

# SURFACE-MOUNT FUSES

## Slow-Blow Chip Fuses

Available in industry standard 1206 and 0603 chip sizes, Littelfuse slow-blow chip fuses help provide overcurrent protection on systems that experience large and frequent current surges as part of their normal operation.

The slow-blow chip fuse's monolithic, multilayer design helps provide some of the highest current ratings available in the 1206 and 0603 footprints and enhances high-temperature performance in a wide range of circuit protection designs. The devices' small size, high reliability and strong arc suppression characteristics make them suitable for overcurrent protection of power supplies, capacitor filter banks, Liquid Crystal Display (LCD) backlight inverters, electric motors and portable electronics.



### BENEFITS

- Time-delayed design prevents nuisance openings in pulsed and high inrush current applications
- Small size with high-current ratings
- Strong arc suppression characteristics

### FEATURES

- Lead-free materials and RoHS compliant
- Halogen free  
(refers to: Br $\geq$ 900ppm, Cl $\geq$ 900ppm, Br+Cl $\geq$ 1500ppm)
- Monolithic multilayer design
- High-temperature performance
- -55°C to +125°C operating temperature range

### APPLICATIONS

- Small motors systems
- Portable electronics
- Input power ports
- Power over Ethernet (PoE)
- Test equipment
- POL converter protection
- Computer drives
- Displays
- Printers

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### Table FS1 – Clear Time Characteristics

#### 0603SFS Series

| % of Rated Current | Clear Time at 25°C |              |
|--------------------|--------------------|--------------|
| 100%               | 4 hrs (min)        | —            |
| 200%               | 1 s (min)          | 120 s (max)  |
| 300%               | 0.1 s (min)        | 3 s (max)    |
| 800% (1.0A-1.5A)   | 0.0005 s (min)     | 0.05 s (max) |
| 800% (2.0A-5.0A)   | 0.001 s (min)      | 0.05 s (max) |

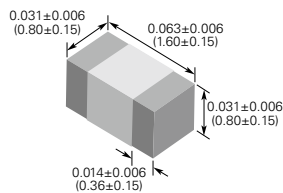
#### 1206SFS Series

| % of Rated Current | Clear Time at 25°C |              |
|--------------------|--------------------|--------------|
| 100%               | 4 hrs (min)        | —            |
| 200%               | 1 s (min)          | 120 s (max)  |
| 300%               | 0.1 s (min)        | 3 s (max)    |
| 800% (1.0A-1.5A)   | 0.0016 s (min)     | 0.05 s (max) |
| 800% (2.0A-8.0A)   | 0.002 s (min)      | 0.05 s (max) |

### Table FS2 – Typical Electrical Characteristics, Dimensions and Recommended Pad Layout

#### 0603 (1608 mm) Slow-Blow Chip Fuses

Shape and Dimensions in (mm)

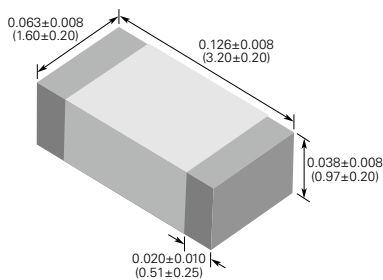


Recommended Pad Layout in (mm)

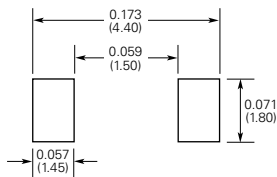


#### 1206 (3216 mm) Slow-Blow Chip Fuses

Shape and Dimensions in (mm)



