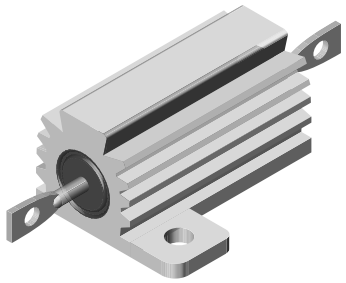
Wirewound Resistors, Military, MIL-PRF-18546 Qualified, Type RE, Aluminum Housed, Chassis Mount



FEATURES

- Molded construction for total environmental protection
- Complete welded construction
- Qualified to MIL-PRF-18546
- Available in non-inductive styles (type N) with Ayrton-Perry winding for lowest reactive components
- Mounts on chassis to utilize heat-sink effect
- Excellent stability in operation (< 1 % change in resistance)

STANDARD ELECTRICAL SPECIFICATIONS

MILITARY MODEL	VISHAY REFERENCE MODEL	POWER RATING $P_{25\ °C}$ W	RESISTANCE RANGE Ω	TOLERANCE ± %	WEIGHT (typical) g
RE60G	RH005	5	0.10 to 3.32K	1	3
RE60N	NH005	5	1.0 to 1.65K	1	3.3
RE65G	RH010	10	0.10 to 5.62K	1	6
RE65N	NH010	10	1.0 to 2.8K	1	8.8
RE70G	RH025	20	0.10 to 12.1K	1	13
RE70N	NH025	20	1.0 to 6.04K	1	16.5
RE75G	RH050	30	0.10 to 39.2K	1	28
RE75N	NH050	30	1.0 to 19.6K	1	35
RE77G	RH100	75	0.05 to 29.4K	1	350
RE77N	NH100	75	1.0 to 14.7K	1	385
RE80G	RH250	120	0.10 to 35.7K	1	630
RE80N	NH250	120	1.0 to 17.4K	1	690

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RE RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 20 for 10 Ω and above; ± 50 for 1 Ω to 9.9 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	-	MIL-PRF-18546 type - meets requirements of ANSI J-STD-002
Operating Temperature Range	°C	-55 to +250

MILITARY PART NUMBER INFORMATION

Military Part Numbering example: RE77N1302J01

R	E	7	7	N	1	3	0	2	J	0	1

MIL TYPE	CHARACTERISTIC	RESISTANCE VALUE	PACKAGING CODE
RE60 **RE65** **RE70** **RE75** **RE77** **RE80**	**G** = inductive **N** = non-inductive	3 digit significant figure, followed by a multiplier **49R9** = 49.9 Ω **1000** = 100 Ω **1001** = 1000 Ω **1302** = 13 000 Ω	**C02** = card pack (RE60 to RE75) **J01** = skin pack

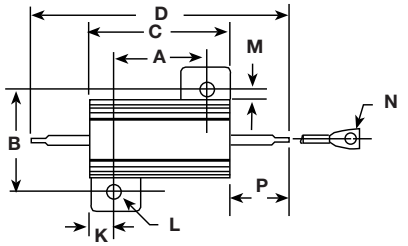
Note

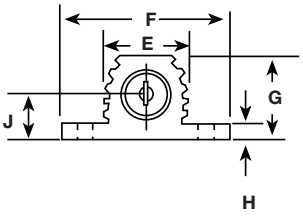
- Only tolerance available for RE type is ± 1 %

For technical questions, contact: ww2aresistors@vishay.com

DIMENSIONS in inches [millimeters]

