Dexerials

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

Dexerials Corporation

2018/04/20 Rev-24

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 anynstance. Users assume total responsibility and risk for their use of this product for any purposes of use under any use conditions.

# SFK-45Ampere series Specification

## Products Lineup

| Applicable Cells in series | 3cells | 4cells | 5cells | 6-7 cells | 9-10 cells | 12-14 cells |
|---|---|---|---|---|---|---|
| Product ("x" is Any Letter (*)) | SFK-1245x | SFK-1445x | SFK-2045x | SFK-3045x | SFK-4045x | SFK-5045x |
| Rated current | 45A | | | | | |
| Size | 9.5 x 5.0 x 2.0 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) =900ppm or less, Chlorine (Cl) =900ppm or less, Br+Cl=1500ppm or less (By weight) |
| Qualification | UL248-14 (File No. E167588), TUV (Certificate No. J9650637) |
| Rated voltage | 80 VDC<br>(*) It is the maximum voltage can be cut off by fuse. It is not the operational voltage of the heater. |
| Rated breaking capacity | 120 A |
| Re-flow temp.(MAX) | 260 deg.C |

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

*Caution: There are possibilities that the specification may be revised without notice in the future.

# SFK-30Ampere series Specification

## Products Lineup

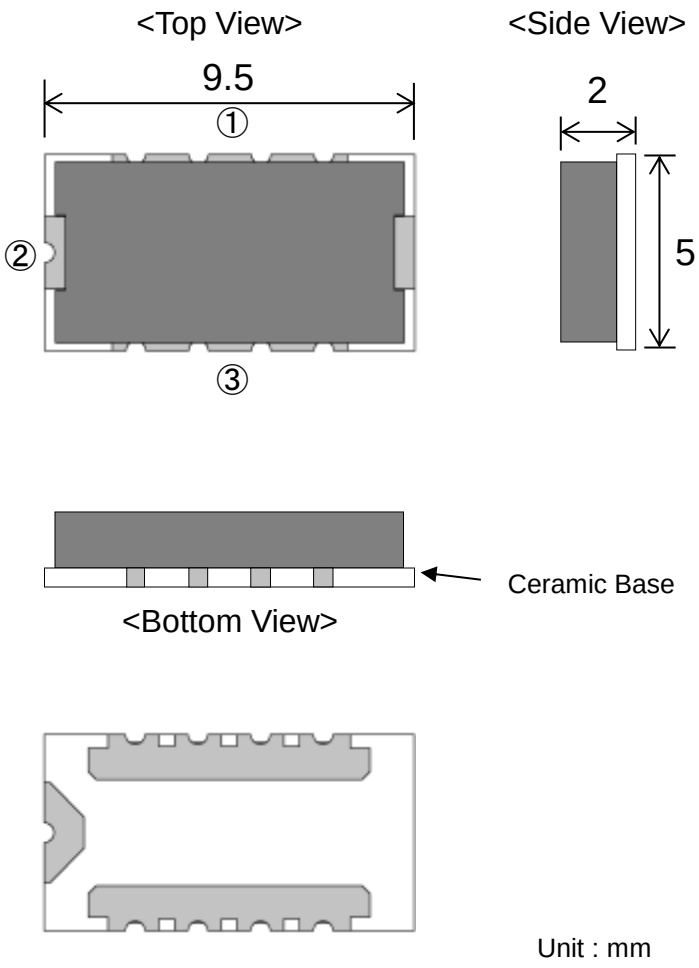
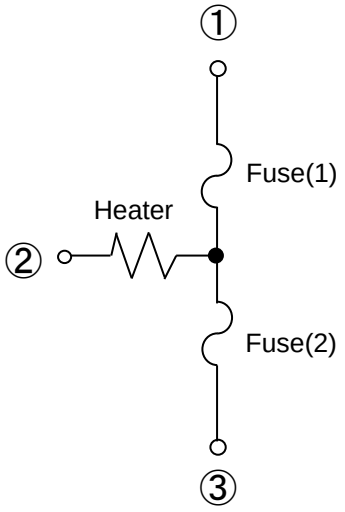
| Applicable Cells in series | 1-2 cells | 3 cells | 4-5cells | 6-9 cells | 10-14 cells |
|---|---|---|---|---|---|
| Product ("x" is Any Letter (*)) | SFK-0630x | SFK-1230x | SFK-1830x | SFK-3030x | SFK-4030x |
| Rated current | 30A | | | | |
| Size | 9.5x5.0x2.0 mm | | | | |
| Fuse resistance (Typical) | 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 |
| 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 |
| Marking | 30A K02x SC SF | 30A K03x SC SF | 30A K45x SC SF | 30A K07x SC SF | 30A K10x 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. E167588), TUV (Certificate No. J9650637) |
| Rated voltage | 80 VDC<br>(*) It is the maximum voltage can be cut off by fuse. It is not the operational voltage of the heater. |
| Rated breaking capacity | 80 A |
| Re-flow temp.(MAX) | 260 deg.C |

