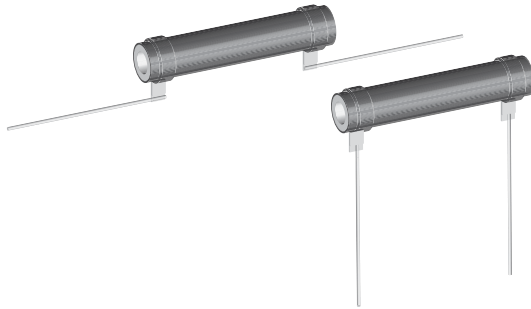


Wirewound Resistors, Industrial Power, Tubular



FEATURES

- High temperature silicon coating
- Complete welded construction
- Excellent for intermittent power and pulsing applications
- Available in non-inductive styles (model NHLW) with Ayrton-Perry winding
- Axial or radial terminals for through hole or lead weld applications
- Excellent stability in operation (< 3 % change in resistance)
- Material categorization:

For definitions of compliance please see www.vishay.com/doc?99912



RoHS*
Available

HALOGEN FREE
Available

GREEN
(5-2008)
Available

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	HISTORICAL MODEL	POWER RATING $P_{25^{\circ}\text{C}}$ W	RESISTANCE RANGE Ω $\pm 5\%$	RESISTANCE RANGE Ω $\pm 10\%$	WEIGHT (typical) g
HLW03 NHLW03	HLW-3 NHLW-3	3	1.0 to 6K 1.0 to 700	0.10 to 6K 1.0 to 700	1.16
HLW05 NHLW05	HLW-5 NHLW-5	5.25	1.0 to 15K 1.0 to 1.9K	0.10 to 15K 1.0 to 1.9K	2.12
HLW06 NHLW06	HLW-6 NHLW-6	8	1.0 to 20.5K 1.0 to 2.7K	0.10 to 20.5K 1.0 to 2.7K	4.60
HLW10 NHLW10	HLW-10 NHLW-10	10	1.0 to 29K 1.0 to 3.7K	0.10 to 29K 1.0 to 3.7K	6.24
HLW12 NHLW12	HLW-12 NHLW-12	12	1.0 to 58K 1.0 to 3.9K	0.10 to 58K 1.0 to 3.9K	6.60
HLW15 NHLW15	HLW-15 NHLW-15	15	1.0 to 60K 1.0 to 4.3K	0.10 to 60K 1.0 to 4.3K	8.82
HLW20 NHLW20	HLW-20 NHLW-20	20	1.0 to 95K 1.0 to 6.8K	0.10 to 95K 1.0 to 6.8K	11.36

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	HLW RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/ $^{\circ}\text{C}$	± 30 for 10 Ω and above; ± 50 for 1 Ω to 9.9 Ω ; ± 90 for 0.1 Ω to 0.99 Ω
Short Time Overload	-	10 x rated power for 5 s
Dielectric Withstanding Voltage	V_{AC}	1000, from terminal to mounting hardware
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Insulation Resistance	Ω	1000 M Ω minimum dry, 100 M Ω minimum after moisture test
Operating Temperature Range	$^{\circ}\text{C}$	- 55 to + 350

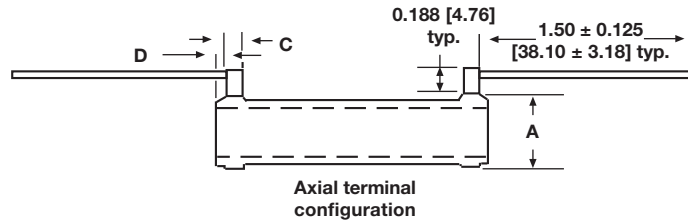
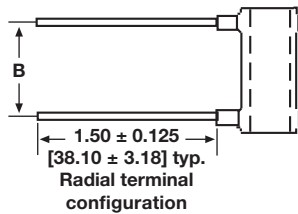
GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: NHLW12A1Z10R00JF

