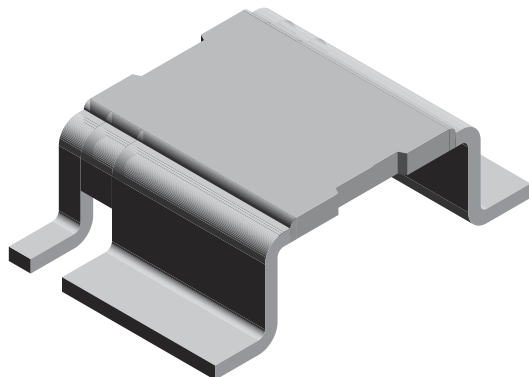


# Power Metal Strip® Resistors, Low Value, High Power, Surface Mount, 4-Terminal



## FEATURES

- 4-Terminal design allows for 1 % tolerance down to 0.0003  $\Omega$
- High power to foot print size ratio
- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifiers and shunts
- Proprietary processing technique produces extremely low resistance values, down to 0.0005  $\Omega$
- All welded construction
- Solid metal nickel-chrome or manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- Very low inductance 0.5 nH to 5 nH
- Low thermal EMF (< 3  $\mu$ V/°C)
- AEC-Q200 qualified available <sup>(1)</sup>
- Compliant to RoHS Directive 2002/95/EC

AUTOMOTIVE  
GRADE  
Available



**RoHS**  
COMPLIANT

**GREEN**  
(5-2008)\*\*

## Notes

\*\* Please see document "Vishay Material Category Policy":  
[www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

<sup>(1)</sup> Flame retardance test may not be applicable to some resistor technologies..

## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | SIZE | POWER RATING<br>$P_{70^\circ\text{C}}$<br>W | TOLERANCE<br>$\pm$ % | RESISTANCE VALUE<br>RANGE<br>$\Omega$ | RESISTANCE VALUES<br>CURRENTLY AVAILABLE <sup>(2)</sup><br>$\Omega$ | WEIGHT<br>(typical)<br>g/1000 pieces |
|--------------|------|---------------------------------------------|----------------------|---------------------------------------|---------------------------------------------------------------------|--------------------------------------|
| WSL4026      | 4026 | 3.0                                         | 1.0                  | 0.3m to 5m                            | 0.3m, 0.5m, 1m, 2m, 3m, 4m, 5m                                      | 420                                  |

## Notes

- Power rating depends on the max. temperature at the solder point, component placement density and the substrate material.
- Part marking: Model, value, tolerance, date code.
- <sup>(2)</sup> Other values may be available, contact factory.

## TECHNICAL SPECIFICATIONS

| PARAMETER                   | UNIT   | RESISTOR CHARACTERISTICS                        |
|-----------------------------|--------|-------------------------------------------------|
| Temperature coefficient     | ppm/°C | $\pm$ 75 over temperature of + 20 °C to + 60 °C |
| Operating temperature range | °C     | - 65 to + 170                                   |
| Maximum working voltage     | V      | $(P \times R)^{1/2}$                            |

## GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: WSL4026L5000FEA (WSL4026, 0.0005  $\Omega$ ,  $\pm$  1 %)

W S L 4 0 2 6 L 5 0 0 0 F E A

GLOBAL MODEL

WSL4026

RESISTANCE VALUE

L = m $\Omega$   
**L3000** = 0.0003  $\Omega$   
**L5000** = 0.0005  $\Omega$   
**1L000** = 0.0010  $\Omega$   
**2L000** = 0.0020  $\Omega$   
**3L000** = 0.0030  $\Omega$   
**4L000** = 0.0040  $\Omega$   
**5L000** = 0.0050  $\Omega$

TOLERANCE CODE

F =  $\pm$  1.0 %

PACKAGING CODE

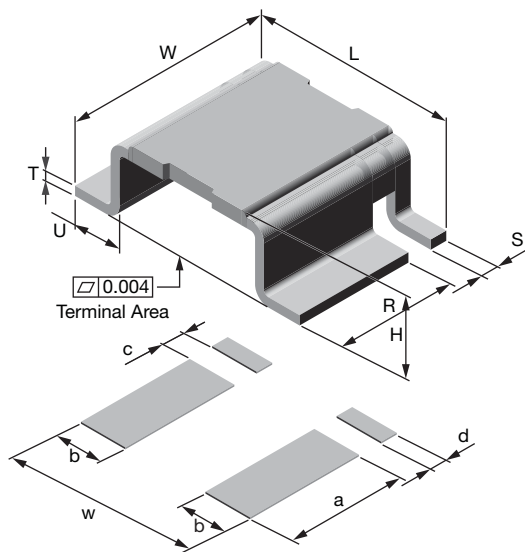
**EA** = Lead (Pb)-free, tape/reel  
**EK** = Lead (Pb)-free, bulk