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

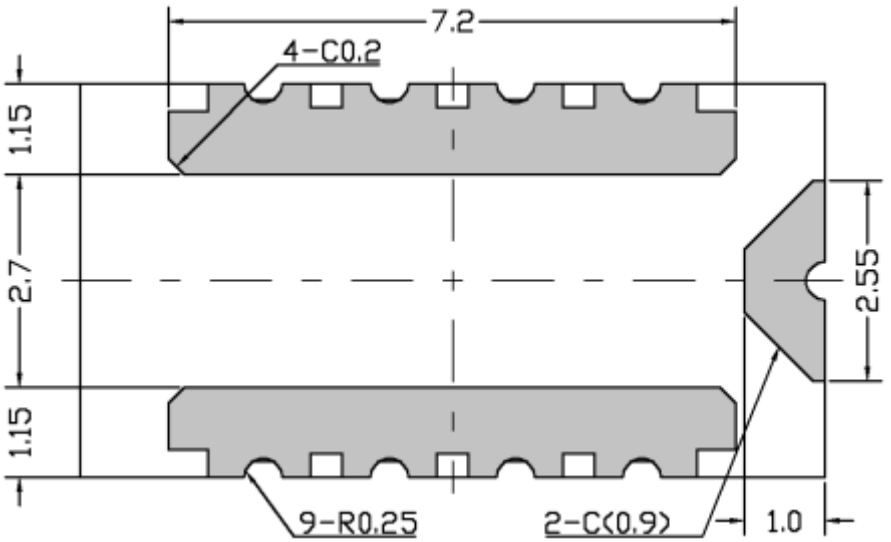
*Caution: There are possibilities that the specification may be revised without notice in the future.

# External View & Equivalent Circuit

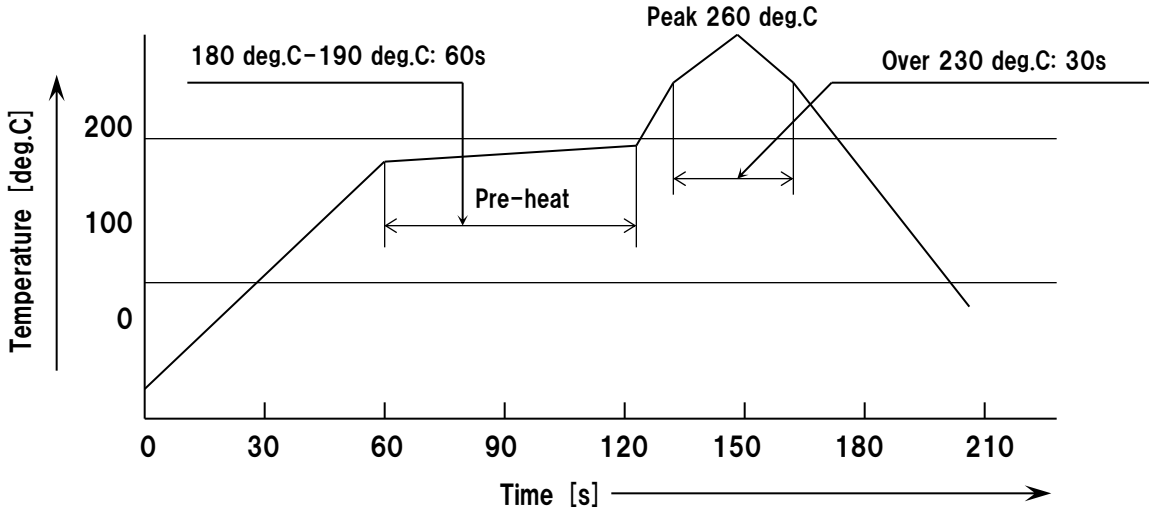
| Product Name | External View | Equivalent Circuit |
|---|---|---|
| **SFK Series** |  |  |

