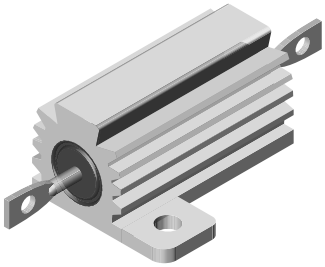
Wirewound Resistors, Military, MIL-PRF-18546 Qualified, Type RE, Aluminum Housed, Chassis Mount



FEATURES

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

Pb-free Available

e4

RoHS* COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	MIL-PRF-18546 TYPE	POWER RATING $P_{25\,°C}$ W		RESISTANCE RANGE MIL. RANGE SHOWN IN BOLD FACE Ω				WEIGHT (Typical) g
			DALE	MILITARY	± 0.05 %, ± 0.1 %	± 0.25 %	± 0.5 %	± 1 %, ± 2 %, ± 5 %	
RH005	RH-5	- **RE60G**	7.5 (5)	**5**	0.5 - 6.75K -	0.1 - 8.6K -	0.05 - 8.6K -	0.02 - 24.5K **0.10 - 3.32K**	3
NH005	NH-5	- **RE60N**	7.5 (5)	**5**	0.5 - 2.32K -	0.1 - 3.27K -	0.05 - 3.27K -	0.05 - 12.75K **1.0 - 1.65K**	3.3
RH010	RH-10	- **RE65G**	12.5 (10)	**10**	0.5 - 12.7K -	0.1 - 16.69K -	0.05 - 16.69K -	0.01 - 47.1K **0.10 - 5.62K**	6
NH010	NH-10	- **RE65N**	12.5 (10)	**10**	0.5 - 4.45K -	0.1 - 5.54K -	0.05 - 5.54K -	0.05 - 23.5K **1.0 - 2.8K**	8.8
RH025	RH-25	- **RE70G**	25	**20**	0.5 - 25.7K -	0.1 - 32.99K -	0.05 - 32.99K -	0.01 - 95.2K **0.10 - 12.1K**	13
NH025	NH-25	- **RE70N**	25	**20**	0.5 - 9.09K -	0.1 - 12.8K -	0.05 - 12.8K -	0.05 - 47.6K **1.0 - 6.04K**	16.5
RH050	RH-50	- **RE75G**	50	**30**	0.5 - 73.4K -	0.1 - 96K -	0.05 - 96K -	0.01 - 273K **0 .10 - 39.2K**	28
NH050	NH-50	- **RE75N**	50	**30**	0.5 - 26K -	0.1 - 36.7K -	0.05 - 36.7K -	0.05 - 136K **1.0 - 19.6K**	35
RH100	RH-100	- **RE77G**	100	**75**	0.5 - 90K -	0.1 - 90K -	0.05 - 90K -	0.05 - 90K **0.05 - 29.4K**	350
NH100	NH-100	- **RE77N**	100	**75**	0.5 - 37.5K -	0.1 - 37.5K -	0.05 - 37.5K -	0.05 - 37.5K **1.0 - 14.7K**	385
RH250	RH-250	- **RE80G**	250	**120**	0.5 - 116K -	0.1 - 116K -	0.05 - 116K -	0.05 - 116K **0.10 - 35.7K**	630
NH250	NH-250	- **RE80N**	250	**120**	0.5 - 48.5K -	0.1 - 48.5K -	0.05 - 48.5K -	0.05 - 48.5K **1.0 - 17.4K**	690

Note: Figures in parentheses on RH-5 and RH-10 indicate wattage printed on parts, new construction allows these resistors to be rated at higher wattage but will **only** be printed with the higher wattage on customer request.

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: RH0054R125FC02 (preferred part number format)

R	H	0	0	5	4	R	1	2	5	F	C	0	2			

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
RH005 (See "Standard Electrical Specifications" table above for additional P/N's)	**L** = Milliohm **R** = Decimal **K** = Thousand **8L000** = 0.008 Ω **15R00** = 15 Ω	**A** = 0.05 % **B** = 0.1 % **C** = 0.25 % **D** = 0.5 % **F** = 1.0 %	**E02** = Lead (Pb)-free, Card Pack (RH005 - RH050) **E01** = Lead (Pb)-free, Skin Pack (RH100 & RH250) **Lead (Pb)-free is not available on RE military type** **C02** = Tin/Lead, Card Pack (RH005 - RH050) **J01** = Tin/Lead, Skin Pack (RH100 & RH250)	(Dash Number) (up to 3 digits) From **1 - 999** as applicable

