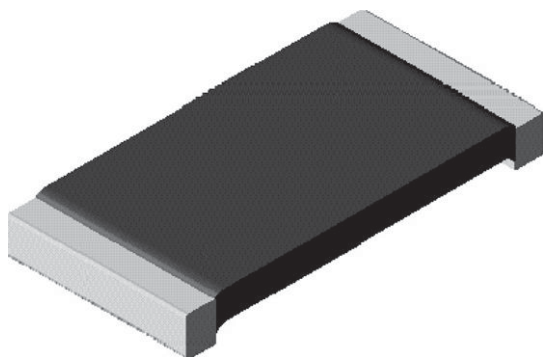


## Power Metal Strip® Resistors, Very High Power (1 W), Low Value (down to 0.005 Ω), Surface Mount



### DESIGN SUPPORT TOOLS

[click logo to get started](#)

**3D**  
Models  
Available

  
Design Tools  
Available

### FEATURES

- Very high power to foot print size ratio (1 W in 0805 / 2 W in 1206 package)
- All welded construction of the Power Metal Strip® resistors is ideal for all types of current sensing, voltage division and pulse applications
- Proprietary processing technique produces extremely low resistance values (down to 0.005 Ω)
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Solid metal nickel-chrome or manganese- copper alloy resistive element with low TCR (< 20 ppm/°C)
- Very low inductance 0.5 nH to 5 nH
- Excellent frequency response to 50 MHz
- Low thermal EMF (< 3 μV/°C)
- 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)

### STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL  | SIZE | POWER RATING<br>$P_{70^{\circ}\text{C}}$<br>W | TOLERANCE<br>± % | RESISTANCE<br>VALUE RANGE<br>Ω | WEIGHT<br>(typical)<br>g/1000 pieces |
|---------------|------|-----------------------------------------------|------------------|--------------------------------|--------------------------------------|
| WSLP0805...18 | 0805 | 1.0                                           | 1.0, 5.0         | 0.005 to 0.01                  | 4.8                                  |
| WSLP1206...18 | 1206 | 2.0                                           | 1.0, 5.0         | 0.005 to 0.012                 | 16.2                                 |

### GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: WSLP0805R0100FEA18

W S L P 0 8 0 5 R 0 1 0 0 F E A 1 8

| GLOBAL MODEL<br>(8 digits) | RESISTANCE VALUE <sup>(1)</sup><br>(5 digits)                                                               | TOLERANCE CODE<br>(1 digit) | PACKAGING CODE <sup>(2)</sup><br>(2 digits)                        | <b>SPECIAL</b> <sup>(3)</sup><br>(up to 2 digits) |
|----------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------|---------------------------------------------------|
| WSLP0805<br>WSLP1206       | L = mΩ*<br>R = Decimal<br>5L000 = 0.005 Ω<br>R0100 = 0.01 Ω<br><br>* Use "L" for resistance values < 0.01 Ω | F = ± 1.0 %<br>J = ± 5.0 %  | EA = lead (Pb)-free, tape / reel<br>EK = lead (Pb)-free, bulk pack | 18 = "high power" option                          |

#### Notes

- (1) WSL Marking ([www.vishay.com/doc?30327](http://www.vishay.com/doc?30327)); WSL Decade Values ([www.vishay.com/doc?30117](http://www.vishay.com/doc?30117))
- (2) EB (lead (Pb)-free) is a non-standard packaging code designated for 1000 piece reels. The non-standard packaging code is identical to our standard EA (lead (Pb)-free), except that it has a package quantity of 1000 pieces
- (3) Follow link for customization capabilities: [www.vishay.com/doc?48163](http://www.vishay.com/doc?48163)

**TECHNICAL SPECIFICATIONS**

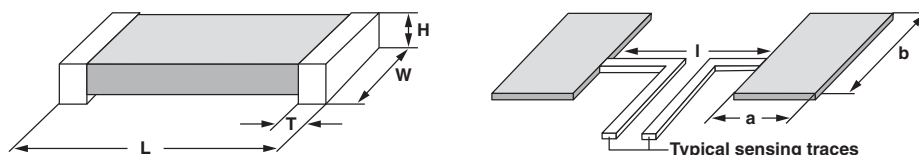
| PARAMETER                              | UNIT   | RESISTOR CHARACTERISTICS |
|----------------------------------------|--------|--------------------------|
| Temperature coefficient <sup>(1)</sup> | ppm/°C | ± 110 for 5 mΩ to 6.9 m  |
|                                        |        | ± 75 for 7 mΩ to 12 mΩ   |
| Element TCR <sup>(2)</sup>             | ppm/°C | < 20                     |
| Operating temperature range            | °C     | -65 to +170              |
| Maximum working voltage <sup>(3)</sup> | V      | $(P \times R)^{1/2}$     |

**Notes**

<sup>(1)</sup> Component TCR - total TCR that includes the TCR effects of the resistor element and the copper terminal

<sup>(2)</sup> Element TCR - only applies to the alloy used for the resistor element; refer to item 1 in the construction illustration on the following page

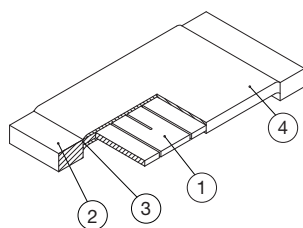
<sup>(3)</sup> Maximum working voltage - the WSL is not voltage sensitive, but is limited by power / energy dissipation and is also not ESD sensitive

**DIMENSIONS**

**Notes**

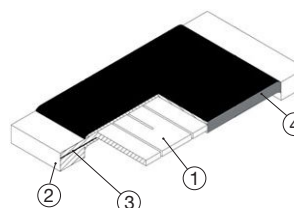
• 3D models available: [www.vishay.com/doc?30306](http://www.vishay.com/doc?30306)

