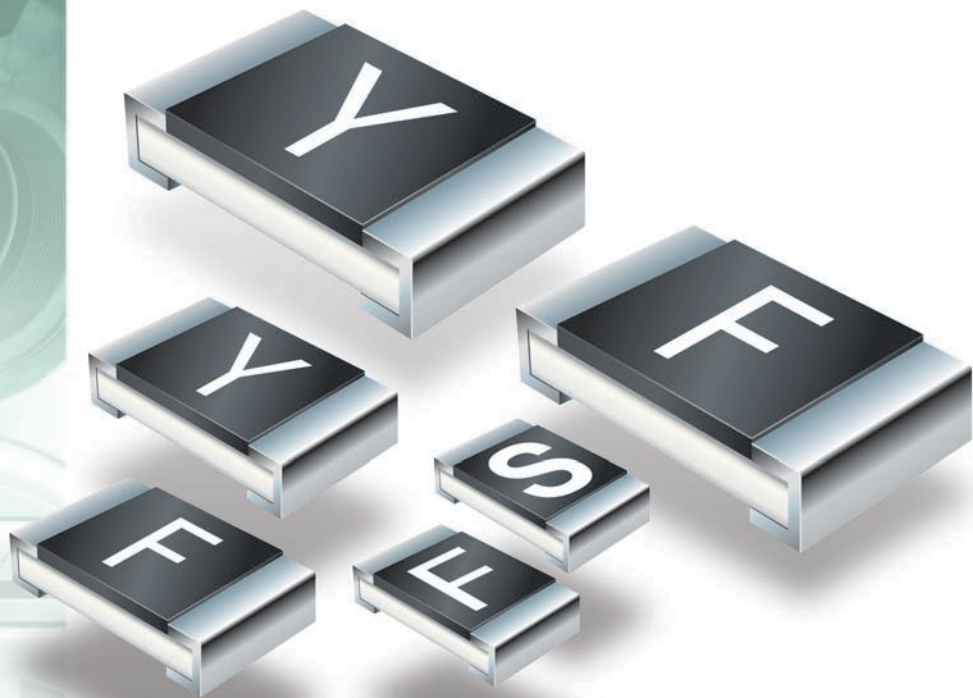


# Bourns® SinglFuse™ Thin Film Chip Fuse

*Short Form Brochure*



# Bourns® SinglFuse™ Products

## What's New in this Edition

- SF-0402F Series 0402 fast acting fuses
- SF-0402S Series 0402 slow blow fuses
- SF-0603F Series 0603 fast acting fuses
- SF-0603S Series 0603 slow blow fuses
- SF-1206F Series 1206 fast acting fuses
- SF-1206S Series 1206 slow blow fuses

## See Also

- Short form catalog for Multifuse® resettable polymer & ceramic PTCs
- Circuit protection selection guide for dedicated telecom circuit protection products

## Features / Benefits

- Single blow fuse for overcurrent protection
- UL certified
- Surface mount packaging for automated assembly
- Thin film chip fuse
- RoHS\* compliant and halogen free
- Wide range of both fast & slow blow fuses in 3 product sizes

## Applications

Portable memory

Cell phones

LCD monitors

PDA's

Set top boxes

Disk drives

Battery chargers

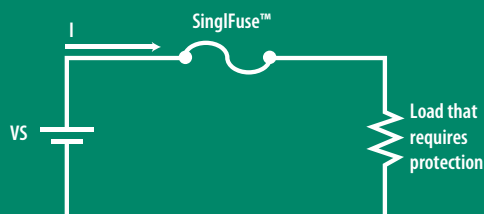
Rechargeable battery packs

Digital cameras

Industrial controllers

DVD players

## Block Diagram - Typical Application



Bourns' SinglFuse™ family of thin film chip fuses provides overcurrent protection in three surface mountable footprint sizes of 0402 (1005 metric), 0603 (1508 metric) and 1206 (3216 metric). Each product size has two series to cover the fusing types of fast acting and slow blow. This comprehensive line of thin film chip fuses covers such diverse applications as LCD monitors, digital cameras, cell phones, industrial controllers and rechargeable battery packs. This new fuse offering is designed to protect against a wide range of overcurrent events and hence the fuses range in current ratings from as low as 500 m amps up to 7 amps. Besides the wide current rating, the SinglFuse™ line is made in compliance with RoHS\* and is halogen free. The thin film construction of these fuses ensures the parts are made to a high precision and specific fusing characteristic that can easily be accommodated.



SF-1206F Series



SF-1206S Series



SF-0603F Series



SF-0603S Series



SF-0402F Series



SF-0402S Series

\*RoHS Directive 2002/95/EC Jan. 27, 2003 including Annex.

