

SingIFuse™ SF-0603FP-F Series Features

- Single blow fuse for overcurrent protection
- 1608 (EIA 0603) miniature footprint
- Fast-acting precision fuse
- UL 248-14 compliant
- RoHS compliant* and halogen free**
- Thin film chip design
- Surface mount packaging for automated assembly

SF-0603FP-F Series - Fast Acting Precision Surface Mount Fuses

Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
200 %	—	5 seconds
300 %	—	0.2 seconds

Additional Information

Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Electrical Characteristics

Model	Rated Current (A)	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I^2t (A^2s) ****	Certifications
						cUL: E198545
SF-0603FP015F-2	0.15	2.189	65 VDC	50 A @ 35 VAC 13 A @ 65 VDC 50 A @ 35 VDC	0.00061	✓
SF-0603FP020F-2	0.20	1.294			0.00142	✓
SF-0603FP025F-2	0.25	1.095			0.00162	✓
SF-0603FP0375F-2	0.375	0.478			0.0041	✓
SF-0603FP050F-2	0.50	0.184			0.0122	✓
SF-0603FP075F-2	0.75	0.111			0.0213	✓
SF-0603FP100F-2	1.00	0.0687			0.0426	✓
SF-0603FP125F-2	1.25	0.0478		35 A @ 35 VAC 13 A @ 65 VDC 35 A @ 35 VDC	0.0525	✓
SF-0603FP150F-2	1.50	0.0368			0.0717	✓
SF-0603FP175F-2	1.75	0.0308	35 VDC	35 A @ 35 VAC 50 A @ 24 VAC 35 A @ 35 VDC 50 A @ 24 VDC	0.101	✓
SF-0603FP200F-2	2.00	0.0259			0.141	✓
SF-0603FP250F-2	2.50	0.0209			0.242	✓
SF-0603FP300F-2	3.00	0.0175			0.333	✓
SF-0603FP350F-2	3.50	0.0147			0.495	✓
SF-0603FP400F-2	4.00	0.0124			0.636	✓
SF-0603FP500F-2	5.00	0.0095			1.11	✓

*** Resistance value measured with ≤10 % rated current at 25 °C ambient. Tolerance ±25 %.
**** Melting I^2t calculated at 0.001 second pre-arcing time.

CALIFORNIA WARNING: Can expose you to lead, a carcinogen and reproductive toxicant.
See www.P65Warnings.ca.gov

*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.

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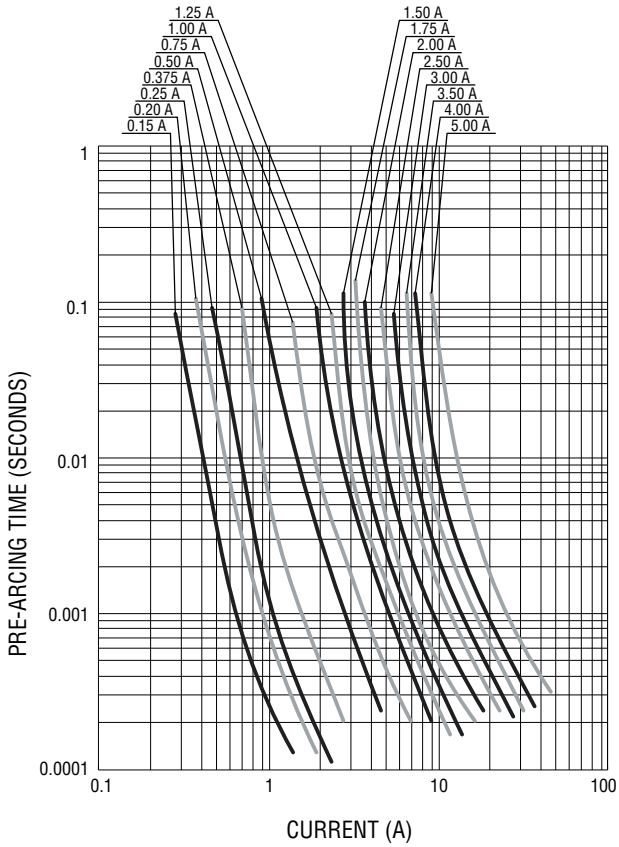
SingIFuse™ SF-0603FP-F Series Applications

- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- MP3 players
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set-top boxes
- Industrial controllers
- Battery Management Systems (BMS)
- LED lighting
- Power tools

