

# Self Control Protector (SCP) - SFS series Datasheet -

Dexerials Corporation

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caution

The technical data in this document, which was acquired on the basis of reliable tests, does not guarantee full performance as in the document in any instance. Users assume total responsibility and risk for their use of this product for any purposes of use under any use conditions.

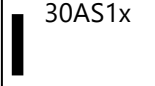
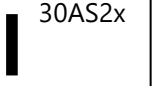
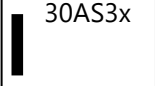
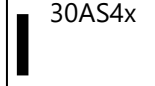


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# SFS-xx30A Series Specification

## ● Products Lineup

	1 cell	2 cells	3 cells	4 cells
<b>Product</b> ( Suffix: X = any letter(*) )	<b>SFS-0430x</b>	<b>SFS-0830x</b>	<b>SFS-1230x</b>	<b>SFS-1430x</b>
Rated Current	30 A			
Dimension	5.4 <sup>+0.3/-0.2</sup> x 3.2 <sup>+0.3/-0.2</sup> x 0.9 <sup>±0.1</sup> mm			
Fuse Resistance (Typical)	0.55 m-ohm			
Operating Voltage	3.8-5.0 V	8.1-9.6 V	11.4-15.0 V	14.4-19.6 V
Heater Resistance	0.50-0.80 ohm	2.97 - 4.37 ohm	5.62 - 8.67 ohm	9.6 – 13.8 ohm
Marking				

Items	General Specification	
Environmental Compliance	Compliance with RoHS	
Halogen Free	Bromine (Br)=900 ppm or less, Chlorine (Cl)=900 ppm or less, Br + Cl=1500 ppm or less (By weight)	
Antimony Free	700 ppm or less	
Lead Free	1000 ppm or less	
Qualification	UL248-14 (File No. E167588), TUV (Certificate No. J9650637)	
Rated Breaking Capacity Rated Voltage	UL	80 A at 36 VDC (This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.)
	TUV	80 A at 36 VDC (This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.)
Re-flow Temp. (MAX)	260 °C	

(\*)"x" is defined according to the version of the product. The latest letter is "A"

\*Notice: The specification may be subject to change without prior notice in the future.

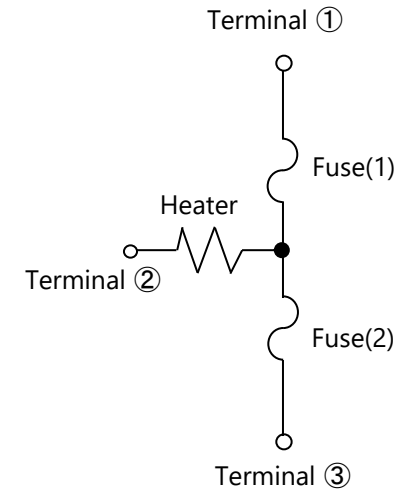
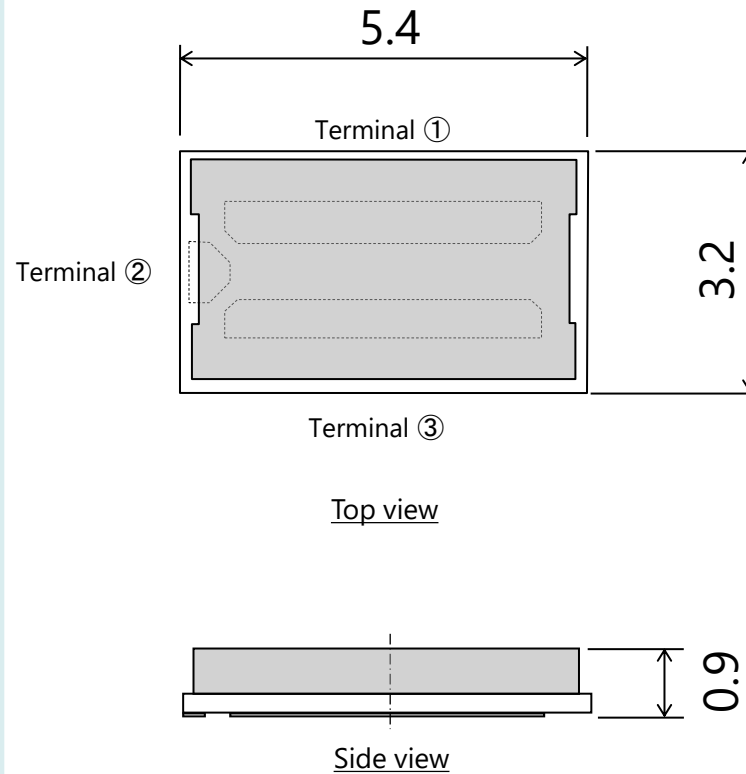
# External View & Equivalent Circuit