Historical Part Number example: RH-5 4.125 Ω 1 % C02 (will continue to be accepted)

RH-5	4.125 Ω	1 %	C02
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

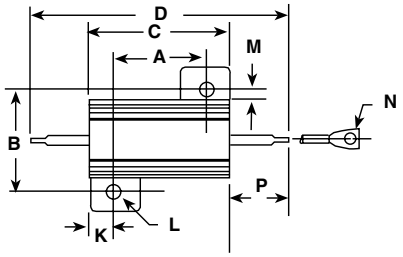
* Pb containing terminations are not RoHS compliant, exemptions may apply

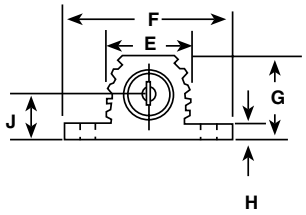
For technical questions, contact: ww2bresistors@vishay.com

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

DIMENSIONS

RH-5, -10, -25, -50
NH-5, -10, -25, -50

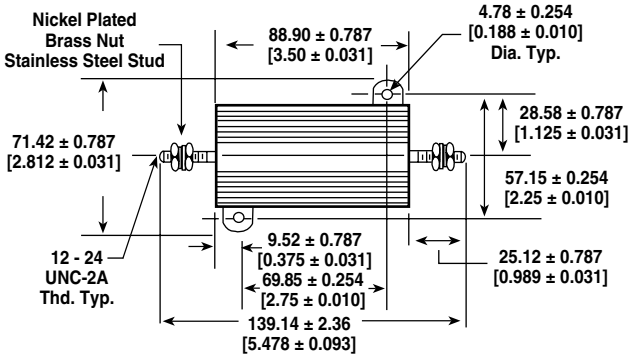


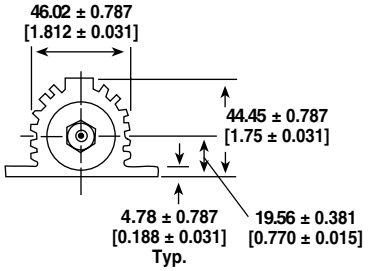


MODEL	DIMENSIONS in millimeters [inches]													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
RH-5 NH-5	11.28 ± 0.127 [0.444 ± 0.005]	12.45 ± 0.127 [0.490 ± 0.005]	15.24 ± 0.7871 [0.600 ± 0.03]	28.58 ± 1.57 [1.125 ± 0.062]	8.48 ± 0.381 [0.334 ± 0.015]	16.41 ± 0.381 [0.646 ± 0.015]	8.13 ± 0.381 [0.320 ± 0.015]	1.65 ± 0.254 [0.065 ± 0.010]	3.38 ± 0.254 [0.133 ± 0.010]	1.98 ± 0.254 [0.078 ± 0.010]	2.36 ± 0.127 [0.093 ± 0.005]	1.98 ± 0.381 [0.078 ± 0.015]	1.27 ± 0.127 [0.050 ± 0.005]	6.76 ± 1.57 [0.266 ± 0.062]
RH-10 NH-10	14.27 ± 0.127 [0.562 ± 0.005]	15.88 ± 0.127 [0.625 ± 0.005]	19.05 ± 0.787 [0.750 ± 0.031]	34.93 ± 1.57 [1.375 ± 0.062]	10.67 ± 0.381 [0.420 ± 0.015]	20.32 ± 0.381 [0.800 ± 0.015]	9.91 ± 0.381 [0.390 ± 0.015]	1.91 ± 0.254 [0.075 ± 0.010]	4.19 ± 0.254 [0.165 ± 0.010]	2.36 ± 0.254 [0.093 ± 0.010]	2.39 ± 0.127 [0.094 ± 0.005]	2.59 ± 0.381 [0.102 ± 0.015]	2.16 ± 0.127 [0.085 ± 0.005]	7.92 ± 1.57 [0.312 ± 0.062]
RH-25 NH-25	18.26 ± 0.127 [0.719 ± 0.005]	19.84 ± 0.127 [0.781 ± 0.005]	26.97 ± 0.787 [1.062 ± 0.031]	49.23 ± 1.57 [1.938 ± 0.062]	13.97 ± .381 [0.550 ± 0.015]	27.43 ± 0.381 [1.080 ± 0.015]	13.87 ± 0.381 [0.546 ± 0.015]	1.91 ± 0.254 [0.075 ± 0.010]	5.87 ± 0.254 [0.231 ± 0.010]	4.37 ± 0.254 [0.172 ± 0.010]	3.18 ± 0.127 [0.125 ± 0.005]	2.92 ± 0.381 [0.115 ± 0.015]	2.16 ± 0.127 [0.085 ± 0.005]	11.13 ± 1.57 [0.438 ± 0.062]
RH-50 NH-50	39.67 ± 0.127 [1.562 ± 0.005]	21.44 ± 0.127 [0.844 ± 0.005]	49.99 ± 0.787 [1.968 ± 0.031]	70.64 ± 1.57 [2.781 ± 0.062]	16.00 ± 0.381 [0.630 ± 0.015]	28.96 ± 0.381 [1.140 ± 0.015]	15.49 ± 0.381 [0.610 ± 0.015]	2.24 ± 0.254 [0.088 ± 0.010]	6.60 ± 0.254 [0.260 ± 0.010]	4.98 ± 0.254 [0.196 ± 0.010]	3.18 ± 0.127 [0.125 ± 0.005]	2.72 ± 0.381 [0.107 ± 0.015]	2.16 ± 0.127 [0.085 ± 0.005]	11.13 ± 1.57 [0.438 ± 0.062]

