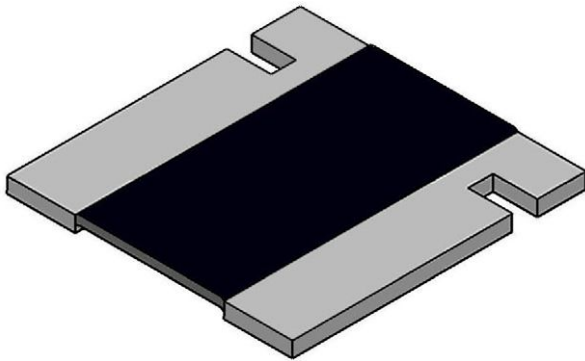


Power Metal Strip® Resistors, Low Value (Down to 0.001 Ω), Surface-Mount, 4-Terminal



FEATURES

- 4-terminal design allows for 0.5 % resistance tolerance down to 0.001 Ω
- All welded construction of the Power Metal Strip® resistors are ideal for all types of current sensing, voltage division, and pulse applications
- Proprietary processing technique produces extremely low resistance values (down to 0.001 Ω)
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Solid metal nickel-chrome alloy resistive element with low TCR (< 20 ppm/°C)
- 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⁾
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



LINKS TO ADDITIONAL RESOURCES



Notes

- * This datasheet provides information about parts that are RoHS-compliant and/or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details
- ⁽¹⁾ Flame retardance test may not be applicable to some resistor technologies

| STANDARD ELECTRICAL SPECIFICATIONS | | | | | |
|------------------------------------|------|---|------------------|--------------------------------|--------------------------------------|
| GLOBAL MODEL | SIZE | POWER RATING $P_{70^\circ\text{C}}$ 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 |

Note

- Qualified to AEC-Q200 rev. D

| GLOBAL PART NUMBER INFORMATION | | | | | | | | | | | | | | | | |
|--|---|---|--|---|---|-----------------------------|---|--|---|---|---|---|---|---|--|--|
| Global Part Numbering Example: WSL36375L000FEA (visit www.vishay.net Vishay Dale parts numbering manual for all options) | | | | | | | | | | | | | | | | |
| W | S | L | 3 | 6 | 3 | 7 | 5 | L | 0 | 0 | 0 | F | E | A | | |
| GLOBAL MODEL (7 digits) | | | RESISTANCE VALUE ⁽¹⁾ (5 digits) | | | TOLERANCE CODE (1 digit) | | PACKAGING CODE ⁽²⁾ (2 digits) | | | SPECIAL (2 digits) | | | | | |
| WSL3637 | | | 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 % | | EA = lead (Pb)-free, tape / reel EK = lead (Pb)-free, bulk TA = tin / lead, tape/reel (R86) BA = tin / lead, bulk (B43) | | | (dash number) (up to 2 digits) from 1 to 99 as applicable | | | | | |

Notes

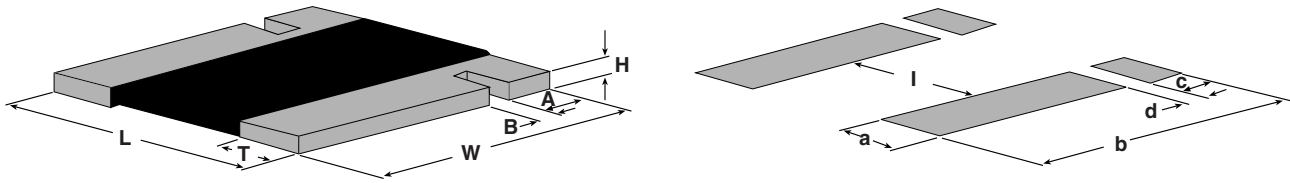
- Per PCN-DR-00009-2022-REV-0, WSL marking will be removed effective March 1st, 2023
- ⁽¹⁾ WSL marking (www.vishay.com/doc?30327)
- ⁽²⁾ Packaging code: EB (lead (Pb)-free) and TB (tin / lead) are non-standard packaging codes designating 1000 piece reels. These non-standard packaging codes are identical to our standard EA (lead (Pb)-free) and TA (tin / lead), except that they have a package quantity of 1000 pieces

PATENT(S): www.vishay.com/patents

This Vishay product is protected by one or more United States and international patents.

| TECHNICAL SPECIFICATIONS | | |
|-----------------------------|--------|------------------------------|
| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
| Temperature coefficient | ppm/°C | ± 50 for 0.003 Ω to 0.010 Ω |
| | | ± 75 for 0.001 Ω to 0.0029 Ω |
| Element TCR | ppm/°C | < 20 |
| Operating temperature range | °C | -65 to +170 |
| Maximum working voltage | V | $(P \times R)^{1/2}$ |