# SF-0402 Series – 0402 Sized Thin Film Chip Fuse

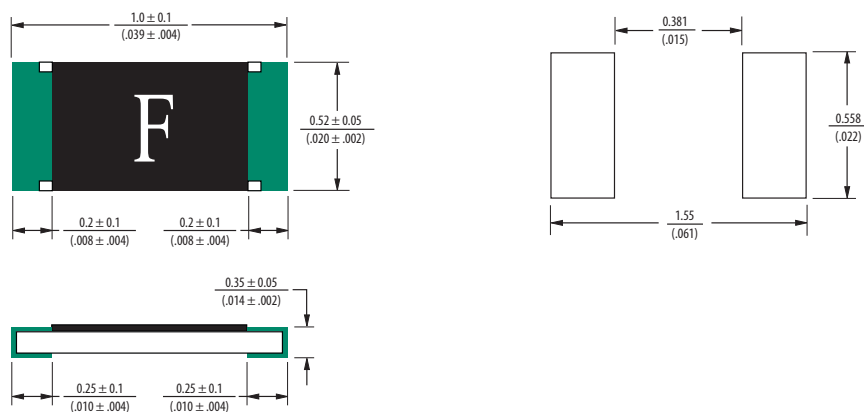
## Electrical Characteristics

Model	Rated Current	Fusing Time	Resistance (mΩ) Typ.*	Rated Voltage	Breaking Capacity	Typical $I^2t$ (A <sup>2</sup> s)
SF-0402F050-2	0.50 A	Open within 1 min at 200 % rated current	320	DC 24 V	DC 24 V 35 A	0.00317
SF-0402F080-2	0.80 A		120			0.00532
SF-0402F100-2	1.00 A		90			0.00724
SF-0402F125-2	1.25 A		67			0.01344
SF-0402F150-2	1.50 A		51			0.01356
SF-0402F160-2	1.60 A		46			0.01672
SF-0402F200-2	2.00 A		33			0.01983
SF-0402F250-2	2.50 A		25			0.03763
SF-0402F300-2	3.00 A		20			0.05427
SF-0402F315-2	3.15 A		19			0.06304
SF-0402F400-2	4.00 A		16			0.0896

Model	Rated Current	Fusing Time	Resistance (mΩ) Typ.*	Rated Voltage	Breaking Capacity	Typical $I^2t$ (A <sup>2</sup> s)
SF-0402S050-2	0.50 A	Open within 5 sec. at 250 % rated current	235	DC 24 V	DC 24 V 35 A	0.00370
SF-0402S080-2	0.80 A		86			0.00947
SF-0402S100-2	1.00 A		64			0.01479
SF-0402S125-2	1.25 A		45			0.02310
SF-0402S150-2	1.50 A		35			0.02400
SF-0402S160-2	1.60 A		32			0.03734
SF-0402S200-2	2.00 A		24			0.04040
SF-0402S250-2	2.50 A		19			0.06760
SF-0402S300-2	3.00 A		15			0.09860
SF-0402S315-2	3.15 A		14			0.10868
SF-0402S400-2	4.00 A		10.5			0.11450

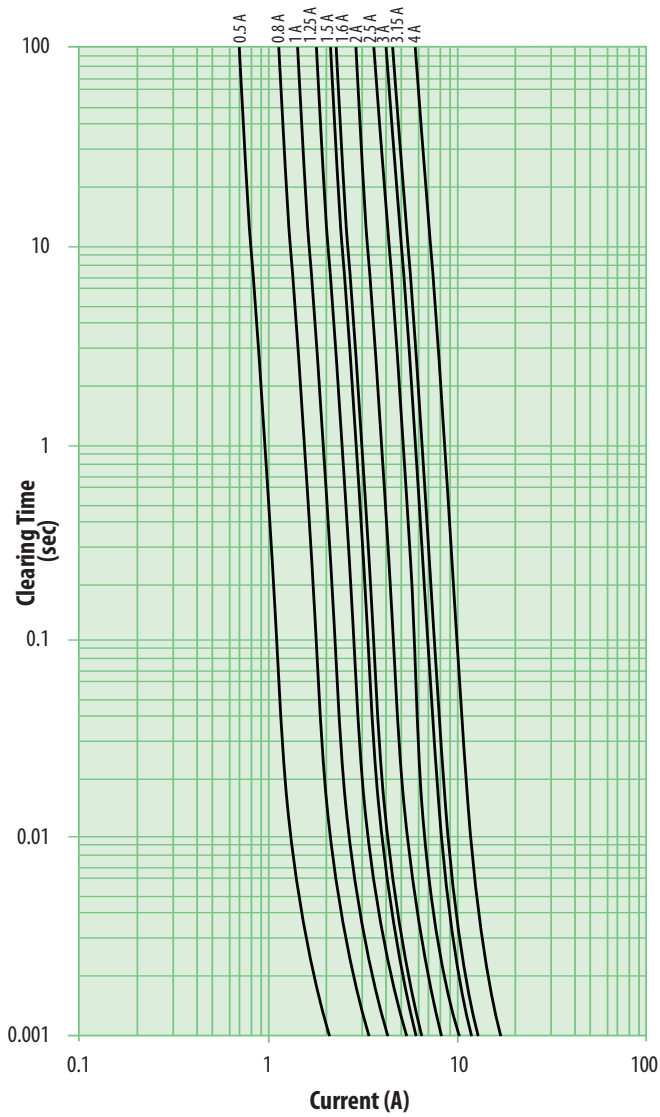
\*Resistance value was measured with less than 10 % of rated current.

