Selecting the appropriate SinglFuse™ SMD Fuse for your application is easy - just follow these simple steps:

Step 1. What is the preferred product footprint?
- 0402 – refer to the following data sheets:
  - SF-0402S Series
  - SF-0402S-M Series
  - SF-0402FP Series
  - SF-0402FP-F Series
  - SF-0402F Series

- 0603 – refer to the following data sheets:
  - SF-0603S Series
  - SF-0603S-M Series
  - SF-0603SA-M Series*
  - SF-0603SP Series
  - SF-0603SPA-R Series*
  - SF-0603F Series
  - SF-0603FP Series
  - SF-0603HI-M Series

- 1206 – refer to the following data sheets:
  - SF-1206S Series
  - SF-1206S-M Series
  - SF-1206SA-M Series*
  - SF-1206SA-R Series*
  - SF-1206SP Series
  - SF-1206SP-M Series
  - SF-1206F Series
  - SF-1206F-M Series
  - SF-1206HI-M Series

- 2410 – refer to the following data sheets:
  - SF-2410F-W Series
  - SF-2410FA-W Series*
  - SF-2410F-T Series
  - SF-2410FP-W Series
  - SF-2410FPA-W Series*
  - SF-2410FP-T Series
  - SF-2410SP-W Series
  - SF-2410HI-T Series

- 2923 – refer to the following data sheets:
  - SF-2923HC-C Series

- 3812 – refer to the following data sheets:
  - SF-3812F-T Series
  - SF-3812FG-T Series
  - SF-3812TL-T Series
  - SF-3812TM-T Series
  - SF-3812SP-T Series

* AEC-Q200 Compliant

Step 2. What is the normal operating current of the circuit?

Hint: Select a SinglFuse™ SMD fuse with a rated current greater than the operating current since a fuse is typically derated 25% for operation at 25 °C to avoid nuisance blowing. For example, if a customer wants a 1206 surface mount one-time fuse and has an operating current of 5.5 A, a fuse with a rated current greater than 7.3 A will be recommended (5.5 A / 0.75 = 7.3 A).

<table>
<thead>
<tr>
<th>Series</th>
<th>Rated Current</th>
<th>Rated Voltage</th>
<th>Fusing Time</th>
<th>Typical $I^2t$ (A²s)</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF-1206SxxxM</td>
<td>0.5 – 8 A</td>
<td>32 – 63 VDC</td>
<td>5 sec @ 250 % Ir</td>
<td>0.002 – 2.3</td>
<td>–55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206SxxxW</td>
<td>1.5 – 15 A</td>
<td>32 – 65 VDC</td>
<td>5 sec @ 250 % Ir</td>
<td>0.37 – 24.5</td>
<td>–55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206SP</td>
<td>0.5 – 7 A</td>
<td>32 – 63 VDC</td>
<td>1 - 120 sec @ 200 % Ir</td>
<td>0.027 – 10.17</td>
<td>–20 to 105 °C</td>
</tr>
<tr>
<td>SF-1206SPxxxM</td>
<td>1 – 8 A</td>
<td>24 – 63 VDC</td>
<td>1 - 120 sec @ 200 % Ir</td>
<td>0.11 – 16.9</td>
<td>–55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206F</td>
<td>0.5 – 7 A</td>
<td>32 – 63 VDC</td>
<td>60 sec @ 200 % Ir</td>
<td>0.011 – 3.25</td>
<td>–20 to 105 °C</td>
</tr>
<tr>
<td>SF-1206FP</td>
<td>0.5 – 7 A</td>
<td>32 – 63 VDC</td>
<td>5 sec @ 200 % Ir</td>
<td>0.015 – 3.3</td>
<td>–20 to 105 °C</td>
</tr>
<tr>
<td>SF-1206HxxM</td>
<td>1 – 8 A</td>
<td>24 – 63 VDC</td>
<td>60 sec @ 200 % Ir</td>
<td>0.11 – 60</td>
<td>–55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206HxxM</td>
<td>10 – 30 A</td>
<td>24 VDC</td>
<td>5 sec @ 350 % Ir</td>
<td>12 – 270</td>
<td>–55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206HxxM</td>
<td>10 – 40 A</td>
<td>35 VDC</td>
<td>5 sec @ 350 % Ir</td>
<td>15 – 240</td>
<td>–55 to 125 °C</td>
</tr>
</tbody>
</table>
Step 3. What is the ambient temperature of the circuit?

