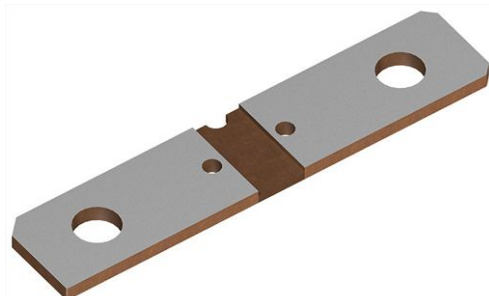


# Power Metal Strip® Battery Shunt Resistor With M4 Tapped Holes and Sn Plated Terminals, Very Low Value (50 $\mu\Omega$ , 100 $\mu\Omega$ , 125 $\mu\Omega$ , and 250 $\mu\Omega$ )



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



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

## DESIGN SUPPORT TOOLS AVAILABLE



## 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...P4 | 8518 | 36                                          | 5, 10                 | 50 $\mu$ to 250 $\mu$                 | 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

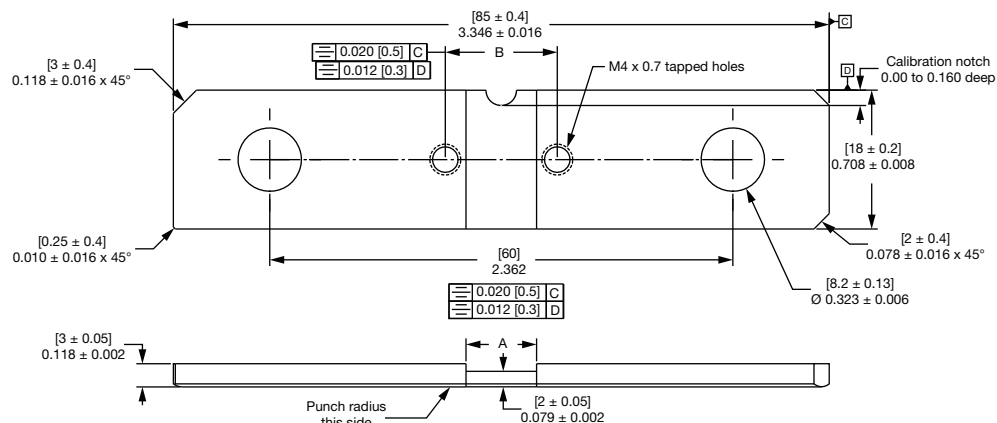
| PARAMETER                                  | UNIT                  | RESISTOR CHARACTERISTICS                        |
|--------------------------------------------|-----------------------|-------------------------------------------------|
| Temperature coefficient                    | ppm/ $^\circ\text{C}$ | $\pm 200$ 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                                     |
| Maximum current rating                     | A                     | $(P/R)^{1/2}$                                   |

## GLOBAL PART NUMBER INFORMATION

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

|              |   |   |   |                                                                                                                                    |   |   |   |                                   |   |                                |   |   |                                               |   |   |   |
|--------------|---|---|---|------------------------------------------------------------------------------------------------------------------------------------|---|---|---|-----------------------------------|---|--------------------------------|---|---|-----------------------------------------------|---|---|---|
| W            | S | B | S | 8                                                                                                                                  | 5 | 1 | 8 | L                                 | 1 | 0                              | 0 | 0 | J                                             | T | P | 4 |
| 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 |   |   | P4 = M4 tapped holes<br>with plated terminals |   |   |   |

**DIMENSIONS** in inches (millimeters)



### Note

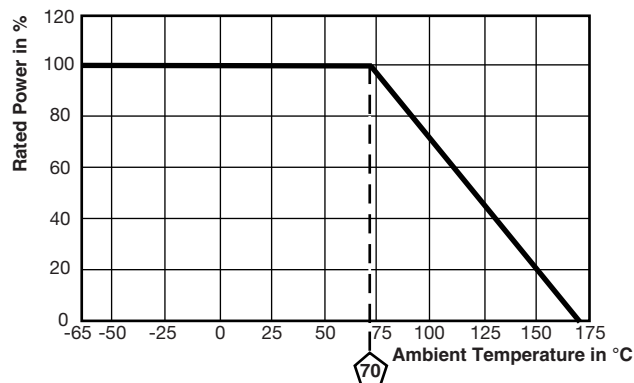
- Plating on top / bottom is Sn 2.5  $\mu\text{m}$  to 8.0  $\mu\text{m}$  over Ni 0.5  $\mu\text{m}$  to 4.0  $\mu\text{m}$ , edges are not plated

| RESISTANCE<br>VALUE ( $\mu\Omega$ ) | ELEMENT<br>MATERIAL | A<br>REFERENCE | B<br>$\pm 0.005 (\pm 0.13)$ |
|-------------------------------------|---------------------|----------------|-----------------------------|
| 50                                  | Mn-Cu               | 0.145 (3.68)   | 0.357 (9.07)                |
| 100                                 | Mn-Cu               | 0.360 (9.14)   | 0.571 (14.50)               |
| 125                                 | Mn-Cu               | 0.454 (11.5)   | 0.666 (16.9)                |
| 250                                 | Mn-Cu               | 0.900 (22.86)  | 1.112 (28.2)                |

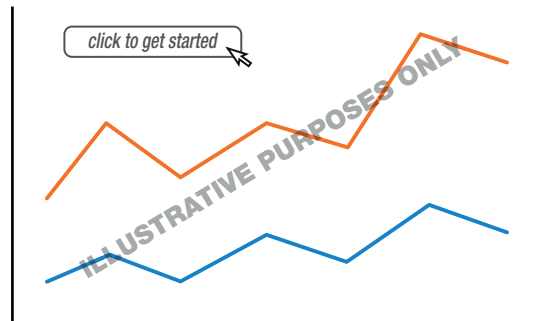
TOLERANCES ON DECIMALS  
.xxx ± 0.005 (.x ± 0.1)

UNLESS OTHERWISE LISTED

## DERATING



## PULSE CAPABILITY



[www.vishay.com/resistors/large-shunt-power-metal-strip-calculator/](http://www.vishay.com/resistors/large-shunt-power-metal-strip-calculator/)

| 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 % $\Delta R$ |
|                           | 10 x rated power for 5 s                                       | ± 1.0 % $\Delta R$ |
| 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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