Self Control Protector (SCP)
- SFK series Datasheet -

Dexerials Corporation

2025/10/8

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SFK(75Ampere) series Specification

Products Lineup

Applicable Cells in series	3 cells	4 cells	5 cells	6 - 7 cells	9 - 10 cells	12 - 14 cells
Product Name ("x" is Any Letter(*1))	**SFK-1275x**	**SFK-1475x**	**SFK-2075x**	**SFK-3075x**	**SFK-4075x**	**SFK-5075x**
Rated Current	75 A					
Dimension	$9.5^{\pm 0.3}$ x $5.0^{\pm 0.3}$ x $2.0^{\pm 0.3}$ mm					
Fuse Resistance (Typical)	0.7 m-ohm					
Operating Voltage	10.5 – 13.5 V	14.1 – 18.0 V	17.6 – 22.5 V	24.5 – 31.5 V	34.2 – 44.0 V	48.0 – 62.0 V
Heater Resistance	1.83 -2.75 ohm	3.30 – 4.96 ohm	5.10 – 7.70 ohm	10.0 -15.0 ohm	19.4 – 29.2 ohm	38.5 – 57.4 ohm
Marking	75A K03x SC SF	75A K04x SC SF	75A K05x SC SF	75A K07x SC SF	75A K10x SC SF	75A K14x SC SF

Items	General Specification
Environmental compliance	Compliance with RoHS
Halogen Free	Bromine (Br)=900ppm or less, Chlorine (Cl)=900ppm or less, Br+Cl=1500ppm or less (By weight)
Qualification	UL248-14 (File No. E489967)，TUV (Certificate No. J9650637)
Rated Voltage	62 VDC This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.
Rated Breaking Capacity	200A This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.
Reflow Temperature	260 °C

(*1)"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.

SFK(60Ampere) series Specification

Products Lineup

Applicable Cells in series	2 cells	3 cells	4 cells	5 cells	6 - 7 cells	9 - 10 cells	12 - 14 cells
Product Name ("x" is Any Letter(*1))	**SFK-0660x**	**SFK-1260x**	**SFK-1460x**	**SFK-2060x**	**SFK-3060x**	**SFK-4060x**	**SFK-5060x**
Rated Current	60 A						
Dimension	$9.5^{\pm 0.3}$ x $5.0^{\pm 0.3}$ x $2.0^{\pm 0.3}$ mm						
Fuse Resistance (Typical)	0.8 m-ohm						
Operating Voltage	6.0 -8.9 V	9.6 – 13.5 V	13.0 – 18.4 V	16.7 – 23.5 V	22.3 – 31.5 V	33.0 – 46.9 V	43.7 – 62.0 V
Heater Resistance	0.80 -1.08 ohm	1.83 -2.75 ohm	3.4 – 5.1 ohm	5.6 – 8.4 ohm	10.0 -15.0 ohm	22.0 – 33.0 ohm	38.5 – 57.76 ohm
Marking	60A K02x SC SF	60A K03x SC SF	60A K04x SC SF	60A K05x SC SF	60A K07x SC SF	60A K10x SC SF	60A K14x SC SF

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)
Certification		UL248-14 (File No. E167588), TUV (Certificate No. J9650637)
Rated Voltage & Rated Breaking Capacity	UL	160 A at 80 VDC This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.
	TUV	160 A at 80 VDC This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.
Reflow Temperature		260 °C

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

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SFK(45Ampere) series Specification

Products Lineup

Applicable Cells in series	3 cells	4 cells	5 cells	6 - 7 cells	9 - 10 cells	12 - 14 cells
Product Name ("x" is Any Letter(*1))	**SFK-1245x**	**SFK-1445x**	**SFK-2045x**	**SFK-3045x**	**SFK-4045x**	**SFK-5045x**
Rated Current	45 A					
Dimension	$9.5^{\pm 0.3}$ x $5.0^{\pm 0.3}$ x $2.0^{\pm 0.3}$ mm					
Fuse Resistance (Typical)	1.1 m-ohm					
Operating Voltage	9.8 – 13.5 V	13.0 – 18.4 V	16.7 – 23.5 V	22.3 – 31.5 V	33.0 – 46.9 V	43.7 – 62.0 V
Heater Resistance	1.9 – 2.9 ohm	3.4 – 5.1 ohm	5.6 – 8.4 ohm	10.0 – 15.0 ohm	22.0 – 33.0 ohm	38.5 – 57.8 ohm
Marking	45A K03x SC SF	45A K04x SC SF	45A K05x SC SF	45A K07x SC SF	45A K10x SC SF	45A K14x SC SF

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)
Certification		UL248-14 (File No. E167588), TUV (Certificate No. J9650637)
Rated Voltage & Rated Breaking Capacity	UL	120 A at 80 VDC This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.
	TUV	120 A at 80 VDC This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.
Reflow Temperature		260 °C

(*1)"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.

