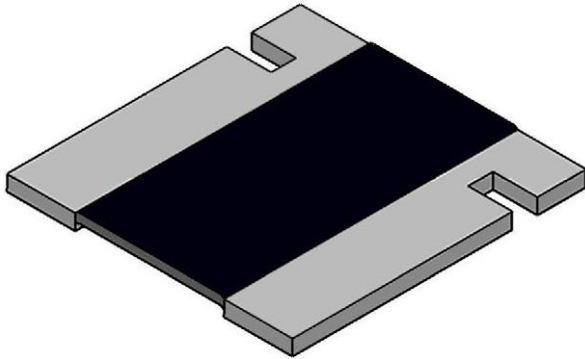


# Power Metal Strip® Resistors, Low Value (Down to 0.001 Ω), Surface-Mount, 4-Terminal



## FEATURES

- 4-terminal design allows for 0.5 % resistance tolerance down to 0.001 Ω
- All welded construction of the Power Metal Strip® resistors are ideal for all types of current sensing, voltage division, and pulse applications
- Proprietary processing technique produces extremely low resistance values (down to 0.001 Ω)
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Solid metal nickel-chrome alloy resistive element with low TCR (< 20 ppm/°C)
- Low thermal EMF (< 3 μV/°C)
- Very low inductance, 0.5 nH to 5 nH
- Excellent frequency response to 50 MHz
- AEC-Q200 qualified <sup>(1)</sup>
- PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

AUTOMOTIVE GRADE



RoHS\* Available

HALOGEN FREE Available

GREEN (5-2008) Available

## LINKS TO ADDITIONAL RESOURCES



### Note

- \* 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](http://www.vishay.com/doc?49924)
- “SMD Current Sense: AEC-Q200 vs. Vishay Qualification” technical note: [www.vishay.com/doc?30416](http://www.vishay.com/doc?30416)
- <sup>(1)</sup> Flame retardance test may not be applicable to some resistor technologies

## STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\text{ }^\circ\text{C}}$ W	TOLERANCE ± %	RESISTANCE VALUE RANGE Ω	WEIGHT (typical) g/1000 pieces
WSL3637	3637	3.0	0.5 and 1.0	0.001 to 0.01	274.3

### Note

- “Thermal Management for Surface-Mount Devices” white paper: [www.vishay.com/doc?30380](http://www.vishay.com/doc?30380)

## GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: **WSL36375L000FEA** (visit [www.vishay.net](http://www.vishay.net) Vishay Dale parts numbering manual for all options)

W S L 3 6 3 7 5 L 0 0 0 F E A

GLOBAL MODEL (7 digits)	RESISTANCE VALUE <sup>(1)</sup> (5 digits)	TOLERANCE CODE (1 digit)	PACKAGING CODE <sup>(2)</sup> (2 digits)	SPECIAL (2 digits)
<b>WSL3637</b>	L = mΩ R = decimal <b>5L000</b> = 0.005 Ω <b>R0100</b> = 0.01 Ω  * Use “L” for resistance values < 0.01 Ω	D = ± 0.5 % F = ± 1.0 %	EA = lead (Pb)-free, tape / reel EK = lead (Pb)-free, bulk TA = tin / lead, tape/reel (R86) BA = tin / lead, bulk (B43)	(dash number) (up to 2 digits) from <b>1 to 99</b> as applicable

### Notes

- Per PCN-DR-00009-2022-REV-0, WSL marking will be removed effective March 1st, 2023
- <sup>(1)</sup> WSL marking ([www.vishay.com/doc?30327](http://www.vishay.com/doc?30327))
- <sup>(2)</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

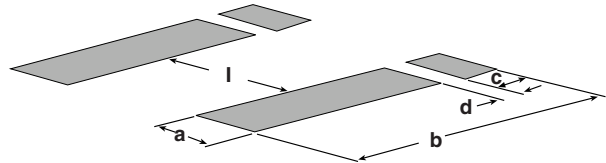
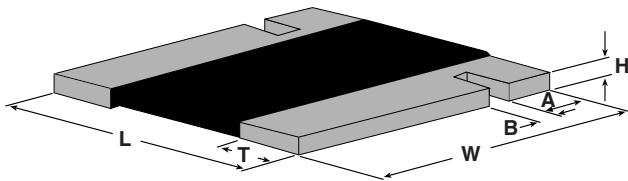
PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)

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

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/°C	± 50 for 0.003 Ω to 0.010 Ω
		± 75 for 0.001 Ω to 0.0029 Ω
Element TCR	ppm/°C	< 20
Operating temperature range	°C	-65 to +170
Maximum working voltage	V	$(P \times R)^{1/2}$

**Note**

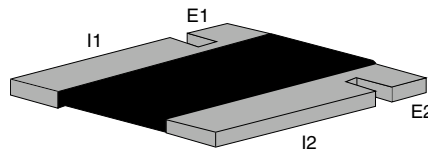
- “Temperature Coefficient of Resistance for Current Sensing” white paper: [www.vishay.com/doc?30405](http://www.vishay.com/doc?30405)

