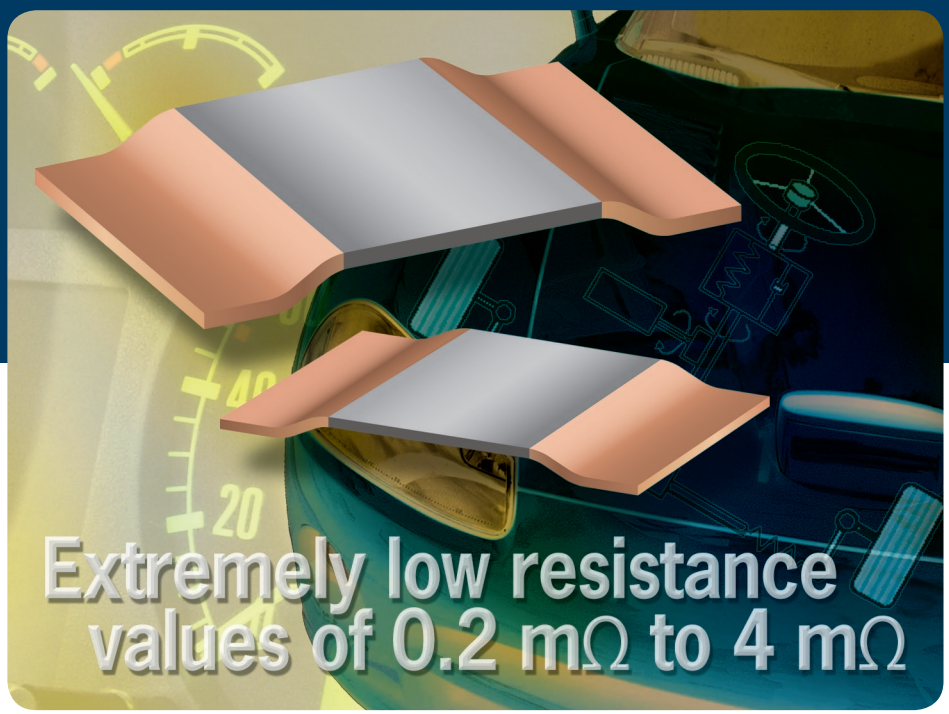
POWER METAL STRIP® RESISTORS

WSL3921 and WSL5931



3-Watt and 5-Watt Surface-Mount Power Metal Strip® Resistors

KEY BENEFITS

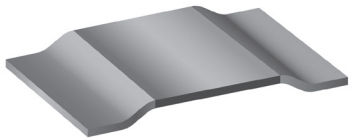
- Extremely low resistance values of 0.2 mΩ to 4 mΩ
- Accurate current sensing with 1% tolerance
- Low RTC resistance element (< 20 ppm/°C) results in accurate current sensing, allowing the use of lower cost ICs
- Enables use of a single resistor instead of multiple, high-value or low-power resistors

APPLICATIONS

- Automotive
- Consumer
- Industrial

Datasheet is available on our web site at www.vishay.com
for WSL3921 and WSL5931 - http://www.vishay.com/doc?30110

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 Iron-chrome or Manganese-copper alloy resistive element
- Very low inductance 0.5nH to 5nH
- Excellent frequency response
- Low thermal EMF
- 100% Lead (Pb)-Free and RoHS Compliant

Pb-free RoHS COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING $P_{70°C}$ W	TOLERANCE %	RESISTANCE VALUES AVAILABLE mΩ	WEIGHT (TYPICAL) g/1000 pcs
WSL3921	3.0	1.0 & 5.0	0.3, 0.5, 1, 2, 3, 4	281
WSL5931	5.0	1.0 & 5.0	0.2, 0.3, 0.5, 1, 2, 3	398

• Part Marking: no part marking on these parts

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSL RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 175 for 0.3mΩ and 0.5mΩ, ± 75 for 1mΩ to 4mΩ
Operating Temperature Range	°C	- 65 / + 170
Maximum Working Voltage	V	$(P \times R)^{1/2}$