SFK(30Ampere) series Specification

Products Lineup

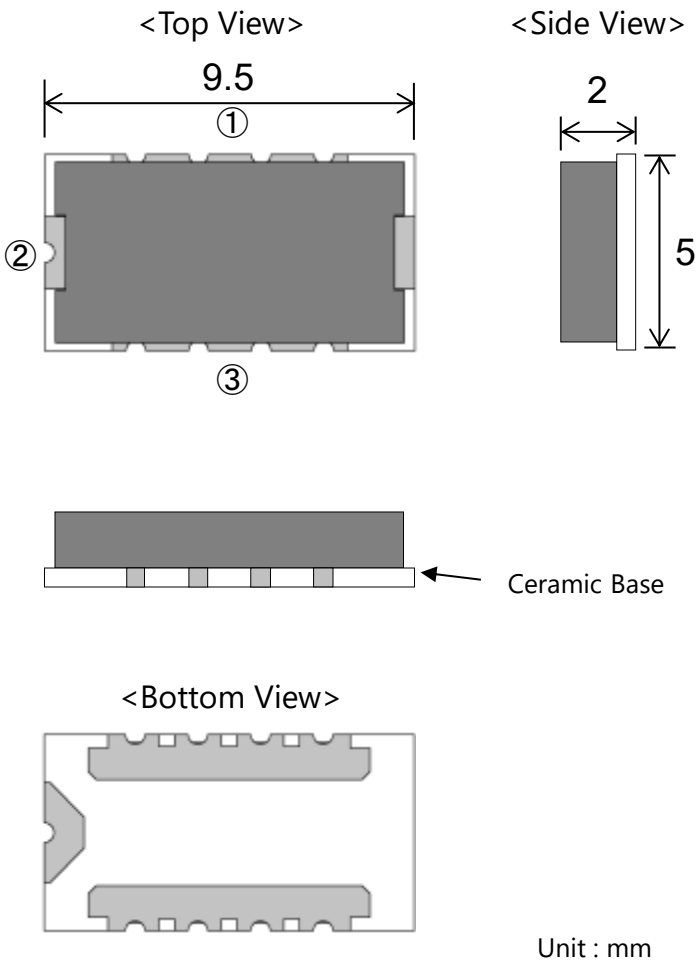
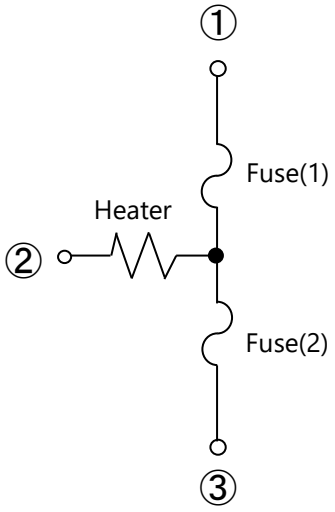
Applicable Cells in series	1 - 2 cells	3 cells	4 - 5cells	6 - 9 cells	10 - 14 cells	15 - 17 cells
Product Name ("x" is Any Letter(*1))	**SFK-0630x**	**SFK-1230x**	**SFK-1830x**	**SFK-3030x**	**SFK-4030x**	**SFK-5030x**
Rated Current	30 A					
Dimension	$9.5^{\pm 0.3}$ x $5.0^{\pm 0.3}$ x $2.0^{\pm 0.3}$ mm					
Fuse Resistance (Typical)	1.3 m-ohm					
Operating Voltage	4.0 – 9.6 V	8.4 – 19.1 V	10.5 – 23.5 V	20.2 – 46.3 V	28.0 – 62.0 V	39.6 – 72.0 V
Heater Resistance	0.8 – 1.2 ohm	3.2 – 5.2 ohm	4.8 – 8.0 ohm	18.8 – 31.2 ohm	40.0 – 60.0 ohm	72.4 – 120.6 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)
Certification		UL248-14 (File No. E167588), TUV (Certificate No. J9650637)
Rated Voltage & Rated Breaking Capacity	UL	80 A at 80 VDC ,300 A at 62 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 80 VDC This value is the maximum voltage can be cut off by fuse. It doesn't represent the operational voltage of the heater.
Reflow Temperature		260 °C

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

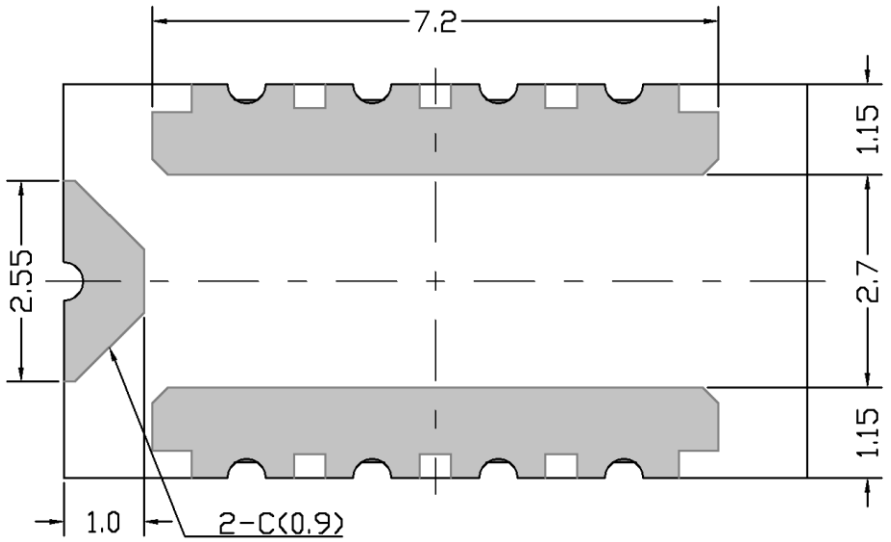
*Notice: The specification may be subject to change without prior notice in the future.

Dimensions & Equivalent Circuit

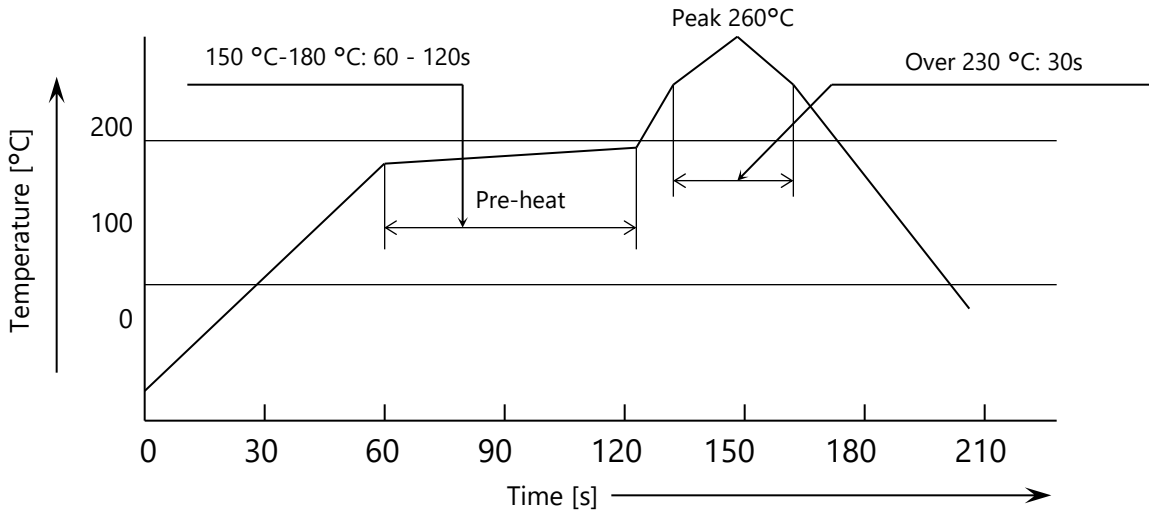
Series Name	Dimensions	Equivalent Circuit
SFK Series		

