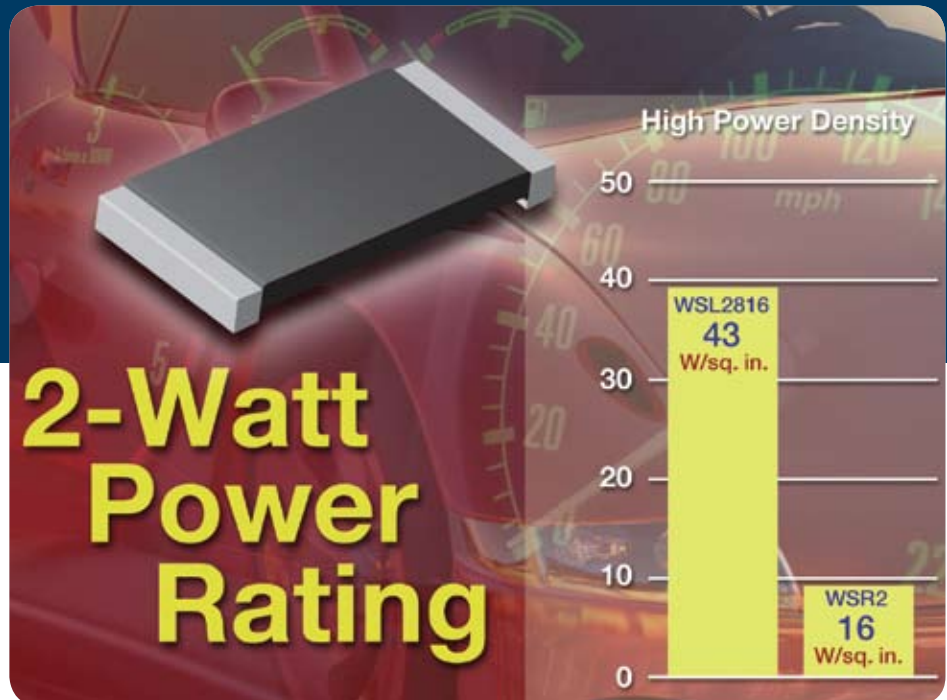




# POWER METAL STRIP<sup>®</sup> RESISTOR

WSL2816



## 2-Watt Surface-Mount Power Metal Strip<sup>®</sup> Resistor

### KEY BENEFITS

- Extremely low resistance values of 10 m $\Omega$  to 100 m $\Omega$
- Low-TCR element (< 20 ppm/ $^{\circ}$ C) results in accurate current sensing with 1 % tolerance (0.5 % tolerance available), allowing the use of lower cost ICs and enabling maximum performance
- Enables use of a single low-value resistor instead of multiple high-value resistors in parallel
- Can replace larger low-value resistors
- Available in either lead (Pb)-free or tin/lead terminal finish

### APPLICATIONS

- Computer
- Automotive
- Telecommunications
- Consumer
- Industrial

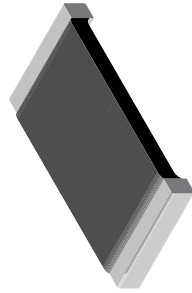
# Power Metal Strip® Resistors, Low Value, Surface Mount

## FEATURES

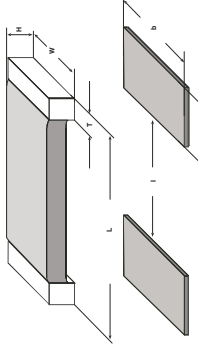
- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifiers
- Proprietary processing technique produces extremely low resistance values
- All welded construction
- Solid metal Nickel-chrome or Manganese-copper alloy resistive element with lowTCR (-20 ppm/°C)
- Solderable terminations
- Very low inductance 0.5nH to 5nH
- Excellent frequency response
- Low thermal EMF
- Lead (Pb)-Free version is RoHS Compliant



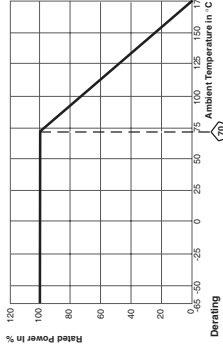
RoHS COMPLIANT



## DIMENSIONS



MODEL	RESISTANCE RANGE (Ω)	DIMENSIONS in inches (millimeters)			
		L	W	H	T
WSL0603	0.015 - 0.1	0.069 ± 0.010 [0.036 ± 0.010]	0.013 ± 0.005 [0.013 ± 0.005]	0.015 ± 0.010 [0.015 ± 0.010]	0.015 ± 0.010 [0.015 ± 0.010]
WSL0605	0.01 - 0.2	0.086 ± 0.010 [0.036 ± 0.010]	0.013 ± 0.005 [0.013 ± 0.005]	0.015 ± 0.010 [0.015 ± 0.010]	0.015 ± 0.010 [0.015 ± 0.010]
WSL1206	0.001 - 0.0099	0.209 ± 0.010 [0.063 ± 0.010]	0.025 ± 0.010 [0.025 ± 0.010]	0.029 ± 0.010 [0.029 ± 0.010]	0.029 ± 0.010 [0.029 ± 0.010]
WSL2010	0.007 - 0.5	0.209 ± 0.010 [0.063 ± 0.010]	0.025 ± 0.010 [0.025 ± 0.010]	0.059 ± 0.010 [0.059 ± 0.010]	0.059 ± 0.010 [0.059 ± 0.010]
WSL2512	0.001 - 0.0049	0.260 ± 0.010 [0.063 ± 0.010]	0.025 ± 0.010 [0.025 ± 0.010]	0.087 ± 0.010 [0.087 ± 0.010]	0.087 ± 0.010 [0.087 ± 0.010]
WSL2816	0.007 - 0.5	0.260 ± 0.010 [0.063 ± 0.010]	0.025 ± 0.010 [0.025 ± 0.010]	0.100 ± 0.010 [0.100 ± 0.010]	0.100 ± 0.010 [0.100 ± 0.010]



