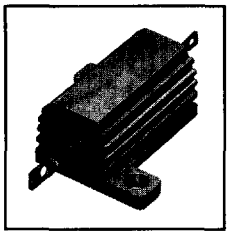
MODELS RH and NH Wirewound Resistors

Military, MIL-R-18546 Qualified, Type RE

Aluminum Housed, Chassis Mount

A COMPANY OF VISHAY DALE®



FEATURES

- Standard winding (Model RH)
- Non-inductive winding (Model NH)
- Molded construction for total environmental protection
- Complete welded construction
- Mounts on chassis to utilize heat-sink effect
- High stability at conventional power ratings
- Flat marking surface for easy identification

SPECIAL MODIFICATIONS

Available upon request

- Special: Threaded mounting holes
  Housing configurations
  Resistance-temperature characteristic
  Terminal configurations and materials
  Resistances and tolerances
  Pre-conditioning

STANDARD ELECTRICAL SPECIFICATIONS

DALE MODEL	MIL-R-18546 TYPE	POWER RATING (Watts)		RESISTANCE RANGE (Ohms) MIL. RANGE SHOWN IN BOLD FACE				MAX. WORKING VOLTAGE	MAX. WEIGHT (Grams)	STANDARD TEMP. COEFFICIENT VALUE RANGES (Ohms)*		
		DALE	MILITARY	.05%, .1%	.25%	.5%	1%, 3%, 5%			± 50PPM	± 30PPM	± 20PPM
RH-5	RE60G	7.5 (5)	5	.26-6.75k	.05-24.5k	.02-24.5k	.02-24.5k **.10-3.32k**	160	3	1-9.9	10-49	50-24.5k
NH-5	RE60N	7.5 (5)	5	.26-3.4k	.05-12.25k	.05-12.25k	.05-12.75k **1.0-1.65k**	110	3.3	1-9.9	10-25	26-12.25k
RH-10	RE65G	12.5 (10)	10	.16-12.7k	.05-47.1k	.01-47.1k	.01-47.1k **.10-5.62k**	265	6	1-9.9	10-79	80-47.1k
NH-10	RE65N	12.5 (10)	10	.16-6.4k	.05-23.5k	.05-23.5k	.05-23.5k **1.0-2.8k**	190	8.8	1-9.9	10-40	41-23.5k
RH-25	RE70G	25	20	.16-25.7k	.05-95.2k	.01-95.2k	.01-95.2k **.10-12.1k**	550	13	1-9.9	10-169	170-95.2k
NH-25	RE70N	25	20	.16-12.8k	.05-47.6k	.05-47.6k	.05-47.6k **1.0-6.04k**	390	16.5	1-9.9	10-85	86-47.6k
RH-50	RE75G	50	30	.16-73.4k	.064-273k	.01-273k	.01-273k **.10-39.2k**	1250	28	1-9.9	10-469	470-273k
NH-50	RE75N	50	30	.16-36.7k	.064-136k	.064-136k	.05-136k **1.0-19.6k**	890	35	1-9.9	10-235	236-136k
RH-100	RE77G	100	75	.5-90k	.1-90k	.05-90k	.05-90k **.05-29.4k**	1900	400	1-99	100-949	950-90k
NH-100	RE77N	100	75	.5-25k	.1-25k	.05-25k	.05-37.5k **1.0-14.7k**	1350	440	1-49	50-475	476-375k
RH-250	RE80G	250	120	.5-116k	.1-116k	.1-116k	.05-116k **.10-35.7k**	2300	800	1-99	100-999	1k-116k
NH-250	RE80N	250	120	.5-37.5k	.1-37.5k	.1-37.5k	.05-48.5k **1.0-17.4k**	1625	880	1-49	50-499	500-48.5k

* .1 ohm to .99 ohm = ± 100PPM.

NOTE: All resistance ranges shown conform to military specifications unless otherwise indicated. Figures in parentheses on RH-5 and RH-10 indicate wattage printed. New construction allows these resistors to be rated at 7.5 and 12.5 watts, but they will be printed with these higher ratings ***only*** upon customer request.

ELECTRICAL SPECIFICATIONS

Resistance Tolerance: 3%, 1%, .5%, .25%, .10%, .05%.

Operating Temperature Range: - 55°C to + 275°C. Derating is required for reduced chassis mounting area and for high ambient temperatures. (See Derating Curve.)

Power Rating: Ratings are based on these requirements:

1. 275°C maximum internal hotspot temperature.
2. 1% max. ΔR in 1000 hour load life for RH-5 thru RH-50.
   3% max. ΔR in 1000 hour load life for RH-100 and RH-250.
3. Proper heat sink:
   4 x 6 x 2 x .040 aluminum chassis = 5 and 10 watt units.
   5 x 7 x 2 x .040 aluminum chassis = 25 watt units.
   12 x 12 x .059 aluminum panel = 50 watt units.
   12 x 12 x .125 aluminum panel = 100 and 250 watt units.

