

# Power Metal Strip® Battery Shunt Resistor W/Molded Enclosure Very Low Value (50 $\mu\Omega$ , 100 $\mu\Omega$ , 125 $\mu\Omega$ , and 500 $\mu\Omega$ )



## FEATURES

- High power to resistor size ratio
- Proprietary processing technique produces extremely low resistance values
- All welded construction
- Solid metal manganese-copper alloy or nickel-chrome alloy resistive element with low TCR (< 20 ppm/°C)
- Molded enclosure allows for easy PCB connection
- Includes 4-pin male connector that mates with a Molex type MX150 #33472-4001 female connector
- 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 $P_{70} \text{ } ^\circ\text{C}$ W	TOLERANCE $\pm \%$	RESISTANCE VALUE RANGE $\Omega$	RESISTANCE VALUES CURRENTLY AVAILABLE <sup>(1)</sup> $\Omega$	WEIGHT (typical) g
WSBM8518	8518	36	5, 10	50 $\mu$ to 500 $\mu$	50 $\mu$ , 100 $\mu$ , 125 $\mu$	50 $\mu$ = 61.3, 100 $\mu$ / 125 $\mu$ = 59.8
WSBM8518	8518	25	5, 10	50 $\mu$ to 500 $\mu$	500 $\mu$	56.8

