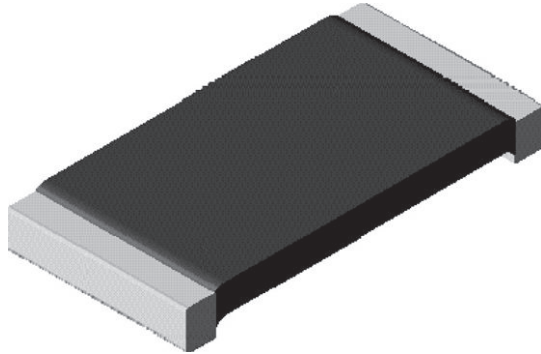


Power Metal Strip® Resistors, High Temperature (275 °C), Low Value (Down to 0.01 Ω), Surface-Mount



LINKS TO ADDITIONAL RESOURCES



FEATURES

- 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
- All welded construction of the Power Metal Strip® resistors are ideal for all types of current sensing, voltage division and pulse applications
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Specially selected and stabilized materials allow for high temperature derating (to +275 °C)
- Solid metal nickel-chrome alloy resistive element with low TCR (< 20 ppm/°C)
- Very low inductance (< 5 nH)
- Excellent frequency response to 50 MHz
- Low thermal EMF (< 3 μV/°C)
- AEC-Q200 qualified ⁽¹⁾
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



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
- Follow link to Overview of Automotive Grade Products for more details: www.vishay.com/doc?49924
- “SMD Current Sense: AEC-Q200 vs. Vishay Qualification” technical note: www.vishay.com/doc?30416
- ⁽¹⁾ Flame retardance test may not be applicable to some resistor technologies

STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | SIZE | POWER RATING $P_{70\text{ }^\circ\text{C}}$ W | TOLERANCE ± % | RESISTANCE VALUE RANGE Ω | WEIGHT (typical) g/1000 pieces |
|--------------|------|---|------------------|--------------------------------|--------------------------------------|
| WSLT2512 | 2512 | 1.0 ⁽¹⁾ | 0.5, 1.0 | 0.01 to 0.50 | 63.6 |

Notes

- Part marking: DALE, value, tolerance code
- “Thermal Management for Surface-Mount Devices” white paper: www.vishay.com/doc?30380
- ⁽¹⁾ For values above 0.1 Ω derate linearly to 80 % rated power at 0.5 Ω

GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: **WSLT2512R0100FEA** (visit www.vishay.net Vishay Dale parts numbering manual for all options)

W S L T 2 5 1 2 R 0 1 0 0 F E A

GLOBAL MODEL
WSLT2512

RESISTANCE VALUE ⁽¹⁾
R = decimal
R0100 = 0.01 Ω

TOLERANCE CODE
D = ± 0.5 %
F = ± 1.0 %

PACKAGING CODE ⁽²⁾
EA = lead (Pb)-free, tape / reel
EK = lead (Pb)-free, bulk

SPECIAL
Reserved for future specials

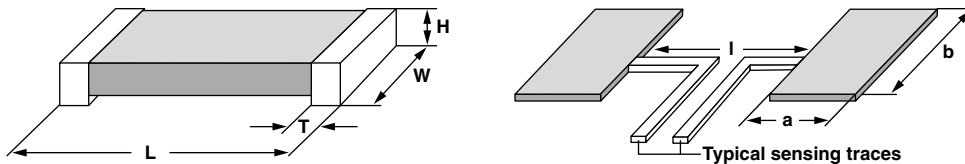
Notes

- 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

| TECHNICAL SPECIFICATIONS | | |
|---|--------|------------------------------|
| PARAMETER | UNIT | WSL RESISTOR CHARACTERISTICS |
| Component temperature coefficient (including terminal) ⁽¹⁾ measured from -55 °C to +150 °C | ppm/°C | ± 75 |
| Element TCR ⁽²⁾ | ppm/°C | < 20 |
| Operating temperature range | °C | -65 to +275 |
| Maximum working voltage ⁽³⁾ | V | $(P \times R)^{1/2}$ |

