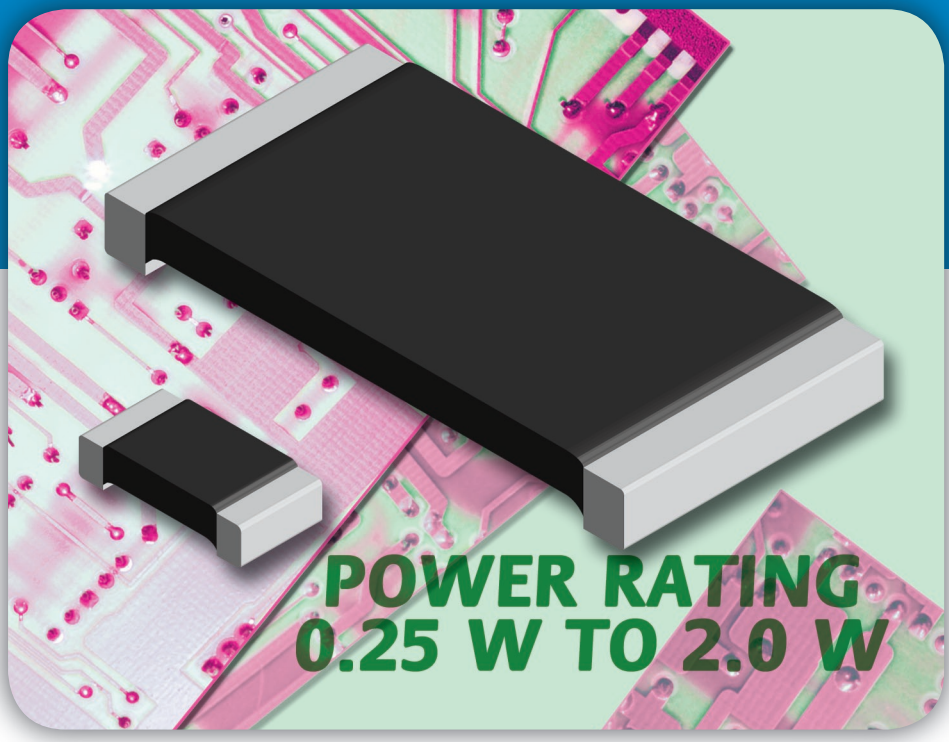
RESISTIVE PRODUCTS –
Model WSL High Power

PRODUCT SHEET



High Power, Surface Mount, Power Metal Strip® Resistors

FEATURES

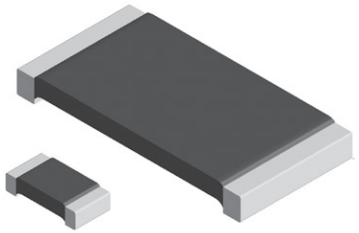
- **4 Industry Standard Sizes:** 0805, 1206, 2010, and 2512
- **Resistance Range:** 0.001 Ω to 0.5 Ω
- **High Power Current Sensing:** double the power to package size compared to standard WSL products
- **Temperature Coefficient:** from ± 75 ppm/°C to ± 275 ppm/°C according to size and resistance value
- **Excellent Frequency Response**
- **Available on tape and reel for auto-insertion**

APPLICATIONS

- **Computer:** DC/DC converters, VRMs, and power management
- **Automotive:** Electronic controls (engine controls, audio electronics, climate controls, anti-lock brakes, etc.)
- **Telecommunications:** Power management, DC/DC converters

The data sheet for Model WSL High Power is available on our web site at www.vishay.com/doc?31057

Power Metal Strip® Resistors, High Power, 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
- Specially selected and stabilized materials allow for high power rating
- All welded construction
- Solid metal Nickel-chrome or Manganese-copper alloy resistive element
- Solderable terminations
- Very low inductance 0.5nH to 5nH
- Excellent frequency response
- Low thermal EMF

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{70°C}$ W	RESISTANCE RANGE Ω	
		± 0.5%	± 1.0%
WSL0805-18	0.25	0.01 - 0.2	0.01 - 0.2
WSL1206-18	0.5	0.01 - 0.2	0.002 - 0.2
WSL2010-18	1.0	0.01 - 0.5	0.001 - 0.5
WSL2512-18	2.0	–	0.001 - 0.01

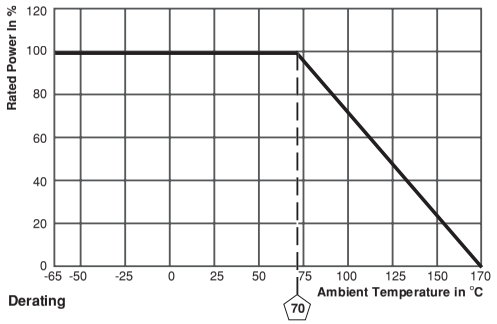
• Part Marking: DALE, Model, Value, Tolerance; due to resistor size limitations some resistors will be marked with only the resistance value

