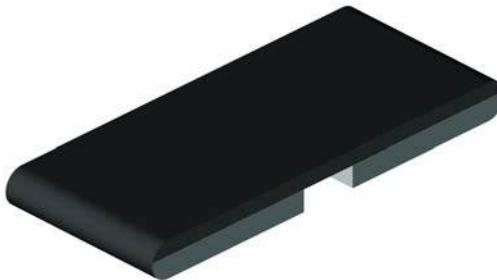


## Power Metal Strip® Resistors, High Power (5 W), Low Value (down to 0.001 Ω), Surface Mount



### 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)

 AUTOMOTIVE GRADE



e3

RoHS  
COMPLIANT

HALOGEN  
FREE  
GREEN  
(IS-2008)

### Note

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

### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\text{ °C}}$ 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	$(P/R)^{1/2}$

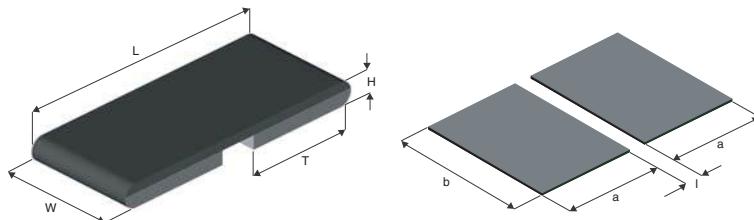
### GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: WSH2818R1000FEA

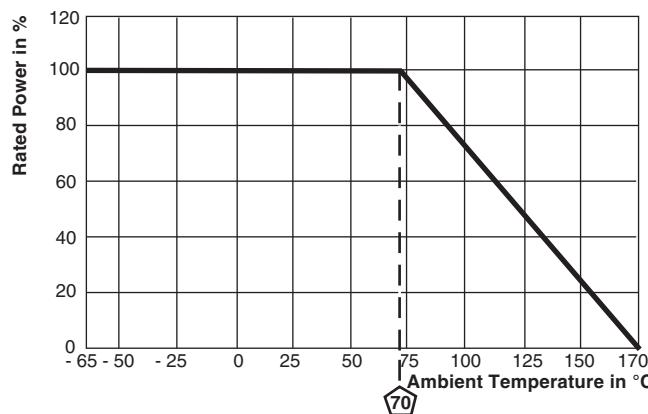
W	S	H	2	8	1	8	R	1	0	0	0	F	E	A		
GLOBAL MODEL				RESISTANCE VALUE				TOLERANCE CODE				PACKAGING CODE				SPECIAL
WSH2818				$L = m\Omega^*$ R = Decimal 4L000 = 0.004 Ω R0100 = 0.01 Ω				$F = \pm 1.0\%$ $J = \pm 5.0\%$				EA = lead (Pb)-free, tape/reel EK = lead (Pb)-free, bulk				(dash number) (up to 2 digits) from 1 to 99 as applicable
* Use "L" for resistance values < 0.01 Ω																

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	I
WSH2818	0.006 to 0.1	0.280 $\pm$ 0.010 (7.1 $\pm$ 0.25)	0.180 $\pm$ 0.010 (4.6 $\pm$ 0.25)	0.032 $\pm$ 0.010 (0.813 $\pm$ 0.25)	0.125 $\pm$ 0.010 (3.18 $\pm$ 0.25)	0.138 (3.5)	0.200 (5.1)	0.024 (0.61)
	0.001 to 0.0059			0.045 $\pm$ 0.010 (1.143 $\pm$ 0.25)				

**DERATING**

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

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

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