

# Power Metal Strip® Battery Shunt Resistor With M3 Tapped Holes and Sn Plated Terminals, Very Low Value (50 $\mu\Omega$ , 100 $\mu\Omega$ , 125 $\mu\Omega$ , and 250 $\mu\Omega$ )



## DESIGN SUPPORT TOOLS AVAILABLE



## FEATURES

- High power to resistor size ratio
- Proprietary processing technique produces extremely low resistance values
- Tapped holes aid in PCB mounting and / or a location to attach voltage sense pins
- Sn plating assists with PCB mounting and corrosion protection
- All welded construction
- Very low inductance (< 5 nH)
- Low thermal EMF (< 3  $\mu\text{V}/^\circ\text{C}$ )
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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

## STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70^\circ\text{C}}$ W	TOLERANCE $\pm \%$	RESISTANCE VALUE RANGE $\Omega$	RESISTANCE VALUES CURRENTLY AVAILABLE <sup>(1)</sup> $\Omega$	WEIGHT (typical) g
WSBS8518...P3	8518	36	5, 10	50 $\mu$ to 250 $\mu$	50 $\mu$ , 100 $\mu$ , 125 $\mu$ , 250 $\mu$	50 $\mu$ = 37.9, 100 $\mu$ / 125 $\mu$ = 36.5, 250 $\mu$ = 33.7

### Note

<sup>(1)</sup> Other values may be available, contact factory

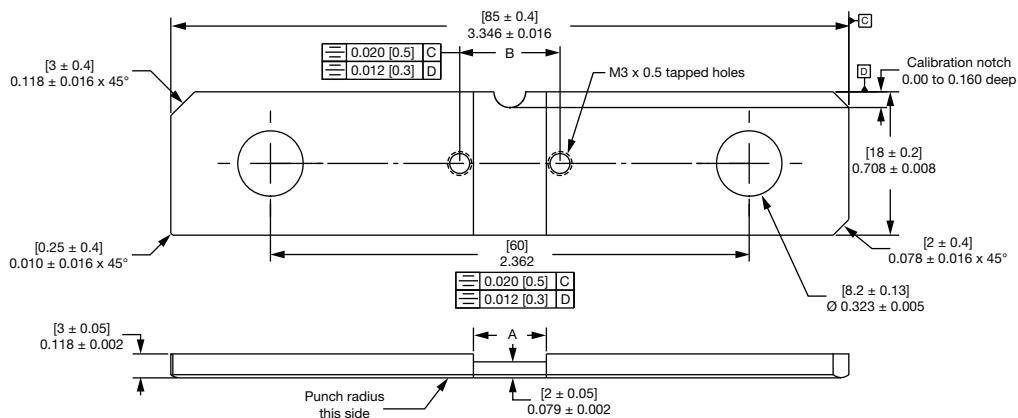
## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/ $^\circ\text{C}$	$\pm 200$ for 50 $\mu\Omega$
		$\pm 175$ for 100 $\mu\Omega$ , 125 $\mu\Omega$
		$\pm 110$ for 250 $\mu\Omega$
Temperature coefficient (element material)	ppm/ $^\circ\text{C}$	$\pm 20$
Operating temperature range	$^\circ\text{C}$	-65 to +170
Maximum current rating	A	(P/R) <sup>1/2</sup>

## GLOBAL PART NUMBER INFORMATION

GLOBAL PART NUMBERING: WSBS8518L1000JTP3 (WSBS8518-P3, 0.000100  $\Omega$ ,  $\pm 5 \%$ , tray pack)

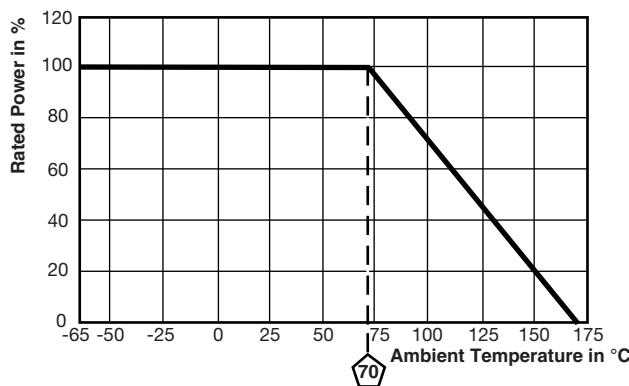
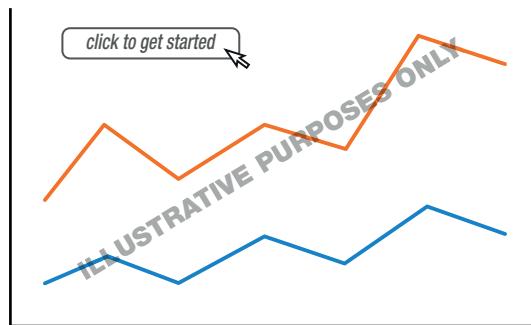
W	S	B	S	8	5	1	8	L	1	0	0	0	J	T	P	3
GLOBAL MODEL				RESISTANCE VALUE				TOLERANCE CODE				PACKAGING CODE				SPECIAL
WSBS8518				$L = m\Omega$ L0500 = 0.000050 $\Omega$ L1000 = 0.000100 $\Omega$ L1250 = 0.000125 $\Omega$ L2500 = 0.000250 $\Omega$				$J = \pm 5 \%$ $K = \pm 10 \%$				K = bulk pack T = tray pack				P3 = M3 tapped holes with plated terminals

**DIMENSIONS** in inches (millimeters)

**Note**

- Plating on top / bottom is Sn 2.5  $\mu\text{m}$  to 8.0  $\mu\text{m}$  over Ni 0.5  $\mu\text{m}$  to 4.0  $\mu\text{m}$ , edges are not plated

RESISTANCE VALUE ( $\mu\Omega$ )	ELEMENT MATERIAL	A REFERENCE	B $\pm 0.005$ ( $\pm 0.13$ )
50	Mn-Cu	0.145 (3.68)	0.281 (7.14)
100	Mn-Cu	0.360 (9.14)	0.495 (12.57)
125	Mn-Cu	0.454 (11.5)	0.590 (15.0)
250	Mn-Cu	0.900 (22.86)	1.036 (26.3)

TOLERANCES ON DECIMALS .XXX $\pm 0.005$ (.X $\pm 0.1$ )
UNLESS OTHERWISE LISTED

**DERATING**

**PULSE CAPABILITY**

[www.vishay.com/resistors/large-shunt-power-metal-strip-calculator/](http://www.vishay.com/resistors/large-shunt-power-metal-strip-calculator/)

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	5 x rated power for 5 s	$\pm 0.5\% \Delta R$
	10 x rated power for 5 s	$\pm 1.0\% \Delta R$
Low temperature storage	-65 °C for 24 h	$\pm 0.5\% \Delta R$
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"	$\pm 1.0\% \Delta R$
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	$\pm 0.5\% \Delta R$

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