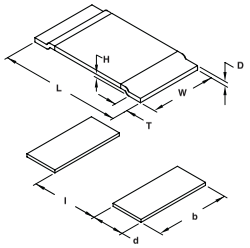
GLOBAL PART NUMBER INFORMATION

Global Part Numbering: WSL3921L5000FEA

W	S	L	3	9	2	1	L	5	0	0	0	F	E	A		

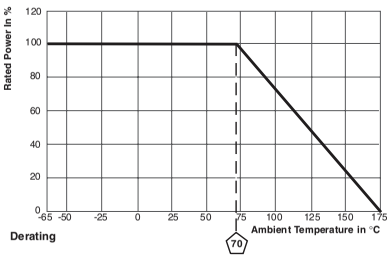
GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
WSL3637 **WSL5931**	**L** = Milliohm **L5000** = 0.0005Ω	**F** = ± 1.0% **J** = ± 5.0%	**EA** = Lead Free, Tape/Reel **EK** = Lead Free, Bulk	(Dash Number) (up to 2 digits) From **1-99** as applicable

DIMENSIONS



MODEL	DIMENSIONS in inches [millimeters]			
	L	W	H	T
WSL3921	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]
WSL5931	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
WSL3921	0.106 ± 0.010 [2.70 ± 0.254]	0.244 ± 0.010 [6.20 ± 0.254]	0.220 ± 0.005 [5.60 ± 0.13]
WSL5931	0.205 ± 0.010 [5.20 ± 0.254]	0.344 ± 0.010 [8.75 ± 0.254]	0.220 ± 0.005 [5.60 ± 0.13]



GLOBAL MODEL	RESISTANCE VALUE mΩ	"D" THICKNESS	ELEMENT MATERIAL
WSL3921	0.3	0.0510	Mn-Cu
WSL3921	0.5	0.0300	Mn-Cu
WSL3921	1.0	0.0150	Mn-Cu
WSL3921	2.0	0.0270	Fe-Cr
WSL3921	3.0	0.0170	Fe-Cr
WSL3921	4.0	0.0130	Fe-Cr
WSL5931	0.2	0.0485	Mn-Cu
WSL5931	0.3	0.0300	Mn-Cu
WSL5931	0.5	0.0180	Mn-Cu
WSL5931	1.0	0.0330	Fe-Cr
WSL5931	2.0	0.0155	Fe-Cr
WSL5931	3.0	0.0105	Fe-Cr

PERFORMANCE

TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	- 55°C to + 150°C, 1000 cycles, 15 minutes at each extreme	± (1.0% + 0.0005Ω) ΔR
Short Time Overload	5 x rated power for 5 seconds	± (0.5% + 0.0005Ω) ΔR
Low Temperature Storage	- 65°C for 45 Min.	± (0.5% + 0.0005Ω) ΔR
High Temperature Exposure	1000 hours at + 175°C	± (1.0% + 0.0005Ω) ΔR
Bias Humidity	+ 85°C, 85% RH, 10% Bias, 1000 hours	± (0.5% + 0.0005Ω) ΔR
Mechanical Shock	100g's for 6 milliseconds, 5 pulses	± (0.5% + 0.0005Ω) ΔR
Vibration	Frequency varied 10 to 2000Hz in one minute, 3 directions, 12 hours	± (0.5% + 0.0005Ω) ΔR
Load Life	1000 hours at + 70°C, 1.5 hours "ON", 0.5 hours "OFF"	± (1.0% + 0.0005Ω) ΔR
Resistance to Solder Heat	+ 260°C Solder, 10 - 12 second dwell, 25mm/second emergence	± (0.5% + 0.0005Ω) ΔR
Moisture Resistance	MIL-STD-202, Method 106, 0% power, 7a and 7b not required	± (0.5% + 0.0005Ω) ΔR

PACKAGING

MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSL3921	16mm/Embossed Plastic	330mm/13"	3000	EA
WSL5931	16mm/Embossed Plastic	330mm/13"	2000	EA

Embossed carrier tape per EIA-481-1A.

Revision 05-Oct-05