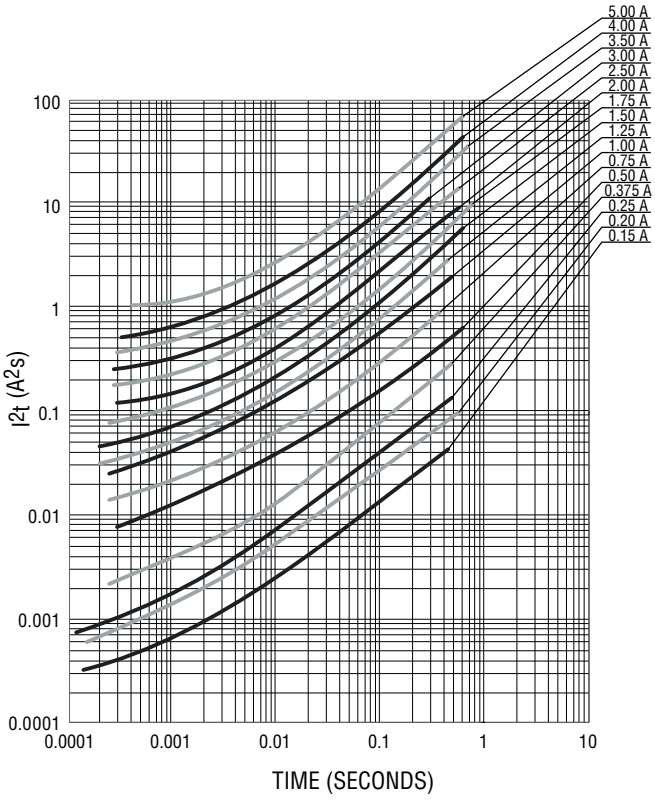
SF-0603FP-F Series - Fast Acting Precision Surface Mount Fuses

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Average Pre-Arcing Time vs. Current Curves



Average I^2t vs. t Curves



Environmental Characteristics

Operating Temperature ..... -55 °C to +90 °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

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Typical Part Marking

Represents total content. Layout may vary.



RATED CURRENT (A)

•	= 0.150	II	= 1.500
••	= 0.200	=	= 1.750
⁝	= 0.250	H	= 2.000
•••	= 0.375	H	= 2.500
I	= 0.500	III	= 3.000
—	= 0.750	⧺	= 3.500
+	= 1.000	□	= 4.000
×	= 1.250	○	= 5.000

How to Order

SF - 0603 FP 015 F - 2

SinglFuse™ Product Designator

SMD Footprint
1608 = (EIA 0603) size

Fuse Blow Type
FP = Fast acting precision

Rated Current
015 ~ 500 (150 mA ~ 5.0 A)

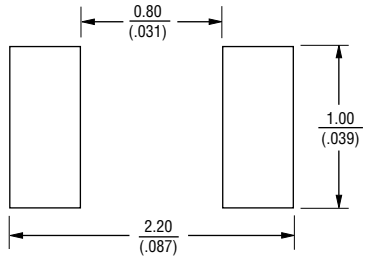
Structure Type
F = Thin film

Packaging Type
- 2 = Tape & Reel

Packaging

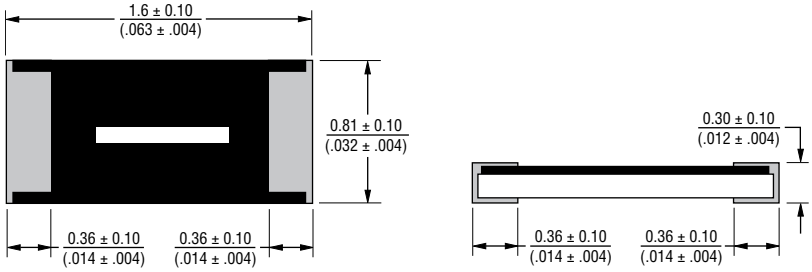
Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	8,000 pieces
Packaging Code	-2

Recommended Pad Layout



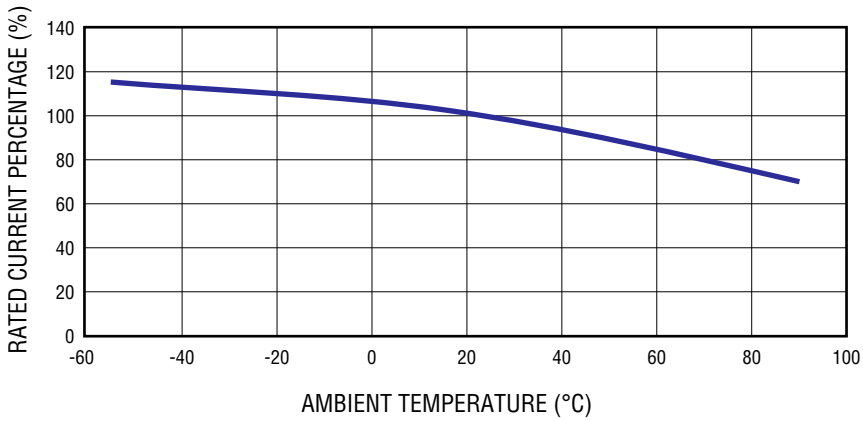
DIMENSIONS: MM / (INCHES)

