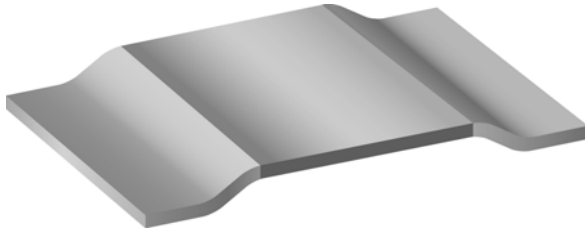




# Power Metal Strip® Resistors, Very High Power (to 10 W), Low Value (down to 0.0002 Ω), Surface Mount



### 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, down to 0.0002 Ω
- Specially selected and stabilized materials allow for high power rating (to 10 W)
- All welded construction
- Solid metal iron-chrome or manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- Very low inductance 0.5 nH to 5 nH
- Excellent frequency response to 50 MHz
- Low thermal EMF (< 3 μV/°C)
- AEC-Q200 qualified available <sup>(1)</sup>
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

AUTOMOTIVE GRADE Available



RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

### Note

<sup>(1)</sup> Flame retardance test may not be applicable to some resistor technologies.

STANDARD ELECTRICAL SPECIFICATIONS						
GLOBAL MODEL	SIZE	POWER RATING <i>P</i> <sub>70°C</sub> W	TOLERANCE %	RESISTANCE VALUE RANGE Ω	RESISTANCE VALUES CURRENTLY AVAILABLE <sup>(2)</sup> Ω	WEIGHT (typical) g/1000 pieces
WSLP3921	3921	5.0	1.0, 5.0	2m to 4m	2m, 3m, 4m	281
WSLP3921	3921	9.0	1.0, 5.0	0.2m to 1m	0.2m, 0.3m, 0.5m, 1m	281
WSLP5931	5931	7.0	1.0, 5.0	1m to 3m	1m, 2m, 3m	398
WSLP5931	5931	10.0	1.0, 5.0	0.2m to 0.5m	0.2m, 0.3m, 0.5m	398

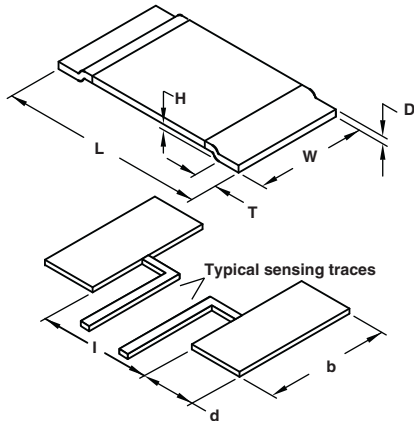
### Note

<sup>(2)</sup> Other values may be available, contact factory.

TECHNICAL SPECIFICATIONS						
PARAMETER	UNIT	RESISTOR CHARACTERISTICS				
		WSLP3921				
Temperature coefficient	ppm/°C	<table border="1"> <thead> <tr> <th>WSLP3921</th> <th>WSLP5931</th> </tr> </thead> <tbody> <tr> <td>± 325 for 0.2 mΩ, ± 175 for 0.3 mΩ and 0.5 mΩ, ± 75 for 1 mΩ to 4 mΩ</td> <td>± 225 for 0.2 mΩ, ± 175 for 0.3 mΩ and 0.5 mΩ, ± 75 for 1 mΩ to 4 mΩ</td> </tr> </tbody> </table>	WSLP3921	WSLP5931	± 325 for 0.2 mΩ, ± 175 for 0.3 mΩ and 0.5 mΩ, ± 75 for 1 mΩ to 4 mΩ	± 225 for 0.2 mΩ, ± 175 for 0.3 mΩ and 0.5 mΩ, ± 75 for 1 mΩ to 4 mΩ
WSLP3921	WSLP5931					
± 325 for 0.2 mΩ, ± 175 for 0.3 mΩ and 0.5 mΩ, ± 75 for 1 mΩ to 4 mΩ	± 225 for 0.2 mΩ, ± 175 for 0.3 mΩ and 0.5 mΩ, ± 75 for 1 mΩ to 4 mΩ					
Element TCR	ppm/°C	< 20				
Operating temperature range	°C	-65 to +170				
Maximum continuous current	A	(P/R) <sup>1/2</sup>				

GLOBAL PART NUMBER INFORMATION																	
Global Part Numbering: WSLP39212L000FEA																	
W	S	L	P	3	9	2	1	2	L	0	0	0	F	E	A		
GLOBAL MODEL			RESISTANCE VALUE			TOLERANCE CODE			PACKAGING CODE				SPECIAL				
WSLP3921 WSLP5931			L = mΩ 2L000 = 0.002 Ω			F = ± 1.0 % J = ± 5.0 %			EA = Lead (Pb)-free, tape/reel EK = Lead (Pb)-free, bulk				Reserved for future specials				