Terminal Size & Reflow Soldering

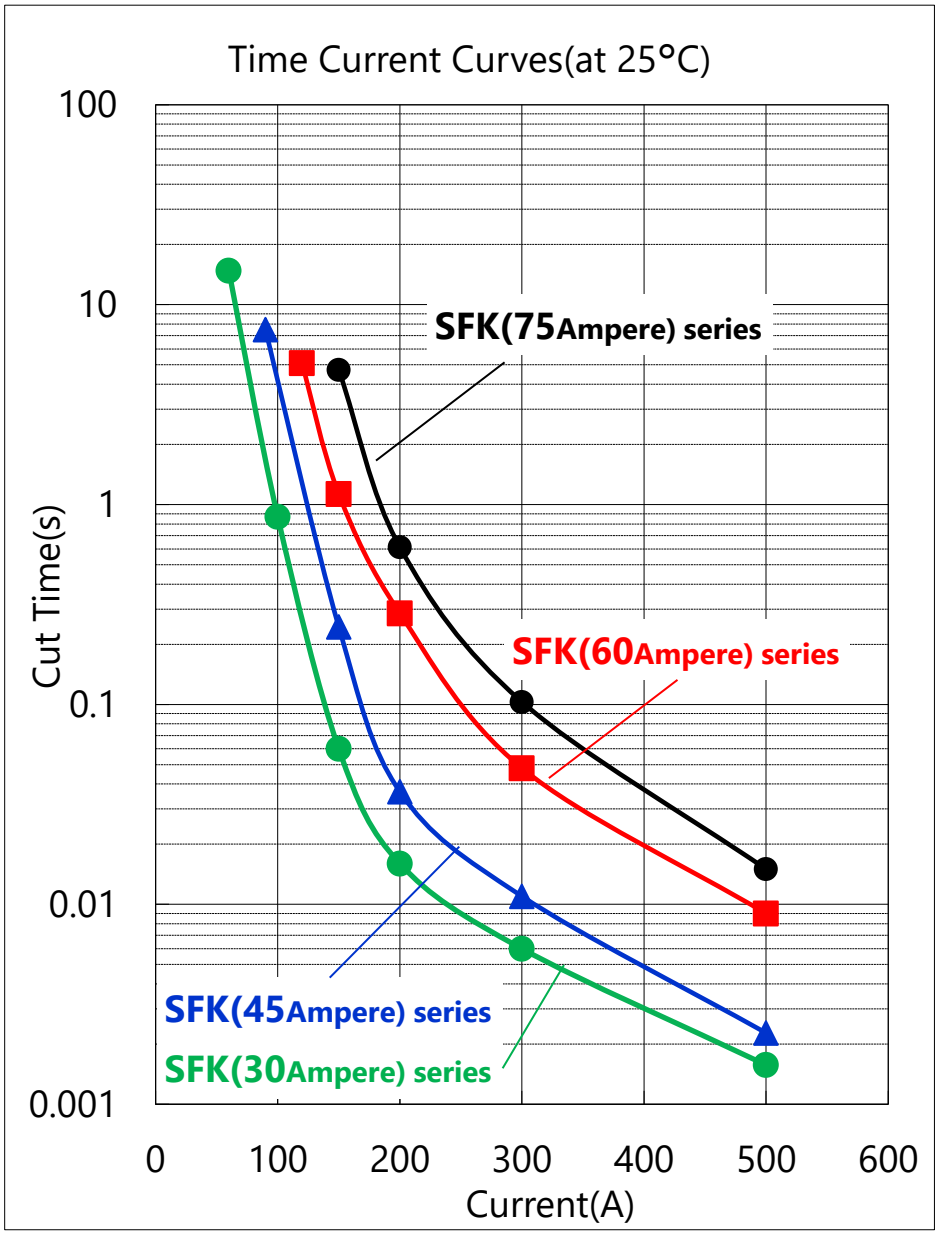
Terminal Size (Unit: mm, Not in scale.)