N	H	L	W	1	2	A	1	Z	1	0	R	0	0	J	F		
GLOBAL MODEL NHLW12 (See "Standard Electrical Specifications" table above for additional P/N's)		TERMINAL DESIGNATION A1 A2 R1 R2		TERMINAL FINISH E = Lead (Pb)-free Z = Tin/lead		RESISTANCE VALUE R = Decimal K = Thousand 10R00 = 10.0 Ω 1K000 = 1 k Ω			TOLERANCE J = $\pm 5.0\%$ K = $\pm 10.0\%$		PACKAGING CODE E = Lead (Pb)-free foam pack F = Tin/lead foam pack (F01)		SPECIAL (Dash Number) (Up to 2 digits) From 1 to 99 as applicable				

Historical Part Numbering example: NHLW-12-A1Z 10 Ω 5 % F01

NHLW-12	A1Z	10 Ω	5 %	F01
HISTORICAL MODEL	TERMINAL/FINISH	RESISTANCE VALUE	TOLERANCE	PACKAGING

DIMENSIONS in inches [millimeters]


GLOBAL MODEL	A (MAX.)	B TYP.	C ± 0.031 [0.79]	D TYP.	CORE DIMENSIONS			AXIAL TERMINAL DESIGNATION	RADIAL TERMINAL DESIGNATION	BRACKET TYPE ⁽¹⁾
					LENGTH ± 0.063 [1.59]	O.D.	I.D. ± 0.031 [0.79]			
HLW03 NHLW03	0.297 [7.54]	0.282 [7.16]	0.063 [1.59]	0.047 [1.19]	0.438 [11.11]	0.203 [5.16]	0.125 [3.18]	A2Z	R2Z	-
HLW05 NHLW05	0.344 [8.73]	0.469 [11.91]	0.063 [1.59]	0.047 [1.19]	0.625 [15.88]	0.250 [6.35]	0.125 [3.18]	A2Z	R2Z	-
HLW06 NHLW06	0.406 [10.32]	0.688 [17.48]	0.125 [3.18]	0.094 [2.38]	1.000 [25.40]	0.313 [7.94]	0.188 [4.76]	A1Z	R1Z	101, 204, 301
HLW10 NHLW10	0.563 [14.28]	0.688 [17.48]	0.125 [3.18]	0.094 [2.38]	1.000 [25.40]	0.438 [11.11]	0.313 [7.94]	A1Z	R1Z	101, 203, 301
HLW12 NHLW12	0.406 [10.32]	1.438 [36.53]	0.125 [3.18]	0.094 [2.38]	1.750 [44.45]	0.313 [7.94]	0.188 [4.76]	A1Z	R1Z	101, 204, 301
HLW15 NHLW15	0.563 [14.29]	1.188 [30.18]	0.125 [3.18]	0.094 [2.38]	1.500 [38.10]	0.438 [11.11]	0.313 [7.94]	A1Z	R1Z	101, 203, 301
HLW20 NHLW20	0.563 [14.29]	1.688 [42.88]	0.125 [3.18]	0.094 [2.38]	2.000 [50.80]	0.438 [11.11]	0.313 [7.94]	A1Z	R1Z	101, 203, 301

Note

⁽¹⁾ Brackets are available for mounting HLW series resistors - see "Mounting Hardware" section.

TERMINAL FINISH

Terminals are 20 AWG for HLW03 and HLW05 size and 18 AWG for all other sizes. "E" Finish - 100 % Sn, coated Copperweld®. "Z" Finish - 60/40 Sn/Pb coated Copperweld®.

MOUNTING HARDWARE

Mounting hardware is available for HLW resistors, see "HL Brackets and Sliders" datasheet for more information: www.vishay.com/doc?30279.

