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



## 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 µV/°C)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free RoHS COMPLIANT HALOGEN FREE GREEN (5-2008)

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

3D Models Available

## 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 |
|---|---|---|---|---|---|---|
| WSBM8518 | 8518 | 36 | 5, 10 | 50µ to 500µ | 50µ, 100µ, 125µ | 50µ = 61.3, 100µ / 125u = 59.8 |
| WSBM8518 | 8518 | 25 | 5, 10 | 50µ to 500µ | 500µ | 56.8 |

**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 |
| | | ± 10 for 500 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, 500 µΩ |
| Inductance | nH | < 5 |
| Maximum current rating | A | $(P/R)^{1/2}$ |

## GLOBAL PART NUMBER INFORMATION

**GLOBAL PART NUMBERING: WSBM8518L1000JT (WSBM8518, 0.0001 Ω, ± 5 %, tray pack)**

| W | S | B | M | 8 | 5 | 1 | 8 | L | 1 | 0 | 0 | 0 | J | T | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

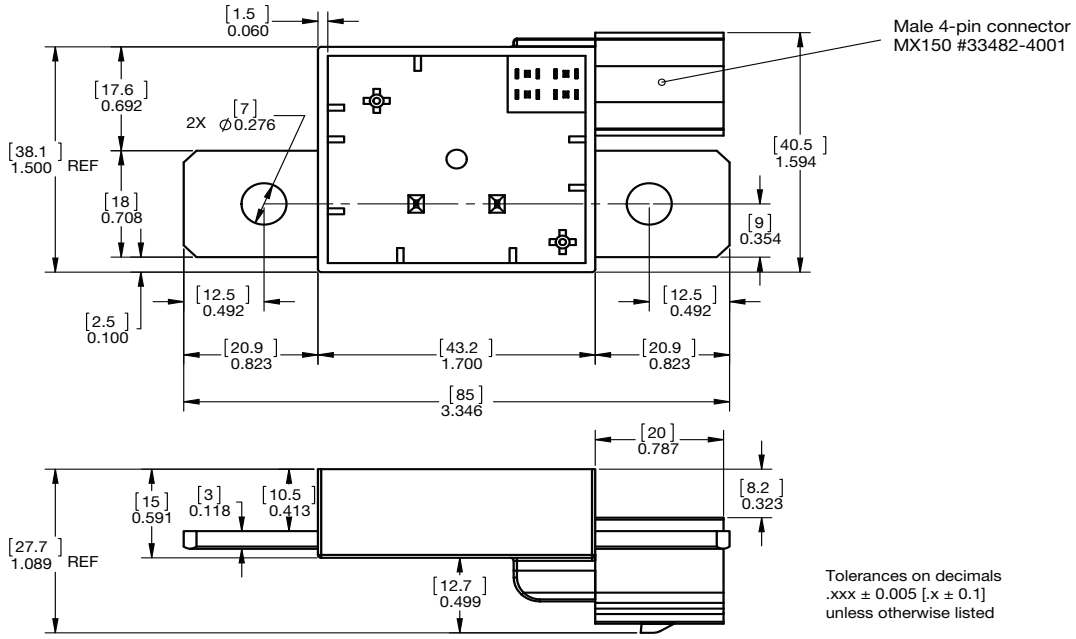
| GLOBAL MODEL (8 digits) | RESISTANCE VALUE (5 digits) | TOLERANCE CODE (1 digit) | PACKAGING CODE (1 digit) | SPECIAL (up to 2 digits) |
|---|---|---|---|---|
| **WSBM8518** | **L** = mΩ<br>**L0500** = 0.000050 Ω<br>**L1000** = 0.000100 Ω<br>**L1250** = 0.000125 Ω<br>**L5000** = 0.000500 Ω | **J** = ± 5 %<br>**K** = ± 10 % | **K** = bulk pack<br>**T** = tray pack | (dash number) from **1 to 99** as applicable |