Product Dimensions



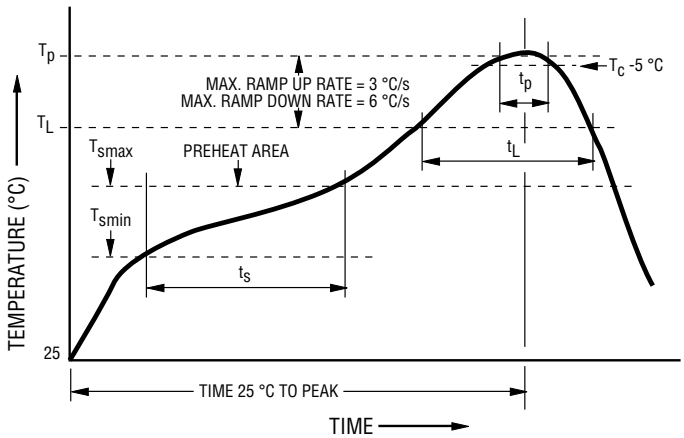
DIMENSIONS: MM / (INCHES)

Current Rating Thermal Derating Curve



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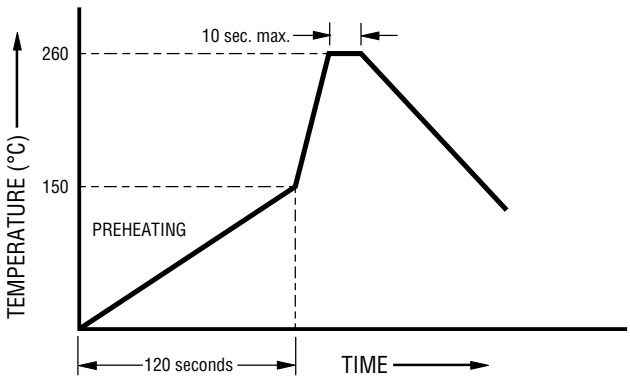
Solder Reflow Recommendations



Profile Feature	Pb-Free Assembly
Preheat / Soak: Temperature Min. (T_{smin}) Temperature Max. (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	 150 °C 200 °C 60~120 seconds
Ramp Up Rate (T_L to T_p)	3 °C / second max.
Liquidous Temperature (T_L) Time (t_L) maintained above T_L	217 °C 60~150 seconds
Peak Package Body Temperature (T_p)	260 °C
Time (t_p)* within 5 °C of the specified classification temperature (T_c)	30 seconds*
Ramp Down Rate (T_p to T_L)	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.

* Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.

Recommended Temperature Profile for Wave Soldering



Wave soldering is suitable for 0603 size models.

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Reliability Testing

No.	Test	Requirement	Test Condition	Test Reference
1	Bending	≤1 A: DCR change ≤ ±10 % >1 A: DCR change ≤ ±20 %	2 mm	Refer to STP document
2	Solderability	Minimum 95 % coverage	One dip at 255 °C for 5 seconds	MIL-STD-202 Method 208
3	Thermal shock	DCR change ≤ ±10 % No mechanical damage	100 cycles between -55 °C and +125 °C	MIL-STD-202 Method 107
4	Moisture resistance	DCR change ≤ ±10 % No excessive corrosion	10 cycles	MIL-STD-202 Method 106
5	Salt spray	DCR change ≤ ±10 % No excessive corrosion	48 hour exposure, 5 % salt solution	MIL-STD-202 Method 101
6	Mechanical vibration	DCR change ≤ ±10 % No mechanical damage	0.4 inch D.A. or 30 G between 5-3000 Hz	MIL-STD-202 Method 204
7	Mechanical shock	DCR change ≤ ±10 % No mechanical damage	1500 G, 0.5 ms, half-sine shocks	MIL-STD-202 Method 213
8	Life	No electrical “opens” during testing Voltage drop change shall be less than ±10 % of initial value	75 % rated current for 2000 hours at ambient temperature between +20 °C and +30 °C	Refer to STP document

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