

## Power Metal Strip® Resistors, High Power, Surface Mount, 4-Terminal



### FEATURES

- 4-terminal design
- Ideal for all types of current sensing, voltage division and pulse applications
- Proprietary processing technique produces extremely low resistance values
- Durable with all-welded construction
- All welded construction
- Solid metal nickel-chrome or manganese-copper resistive element with low TCR (< 20 ppm/°C)
- 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)



### STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | SIZE | POWER RATING<br>$P_{70^{\circ}\text{C}}$<br>W | RESISTANCE VALUE RANGE $\Omega$ |                   |                  |                  | WEIGHT (typical)<br>g/1000 pieces |
|--------------|------|-----------------------------------------------|---------------------------------|-------------------|------------------|------------------|-----------------------------------|
|              |      |                                               | Tol. $\pm 0.1$ %                | Tol. $\pm 0.25$ % | Tol. $\pm 0.5$ % | Tol. $\pm 1.0$ % |                                   |
| WSK1206...18 | 1206 | 0.5                                           | 0.04 to 0.05                    | 0.02 to 0.05      | 0.01 to 0.05     | 0.01 to 0.05     | 16                                |

#### Notes

- Part marking: due to resistor size limitation, parts will be marked with only the resistance value.
- Resistance values are available per WSL decade table ([www.vishay.com/doc?30117](http://www.vishay.com/doc?30117)).

### TECHNICAL SPECIFICATIONS

| PARAMETER                                                             | UNIT   | RESISTOR CHARACTERISTICS |
|-----------------------------------------------------------------------|--------|--------------------------|
| Component temperature coefficient (including terminal) <sup>(1)</sup> | ppm/°C | $\pm 35$                 |
| 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

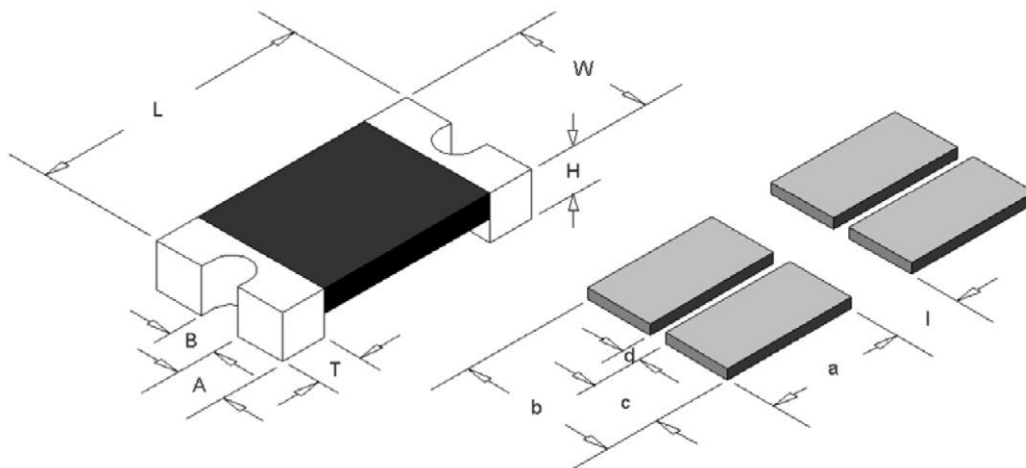
- (1) Component TCR - total TCR that includes the TCR effects of the resistor element and the copper terminal.
- (2) Element TCR - only applies to the alloy used for the resistor element; refer to item 1 in the construction illustration on the following page.
- (3) Maximum working voltage - the WSL is not voltage sensitive, but is limited by power / energy dissipation and is also not ESD sensitive.

