

## Features

- Formerly a Riedon™ product
- Resistances from 0.005 to 50 k $\Omega$
- Resistance tolerances as low as  $\pm 0.05\%$
- Power rating: 0.5 to 4 watts
- High temperature rating (+275 °C)
- TCR as low as  $\pm 20$  PPM/°C
- Superior surge handling capability
- Non-inductive windings are available (Type SN)
- Flame resistant per UL 94V-0
- RoHS compliant\*

## S & SL Series – Riedon™ Surface Mount Wirewound Resistors by Bourns

### Specifications

Bourns Part Number	Power Rating @ 70 °C (W)	Resistance Range ( $\Omega$ ) <sup>1</sup>	Non-Inductive Winding Resistance Range ( $\Omega$ ) <sup>2</sup>	Maximum Working Voltage
S1	0.5	0.01 to 400	0.1 to 200	$\sqrt{P} * R$
S2	1	0.005 to 3k	0.1 to 1.5K	
S4	2	0.01 to 15k	0.1 to 7.5K	
S3	3	0.01 to 25k	0.1 to 12.5K	
S5	4	0.01 to 50k	0.1 to 25K	
SL2	1	0.005 to 0.01	N/A <sup>1</sup>	
SL4	2	0.005 to 0.07	N/A <sup>1</sup>	

<sup>1</sup> Other resistance values may be available. Please [contact Bourns](#).

<sup>2</sup> Below 0.1  $\Omega$  the inductance of a single winding, or the metal element (SL), is negligible.

Specifications	Value
Tolerances	S: greater than 100 $\Omega$ , $\pm 0.05\%$ to $\pm 5\%$ S: from 1 $\Omega$ to 100 $\Omega$ , $\pm 0.1\%$ to $\pm 5\%$ S: below 1 $\Omega$ , $\pm 1\%$ to $\pm 5\%$ SL: $\pm 1\%$ to $\pm 5\%$
Temperature Coefficient	S: greater than 10 $\Omega$ : $\pm 20$ PPM/°C <sup>3</sup> S: from 1 $\Omega$ to 10 $\Omega$ : $\pm 50$ PPM/°C <sup>3</sup> S: less than 1 $\Omega$ : <a href="#">Contact Bourns</a> SL: $\pm 200$ PPM/°C <sup>3</sup>
Temperature Range	-55 °C to +275 °C
Dielectric Strength	S: 1000 VAC SL: 500 VAC
Insulation Resistance	>1000 MOhms / Dry
Termination Finish	100% Electroless Tin (matte) over Copper

<sup>3</sup> Other TCR values available upon request.

### Environmental Performance

Specification (MIL-STD 202)	Value
Dielectric	$\pm 0.5\% + 0.05 \Omega$
Load Life	$\pm 1.0\% + 0.05 \Omega$
Storage	$\pm 0.5\% + 0.05 \Omega$
Moisture Resistance	$\pm 1.0\% + 0.05 \Omega$
Thermal Shock	$\pm 0.5\% + 0.05 \Omega$
5X Overload (5 s)	$\pm 0.5\% + 0.05 \Omega$
Shock	$\pm 0.5\% + 0.05 \Omega$
Solder Heat Resistance (260 °C, 10 s)	$\pm 0.5\% + 0.05 \Omega$

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at [www.bourns.com/docs/legal/disclaimer.pdf](http://www.bourns.com/docs/legal/disclaimer.pdf).

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"Riedon Logo" is a registered trademark of BE Services Company, Inc., in the United States.

"Riedon" is a trademark of BE Services Company, Inc.