MODEL	RESISTANCE RANGE (Ω)	SOLDER PAD DIMENSIONS in inches (millimeters)			
		a	b	i	l
WSL0603	0.015 - 0.1	0.040 [1.01]	0.040 [1.01]	0.020 [0.50]	0.020 [0.50]
WSL0605	0.01 - 0.2	0.040 [1.01]	0.040 [1.01]	0.020 [0.50]	0.020 [0.50]
WSL1206	0.001 - 0.0099	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]
WSL2010	0.007 - 0.5	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]
WSL2512	0.001 - 0.0049	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]
WSL2816	0.007 - 0.5	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]	0.050 [1.27]

TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	- 55°C to + 150°C, 1000 cycles, 15 minutes at each extreme	± (0.5% + 0.0005%) AR
Short Time Overload	5 x rated power for 5 seconds	± (0.5% + 0.0005%) AR
Low Temperature Operation	- 65°C for 24 hours	± (0.5% + 0.0005%) AR
High Temperature Exposure	1000 hours @ + 170°C	± (1.0% + 0.0005%) AR
Mechanical Shock	+ 85°C, 85% RH, 10% Bias, 1000 hours	± (0.5% + 0.0005%) AR
Vibration	100g's for 6 milliseconds, 5 pulses	± (0.5% + 0.0005%) AR
Load Life	Frequency varied 10 to 2000Hz in one minute, 3 directions, 12 hours	± (0.5% + 0.0005%) AR
Resistance to Solder Heat	1000 hours @ rated power, + 70°C, 1.5 hours "ON", 0.5 hours "OFF"	± (1.0% + 0.0005%) AR
Moisture Resistance	MIL-STD-202, Method 106, 0% power, 7a and 7b not required	± (0.5% + 0.0005%) AR

MODEL	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSL0603	8mm/Punched Paper	178mm/7"	5000	EA
WSL0605	8mm/Punched Paper	178mm/7"	5000	EA
WSL1206	8mm/Embossed Plastic	178mm/7"	4000	EA
WSL2010	12mm/Embossed Plastic	178mm/7"	4000	EA
WSL2512	12mm/Embossed Plastic	178mm/7"	2000	EA
WSL2816	16mm/Embossed Plastic	330mm/13"	5000	EA

Embossed carrier tape per EIA-481-1A.

GLOBAL MODEL	POWER RATING P70°C W	RESISTANCE RANGE		WEIGHT (TYPICAL) g/1000 pcs
		Ω	%	
WSL0603	0.1	0.015 - 0.1	± 1.0%	1.9
WSL0605	0.125	0.01 - 0.2	0.01 - 0.2	4.8
WSL1206	0.25	0.01 - 0.2	0.002 - 0.2	16.2
WSL2010	0.5	0.01 - 0.5	0.001 - 0.5	38.9
WSL2512	1.0*	0.01 - 0.5	0.001 - 0.5	63.6
WSL2816	2.0	0.01 - 0.10	0.01 - 0.10	118

\*For values above 0.10, derate linearly to 80% rated power at 0.5Ω. Tolerance: due to resistor size limitations some resistors will be marked with only the resistance value.

## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSL RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 275 for 1mΩ to 2.9mΩ, ± 150 for 3mΩ to 4.9mΩ
Operating Temperature Range	°C	± 110 for 5mΩ to 6.9mΩ, ± 75 for 7mΩ to 0.5Ω
Maximum Working Voltage	V	- 65/+ ± 170 (P x R) <sup>1/2</sup>

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: WSL25124.0004EA (preferred part numbering format)

W	S	L	2	5	1	2	4	L	0	0	0	F	E	A
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

GLOBAL MODE (See Standard Electrical Specifications, Global Model, for more options):  
 L = Milliphm™  
 R = Decimal  
 4L000 = 0.004Ω  
 R0100 = 0.01Ω  
 \* use "L" for resistance values < 0.01Ω

TOLERANCE CODE: D ± 0.5%, F ± 1.0%, J ± 5.0%

PACKAGING: EA = Lead (Pb)-Free, Tape/Reel (Dash Number) (up to 2 digits) From 1-99 as applicable; EK = Lead (Pb)-Free, Bulk; TA = Tin/Lead, Tape/Reel (R66); TG = Tin/Lead, Tape/Reel (RT1); BA = Tin/Lead, Bulk (B43)

Historical Part Number example: WSL2512 0.004Ω 1% EA (will continue to be accepted)

WSL2512 HISTORICAL MODEL | 0.004Ω RESISTANCE VALUE | 1% TOLERANCE CODE | EA PACKAGING

\* Pb containing terminations are not RoHS compliant, exemptions may apply

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For technical questions, contact [ww2bresistors@vishay.com](mailto:ww2bresistors@vishay.com)