DIMENSIONS



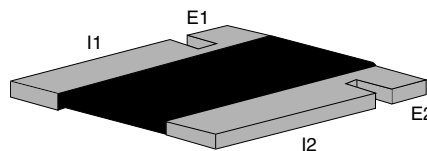
Note

- 3D models available: www.vishay.com/doc?30303

| 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) | | |

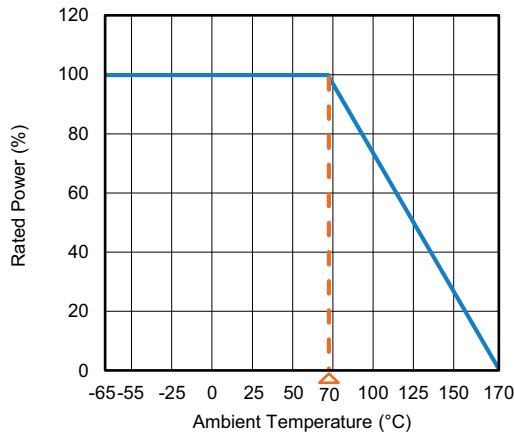
| MODEL | SOLDER PAD DIMENSIONS in inches (millimeters) | | | | | |
|---------|---|--------------|--------------|--------------|---------------|--------------|
| | RESISTANCE RANGE (Ω) | a | b | c | d | I |
| WSL3637 | 0.002 to 0.01 | 0.116 (2.95) | 0.390 (9.91) | 0.066 (1.68) | 0.024 (0.610) | 0.178 (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) |

4 TERMINAL KELVIN CONNECTIONS



Notes

- E1 and E2: voltage sense connection
- I1 and I2: current connection

DERATING

PULSE CAPABILITY

www.vishay.com/en/resistors/joulewizard/

| PERFORMANCE | | |
|---------------------------|--|-------------|
| TEST | CONDITIONS OF TEST | TEST LIMITS |
| Thermal shock | -55 °C to +150 °C, 1000 cycles, 15 min at each extreme | ± 0.5 % |
| Short time overload | 5 x rated power for 5 s | ± 0.5 % |
| Low temperature storage | -65 °C for 24 h | ± 0.5 % |
| High temperature exposure | 1000 h at +170 °C | ± 1.0 % |
| Bias humidity | +85 °C, 85 % RH, 10 % bias, 1000 h | ± 0.5 % |
| Mechanical shock | 100 g's for 6 ms, 5 pulses | ± 0.5 % |
| Vibration | Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h | ± 0.5 % |
| Load life | 1000 h at rated power, +70 °C, 1.5 h "ON", 0.5 h "OFF" | ± 1.0 % |
| Solder heat | +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence | ± 0.5 % |
| Moisture resistance | MIL-STD-202, method 106, 0 % power, 7a and 7b not required | ± 0.5 % |

Note

- Contact ww2bresistors@vishay.com for application specific performance requirements or qualification data. Typical performance is better than stated test limits

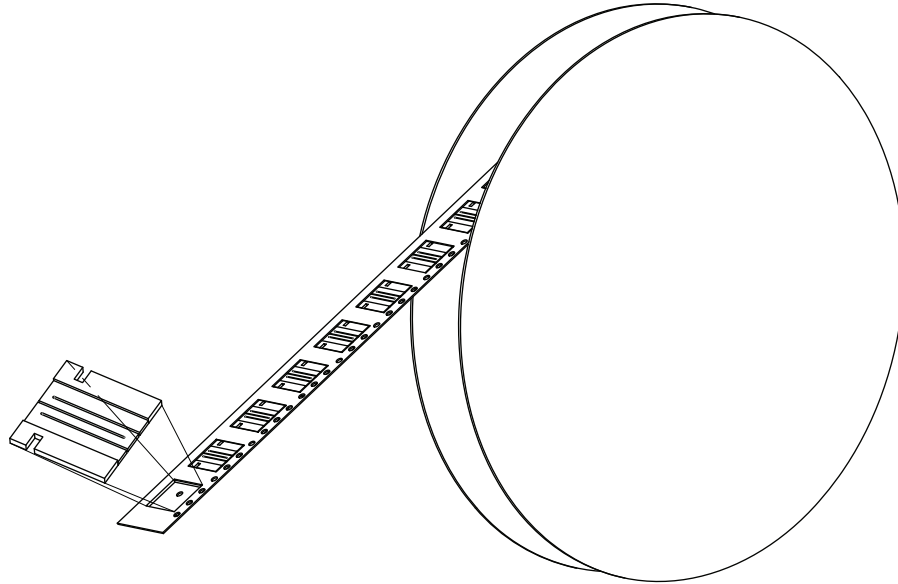
| PACKAGING (1) | | | | |
|---------------|--------------------------|--------------|-------------|------|
| MODEL | REEL | | | |
| | TAPE WIDTH | DIAMETER | PIECES/REEL | CODE |
| WSL3637 | 16 mm / embossed plastic | 330 mm / 13" | 4000 | EA |

Notes

- Embossed carrier tape per EIA-481
- (1) Additional packaging details at www.vishay.com/doc?20051



REEL ORIENTATION



| LINKS TO RELATED DOCUMENTS | |
|---|--|
| SELECTOR GUIDE | |
| Overview of Automotive Grade Products | www.vishay.com/doc?49924 |
| TECHNICAL NOTES | |
| SMD Current Sense: AEC-Q200 vs. Vishay Qualification | www.vishay.com/doc?30416 |
| MIL-PRF vs. AEC-Q200: Do You Know What You Are Getting? | www.vishay.com/doc?11000 |
| WHITE PAPER | |
| Thermal Management for Surface-Mount Devices | www.vishay.com/doc?30380 |
| Temperature Coefficient of Resistance for Current Sensing | www.vishay.com/doc?30405 |



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