# Terminal Size & Reflow Soldering

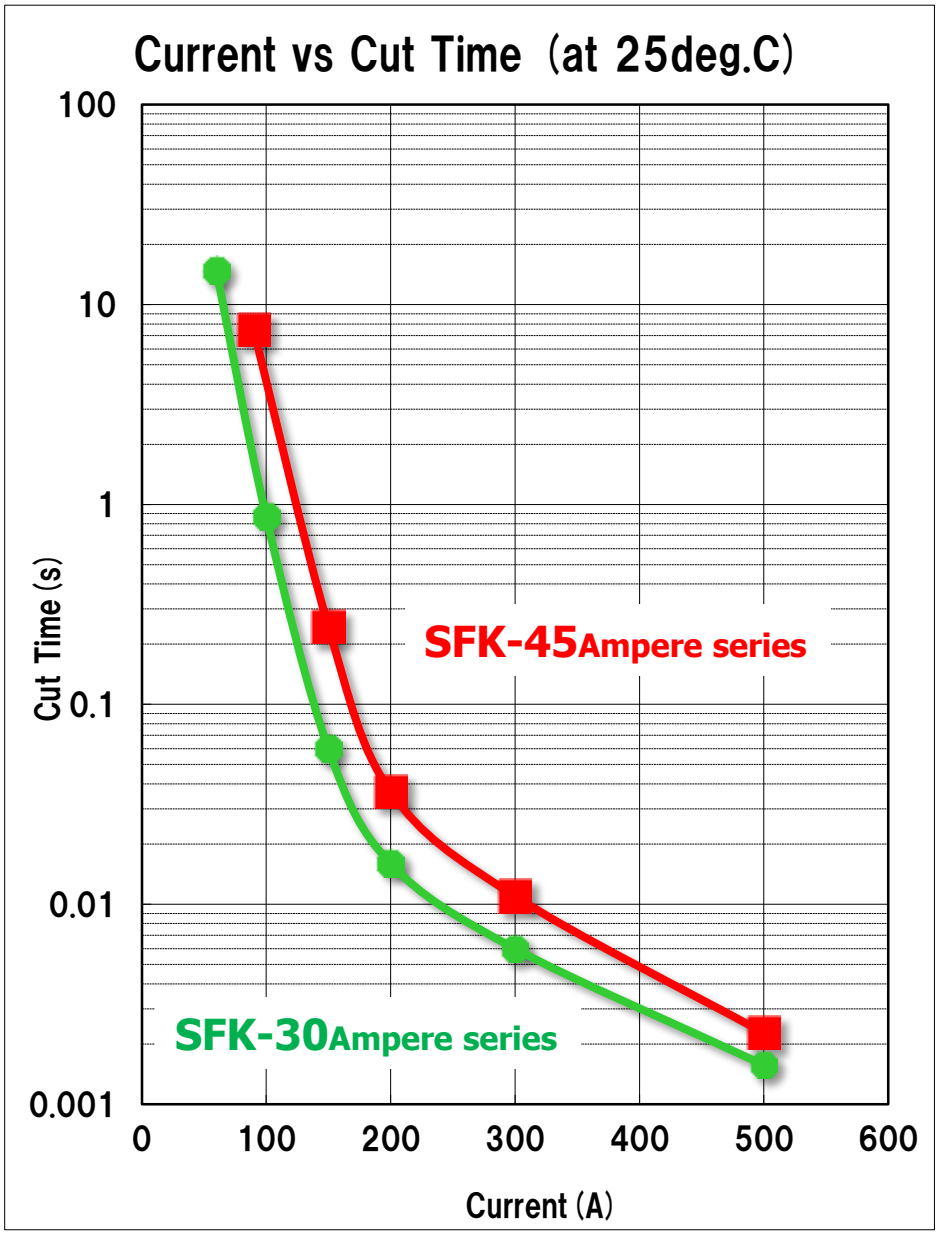
## Terminal Size (Unit: mm. Not in scale.)

