm$ 20 for 20 $\Omega$ and above; $\pm$ 50 for 1 $\Omega$ to 19.9 $\Omega;$ $\pm$ 100 for 0.1 $\Omega$ to 0.99 $\Omega$							
Maximum Working Voltage	V	$(P \times R)^{1/2}$							
Insulation Resistance	Ω	10 000 M $\Omega$ minimum dry, 1000 M $\Omega$ minimum after moisture test							
Solderability	-	Meets requirements of ANSI J-STD-002							
Operating Temperature Range	°C	- 55 to + 250							



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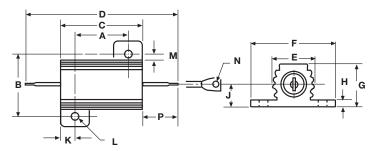
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### **DIMENSIONS**



MILITARY	DIMENSIONS in inches [millimeters]													
MODEL	Α	В	С	D	Е	F	G	Н	J	K	L	М	N	Р
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]		0.420 ± 0.015 [10.670 ± 0.381]		0.390 ± 0.015 [9.910 ± 0.381]	[1.900	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]			[27.430		[1.900	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]			[28.960	[15.490	[2.240	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

**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**

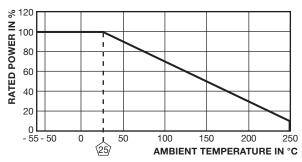
Vishay RER resistor wattage ratings are based on mounting

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	$\pm$ (0.5 % + 0.01 $\Omega$ ) $\Delta R$				
Short Time Overload	5 x rated power for 5 s	$\pm$ (0.3 % + 0.01 Ω) ΔR				
Dielectric Withstanding Voltage	1000 V <sub>rms</sub> (RER40, RER45, RER50, RER60, RER65, RER70), 2000 V <sub>rms</sub> (RER55 and RER75), 1 min duration	$\pm$ (0.2 % + 0.01 $\Omega$ ) $\Delta R$				
Low Temperature Storage	- 55 °C for 24 h	$\pm$ (0.3 % + 0.01 $\Omega$ ) $\Delta R$				
High Temperature Exposure	250 °C for 2000 h	$\pm$ (1.0 % + 0.01 Ω) Δ $R$				
Moisture Resistance	MIL-STD-202, method 106	$\pm$ (0.5 % + 0.01 $\Omega$ ) $\Delta R$				
Shock, Specified Pulse	MIL-STD-202, method 213, condition 1	$\pm$ (0.2 % + 0.01 $\Omega$ ) $\Delta R$				
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"	$\pm$ (1.0 % + 0.01 $\Omega$ ) $\Delta R$				
Extended Life	10 000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (0.2 % + 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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