TECHNICAL SPECIFICATIONS

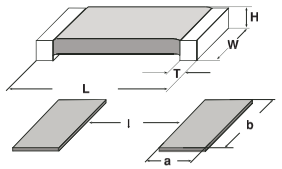
PARAMETER	UNIT	WSL0805	WSL1206	WSL2010	WSL2512
Temperature Coefficient	ppm/°C	± 75	0.002Ω - 0.0029Ω = ± 275 0.003Ω - 0.0049Ω = ± 150 0.005Ω - 0.0069Ω = ± 110 0.007Ω - 0.2Ω = ± 75	0.001Ω - 0.0029Ω = ± 275 0.003Ω - 0.0049Ω = ± 150 0.005Ω - 0.0069Ω = ± 110 0.007Ω - 0.5Ω = ± 75	0.001Ω - 0.0029Ω = ± 275 0.003Ω - 0.0049Ω = ± 150 0.005Ω - 0.0069Ω = ± 110 0.007Ω - 0.01Ω = ± 75
Operating Temperature Range	°C	- 65 / + 170			
Maximum Working Voltage	V	$(P \times R)^{1/2}$			
Weight/1000 pieces (typical)	g	4.8	16.2	38.9	63.6

ORDERING INFORMATION

WSL2010-18	0.01Ω	1.0%	R86
MODEL	RESISTANCE Ω	TOLERANCE ± %	PACKAGING B43 = Bulk Pack R86 = Tape and Reel



DIMENSIONS



MODEL	DIMENSIONS - in inches [millimeters]				
	RESISTANCE RANGE Ω	L	W	H	T
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 [0.330 ± 0.127]	0.015 ± 0.010 [0.381 ± 0.254]
WSL1206-18	0.002 - 0.2	0.126 ± 0.010 [3.20 ± 0.254]	0.063 ± 0.010 [1.60 ± 0.254]	0.025 ± 0.010 [0.635 ± 0.254]	0.020 ± 0.010 [0.508 ± 0.254]
WSL2010-18	0.001 - 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]
	0.007 - 0.5	0.200 ± 0.010 [5.08 ± 0.254]	0.100 ± 0.010 [2.54 ± 0.254]	0.025 ± 0.010 [0.635 ± 0.254]	0.020 ± 0.010 [0.508 ± 0.254]
WSL2512-18	0.001 - 0.0049	0.250 ± 0.010 [6.35 ± 0.254]	0.125 ± 0.010 [3.18 ± 0.254]	0.025 ± 0.010 [0.635 ± 0.254]	0.087 ± 0.010 [2.21 ± 0.254]
	0.005 - 0.0069	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 [1.19 ± 0.254]
	0.007 - 0.01	0.250 ± 0.010 [6.35 ± 0.254]	0.125 ± 0.010 [3.18 ± 0.254]	0.025 ± 0.010 [0.635 ± 0.254]	0.030 ± 0.010 [0.762 ± 0.254]

MODEL	SOLDER PAD DIMENSIONS - in inches [millimeters]			
	RESISTANCE RANGE Ω	a	b	l
WSL0805-18	0.01 - 0.2	0.040 [1.02]	0.050 [1.27]	0.020 [0.50]
WSL1206-18	0.002 - 0.2	0.050 [1.27]	0.070[1.78]	0.055 [1.40]
WSL2010-18	0.001 - 0.0069	0.093 [2.36]	0.120 [3.05]	0.055 [1.40]
	0.007 - 0.5	0.055 [1.40]	0.120 [3.05]	0.130 [3.30]
WSL2512-18	0.001 - 0.0049	0.120 [3.05]	0.145 [3.68]	0.050 [1.27]
	0.005 - 0.0069	0.083 [2.11]	0.145 [3.68]	0.125 [3.18]
	0.007 - 0.01	0.065 [1.65]	0.145 [3.68]	0.160 [4.06]

PERFORMANCE

TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	- 55°C to + 150°C, 1000 cycles, 15 minutes at each extreme	± (0.5% + 0.0005Ω) ΔR
Short Time Overload	5 x rated power for 5 seconds	± (0.5% + 0.0005Ω) ΔR
Low Temperature Storage	- 65°C for 24 hours	± (0.5% + 0.0005Ω) ΔR
High Temperature Exposure	1000 hours @ + 170°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 @ rated power, + 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
WSL0805-18	8mm/Punched Paper	178mm/7"	5000	RT1
WSL1206-18	8mm/Embossed Plastic	178mm/7"	4000	R86
WSL2010-18	12mm/Embossed Plastic	178mm/7"	4000	R86
WSL2512-18	12mm/Embossed Plastic	178mm/7"	2000	R86

Embossed carrier tape per EIA-481-1A

Revision 01-Jul-02