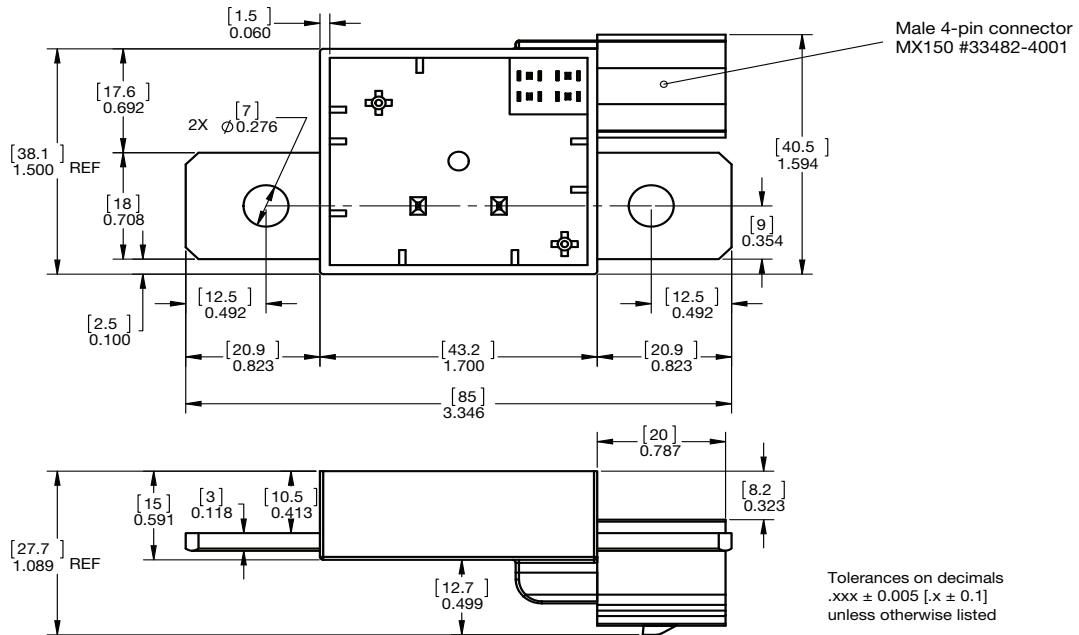
**Note**

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

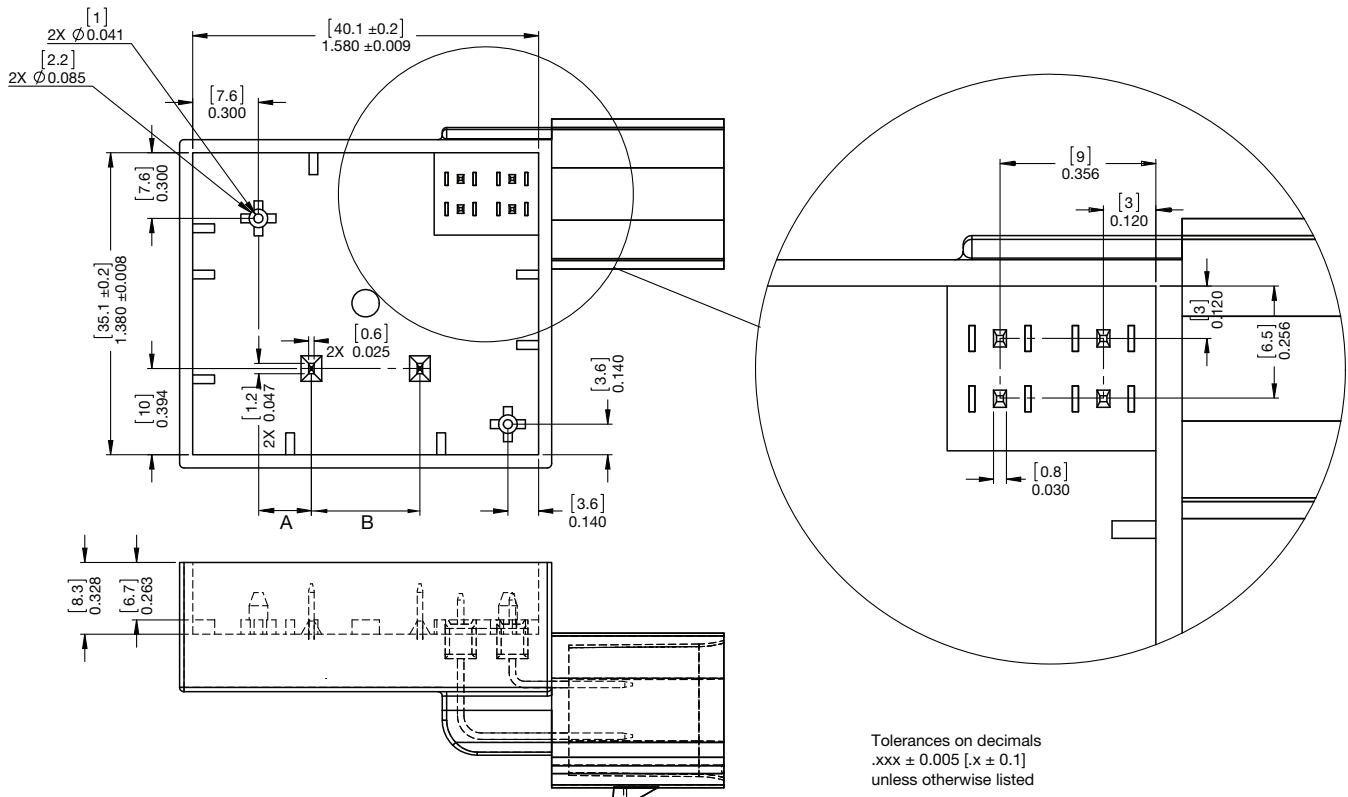
TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/°C	$\pm 200$ for 50 $\mu\Omega$
		$\pm 175$ for 100 $\mu\Omega$ / 125 $\mu\Omega$
		$\pm 10$ for 500 $\mu\Omega$
Temperature coefficient (element material)	ppm/°C	$\pm 20$
Operating temperature range	°C	-65 to +170
Thermal EMF	$\mu\text{V}/^\circ\text{C}$	< 1 for 50 $\mu\Omega$ and < 3 for 100 $\mu\Omega$ , 125 $\mu\Omega$ , 500 $\mu\Omega$
Inductance	nH	< 5
Maximum current rating	A	$(P/R)^{1/2}$

GLOBAL PART NUMBER INFORMATION																
GLOBAL PART NUMBERING: WSBM8518L1000JT (WSBM8518, 0.0001 $\Omega$ , $\pm 5 \%$ , tray pack)																
W	S	B	M	8	5	1	8	L	1	0	0	0	J	T		
GLOBAL MODEL (8 digits) <b>WSBM8518</b>	RESISTANCE VALUE (5 digits) L = m $\Omega$ L0500 = 0.000050 $\Omega$ L1000 = 0.000100 $\Omega$ L1250 = 0.000125 $\Omega$ L5000 = 0.000500 $\Omega$		TOLERANCE CODE (1 digit) J = $\pm 5 \%$ K = $\pm 10 \%$		PACKAGING CODE (1 digit) K = bulk pack T = tray pack			SPECIAL (up to 2 digits) (dash number) from 1 to 99 as applicable								

**EXTERNAL DIMENSIONS** in inches [millimeters]



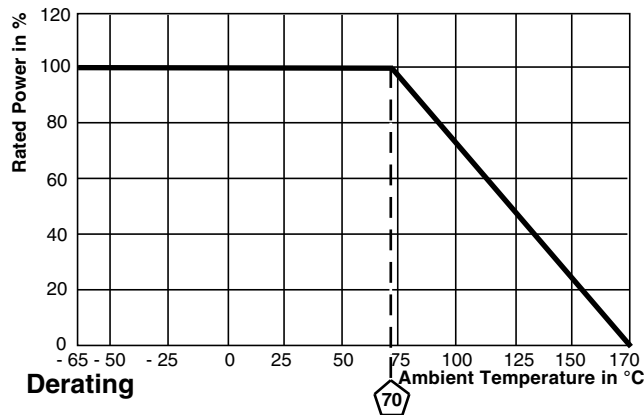
**INTERNAL DIMENSIONS** in inches [millimeters]



RESISTANCE VALUE ( $\mu\Omega$ )	ELEMENT MATERIAL	A REF.	B ± 0.005 [ $\pm$ 0.13]
50	Mn-Cu	0.423 [10.74]	0.135 [3.43]
100	Mn-Cu	0.242 [6.15]	0.495 [12.57]
125	Mn-Cu	0.197 [5.00]	0.585 [14.86]
500	Ni-Cr	0.143 [3.63]	0.695 [17.65]



DERATING



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



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