Recommended Pad Layout in (mm)



| Part Number    | Typical                    |                       |  | Max                        |             |
|----------------|----------------------------|-----------------------|--|----------------------------|-------------|
|                | Electrical Characteristics |                       |  | Interrupt Ratings          |             |
|                | Rated Current (A)          | Nominal Cold DCR (Ω)* | Nominal I <sup>2</sup> t (A <sup>2</sup> sec) <sup>†</sup> | Voltage (V <sub>DC</sub> ) | Current (A) |
| 0603SFS100F/32 | 1.0                        | 0.200                 | 0.093  | 32                         | 50          |
| 0603SFS150F/32 | 1.5                        | 0.100                 | 0.18   | 32                         | 50          |
| 0603SFS200F/32 | 2.0                        | 0.052                 | 0.32   | 32                         | 50          |
| 0603SFS250F/32 | 2.5                        | 0.041                 | 0.63   | 32                         | 50          |
| 0603SFS300F/32 | 3.0                        | 0.031                 | 0.87   | 32                         | 50          |
| 0603SFS350F/32 | 3.5                        | 0.021                 | 1.20   | 32                         | 50          |
| 0603SFS400F/32 | 4.0                        | 0.017                 | 2.30   | 32                         | 50          |
| 0603SFS450F/32 | 4.5                        | 0.015                 | 2.70   | 32                         | 50          |
| 0603SFS500F/32 | 5.0                        | 0.013                 | 3.20   | 32                         | 50          |
| PSR-27781      | 6.0                        | 0.010                 | 4.00   | 32                         | 80          |
| PSR-27893      | 7.0                        | 0.008                 | 5.00   | 32                         | 80          |
| PSR-28024      | 8.0                        | 0.006                 | 7.00   | 32                         | 80          |

| Part Number    | Typical                    |                       |  | Max                        |             |
|----------------|----------------------------|-----------------------|--|----------------------------|-------------|
|                | Electrical Characteristics |                       |  | Interrupt Ratings          |             |
|                | Rated Current (A)          | Nominal Cold DCR (Ω)* | Nominal I <sup>2</sup> t (A <sup>2</sup> sec) <sup>†</sup> | Voltage (V <sub>DC</sub> ) | Current (A) |
| 1206SFS100F/63 | 1.0                        | 0.360                 | 0.11   | 63                         | 50          |
| 1206SFS125F/63 | 1.25                       | 0.200                 | 0.22   | 63                         | 50          |
| 1206SFS150F/63 | 1.5                        | 0.150                 | 0.23   | 63                         | 50          |
| 1206SFS200F/63 | 2.0                        | 0.088                 | 0.63   | 63                         | 50          |
| 1206SFS250F/32 | 2.5                        | 0.065                 | 0.90   | 32                         | 50          |
| 1206SFS300F/32 | 3.0                        | 0.034                 | 1.20   | 32                         | 50          |
| 1206SFS350F/32 | 3.5                        | 0.028                 | 1.60   | 32                         | 50          |
| 1206SFS400F/32 | 4.0                        | 0.024                 | 2.20   | 32                         | 50          |
| 1206SFS450F/32 | 4.5                        | 0.020                 | 3.60   | 32                         | 50          |
| 1206SFS500F/32 | 5.0                        | 0.016                 | 5.30   | 32                         | 50          |
| 1206SFS550F/24 | 5.5                        | 0.014                 | 6.40   | 24                         | 50          |
| 1206SFS600F/24 | 6.0                        | 0.011                 | 8.50   | 24                         | 60          |
| 1206SFS700F/24 | 7.0                        | 0.010                 | 10.00  | 24                         | 60          |
| 1206SFS800F/24 | 8.0                        | 0.009                 | 16.90  | 24                         | 60          |