Product Name

External View

Equivalent Circuit

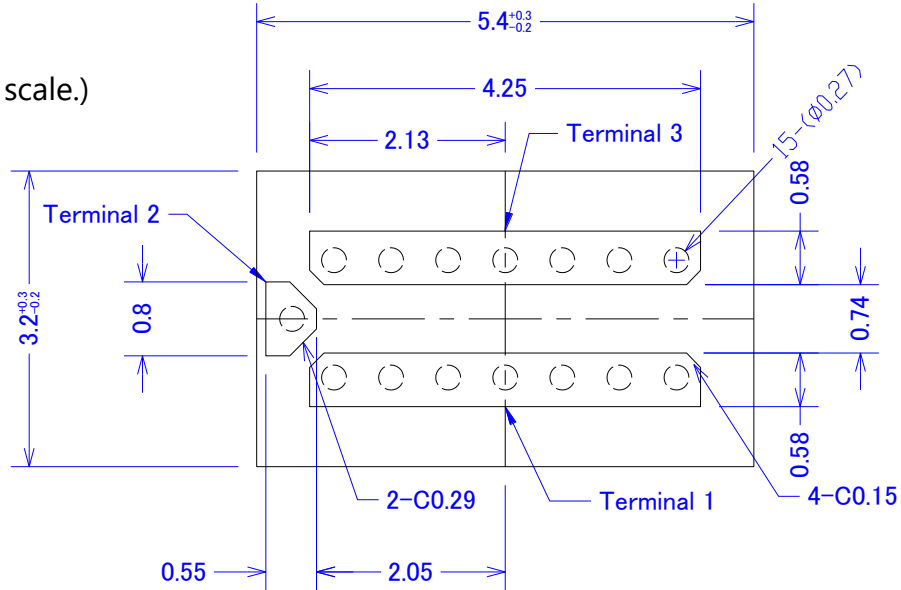
**SFS Series**



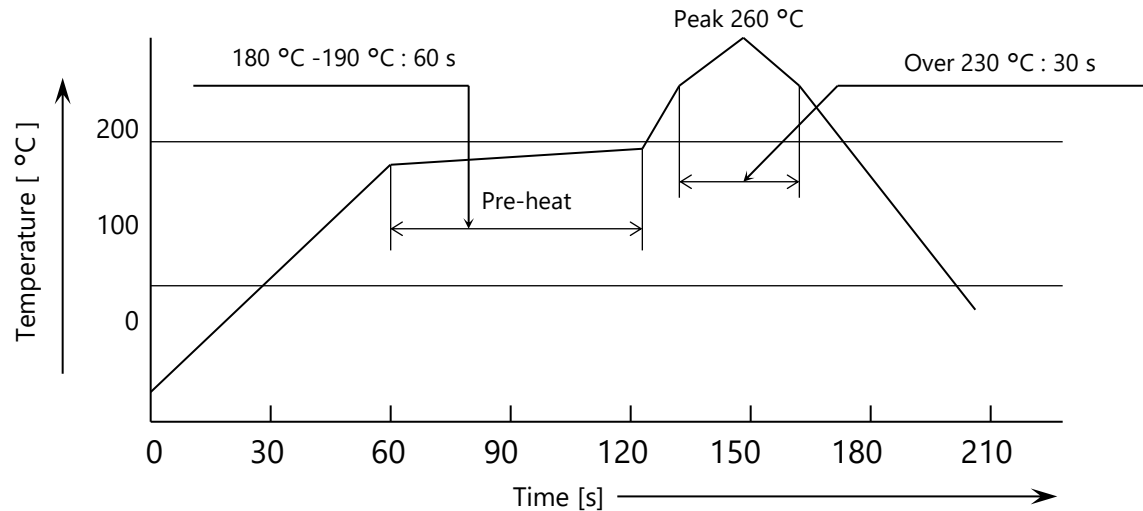
Unit : mm