## Product Dimensions

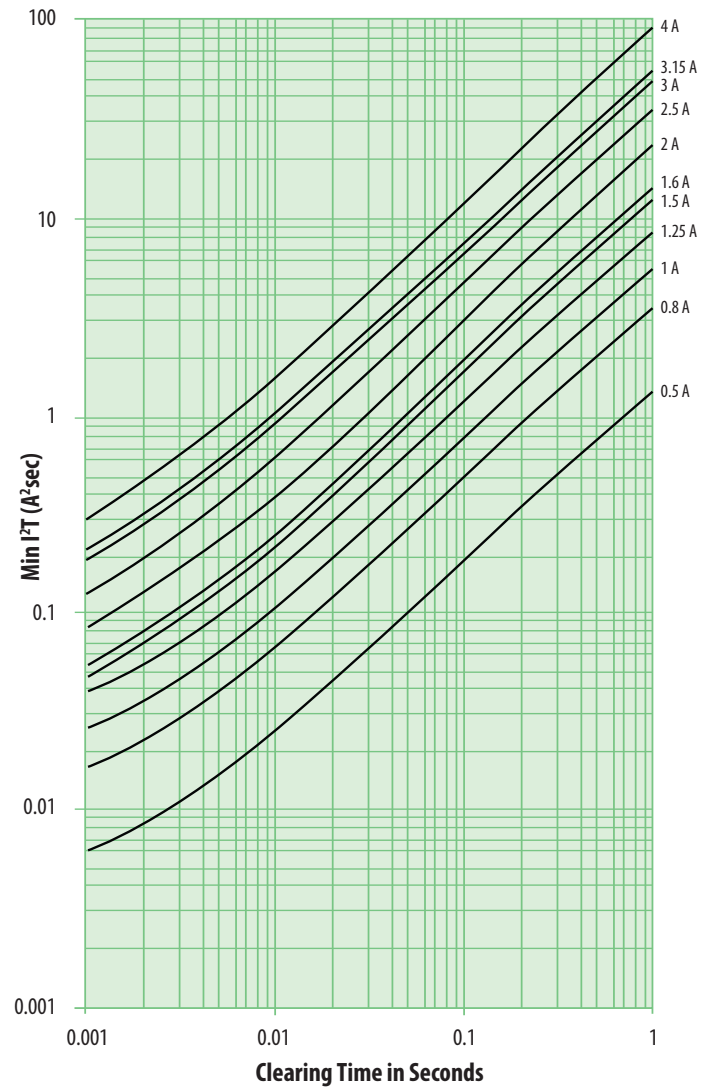


# SF-0402 S Series – Slow Blow Surface Mount Fuse

## Average Time Current Curves

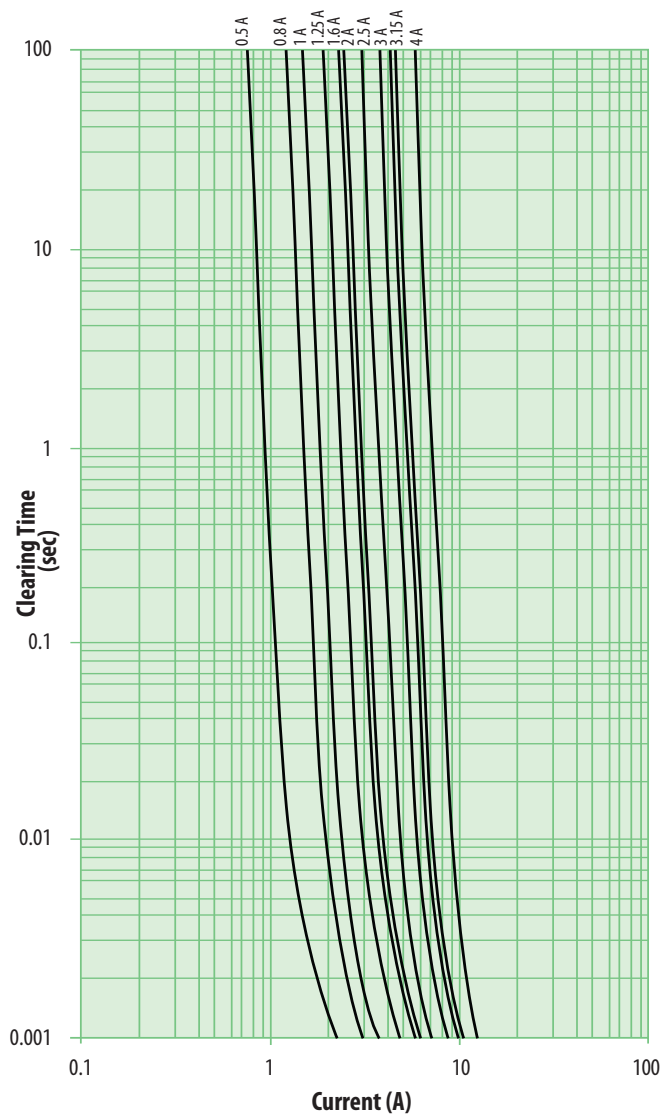


## Minimum I<sup>2</sup>T V Clear Time Curves

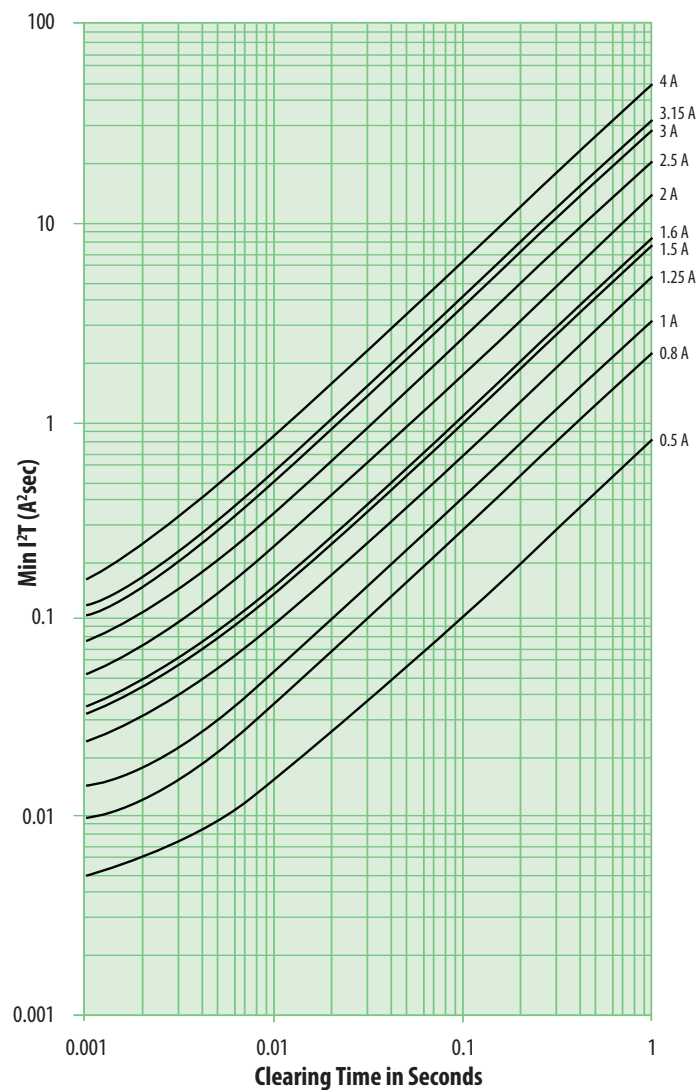


# SF-0402 F Series – Fast Acting Surface Mount Fuse

## Average Time Current Curves



## Minimum I<sup>2</sup>T V Clear Time Curves



# SF-0603 Series – 0603 Sized Thin Film Chip Fuse

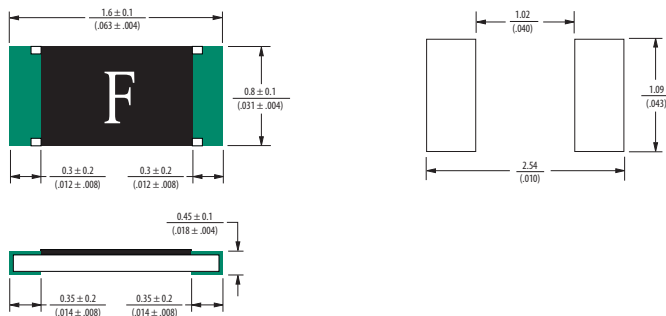
## Electrical Characteristics

Model	Rated Current	Fusing Time	Resistance (mΩ) Typ.*	Rated Voltage	Breaking Capacity	Typical I <sup>2</sup> t (A <sup>2</sup> s)
SF-0603F050-2	0.50 A	Open within 1 min. at 200 % rated current	250	DC 50 V	DC 50 V 50 A	0.005
SF-0603F063-2	0.63 A		173	DC 32 V	DC 32 V 50 A	0.007
SF-0603F080-2	0.80 A		115			0.014
SF-0603F100-2	1.00 A		88			0.016
SF-0603F125-2	1.25 A		63			0.027
SF-0603F150-2	1.50 A		45			0.037
SF-0603F160-2	1.60 A		42			0.041
