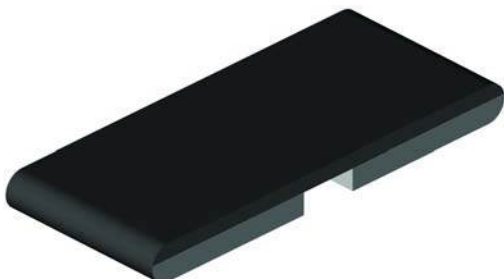




## Power Metal Strip® Resistors, High Power (5 W), Low Value (down to 0.001 Ω), Surface Mount



**Product Termination Notice: PCN-DR-028-2015-Rev-0**

For documentation go to: [www.vishay.com/quality/pcn-search/](http://www.vishay.com/quality/pcn-search/).  
Enter search for resistors, Vishay Dale, and product termination.

Technical Note: WSHM / WSH Side by Side Comparison for a  
Drop-In Replacement Part: [www.vishay.com/doc?30305](http://www.vishay.com/doc?30305).

**FEATURES**

- Improved thermal management incorporated into design
- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifier
- Proprietary processing technique produces extremely low resistance values
- All welded construction
- Very low inductance (< 5 nH)
- Excellent frequency response to 50 MHz
- Solid metal nickel-chrome or manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- Low thermal EMF (< 3 μV/°C)
- AEC-Q200 qualified <sup>(1)</sup>
- PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**Note**

<sup>(1)</sup> Flame retardance test may not be applicable to some resistor technologies

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	SIZE	POWER RATING <i>P</i> <sub>70 °C</sub> W	TOLERANCE ± %	RESISTANCE VALUE RANGE Ω	WEIGHT (typical) g/1000 pieces
WSH2818	2818	5 <sup>(1)</sup>	1.0	0.001 to 0.1	126

**Note**

<sup>(1)</sup> The WSH2818 is rated at 5 W with maximum surface temperature of 200 °C

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/°C	± 200 for 1 mΩ to 5.99 mΩ ± 75 for 6 mΩ to 100 mΩ
Inductance	nH	< 5
Operating temperature range	°C	-65 to +170
Maximum continuous current	A	( <i>P/R</i> ) <sup>1/2</sup>

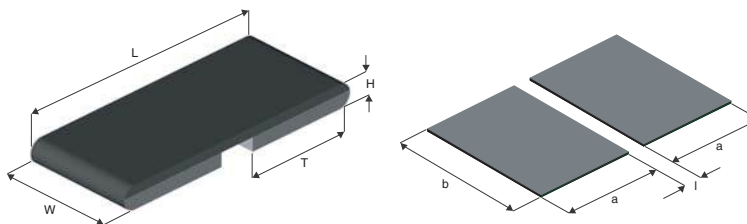
GLOBAL PART NUMBER INFORMATION																
Global Part Numbering example: WSH2818R1000FEA																
W	S	H	2	8	1	8	R	1	0	0	0	F	E	A		
GLOBAL MODEL			RESISTANCE VALUE			TOLERANCE CODE		PACKAGING CODE			SPECIAL					
WSH2818			L = mΩ* R = Decimal 4L000 = 0.004 Ω R0100 = 0.01 Ω  * Use "L" for resistance values < 0.01 Ω			F = ± 1.0 % J = ± 5.0 %		EA = lead (Pb)-free, tape/reel EK = lead (Pb)-free, bulk			(dash number) (up to 2 digits) from 1 to 99 as applicable					

PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)

This Vishay product is protected by one or more United States and international patents.

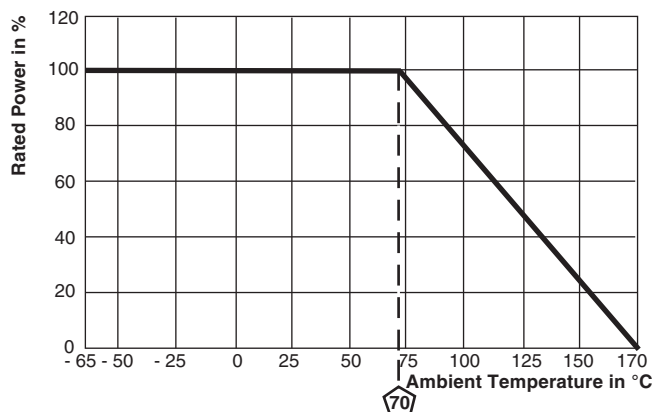


**DIMENSIONS** in inches (millimeters)



MODEL	RESISTANCE RANGE $\Omega$	DIMENSIONS				SOLDER PAD DIMENSIONS		
		L	W	H	T	a	b	l
WSH2818	0.006 to 0.1	0.280 ± 0.010 (7.1 ± 0.25)	0.180 ± 0.010 (4.6 ± 0.25)	0.032 ± 0.010 (0.813 ± 0.25)	0.125 ± 0.010 (3.18 ± 0.25)	0.138 (3.5)	0.200 (5.1)	0.024 (0.61)
	0.001 to 0.0059			0.045 ± 0.010 (1.143 ± 0.25)				

**DERATING**



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± 0.5 % $\Delta R$
Short time overload	4x rated power for 5 s	± 1.0 % $\Delta R$
Low temperature operation	-65 °C for 45 min	± 0.5 % $\Delta R$
High temperature exposure	1000 h at +170 °C	± 1.0 % $\Delta R$
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	± 0.5 % $\Delta R$
Mechanical shock	100 g's for 6 ms, 5 pulses	± 0.5 % $\Delta R$
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± 0.5 % $\Delta R$
Load life	1000 h at 70 °C, 1.5 h "ON", 0.5 h "OFF"	± 1.0 % $\Delta R$
Resistance to solder heat	+260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	± 0.5 % $\Delta R$
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	± 0.5 % $\Delta R$

PACKAGING				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSH2818	16 mm/embossed plastic	330 mm/13"	3500	EA

**Note**

- Embossed Carrier Tape per EIA-481



## **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.