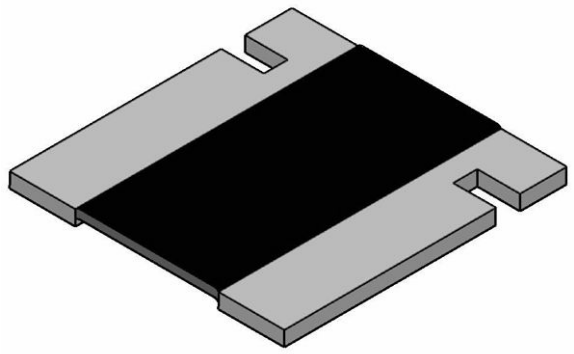
# Power Metal Strip® Resistors, Low Value (down to 0.001 Ω), Surface Mount, 4-Terminal



## FEATURES

- 4-Terminal design allows for 0.5 % resistance tolerance down to 0.001 Ω
- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments and power amplifiers
- Proprietary processing technique produces extremely low resistance values (down to 0.001 Ω)
- All welded construction
- Solid metal nickel-chrome alloy resistive element with low TCR (< 20 ppm/°C)
- Solderable terminations
- Low thermal EMF (< 3 µV/°C)
- Very low inductance, 0.5 nH to 5 nH
- Excellent frequency response to 50 MHz
- AEC-Q200 qualified (1)
- Compliant to RoHS Directive 2002/95/EC

AUTOMOTIVE GRADE

Pb-free Available

e3

RoHS* COMPLIANT

GREEN (5-2008)** Available

**Note**

(1) Flame retardance test may not be applicable to some resistor technologies.

## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | SIZE | POWER RATING $P_{70\,°C}$ W | TOLERANCE ± % | RESISTANCE VALUE RANGE Ω | WEIGHT (typical) g/1000 pieces |
|---|---|---|---|---|---|
| WSL3637 | 3637 | 3.0 | 0.5 and 1.0 | 0.001 to 0.01 | 274.3 |

## TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
|---|---|---|
| Temperature coefficient | ppm/°C | ± 75 for 0.001 Ω to 0.0029 Ω,<br>± 50 for 0.003 Ω to 0.010 Ω |
| Operating temperature range | °C | - 65 to + 170 |
| Maximum working voltage | V | $(P \times R)^{1/2}$ |

## GLOBAL PART NUMBER INFORMATION

**Global Part Numbering example: WSL36375L000FTA (preferred part numbering format)**

| W | S | L | 3 | 6 | 3 | 7 | 5 | L | 0 | 0 | 0 | F | T | A | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| GLOBAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING CODE | SPECIAL |
|---|---|---|---|---|
| **WSL3637** | **L** = mΩ*<br>**R** = Decimal<br>**5L000** = 0.005 Ω<br>**R0100** = 0.01 Ω<br>* Use "**L**" for resistance values < 0.01 Ω | **D** = ± 0.5 %<br>**F** = ± 1.0 % | **EA** = Lead (Pb)-free, tape/reel<br>**EK** = Lead (Pb)-free, bulk<br>**TA** = Tin/lead, tape/reel (R86)<br>**BA** = Tin/lead, bulk (B43) | (Dash number)<br>(up to 2 digits)<br>From **1 to 99** as applicable |

**Historical Part Numbering example: WSL3637 0.005 Ω 1 % R86 (will continue to be accepted)**

| WSL3637 | 0.005 Ω | 1 % | R86 |
|---|---|---|---|
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING CODE |

* Pb containing terminations are not RoHS compliant, exemptions may apply
** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902



For technical questions, contact: ww2bresistors@vishay.com

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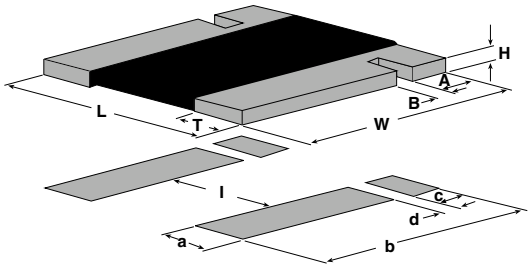
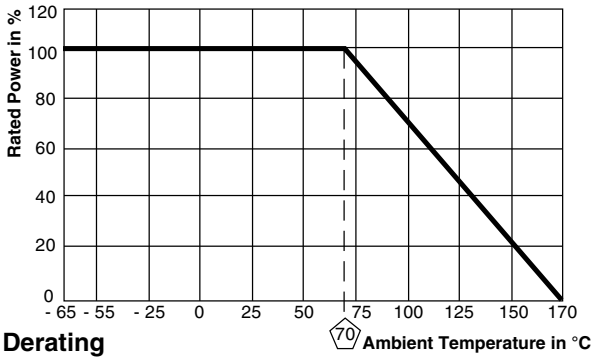
## DIMENSIONS




| MODEL | DIMENSIONS in inches (millimeters) | | | | | | |
|---|---|---|---|---|---|---|---|
| | RESISTANCE RANGE (Ω) | W | L | H | T | A | B |
| WSL3637 | 0.002 to 0.01 | 0.370 ± 0.010 (9.40 ± 0.254) | 0.360 ± 0.010 (9.14 ± 0.254) | 0.025 ± 0.010 (0.635 ± 0.254) | 0.086 ± 0.010 (2.18 ± 0.254) | 0.061 ± 0.010 (1.55 ± 0.254) | 0.032 ± 0.010 (0.813 ± 0.254) |
| | 0.001 to 0.0019 | | | | 0.138 ± 0.010 (3.51 ± 0.254) | | |

| MODEL | SOLDER PAD DIMENSIONS in inches (millimeters) | | | | | |
|---|---|---|---|---|---|---|
| | RESISTANCE RANGE (Ω) | a | b | c | d | l |
| WSL3637 | 0.002 to 0.01 | 0.116 (2.95) | 0.390 (9.91) | 0.066 (1.68) | 0.024 (0.610) | 0.178 (4.52) |
| | 0.001 to 0.0019 | 0.168 (4.27) | 0.390 (9.91) | 0.066 (1.68) | 0.024 (0.610) | 0.074 (1.88) |

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## 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) 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 24 h | ± (0.5 % + 0.0005 Ω) Δ*R* |
| High temperature exposure | 1000 h at + 170 °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 Hz to 2000 Hz in 1 min, 3 directions, 12 h | ± (0.5 % + 0.0005 Ω) Δ*R* |
| Load life | 1000 h at rated power, + 70 °C, 1.5 h "ON", 0.5 h "OFF" | ± (1.0 % + 0.0005 Ω) Δ*R* |
| Solder heat | + 260 °C solder, 10 s to 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 |
| WSL3637 | 16 mm/embossed plastic | 330 mm/13" | 4000 | EA |

**Note**

- Embossed Carrier Tape per EIA-481.

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