SF-0603F200-2	2.00 A		33			0.044
SF-0603F250-2	2.50 A		24	DC 24 V	DC 24 V 50 A	0.055
SF-0603F300-2	3.00 A		21			0.082
SF-0603F315-2	3.15 A		19	DC 32 V	DC 32 V 50 A	0.089
SF-0603F400-2	4.00 A		15			0.239
SF-0603F500-2	5.00 A		12			0.433

Model	Rated Current	Fusing Time	Resistance (mΩ) Typ.*	Rated Voltage	Breaking Capacity	Typical I <sup>2</sup> t (A <sup>2</sup> s)
SF-0603S050-2	0.50 A	Open within 5 sec. at 250 % rated current	175	DC 50 V	DC 50 V 50 A	0.009
SF-0603S063-2	0.63 A		130	DC 32 V	DC 32 V 50 A	0.017
SF-0603S080-2	0.80 A		93			0.024
SF-0603S100-2	1.00 A		65			0.026
SF-0603S125-2	1.25 A		47			0.057
SF-0603S150-2	1.50 A		36			0.081
SF-0603S160-2	1.60 A		34			0.086
SF-0603S200-2	2.00 A		26			0.115
SF-0603S250-2	2.50 A		20	0.200		
SF-0603S300-2	3.00 A		16	0.210		
SF-0603S315-2	3.15 A		15	0.279		
SF-0603S400-2	4.00 A		12	0.326		
SF-0603S500-2	5.00 A		9	0.622		

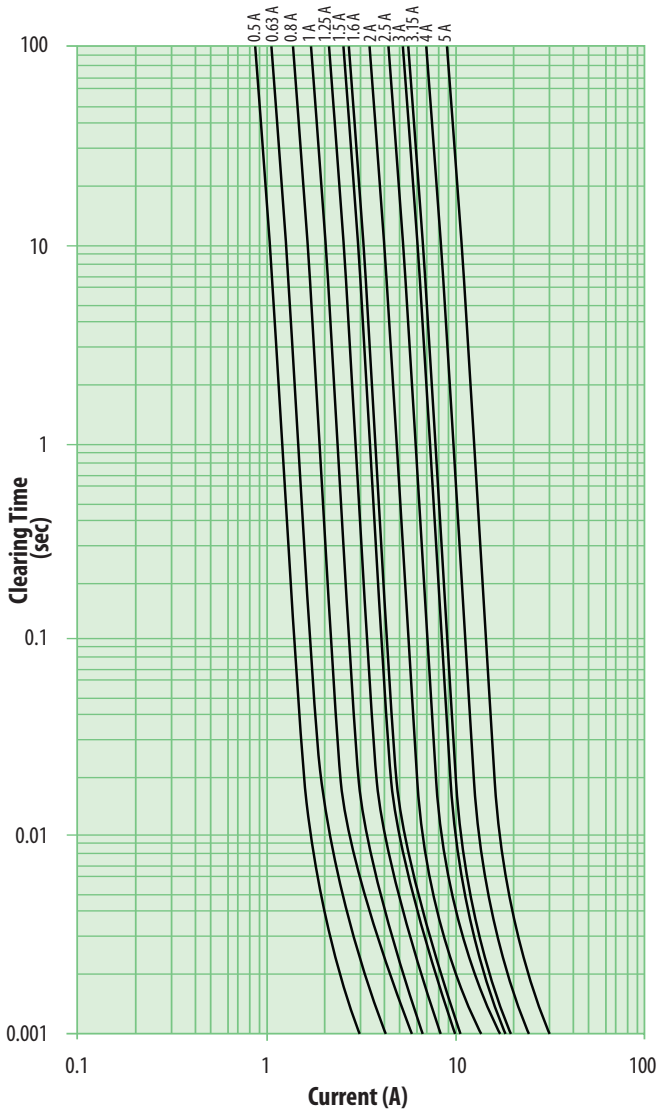
\*Resistance value was measured with less than 10 % of rated current.

