

## 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 <sup>(1)</sup>
- Compliant to RoHS Directive 2002/95/EC

AUTOMOTIVE GRADE



RoHS\* COMPLIANT  
GREEN (S-2009)\*\* Available

### Note

<sup>(1)</sup> Flame retardance test may not be applicable to some resistor technologies.

| STANDARD ELECTRICAL SPECIFICATIONS |      |                                                     |                  |                             |                                   |
|------------------------------------|------|-----------------------------------------------------|------------------|-----------------------------|-----------------------------------|
| GLOBAL MODEL                       | SIZE | POWER RATING<br>$P_{70\text{ }^\circ\text{C}}$<br>W | TOLERANCE<br>± % | RESISTANCE VALUE RANGE<br>Ω | WEIGHT (typical)<br>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<br>WSL3637 |   |   | RESISTANCE VALUE<br>L = mΩ*<br>R = Decimal<br>5L000 = 0.005 Ω<br>R0100 = 0.01 Ω<br><br>* Use "L" for resistance values < 0.01 Ω |   |   |   | TOLERANCE CODE<br>D = ± 0.5 %<br>F = ± 1.0 % |   | PACKAGING CODE<br>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) |   |   |   | SPECIAL<br>(Dash number) (up to 2 digits) 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](http://www.vishay.com/doc/99902)

**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<br>(9.40 ± 0.254) | 0.360 ± 0.010<br>(9.14 ± 0.254) | 0.025 ± 0.010<br>(0.635 ± 0.254) | 0.086 ± 0.010<br>(2.18 ± 0.254) | 0.061 ± 0.010<br>(1.55 ± 0.254) | 0.032 ± 0.010<br>(0.813 ± 0.254) |
|         | 0.001 to 0.0019                    |                                 |                                 |                                  | 0.138 ± 0.010<br>(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) |



| 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 Hz 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 |
| Solder heat               | + 260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence         | ± (0.5 % + 0.0005 Ω) ΔR |
| Moisture resistance       | MIL-STD-202, method 106, 0 % power, 7a and 7b not required     | ± (0.5 % + 0.0005 Ω) ΔR |

| 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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