**DIMENSIONS**

**Note**

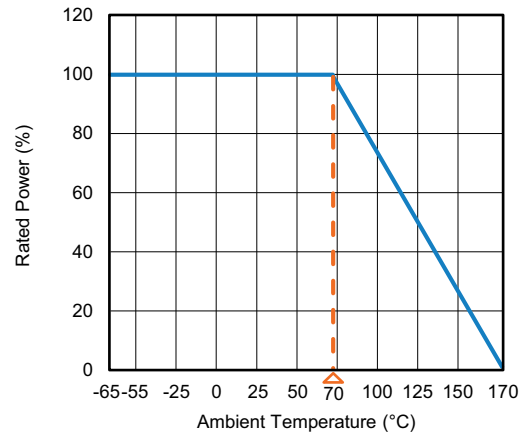
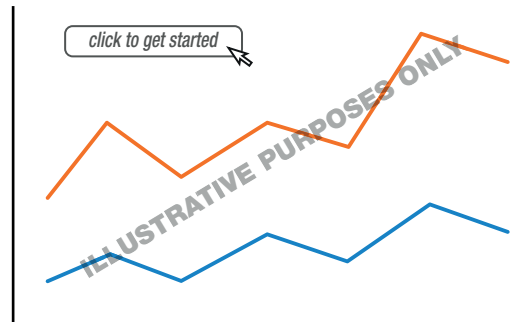
- 3D models available: [www.vishay.com/doc?30303](http://www.vishay.com/doc?30303)

MODEL	DIMENSIONS in inches (millimeters)						
	RESISTANCE RANGE (Ω)	W	L	H	T	A	B
WSL3637	0.002 to 0.01	0.370 ± 0.010 (9.40 ± 0.254)	0.360 ± 0.010 (9.14 ± 0.254)	0.025 ± 0.010 (0.635 ± 0.254)	0.086 ± 0.010 (2.18 ± 0.254)	0.061 ± 0.010 (1.55 ± 0.254)	0.032 ± 0.010 (0.813 ± 0.254)
	0.001 to 0.0019				0.138 ± 0.010 (3.51 ± 0.254)		

MODEL	SOLDER PAD DIMENSIONS in inches (millimeters)					
	RESISTANCE RANGE (Ω)	a	b	c	d	l
WSL3637	0.002 to 0.01	0.116 (2.95)	0.390 (9.91)	0.066 (1.68)	0.024 (0.610)	0.178 (4.52)
	0.001 to 0.0019	0.168 (4.27)	0.390 (9.91)	0.066 (1.68)	0.024 (0.610)	0.074 (1.88)

**4 TERMINAL KELVIN CONNECTIONS**

**Notes**

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

**DERATING**

**PULSE CAPABILITY**


[www.vishay.com/resistors/power-metal-strip-calculator](http://www.vishay.com/resistors/power-metal-strip-calculator)

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± (0.5 % + 0.0005 Ω)
Short time overload	5 x rated power for 5 s	± (0.5 % + 0.0005 Ω)
Low temperature storage	-65 °C for 24 h	± (0.5 % + 0.0005 Ω)
High temperature exposure	1000 h at +170 °C	± (1.0 % + 0.0005 Ω)
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	± (0.5 % + 0.0005 Ω)
Mechanical shock	100 g's for 6 ms, 5 pulses	± (0.5 % + 0.0005 Ω)
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± (0.5 % + 0.0005 Ω)
Load life	1000 h at rated power, +70 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.0005 Ω)
Solder heat	+260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	± (0.5 % + 0.0005 Ω)
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7a and 7b not required	± (0.5 % + 0.0005 Ω)

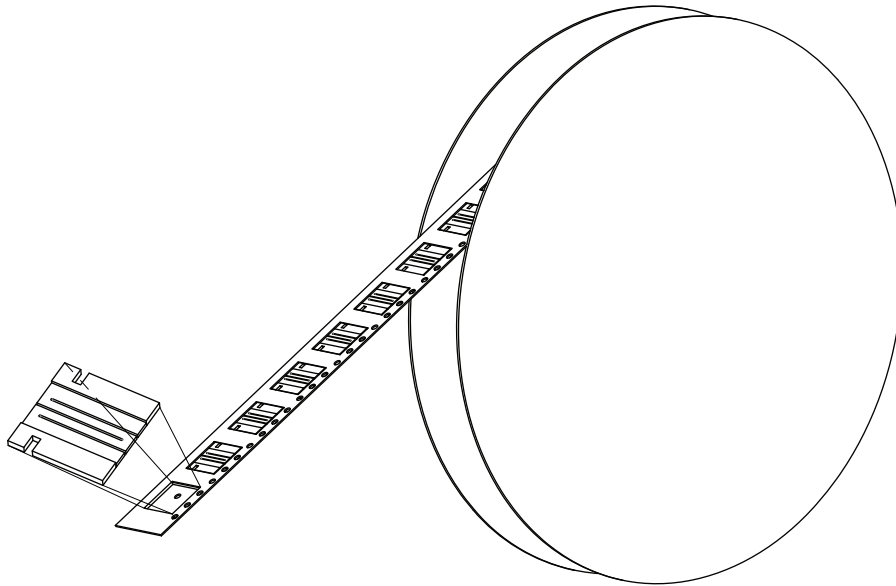


PACKAGING (1)				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSL3637	16 mm / embossed plastic	330 mm / 13"	4000	EA

**Notes**

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

**REEL ORIENTATION**





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