## Product Dimensions

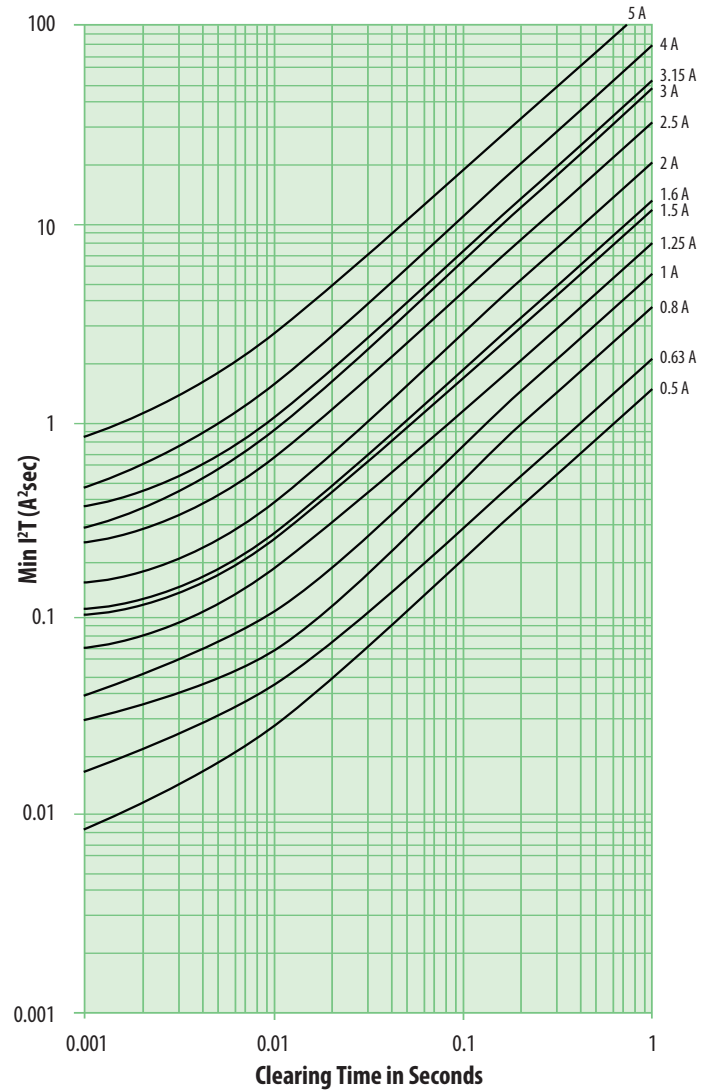


# SF-0603 S Series – Slow Blow Surface Mount Fuse

Average Time Current Curves

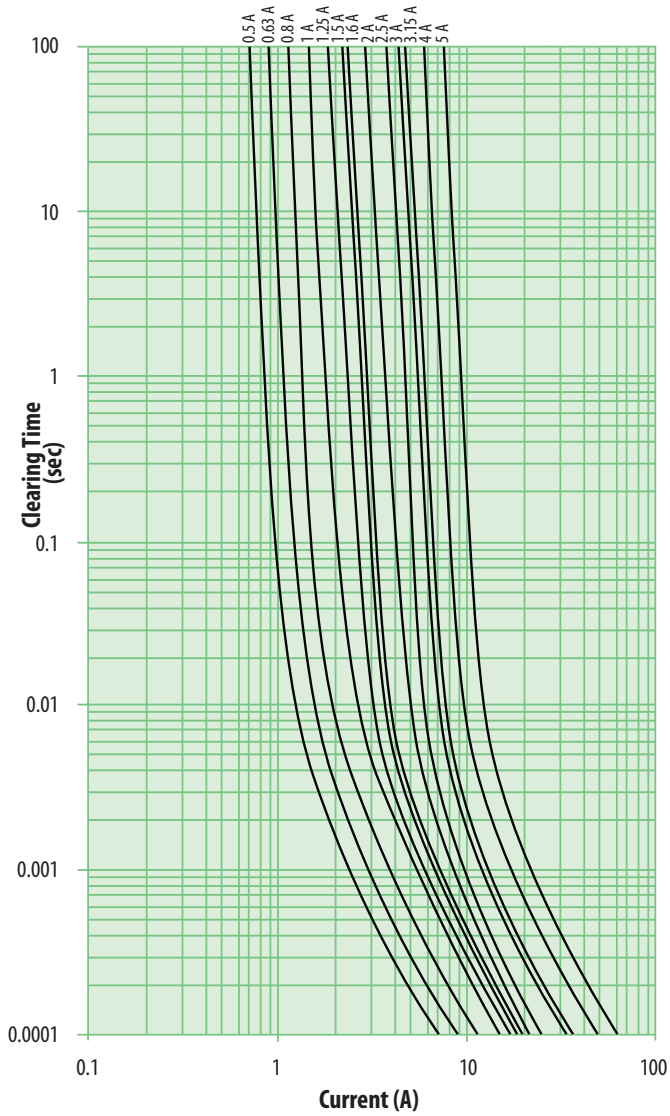


Minimum I<sup>2</sup>T V Clear Time Curves

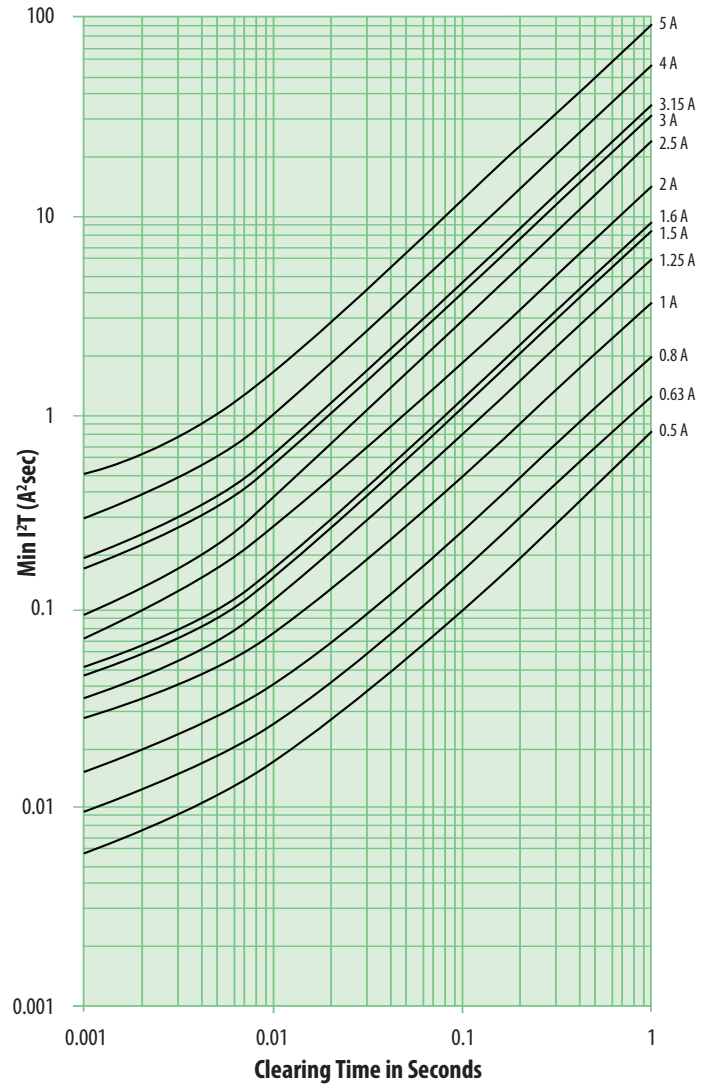


# SF-0603 F Series – Fast Acting Surface Mount Fuse

Average Time Current Curves



Minimum I<sup>2</sup>T Clear Time Curves





# SF-1206 Series – 1206 Sized Thin Film Chip Fuse

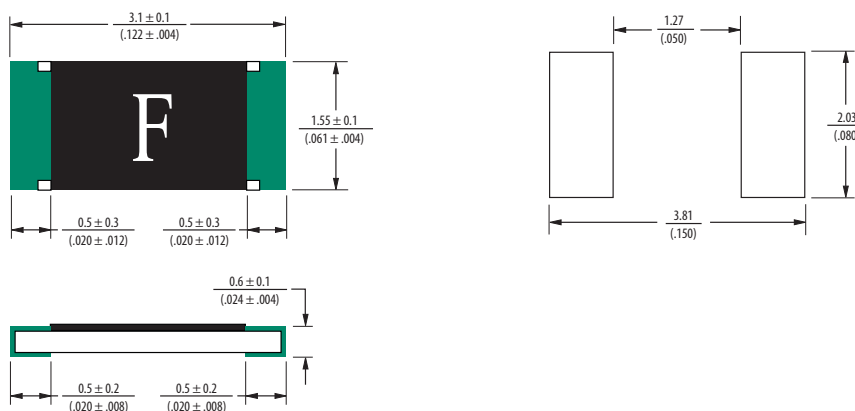
## Electrical Characteristics

Model	Rated Current	Fusing Time	Resistance (mΩ) Typ.*	Rated Voltage	Breaking Capacity	Typical I <sup>2</sup> t (A <sup>2</sup> -s)
SF-1206F050-2	0.50 A	Open within 1 min. at 250 % rated current	590	DC 63 V	DC 63 V 50 A	0.011
SF-1206F080-2	0.80 A		225			0.031
SF-1206F100-2	1.00 A		130			0.034
SF-1206F125-2	1.25 A		88			0.062
