

## 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
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Solid metal nickel-chrome or manganese-copper resistive element with low TCR (< 20 ppm/°C)
- All welded construction
- 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**  
Available  
**GREEN**  
(5-2008)  
Available

### LINKS TO ADDITIONAL RESOURCES



3D Models



Design Tools



Videos



Calculators

### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70^{\circ}\text{C}}$ W	RESISTANCE VALUE RANGE $\Omega$				WEIGHT (typical) 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))

### GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: WSK1206R0150FEA (visit [www.vishay.net](http://www.vishay.net) Vishay Dale parts numbering manual for all options)

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 R0100 = 0.01 Ω			B = ± 0.1 % C = ± 0.25 % D = ± 0.5 % F = ± 1.0 %			EA = lead (Pb)-free, tape / reel EK = lead (Pb)-free, bulk			(Dash number) (up to 2 digits) From 1 to 99 as applicable				

#### Notes

- Per PCN-DR-00009-2022-REV-0, WSL marking will be removed effective March 1st, 2023
- <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

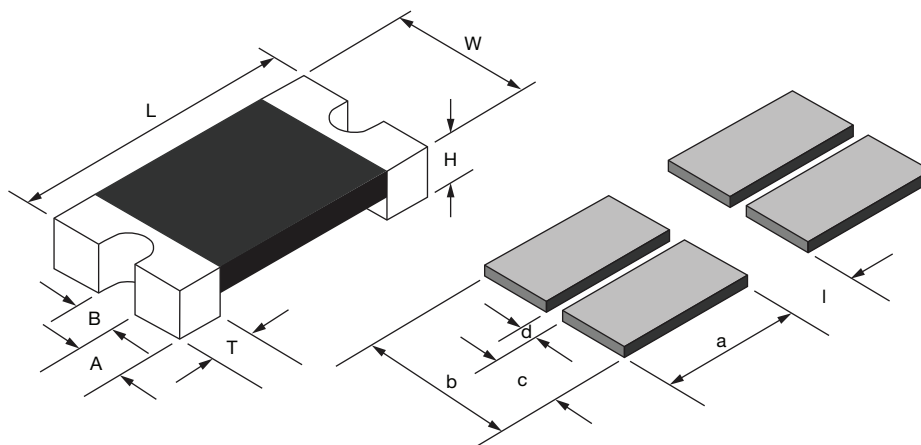
## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Component temperature coefficient (including terminal) <sup>(1)</sup>	ppm/°C	± 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

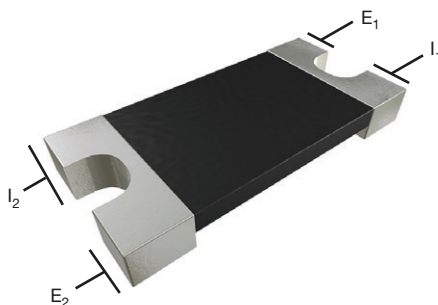
## DIMENSIONS



MODEL	DIMENSIONS in inches (millimeters)					
	L	W	H	T	A	B
WSK1206	0.126 ± 0.010 (3.20 ± 0.254)	0.063 ± 0.010 (1.60 ± 0.254)	0.025 ± 0.010 (0.635 ± 0.254)	0.020 ± 0.010 (0.508 ± 0.254)	0.023 ± 0.010 (0.584 ± 0.254)	0.018 ± 0.010 (0.457 ± 0.254)

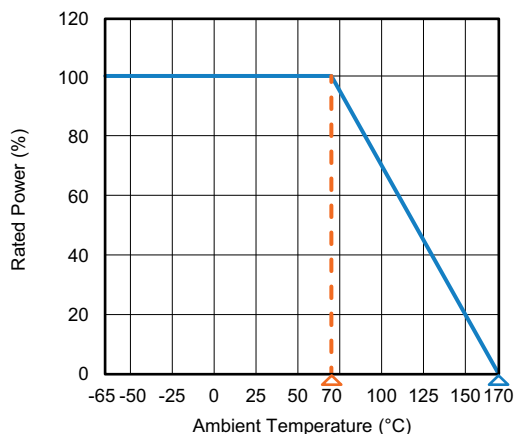
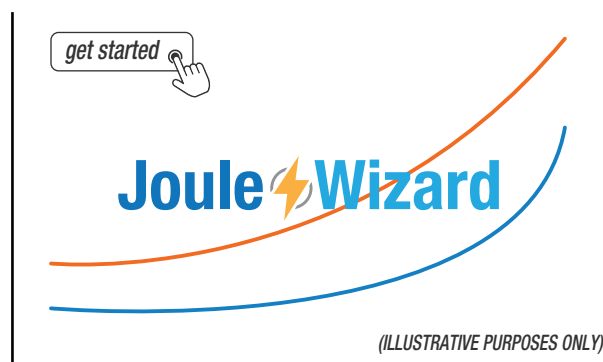
MODEL	SOLDER PAD DIMENSIONS in inches (millimeters)				
	a	b	c	d	l
WSK1206	0.040 (1.01)	0.070 (1.778)	0.030 (0.762)	0.01 (0.254)	0.070 (1.778)

## ELECTRICAL CONNECTION



### Notes

- E<sub>1</sub> and E<sub>2</sub>: voltage sense connections
- I<sub>1</sub> and I<sub>2</sub>: current connection

**DERATING**

**PULSE CAPABILITY**

[www.vishay.com/en/resistors/joulewizard/](http://www.vishay.com/en/resistors/joulewizard/)

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	Refer to link for short time overload performance and pulse capability; <a href="http://www.vishay.com/en/resistors/power-metal-strip-calculator/">www.vishay.com/en/resistors/power-metal-strip-calculator/</a>	± (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 %) $\Delta R$

**Note**

- Contact [ww2bresistors@vishay.com](mailto:ww2bresistors@vishay.com) for application specific performance requirements or qualification data. Typical performance is better than stated test limits

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))

LINKS TO RELATED DOCUMENTS	
<b>SELECTOR GUIDE</b>	
Overview of Automotive Grade Products	<a href="http://www.vishay.com/doc?49924">www.vishay.com/doc?49924</a>
<b>TECHNICAL NOTES</b>	
SMD Current Sense: AEC-Q200 vs. Vishay Qualification	<a href="http://www.vishay.com/doc?30416">www.vishay.com/doc?30416</a>
MIL-PRF vs. AEC-Q200: Do You Know What You Are Getting?	<a href="http://www.vishay.com/doc?11000">www.vishay.com/doc?11000</a>
<b>WHITE PAPER</b>	
Thermal Management for Surface-Mount Devices	<a href="http://www.vishay.com/doc?30380">www.vishay.com/doc?30380</a>
Temperature Coefficient of Resistance for Current Sensing	<a href="http://www.vishay.com/doc?30405">www.vishay.com/doc?30405</a>



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