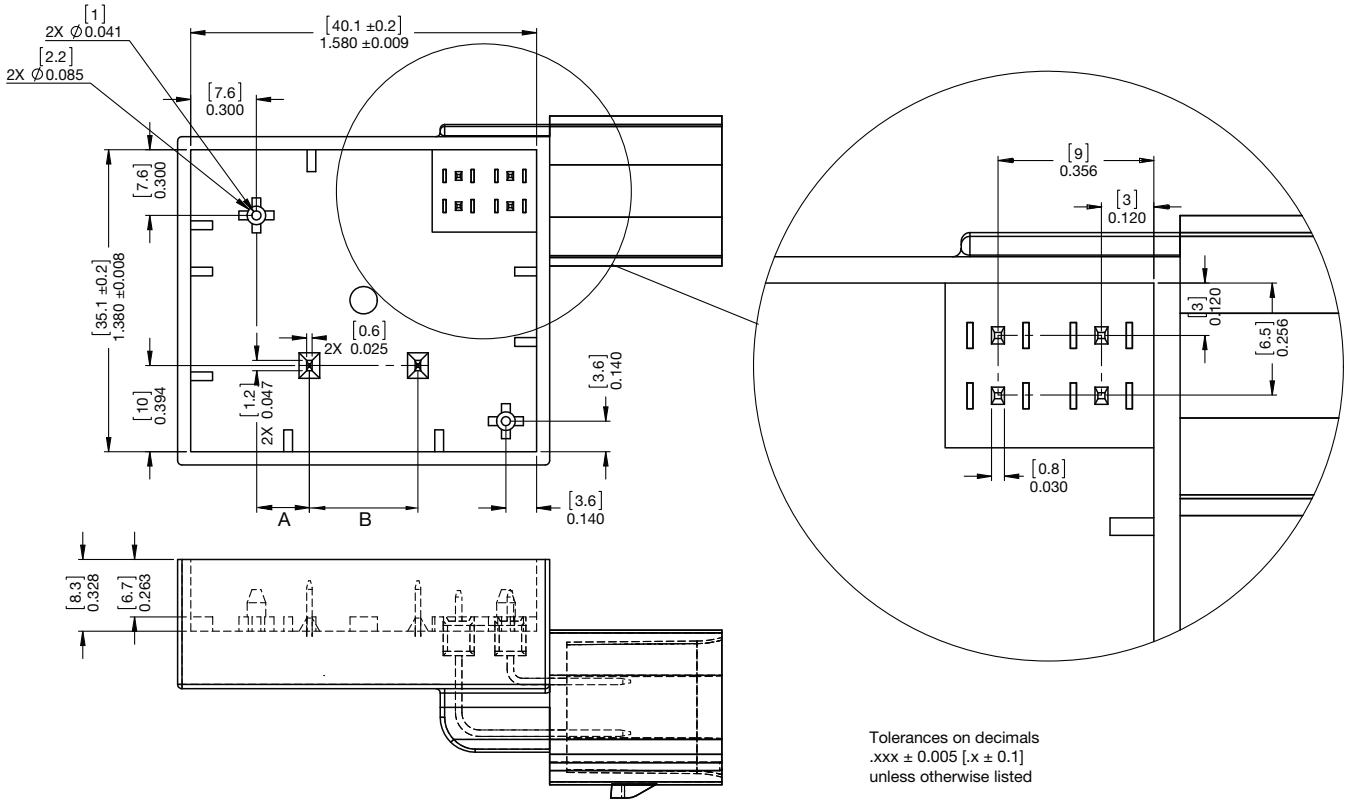
For technical questions, contact: ww2cresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

## **EXTERNAL DIMENSIONS** in inches [millimeters]




## **INTERNAL DIMENSIONS** in inches [millimeters]



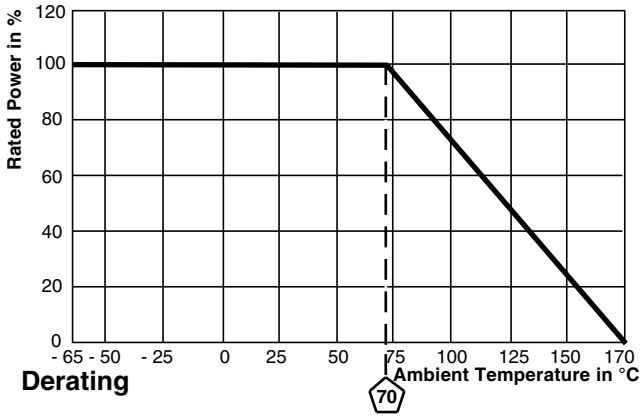

| RESISTANCE VALUE (μΩ) | ELEMENT MATERIAL | A REF. | B ± 0.005 [± 0.13] |
|---|---|---|---|
| 50 | Mn-Cu | 0.423 [10.74] | 0.135 [3.43] |
| 100 | Mn-Cu | 0.242 [6.15] | 0.495 [12.57] |
| 125 | Mn-Cu | 0.197 [5.00] | 0.585 [14.86] |
| 500 | Ni-Cr | 0.143 [3.63] | 0.695 [17.65] |



For technical questions, contact: ww2cresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

## DERATING




| 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 | 5x 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* |



For technical questions, contact: ww2cresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

# 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.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. 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.

*© 2022 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED*