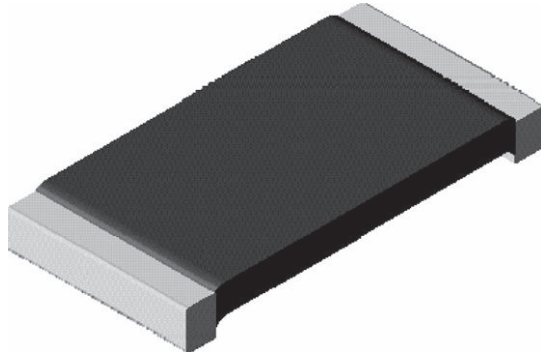




Power Metal Strip® Resistors, High Temperature (275 °C), Low Value (down to 0.01 Ω), Surface Mount



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

AUTOMOTIVE GRADE



RoHS COMPLIANT
HALOGEN FREE
GREEN (5-2008)

DESIGN SUPPORT TOOLS

[click logo to get started](#)

3D Models Available

Design Tools Available

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
- ⁽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
- ⁽¹⁾ For values above 0.1 Ω derate linearly to 80 % rated power at 0.5 Ω

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

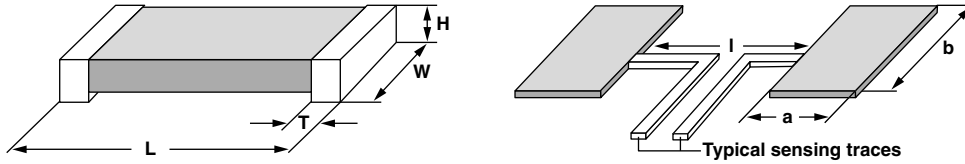
Notes

- ⁽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

| 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 | | | | RESISTANCE VALUE ⁽¹⁾ | | | TOLERANCE CODE | | PACKAGING CODE ⁽²⁾ | | | | SPECIAL | | | | |
| WSLT2512 | | | | R = decimal R0100 = 0.01 Ω | | | D = ± 0.5 % F = ± 1.0 % | | EA = lead (Pb)-free, tape / reel EK = lead (Pb)-free, bulk | | | | Reserved for future specials | | | | |

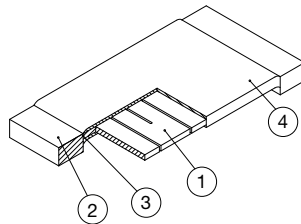
Notes

- ⁽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

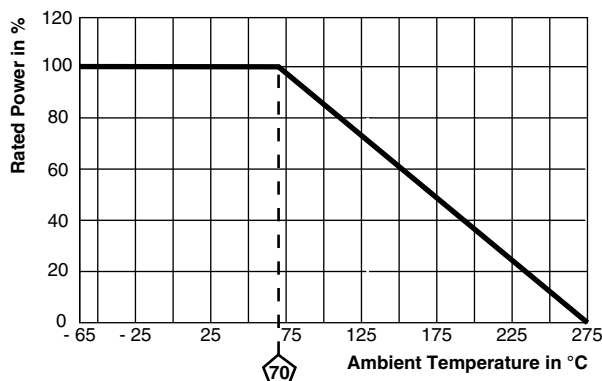
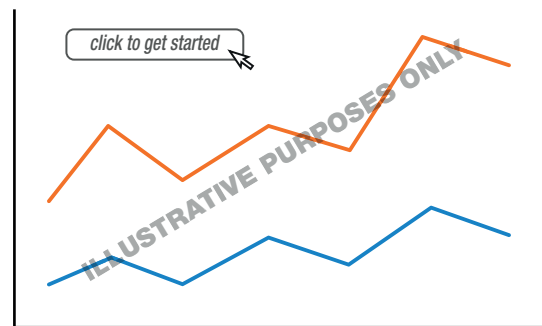
DIMENSIONS in inches (millimeters)

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 | 5x 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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