Dielectric Strength: 1000 VAC = 5, 10, 25 watt units. 2000 VAC = 50 watt units. 4500 VAC = 100, 250 watt units.

Insulation Resistance: 10,000 Megohm minimum dry, 1,000 Megohm minimum after moisture test.

MECHANICAL SPECIFICATIONS

Terminal Strength: 5 lb. pull test = RH-5, NH-5, RH-10, NH-10. 10 lb. pull test = RH-25 thru RH-250, NH-25 thru NH-250.

Solderability: Satisfactory when tested in accordance with Method 208 of MIL-STD-202.

MATERIAL SPECIFICATIONS

Core: Ceramic steatite or alumina, depending on physical size.

Element: Copper-nickel alloy, nickel-chrome alloy or manganese copper, depending on resistance value.

End Caps: Stainless steel.

Encapsulant: Silicone molded construction.

Housing: Aluminum with hard anodic coating.

Standard Terminals: Tinned Copperweld® on 5 thru 50 watt units. Threaded terminals on 100 and 250 watt units.

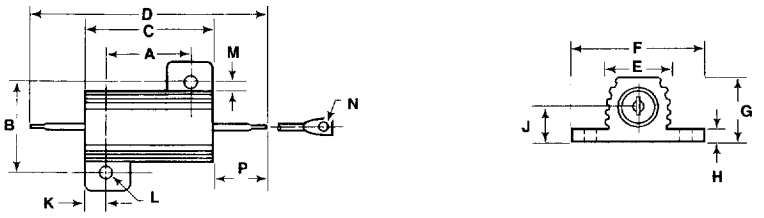
APPLICABLE MIL-SPECIFICATIONS

MIL-R-18546: The military specification covering housed chassis-mounted power resistors. Dale® RH and NH resistors meet or exceed the electrical, environmental and dimensional requirements of this specification.

MODELS RH and NH

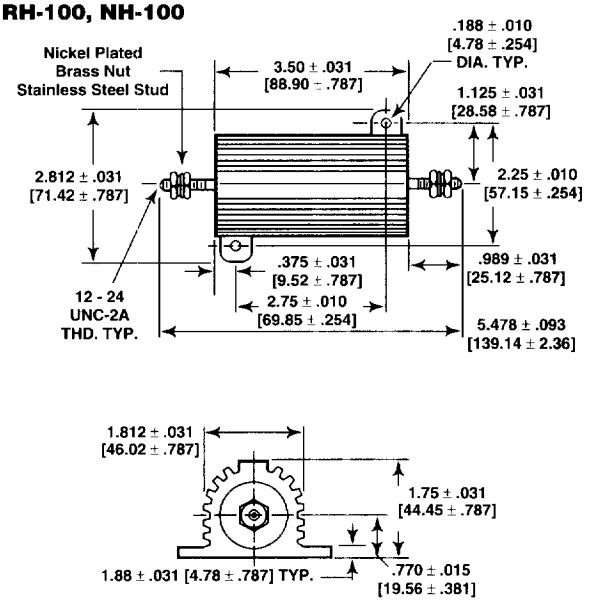
DIMENSIONAL CONFIGURATIONS [Numbers in brackets indicate millimeters]

