

# 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      | 1206 | 0.25                                          | 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

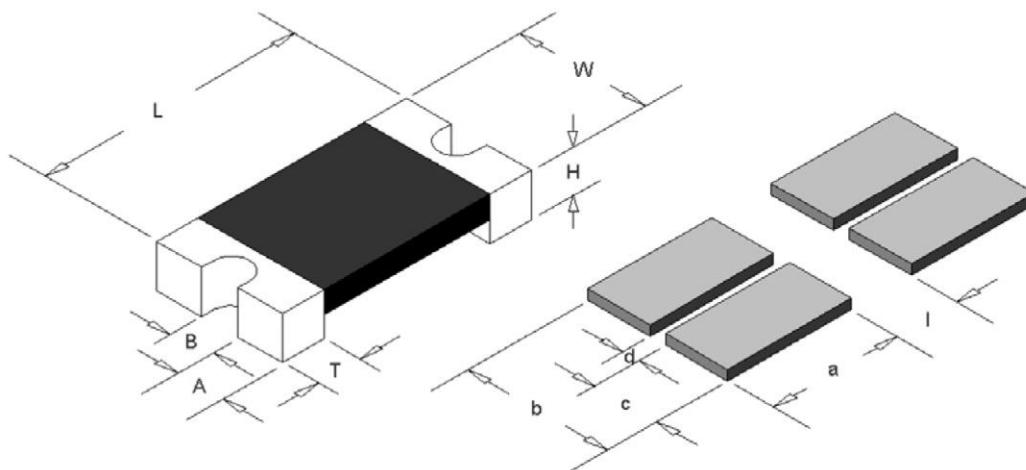
- (1) Component TCR - total TCR that includes the TCR effects of the resistor element and the copper terminal.
- (2) Element TCR - only applies to the alloy used for the resistor element; refer to item 1 in the construction illustration on the following page.
- (3) Maximum working voltage - the WSL is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

**GLOBAL PART NUMBER INFORMATION**

Global Part Numbering example: WSK1206R0150FEA

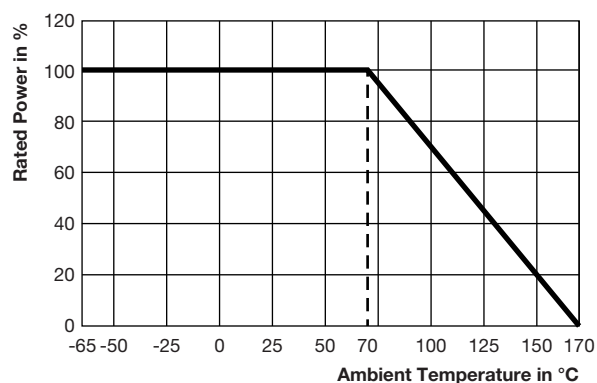
|              |   |   |                                      |   |   |   |                                                                           |   |   |                                                               |   |   |   |                                                                 |  |  |
|--------------|---|---|--------------------------------------|---|---|---|---------------------------------------------------------------------------|---|---|---------------------------------------------------------------|---|---|---|-----------------------------------------------------------------|--|--|
| W            | S | K | 1                                    | 2 | 0 | 6 | R                                                                         | 0 | 1 | 5                                                             | 0 | F | E | A                                                               |  |  |
| 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 |   |   |   | (Dash number)<br>(up to 2 digits)<br>From 1 to 99 as applicable |  |  |

**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 | 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 | 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         | $\pm (0.5 \%) \Delta R$ |
| Short time overload       | 5x rated power for 5 s                                         | $\pm (0.5 \%) \Delta R$ |
| Low temperature operation | -65 °C for 45 min                                              | $\pm (0.5 \%) \Delta R$ |
| High temperature exposure | 1000 h at +170 °C                                              | $\pm (1.0 \%) \Delta R$ |
| Bias humidity             | +85 °C, 85 % RH, 10 % bias, 1000 h                             | $\pm (0.5 \%) \Delta R$ |
| Mechanical shock          | 100 g's for 6 ms, 5 pulses                                     | $\pm (0.5 \%) \Delta R$ |
| Vibration                 | Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h | $\pm (0.5 \%) \Delta R$ |
| Load life                 | 1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"                      | $\pm (1.0 \%) \Delta R$ |
| Resistance to solder heat | +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence          | $\pm (0.5 \%) \Delta R$ |
| Moisture resistance       | MIL-STD-202, method 106, 0 % power, 7b not required            | $\pm (0.5 \%) \Delta R$ |

**PACKAGING**

| MODEL   | REEL                  |           |             |      |
|---------|-----------------------|-----------|-------------|------|
|         | TAPE WIDTH            | DIAMETER  | PIECES/REEL | CODE |
| WSK1206 | 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)).



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