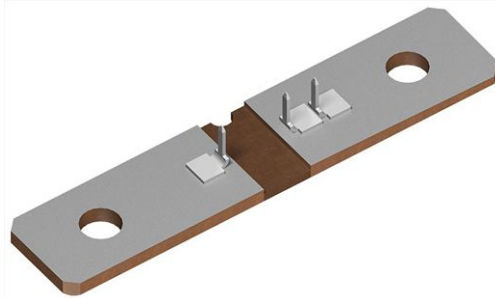


Power Metal Strip® Shunt Resistor With Three Sense Pins, Sn Plated Terminals, Very Low Value (50 μΩ, 100 μΩ, and 125 μΩ)



FEATURES

- High power to resistor size ratio
- Sense pins allow for consistent contact location
- Sn plating assists with PCB mounting and corrosion protection
- Proprietary processing technique produces extremely low resistance values
- Welded terminal to element construction
- Solid metal manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- Very low inductance (< 5 nH)
- Low thermal EMF (< 1 μV/°C available)
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

DESIGN SUPPORT TOOLS AVAILABLE



STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | SIZE | POWER RATING $P_{70^{\circ}\text{C}}$ W | TOLERANCE ± % | RESISTANCE VALUE RANGE Ω | RESISTANCE VALUES CURRENTLY AVAILABLE ⁽¹⁾ Ω | WEIGHT (typical) g |
|---------------|------|-----------------------------------------------|------------------|--------------------------------|--------------------------------------------------------------|-----------------------------------|
| WSBS8518...80 | 8518 | 36 | 5, 10 | 50μ to 1000μ | 50μ, 100μ, 125μ | 50μ = 38.6, 100μ / 125μ = 37.1 |

Note

(1) Other values may be available, contact factory

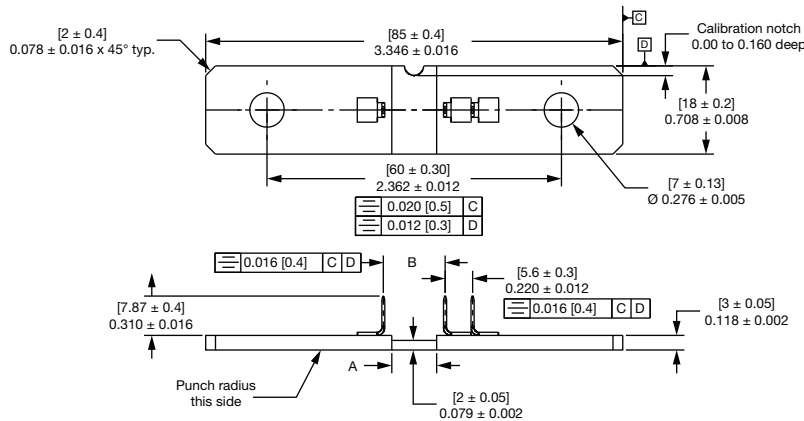
TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
|--------------------------------------------|--------|---------------------------------------------|
| Temperature coefficient | ppm/°C | ± 200 for 50 μΩ ± 175 for 100 μΩ, 125 μΩ |
| Temperature coefficient (element material) | ppm/°C | ± 20 |
| Thermal EMF | μV/°C | < 1 for 50 μΩ and < 3 for 100 μΩ, 125 μΩ |
| Inductance | nH | < 5 |
| Operating temperature range | °C | -65 to +170 |
| Maximum current rating | A | $(P/R)^{1/2}$ |

GLOBAL PART NUMBER INFORMATION

GLOBAL PART NUMBERING: WSBS8518L1000JT80 (WSBS8518...80, 0.000100 Ω, ± 5 %, tray pack)

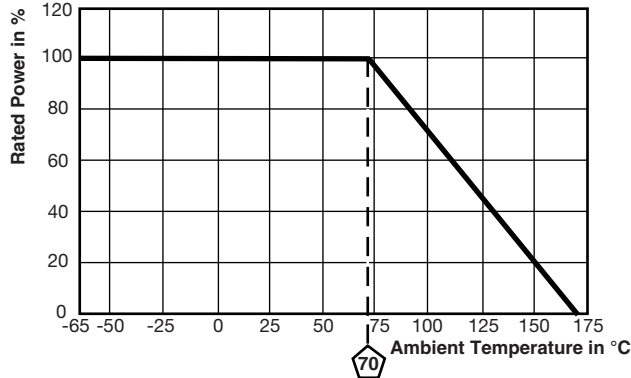
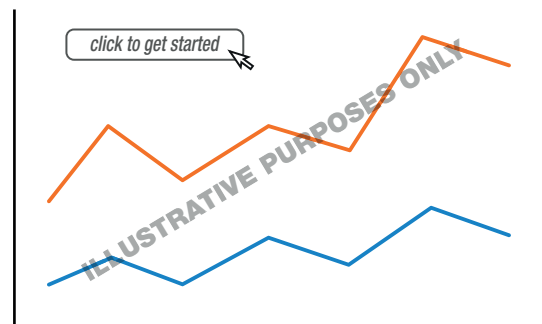
| | | | | | | | | | | | | | | | | |
|--------------|---|---|--------------------------------------------------------------------------|---|---|-------------------------|---|---|--------------------------------|---|---|------------------------------------------------------|---|---|---|---|
| W | S | B | S | 8 | 5 | 1 | 8 | L | 1 | 0 | 0 | 0 | J | T | 8 | 0 |
| GLOBAL MODEL | | | RESISTANCE VALUE | | | TOLERANCE CODE | | | PACKAGING CODE | | | SPECIAL | | | | |
| WSBS8518 | | | L = mΩ L0500 = 0.000050 Ω L1000 = 0.000100 Ω L1250 = 0.000125 Ω | | | J = ± 5 % K = ± 10 % | | | K = bulk pack T = tray pack | | | 80 = three sense pins attached with plated terminals | | | | |

DIMENSIONS in inches (millimeters)

Notes

- 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
- Minimum pull strength of sense pins is 200 N

| RESISTANCE VALUE ($\mu\Omega$) | ELEMENT MATERIAL | A REFERENCE | B $\pm 0.005 (\pm 0.13)$ |
|----------------------------------|------------------|---------------|--------------------------|
| 50 | Mn-Cu | 0.145 (3.68) | 0.135 (3.43) |
| 100 | Mn-Cu | 0.360 (9.14) | 0.495 (12.57) |
| 125 | Mn-Cu | 0.480 (12.19) | 0.585 (14.86) |

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/

| 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 | $\pm 0.5\% \Delta R$ |



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.

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.