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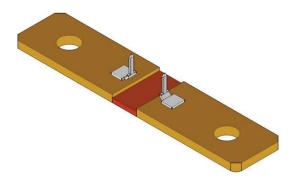
Vishay Dale

HALOGEN FREE

**GREEN** 

(5-2008)

# Power Metal Strip<sup>®</sup> Shunt Resistor With Two Sense Pins, Very Low Value (50 $\mu\Omega$ , 100 $\mu\Omega$ , 125 $\mu\Omega$ , and 250 $\mu\Omega$ )

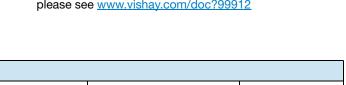


#### **DESIGN TOOLS** (click logo to get started)



#### **FEATURES**

- High power to resistor size ratio
- · Sense pins allow for consistent contact location
- Proprietary processing technique produces extremely low resistance values
- Welded terminal to element construction
- Solid metal manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)</li>
- Very low inductance (< 5 nH)
- Low thermal EMF (as low as < 1 μV/°C)</li>
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

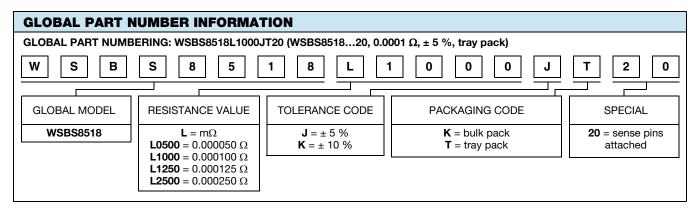


STANDARD	TANDARD ELECTRICAL SPECIFICATIONS							
GLOBAL MODEL	SIZE	POWER RATING  P <sub>70 °C</sub> W	TOLERANCE ± %	RESISTANCE VALUE RANGE (1) Ω	RESISTANCE VALUES CURRENTLY AVAILABLE $^{(2)}$ $\Omega$	WEIGHT (typical) g		
WSBS851820	8518	36	5, 10	50μ to 1000μ	50μ, 100μ, 125μ, 250μ	50μ = 38.4, 100μ / 125u = 36.9, 250μ = 34.2		

#### Notes

<sup>(2)</sup> Other values may be available, contact factory

TECHNICAL SPECIFICATIONS				
PARAMETER	UNIT	RESISTOR CHARACTERISTICS		
		$\pm$ 200 for 50 $\mu\Omega$		
Temperature coefficient	ppm/°C	$\pm$ 175 for 100 μ $\Omega$ / 125 μ $\Omega$		
		$\pm$ 110 for 250 μ $\Omega$		
Temperature coefficient (element material)	ppm/°C	± 20		
Operating temperature range	°C	-65 to +170		
Thermal EMF	μV/°C	$<$ 1 for 50 $\mu\Omega$ and $<$ 3 for 100 $\mu\Omega,$ 125 $\mu\Omega,$ 250 $\mu\Omega$		
Inductance	nH	< 5		
Maximum current rating	А	(P/R) <sup>1/2</sup>		

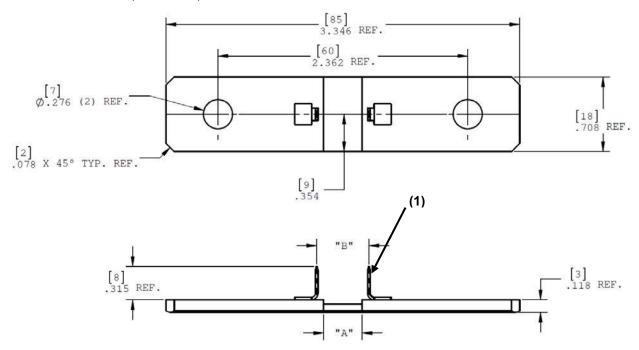


Revision: 24-Feb-17 **1** Document Number: 30341 For technical questions, contact: <a href="www2cresistors@vishav.com">ww2cresistors@vishav.com</a>

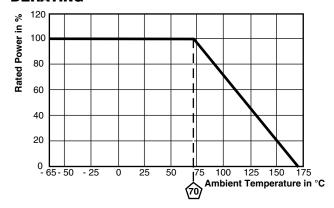
<sup>(1)</sup> Please reference WSBS8518...35 datasheet (www.vishay.com/doc?30355) for resistance values 500  $\mu\Omega$  to 1000  $\mu\Omega$ 

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## **DIMENSIONS** in inches (millimeters)



#### **DERATING**



TOLERANCES ON DECIMALS
$.xxx \pm 0.005 [.x \pm 0.1]$

**UNLESS OTHERWISE LISTED** 

RESISTANCE VALUE ( $\mu\Omega$ )	ELEMENT MATERIAL	A REFERENCE	B ± 0.005 [± 0.13]	
50	Mn-Cu	0.145 [3.68]	0.135 [3.43]	
100	Mn-Cu	0.370 [9.40]	0.495 [12.57]	
125	Mn-Cu	0.480 [12.19]	0.585 [14.86]	
250	Mn-Cu	0.900 [22.86]	1.028 [26.11]	

### Note

(1) Minimum pull strength of 200 N

PERFORMANCE					
TEST	CONDITIONS OF TEST	TEST LIMITS			
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± 0.5 %			
Short time overload	5x rated power for 5 s	± 0.5 %			
Low temperature storage	-65 °C for 24 h	± 0.5 %			
High temperature exposure	1000 h at +170 °C	± 1.0 %			
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	± 0.5 %			
Mechanical shock	100 g's for 6 ms, 5 pulses	± 0.5 %			
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± 0.5 %			
Load life	1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	± 1.0 %			
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	± 0.5 %			



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Revision: 13-Jun-16 1 Document Number: 91000