

## SinglFuse™ SF-0603SP Series Features

- Time lag thin film chip fuse for overcurrent protection
- 1608 (EIA 0603) miniature footprint
- Surface mount packaging for automated assembly
- UL listed (UL 248-14)
- RoHS compliant\* and halogen free\*\*

## SF-0603SP Series - Time Lag Surface Mount Fuses

### Electrical Characteristics

Model	Rated Current (Amps)	Fusing Time	Resistance (mΩ) Typ.***	Rated Voltage	Breaking Capacity	Typical I <sup>2</sup> t (A <sup>2</sup> s) ****
SF-0603SP050	0.50	Open within 1~120 sec. at 200 % rated current	264	DC 50 V	DC 50 V 50 A	0.009
SF-0603SP063	0.63		200	DC 32 V	DC 32 V 50 A	0.014
SF-0603SP080	0.80		143			0.023
SF-0603SP100	1.00		83			0.036
SF-0603SP125	1.25		54			0.056
SF-0603SP150	1.50		42			0.081
SF-0603SP160	1.60		40			0.092
SF-0603SP200	2.00		28			0.145
SF-0603SP250	2.50		21.5			0.229
SF-0603SP300	3.00		18			0.332
SF-0603SP315	3.15		16			0.365
SF-0603SP400	4.00		13			0.574
SF-0603SP500	5.00		9.5			0.927
SF-0603SP600	6.00		6			1.860

\*\*\* Resistance value measured with less than 10 % of rated current. Tolerance ±25 %.

\*\*\*\*Typical I<sup>2</sup>t value measured at 10x rated current.

### Reliability Testing

Parameter	Requirement	Test Method
Carrying Capacity	No fusing	Rated current, 4 hours
Fusing Time	Within 120 seconds	200 % of its rated current
Interrupting Ability	No mechanical damages	After the fuse is interrupted, rated voltage applied for 30 seconds again
Bending Test	No mechanical damages	Distance between holding points: 90 mm, Bending: 3 mm, 1 time, 30 seconds
Resistance to Solder Heat	±20 %	260 °C ±5 °C, 10 seconds ±1 second
Solderability	95 % coverage minimum	235 °C ±5 °C, 2 ±0.5 second 245 °C ±5 °C, 2 ±0.5 second (lead free)
Temperature Rise	<75 °C	100 % of its rated current, measure of surface temperature
Resistance to Dry Heat	±20 %	105 °C ±5 °C, 1000 hours
Resistance to Solvent	No evident damage on protective coating and marking	23 °C ±5 °C of isopropyl alcohol, 90 seconds
Residual Resistance	10k ohms or more	Measure DC resistance after fusing
Thermal Shock	ΔR < 10 %	-20 °C / +25 °C / +125 °C / +25 °C, 10 cycles
UL File Number	E198545 <a href="http://www.ul.com/">http://www.ul.com/</a> Follow link to Online Certificates Directory, then enter UL File No. E198545, or <a href="#">click here</a>	

### Environmental Characteristics

Operating Temperature	-20 °C to +105 °C
Storage Conditions	
Temperature	+5 °C to +35 °C
Humidity	40 % to 75 %
Shelf Life	2 years from manufacturing date
Moisture Sensitivity Level	1
ESD Classification (HBM)	Class 6

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

\*\*Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

"SinglFuse" is a trademark of Bourns, Inc.

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 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).

## BOURNS®

### Asia-Pacific:

Tel: +886-2 2562-4117

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

### Europe:

Tel: +36 88 520 390

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

### The Americas:

Tel: +1-951 781-5500

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

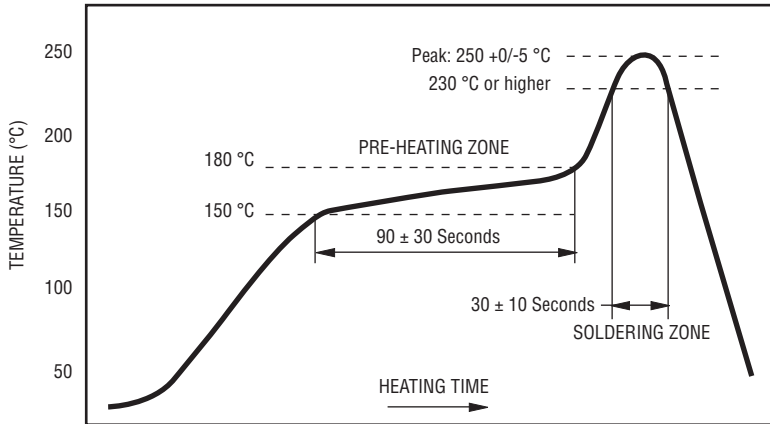
[www.bourns.com](http://www.bourns.com)

# SinglFuse™ SF-0603SP Series Applications

- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- DVDs
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set top boxes
- Industrial controllers

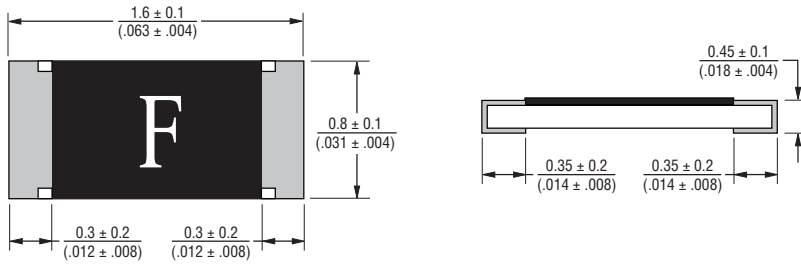
## SF-0603SP Series - Time Lag Surface Mount Fuses **BOURNS®**

### Solder Reflow Recommendations



PEAK: 250 +0/-5 °C, 5 seconds  
 PRE-HEATING ZONE: 150 to 180 °C, 90 ± 30 seconds  
 SOLDERING ZONE: 230 °C or higher, 30 ± 10 seconds

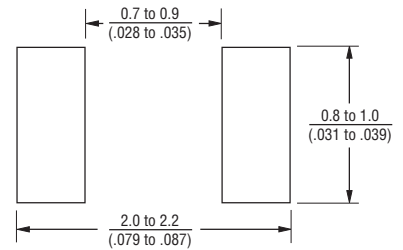
### Product Dimensions



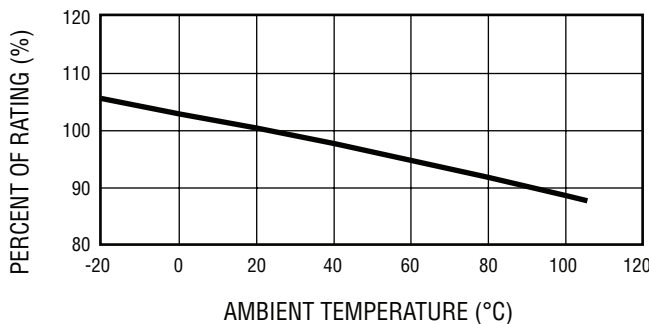
PACKAGING: 5,000 pcs./reel

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

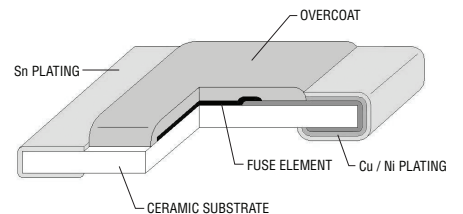
### Recommended Pad Layout



### Thermal Derating Curve



### Construction & Material Content



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 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).