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

## FEATURES

- High power to resistor size ratio
- 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
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 (1) Ω | RESISTANCE VALUES CURRENTLY AVAILABLE (2) Ω | WEIGHT (typical) g |
|---|---|---|---|---|---|---|
| WSBS8518 | 8518 | 36 | 5, 10 | 50µ to 1000µ | 50µ, 100µ, 125µ, 250µ | 50µ = 37.9, 100µ / 125u = 36.5, 250µ = 33.7 |

**Notes**

(1) Please reference WSBS8518…34 datasheet (www.vishay.com/doc?30354) for resistance values 500 µΩ to 1000 µΩ

(2) 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: WSBS8518L1250JK (WSBS8518, 0.000125 Ω, ± 5 %, bulk pack)**

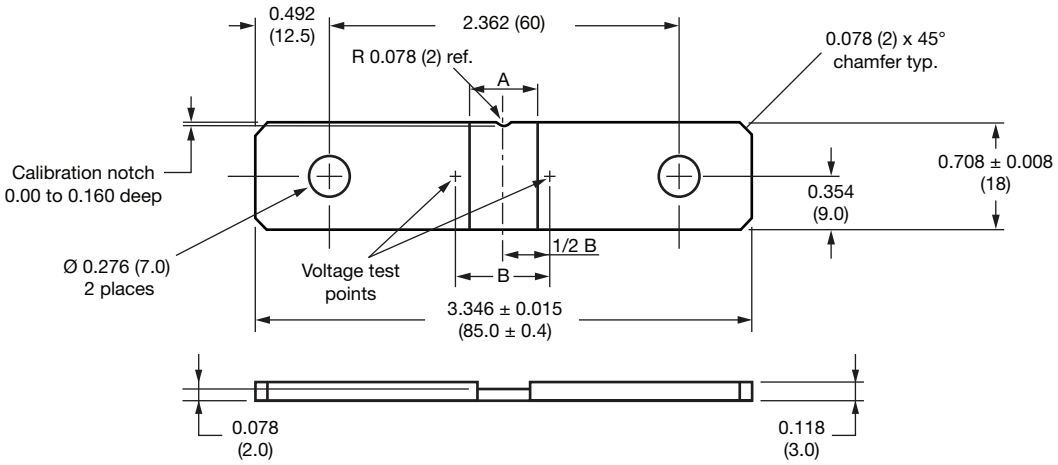
| W | S | B | S | 8 | 5 | 1 | 8 | L | 1 | 2 | 5 | 0 | J | K | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| GLOBAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING CODE | SPECIAL |
|---|---|---|---|---|
| **WSBS8518** | **L** = mΩ<br>**L0500** = 0.000050 Ω<br>**L1000** = 0.000100 Ω<br>**L1250** = 0.000125 Ω<br>**L2500** = 0.000250 Ω | **J** = ± 5 %<br>**K** = ± 10 % | **K** = bulk pack<br>**T** = tray pack | (dash number)<br>(up to 2 digits)<br>from **1 to 99** as applicable |



For technical questions, contact: ww2cresistors@vishay.com

## DIMENSIONS in inches (millimeters)

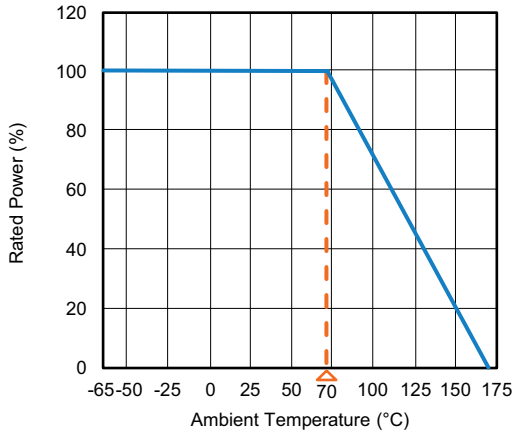



| RESISTANCE VALUE (μΩ) | ELEMENT MATERIAL | A REFERENCE | B ± 0.005 (± 0.13) |
|---|---|---|---|
| 50 | Mn-Cu | 0.145 (3.68) | 0.270 (8.71) |
| 100 | Mn-Cu | 0.370 (9.40) | 0.495 (12.57) |
| 125 | Mn-Cu | 0.480 (12.19) | 0.605 (15.37) |
| 250 | Mn-Cu | 0.900 (22.86) | 1.025 (26.04) |

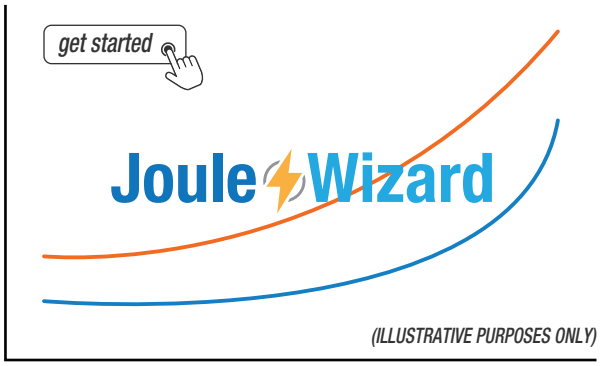
TOLERANCES ON DECIMALS
.xxx ± 0.005 (.x ± 0.1)

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* |

# Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.