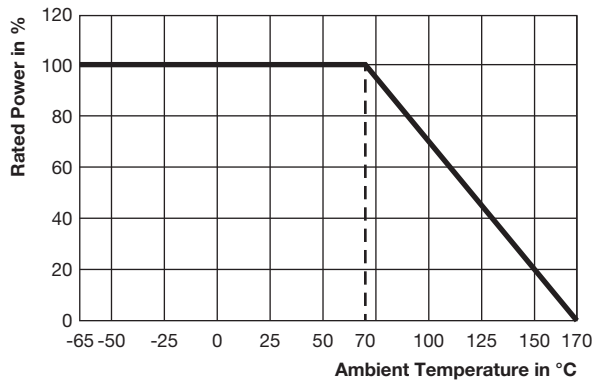
## DIMENSIONS



MODEL	DIMENSIONS in inches (millimeters)			
	L	W	H	T
WSP3921	0.394 ± 0.010 (10.0 ± 0.254)	0.205 ± 0.010 (5.20 ± 0.254)	0.020 (0.5)	0.080 ± 0.010 (2.00 ± 0.254)
WSP5931	0.591 ± 0.010 (15.0 ± 0.254)	0.305 ± 0.010 (7.75 ± 0.254)	0.020 (0.5)	0.157 ± 0.010 (4.00 ± 0.254)

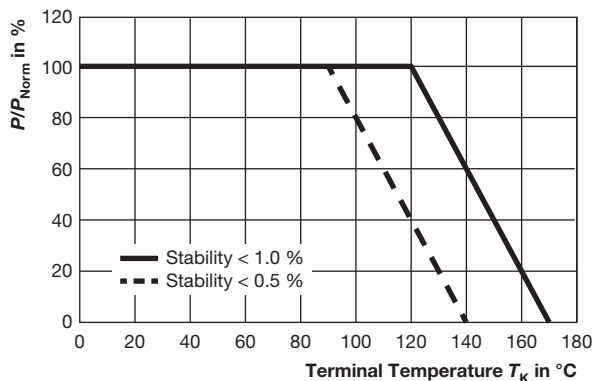
MODEL	SOLDER PAD DIMENSIONS in inches (millimeters)		
	d	b	l
WSP3921	0.106 ± 0.010 (2.70 ± 0.254)	0.244 ± 0.010 (6.20 ± 0.254)	0.220 ± 0.005 (5.60 ± 0.13)
WSP5931	0.205 ± 0.010 (5.20 ± 0.254)	0.344 ± 0.010 (8.75 ± 0.254)	0.220 ± 0.005 (5.60 ± 0.13)

## DERATING - AMBIENT TEMPERATURE

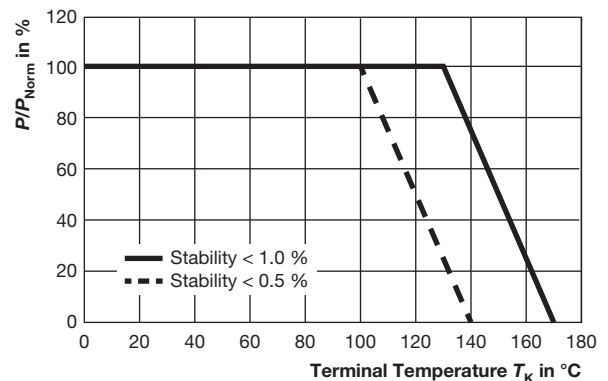


GLOBAL MODEL	RESISTANCE VALUE (mΩ)	"D" THICKNESS (Inches)	ELEMENT MATERIAL
WSP3921	0.2	0.0510	Mn-Cu
WSP3921	0.3	0.0510	Mn-Cu
WSP3921	0.5	0.0300	Mn-Cu
WSP3921	1.0	0.0150	Mn-Cu
WSP3921	2.0	0.0270	Fe-Cr
WSP3921	3.0	0.0170	Fe-Cr
WSP3921	4.0	0.0130	Fe-Cr
WSP5931	0.2	0.0490	Mn-Cu
WSP5931	0.3	0.0300	Mn-Cu
WSP5931	0.5	0.0180	Mn-Cu
WSP5931	1.0	0.0330	Fe-Cr
WSP5931	2.0	0.0155	Fe-Cr
WSP5931	3.0	0.0105	Fe-Cr

## DERATING - TERMINAL TEMPERATURE



Example: WSP3921 0.0005 Ω



Example: WSP5931 0.0005 Ω



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± 0.5 % ΔR
Short time overload	5 x rated power for 5 s	± 0.5 % ΔR
Low temperature operation	-65 °C for 45 min	± 0.5 % ΔR
High temperature storage	1000 h at +170 °C	± 1.0 % ΔR
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	± 0.5 % ΔR
Mechanical shock	100 g's for 6 ms, 5 pulses	± 0.5 % ΔR
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	± 0.5 % ΔR
Load life at 70 °C	1000 h, 1.5 h "ON", 0.5 h "OFF"	± 1.0 % ΔR
Resistance to solder heat	260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	± 0.5 % ΔR
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	± 1.0 % ΔR

PACKAGING				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSLP3921	16 mm/embossed plastic	330 mm/13"	3000	EA
WSLP5931	24 mm/embossed plastic	330 mm/13"	1500	EA

Note

- Embossed Carrier Tape per EIA-481.



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### Наши контакты:

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331