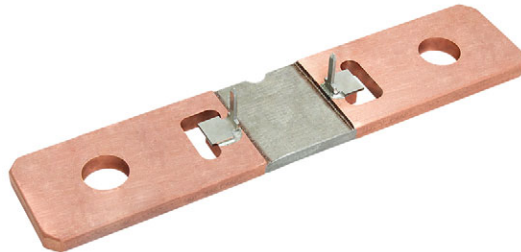




# Power Metal Strip® Shunt Resistor With Sense Pins, Low TCR (Down to $< \pm 10 \text{ ppm}/^\circ\text{C}$ ), Very Low Value ( $100 \mu\Omega$ , $500 \mu\Omega$ , and $1000 \mu\Omega$ )



## FEATURES

- High power to resistor size ratio
- Proprietary processing technique produces extremely low resistance values
- Welded terminal to element construction
- Solid metal nickel-chrome alloy resistive element with unique design for low TCR (down to  $\pm 10 \text{ ppm}/^\circ\text{C}$ )
- Very low inductance ( $< 5 \text{ nH}$ )
- Low thermal EMF (as low as  $< 1.25 \mu\text{V}/^\circ\text{C}$ )
- AEC-Q200 qualified
- PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)
- 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)

## LINKS TO ADDITIONAL RESOURCES



## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL  | SIZE | POWER RATING<br>$P_{70^\circ\text{C}}$<br>W | TOLERANCE<br>$\pm \%$ | RESISTANCE VALUE<br>RANGE<br>$\Omega$ | RESISTANCE VALUES<br>CURRENTLY AVAILABLE <sup>(1)</sup><br>$\Omega$ | WEIGHT<br>(typical)<br>g |
|---------------|------|---------------------------------------------|-----------------------|---------------------------------------|---------------------------------------------------------------------|--------------------------|
| WSBS8518...35 | 8518 | 36                                          | 5, 10                 | 100 $\mu$ to 1000 $\mu$               | 100 $\mu$                                                           | 36.5                     |
| WSBS8518...35 | 8518 | 25                                          | 5, 10                 | 100 $\mu$ to 1000 $\mu$               | 500 $\mu$                                                           | 33.9                     |
| WSBS8518...35 | 8518 | 20                                          | 5, 10                 | 100 $\mu$ to 1000 $\mu$               | 1000 $\mu$                                                          | 31.8                     |

### Note

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

## TECHNICAL SPECIFICATIONS

| PARAMETER                   | UNIT                         | RESISTOR CHARACTERISTICS      |
|-----------------------------|------------------------------|-------------------------------|
| Temperature coefficient     | $\text{ppm}/^\circ\text{C}$  | $\pm 65$ for 100 $\mu\Omega$  |
|                             |                              | $\pm 10$ for 500 $\mu\Omega$  |
|                             |                              | $\pm 25$ for 1000 $\mu\Omega$ |
| Operating temperature range | $^\circ\text{C}$             | -65 to +170                   |
| Thermal EMF                 | $\mu\text{V}/^\circ\text{C}$ | $< 1.25$                      |
| Inductance                  | nH                           | $< 5$                         |
| Maximum current rating      | A                            | $(P/R)^{1/2}$                 |