SPECIAL

(Dash number)  
(Up to 2 digits)  
From **1 to 99** as  
applicable

## DIMENSIONS

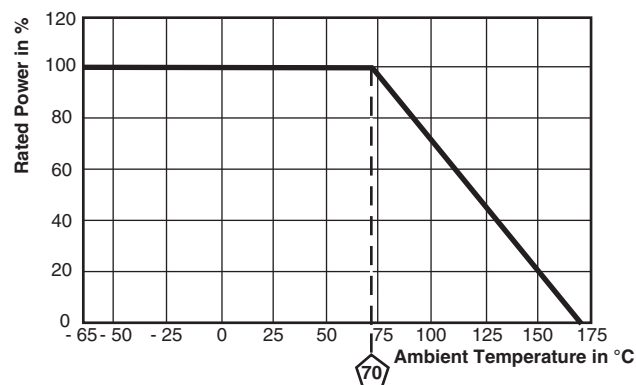
| MODEL   | DIMENSIONS in inches (millimeters) |                                            |                              |                              |                              |                               |                              |
|---------|------------------------------------|--------------------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|------------------------------|
|         | L                                  | W                                          | H                            | R                            | S                            | T                             | U                            |
| WSL4026 | 0.400 ± 0.008<br>(10.1 ± 0.2)      | 0.260 + 0.012/- 0.008<br>(6.6 + 0.3/- 0.2) | 0.117 ± 0.008<br>(3.0 ± 0.2) | 0.193 ± 0.004<br>(4.9 ± 0.1) | 0.028 ± 0.004<br>(0.7 ± 0.1) | 0.016 ± 0.002<br>(0.4 ± 0.05) | 0.078 ± 0.004<br>(2.0 ± 0.1) |



| MODEL   | SOLDER PAD DIMENSIONS in inches (millimeters) |                 |                 |                 |                 |
|---------|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|
|         | a                                             | b               | c               | d               | w               |
| WSL4026 | 0.220<br>(5.6)                                | 0.096<br>(2.44) | 0.035<br>(0.89) | 0.035<br>(0.89) | 0.420<br>(10.6) |

| MODEL   | RESISTANCE VALUE (mΩ) | ELEMENT MATERIAL |
|---------|-----------------------|------------------|
| WSL4026 | 0.3                   | Mn-Cu            |
|         | 0.5                   | Mn-Cu            |
|         | 1.0                   | Mn-Cu            |
|         | 2.0                   | Ni-Cr            |
|         | 3.0                   | Ni-Cr            |
|         | 4.0                   | Ni-Cr            |
|         | 5.0                   | Ni-Cr            |

## DERATING



| PERFORMANCE               |                                                                                           |                         |
|---------------------------|-------------------------------------------------------------------------------------------|-------------------------|
| TEST                      | CONDITIONS OF TEST                                                                        | TEST LIMITS             |
| Thermal shock             | - 55 °C to + 150 °C, 1000 cycles, 15 min at each extreme                                  | ± (0.5 % + 0.0005 Ω) ΔR |
| Short time overload       | 0.3 mΩ, 0.5 mΩ, 2 mΩ and 3 mΩ - 5 x rated power for 5 s<br>5 mΩ - 3 x rated power for 5 s | ± (0.5 % + 0.0005 Ω) ΔR |
| Low temperature operation | - 65 °C for 45 min                                                                        | ± (0.5 % + 0.0005 Ω) ΔR |
| High temperature exposure | 1000 h at + 170 °C                                                                        | ± (1.0 % + 0.0005 Ω) ΔR |
| Bias humidity             | + 85 °C, 85 % RH, 10 % bias, 1000 h                                                       | ± (0.5 % + 0.0005 Ω) ΔR |
| Mechanical shock          | 100 g's for 6 ms, 5 pulses                                                                | ± (0.5 % + 0.0005 Ω) ΔR |
| Vibration                 | Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h                            | ± (0.5 % + 0.0005 Ω) ΔR |
| Load life                 | 1000 h at + 70 °C, 1.5 h "ON", 0.5 h "OFF"                                                | ± (1.0 % + 0.0005 Ω) ΔR |
| Resistance to solder heat | + 260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence                                    | ± (0.5 % + 0.0005 Ω) ΔR |
| Moisture resistance       | MIL-STD-202, method 106, 0 % power, 7b not required                                       | ± (0.5 % + 0.0005 Ω) ΔR |

| PACKAGING |                        |            |             |      |
|-----------|------------------------|------------|-------------|------|
| MODEL     | REEL                   |            |             |      |
|           | TAPE WIDTH             | DIAMETER   | PIECES/REEL | CODE |
| WSL4026   | 16 mm/embossed plastic | 330 mm/13" | 1500        | EA   |

### Note

- Embossed Carrier Tape per EIA-481.



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