# Terminal Size & Reflow Soldering

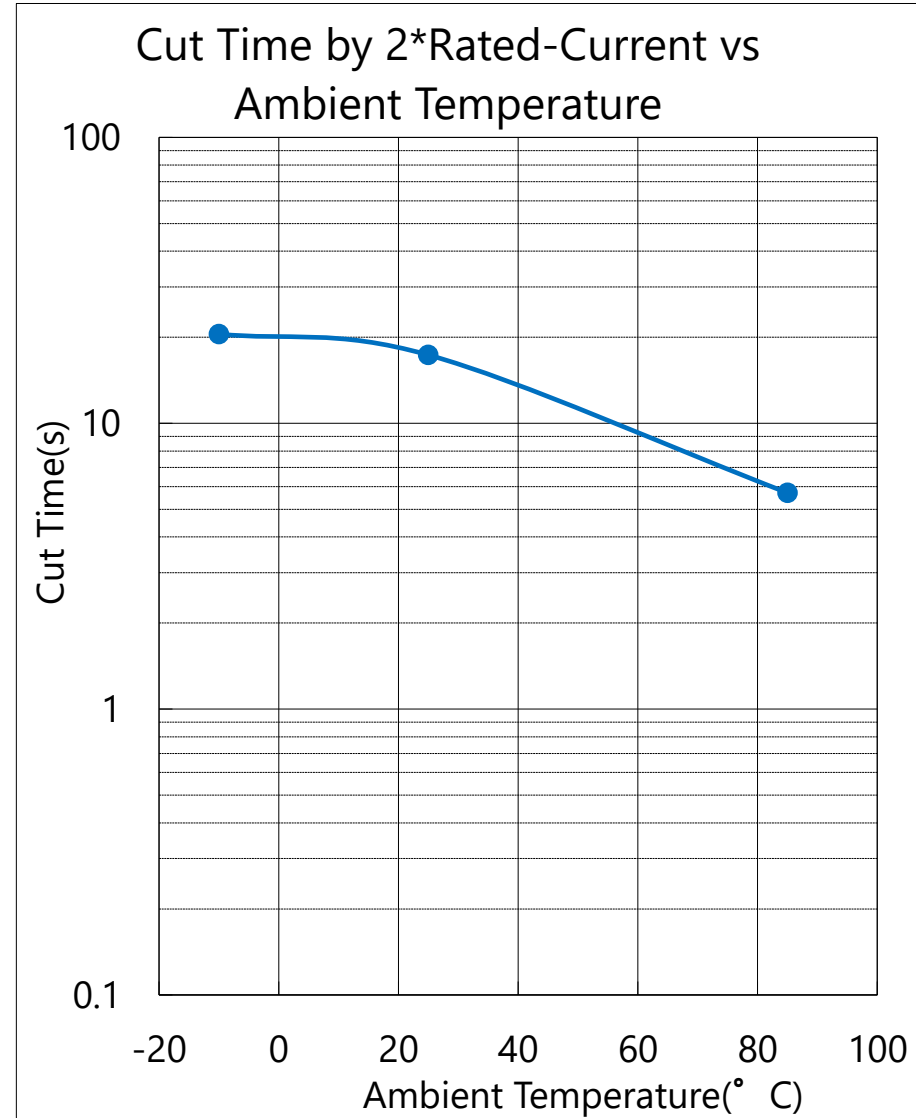
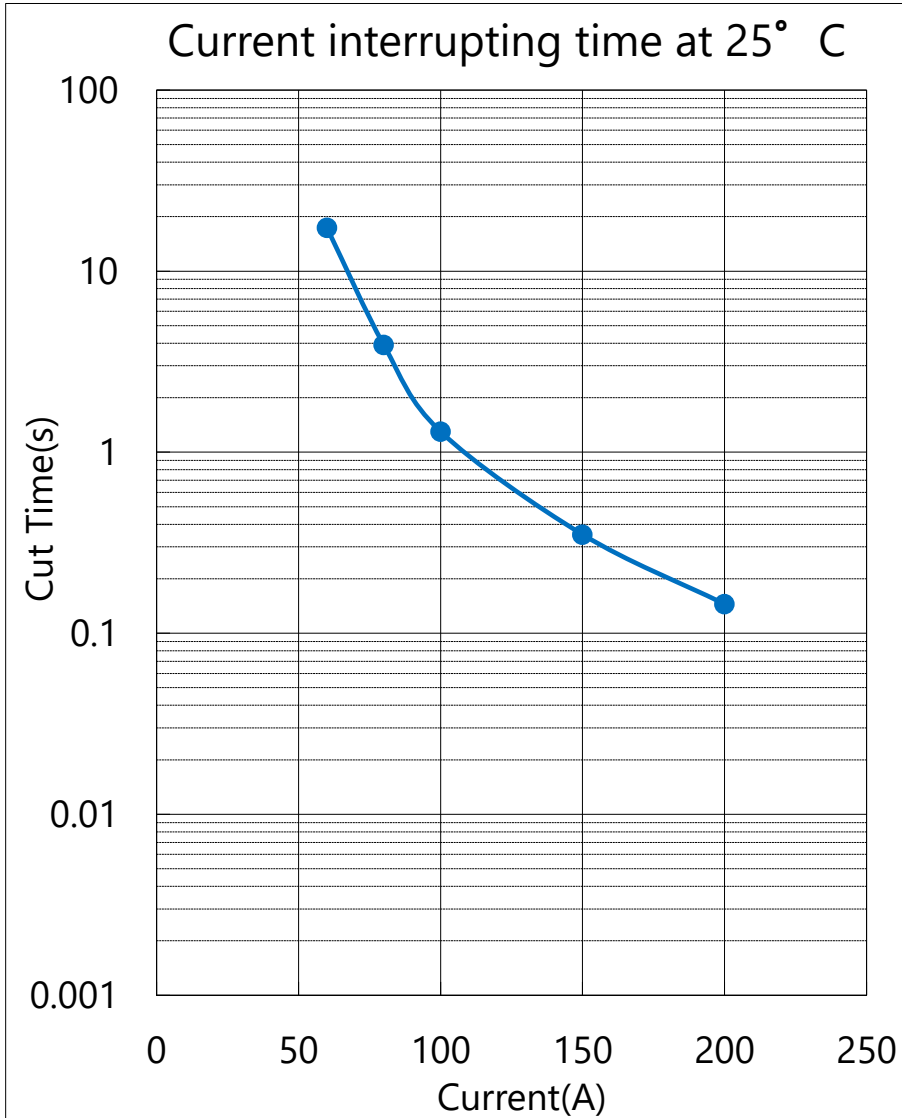
## ● Terminal Size (Unit: mm. Not in scale.)



