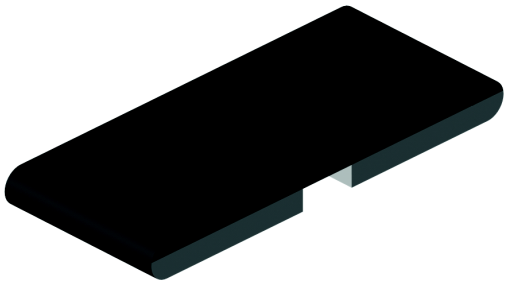
# WSH2818

Vishay Dale

# Power Metal Strip® Resistors, High Power (5 W) Low Value (down to 0.001 Ω), Surface Mount



## FEATURES

- Improved thermal management incorporated into design
- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifier
- Proprietary processing technique produces extremely low resistance values
- All welded construction
- Very low inductance (< 5 nH)
- Solid metal nickel-chrome or manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- Excellent frequency response to 50 MHz
- Low thermal EMF (< 3 µV/°C)
- AEC-Q200 qualified (1)
- Compliant to RoHS Directive 2002/95/EC

AUTOMOTIVE GRADE

Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)**

**Note**

(1) Flame retardance test may not be applicable to some resistor technologies.

## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | SIZE | POWER RATING $P_{70\,°C}$ W | TOLERANCE ± % | RESISTANCE VALUE RANGE Ω | WEIGHT (typical) g/1000 pieces |
|---|---|---|---|---|---|
| WSH2818 | 2818 | 5 (2) | 1.0 | 0.001 to 0.1 | 126 |

**Note**

(2) The WSH2818 is rated at 5 W with maximum surface temperature of 200 °C.

## TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
|---|---|---|
| Temperature coefficient | ppm/°C | ± 200 for 1 mΩ to 5.99 mΩ<br>± 75 for 6 mΩ to 100 mΩ |
| Inductance | nH | < 5 |
| Operating temperature range | °C | - 65 to + 170 |
| Maximum continuous current | A | $(P/R)^{1/2}$ |

## GLOBAL PART NUMBER INFORMATION

**Global Part Numbering example: WSH2818R1000FEA**

| W | S | H | 2 | 8 | 1 | 8 | R | 1 | 0 | 0 | 0 | F | E | A | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| GLOBAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING CODE | SPECIAL |
|---|---|---|---|---|
| **WSH2818** | **L** = mΩ*<br>**R** = Decimal<br>**4L000** = 0.004 Ω<br>**R0100** = 0.01 Ω<br><br>* Use "**L**" for resistance values < 0.01 Ω | **F** = ± 1.0 %<br>**J** = ± 5.0 % | **EA** = Lead (Pb)-free, tape/reel<br>**EK** = Lead (Pb)-free, bulk | (Dash number)<br>(up to 2 digits)<br>From **1 to 99**<br>as applicable |

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902



For technical questions, contact: ww2bresistors@vishay.com

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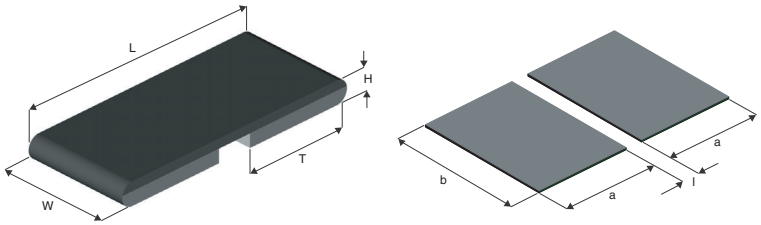
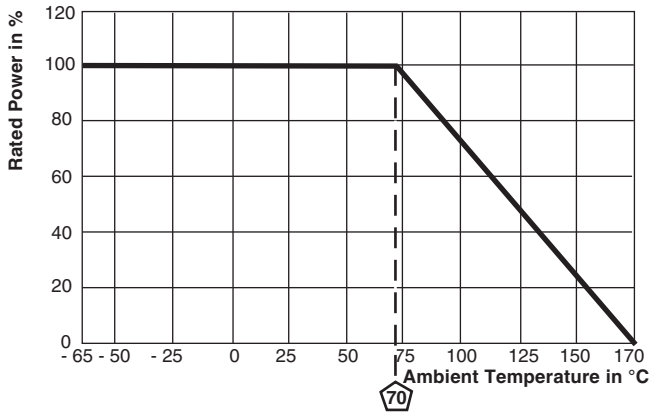
## DIMENSIONS in inches (millimeters)




| MODEL | RESISTANCE RANGE Ω | DIMENSIONS | | | | SOLDER PAD DIMENSIONS | | |
|---|---|---|---|---|---|---|---|---|
| | | L | W | H | T | a | b | l |
| WSH2818 | 0.006 to 0.1 | 0.280 ± 0.010 (7.1 ± 0.25) | 0.180 ± 0.010 (4.6 ± 0.25) | 0.032 ± 0.010 (0.813 ± 0.25) | 0.125 ± 0.010 (3.18 ± 0.25) | 0.138 (3.5) | 0.200 (5.1) | 0.024 (0.61) |
| | 0.001 to 0.0059 | | | 0.045 ± 0.010 (1.143 ± 0.25) | | | | |

## DERATING




| PERFORMANCE | | |
|---|---|---|
| **TEST** | **CONDITIONS OF TEST** | **TEST LIMITS** |
| Thermal shock | - 55 °C to + 150 °C, 1000 cycles, 15 min at each extreme | ± 0.5 % Δ*R* |
| Short time overload | 4 x rated power for 5 s | ± 1.0 % Δ*R* |
| Low temperature operation | - 65 °C for 45 min | ± 0.5 % Δ*R* |
| High temperature exposure | 1000 h at + 170 °C | ± 1.0 % Δ*R* |
| Bias humidity | + 85 °C, 85 % RH, 10 % bias, 1000 h | ± 0.5 % Δ*R* |
| Mechanical shock | 100 *g*'s for 6 ms, 5 pulses | ± 0.5 % Δ*R* |
| Vibration | Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h | ± 0.5 % Δ*R* |
| Load life | 1000 h at 70 °C, 1.5 h "ON", 0.5 h "OFF" | ± 1.0 % Δ*R* |
| Resistance to solder heat | + 260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence | ± 0.5 % Δ*R* |
| Moisture resistance | MIL-STD-202, method 106, 0 % power, 7b not required | ± 0.5 % Δ*R* |

| PACKAGING | | | | |
|---|---|---|---|---|
| **MODEL** | **REEL** | | | |
| | **TAPE WIDTH** | **DIAMETER** | **PIECES/REEL** | **CODE** |
| WSH2818 | 16 mm/embossed plastic | 330 mm/13" | 3500 | EA |

**Note**
- Embossed Carrier Tape per EIA-481.

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