Power Metal Strip® Battery Shunt Resistor, Sn Plated, Very Low Value (50 µΩ, 100 µΩ, 125 µΩ, and 250 µΩ)

FEATURES

- High power to resistor size ratio
- Sn plating assists with PCB mounting and corrosion protection
- Proprietary processing technique produces extremely low resistance values
- All welded construction
- Very low inductance (< 5 nH)
- Low thermal EMF (as low as < 1 µV/°C)
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

LINKS TO ADDITIONAL RESOURCES

3D Models

Design Tools

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\ °C}$ W	TOLERANCE ± %	RESISTANCE VALUE RANGE Ω	RESISTANCE VALUES CURRENTLY AVAILABLE (1) Ω	WEIGHT (typical) g
WSBS8518...14	8518	36	5, 10	50µ to 1000µ	50µ, 100µ, 125µ, 250µ	50µ = 37.9, 100µ / 125µ = 36.5, 250µ = 33.7

Note

(1) Other values may be available, contact factory

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/°C	± 200 for 50 µΩ
		± 175 for 100 µΩ / 125 µΩ
		± 110 for 250 µΩ
Temperature coefficient (element material)	ppm/°C	± 20
Operating temperature range	°C	-65 to +170
Thermal EMF	µV/°C	< 1 for 50 µΩ and < 3 for 100 µΩ, 125 µΩ, 250 µΩ
Maximum current rating	A	$(P/R)^{1/2}$

GLOBAL PART NUMBER INFORMATION

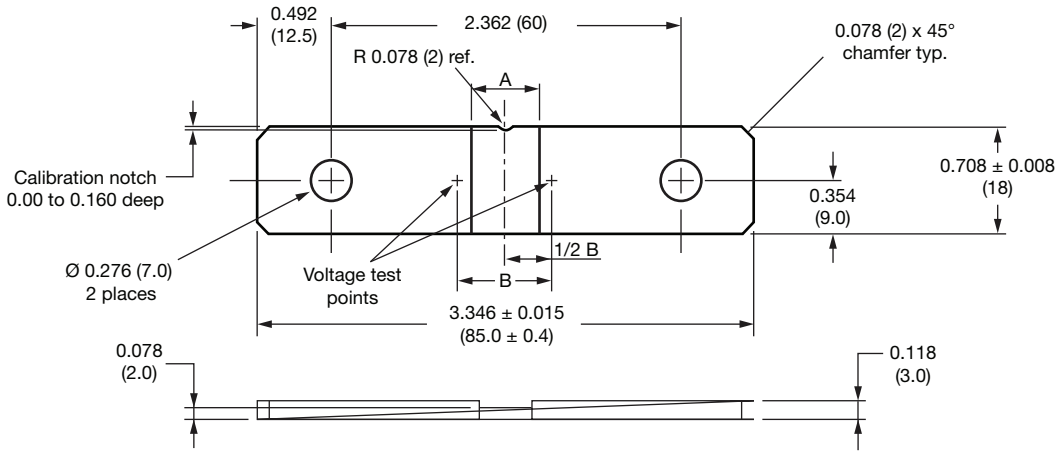
Global Part Numbering: WSBS8518L1250JK14 (WSBS8518...14, 0.000125 Ω, ± 5 %, bulk pack)

W	S	B	S	8	5	1	8	L	1	2	5	0	J	K	1	4

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
WSBS8518	**L** = mΩ **L0500** = 0.000050 Ω **L1000** = 0.000100 Ω **L1250** = 0.000125 Ω **L2500** = 0.000250 Ω	**J** = ± 5 % **K** = ± 10 %	**K** = bulk pack **T** = tray pack	**14** = Sn plated

For technical questions, contact: ww2cresistors@vishay.com

DIMENSIONS in inches (millimeters)



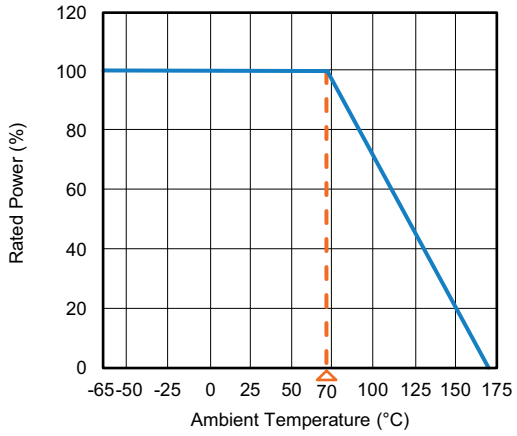
Note
- Plating on top / bottom is Sn 2.5 µm to 8.0 µm over Ni 0.5 µm to 4.0 µm, edges are not plated

RESISTANCE VALUE (µΩ)	ELEMENT MATERIAL	A REFERENCE	B ± 0.005 (± 0.13)
50	Mn-Cu	0.145 (3.68)	0.270 (6.86)
100	Mn-Cu	0.370 (9.40)	0.495 (12.57)
125	Mn-Cu	0.480 (12.19)	0.605 (15.37)
250	Mn-Cu	0.900 (22.86)	1.025 (26.04)

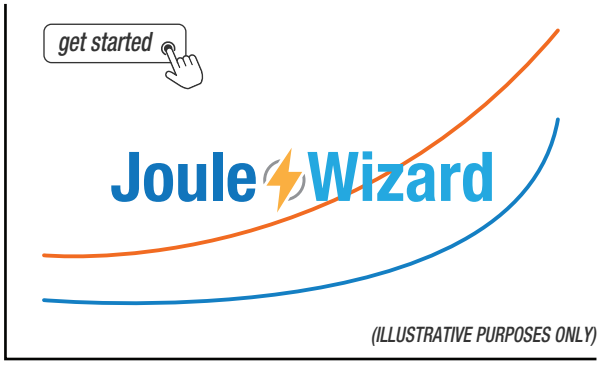
TOLERANCES ON DECIMALS
.xxx ± 0.005 (.x ± 0.1)

UNLESS OTHERWISE LISTED

DERATING



PULSE CAPABILITY



www.vishay.com/en/resistors/joulewizard/

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

AVAILABLE CATALOG OPTIONS		
GLOBAL MODEL	**SPECIAL**	
WSBS8518	Cu terminals	www.vishay.com/doc?30134
WSBS8518...14	Sn plated	www.vishay.com/doc?30340
WSBS8518…20	Two sense pins	www.vishay.com/doc?30341
WSBS8518…34	Low TCR	www.vishay.com/doc?30354
WSBS8518…35	Sense pins, low TCR	www.vishay.com/doc?30355
WSBS8518…40	Three sense pins	www.vishay.com/doc?30350
WSBS8518…60	Two sense pins, Sn plated	www.vishay.com/doc?30390
WSBS8518…80	Three sense pins, Sn plated	www.vishay.com/doc?30391
WSBS8518…M3	M3 tapped holes	www.vishay.com/doc?30374
WSBS8518…M4	M4 tapped holes	www.vishay.com/doc?30375
WSBS8518…P3	M3 tapped holes, Sn plated	www.vishay.com/doc?30392
WSBS8518…P4	M4 tapped holes, Sn plated	www.vishay.com/doc?30393

LINKS TO RELATED DOCUMENTS	
TECHNICAL NOTES	
The Benefit of Using a Three Sense Pin Design on Battery / Meter Shunt Resistors	www.vishay.com/doc?30381
WHITE PAPERS	
Temperature Coefficient of Resistance for Current Sensing	www.vishay.com/doc?30405

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