### Additional Information

Click these links for more information:



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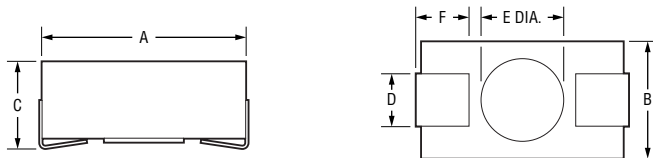
Email: [eurocus@bourns.com](mailto:eurocus@bourns.com)

[www.bourns.com](http://www.bourns.com)

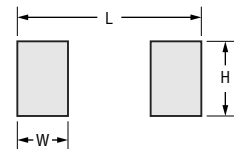
# S & SL Series – Riedon™ Surface Mount Wirewound Resistors by Bourns



## Product Dimensions



## Recommended Layout



Bourns Model Number	Dimensions					Lead Thickness	Stand-Off	
	A	B	C	D	F		E	Height
S1	$\frac{4.8 \pm 0.4}{(.190 \pm .015)}$	$\frac{3.3 \pm 0.4}{(.130 \pm .015)}$	$\frac{2.8 \pm 0.4}{(.110 \pm .015)}$	$\frac{1.5 \pm 0.4}{(.060 \pm .015)}$	$\frac{1.0 \pm 0.4}{(.040 \pm .015)}$	0.15 ± 0.05 (.006 ± .002)	$\frac{2.5 \pm 0.4}{(.100 \pm .015)}$	0.13 ± 0.13 (.005 ± .005)
S2	$\frac{6.6 \pm 0.4}{(.260 \pm .015)}$	$\frac{3.9 \pm 0.4}{(.155 \pm .015)}$	$\frac{3.2 \pm 0.4}{(.125 \pm .015)}$	$\frac{1.8 \pm 0.4}{(.070 \pm .015)}$	$\frac{1.8 \pm 0.4}{(.070 \pm .015)}$		$\frac{3.0 \pm 0.4}{(.120 \pm .015)}$	
S4	$\frac{11.4 \pm 0.4}{(.450 \pm .015)}$	$\frac{6.4 \pm 0.4}{(.250 \pm .015)}$	$\frac{4.6 \pm 0.4}{(.180 \pm .015)}$	$\frac{3.0 \pm 0.4}{(.120 \pm .015)}$	$\frac{2.5 \pm 0.4}{(.100 \pm .015)}$		$\frac{4.8 \pm 0.4}{(.190 \pm .015)}$	
S3	$\frac{15.9 \pm 0.4}{(.625 \pm .015)}$	$\frac{6.9 \pm 0.4}{(.270 \pm .015)}$	$\frac{6.4 \pm 0.4}{(.250 \pm .015)}$	$\frac{3.0 \pm 0.4}{(.120 \pm .015)}$	$\frac{3.4 \pm 0.4}{(.135 \pm .015)}$		$\frac{3.8 \pm 0.4}{(.150 \pm .015)}$	
S5	$\frac{20.8 \pm 0.4}{(.820 \pm .015)}$	$\frac{7.5 \pm 0.4}{(.295 \pm .015)}$	$\frac{7.7 \pm 0.4}{(.305 \pm .015)}$	$\frac{3.8 \pm 0.4}{(.150 \pm .015)}$	$\frac{4.8 \pm 0.4}{(.190 \pm .015)}$		$\frac{6.2 \pm 0.4}{(.245 \pm .015)}$	
SL2	$\frac{6.6 \pm 0.4}{(.260 \pm .015)}$	$\frac{3.9 \pm 0.4}{(.155 \pm .015)}$	$\frac{2.5 \pm 0.4}{(.100 \pm .015)}$	$\frac{1.8 \pm 0.4}{(.070 \pm .015)}$	$\frac{1.8 \pm 0.4}{(.070 \pm .015)}$		$\frac{3.0 \pm 0.4}{(.120 \pm .015)}$	
SL4	$\frac{11.4 \pm 0.4}{(.450 \pm .015)}$	$\frac{6.4 \pm 0.4}{(.250 \pm .015)}$	$\frac{2.5 \pm 0.4}{(.100 \pm .015)}$	$\frac{3.0 \pm 0.4}{(.120 \pm .015)}$	$\frac{2.5 \pm 0.4}{(.100 \pm .015)}$		$\frac{4.8 \pm 0.4}{(.190 \pm .015)}$	