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

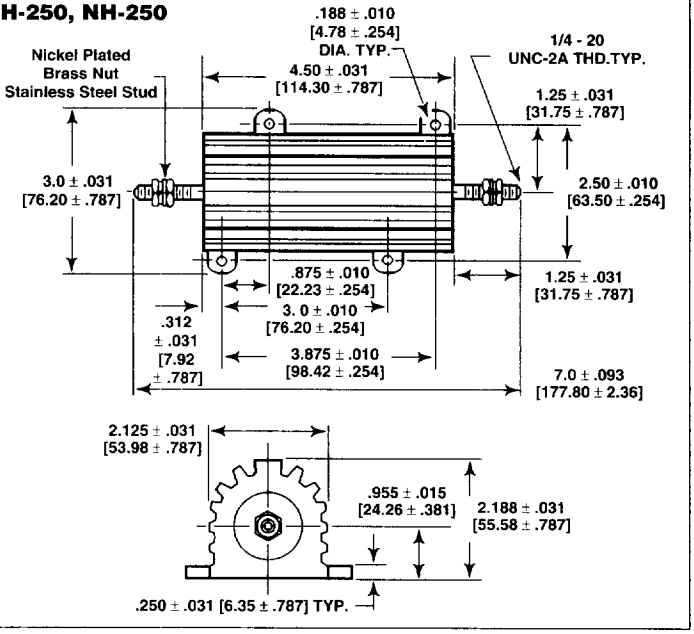


TYPE	A	B	C	D	E	F	G	H	J	K	L	M	N	P
RH-5	.444	.490	.600	1.125	.334	.646	.320	.065	.133	.078	.093	.078	.050	.266
NH-5	± .005	± .005	± .031	± .062	± .015	± .015	± .015	± .010	± .010	± .010	± .005	± .015	± .005	± .062
	[11.28	[12.45	[15.24	[28.58	[8.48	[16.41	[8.13	[1.65	[3.38	[1.98	[2.36	[1.98	[1.27	[6.76
	± .127]	± .127]	± .787]	± 1.57]	± .381]	± .381]	± .381]	± .254]	± .254]	± .254]	± .127]	± .381]	± .127]	± 1.57]
RH-10	.562	.625	.750	1.375	.420	.800	.390	.075	.165	.093	.094	.102	.085	.312
NH-10	± .005	± .005	± .031	± .062	± .015	± .015	± .015	± .010	± .010	± .010	± .005	± .015	± .005	± .062
	[14.27	[15.88	[19.05	[34.93	[10.67	[20.32	[9.91	[1.90	[4.19	[2.36	[2.39	[2.59	[2.16	[7.92
	± .127]	± .127]	± .787]	± 1.57]	± .381]	± .381]	± .381]	± .254]	± .254]	± .254]	± .127]	± .381]	± .127]	± 1.57]
RH-25	.719	.781	1.062	1.938	.550	1.080	.546	.075	.231	.172	.125	.115	.085	.438
NH-25	± .005	± .005	± .031	± .062	± .015	± .015	± .015	± .010	± .010	± .010	± .005	± .015	±.005	± .062
	[18.26	[19.84	[26.97	[49.23	[13.97	[27.43	[13.87	[1.90	[5.87	[4.37	[3.18	[2.92	[2.16	[11.13
	± .127]	± .127]	± .787]	± 1.57]	± .381]	± .381]	± .381]	± .254]	± .254]	± .254]	± .127]	± .381]	± .127]	± 1.57]
RH-50	1.562	.844	1.968	2.781	.630	1.140	.610	.088	.260	.196	.125	.107	.085	.438
NH-50	± .005	± .005	± .031	± .062	± .015	± .015	± .015	± .010	± .010	± .010	± .005	± .015	± .005	± .062
	[39.67	[21.44	[49.99	[70.64	[16.00	[28.96	[15.49	[2.24	[6.60	[4.98	[3.18	[2.72	[2.16	[11.13
	± .127]	± .127]	± .787]	± 1.57]	± .381]	± .381]	± .381]	± .254]	± .254]	± .254]	± .127]	± .381]	± .127]	± 1.57]

RH-100, NH-100



RH-250, NH-250



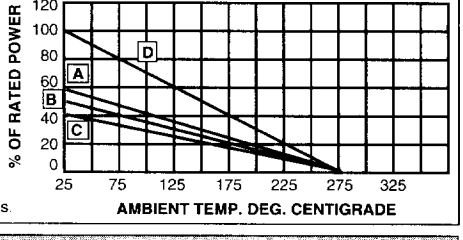
ENVIRONMENTAL PERFORMANCE

General: Testing is done according to the procedures and test methods described in MIL-R-18546. The table below shows the military and the Dale performance requirements. All specifications are based on testing of 1% tolerance units.

TEST	MIL-R-18546 REQUIREMENT	TYPICAL CHANGE
Temperature Coefficient	± 50PPM 2000Ω ± 30PPM over 2000Ω	See Table
Thermal Shock	± (.5% + 0.01Ω) ΔR	± (.25% + 0.01Ω) ΔR
Short Time Overload	± (.5% + 0.01Ω) ΔR	± (.25% + 0.01Ω) ΔR
Dielectric	± (.2% + 0.01Ω) ΔR	± (.1% + 0.01Ω) ΔR
High Temperature Storage	± (.5% + 0.01Ω) ΔR	± (.25% + 0.01Ω) ΔR
Moisture Resistance	± (1% + 0.01Ω) ΔR	± (.5% + 0.01Ω) ΔR
Shock	± (.2% + 0.01Ω) ΔR	± (.1% + 0.01Ω) ΔR
Load Life	± (1% + 0.01Ω) ΔR	± (.5% + 0.01Ω) ΔR
Vibration	± (.2% + 0.01Ω) ΔR	± (.1% + 0.01Ω) ΔR
Terminal Strength	± (.2% + 0.01Ω) ΔR	± (.1% + 0.01Ω) ΔR

DERATING

The following curves apply to operation of unmounted resistors:
A = 5 &10 watt units, unmounted.
B = 25 watt units, unmounted.
C = 50, 100 & 250 watt units, unmounted.
D = All types mounted to aluminum chassis.



PART MARKING

DALE:
— Dale
— Model
— Value and tolerance
— Wattage
— Date code

MILITARY:
— Dale
— Model
— Value and tolerance
— Wattage
— Mil mark
— Date code

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:
RH00550R00FE02 RH01080R00FE02