## ● Reflow soldering Profile (Temperature shown below is measured at the electrode portion of SCP.)

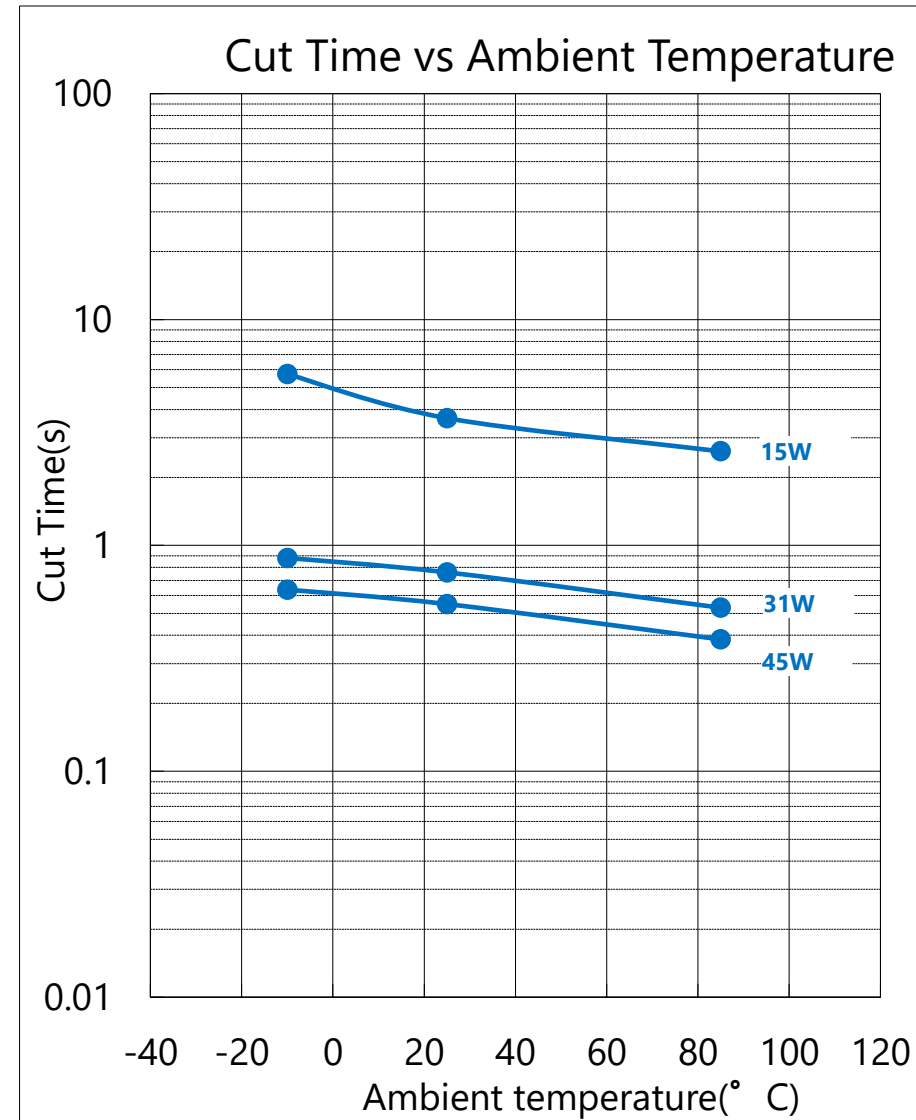
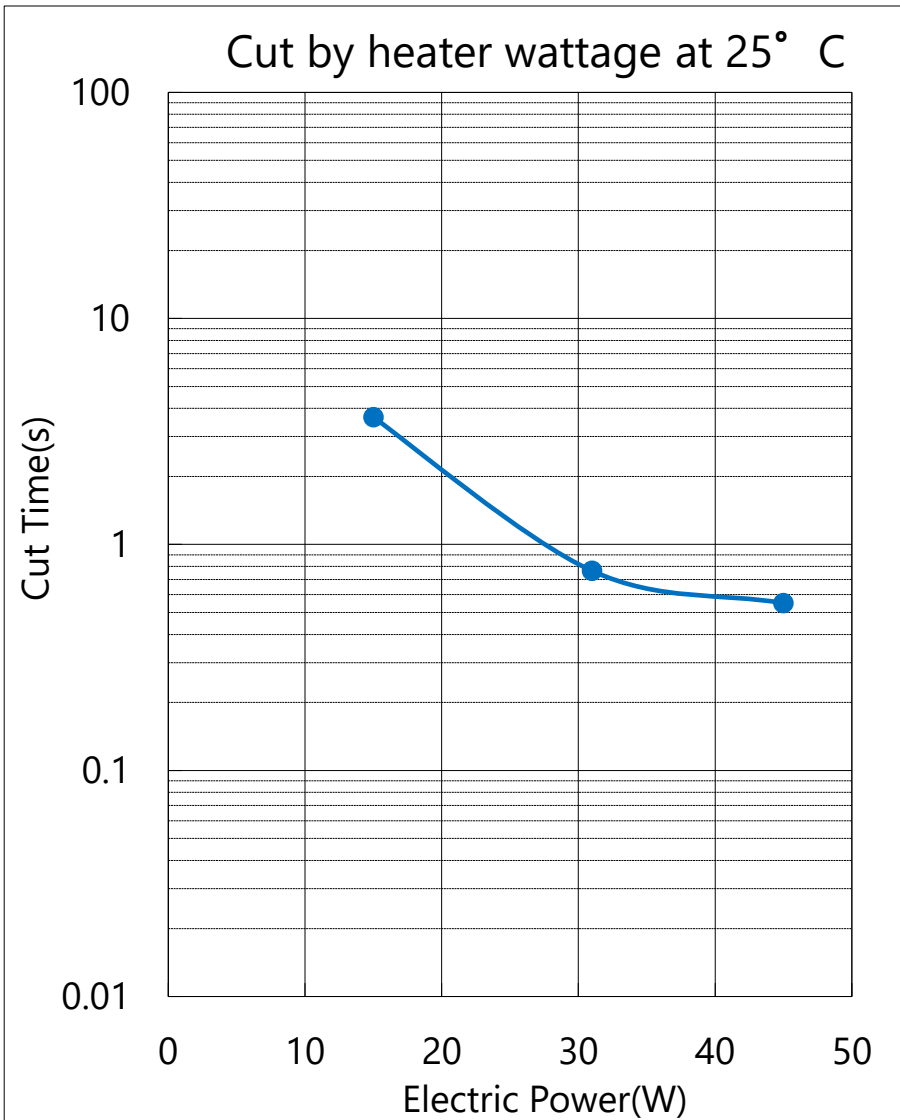