**Hint:** Refer to the Operating Temperature of the data sheet and select a SinglFuse™ SMD fuse which is suitable for the ambient temperature. For example, if a customer wants a 1206 surface mount one-time fuse with a rated current greater than 7.3 A and it will be used at an ambient temperature of 115 °C, then the SF-1206SxxxM / SF-1206SxxxW / SF-1206SPxxxM / SF-1206HHxxxM / SF-1206HVxxxM / SF-1206HVxxM series will be suitable as the rated current and ambient temperature requirements can be satisfied.

<table>
<thead>
<tr>
<th>Series</th>
<th>Part Number</th>
<th>Rated Current</th>
<th>Rated Voltage</th>
<th>Fusing Time</th>
<th>Typical I²t (A²s)</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF-1206SxxxM</td>
<td>SF-1206S800M-2</td>
<td>8 A</td>
<td>32 VDC</td>
<td>5 sec @ 250 % Iₚ</td>
<td>2.3</td>
<td>-55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206SxxxW</td>
<td>SF-1206S800W-2</td>
<td>8 A</td>
<td>32 VDC</td>
<td>5 sec @ 250 % Iₚ</td>
<td>13.5</td>
<td>-55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206SPxxxM</td>
<td>SF-1206SP800M-2</td>
<td>8 A</td>
<td>24 VDC</td>
<td>1–120 sec @ 250 % Iₚ</td>
<td>16.9</td>
<td>-55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206HHxxxM</td>
<td>SF-1206HH800M-2</td>
<td>8 A</td>
<td>24 VDC</td>
<td>60 sec @ 200 % Iₚ</td>
<td>60</td>
<td>-55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206HHxxM</td>
<td>SF-1206HH10M-2</td>
<td>10 A</td>
<td>24 VDC</td>
<td>5 sec @ 350 % Iₚ</td>
<td>12</td>
<td>-55 to 125 °C</td>
</tr>
<tr>
<td>SF-1206HVxxM</td>
<td>SF-1206HV10M-2</td>
<td>10 A</td>
<td>35 VDC</td>
<td>5 sec @ 350 % Iₚ</td>
<td>15</td>
<td>-55 to 125 °C</td>
</tr>
</tbody>
</table>

This model satisfies all the customer’s requirements in this example

Step 4. What is the maximum circuit voltage?

**Hint:** Select a SinglFuse™ SMD fuse with a rated voltage equal to or greater than the circuit voltage. For example, if a customer wants a 1206 surface mount one-time fuse with a rated current greater than 7.3 A, an ambient temperature of 115 °C, and a maximum circuit voltage of 32 V, then part numbers SF-1206S800M-2 / SF-1206S800W-2 / SF-1206HV10M-2 will be suitable as the rated voltage is equal to or greater than the circuit voltage of 32 V while the operating current and ambient temperature requirements are also met.

**Step 5. What is the nominal melt I²t?**

**Hint:** Refer to the Typical I²t of the data sheet and select a SinglFuse™ SMD fuse with suitable I²t to avoid blowing by pulse current in the circuit. For example, if a customer wants a 1206 surface mount one-time fuse with a rated current greater than 7.3 A, ambient temperature of 115 °C, maximum circuit voltage of 32 V, and a nominal melt I²t of 14 A²sec, then part number SF-1206HV10M-2 would be a suitable model as the typical I²t of 15 A²sec is greater than nominal melt I²t of 14 A²sec.

Step 6. Request samples from your nearest Bourns representative and start testing in your application.

Additional product selection support is available using the Bourns Parametric Search tool: [www.bourns.com/parametric-search](http://www.bourns.com/parametric-search)