

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



## FEATURES

- High power to resistor size ratio
- Sn plating assists with PCB mounting and corrosion protection
- 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)



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



## 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...14 | 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 |

### Note

(1) Other values may be available, contact factory

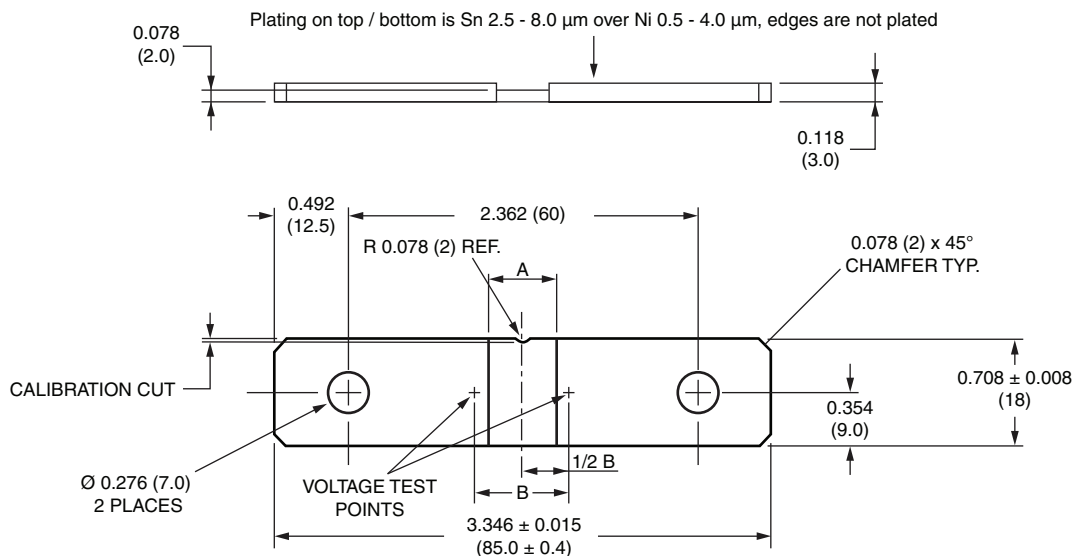
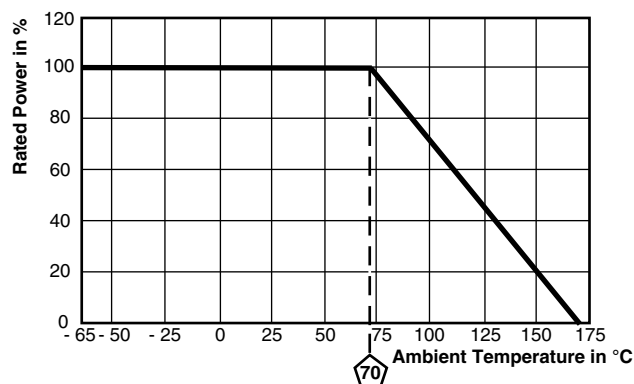
## TECHNICAL SPECIFICATIONS

| 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: WSBS8518L1250JK14 (WSBS8518...14, 0.000125  $\Omega$ ,  $\pm 5 \%$ , bulk pack)**

|              |   |   |   |                                                                                                                                                                      |   |   |   |                                                 |   |   |   |                                              |   |   |   |                       |
|--------------|---|---|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|-------------------------------------------------|---|---|---|----------------------------------------------|---|---|---|-----------------------|
| W            | S | B | S | 8                                                                                                                                                                    | 5 | 1 | 8 | L                                               | 1 | 2 | 5 | 0                                            | J | K | 1 | 4                     |
| GLOBAL MODEL |   |   |   | RESISTANCE VALUE                                                                                                                                                     |   |   |   | TOLERANCE CODE                                  |   |   |   | PACKAGING CODE                               |   |   |   | SPECIAL               |
| WSBS8518     |   |   |   | $L = \text{m}\Omega$<br><b>L0500</b> = 0.000050 $\Omega$<br><b>L1000</b> = 0.000100 $\Omega$<br><b>L1250</b> = 0.000125 $\Omega$<br><b>L2500</b> = 0.000250 $\Omega$ |   |   |   | <b>J</b> = $\pm 5 \%$<br><b>K</b> = $\pm 10 \%$ |   |   |   | <b>K</b> = bulk pack<br><b>T</b> = tray pack |   |   |   | <b>14</b> = Sn plated |

**DIMENSIONS** in inches (millimeters)

**DERATING**


TOLERANCES ON DECIMALS  
.xxx ± 0.005 [.x ± 0.1]

UNLESS OTHERWISE LISTED

| RESISTANCE<br>VALUE ( $\mu\Omega$ ) | ELEMENT<br>MATERIAL | A<br>REFERENCE | B<br>± 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]         |

**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       | 5x 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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