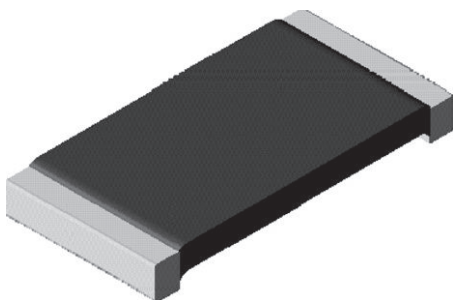




Power Metal Strip Resistor, Very High Power (to 3 W), Low Value (Down to 0.0005 Ω), Surface-Mount



FEATURES

- Very high power to foot print size ratio (3 W in 2512, 2 W in 2010, 1 W in 1206, 0.5 W in 0805, and 0.4 W in 0603 package)
- 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 0.0005 Ω)
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Very low inductance 0.5 nH to 5 nH
- Low thermal EMF (< 3 μV/°C)
- AEC-Q200 qualified ⁽¹⁾
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



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
- “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	POWER RATING $P_{70\text{ }^\circ\text{C}}$ W	RESISTANCE VALUE RANGE ⁽¹⁾ Ω		WEIGHT (typical) g/1000 piece
			TOL. 0.5 %	TOL. 1.0 %	
WSLP0603	0603	0.4	0.015 to 0.1	0.01 to 0.1	1.9
WSLP0805	0805	0.5	0.005 to 0.1	0.005 to 0.1	4.8
WSLP1206	1206	1.0	0.005 to 0.05	0.0005 to 0.05	16.2
WSLP2010	2010	2.0	0.004 to 0.03	0.001 to 0.03	38.9
WSLP2512	2512	3.0	0.003 to 0.01	0.0005 to 0.01	63.6

Note

- Part marking: value; tolerance: due to resistor size limitations some resistors will be marked with only the resistance value
- “Thermal Management for Surface-Mount Devices” white paper: www.vishay.com/doc?30380
- ⁽¹⁾ WSLP1206 0.0005 Ω to 0.00099 Ω is only available with 2 % tolerance (G tolerance code)

GLOBAL PART NUMBER INFORMATION																	
Global Part Numbering Example: WSLP1206R0100FEA (visit www.vishay.net Vishay Dale parts numbering manual for all options)																	
W	S	L	P	1	2	0	6	R	0	1	0	0	F	E	A		
GLOBAL MODEL (8 digits)				RESISTANCE VALUE ⁽¹⁾ (5 digits)				TOLERANCE CODE (1 digit)		PACKAGING CODE ⁽²⁾ (2 digits)				SPECIAL ⁽³⁾ (up to 2 digits)			
WSLP0603 WSLP0805 WSLP1206 WSLP2010 WSLP2512				L = mΩ* R = decimal 4L000 = 0.004 Ω R0100 = 0.01 Ω				D = ± 0.5 % F = ± 1.0 % G = ± 2.0 %		EA = lead (Pb)-free, tape / reel				Reserved for future specials			
* Use “L” for resistance values < 0.01 Ω																	

Note

- Per PCN-DR-00009-2022-REV-0, WSL marking will be removed effective March 1st, 2023
- ⁽¹⁾ WSL marking (www.vishay.com/doc?30327); WSL decade values (www.vishay.com/doc?30117)
- ⁽²⁾ Packaging code: EB (lead (Pb)-free) and TB (tin / lead) are non-standard packaging codes that designate 1000 piece reel quantities. 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
- ⁽³⁾ Follow link for customization capabilities: www.vishay.com/doc?48163

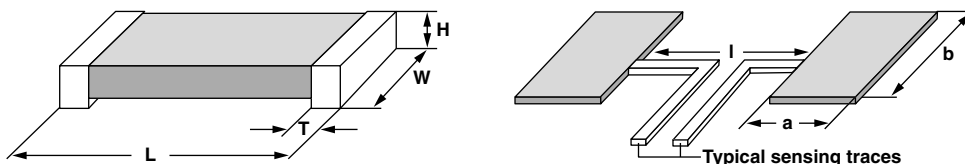


TECHNICAL SPECIFICATIONS					
PARAMETER	UNIT	RESISTOR CHARACTERISTICS			
		WSLP0603 ⁽¹⁾	WSLP0805	WSLP1206	WSLP2010
Component temperature coefficient (including terminal) ⁽²⁾ TCR measured from -55 °C to +155 °C	ppm/°C	± 75 for 50 mΩ to 100 mΩ		± 75 for 7 mΩ to 500 mΩ	
		± 110 for 10 mΩ to 49 mΩ		± 110 for 5 mΩ to 6.9 mΩ	
		-		± 150 for 3 mΩ to 4.9 mΩ	
		-		± 275 for 1 mΩ to 2.9 mΩ	
Element TCR ⁽³⁾	ppm/°C	< 20			
Operating temperature range	°C	-65 to +170			
Maximum working voltage ⁽⁴⁾	V	$(P \times R)^{1/2}$			

