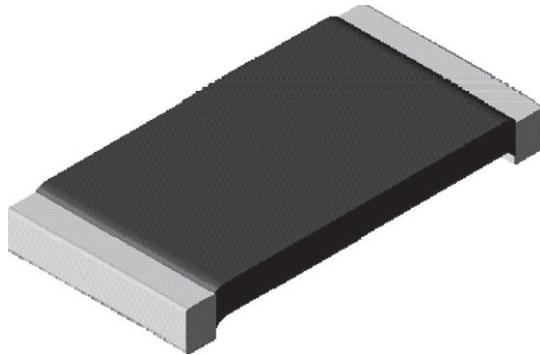


Power Metal Strip® Resistors High Temperature (275 °C), High Power (1 W), Low Value (Down to 0.01 Ω), Surface Mount



LINKS TO ADDITIONAL RESOURCES



3D Models



Design Tools

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

FEATURES

- 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
- Sulfur resistance by construction that is unaffected by high sulfur environments
- Specially selected and stabilized materials allow for high temperature derating (to +275 °C) and high power ratings (2 x standard WSL rating)
- Solid metal nickel-chrome alloy resistive element with low TCR (< 20 ppm/°C)
- Very low inductance (< 5 nH)
- 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)

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 |
|---------------|------|---|-----------------|--------------------------------|--------------------------------------|
| WSLT2010...18 | 2010 | 1.0 | ± 0.5 and ± 1.0 | 0.01 to 0.50 | 38.9 |

TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | 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

- Component TCR - total TCR that includes the TCR effects of the resistor element and the copper terminal
- Element TCR - only applies to the alloy used for the resistor element; refer to item 1 in the construction illustration on the following page
- 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: **WSLT2010R0100FEA18** (visit www.vishay.net Vishay Dale parts numbering manual for all options)

W S L T 2 0 1 0 R 0 1 0 0 F E A 1 8

| |
|-----------------|
| GLOBAL MODEL |
| WSLT2010 |

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

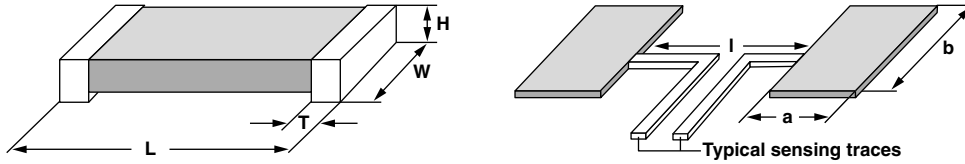
| |
|--|
| TOLERANCE CODE |
| D = ± 0.5 % F = ± 1.0 % |

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

| |
|---------------------------------|
| SPECIAL |
| 18 = "high power" option |

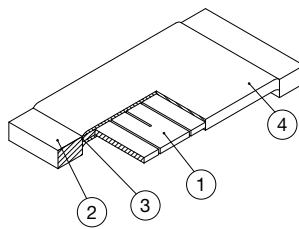
Notes

- WSL marking (www.vishay.com/doc?30327)
- Packaging code: EB (lead (Pb)-free) and TB (tin / lead) are non-standard packaging codes that designate 1000 piece reel quantities. 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

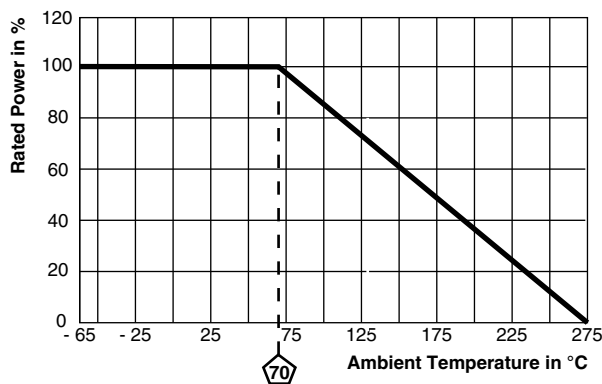
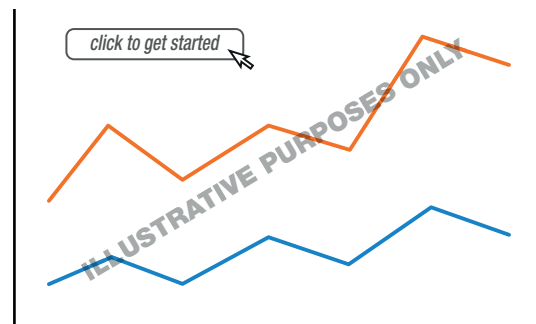
DIMENSIONS in inches (millimeters)

Notes

- 3D models available: www.vishay.com/doc?30339
- Surface mount solder profile recommendations: www.vishay.com/doc?31052

| MODEL | DIMENSIONS | | | | SOLDER PAD DIMENSIONS | | |
|---------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|-----------------------|-----------------|-----------------|
| | L | W | H | T | a | b | l |
| WSLT2010...18 | 0.200 ± 0.010 (5.08 ± 0.254) | 0.100 ± 0.010 (2.54 ± 0.254) | 0.025 ± 0.010 (0.635 ± 0.254) | 0.020 ± 0.010 (0.508 ± 0.254) | 0.055 (1.40) | 0.120 (3.05) | 0.130 (3.30) |

WELDED CONSTRUCTION 2010


- 1) Resistive element:
solid metal nickel-chrome
or manganese-copper
alloy resistive element with
low TCR (< 20 ppm/°C)
- 2) Terminal: Solid copper,
100 % Sn (200 μ" min.) with
100 % Ni (40 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 | ± 2.0 % |
| 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 (1) | | | | |
|---------------|--------------------------|-------------|-------------|------|
| MODEL | REEL | | | |
| | TAPE WIDTH | DIAMETER | PIECES/REEL | CODE |
| WSLT2010...18 | 12 mm / embossed plastic | 178 mm / 7" | 4000 | EA |

Notes

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



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