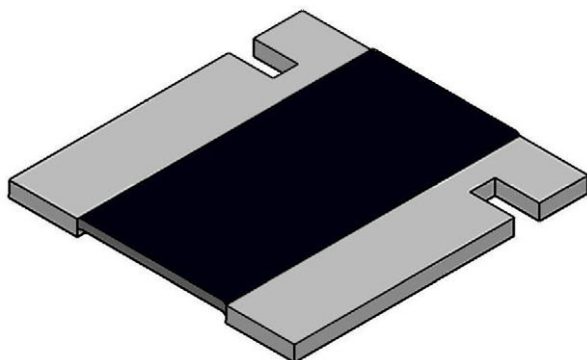


Power Metal Strip® Resistors, Low Value (Down to 0.001 Ω), Surface-Mount, 4-Terminal



LINKS TO ADDITIONAL RESOURCES



3D Models



Design Tools



Videos



Calculators

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 ⁽¹⁾
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE
GRADE

Pb-free
Available

RoHS*
Available

HALOGEN
FREE

Available

GREEN
(5-2008)

Available

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

(1) Flame retardance test may not be applicable to some resistor technologies

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70^{\circ}\text{C}}$ 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

- Qualified to AEC-Q200 rev. D

GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: WSL36375L000FEA (visit 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 ⁽¹⁾ (5 digits)	TOLERANCE CODE (1 digit)	PACKAGING CODE ⁽²⁾ (2 digits)	SPECIAL (2 digits)
WSL3637	L = mΩ R = decimal 5L000 = 0.005 Ω R0100 = 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 1 to 99 as applicable

Notes

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

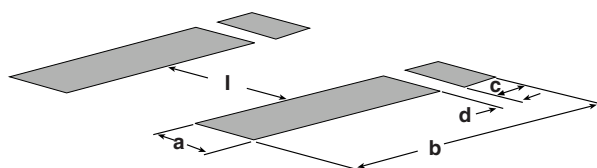
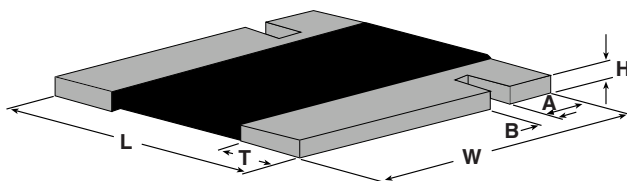
PATENT(S): www.vishay.com/patents

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	$(P \times R)^{1/2}$

DIMENSIONS



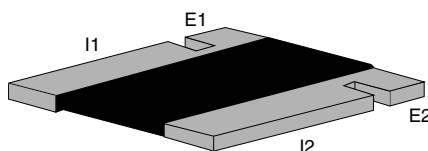
Note

- 3D models available: 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 \pm 0.010 (9.40 \pm 0.254)	0.360 \pm 0.010 (9.14 \pm 0.254)	0.025 \pm 0.010 (0.635 \pm 0.254)	0.086 \pm 0.010 (2.18 \pm 0.254)	0.061 \pm 0.010 (1.55 \pm 0.254)	0.032 \pm 0.010 (0.813 \pm 0.254)
	0.001 to 0.0019				0.138 \pm 0.010 (3.51 \pm 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)

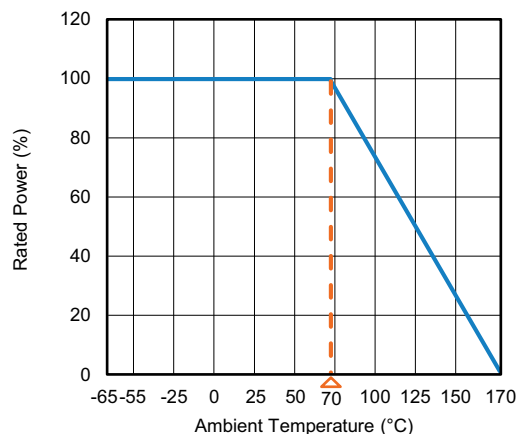
4 TERMINAL KELVIN CONNECTIONS



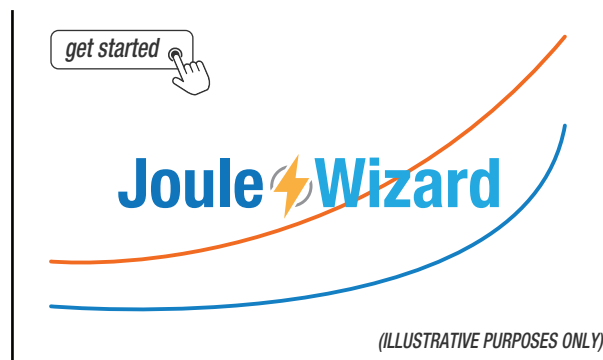
Notes

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

DERATING



PULSE CAPABILITY


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

Note

- Contact ww2bresistors@vishay.com for application specific performance requirements or qualification data. Typical performance is better than stated test limits

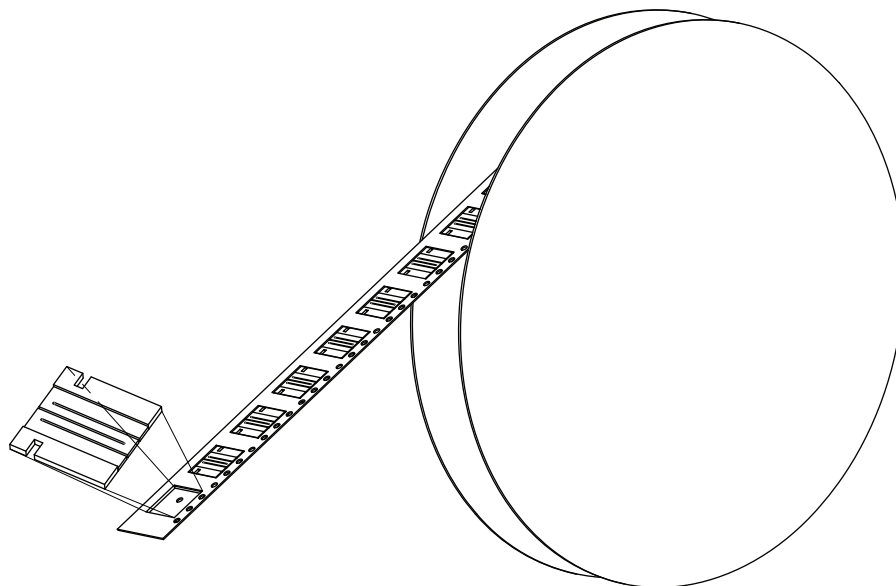
PACKAGING (1)				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSL3637	16 mm / embossed plastic	330 mm / 13"	4000	EA

Notes

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



REEL ORIENTATION



LINKS TO RELATED DOCUMENTS

SELECTOR GUIDE

Overview of Automotive Grade Products

www.vishay.com/doc?49924

TECHNICAL NOTES

SMD Current Sense: AEC-Q200 vs. Vishay Qualification

www.vishay.com/doc?30416

MIL-PRF vs. AEC-Q200: Do You Know What You Are Getting?

www.vishay.com/doc?11000

WHITE PAPER

Thermal Management for Surface-Mount Devices

www.vishay.com/doc?30380

Temperature Coefficient of Resistance for Current Sensing

www.vishay.com/doc?30405



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