**GLOBAL PART NUMBER INFORMATION**

Global Part Numbering example: WSK1206R0150FEA18

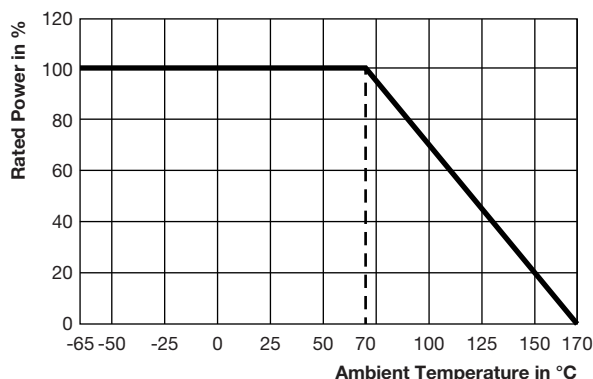
| W            | S | K | 1                                    | 2 | 0 | 6 | R                                                                         | 0 | 1 | 5                                                             | 0 | F | E | A                        | 1 | 8 |
|--------------|---|---|--------------------------------------|---|---|---|---------------------------------------------------------------------------|---|---|---------------------------------------------------------------|---|---|---|--------------------------|---|---|
| GLOBAL MODEL |   |   | RESISTANCE VALUE                     |   |   |   | TOLERANCE CODE                                                            |   |   | PACKAGING CODE <sup>(1)</sup>                                 |   |   |   | SPECIAL                  |   |   |
| WSK1206      |   |   | R = decimal<br>R0100 = 0.01 $\Omega$ |   |   |   | B = $\pm 0.1\%$<br>C = $\pm 0.25\%$<br>D = $\pm 0.5\%$<br>F = $\pm 1.0\%$ |   |   | EA = lead (Pb)-free, tape / reel<br>EK = lead (Pb)-free, bulk |   |   |   | 18 = "High power" option |   |   |

**Note**
<sup>(1)</sup> Packaging code: EB (lead (Pb)-free) and TB (tin / lead) are non-standard packaging codes designating 1000 piece reels. These non-standard packaging codes are identical to our standard EA (lead (Pb)-free) and TA (tin / lead), except that they have a package quantity of 1000 pieces.

**DIMENSIONS**


| MODEL        | DIMENSIONS in inches (millimeters)      |                                         |                                          |                                          |                                          |                                          |
|--------------|-----------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
|              | L                                       | W                                       | H                                        | T                                        | A                                        | B                                        |
| WSK1206...18 | 0.126 $\pm$ 0.010<br>(3.20 $\pm$ 0.254) | 0.063 $\pm$ 0.010<br>(1.60 $\pm$ 0.254) | 0.025 $\pm$ 0.010<br>(0.635 $\pm$ 0.254) | 0.020 $\pm$ 0.010<br>(0.508 $\pm$ 0.254) | 0.023 $\pm$ 0.010<br>(0.584 $\pm$ 0.254) | 0.018 $\pm$ 0.010<br>(0.457 $\pm$ 0.254) |

| MODEL        | SOLDER PAD DIMENSIONS in inches (millimeters) |                  |                  |                 |                  |
|--------------|-----------------------------------------------|------------------|------------------|-----------------|------------------|
|              | a                                             | b                | c                | d               | l                |
| WSK1206...18 | 0.040<br>(1.01)                               | 0.070<br>(1.778) | 0.030<br>(0.762) | 0.01<br>(0.254) | 0.070<br>(1.778) |

**DERATING****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 operation | -65 °C for 45 min                                              | ± (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 %) $\Delta R$ |
| Resistance to solder heat | +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence          | ± (0.5 %) $\Delta R$ |
| Moisture resistance       | MIL-STD-202, method 106, 0 % power, 7b not required            | ± (0.5 %) $\Delta R$ |

**PACKAGING**

| MODEL        | REEL                  |           |             |      |
|--------------|-----------------------|-----------|-------------|------|
|              | TAPE WIDTH            | DIAMETER  | PIECES/REEL | CODE |
| WSK1206...18 | 8 mm/embossed plastic | 178 mm/7" | 4000        | EA   |

**Notes**

- Embossed carrier tape per EIA-481.
- Wirewound, Metal Film, and Power Metal Strip® Packaging ([www.vishay.com/doc?20051](http://www.vishay.com/doc?20051)).



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.