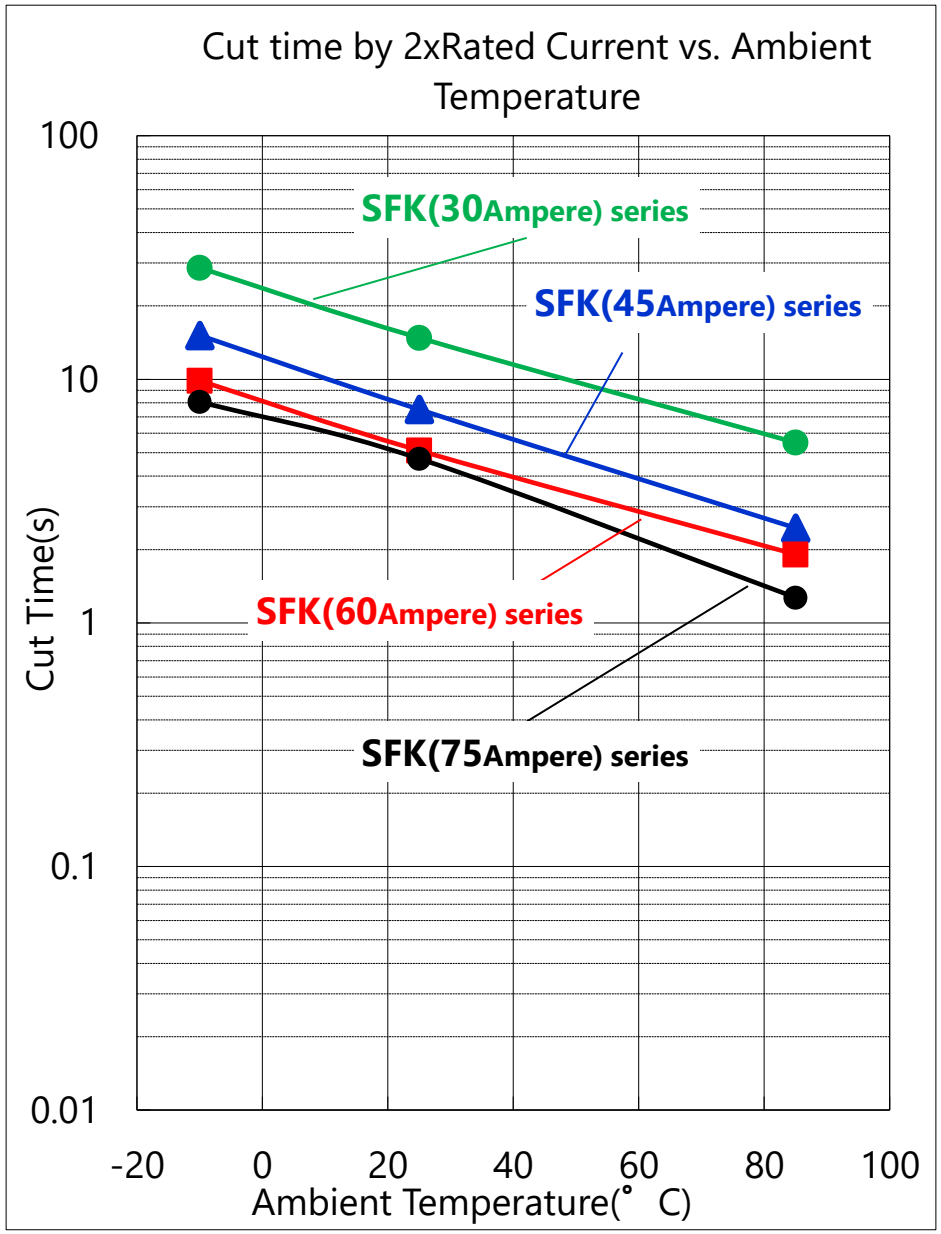


Reflow Soldering Profile (The temperature shown below is measured at electrode portion of SCP.)