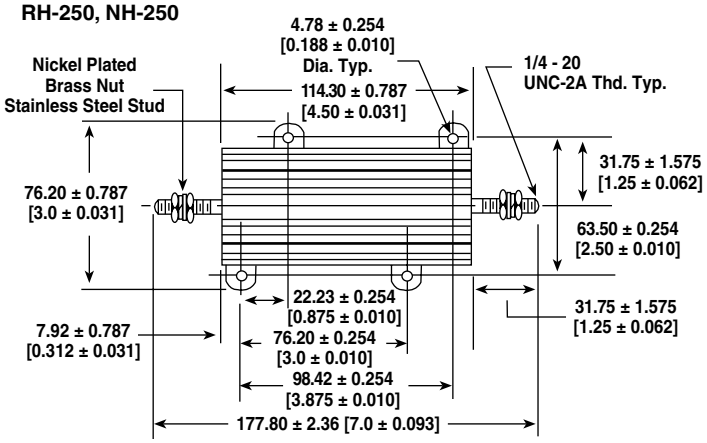
DIMENSIONS

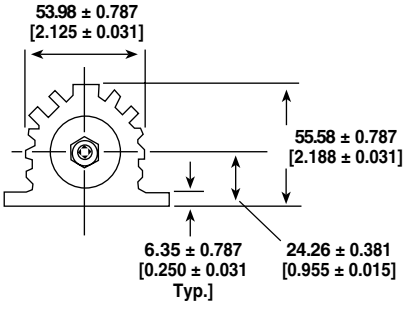
RH-100, NH-100





RH-250, NH-250





TECHNICAL SPECIFICATIONS		
PARAMETER	**UNIT**	**RH RESISTOR CHARACTERISTICS**
Temperature Coefficient	ppm/°C	± 100 for 0.1 Ω to 0.99 Ω, ± 50 for 1 Ω to 9.9 Ω, ± 20 for 10 Ω and above
Dielectric Withstanding Voltage	V_{AC}	1000 for RH/5, RH-10 and RH/25, 2000 for RH/50, 4500 for RH/100 and RH/250
Short Time Overload	-	5 × rated power for 5 seconds
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 minimum for RH-5 and RH-10, 10 minimum for all others
Solderability	-	MIL-PRF-18546 Type - Meets requirements of ANSI J-STD-002
Operating Temperature Range	°C	- 55/+ 250

