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Vishay Dale

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



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



### **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)</li>
- Low thermal EMF (as low as < 1 μV/°C)</li>
- AEC-Q200 qualified
- · Material categorization: for definitions of compliance please see www.vishay.com/doc?99912







HALOGEN FREE

**GREEN** 

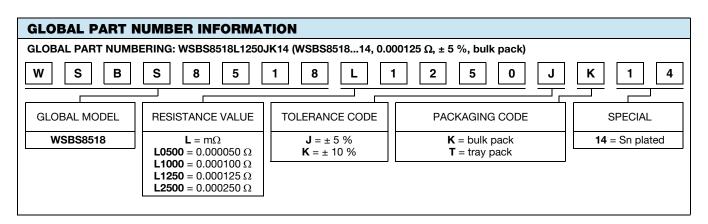
(5-2008)

| STANDARD        | ELEC | TRICAL SPEC                        | IFICATIONS       | 3                               |   |   |
|-----------------|------|------------------------------------|------------------|---------------------------------|---|---|
| GLOBAL<br>MODEL | SIZE | POWER RATING  P <sub>70 °C</sub> W | TOLERANCE<br>± % | RESISTANCE VALUE RANGE $\Omega$ | RESISTANCE VALUES CURRENTLY AVAILABLE (1) Ω | WEIGHT<br>(typical)<br>g  |
| WSBS851814      | 8518 | 36                                 | 5, 10            | 50μ to 1000μ                    | 50µ, 100µ, 125µ, 250µ                       | $50\mu = 37.9,$<br>$100\mu / 125\mu = 36.5,$<br>$250\mu = 33.7$ |

#### Note

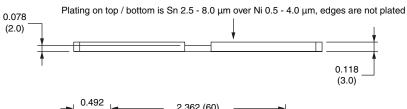
(1) Other values may be available, contact factory

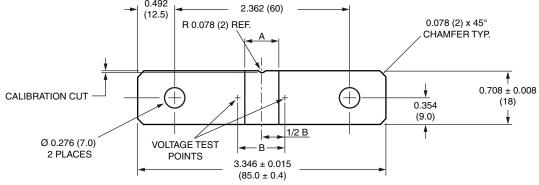
| TECHNICAL SPECIFICATIONS                   |        |  |  |  |
|--|--------|--|--|--|
| PARAMETER                                  | UNIT   | RESISTOR CHARACTERISTICS   |  |  |
|  |        | $\pm$ 200 for 50 μ $\Omega$  |  |  |
| Temperature coefficient                    | ppm/°C | $\pm$ 175 for 100 μ $\Omega$ / 125 μ $\Omega$  |  |  |
|  |        | ± 110 for 250 μΩ   |  |  |
| Temperature coefficient (element material) | ppm/°C | ± 20   |  |  |
| Operating temperature range                | °C     | -65 to +170  |  |  |
| Thermal EMF                                | μV/°C  | $<$ 1 for 50 μ $\Omega$ and $<$ 3 for 100 μ $\Omega$ , 125 μ $\Omega$ , 250 μ $\Omega$ |  |  |
| Maximum current rating                     | Α      | (P/R) <sup>1/2</sup>   |  |  |



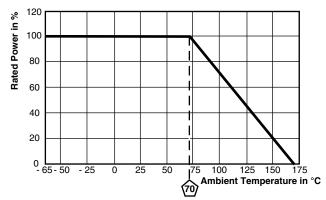


### **DIMENSIONS** in inches (millimeters)





#### **DERATING**



| <b>TOLERANCES ON DECIMALS</b> |
|-------------------------------|
| $.xxx \pm 0.005 [.x \pm 0.1]$ |
|                               |

UNLESS OTHERWISE LISTED

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



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