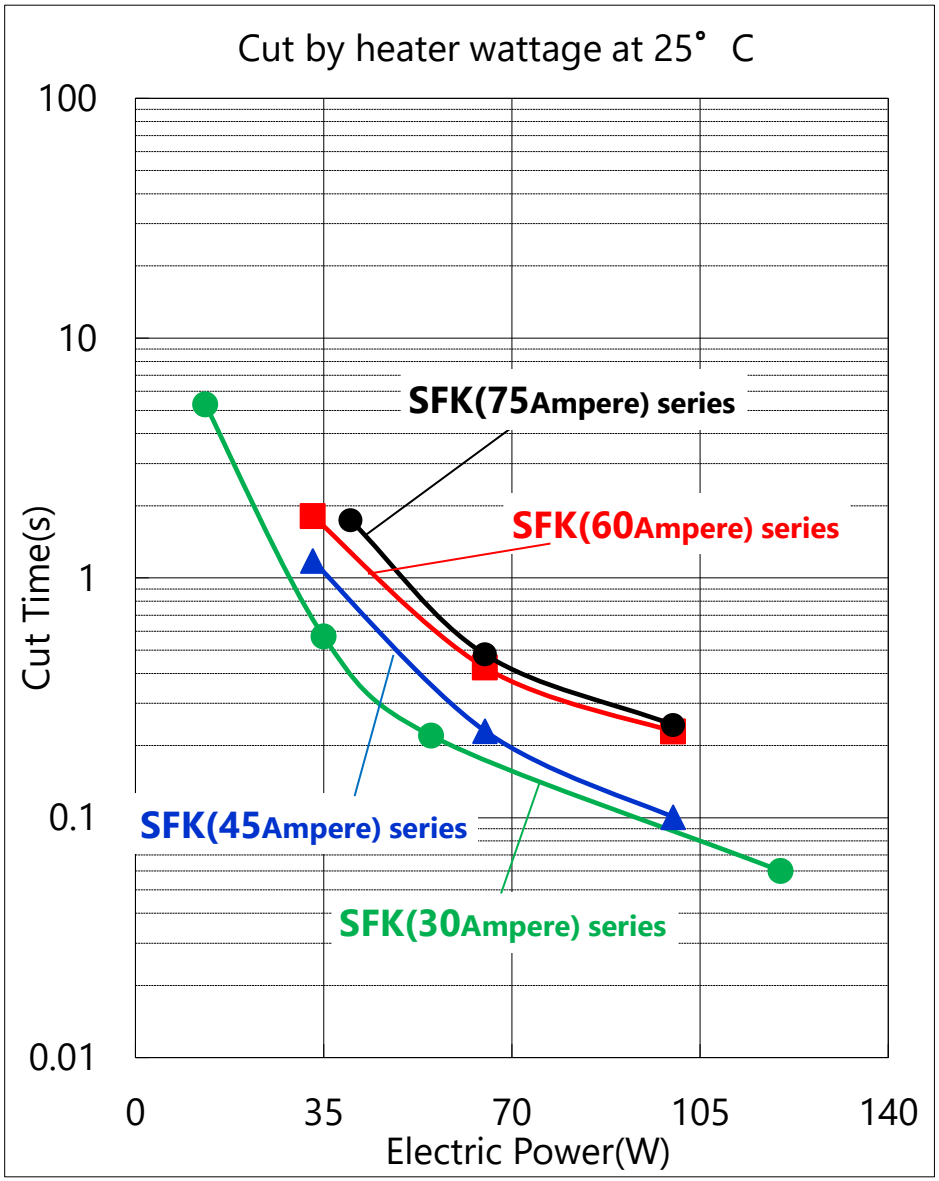
Current Operation

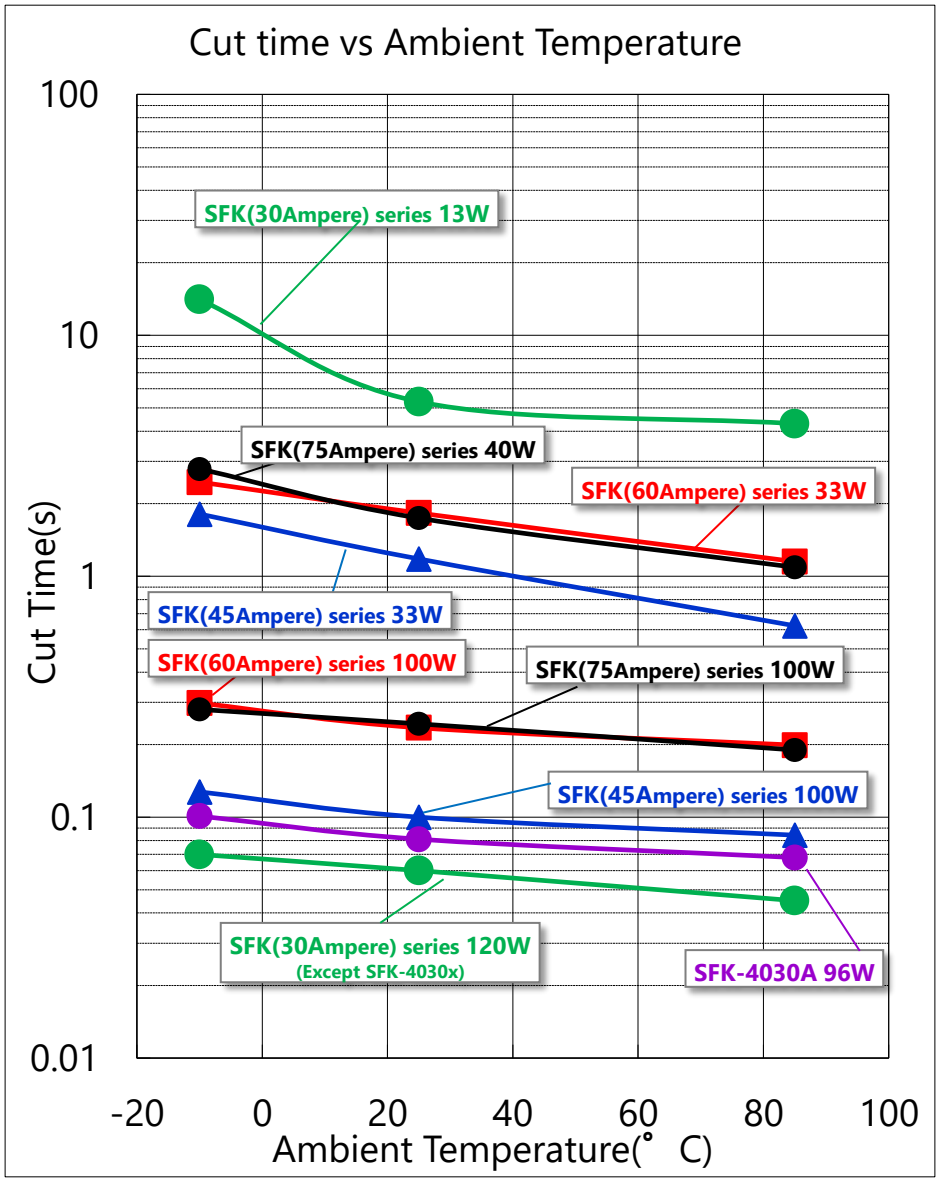




(*Note) This is the typical evaluation value with our PCB (0.6 mm thickness glass-epoxy single-sided copper-clad laminates).

