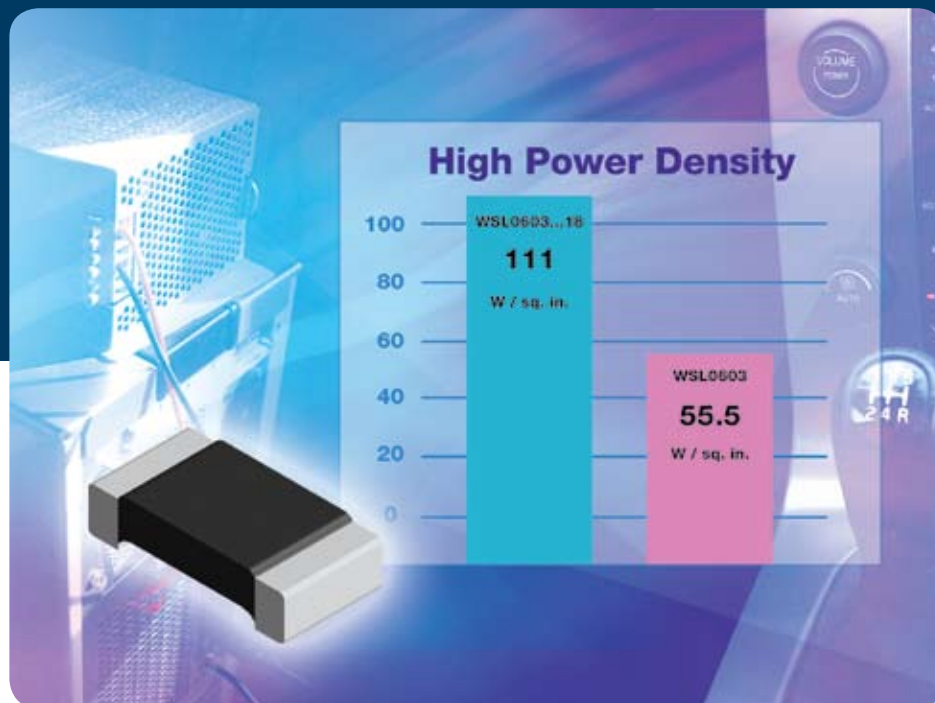




POWER METAL STRIP[®] RESISTORS

WSL0603...18



WSL0603...18

Surface-Mount, High-Power (0.2 Watts) Power Metal Strip[®] Resistors

KEY BENEFITS

- 0.2 W rating is double the power capacity of the standard WSL0603 type resistor
- Resistance range of 0.01 Ω to 0.1 Ω
- Low TCR: ± 75 ppm/ $^{\circ}\text{C}$
- High-temperature capacity: 170 $^{\circ}\text{C}$
- Low thermal EMF: < 3 $\mu\text{V}/^{\circ}\text{C}$

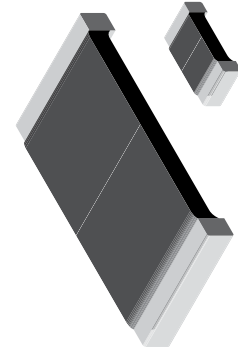
APPLICATIONS

- Telecommunications: power management, dc-to-dc converters
- Computer: dc-to-dc converters, VRMs and Li-Ion battery power management
- Automotive electronic controls: engine/transmission controls, audio electronics, climate controls, anti-lock brakes, etc.