RE60, RE65
RE70, RE75

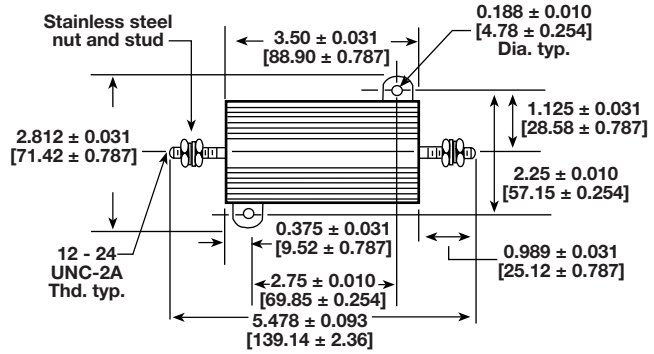


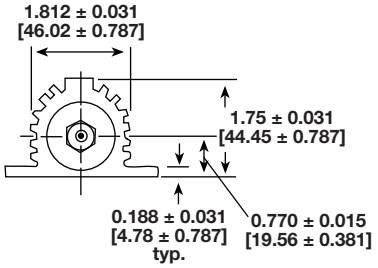


MILITARY MODEL	DIMENSIONS in inches [millimeters]													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
RE60	0.444 ± 0.005 [11.28 ± 0.127]	0.490 ± 0.005 [12.45 ± 0.127]	0.600 ± 0.030 [15.24 ± 0.787]	1.125 ± 0.062 [28.58 ± 1.57]	0.334 ± 0.015 [8.48 ± 0.381]	0.646 ± 0.015 [16.41 ± 0.381]	0.320 ± 0.015 [8.13 ± 0.381]	0.065 ± 0.010 [1.65 ± 0.254]	0.133 ± 0.010 [3.38 ± 0.254]	0.078 ± 0.010 [1.98 ± 0.254]	0.093 ± 0.005 [2.36 ± 0.127]	0.078 ± 0.015 [1.98 ± 0.381]	0.050 ± 0.005 [1.27 ± 0.127]	0.266 ± 0.062 [6.76 ± 1.57]
RE65	0.562 ± 0.005 [14.27 ± 0.127]	0.625 ± 0.005 [15.88 ± 0.127]	0.750 ± 0.031 [19.05 ± 0.787]	1.375 ± 0.062 [34.93 ± 1.57]	0.420 ± 0.015 [10.67 ± 0.381]	0.800 ± 0.015 [20.32 ± 0.381]	0.390 ± 0.015 [9.91 ± 0.381]	0.075 ± 0.010 [1.91 ± 0.254]	0.165 ± 0.010 [4.19 ± 0.254]	0.093 ± 0.010 [2.36 ± 0.254]	0.094 ± 0.005 [2.39 ± 0.127]	0.102 ± 0.015 [2.59 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.312 ± 0.062 [7.92 ± 1.57]
RE70	0.719 ± 0.005 [18.26 ± 0.127]	0.781 ± 0.005 [19.84 ± 0.127]	1.062 ± 0.031 [26.97 ± 0.787]	1.938 ± 0.062 [49.23 ± 1.57]	0.550 ± 0.015 [13.97 ± 0.381]	1.080 ± 0.015 [27.43 ± 0.381]	0.546 ± 0.015 [13.87 ± 0.381]	0.075 ± 0.010 [1.91 ± 0.254]	0.231 ± 0.010 [5.87 ± 0.254]	0.172 ± 0.010 [4.37 ± 0.254]	0.125 ± 0.005 [3.18 ± 0.127]	0.115 ± 0.015 [2.92 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.438 ± 0.062 [11.13 ± 1.57]
RE75	1.562 ± 0.005 [39.67 ± 0.127]	0.844 ± 0.005 [21.44 ± 0.127]	1.968 ± 0.031 [49.99 ± 0.787]	2.781 ± 0.062 [70.64 ± 1.57]	0.630 ± 0.015 [16.00 ± 0.381]	1.140 ± 0.015 [28.96 ± 0.381]	0.610 ± 0.015 [15.49 ± 0.381]	0.088 ± 0.010 [2.24 ± 0.254]	0.260 ± 0.010 [6.60 ± 0.254]	0.196 ± 0.010 [4.98 ± 0.254]	0.125 ± 0.005 [3.18 ± 0.127]	0.107 ± 0.015 [2.72 ± 0.381]	0.085 ± 0.005 [2.16 ± 0.127]	0.438 ± 0.062 [11.13 ± 1.57]

