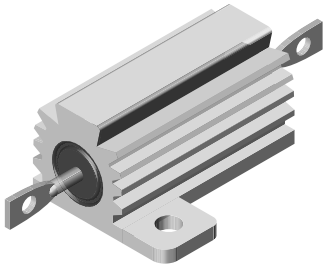
Pre-Charge and Discharge, Chassis Mount Wirewound Resistor



FEATURES

- AEC-Q200 qualified
- Molded construction for total environmental protection
- Complete welded construction
- Mounts on chassis to utilize heat-sink effect
- Excellent stability in operation (< 1 % change in resistance)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS* Available

HALOGEN FREE Available

GREEN (5-2008) Available

LINKS TO ADDITIONAL RESOURCES

3D Models

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING $P_{25\,°C}$ W	RESISTANCE RANGE Ω ± 1 %, ± 3 %, ± 5 %	WEIGHT (typical) g
RHA005	7.5	0.1 to 3.32K	3
RHA010	12.5	0.1 to 5.62K	5
RHA025	25	0.1 to 12.1K	12
RHA050	50	0.1 to 39.2K	28

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RHA 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	-	Meets requirements of ANSI J-STD-002
Operating Temperature Range	°C	-55 to +250

GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: RHA0054R125FC02

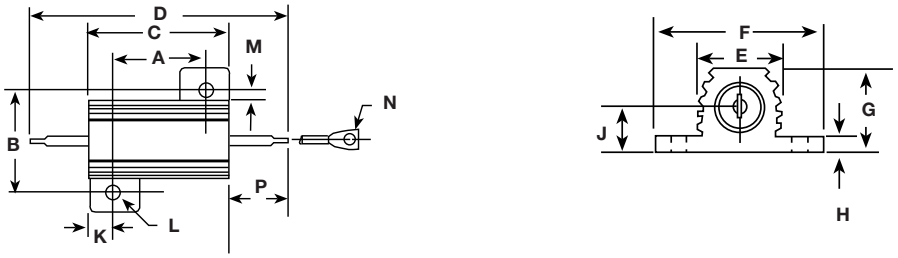
R	H	A	0	0	5	4	R	1	2	5	F	C	0	2		

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
RHA005 (see Standard Electrical Specifications Global Model column for options)	**R** = decimal **K** = thousand **15R00** = 15 Ω **10K00** = 10 kΩ	**F** = 1.0 % **H** = 3.0 % **J** = 5.0 %	**E02** = lead (Pb)-free, card pack	(dash number) (up to 2 digits) from **1 to 99** as applicable

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DIMENSIONS in inches [millimeters]



GLOBAL MODEL	DIMENSIONS in inches [millimeters]													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
RHA005	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]
RHA010	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]
RHA025	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]
RHA050	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]

POWER RATING

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

RHA005 and RHA010: 4" x 6" x 2" x 0.040" thick aluminum chassis (129 sq. in. surface area)
RHA025: 5" x 7" x 2" x 0.040" thick aluminum chassis (167 sq. in. surface area)
RHA050: 12" x 12" x 0.059" thick aluminum panel (291 sq. in. surface area)

FREE AIR POWER RATING				
GLOBAL MODEL	RHA005	RHA010	RHA025	RHA050
W at 25 °C	4.5	7.5	12.5	20

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AMBIENT TEMPERATURE DERATING