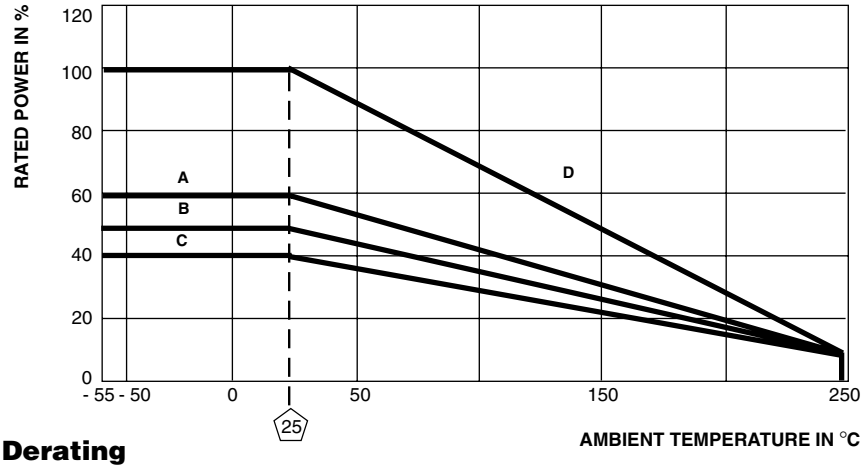
POWER RATING

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

RH-5 and RH-10: 4" × 6" × 2" × 0.040" thick aluminum chassis (129 sq. in. surface area)
RH-25: 5" × 7" × 2" × 0.040" thick aluminum chassis (167 sq. in. surface area)
RH-50: 12" × 12" × 0.059" thick aluminum panel (291 sq. in. surface area)
RH-100 and RH-250: 12" × 12" × 0.125" thick aluminum panel (294 sq. in. surface area)

AMBIENT TEMPERATURE DERATING

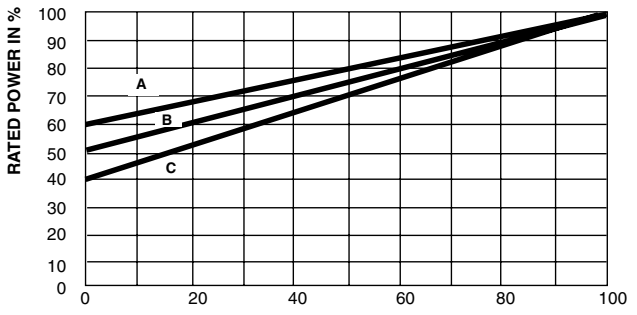
Derating is required for ambient temperatures above 25 °C, see the following graph.
Curves **A, B, C** apply to operation of unmounted resistors. Curve **D** applies to all types when mounted to specified heat sink.
A = RH-5 and RH-10 size resistor, unmounted
B = RH-25 size resistor, unmounted
C = RH-50, RH-100 and RH-250 size resistor, unmounted
D = All types mounted to recommended aluminum heat sink



Derating

REDUCED HEAT SINK DERATING:

Derating is also required when recommended heat sink area is reduced.
A = RH-5 and RH-10 size resistor
B = RH-25 size resistor
C = RH-50, RH-100 and RH-250 size resistor



Heat Sink Derating

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

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 RH-5 through RH-50 size terminal finish - Tin/lead is 60/40 Sn/Pb w/Nickel underplate & Lead (Pb)-free is Ni/Pd/Au, finish is on copper clad steel core terminal. For RH-100 & RH-250 terminals are threaded stainless steel.

Note: Military (RE) parts are only available with tin/lead finish

Part Marking: DALE, Model, Wattage, Value, Tolerance, Date Code

NH NON-INDUCTIVE

Models of equivalent physical and electrical specifications are available with non-inductive (Aryton-Perry) winding. They are identified by substituting the letter N for R in the model number (NH-5, for example).

SPECIAL MODIFICATIONS

A number of special modifications to the aluminum housed resistor style are available upon request. Special modifications include:

- Terminal configurations and materials
- Resistance values and tolerances
- Low resistance temperature coefficient (RTC)
- Housing configuration
- Threaded mounting holes
- Preconditioning and other additional testing

APPLICABLE MIL SPECIFICATIONS

MIL-PRF-18546 is the military specification covering aluminum housed, chassis mount, power resistors. VISHAY RH and NH resistors are listed as qualified on the MIL-PRF-18546 QPL.

PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 minutes at - 55 °C	± (0.5 % + 0.05 Ω) ΔR
Short Time Overload	5 × rated power for 5 seconds	± (0.5 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V_{rms} for RH-5, RH-10 and RH-25; 2000 V_{rms} for RH-50 4500 V_{rms} for RH-100 and RH-250; duration one minute	± (0.2 % + 0.05 Ω) ΔR
Temperature	250 °C for 2 hours	± (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 to 2000 Hz, 20 g peak, 2 directions 6 hours each	± (0.2 % + 0.05 Ω) ΔR
Load Life	1000 hours at rated power, + 25 °C, 1.5 hours “ON”, 0.5 hours “OFF”	± (1.0 % + 0.05 Ω) ΔR
Terminal Strength	30 second, 5 pound pull test for RH-5 and RH-10, 10 pound pull test for other sizes, torque test - 24 pound inch for RH-100 and 32 pound inch for RH-250	± (0.2 % + 0.05 Ω) ΔR

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