MATERIAL SPECIFICATIONS

Element: Copper-nickel alloy of nickel-chrome alloy, depending on resistance value

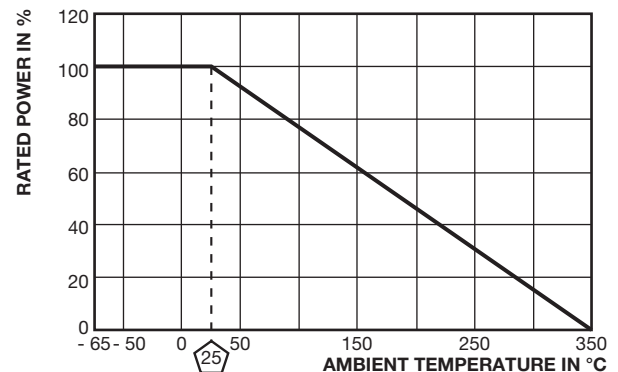
Core: Ceramic, steatite

Coating: Special high temperature silicone

Standard Terminals: Model "E" terminals are tinned Copperweld®

Terminal Bands: Steel

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

DERATING




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Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

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Mouser Electronics

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[HLW20A1ZR5000KF](#) [HLW20A1ZR1000KF](#) [HLW06A1Z15K00JF](#) [HLW12A1Z50R00JF](#) [HLW03A2Z3R300JF](#)
[HLW20A1Z350R0JF](#) [NHLW20A1Z50R00JJ](#) [HLW12R1Z3K500JF](#) [HLW05A2Z200R0JF](#) [HLW05A2Z8K200JF](#)
[HLW06A1Z5K000JF](#) [HLW06A1Z3K000JF](#) [HLW06A1Z8K000JF](#) [HLW20A1Z50R00JF](#) [HLW05A2Z2R000JJ](#)
[HLW20A1Z10R00JF](#) [HLW05A2Z3K600JF](#) [HLW20A1Z1K000JF](#) [HLW05A2Z6K200JF](#) [HLW05A2Z3R300JF](#)
[HLW05A2Z300R0JF](#) [HLW12R1Z20R00JF](#) [HLW05A2Z51R00JF](#) [HLW12A1Z1R500JF](#) [HLW05A2Z1K000JF](#)
[HLW05A2Z5K100JF](#) [HLW20R1Z10R00JF](#) [NHLW20A1Z75R00JJ](#) [NHLW20R1Z1R000JJ](#) [NHLW20R1Z2R000JJ](#)
[HLW3-R2Z 68 5%](#) [HLW5-R2Z 220 5%](#) [HLW05A2Z15K00JF](#) [HLW12-A1Z 1K 5%](#) [HLW5-R2Z 10K 5%](#)
[HLW05R2Z10R00JF](#) [HLW-5-A2Z-100-5%](#) [HLW12A1Z3K500JF](#) [HLW-5-A2Z-51-5%](#) [HLW06A1Z10R00JX](#)
[HLW06A1Z50R00JF](#) [HLW20R1Z1R000JF](#) [HLW05A2Z560R0JF](#) [HLW05A2Z10R00JF](#) [HLW05A2Z56R00JF](#)
[HLW20A1Z20K00JF](#) [HLW20A1Z200R0JF](#) [HLW20A1Z100R0JF](#) [HLW06A1Z500R0JF](#) [HLW05A2Z47R00JF](#)
[HLW20A1Z1K500JJ](#) [HLW12A1Z25R00JF](#) [HLW20A1Z1R000JF](#) [HLW20A1Z2R000JF](#) [HLW20A1Z5R000JJ](#)
[HLW12A1Z4K000JF](#) [HLW05A2Z10K00JF](#) [HLW12A1Z1K500JF](#) [HLW20R1Z100K0JF](#) [HLW12A1Z30K00JF](#)
[HLW03A2Z100R0JF](#) [HLW20A1Z250R0JF](#) [HLW12A1E10K00JE](#) [HLW12A1ZR5000KF](#) [HLW12-A1Z 75 5%](#)
[HLW20R1Z50K00JF](#) [HLW20-A1Z 300 5%](#) [HLW5-A2Z 1.5 5%](#) [HLW5-A2Z 180 5%](#) [HLW5-A2Z 510 5%](#) [HLW5-R2Z](#)
[820 5%](#) [HLW6-A1Z 20K 5%](#) [HLW6-A1Z 25 5%](#) [HLW6-R1Z 4K 5%](#) [HLW6-R1Z 5.6K 5%](#) [HLW20A1Z100K0JF](#)
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[HLW20R1Z20R00JF](#) [NHLW15R1Z25R00JF](#) [HLW12A1Z75R00JF](#) [HLW05A2Z510R0JF](#)