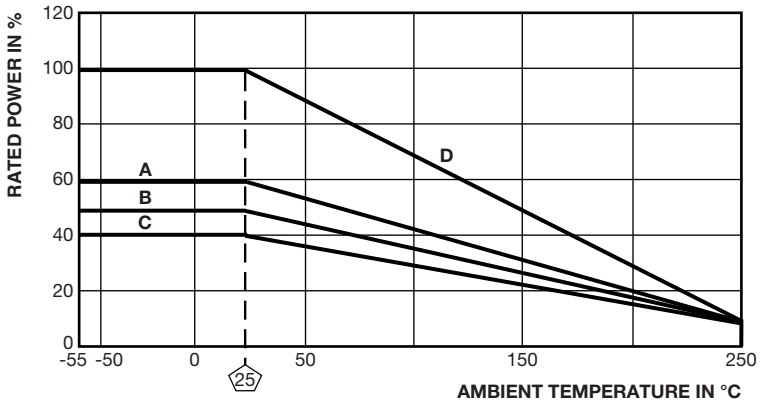
Derating is required for ambient temperatures above 25 °C, see the following graph.
Curves **A**, **B**, **C** apply to operation of unmounted resistors. Curve **D** applies to all types when mounted to specified heat sink.

A = RHA005 and RHA010 size resistor, unmounted

B = RHA025 size resistor, unmounted

C = RHA050 size resistor, unmounted

D = All types mounted to recommended aluminum heat sink



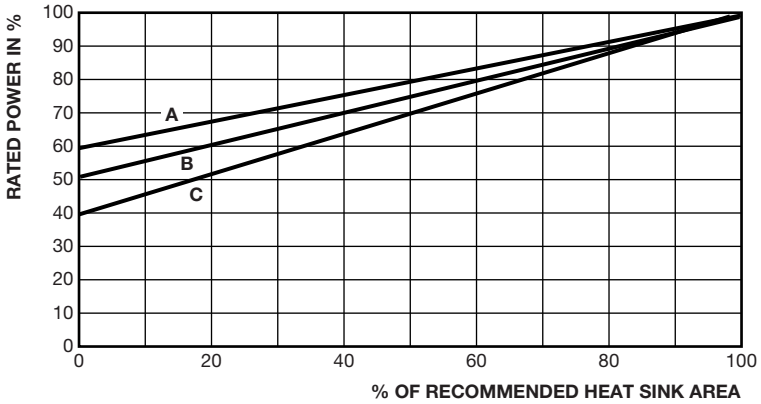
REDUCED HEAT SINK DERATING

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

A = RHA005 and RHA010 size resistor

B = RHA025 size resistor

C = RHA050 size resistor



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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 RHA005 through RHA050 size terminal finish - lead (Pb)-free is Ni/Pd/Au, finish is on copper clad steel core terminal

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

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

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) Δ*R*
Short Time Overload	5 x rated power for 5 s	± (0.5 % + 0.05 Ω) Δ*R*
Dielectric Withstanding Voltage	1000 V_{RMS} for RHA005, RHA010, and RHA025; 2000 V_{RMS} for RHA050	± (0.2 % + 0.05 Ω) Δ*R*
Temperature	250 °C for 2 h	± (0.5 % + 0.05 Ω) Δ*R*
Moisture Resistance	MIL-STD-202 method 106, 7b not applicable	± (1.0 % + 0.05 Ω) Δ*R*
Shock, Specified Pulse	MIL-STD-202 method 213, 100 *g*'s for 6 ms, 10 shocks	± (0.2 % + 0.05 Ω) Δ*R*
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 *g* peak, 2 directions 6 h each	± (0.2 % + 0.05 Ω) Δ*R*
Load Life	1000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.05 Ω) Δ*R*
Terminal Strength	30 s, 5 pound pull test for RHA005 and RHA010, 10 pound pull test for other sizes	± (0.2 % + 0.05 Ω) Δ*R*

SHORT TERM ENERGY CAPABILITIES VS. RESISTANCE				
RESISTANCE VALUE (Ω)	**SHORT TERM (< 100 ms) ENERGY CAPABILITY (J)**			
	RHA005	**RHA010**	**RHA025**	**RHA050**
1	4.15	14.5	14.5	17.4
10	2.59	6.53	17	67.6
25	1.56	4.25	10.2	42.5
50	1.97	3.11	5.85	32.65
100	0.71	3.93	6.22	25.9
300	1.179	2.63	6.9	18.66
1000	0.59	1.44	3.93	14.2

Note

- Contact factory for energy capability of resistance values not listed

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