# Current Operation



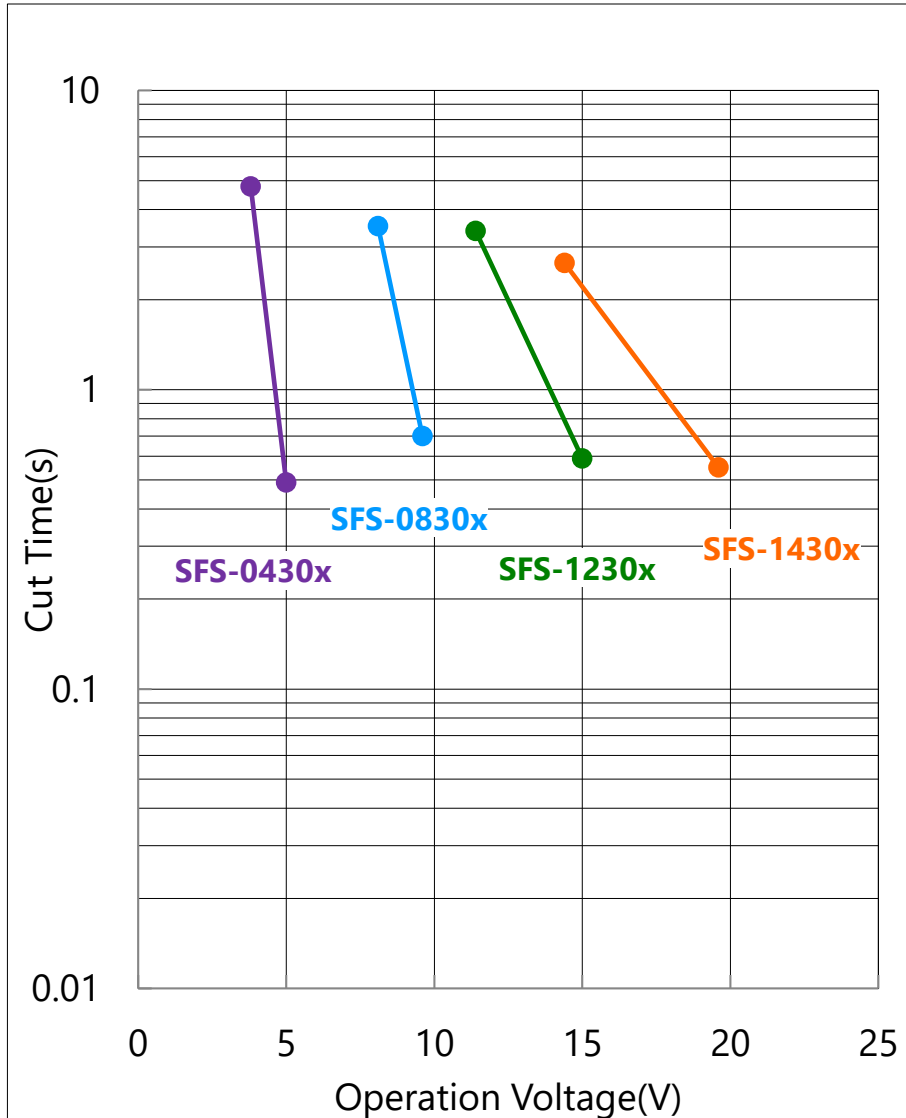
(\*Note) This is the standard value evaluated with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).

# Heater Operation



(\*Note) This is the standard value evaluated with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).

# Cut By Heater Voltage at 25°C



(\*)"x" is defined according to the version of the product. The latest letter is "A"

(\*Note) This is the typical evaluation value with our PCB (0.6 mm thickness glass-epoxy single-sided copper-clad laminates).

(\*Caution)The specification may be subject to change without prior notice in the future.



