Product is End of Life Mar-2016 and Replaced by FSTL, FSTS, FSWL



www.vishay.com

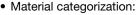
Vishay Dale

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)



for definitions of compliance please see <u>www.vishay.com/doc?99912</u>



RoHS* Available HALOGEN

FREE Available

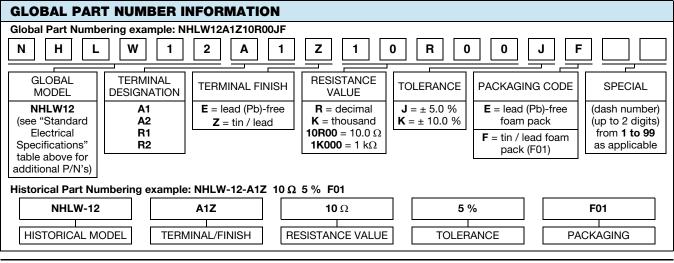
GREEN (5-2008) Available

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 °C} W	RESISTANCE RANGE Ω ± 5 %	RESISTANCE RANGE Ω ± 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/°C	\pm 30 for 10 Ω and above; \pm 50 for 1 Ω to 9.9 Ω ; \pm 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 x R) ^{1/2}				
Insulation Resistance	Ω	1000 M Ω minimum dry, 100 M Ω minimum after moisture test				
Operating Temperature Range	°C	-55 to +350				



Revision: 26-Feb-16

1 For technical questions, contact: <u>ww2dresistors@vishay.com</u> Document Number: 30210

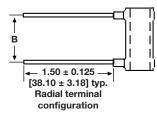
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishav.com/doc?91000

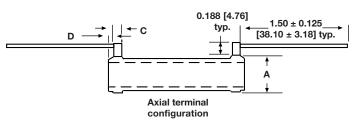


HLW, NHLW

Vishay Dale

DIMENSIONS in inches [millimeters]





			с		CORE DIMENSIONS			AXIAL	RADIAL	
GLOBAL MODEL	A (MAX.)	B TYP.	± 0.031 [0.79]	D TYP.	LENGTH ± 0.063 [1.59]	O.D.	I.D. ± 0.031 [0.79]	TERMINAL DESIGNATION	TERMINAL DESIGNATION	BRACKET TYPE ⁽¹⁾
HLW03	0.297	0.282	0.063	0.047	0.438	0.203	0.125	A2Z	R2Z	-
NHLW03	[7.54]	[7.16]	[1.59]	[1.19]	[11.11]	[5.16]	[3.18]	R2Z		
HLW05	0.344	0.469	0.063	0.047	0.625	0.250	0.125	A2Z	R2Z	-
NHLW05	[8.73]	[11.91]	[1.59]	[1.19]	[15.88]	[6.35]	[3.18]	RZZ		
HLW06	0.406	0.688	0.125	0.094	1.000	0.313	0.188	A1Z	R1Z	101, 204, 301
NHLW06	[10.32]	[17.48]	[3.18]	[2.38]	[25.40]	[7.94]	[4.76]			
HLW10	0.563	0.688	0.125	0.094	1.000	0.438	0.313	A1Z	R1Z	101, 203, 301
NHLW10	[14.28]	[17.48]	[3.18]	[2.38]	[25.40]	[11.11]	[7.94]	AIZ		
HLW12	0.406	1.438	0.125	0.094	1.750	0.313	0.188	A 1 7	R1Z	101, 204, 301
NHLW12	[10.32]	[36.53]	[3.18]	[2.38]	[44.45]	[7.94]	[4.76]	A1Z		
HLW15	0.563	1.188	0.125	0.094	1.500	0.438	0.313	A1Z	R1Z	101, 203, 301
NHLW15	[14.29]	[30.18]	[3.18]	[2.38]	[38.10]	[11.11]	[7.94]			
HLW20	0.563	1.688	0.125	0.094	2.000	0.438	0.313	A1Z	R1Z	101, 203, 301
NHLW20	[14.29]	[42.88]	[3.18]	[2.38]	[50.80]	[11.11]	[7.94]	AIZ		

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: <u>www.vishay.com/doc?30279</u>.

MATERIAL SPECIFICATIONS

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

Core: ceramic, steatite

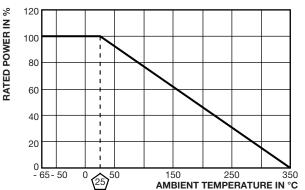
Coating: special high temperature silicone

Standard Terminals: model "E" terminals are tinned Copperweld[®]

Terminal Bands: steel

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

DERATING



2



Vishay

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.