



## Power Metal Strip® Battery Shunt Resistor, Very Low Value (50 $\mu\Omega$ , 100 $\mu\Omega$ , 125 $\mu\Omega$ , and 250 $\mu\Omega$ )

RoHS  
COMPLIANTHALOGEN  
FREEGREEN  
(5-2008)

### 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  $\mu\text{V}/^\circ\text{C}$ )
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

### 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 <sup>(1)</sup><br>$\Omega$ | RESISTANCE VALUES<br>CURRENTLY AVAILABLE <sup>(2)</sup><br>$\Omega$ | WEIGHT<br>(typical)<br>g                                              |
|--------------|------|---------------------------------------------|-----------------------|------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|
| WSBS8518     | 8518 | 36                                          | 5, 10                 | 50 $\mu$ to 1000 $\mu$                               | 50 $\mu$ , 100 $\mu$ , 125 $\mu$ , 250 $\mu$                        | 50 $\mu$ = 37.9,<br>100 $\mu$ / 125 $\mu$ = 36.5,<br>250 $\mu$ = 33.7 |

#### Notes

<sup>(1)</sup> Please reference WSBS8518...34 datasheet ([www.vishay.com/doc?30354](http://www.vishay.com/doc?30354)) for resistance values 500  $\mu\Omega$  to 1000  $\mu\Omega$

<sup>(2)</sup> Other values may be available, contact factory

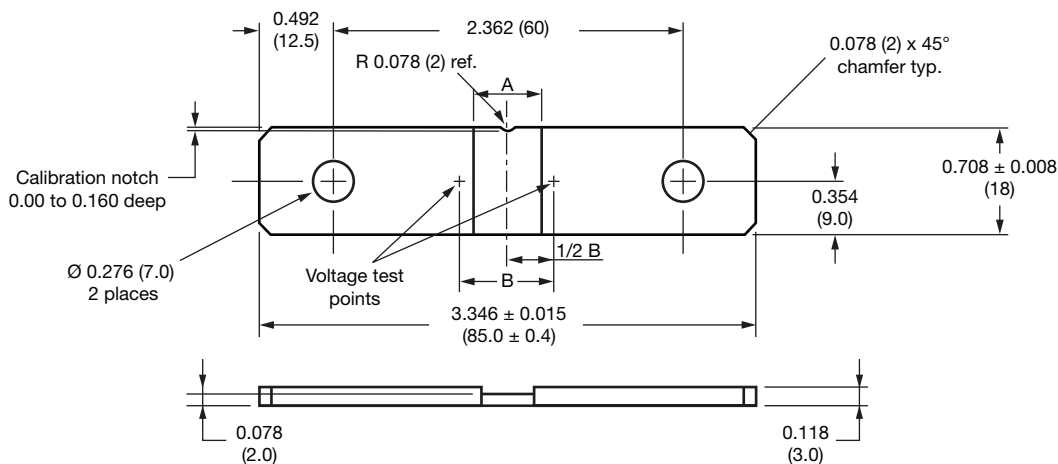
### TECHNICAL SPECIFICATIONS

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

### GLOBAL PART NUMBER INFORMATION

Global Part Numbering: WSBS8518L1250JK (WSBS8518, 0.000125  $\Omega$ ,  $\pm 5 \%$ , bulk pack)

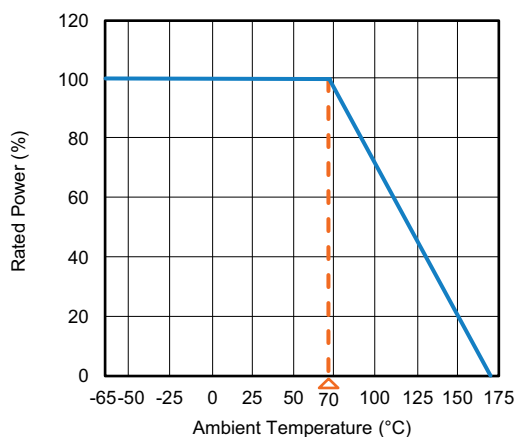
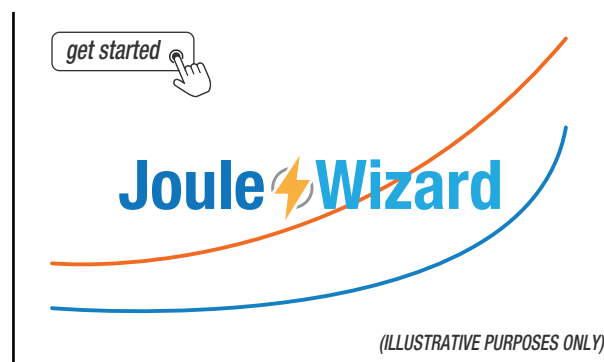
|              |   |   |   |                                                                                                                                    |   |   |   |                                   |   |                                |   |   |                                                                    |   |  |  |
|--------------|---|---|---|------------------------------------------------------------------------------------------------------------------------------------|---|---|---|-----------------------------------|---|--------------------------------|---|---|--------------------------------------------------------------------|---|--|--|
| 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 = m $\Omega$<br>L0500 = 0.000050 $\Omega$<br>L1000 = 0.000100 $\Omega$<br>L1250 = 0.000125 $\Omega$<br>L2500 = 0.000250 $\Omega$ |   |   |   | J = $\pm 5 \%$<br>K = $\pm 10 \%$ |   | K = bulk pack<br>T = tray pack |   |   | (dash number)<br>(up to 2 digits)<br>from 1 to 99 as<br>applicable |   |  |  |

**DIMENSIONS** in inches (millimeters)

| RESISTANCE VALUE ( $\mu\Omega$ ) | 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/](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         | ± 0.5 % $\Delta R$ |
| Short time overload       | 5 x rated power for 5 s                                        | ± 0.5 % $\Delta R$ |
| Low temperature storage   | -65 °C for 24 h                                                | ± 0.5 % $\Delta R$ |
| High temperature exposure | 1000 h at +170 °C                                              | ± 1.0 % $\Delta R$ |
| Bias humidity             | +85 °C, 85 % RH, 10 % bias, 1000 h                             | ± 0.5 % $\Delta R$ |
| Mechanical shock          | 100 g's for 6 ms, 5 pulses                                     | ± 0.5 % $\Delta R$ |
| Vibration                 | Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h | ± 0.5 % $\Delta R$ |
| Load life                 | 1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"                      | ± 1.0 % $\Delta R$ |
| Moisture resistance       | MIL-STD-202, method 106, 0 % power, 7b not required            | ± 0.5 % $\Delta R$ |



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