Datasheet is available on our web site at www.vishay.com
for WSL0603...18 - <http://www.vishay.com/doc?31057>



Power Metal Strip® Resistors, High Power (2 x Standard WSL), Low Value (down to 0.001 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 0.001 Ω)
- Specialty selected and stabilized materials allow for high power ratings (2 x standard WSL rating)
- All welded construction
- Solid metal Nickel-Chrome or Manganese-Copper alloy resistive element with low TCR (< 20 ppm/°C)
- Solderable terminations
- Very low inductance 0.5 nH to 5 nH
- Excellent frequency response to 50 MHz
- Low thermal EMF (< 3 μV/°C)
- Lead (Pb)-free version is RoHS compliant



RoHS* COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING P ₇₀ c W	RESISTANCE RANGE Ω	WEIGHT
			(typical) g/1000 pieces
WSL0603...18	0.20	± 0.5 % 0.015 - 0.1	1.9
WSL0805...18	0.25	± 1.0 % 0.01 - 0.2	4.8
WSL1206...18	0.5	0.006 - 0.2	16.2
WSL2010...18	1.0	0.004 - 0.5	38.9
WSL2512...18	2.0	0.003 - 0.01	63.6

Note

* Part Marking: DALE, Value, Tolerance: due to resistor size limitations some resistors will be marked with only the resistance value

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSL RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 275 for 1 mΩ to 2.9 mΩ, ± 150 for 3 mΩ to 4.9 mΩ ± 110 for 5 mΩ to 6.9 mΩ, ± 75 for 7 mΩ to 0.5 Ω
Operating Temperature Range	°C	- 65 to + 170
Maximum Working Voltage	V	(P × R) ^{1/2}

GLOBAL PART NUMBER INFORMATION

NEW GLOBAL PART NUMBERING: WSL2512L0001A18 (PREFERRED PART NUMBERING FORMAT)

W	S	L	2	5	1	2	4	L	0	0	F	T	A	1	B
GLOBAL MODEL	VALUE	TOLERANCE CODE	PACKAGING	SPECIAL											
WSL0603	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 % J = ± 5.0 %	EA = Lead (Pb)-free, tape/reel EK = Lead (Pb)-free, bulk TA = Tin/lead, tape/reel (R86) TG = Tin/lead, tape/reel (R11) BA = Tin/lead, bulk (B43)	18 = "High Power" option											
WSL0805															
WSL1206															
WSL2010															
WSL2512															

HISTORICAL PART NUMBER EXAMPLE: WSL2512-18 0.004 Ω 1 % R86 (WILL CONTINUE TO BE ACCEPTED)

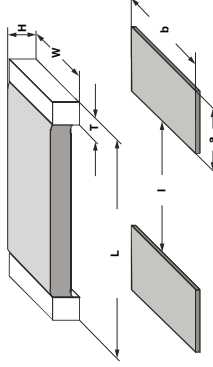
HISTORICAL MODEL: WSL2512-18

RESISTANCE VALUE: 0.004 Ω

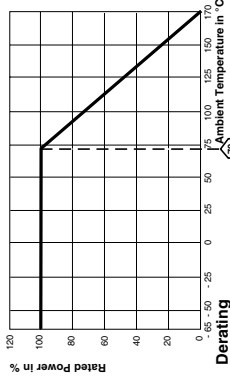
TOLERANCE CODE: 1 %

PACKAGING: R86

DIMENSIONS



MODEL	RESISTANCE RANGE(1)	DIMENSIONS in inches (millimeters)			
		L	W	H	T
WSL0603-18	0.015 - 0.1	0.060 ± 0.010 [1.52 ± 0.254]	0.030 ± 0.010 [0.76 ± 0.254]	0.015 ± 0.005 [0.38 ± 0.127]	0.015 ± 0.010 [0.38 ± 0.254]
WSL0805-18	0.01 - 0.2	0.080 ± 0.010 [2.03 ± 0.254]	0.050 ± 0.010 [1.27 ± 0.254]	0.013 ± 0.005 [0.33 ± 0.127]	0.015 ± 0.010 [0.38 ± 0.254]
WSL1206-18	0.005 - 0.2	0.126 ± 0.010 [3.2 ± 0.254]	0.083 ± 0.010 [2.11 ± 0.254]	0.025 ± 0.010 [0.635 ± 0.254]	0.020 ± 0.010 [0.508 ± 0.254]
WSL2010-18	0.001 - 0.009	0.200 ± 0.010 [5.08 ± 0.254]	0.100 ± 0.010 [2.54 ± 0.254]	0.025 ± 0.010 [0.635 ± 0.254]	0.038 ± 0.010 [0.97 ± 0.254]
WSL2512-18	0.001 - 0.009	0.250 ± 0.010 [6.35 ± 0.254]	0.125 ± 0.010 [3.18 ± 0.254]	0.025 ± 0.010 [0.635 ± 0.254]	0.047 ± 0.010 [1.21 ± 0.254]