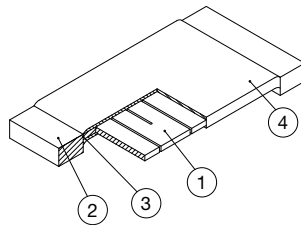
Notes

- “Temperature Coefficient of Resistance for Current Sensing” white paper: www.vishay.com/doc?30405
- (1) Component TCR - total TCR that includes the TCR effects of the resistor element and the copper terminal
- (2) Element TCR - only applies to the alloy used for the resistor element; refer to item 1 in the construction illustration on the following page
- (3) Maximum working voltage - the WSL is not voltage sensitive, but is limited by power / energy dissipation and is also not ESD sensitive

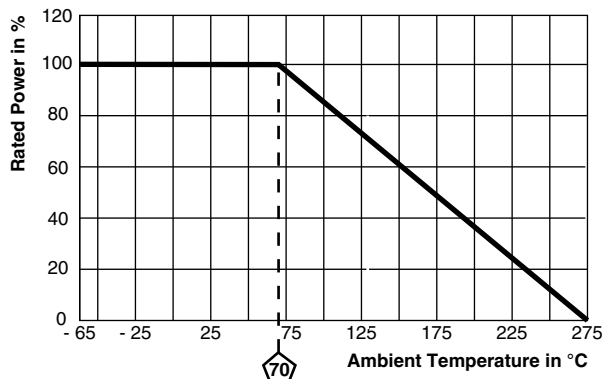
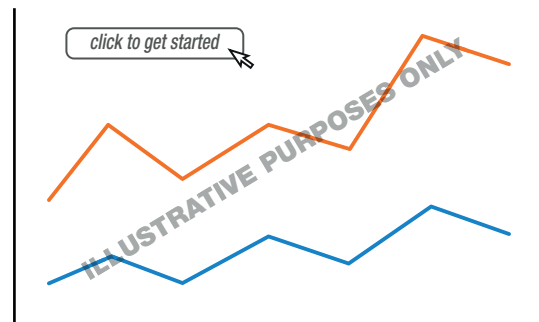
DIMENSIONS in inches (millimeters)

Notes

- 3D models available: www.vishay.com/doc?30338
- Surface-mount solder profile recommendations: www.vishay.com/doc?31052

| MODEL | DIMENSIONS | | | | SOLDER PAD DIMENSIONS | | |
|----------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|-----------------------|-----------------|-----------------|
| | L | W | H | T | a | b | l |
| WSLT2512 | 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) | 0.065 (1.65) | 0.145 (3.68) | 0.160 (4.06) |

WELDED CONSTRUCTION 2512


- 1) Resistive element: solid metal nickel-chrome or manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- 2) Plated terminal: Solid copper, 100 % Sn (100 μ" min.) with 100 % Ni (20 μ" min.) under layer finish
- 3) Terminal / element weld
- 4) Silicone coating with ink print

DERATING

PULSE CAPABILITY

www.vishay.com/resistors/power-metal-strip-calculator



| 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 operation | -65 °C for 24 h | ± 0.5 % |
| High temperature exposure | 1000 h at +275 °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 at 70 °C | 1000 h, 1.5 h "ON", 0.5 h "OFF" | ± 1.0 % |
| Load life at 150 °C | 1000 h, 1.5 h "ON", 0.5 h "OFF" | ± 1.0 % |
| Resistance to 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, 7b not required | ± 1.0 % |

| PACKAGING | | | | |
|-----------|--------------------------|-------------|-------------|------|
| MODEL | REEL | | | |
| | TAPE WIDTH | DIAMETER | PIECES/REEL | CODE |
| WSLT2512 | 12 mm / embossed plastic | 178 mm / 7" | 2000 | EA |

Notes

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



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