• Surface mount solder profile recommendations: [www.vishay.com/doc?31052](http://www.vishay.com/doc?31052)

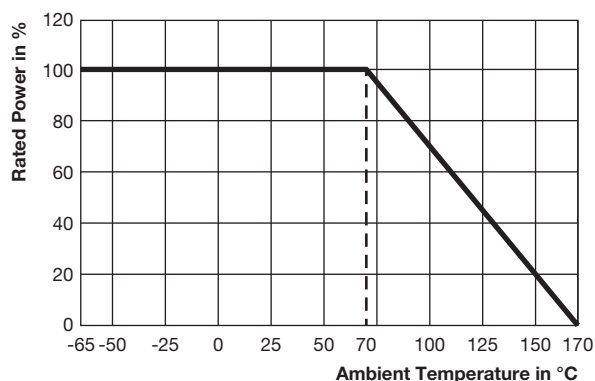
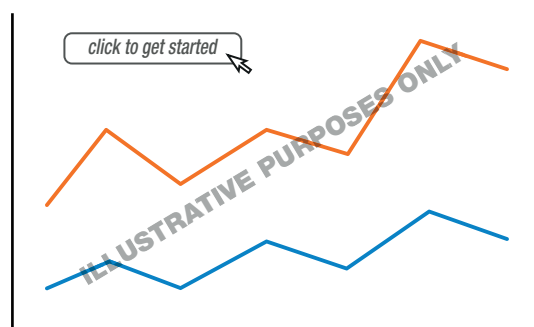
| MODEL         | RESISTANCE RANGE (Ω) | DIMENSIONS in inches (millimeters) |                                 |                                  |                                  | SOLDER PAD DIMENSIONS in inches (millimeters) |                 |                 |
|---------------|----------------------|------------------------------------|---------------------------------|----------------------------------|----------------------------------|-----------------------------------------------|-----------------|-----------------|
|               |                      | L                                  | W                               | H                                | T                                | a                                             | b               | l               |
| WSLP0805...18 | 0.005 to 0.01        | 0.080 ± 0.010<br>(2.03 ± 0.254)    | 0.050 ± 0.010<br>(1.27 ± 0.254) | 0.013 ± 0.010<br>(0.330 ± 0.254) | 0.015 ± 0.010<br>(0.381 ± 0.254) | 0.040<br>(1.02)                               | 0.050<br>(1.27) | 0.020<br>(0.50) |
| WSLP1206...18 | 0.001 to 0.0019      | 0.126 ± 0.010<br>(3.20 ± 0.254)    | 0.063 ± 0.010<br>(1.60 ± 0.254) | 0.025 ± 0.010<br>(0.635 ± 0.254) | 0.041 ± 0.010<br>(1.04 ± 0.254)  | 0.062<br>(1.57)                               | 0.070<br>(1.78) | 0.030<br>(0.76) |
|               | 0.002 to 0.0059      |                                    |                                 |                                  | 0.025 ± 0.010<br>(0.635 ± 0.254) |                                               |                 |                 |
|               | 0.006 to 0.012       |                                    |                                 |                                  | 0.020 ± 0.010<br>(0.508 ± 0.254) |                                               |                 |                 |

**WELDED CONSTRUCTION 1206**


- 1) Resistive element: solid metal nickel-chrome or manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- 2) Plated terminal: Solid copper, 100 % Sn (100 μ" min.) with 100 % Ni (20 μ" min.) under layer finish
- 3) Terminal / element weld
- 4) Silicone coating with ink print

**CLAD CONSTRUCTION 0805**


- 1) Resistive element: Ni-Cr
- 2) Terminal: Solid copper, 100 % Sn (100 μ" min.) with 100 % Ni (20 μ" min.) under layer finish
- 3) Terminal to element weld
- 4) High temperature encapsulant: "siliconized polyester" coating material

**DERATING**

**PULSE CAPABILITY**

[www.vishay.com/resistors/power-metal-strip-calculator](http://www.vishay.com/resistors/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 %     |
| Short time overload       | 0805: 5x rated power for 5s                                    | ± 1.0 %     |
|                           | 1206: 3x rated power for 5 s                                   |             |
| Low temperature operation | -65 °C for 24 h                                                | ± 0.5 %     |
| High temperature exposure | 1000 h at +170 °C                                              | ± 1.0 %     |
| Bias humidity             | +85 °C, 85 % RH, 10 % bias, 1000 h                             | ± 0.5 %     |
| Mechanical shock          | 100 g's for 6 ms, 5 pulses                                     | ± 0.5 %     |
| Vibration                 | Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h | ± 0.5 %     |
| Load life                 | 1000 h at 70 °C, 1.5 h "ON", 0.5 h "OFF"                       | ± 1.0 %     |
| Resistance to solder heat | +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence          | ± 0.5 %     |
| Moisture resistance       | MIL-STD-202, method 106, 0 % power, 7b not required            | ± 0.5 %     |

**PACKAGING**

| MODEL         | REEL               |           |             |      |
|---------------|--------------------|-----------|-------------|------|
|               | TAPE WIDTH         | DIAMETER  | PIECES/REEL | CODE |
| WSLP0805...18 | 8 mm/punched paper | 178 mm/7" | 5000        | EA   |
| WSLP1206...18 | 8 mm/punched paper | 178 mm/7" | 4000        | EA   |

**Notes**

- Embossed carrier tape per EIA-481-2
- Additional packaging details at [www.vishay.com/doc?20051](http://www.vishay.com/doc?20051)



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