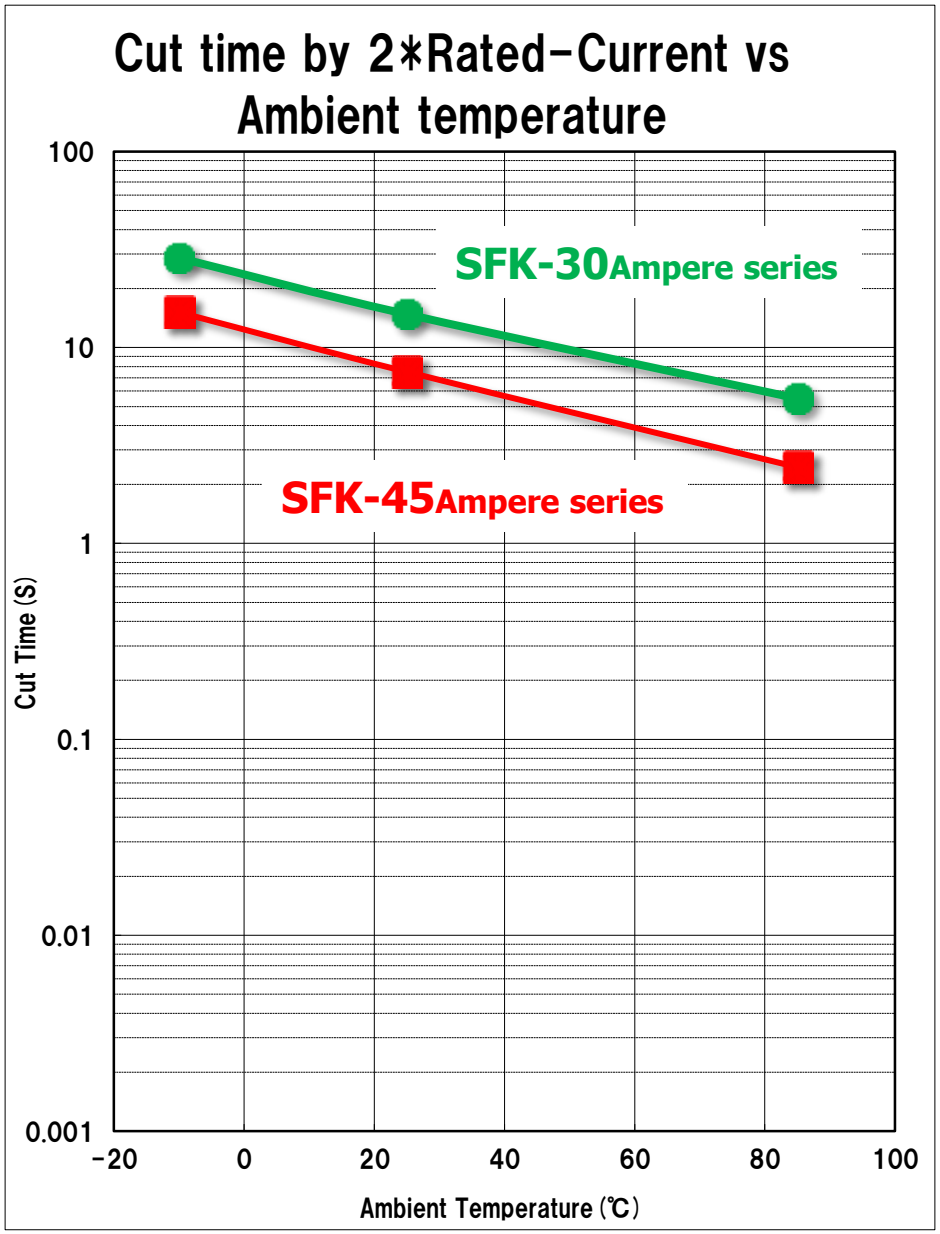



## Reflow soldering Profile (Temperature shown below is of electrode