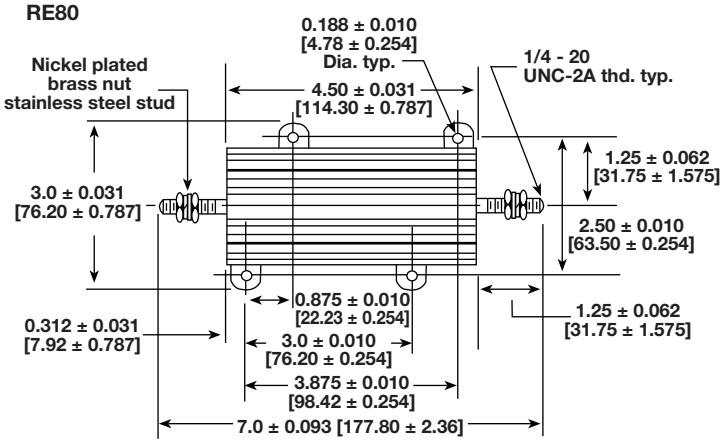
DIMENSIONS in inches [millimeters]

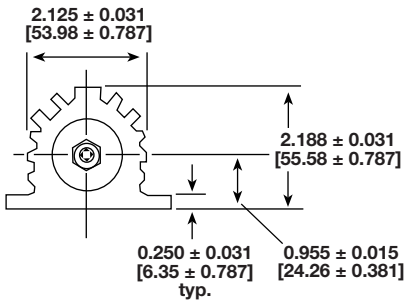
RE77





RE80





POWER RATING

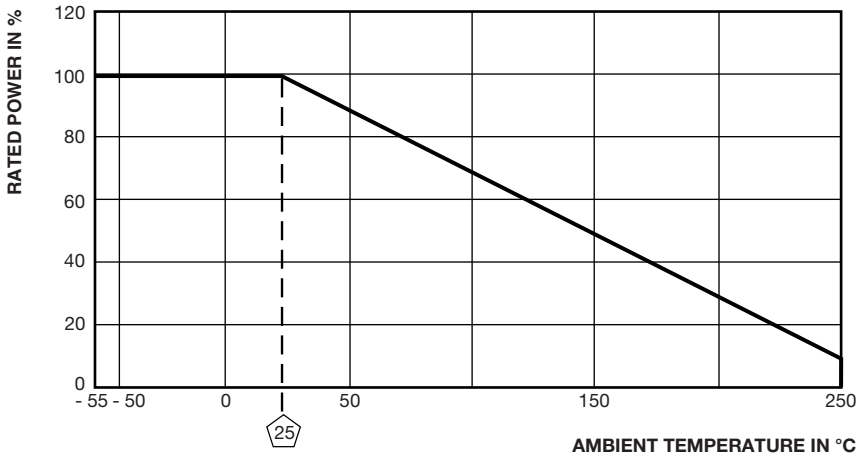
Vishay RE resistor wattage ratings are based on mounting to the following heat sink:

RE60 and RE65: 4" x 6" x 2" x 0.040" thick aluminum chassis
RE70 and RE75: 5" x 7" x 2" x 0.040" thick aluminum chassis
RE77 and RE80: 7" x 9" x 2" x 0.060" thick aluminum chassis

FREE AIR POWER RATING						
MILITARY MODEL	**RE60**	**RE65**	**RE70**	**RE75**	**RE77**	**RE80**
W at 25 °C	3	6	8	10	30	75

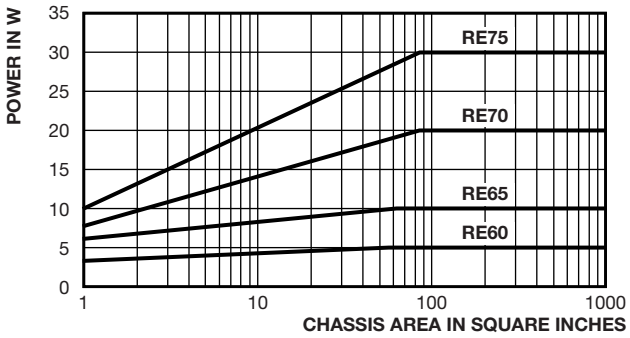
AMBIENT TEMPERATURE DERATING

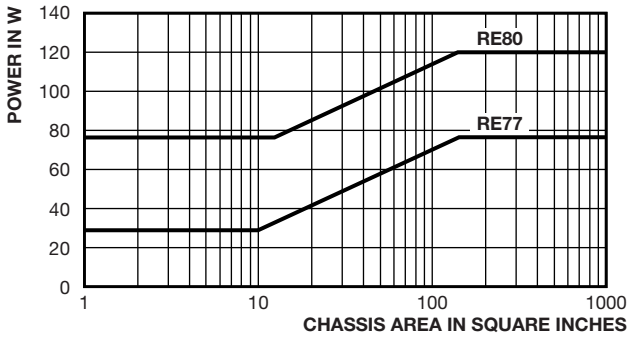
Derating is required for ambient temperatures above 25 °C when mounted to specified heat sink, see the following graph.