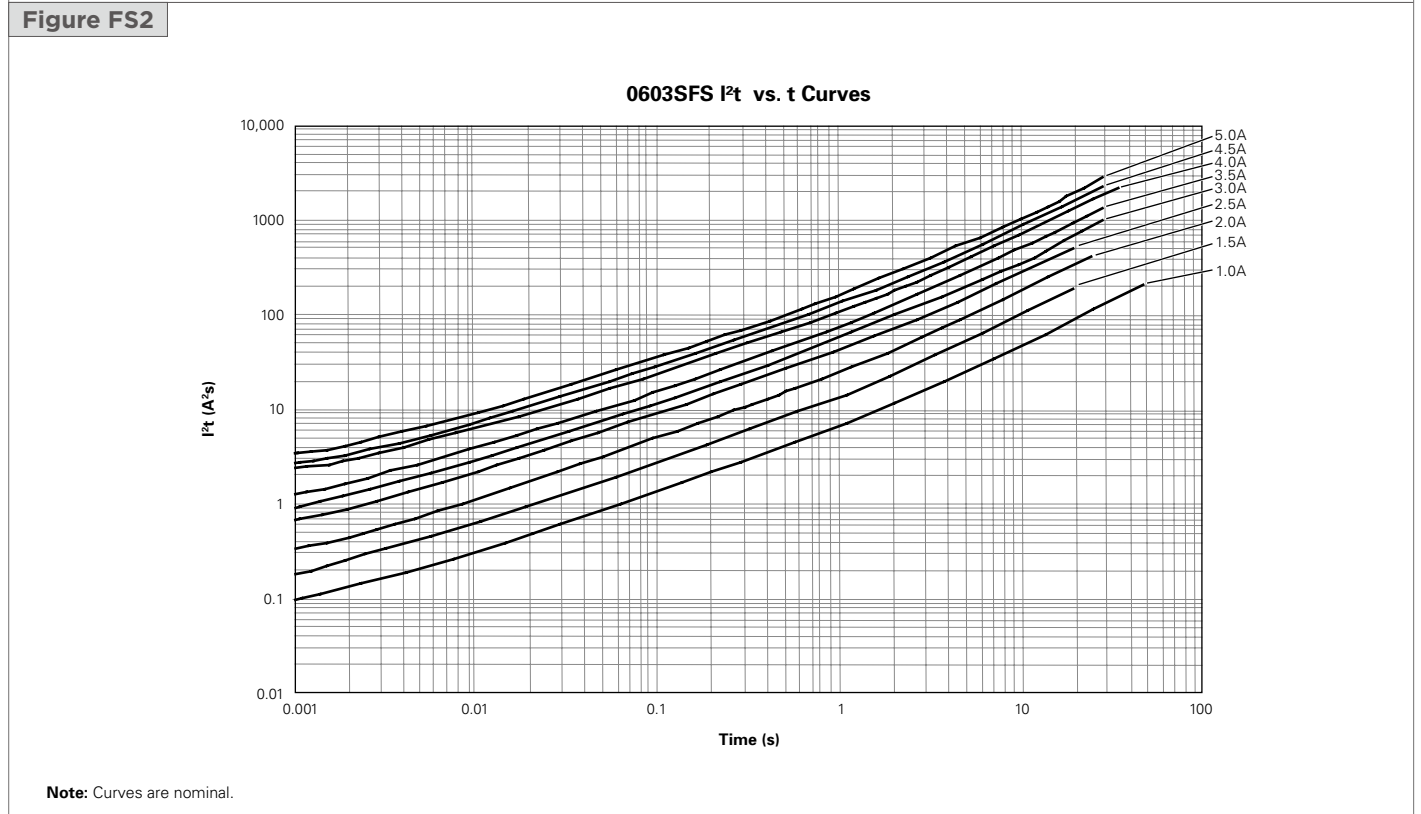
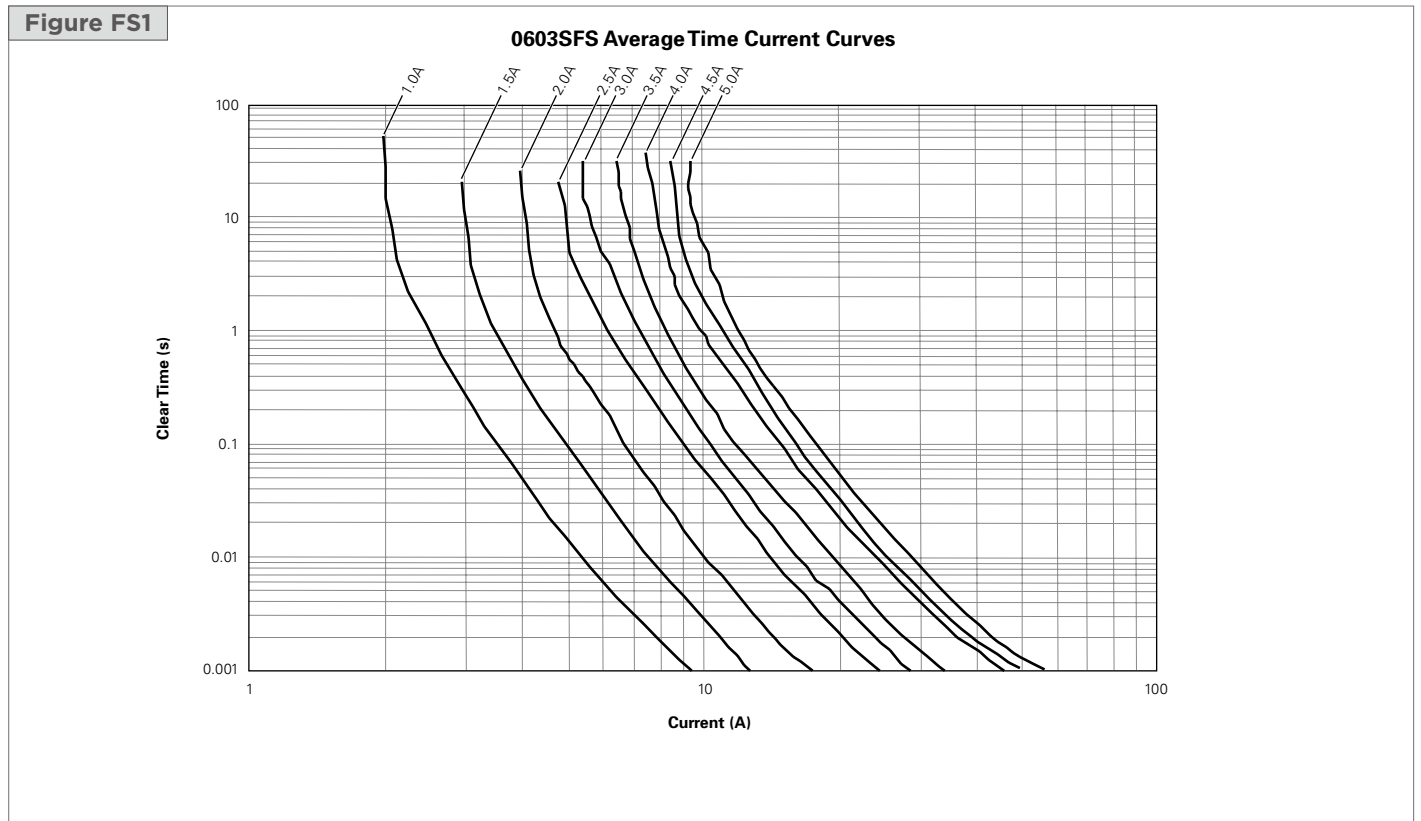
\* Measured at ≤10% of rated current and 25°C ambient temperature.

† Melting I<sup>2</sup>t at 0.001 sec clear time.

# Surface Mount Fuses

## Slow-Blow Chip Fuses

### Figures FS1-FS6 – Family Performance Curves



# Surface Mount Fuses Slow-Blow Chip Fuses

## Figures FS1-FS6 — Family Performance Curves

(Cont'd)

Figure FS3



Figure FS4



Note: Curves are nominal.

→ Please go to page 108 for more information about Slow-Blow Chip Fuses.

# Surface Mount Fuses Slow-Blow Chip Fuses

## Figures FS1-FS6 — Family Performance Curves

(Cont'd)

**Figure FS5**

0603SFS PSR part Average Time Current Curves



**Figure FS6**

0603SFS PSR part I<sup>2</sup>t vs. t Curve



**Note:** Curves are nominal.

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- Поставка образцов и прототипов;
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