MODEL	RESISTANCE RANGE(1)	SOLDER PAD DIMENSIONS in inches (millimeters)			
		a	b	l	l
WSL0603-18	0.015 - 0.1	0.040 [1.01]	0.040 [1.01]	0.020 [0.50]	0.020 [0.50]
WSL0805-18	0.01 - 0.2	0.040 [1.02]	0.050 [1.27]	0.020 [0.50]	0.020 [0.50]
WSL1206-18	0.005 - 0.2	0.050 [1.27]	0.070 [1.78]	0.020 [0.50]	0.025 [1.40]
WSL2010-18	0.001 - 0.009	0.065 [1.65]	0.120 [3.05]	0.025 [0.63]	0.030 [0.76]
WSL2512-18	0.001 - 0.009	0.085 [2.16]	0.145 [3.68]	0.025 [0.63]	0.030 [0.76]

PERFORMANCE

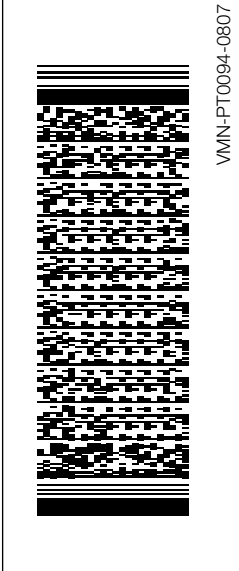
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	- 55 °C to + 150 °C, 1000 cycles, 15 min at each extreme	± 0.5 % + 0.0005 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± 0.5 % + 0.0005 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 h	± 0.5 % + 0.0005 Ω) ΔR
High Temperature Exposure	1000 h at + 170 °C	± 1.0 % + 0.0005 Ω) ΔR
Bias Humidity	+ 85 °C, 85 % RH, 10 % Bias, 1000 h	± 0.5 % + 0.0005 Ω) ΔR
Mechanical Shock	100 g's for 6 ms, 5 pulses	± 0.5 % + 0.0005 Ω) ΔR
Vibration	Frequency varied 10 to 2000 Hz in 1 min, 3 directions, 12 h	± 0.5 % + 0.0005 Ω) ΔR
Load Life	1000 h at rated power, + 70 °C, 1.5 h "ON", 0.5 h "OFF"	± 1.0 % + 0.0005 Ω) ΔR
Resistance to Solder Heat	+ 260 °C Solder, 10 - 12 s dwell, 25 min's emergence	± 0.5 % + 0.0005 Ω) ΔR
Moisture Resistance	MIL-STD-202, Method T06, 0 % power, 7a and 7b not required	± 0.5 % + 0.0005 Ω) ΔR

PACKAGING

MODEL	REEL		DIAMETER	PIECES/REEL	CODE
	TAPE WIDTH	DIAMETER			
WSL0603-18	8 mm/Unruled Paper	178 mm/7"	5000	EA	
WSL0805-18	8 mm/Unruled Paper	178 mm/7"	5000	EA	
WSL1206-18	8 mm/Embossed Plastic	178 mm/7"	4000	EA	
WSL2010-18	12 mm/Embossed Plastic	178 mm/7"	4000	EA	
WSL2512-18	12 mm/Embossed Plastic	178 mm/7"	2000	EA	

Note
• Embossed carrier/tape per EIA-481-1-A

Revision 21-Jan-08



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