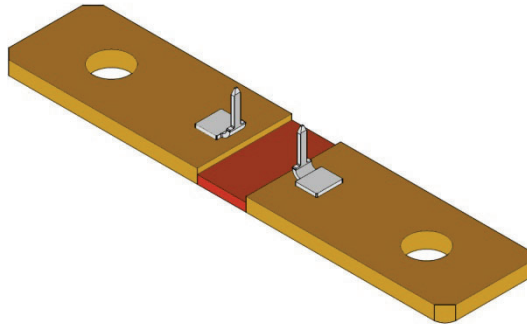


## Power Metal Strip<sup>®</sup> Shunt Resistor With Two Sense Pins, Very Low Value (50 $\mu\Omega$ , 100 $\mu\Omega$ , 125 $\mu\Omega$ , and 250 $\mu\Omega$ )



### 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)
- Very low inductance (< 5 nH)
- Low thermal EMF (as low as < 1  $\mu\text{V}/^\circ\text{C}$ )
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

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



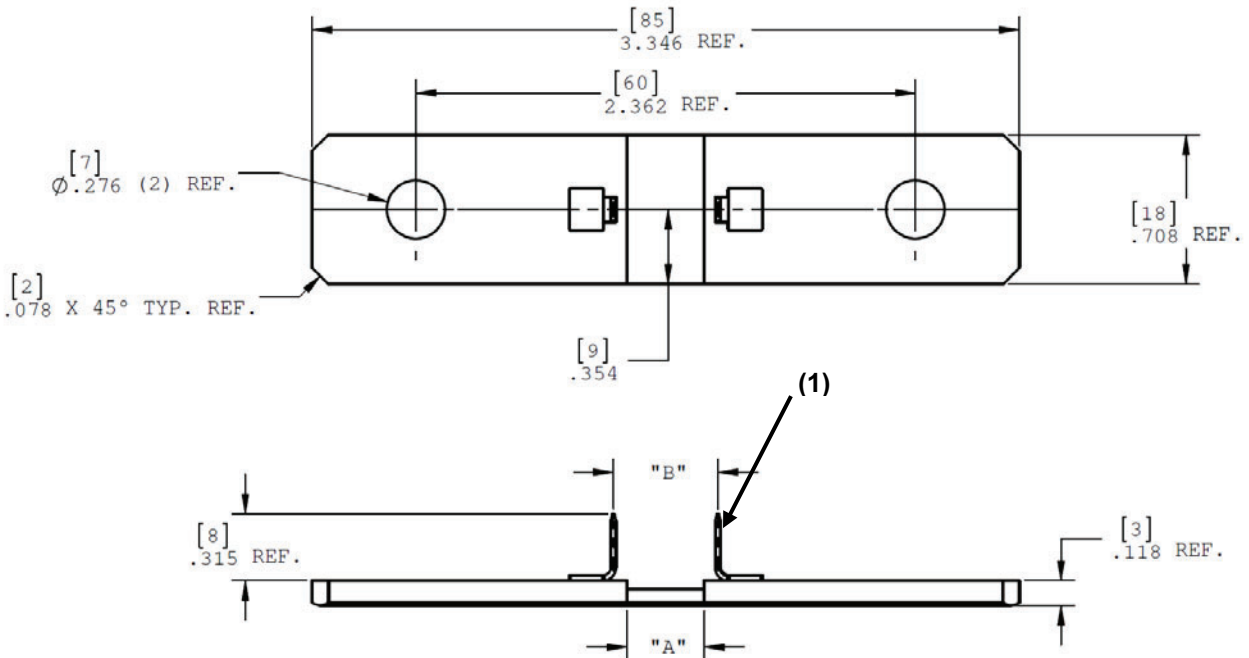
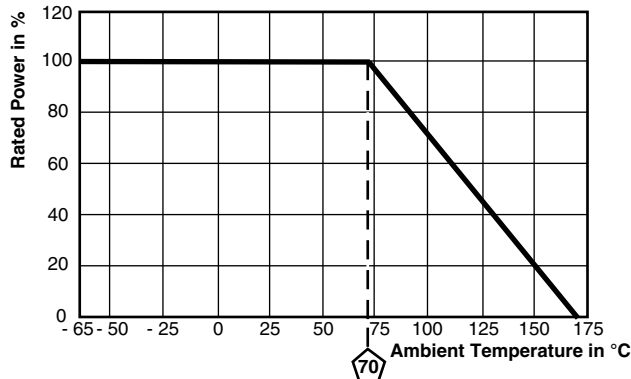
STANDARD ELECTRICAL SPECIFICATIONS						
GLOBAL MODEL	SIZE	POWER RATING $P_{70^\circ\text{C}}$ W	TOLERANCE $\pm \%$	RESISTANCE VALUE RANGE <sup>(1)</sup> $\Omega$	RESISTANCE VALUES CURRENTLY AVAILABLE <sup>(2)</sup> $\Omega$	WEIGHT (typical) g
WSBS8518...20	8518	36	5, 10	50 $\mu$ to 1000 $\mu$	50 $\mu$ , 100 $\mu$ , 125 $\mu$ , 250 $\mu$	50 $\mu$ = 38.4, 100 $\mu$ / 125 $\mu$ = 36.9, 250 $\mu$ = 34.2

#### Notes

- (1) Please reference WSBS8518...35 datasheet ([www.vishay.com/doc?30355](http://www.vishay.com/doc?30355)) for resistance values 500  $\mu\Omega$  to 1000  $\mu\Omega$   
 (2) Other values may be available, contact factory

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

GLOBAL PART NUMBER INFORMATION																
GLOBAL PART NUMBERING: WSBS8518L1000JT20 (WSBS8518...20, 0.0001 $\Omega$ , $\pm 5 \%$ , tray pack)																
W	S	B	S	8	5	1	8	L	1	0	0	0	J	T	2	0
GLOBAL MODEL		RESISTANCE VALUE			TOLERANCE CODE		PACKAGING CODE			SPECIAL						
WSBS8518		L = m $\Omega$ L0500 = 0.000050 $\Omega$ L1000 = 0.000100 $\Omega$ L1250 = 0.000125 $\Omega$ L2500 = 0.000250 $\Omega$			J = $\pm 5 \%$ K = $\pm 10 \%$		K = bulk pack T = tray pack			20 = sense pins attached						

**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 $\pm 0.005$ [ $\pm 0.13$ ]
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	$\pm 0.5$ %
Short time overload	5x rated power for 5 s	$\pm 0.5$ %
Low temperature storage	-65 °C for 24 h	$\pm 0.5$ %
High temperature exposure	1000 h at +170 °C	$\pm 1.0$ %
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	$\pm 0.5$ %
Mechanical shock	100 g's for 6 ms, 5 pulses	$\pm 0.5$ %
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	$\pm 0.5$ %
Load life	1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	$\pm 1.0$ %
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	$\pm 0.5$ %



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