Power Metal Strip® Battery Shunt Resistor With M4 Tapped Holes and Sn Plated Terminals, Very Low Value (50 μΩ, 100 μΩ, 125 μΩ, and 250 μΩ)

FEATURES
- High power to resistor size ratio
- Proprietary processing technique produces extremely low resistance values
- Tapped holes aid in PCB mounting and / or a location to attach voltage sense pins
- Sn plating assists with PCB mounting and corrosion protection
- All welded construction
- Very low inductance (< 5 nH)
- Low thermal EMF (< 3 μV/°C)
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

DESIGN SUPPORT TOOLS AVAILABLE

STANDARD ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>GLOBAL MODEL</th>
<th>SIZE</th>
<th>POWER RATING $P_{70 \degree C}$ W</th>
<th>TOLERANCE ± %</th>
<th>RESISTANCE VALUE RANGE $\Omega$</th>
<th>RESISTANCE VALUES CURRENTLY AVAILABLE (1) $\Omega$</th>
<th>WEIGHT (typical) g</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSBS8518…P4</td>
<td>8518</td>
<td>36</td>
<td>5, 10</td>
<td>50μ to 250μ</td>
<td>50μ, 100μ, 125μ, 250μ</td>
<td>50μ = 37.9, 100μ / 125μ = 36.5, 250μ = 33.7</td>
</tr>
</tbody>
</table>

Note
(1) Other values may be available, contact factory

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>UNIT</th>
<th>RESISTOR CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature coefficient</td>
<td>ppm/°C</td>
<td>± 200 for 50 μΩ</td>
</tr>
<tr>
<td>Temperature coefficient (element material)</td>
<td>ppm/°C</td>
<td>± 175 for 100 μΩ, 125 μΩ</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>°C</td>
<td>± 110 for 250 μΩ</td>
</tr>
<tr>
<td>Maximum current rating</td>
<td>A</td>
<td>± 20</td>
</tr>
</tbody>
</table>

SPECIAL
P4 = M4 tapped holes with plated terminals

GLOBAL PART NUMBER INFORMATION

GLOBAL PART NUMBERING: WSBS8518L1000JTP4 (WSBS8518–P4, 0.000100 $\Omega$, ± 5 %, tray pack)

For technical questions, contact: ww2cresistors@vishay.com

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DIMENSIONS in inches (millimeters)

Note
- 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

<table>
<thead>
<tr>
<th>RESISTANCE VALUE (μΩ)</th>
<th>ELEMENT MATERIAL</th>
<th>A REFERENCE</th>
<th>B ± 0.005 (± 0.13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Mn-Cu</td>
<td>0.145 (3.68)</td>
<td>0.357 (9.07)</td>
</tr>
<tr>
<td>100</td>
<td>Mn-Cu</td>
<td>0.360 (9.14)</td>
<td>0.571 (14.50)</td>
</tr>
<tr>
<td>125</td>
<td>Mn-Cu</td>
<td>0.454 (11.5)</td>
<td>0.666 (16.9)</td>
</tr>
<tr>
<td>250</td>
<td>Mn-Cu</td>
<td>0.900 (22.86)</td>
<td>1.112 (28.2)</td>
</tr>
</tbody>
</table>

DERATING

PULSE CAPABILITY

TOLERANCES ON DECIMALS

.000 ± 0.001 (± 0.005)
.005 ± 0.001 (± 0.008)
.010 ± 0.002 (± 0.016)
.015 ± 0.002 (± 0.020)
.020 ± 0.003 (± 0.030)
.025 ± 0.004 (± 0.040)
.030 ± 0.005 (± 0.050)
.040 ± 0.008 (± 0.080)
.050 ± 0.013 (± 0.130)
.060 ± 0.025 (± 0.250)
.070 ± 0.050 (± 0.500)
.080 ± 0.100 (± 1.000)
.100 ± 0.200 (± 2.000)
.150 ± 0.500 (± 5.000)
.200 ± 1.000 (± 10.000)
.400 ± 5.000 (± 50.000)
.600 ± 10.000 (± 100.000)
.800 ± 15.000 (± 150.000)
1.00 ± 20.000 (± 200.000)
2.00 ± 40.000 (± 400.000)
4.00 ± 80.000 (± 800.000)
6.00 ± 160.000 (± 1600.000)
8.00 ± 320.000 (± 3200.000)
10.0 ± 400.000 (± 4000.000)

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 | 5 x rated power for 5 s | ± 0.5 % ΔR
Low temperature storage | -65 °C for 24 h | ± 1.0 % ΔR
High temperature exposure | 1000 h at +170 °C | ± 0.5 % 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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