portion of SCP)



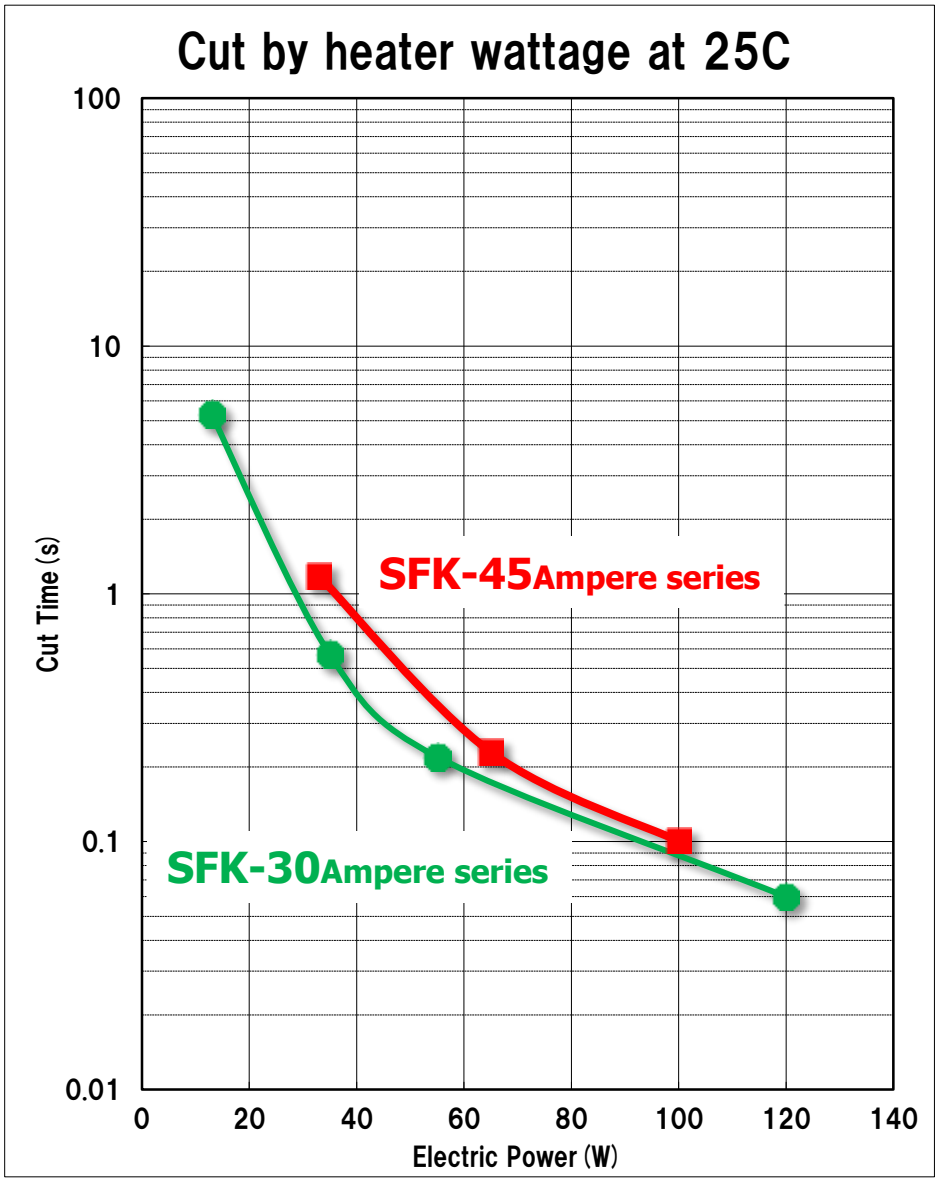
# Current Operation

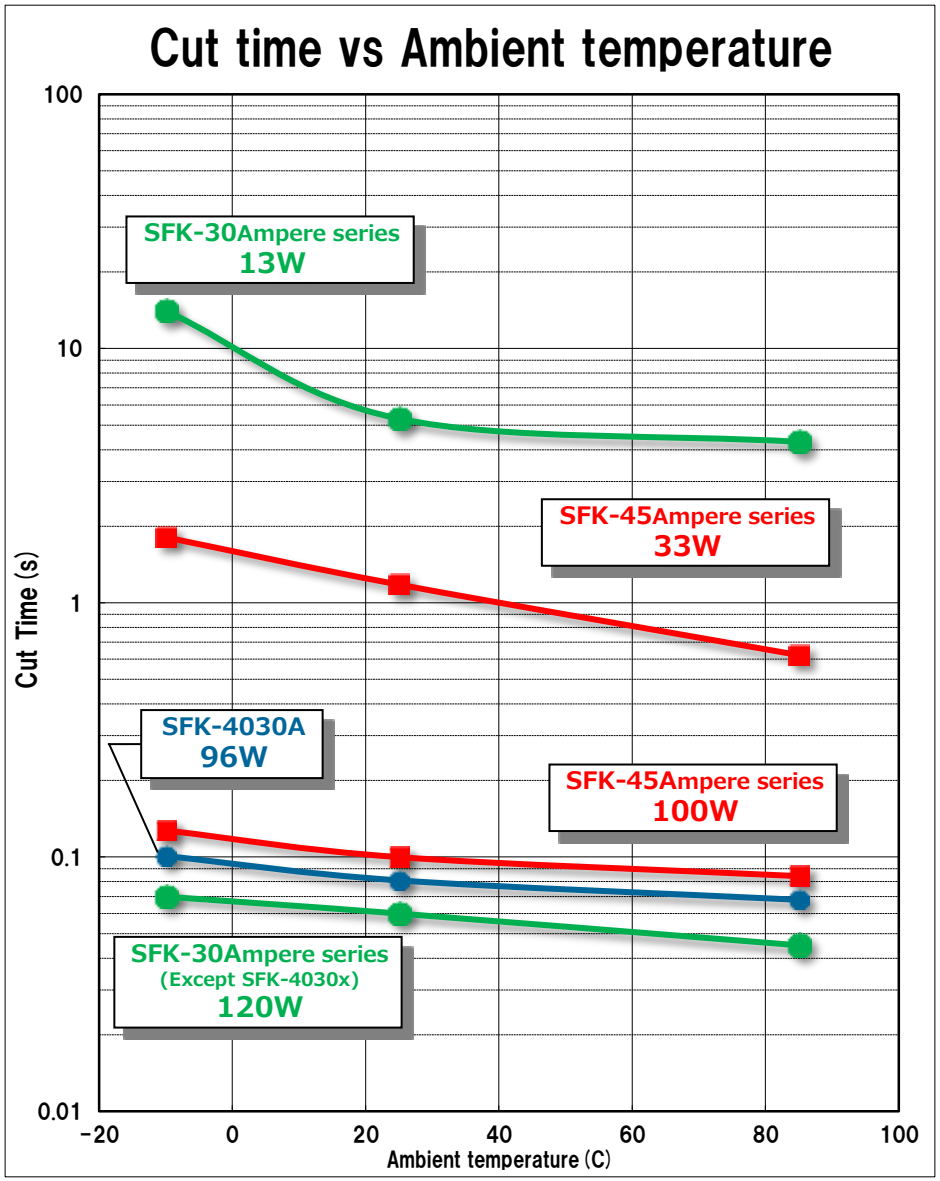



(*Note) It is the typical value that is evaluated with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).