Heater Operation

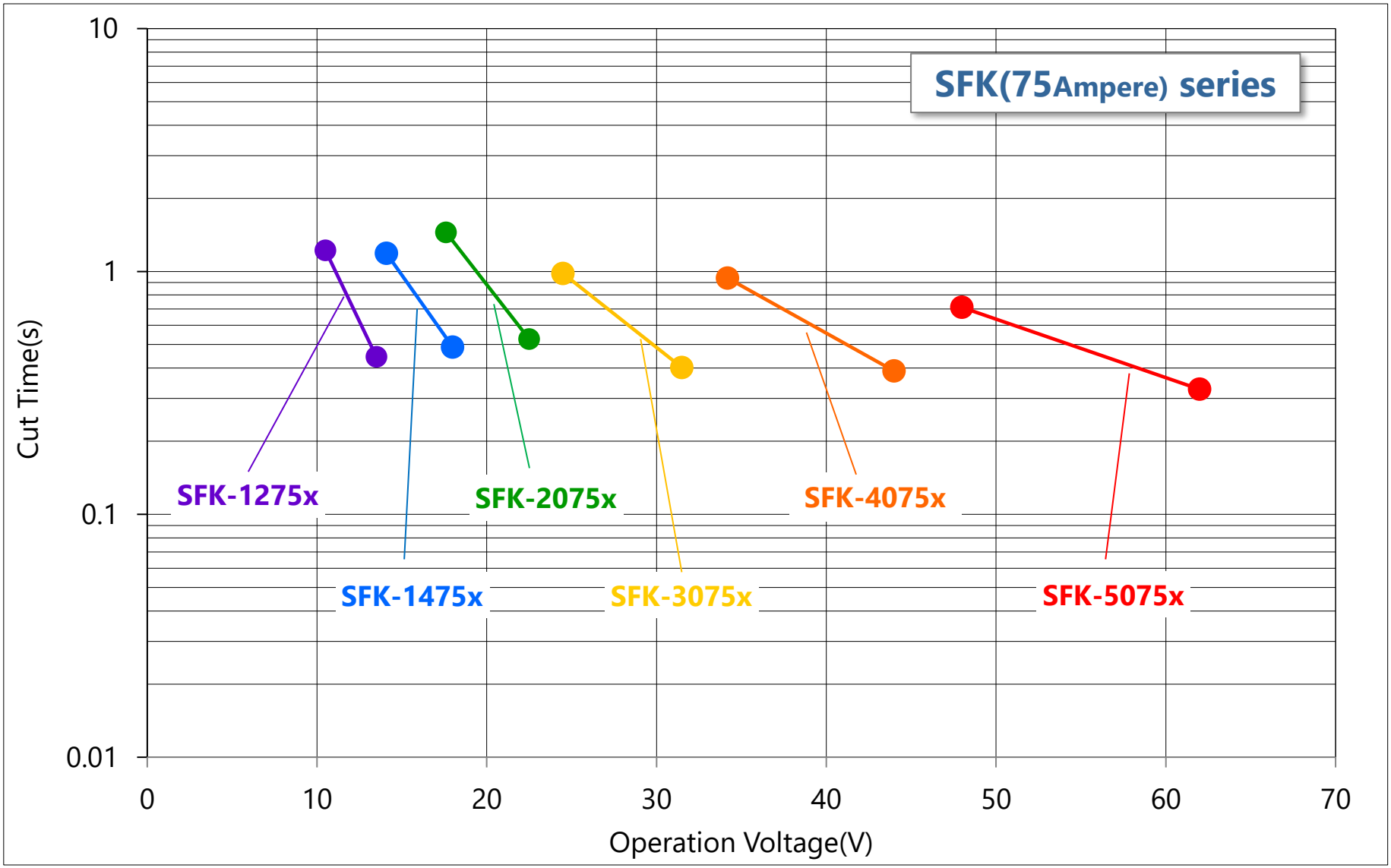




(*)"x" is defined according to the version of the product. The latest letter is "A"

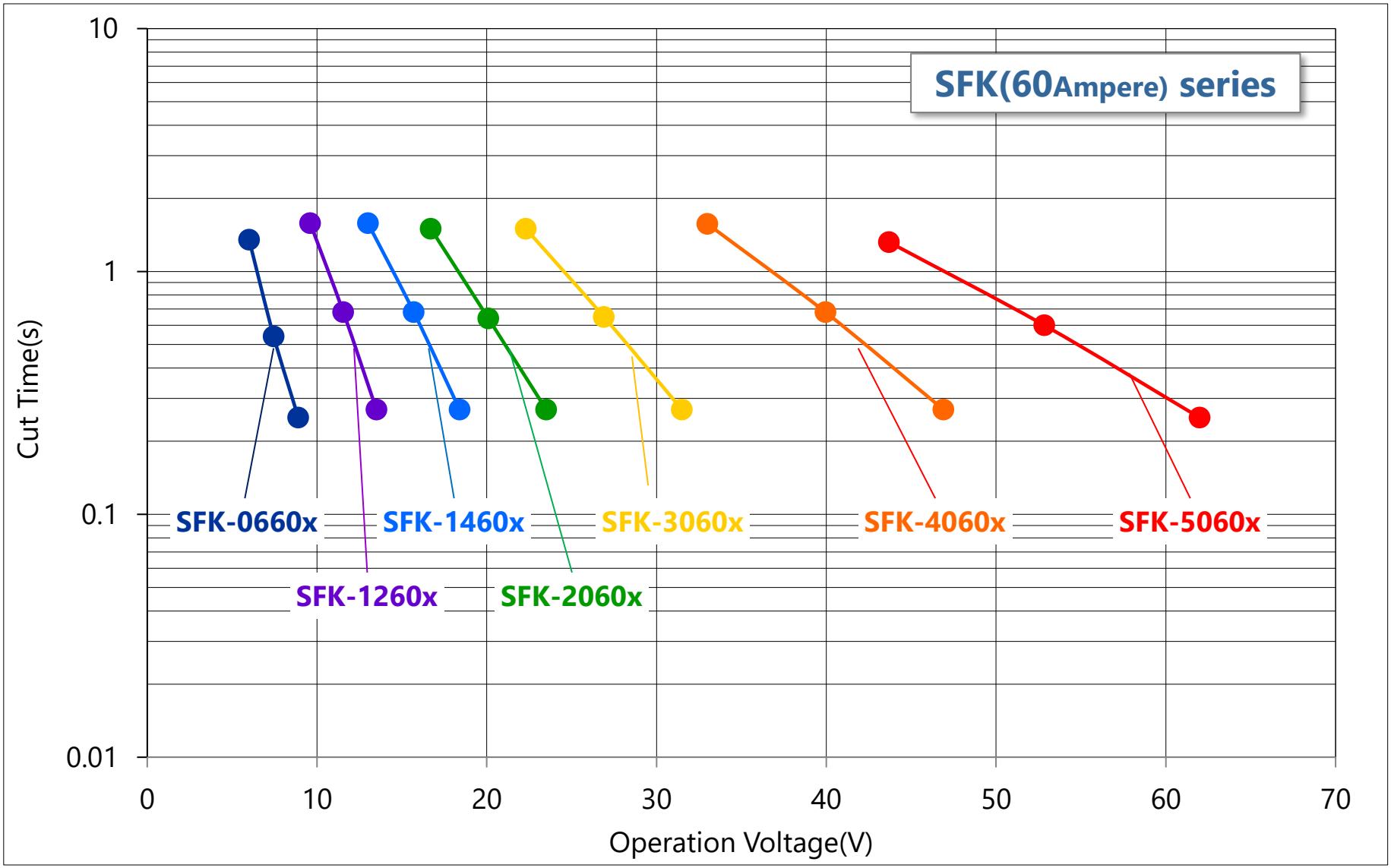
(*Note) SFK-4030x is designed to operate until 96W, and SFK-5030A is designed to operate until 72W.
This is the typical evaluation value with our PCB (0.6 mm thickness glass-epoxy single-sided copper-clad laminates).

