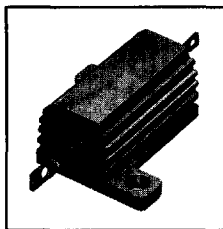


MODELS RH and NH Wirewound Resistors

Military, MIL-R-18546 Qualified, Type RE Aluminum Housed, Chassis Mount



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)				MAX. WORKING VOLTAGE	MAX. WEIGHT (Grams)	STANDARD TEMP. COEFFICIENT VALUE RANGES (Ohms)*		
		DALE	MILITARY	MIL. RANGE SHOWN IN BOLD FACE						± 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	1-9.9	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.

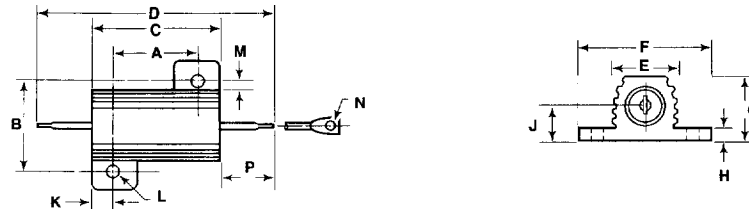
APPLICABLE MIL-SPECIFICATIONS

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

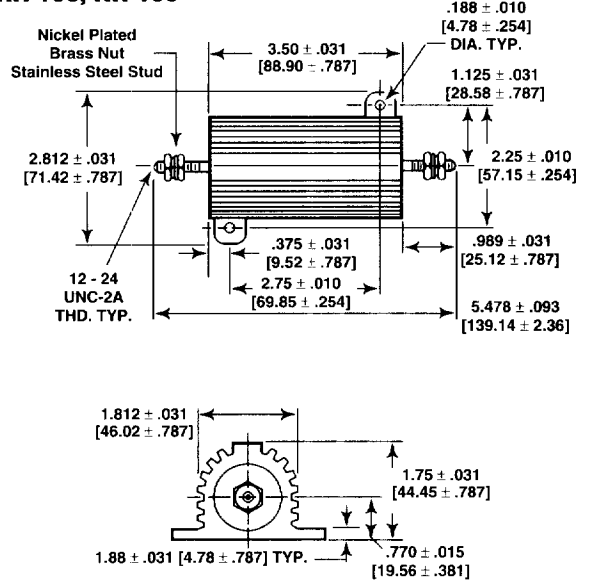
DIMENSIONAL CONFIGURATIONS [Numbers in brackets indicate millimeters]

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

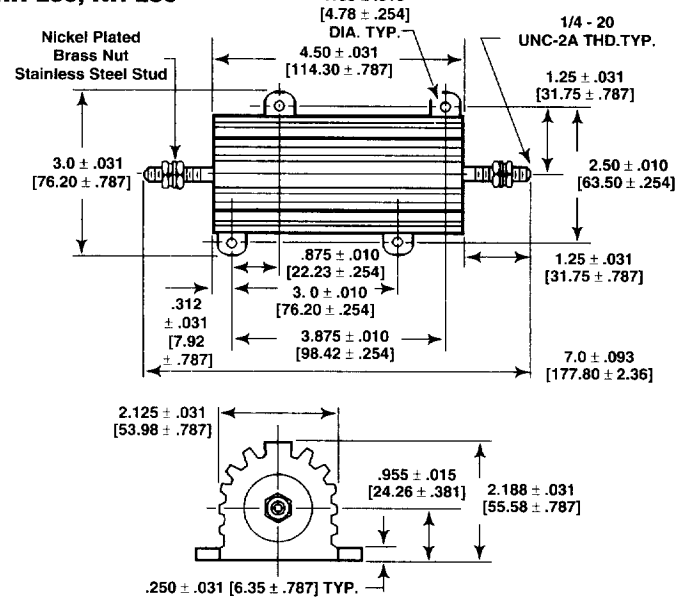


TYPE	A	B	C	D	E	F	G	H	J	K	L	M	N	P
RH-5	.444	.490	.600	1.125	.334	.646	.320	.065	.133	.078	.093	.078	.050	.266
NH-5	± .005 [11.28 ± .127]	± .005 [12.45 ± .127]	± .031 [15.24 ± .787]	± .062 [28.58 ± 1.57]	± .015 [8.48 ± .381]	± .015 [16.41 ± .381]	± .015 [8.13 ± .381]	± .010 [1.65 ± .254]	± .010 [3.38 ±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

RH-100, NH-100



RH-250, NH-250

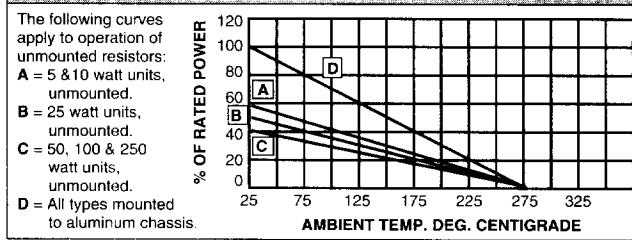


ENVIRONMENTAL PERFORMANCE

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



PART MARKING

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