SF-1206F150-2	1.50 A		65			0.144
SF-1206F200-2	2.00 A		38			0.181
SF-1206F250-2	2.50 A		32	DC 32 V	DC 32 V 50 A	0.351
SF-1206F300-2	3.00 A		23			0.501
SF-1206F400-2	4.00 A		15	DC 24 V	DC 24 V 50 A	0.954
SF-1206F500-2	5.00 A		11			0.966
SF-1206F700-2	7.00 A		7			3.25

Model	Rated Current	Fusing Time	Resistance (mΩ) Typ.*	Rated Voltage	Breaking Capacity	Typical I <sup>2</sup> t (A <sup>2</sup> -s)
SF-1206S050-2	0.50 A	Open within 5 sec. at 250 % rated current	385	DC 63 V	DC 63 V 50 A	0.030
SF-1206S080-2	0.80 A		165			0.068
SF-1206S100-2	1.00 A		108			0.098
SF-1206S125-2	1.25 A		76			0.155
SF-1206S150-2	1.50 A		51			0.236
SF-1206S200-2	2.00 A		32			0.339
SF-1206S250-2	2.50 A		26	DC 32 V	DC 32 V 50 A	0.605
SF-1206S300-2	3.00 A		20			0.933
SF-1206S400-2	4.00 A		14	DC 24 V	DC 24 V 50 A	1.537
SF-1206S500-2	5.00 A		10			2.533
SF-1206S700-2	7.00 A		6.5			5.684