Cut By Heater Voltage at 25°C



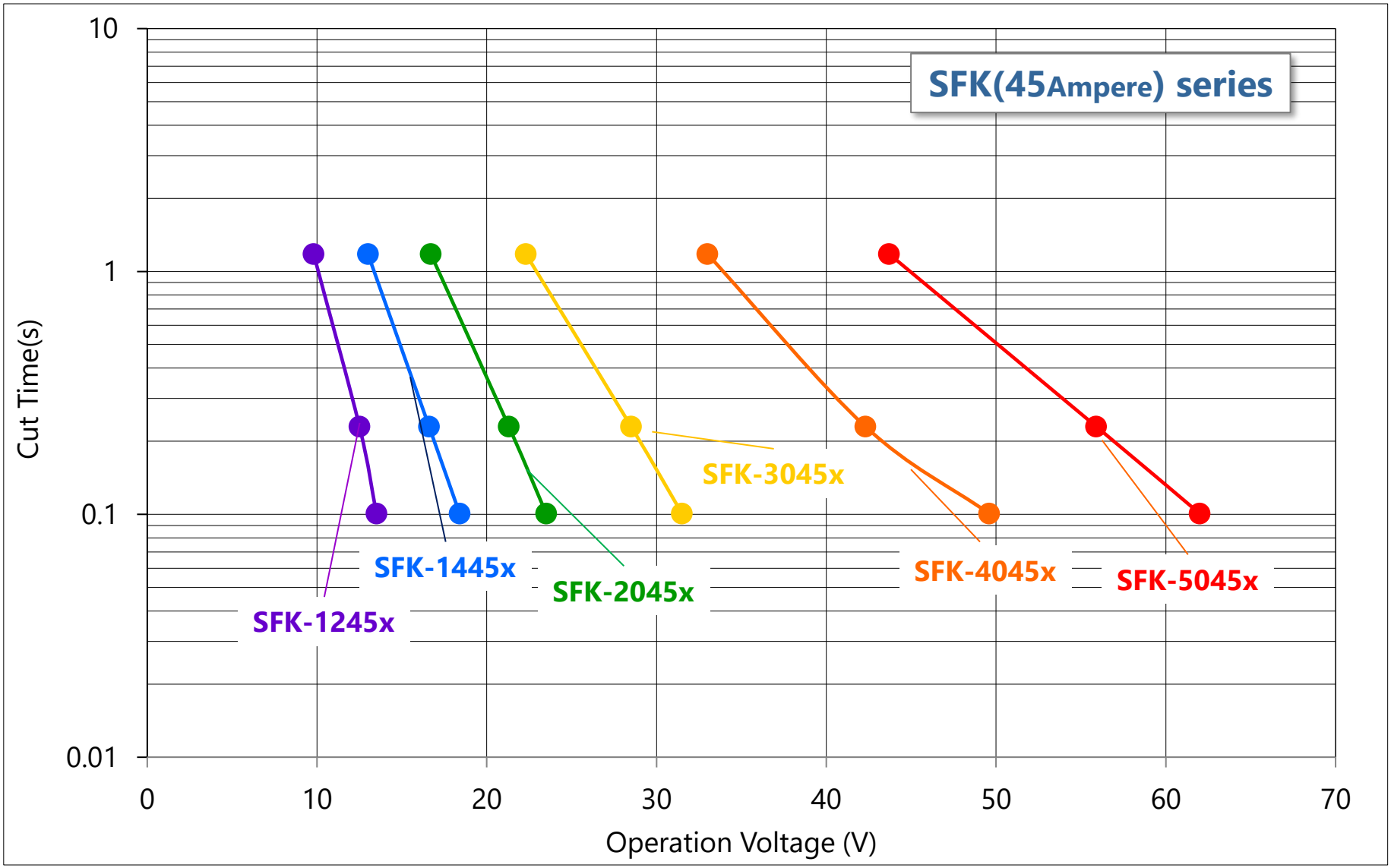
(*)"x" is defined according to the version of the product. The latest letter is "A"
(*Note) This is the typical evaluation value with our PCB (0.6 mm thickness glass-epoxy single-sided copper-clad laminates).
(*Caution)The specification may be subject to change without prior notice in the future.

