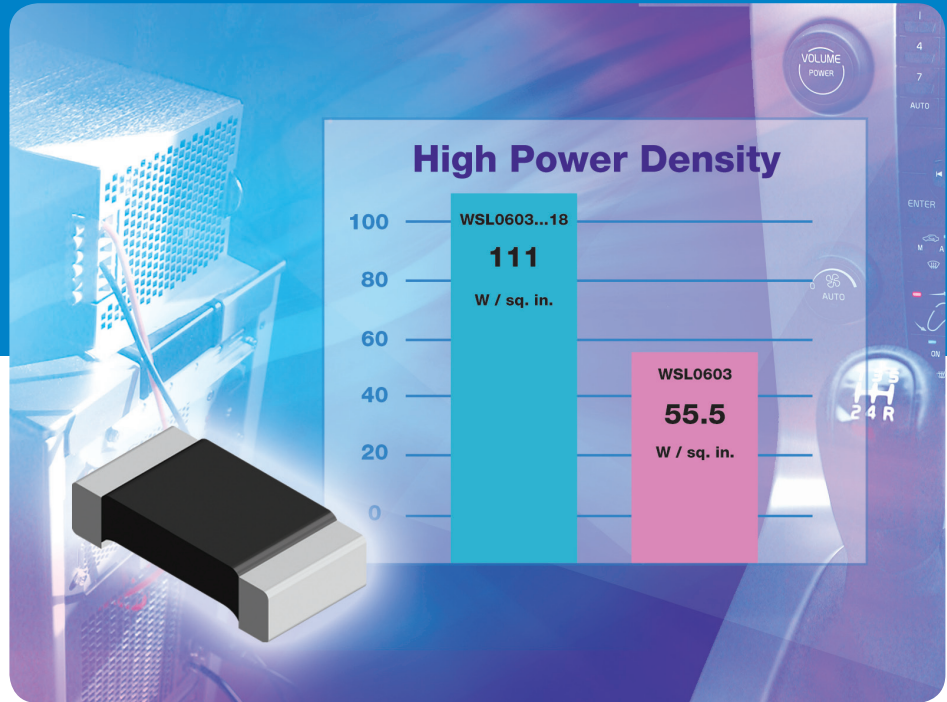




POWER METAL STRIP® RESISTORS

WSL0603...18



Surface-Mount, High-Power (0.2 W) 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/DC converters
- Computer: DC/DC converters, VRMs, and Li-Ion battery power management
- Automotive electronic controls: engine/transmission controls, audio electronics, climate controls, anti-lock brakes, etc.

Power Metal Strip® Resistors, High Power (2 x Standard WSL), Low Value (down to 0.001 Ω), Surface Mount

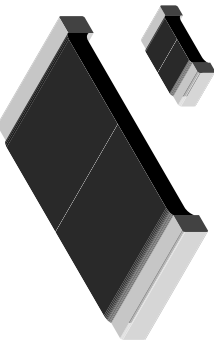
FEATURES

- Ideal for all types of current sensing, including 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)
- Specially 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)
- Compliant to RoHS directive 2002/95/EC

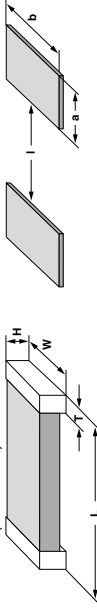


RoHS* compliant

GREEN*
Anticorrosion

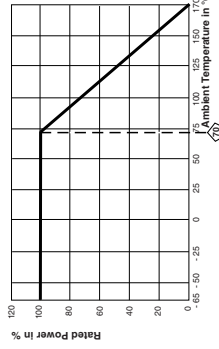


DIMENSIONS in inches (millimeters)