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- “Temperature Coefficient of Resistance for Current Sensing” white paper: www.vishay.com/doc?30405
- (1) Consult factory for detailed TCR performance across temperature range associated with PCN-DR-00003-2020 for WSLP0603. TCR performance is improved for +25 °C to +155 °C
- (2) Component TCR - total TCR that includes the TCR effects of the resistor element and the copper terminal
- (3) Element TCR - only applies to the alloy used for the resistor element; refer to item 1 in the construction illustration on the following page
- (4) Maximum working voltage - the WSL is not voltage sensitive, but is limited by power / energy dissipation and is also not ESD sensitive

DIMENSIONS



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- 3D models available. WSLP models: www.vishay.com/doc?30313
- Surface-mount solder profile recommendations: www.vishay.com/doc?31052

MODEL	RESISTANCE RANGE (Ω)	DIMENSIONS in inches (millimeters)				SOLDER PAD DIMENSIONS in inches (millimeters)		
		L	W	H	T	a	b	l
WSLP0603 ⁽¹⁾	0.01 to 0.1	0.060 ± 0.010 (1.52 ± 0.254)	0.030 ± 0.010 (0.76 ± 0.254)	0.016 ± 0.005 (0.406 ± 0.127)	0.015 ± 0.010 (0.381 ± 0.254)	0.040 (1.02)	0.040 (1.02)	0.020 (0.50)
WSLP0805 ⁽²⁾	0.005 to 0.1	0.080 ± 0.010 (2.03 ± 0.254)	0.050 ± 0.010 (1.27 ± 0.254)	0.016 ± 0.005 (0.406 ± 0.127)	0.015 ± 0.010 (0.381 ± 0.254)	0.040 (1.02)	0.050 (1.27)	0.020 (0.50)
WSLP1206	0.0005 to 0.00099	0.126 ± 0.010 (3.20 ± 0.254)	0.063 ± 0.010 (1.60 ± 0.254)	0.025 ± 0.010 (0.635 ± 0.254)	0.041 ± 0.010 (1.04 ± 0.254)	0.089 (2.26)	0.076 (1.93)	0.023 (0.58)
	0.001 to 0.0019				0.086 (2.18)	0.076 (1.93)	0.029 (0.74)	
	0.002 to 0.0059				0.025 ± 0.010 (0.635 ± 0.254)	0.070 (1.78)	0.076 (1.93)	0.061 (1.55)
	0.006 to 0.050				0.020 ± 0.010 (0.508 ± 0.254)	0.065 (1.65)	0.076 (1.93)	0.071 (1.80)
WSLP2010	0.001 to 0.0069	0.200 ± 0.010 (5.08 ± 0.254)	0.100 ± 0.010 (2.54 ± 0.254)	0.025 ± 0.010 (0.635 ± 0.254)	0.058 ± 0.010 (1.47 ± 0.254)	0.093 (2.36)	0.120 (3.05)	0.055 (1.40)
	0.007 to 0.03				0.020 ± 0.010 (0.508 ± 0.254)	0.055 (1.40)		0.130 (3.30)
WSLP2512	0.0005 to 0.00099	0.250 ± 0.010 (6.35 ± 0.254)	0.125 ± 0.010 (3.18 ± 0.254)	0.025 ± 0.010 (0.635 ± 0.254)	0.107 ± 0.010 (2.72 ± 0.254)	0.120 (3.05)	0.145 (3.68)	0.050 (1.27)
	0.001 to 0.0049				0.087 ± 0.010 (2.21 ± 0.254)			0.125 (3.18)
	0.005 to 0.0069				0.047 ± 0.010 (1.19 ± 0.254)	0.083 (2.11)		0.160 (4.06)
	0.007 to 0.01				0.030 ± 0.010 (0.762 ± 0.254)	0.065 (1.65)		

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- (1) PCN-DR-00003-2020 changed terminal height for WSLP0603 from 0.013" ± 0.005" for clad construction to 0.016" ± 0.005" for welded construction
- (2) PCN-DR-000023-2021-REV-1 changed terminal height for WSLP0805 from 0.013" ± 0.005" for clad construction to 0.016" ± 0.005" for welded construction





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