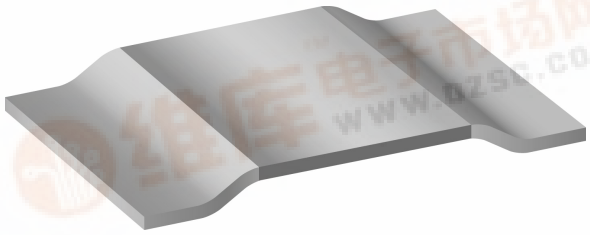
WSL3921 and WSL5931

Vishay Dale

Power Metal Strip® Resistors, 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
- 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)
- 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 pieces
WSL3921	3.0	1.0 and 5.0	0.3, 0.5, 1, 2, 3, 4	281
WSL5931	5.0	1.0 and 5.0	0.2, 0.3, 0.5, 1, 2, 3	398

Note

- Part Marking: no part marking on these parts

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSL RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 225 for 0.2 mΩ, ± 175 for 0.3 mΩ and 0.5 mΩ, ± 75 for 1 mΩ to 4 mΩ
Operating Temperature Range	°C	- 65 to + 170
Maximum Working Voltage	V	$(P \times R)^{1/2}$

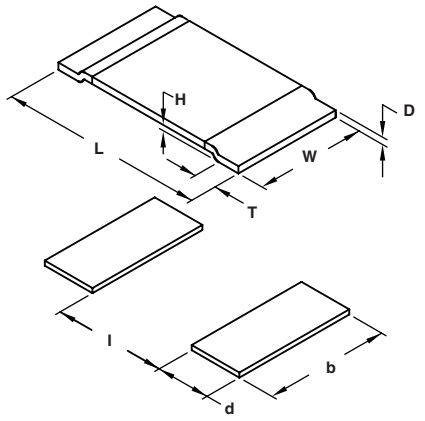
GLOBAL PART NUMBER INFORMATION

GLOBAL PART NUMBERING: WSL3921L5000FEA

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

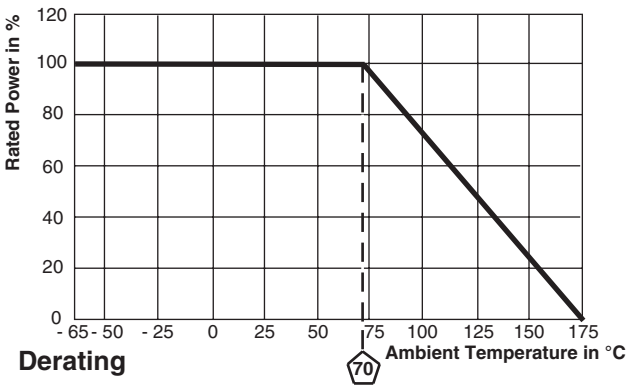
GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
WSL3921 **WSL5931**	**L** = mΩ **L5000** = 0.0005 Ω	**F** = ± 1.0 % **J** = ± 5.0 %	**EA** = Lead (Pb)-free, tape/reel **EK** = Lead (Pb)-free, bulk	(Dash Number) (up to 2 digits) From **1 - 99** as applicable

DIMENSIONS



MODEL	DIMENSIONS in inches [millimeters]			
	L	W	H	T
WSL3921	0.394 ± 0.010	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	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	"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 min at each extreme	± (1.0 % + 0.0005 Ω) Δ*R*
Short Time Overload	5 x rated power for 5 s	± (0.5 % + 0.0005 Ω) Δ*R*
Low Temperature Storage	- 65 °C for 45 min	± (0.5 % + 0.0005 Ω) Δ*R*
High Temperature Exposure	1000 h at + 175 °C	± (1.0 % + 0.0005 Ω) Δ*R*
Bias Humidity	+ 85 °C, 85 % RH, 10 % Bias, 1000 h	± (0.5 % + 0.0005 Ω) Δ*R*
Mechanical Shock	100 g's for 6 ms, 5 pulses	± (0.5 % + 0.0005 Ω) Δ*R*
Vibration	Frequency varied 10 to 2000 Hz in 1 min, 3 directions, 12 h	± (0.5 % + 0.0005 Ω) Δ*R*
Load Life	1000 h at + 70 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.0005 Ω) Δ*R*
Resistance to Solder Heat	+ 260 °C Solder, 10 - 12 s dwell, 25 mm/s emergence	± (0.5 % + 0.0005 Ω) Δ*R*
Moisture Resistance	MIL-STD-202, Method 106, 0 % power, 7a and 7b not required	± (0.5 % + 0.0005 Ω) Δ*R*

PACKAGING

MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSL3921	16 mm/Embossed Plastic	330 mm/13"	3000	EA
WSL5931	16 mm/Embossed Plastic	330 mm/13"	1500	EA

Note

- Embossed carrier tape per EIA-481-1A

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