Cut By Heater Voltage at 25°C



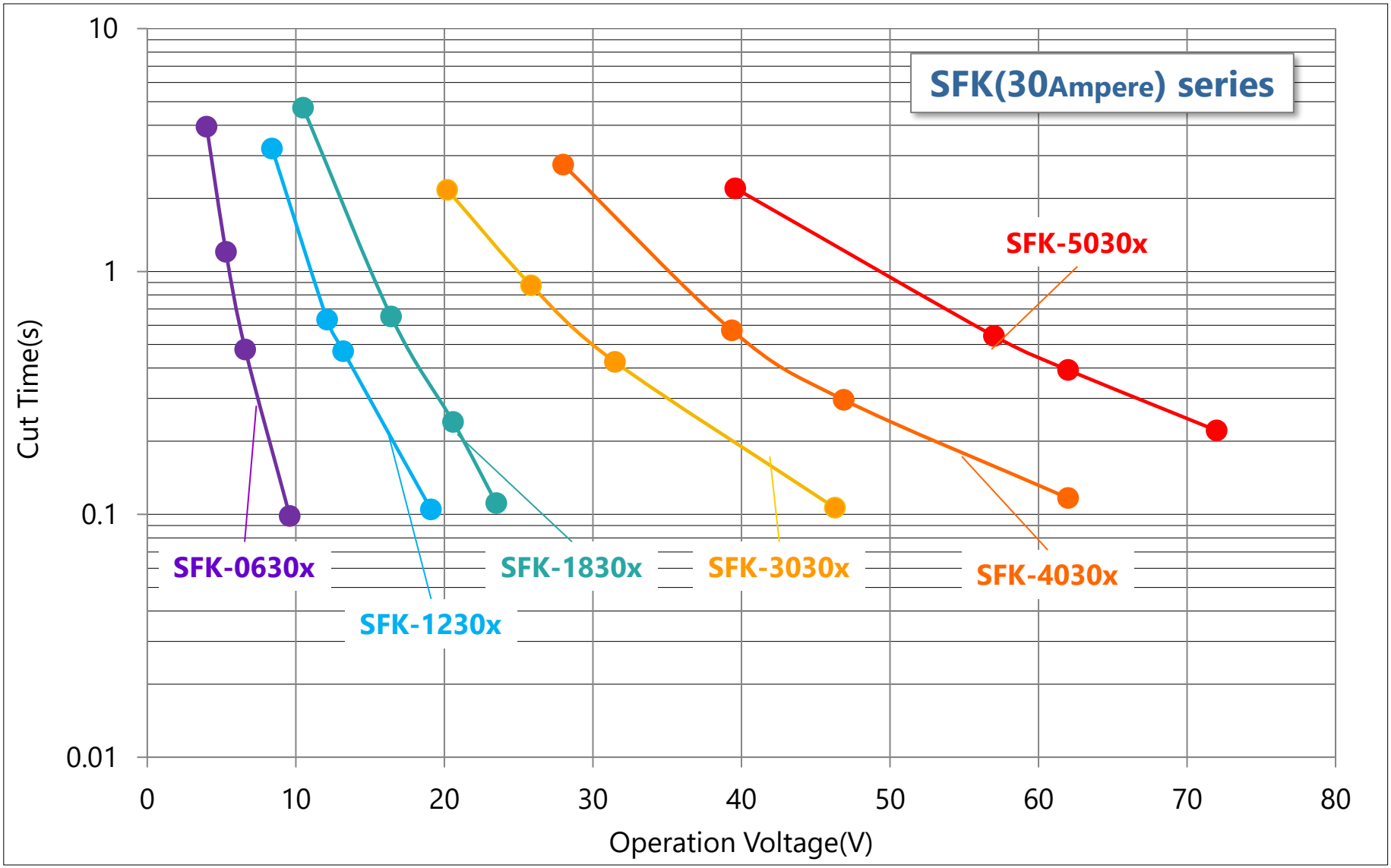
(*)"x" is defined according to the version of the product. The latest letter is "A"
(*Note) This is the typical evaluation value with our PCB (0.6 mm thickness glass-epoxy single-sided copper-clad laminates).
(*Caution)The specification may be subject to change without prior notice in the future.

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.

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

Series Name	Nominal Rated current	Current-Carrying Capacity (*1)			Current Rush Withstand (*2)
		25°C	40°C	60°C	
SFK(75Ampare) series	75A	80.5A	73.0A	61.5A	400A-10ms
SFK(60Ampare) series	60 A	66 A	59.9 A	49.5 A	300 A-10 ms
SFK(45Ampare) series	45 A	49 A	44.5 A	37 A	200 A-10 ms
SFK(30Ampare) series	30 A	34 A	30 A	25 A	170 A-10 ms

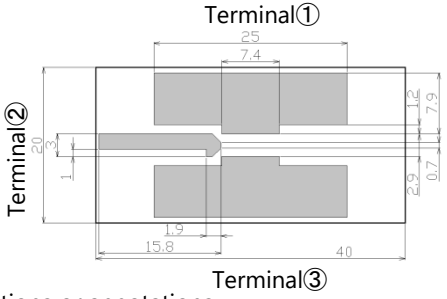
(*Note)

1. This is the typical value derived from a temperature of 100 °C, a temperature at which we have verified the reliability using our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates). The thermal capacity of the PCB can affect it, so we recommend verifying it with your specific PCB.
   -> 25°C, 40°C and 60°C are ambient temperature.
   -> The temperature at which we verified reliability is not a critical condition. SCP fusing-off temperature is 200°C or more.
   -> 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.
2. Reliability was confirmed under the test conditions (10ms-On, 9990ms-Off, 500cycle). However, this does not mean critical conditions for SCP.

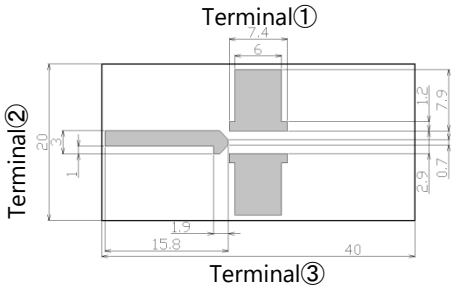
Handling of data in this document

Dexerials PCB

For SFK-45A/60A/75A (Cu:105um)



For SFK-30A (Cu:70um)



- 1. Please confirm the latest product information.
  - You can confirm the latest information about SCP on the following website.
  - https://www.dexerials.jp/en/products/surface-mounted-type-fuse/
- 2. SCP complies with environmental regulation.
  - 1) RoHS.
  - 2) General requirement for Halogen Free.
- 3. The figures in this document represent typical unless specified otherwise with explanations or annotations..
  - 1) These data are not guaranteed values.
  - 2) These data are 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 on the basis of Current-carrying capacity and Heater operation characteristics.
  - 1) Nominal rated current is provided on the basis of 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)The thermal capacity of the PCB and other conditions might change the current-carrying capacity and heater operation characteristics. Therefore, we recommend you check it on your actual PCB.
- 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) Store SCPs in a shaded, dust-free area below 40° C with no sudden temperature changes. The relative humidity should be below 60%, and the air should be free of corrosive gases. The maximum storage period under these conditions is one year from delivery.
  - 2) Please do not clean SCPs with ultrasonic or immersion cleaning before or after mounting. If cleaning is performed, the flux on the element could flow out, and SCPs might not work normally. In addition, a 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) Avoid contact between SCP and molding resin and sealing with resin. If molding resin is applied to the product, the resin may infiltrate it, and it will not operate normally. The guarantee does not cover the above products.
  - 4) Please do not re-use the SCP removed by the solder correction.
  - 5) Make ensure that terminals of this product are soldered to the lands of the circuit board, and that the heater resistance is rated value.

Notice

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