SinglFuse™ SF-0603HlxxxF Series Features

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

SF-0603HlxxxF Series - High Inrush Current Withstand Surface Mount Fuses

Electrical Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Current (Amps)</th>
<th>Fusing Time</th>
<th>Resistance (Ω) Typ.***</th>
<th>Rated Voltage</th>
<th>Interrupting Rating</th>
<th>Typical I2t (A2 s) ****</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF-0603Hl050F-2</td>
<td>0.50</td>
<td>Open within 60 sec. at 200 % rated current</td>
<td>0.1550</td>
<td>DC 65 V</td>
<td>AC/DC 35 V 50 A</td>
<td>0.019</td>
</tr>
<tr>
<td>SF-0603Hl075F-2</td>
<td>0.75</td>
<td></td>
<td>0.0830</td>
<td>DC 65 V 13 A</td>
<td>0.036</td>
<td></td>
</tr>
<tr>
<td>SF-0603Hl100F-2</td>
<td>1.00</td>
<td></td>
<td>0.0500</td>
<td>DC 35 V</td>
<td>0.052</td>
<td></td>
</tr>
<tr>
<td>SF-0603Hl150F-2</td>
<td>1.50</td>
<td></td>
<td>0.0290</td>
<td>AC/DC 35 V 35 A</td>
<td>0.110</td>
<td></td>
</tr>
<tr>
<td>SF-0603Hl200F-2</td>
<td>2.00</td>
<td></td>
<td>0.0200</td>
<td>AC/DC 24 V 50 A</td>
<td>0.310</td>
<td></td>
</tr>
<tr>
<td>SF-0603Hl250F-2</td>
<td>2.50</td>
<td></td>
<td>0.0165</td>
<td></td>
<td>0.400</td>
<td></td>
</tr>
<tr>
<td>SF-0603Hl300F-2</td>
<td>3.00</td>
<td></td>
<td>0.0140</td>
<td></td>
<td>0.600</td>
<td></td>
</tr>
<tr>
<td>SF-0603Hl350F-2</td>
<td>3.50</td>
<td></td>
<td>0.0120</td>
<td></td>
<td>0.800</td>
<td></td>
</tr>
<tr>
<td>SF-0603Hl400F-2</td>
<td>4.00</td>
<td></td>
<td>0.0095</td>
<td></td>
<td>1.200</td>
<td></td>
</tr>
</tbody>
</table>

*** Resistance value measured with ±10 % rated current at 25 °C ambient. Tolerance ±25 %.
**** Melting I2t calculated at 0.001 second pre-arcing time.

Reliability Testing

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

Agency Recognition

UL File Number .................................................................................................. E198545

WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

** 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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SinglFuse™ SF-0603HIxxxF 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
- Power tools
- Battery Management Systems (BMS)

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

SF-0603HI015F2

How to Order

- Product Designator: SF-0603HI015F2
- SMD Footprint: 0603 = 1608 (EIA 0603) size
- Fuse Blow Type: HI = High Inrush Current Withstand
- Rated Current: 050 ~ 400 (500 mA ~ 4.0 A)
- Structure Type: F = Thin film
- Packaging Type: -2 = Tape & Reel

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Profile Feature | Pb-Free Assembly
--- | ---
Preheat / Soak: Temperature Min. ($T_{\text{min}}$) | 150 °C
Temperature Max. ($T_{\text{max}}$) | 200 °C
Time ($t_p$) from ($T_{\text{min}}$ to $T_{\text{max}}$) | 60–120 seconds
Ramp Up Rate ($T_L$ to $T_p$) | 3 °C / second max.
Liqudous Temperature ($T_L$) | 217 °C
Time ($t_L$) maintained above $T_L$ | 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 ($T_p$) is defined as a supplier minimum and a user maximum.

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SF-0603HxxxF Series Tape and Reel Packaging Specifications

**Tape Dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>8.10 ± 0.20</td>
<td>(.319 ± .008)</td>
</tr>
<tr>
<td>P₀</td>
<td>4.0 ± 0.10</td>
<td>(.157 ± .004)</td>
</tr>
<tr>
<td>P₁</td>
<td>4.0 ± 0.10</td>
<td>(.157 ± .004)</td>
</tr>
<tr>
<td>P₂</td>
<td>2.9 ± 0.05</td>
<td>(.114 ± .002)</td>
</tr>
<tr>
<td>A₀</td>
<td>1.00 ± 0.10</td>
<td>(.039 ± .004)</td>
</tr>
<tr>
<td>B₀</td>
<td>1.80 ± 0.10</td>
<td>(.071 ± .004)</td>
</tr>
<tr>
<td>F</td>
<td>3.50 ± 0.05</td>
<td>(.138 ± .002)</td>
</tr>
<tr>
<td>E₁</td>
<td>1.75 ± 0.10</td>
<td>(.069 ± .004)</td>
</tr>
<tr>
<td>D₀</td>
<td>1.55 ± 0.05</td>
<td>(.061 ± .002)</td>
</tr>
</tbody>
</table>

**Packaging:** Paper tape, 8,000 pcs. per reel

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