| MODEL | RESISTANCE RANGE (Ω) | DIMENSIONS H | | | SOLDER PAD DIMENSIONS | | |
|------------|----------------------|---------------------------------|----------------------------------|----------------------------------|-----------------------|-----------------|-----------------|
| | | L | W | T | a | b | h |
| WSL0603-18 | 0.01 to 0.1 | 0.069 ± 0.010 (1.75 ± 0.254) | 0.013 ± 0.010 (0.330 ± 0.254) | 0.015 ± 0.005 (0.381 ± 0.127) | 0.010 (0.254) | 0.050 (1.27) | 0.050 (1.27) |
| WSL0805-18 | 0.01 to 0.2 | 0.089 ± 0.010 (2.26 ± 0.254) | 0.013 ± 0.010 (0.330 ± 0.254) | 0.015 ± 0.005 (0.381 ± 0.127) | 0.040 (1.02) | 0.050 (1.27) | 0.050 (1.27) |
| WSL1206-18 | 0.001 to 0.0019 | 0.128 ± 0.010 (3.20 ± 0.254) | 0.063 ± 0.010 (1.60 ± 0.254) | 0.025 ± 0.010 (0.635 ± 0.254) | 0.062 (1.57) | 0.070 (1.78) | 0.030 (0.76) |
| WSL2010-18 | 0.006 to 0.20 | 0.200 ± 0.010 (5.08 ± 0.254) | 0.100 ± 0.010 (2.54 ± 0.254) | 0.025 ± 0.010 (0.635 ± 0.254) | 0.083 (2.11) | 0.120 (3.05) | 0.130 (3.30) |
| WSL2512-18 | 0.001 to 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) | 0.120 (3.05) | 0.145 (3.68) | 0.125 (3.18) |
| DERATING | 0.007 to 0.04 | | | | | | |

DERATING



| GLOBAL MODEL | SIZE | POWER RATING P _W , °C | RESISTANCE RANGE | | WEIGHT (typical) g/1000 pieces |
|--------------|------|-------------------------------------|------------------|---------|--------------------------------------|
| | | | Ω | % | |
| WSL0603...18 | 0603 | 0.20 | 0.01 to 0.1 | ± 1.0 % | 1.9 |
| WSL0805...18 | 0805 | 0.25 | 0.01 to 0.2 | ± 1.0 % | 4.8 |
| WSL1206...18 | 1206 | 0.5 | 0.006 to 0.2 | ± 1.0 % | 16.2 |
| WSL2010...18 | 2010 | 1.0 | 0.004 to 0.5 | ± 1.0 % | 38.9 |
| WSL2512...18 | 2512 | 2.0 | 0.003 to 0.04 | ± 1.0 % | 63.6 |

Note: Part marking, Value; tolerance: Due to resistor size limitations some resistors will be marked with only the resistance value.

TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | 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 x R) ^{1/2} |

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: WSL25124L000FTA18 (preferred part numbering format)

| | | | | | | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W | S | L | 2 | 5 | 1 | 2 | 4 | L | 0 | 0 | 0 | F | T | A | 1 | 8 |
| PACKAGING CODE | | | | | | | | | | | | | | | | |
| RESISTANCE VALUE | | | | | | | | | | | | | | | | |
| TOLERANCE CODE | | | | | | | | | | | | | | | | |
| SPECIAL | | | | | | | | | | | | | | | | |
| PACKAGING CODE | | | | | | | | | | | | | | | | |
| RESISTANCE VALUE | | | | | | | | | | | | | | | | |
| TOLERANCE CODE | | | | | | | | | | | | | | | | |
| SPECIAL | | | | | | | | | | | | | | | | |
| PACKAGING CODE | | | | | | | | | | | | | | | | |

Historical Part Number: Example: WSL2512-18 0.004 Ω 1 % R86 (will continue to be accepted)

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, VR |
| Short time overload | 5 x rated power for 3 s | ± 0.3 % + 0.0005 Ω, VR |
| Low temperature storage | 100 °C for 2 h | ± 0.3 % + 0.0005 Ω, VR |
| High temperature exposure | 100 °C for 2 h | ± 0.3 % + 0.0005 Ω, VR |
| High humidity | + 85 °C, 85 % RH, 10 % bias, 1000 h | ± 0.5 % + 0.0005 Ω, VR |
| Mechanical shock | 100 g's for 5 pulses | ± 0.5 % + 0.0005 Ω, VR |
| Vibration | Frequency varied 10 Hz to 2000 Hz, 5 pulses | ± 0.5 % + 0.0005 Ω, VR |
| Life test | 1000 h at rated power, 70 °C, 1 h "ON", 0.5 h "OFF" | ± 1.0 % + 0.0005 Ω, VR |
| Pressure to solder heat | -260 ± 30 psi, 10 s to 12 s dwell, 25 mm/s emergence | ± 0.5 % + 0.0005 Ω, VR |
| Moisture resistance | MIL-STD-202, method 106, 0 % power, 7a and 7b not required | ± 0.5 % + 0.0005 Ω, VR |

PACKAGING

| MODEL | TAPE WIDTH | REEL | PIECES/REEL | CODE |
|------------|------------------------|-----------|-------------|------|
| WSL0603-18 | 8 mm/purchased paper | 178 mm/7" | 5000 | EA |
| WSL0805-18 | 8 mm/purchased 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-481-1A.

Revision 26-Jul-10

Build Vishay into your Design

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