# Current Carrying Capacity

Type	Product Name ( Suffix: X = any letter )	Nominal Rated current	Current-Carrying Capacity <sup>(*1)</sup>			Current Rush Withstand <sup>(*2)</sup>
			25 °C	40 °C	60 °C	
<b>SFS</b>	<b>SFS-xx30x</b>	30 A	39.5 A	35.5 A	29.5 A	170 A

(\*Note)

1. This is the standard value derived from a temperature of 100 degrees Celsius, a temperature at which we have verified the reliability using our company's standard PCB. The thermal capacity of the PCB can affect it, so we recommend verifying it with your specific PCB.
2. Reliability was confirmed under the test conditions (10ms-On, 9990ms-Off, 500cycle).However, this does not mean critical conditions for SCP.

# Handling Instructions for these data

- 1. Please confirm the latest product information before a design.
  - You can confirm the latest information about SCP on the following website.
  - <http://www.dexerials.jp/en/products/c3/>

- 2. SCP complies with following environmental regulation.
  - 1) RoHS.
  - 2) General requirement for Halogen Free.

- 3. These data are typical values.

- 1) These data is not a guaranteed value.
- 2) These data is measured with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates). The characteristics are influenced by thermal capacity of PCB. Generally, as the thermal capacity of the PCB increases, the current-carrying capacity will also increase, and the clearing time will be longer.

- 4. Please select the product based on [Current-carrying capacity] and [Heater operation characteristics].

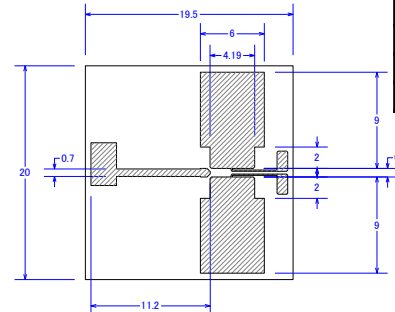
- 1) Nominal rated current is provided based on UL standard (The maximum temperature rise on body or contact that is passed the current shall not exceed 75 °C) and so it is not Current-carrying capacity. Therefore, please select a product based on Current-carrying capacity instead of Nominal rated current.
- 2) [Current-carrying capacity] and [Heater operation characteristics] are influenced by thermal capacity of PCB and so on. Therefore, we recommend checking it on your PCB.
- 3) We can perform tests using your printed circuit boards (current-carrying characteristics, clearing characteristics, etc.). Please feel free to contact us.

- 5. Current-carrying capacity

- 1) The current-carrying capacity is the value at which SCP reaches the temperature that we have verified for reliability within our company.
- 2) The temperature at which we have confirmed reliability is 100 degrees Celsius. However, this is not a critical condition for SCP. For instance, if SCP's temperature exceeds this, it does not immediately fuse off like a typical thermal fuse. SCP's fusing-off temperature is 200 degrees Celsius or higher, indicating that it has a significant capacity to withstand temperature increases.
- 3) The current-carrying capacity is measured under thermal equilibrium conditions. Therefore, if the duration of current-carrying is short, the current-carrying capacity will increase.

- 6. Precautions regarding handling

- 1) Make sure that the terminals of this product are connected on the lands of the circuit board, and that the heater resistance is rated value.
- 2) Ultrasonic cleaning, immersion cleaning, and similar methods should not be applied to SCP either before or after mounting. If cleaning is performed, the flux on the element could flow, potentially causing it to fail to meet its specifications. Additionally, similar influence can occur when the product comes into contact with a cleaning solution. Any products cleaned in this manner will not be guaranteed.
- 3) Please avoid contacting SCP and resin-mold. The resin might infiltrate into the product, and it doesn't meet the specification when the resin-mold is done to this product. These products after resin-mold will not be guaranteed.
- 4) Please do not re-use of the SCP that removed by the solder correction.
- 5) SCP should be stored in a shaded, low-dust area with a temperature of 40°C or lower, without sudden temperature changes. The relative humidity should be 60% or less, and the air should be free of corrosive gases. Under these conditions, the maximum storage period is 1 year from the delivery date.



Item	Content
Material	Glass Epoxy PWB
Base Thickness	t=0.6 mm
Copper Thickness	t=0.07 mm

	Covered wires L=150mm
Terminal①, ③	AWG10
Terminal②	AWG22

# Notice

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