REDUCED HEAT SINK DERATING

Derating is also required when recommended heat sink area is reduced.





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: For RE77 and RE80 terminals are threaded stainless steel. All others are 60/40 tin/lead (Sn/Pb) w/nickel underplate on copper clad steel core terminal.

Part Marking: Dale, model, wattage, value, tolerance, date code

NON-INDUCTIVE (TYPE N)

Models of equivalent physical and electrical specifications are available with non-inductive (Ayrton-Perry) winding. They are identified by substituting the letter N for G in the model number (RE60N, for example).

PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min at -55 °C	± (0.5 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± (0.5 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V_{RMS} for RE60, RE65 and RE70; 2000 V_{RMS} for RE75; 4500 V_{RMS} for RE77 and RE80; duration 1 min	± (0.2 % + 0.05 Ω) ΔR
Temperature	250 °C for 2 h	± (0.5 % + 0.05 Ω) ΔR
Moisture Resistance	MIL-STD-202 method 106, 7b not applicable	± (1.0 % + 0.05 Ω) ΔR
Shock, Specified Pulse	MIL-STD-202 method 213, 100 *g*'s for 6 ms, 10 shocks	± (0.2 % + 0.05 Ω) ΔR
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 *g* peak, 2 directions 6 h each	± (0.2 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.05 Ω) ΔR
Terminal Strength	30 s, 5 pound pull test for RE60 and RE65, 10 pound pull test for other sizes; torque test - 24 pound inch for RE77 and 32 pound inch for RE80	± (0.2 % + 0.05 Ω) ΔR

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RE60G2500C02 RE65G1000C02 RE65G12R0C02 RE75G15R0C02 RE75GR200C02 RE70G1100C02 RE70G70R0 RE65G25R0C02 RE75G42R2C02 RE77G9761J01 RE60G1R20C02 RE75N2R00C02 RE70G60R0C02 RE60G50R0C02 RE70G2401C02 RE75N1000C02 RE70G8R00C02 RE60G2000C02 RE75G2000C02 RE70G50R0C02 RE75G30R1C02 RE65G3011C02 RE60G5000C02 RE75N75R0C02 RE60G1401C02 RE70G20R0C02 RE75G2200C02 RE75G3300C02 RE65G4R00C02 RE65G1R50C02 RE60G10R0C02 RE60G1500C02 RE60G20R0C02 RE60G2700C02 RE60G3300C02 RE60G3R00C02 RE65G1400C02 RE65G1R00C02 RE65G20R0C02 RE65G2550C02 RE65G35R0C02 RE65G4R02C02 RE65G50R0C02 RE65G7500C02 RE65GR500C02 RE65N10R0C02 RE70G15R0C02 RE70G2R00C02 RE70G49R9C02 RE70G5R00C02 RE75G1R50C02 RE75G26R7C02 RE75G4R00C02 RE75G6R00C02 RE75GR500C02 RE60G2001C02 RE60G15R0C02 RE70G3R01C02 RE65G82R5C02 RE70G1R00C02 RE60G8450C02 RE70G12R0C02 RE65G2200C02 RE75GR182C02 RE70G1001C02 RE75G8R00C02 RE65G1250C02 RE65G1001C02 RE60G17R0C02 RE75G47R0C02 RE65N64R9C02 RE75G8R20C02 RE60G5600C02 RE65G70R0C02 RE70N2R55C02 RE65G1R62C02 RE77G1R00J01 RE75N20R0C02 RE75G40R0C02 RE70G4000C02 RE75N13R0C02 RE65G3001C02 RE77G14R0J01 RE70N50R0C02 RE65G84R5C02 RE70N2210C02 RE70G1500C02 RE77G24R9J01 RE65G56R0C02 RE75G1001C02 RE60G1001C02 RE60G47R0C02 RE60G4700C02 RE60N61R9C02 RE60G5R11C02 RE75G34R0C02 RE70G2500C02 RE70G1002C02 RE65G8R00C02 RE75G35R0C02