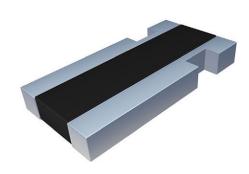


www.vishay.com

Vishay Dale

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



LINKS TO ADDITIONAL RESOURCES

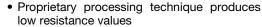


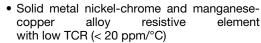


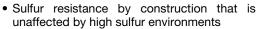


FEATURES

- 4-terminal design
- All welded construction of the Power Metal Strip® resistors are ideal for all types of current sensing, voltage division, and pulse applications







- Very low inductance 0.5 nH to 5 nH
- Low thermal EMF (< 3 μV/°C)
- AEC-Q200 qualified (1)
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>









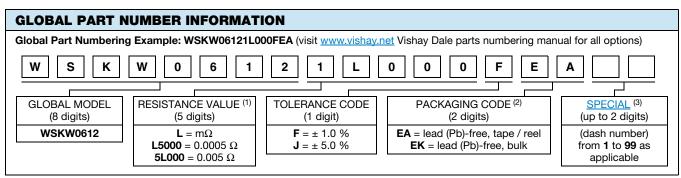
Notes

- This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details
- Follow link to Overview of Automotive Grade Products for more details: www.vishay.com/doc?49924
- "SMD Current Sense: AEC-Q200 vs. Vishay Qualification" technical note: www.vishay.com/doc?30416
- (1) Flame retardance test may not be applicable to some resistor technologies

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	SIZE P _{70.00}		RESISTANCE VALUE RANGE (1) Ω	WEIGHT (typical) g/1000 pieces	
WSKW0612	0612	1.0	1.0, 5.0	0.5m to 5m	8.5

Notes

- "Thermal Management for Surface-Mount Devices" white paper: www.vishay.com/doc?30380
- (1) Other values may be available, contact factory

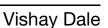


Notes

- Per PCN-DR-00009-2022-REV-0, WSL marking will be removed effective March 1st, 2023
- (1) WSL marking (<u>www.vishay.com/doc?30327</u>)
- Packaging code: EB (lead (Pb)-free) are non-standard packaging codes designating 1000 piece reels. These non-standard packaging codes are identical to our standard EA (lead (Pb)-free), except that they have a package quantity of 1000 pieces
- (3) Follow link for customization capabilities: www.vishay.com/doc?48163

PATENT(S): www.vishay.com/patents

This Vishay product is protected by one or more United States and international patents.



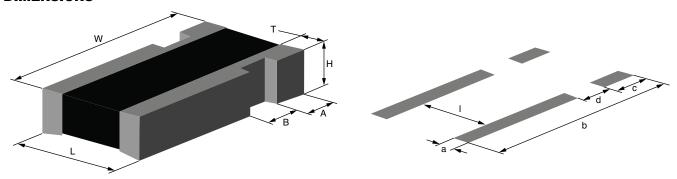


TECHNICAL SPECIFICATIONS				
PARAMETER	UNIT	RESISTOR CHARACTERISTICS		
Component temperature coefficient		-300 / +50 for 0.5 m Ω to 0.99 m Ω		
(including terminal) (1)	ppm/°C	\pm 150 for 1 m Ω and 2 m Ω		
TCR measured from -55 °C to 150 °C		\pm 75 for 3 m Ω to 5 m Ω		
Element TCR (2)	ppm/°C	< 20		
Operating temperature range	°C	-65 to +170		
Maximum working voltage (3)	V	$(P \times R)^{1/2}$		

Notes

- TCR for Current Sensing (white paper): www.vishay.com/doc?30405
- (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
- (3) Maximum working voltage the WSL is not voltage sensitive, but is limited by power / energy dissipation and is also not ESD sensitive

DIMENSIONS



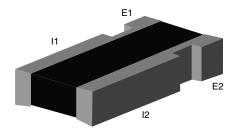
Note

• Surface-mount solder profile recommendations: www.vishay.com/doc?31052

MODEL	DIMENSIONS in inches (millimeters)						
MODEL	L	W	Н	Т	Α	В	
WSKW0612	0.060 ± 0.010 (1.50 ± 0.254)	0.120 ± 0.010 (3.05 ± 0.254)	0.018 ± 0.010 (0.457 ± 0.254)	0.015 ± 0.010 (0.381 ± 0.254)	0.020 ± 0.005 (0.51 ± 0.127)	0.020 ± 0.005 (0.51 ± 0.127)	

MODEL	SOLDER PAD DIMENSIONS in inches (millimeters)						
	а	b	С	d	I		
WSKW0612	0.040 (1.01)	0.135 (3.43)	0.030 (0.762)	0.015 (0.381)	0.030 (0.76)		

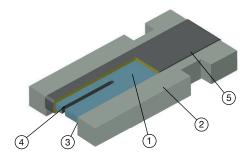
4 TERMINAL KELVIN CONNECTIONS



Notes

- E1 and E2: voltage sense connection
- I1 and I2: current connection

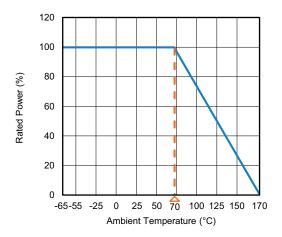
CONSTRUCTION OUTLINE



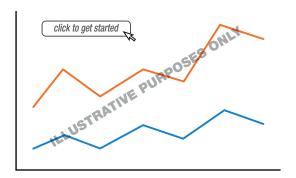
Notes

- 1. Resistive element: Mn-Cu
- 2. Terminal: solid copper and element with 100 % Sn finish
- 3. Terminal to element weld
- 4. Laser calibration
- High temperature encapsulant: siliconized polyester coating material





PULSE CAPABILITY



www.vishay.com/resistors/power-metal-strip-calculator

PERFORMANCE						
TEST	CONDITIONS OF TEST		TYPICAL			
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± 1.0 %	0.20 %			
Low temperature storage	-65 °C for 24 h	± 0.5 %	0.1 % (24 h)			
High temperature exposure	2000 h at +170 °C	± 1.0 %	± 0.2 %			
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	± 0.5 %	0.20 %			
Mechanical shock	100 g's for 6 ms, 5 pulses	± 0.5 %	0.01 %			
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± 0.5 %	0.01 %			
Load life	2000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	± 1.0 %	-0.20 %			
Resistance to solder heat	+260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	± 0.5 %	0.05 %			
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	± 1.0 %	0.01 %			



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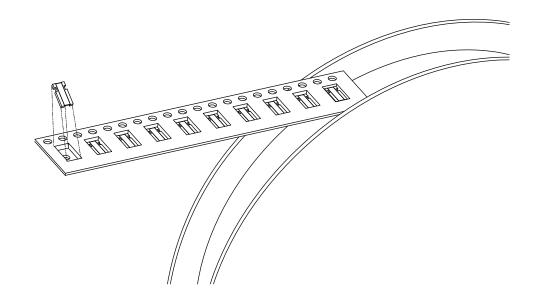
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PACKAGING (1)						
MODEL	REEL					
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE		
WSKW0612	8 mm / embossed plastic	178 mm / 7"	4000	EA		

Notes

- Embossed carrier tape per EIA-481
- (1) Additional packaging details at www.vishay.com/doc?20051

REEL ORIENTATION





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