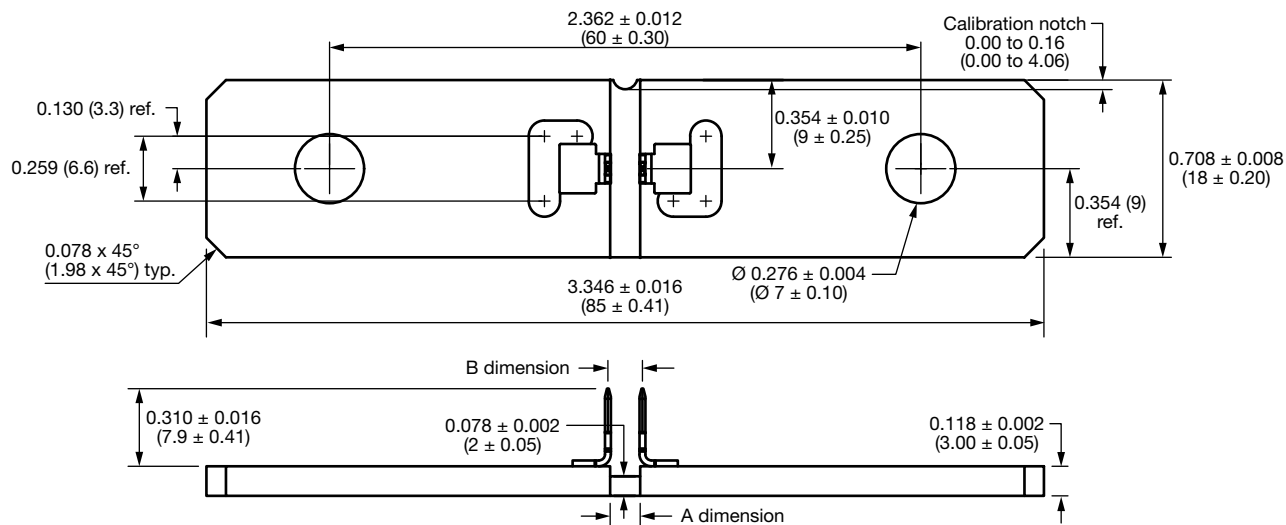
## GLOBAL PART NUMBER INFORMATION

Global Part Numbering: WSBS8518L5000JT35 (WSBS8518...35, 0.0005  $\Omega$ ,  $\pm 5 \%$ , tray pack)

|              |   |   |   |                                                                          |   |   |   |                         |   |   |   |                                |   |   |   |                                      |  |
|--------------|---|---|---|--------------------------------------------------------------------------|---|---|---|-------------------------|---|---|---|--------------------------------|---|---|---|--------------------------------------|--|
| W            | S | B | S | 8                                                                        | 5 | 1 | 8 | L                       | 5 | 0 | 0 | 0                              | J | T | 3 | 5                                    |  |
| GLOBAL MODEL |   |   |   | RESISTANCE VALUE                                                         |   |   |   | TOLERANCE CODE          |   |   |   | PACKAGING CODE                 |   |   |   | SPECIAL                              |  |
| WSBS8518     |   |   |   | L = mΩ<br>L1000 = 0.000100 Ω<br>L5000 = 0.000500 Ω<br>1L000 = 0.001000 Ω |   |   |   | J = ± 5 %<br>K = ± 10 % |   |   |   | K = bulk pack<br>T = tray pack |   |   |   | 35 = low TCR and sense pins attached |  |

PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)

This Vishay product is protected by one or more United States and international patents.

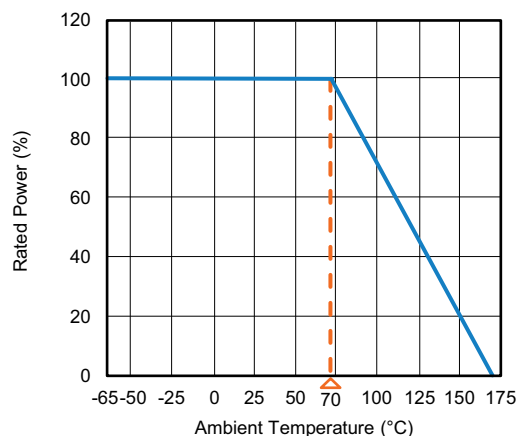
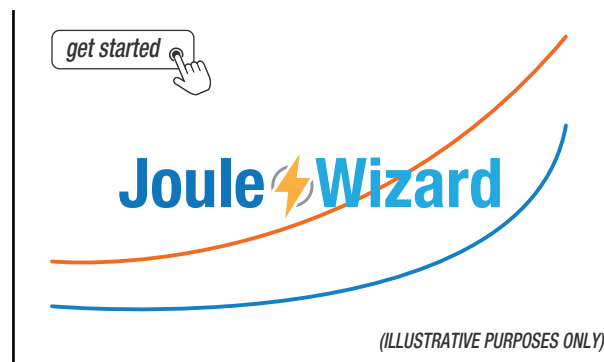
**DIMENSIONS** in inches (millimeters)**Note**

- Minimum pull strength of sense pins is 200 N

| RESISTANCE VALUE ( $\mu\Omega$ ) | ELEMENT MATERIAL | A REFERENCE   | B $\pm 0.005$ ( $\pm 0.13$ ) |
|----------------------------------|------------------|---------------|------------------------------|
| 100                              | Ni-Cr            | 0.120 (3.05)  | 0.135 (3.43)                 |
| 500                              | Ni-Cr            | 0.615 (15.62) | 0.695 (17.65)                |
| 1000                             | Ni-Cr            | 0.900 (22.86) | 0.980 (24.89)                |

TOLERANCES ON DECIMALS  
.xxx  $\pm$  0.005 (.x  $\pm$  0.1)

UNLESS OTHERWISE LISTED

**DERATING****PULSE CAPABILITY**

[www.vishay.com/en/resistors/joulewizard/](http://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         | $\pm 0.5\% \Delta R$ |
| Short time overload       | 5 x rated power for 5 s                                        | $\pm 0.5\% \Delta R$ |
| Low temperature storage   | -65 °C for 24 h                                                | $\pm 0.2\% \Delta R$ |
| 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                                     | $\pm 0.2\% \Delta R$ |
| Vibration                 | Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h | $\pm 0.2\% \Delta R$ |
| 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            | $\pm 0.2\% \Delta R$ |



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