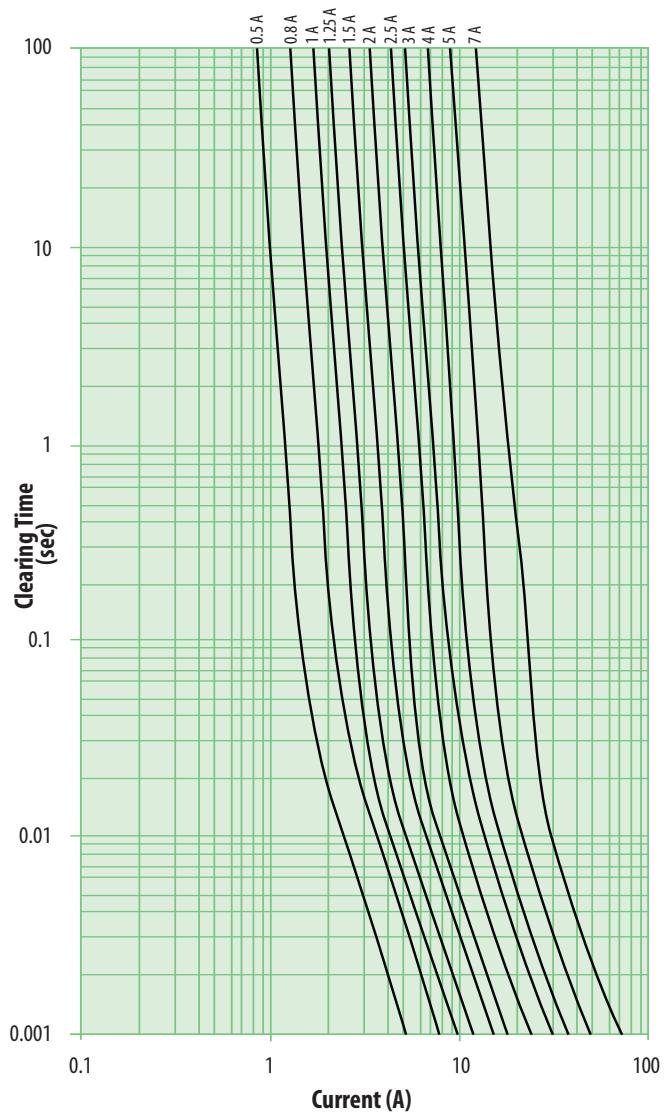
\*Resistance value was measured with less than 10 % of rated current.