Bourns Model Number	Footprint		
	W	H	L
S1	$\frac{1.6 \pm 0.4}{(.062 \pm .015)}$	$\frac{2.5 \pm 0.4}{(.100 \pm .015)}$	$\frac{6.4 \pm 0.4}{(.250 \pm .015)}$
S2	$\frac{2.4 \pm 0.4}{(.096 \pm .015)}$	$\frac{3.8 \pm 0.4}{(.150 \pm .015)}$	$\frac{8.6 \pm 0.4}{(.337 \pm .015)}$
S4	$\frac{3.8 \pm 0.4}{(.150 \pm .015)}$	$\frac{5.1 \pm 0.4}{(.200 \pm .015)}$	$\frac{13.7 \pm 0.4}{(.540 \pm .015)}$
S3	$\frac{5.1 \pm 0.4}{(.200 \pm .015)}$	$\frac{5.6 \pm 0.4}{(.220 \pm .015)}$	$\frac{17.8 \pm 0.4}{(.700 \pm .015)}$
S5	$\frac{5.6 \pm 0.4}{(.220 \pm .015)}$	$\frac{6.4 \pm 0.4}{(.250 \pm .015)}$	$\frac{22.9 \pm 0.4}{(.900 \pm .015)}$
SL2	$\frac{2.4 \pm 0.4}{(.096 \pm .015)}$	$\frac{3.8 \pm 0.4}{(.150 \pm .015)}$	$\frac{8.6 \pm 0.4}{(.337 \pm .015)}$
SL4	$\frac{3.8 \pm 0.4}{(.150 \pm .015)}$	$\frac{5.1 \pm 0.4}{(.200 \pm .015)}$	$\frac{13.7 \pm 0.4}{(.540 \pm .015)}$

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

## Standard Packaging Quantities

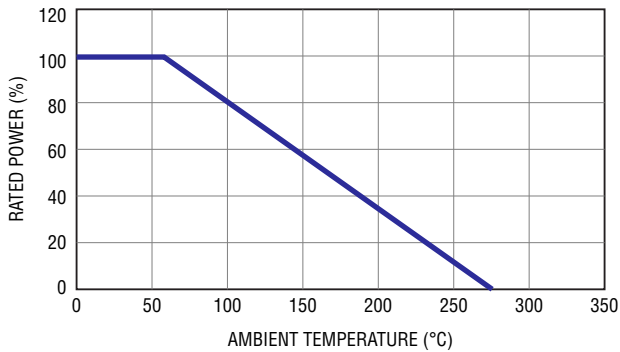
Bourns Model Number	7-Inch Reel	13-Inch Reel	Reel / Tape Width (mm)	Approx. Unit Weight for Shipping (g)
S1	650	3000	12	0.11
S2	600	2000	16	0.21
S4	250	1000	24	0.71
S3	125	500	24	1.5
S5	180	500	32	2.8
SL2	600	2000	16	0.12
SL4	250	1000	24	0.36

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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**Power Derating Curve**



**Surface Mount Humidity Packaging**

Per Customer Change Notice dated August 8, 2018, (CCN1832) all Surface Mount wirewound resistors now have a Moisture Sensitivity Level (MSL) rating of 1. Surface Mount parts are packaged in a Moisture Barrier Bag (MBB) with a desiccant to ensure solderability. The MBB is marked with a Moisture-Sensitive Identification Label.

**How To Order**

**S 4 - 100R F 1**

Model \_\_\_\_\_  
 S, SL = Standard Model  
 SN, SLN = Non-inductive Model

Power Code \_\_\_\_\_  
 (See Specifications table)

Resistance Code \_\_\_\_\_  
 For values <1K Ω, "R" represents decimal point  
 (Example: 0R1 = 0.1 Ω)  
 For values 1K-10K Ω, "K" represents decimal point  
 (Example 1K = 1K Ω, 1K5 = 1.5K Ω)

Tolerance \_\_\_\_\_  
 (please see Specification table for selected resistance)

U** = ±0.05 %	F = ±1 %
B = ±0.1 %	G = ±2 %
T = ±0.2 %	H = ±3 %
C = ±0.25 %	J = ±5 %
D = ±0.5 %	

Internal Use \_\_\_\_\_  
 (Specific TCR value available upon request.)

\*\*[Contact Bourns](#) for tolerances <±0.01 %.

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