## Product Dimensions

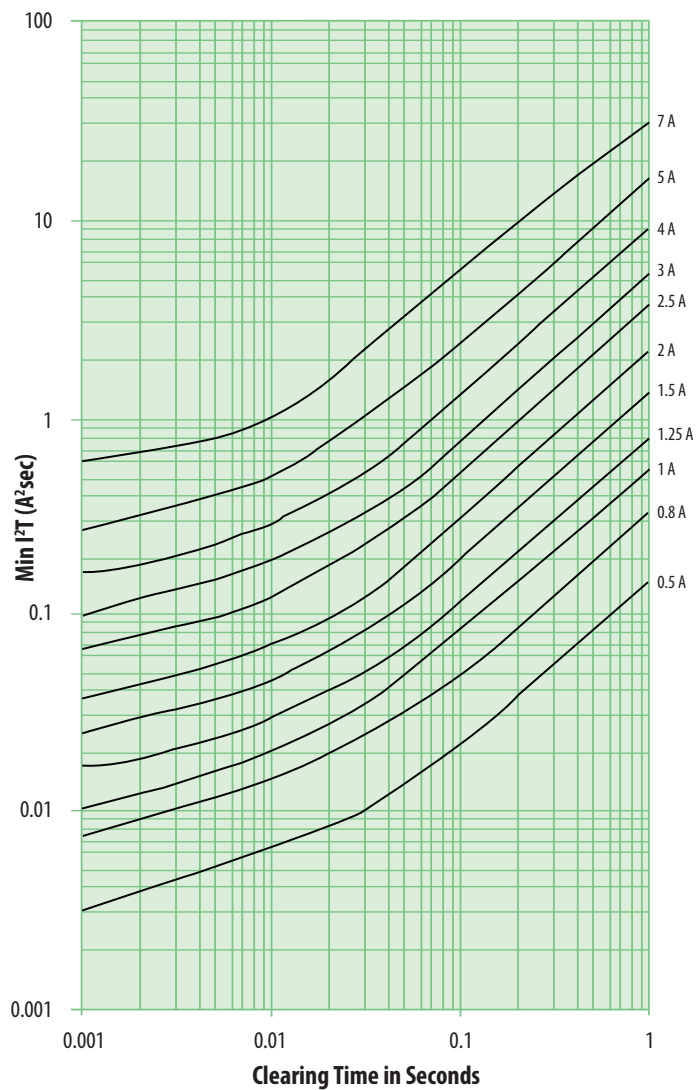


# SF-1206 S Series – Slow Blow Surface Mount Fuse

## Average Time Current Curves

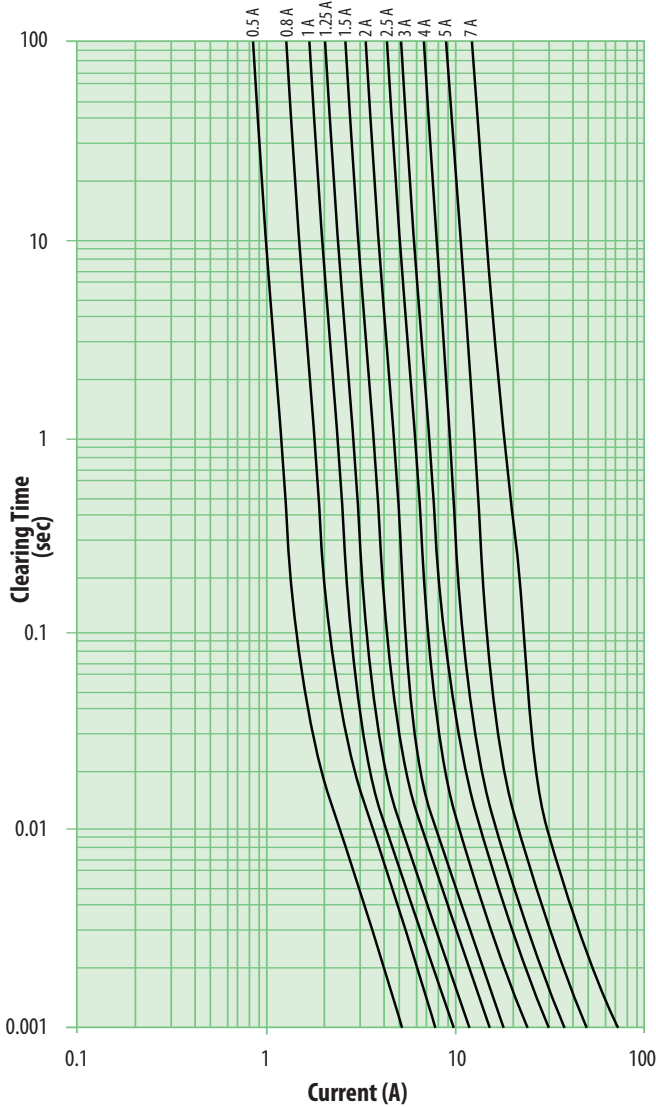


## Minimum I<sup>2</sup>T V Clear Time Curves

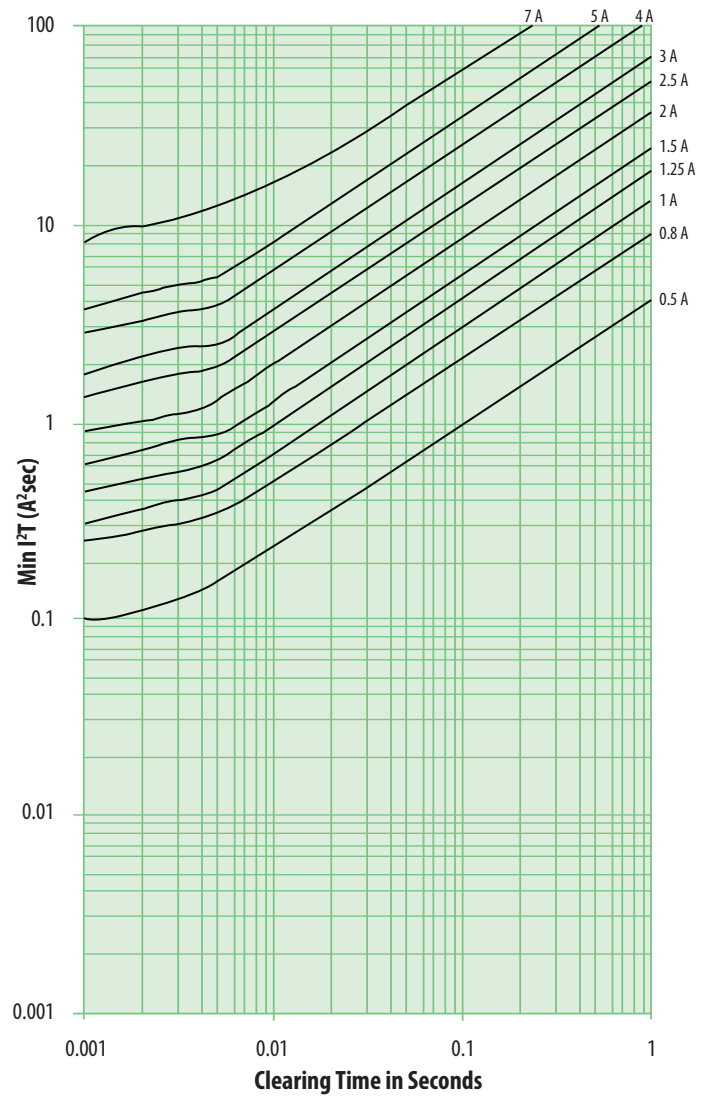


# SF-1206 F Series – Fast Acting Surface Mount Fuse

## Average Time Current Curves



## Minimum I<sup>2</sup>T V Clear Time Curves



## How To Order

Part Number SF- 0402 F 050 -2

SinglFuse™ Product Designator

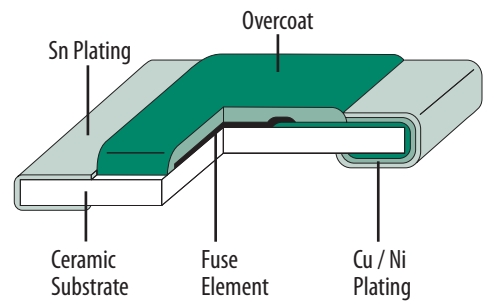
SMD Footprint  
 0402 (1005 metric) size  
 0603 (1508 metric) size  
 1206 (3216 metric) size

Fuse Blow Type  
 F – Fast Acting  
 S – Slow Blow

Rated Current  
 050 – 700 (500 mA – 7.00 A)

Packaging Type  
 -2 = Tape & Reel

## Construction & Material Content





### Worldwide Sales Offices

Country	Phone	Fax
Benelux:	+41 (0)41 768 5555	+41 (0)41 768 5510
Brazil:	+55 11 5505 0601	+55 11 5505 4370
China:	+86 21 64821250	+86 21 64821249
France:	+33 (0)2 5473 5151	+33 (0)2 5473 5156
Ireland/UK:	+41 (0)41 768 5555	+41 (0)41 768 5510
Italy:	+41 (0)41 768 5555	+41 (0)41 768 5510
Japan:	+81 49 269 3204	+81 49 269 3297
Malaysia (KL Office):	+60 3 71183138	+60 3 71183139
Malaysia (Penang Office):	+60 4 6581771	+60 4 6582771
Singapore:	+65 6348 7227	+65 6348 1272
Switzerland:	+41 (0)41 768 5555	+41 (0)41 768 5510
Taiwan:	+886 2 25624117	+886 2 25624116
UK/Ireland:	+41 (0)41 768 5555	+44 (0)41 768 5510
USA:	+1-951-781-5500	+1-951-781-5006

### Non-Listed European Countries:

+41 (0)41 768 5555      +41 (0)41 768 5510

### Technical Assistance

Region	Phone	Fax
Asia-Pacific:	+886 2 25624117	+886 2 25624116
Europe:	+41 (0)41 768 5555	+41 (0)41 768 5510
Americas:	+1-951-781-5500	+1-951-781-5700

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Bourns® products are available through an extensive network of manufacturer's representatives, agents and distributors. To obtain technical applications assistance, a quotation, or to place an order, contact a Bourns representative in your area.

Specifications subject to change without notice. Actual performance in specific customer applications may differ due to the influence of other variables. Customers should verify actual device performance in their specific applications.



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