# Heater Operation



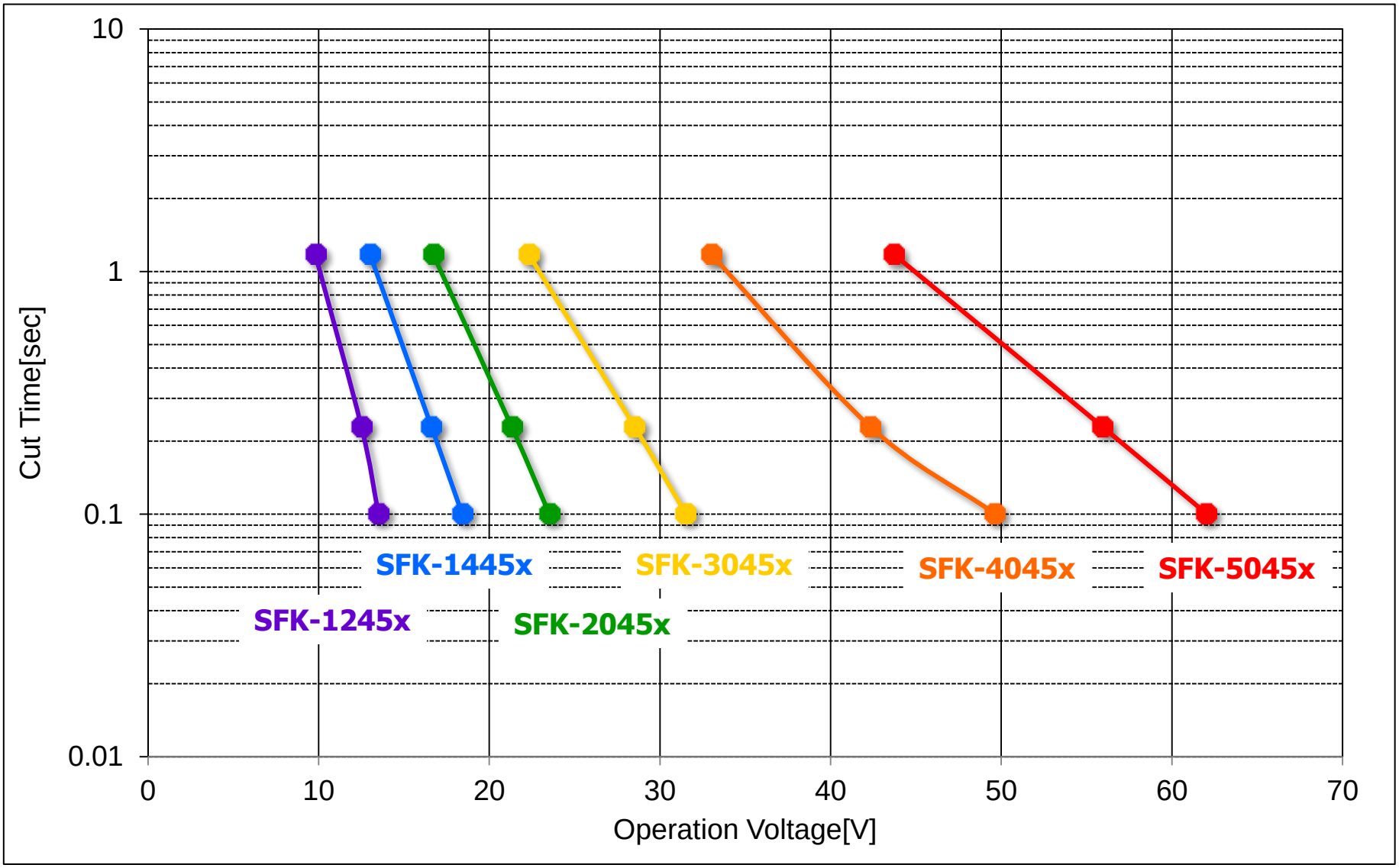




(*)"x" is defined according to the version of the product. The latest letter is "A"

(*Note) SFK-4030x is designed to operate until 96W.

It is the typical value that is evaluated with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).

# Cut By Heater Voltage at 25C

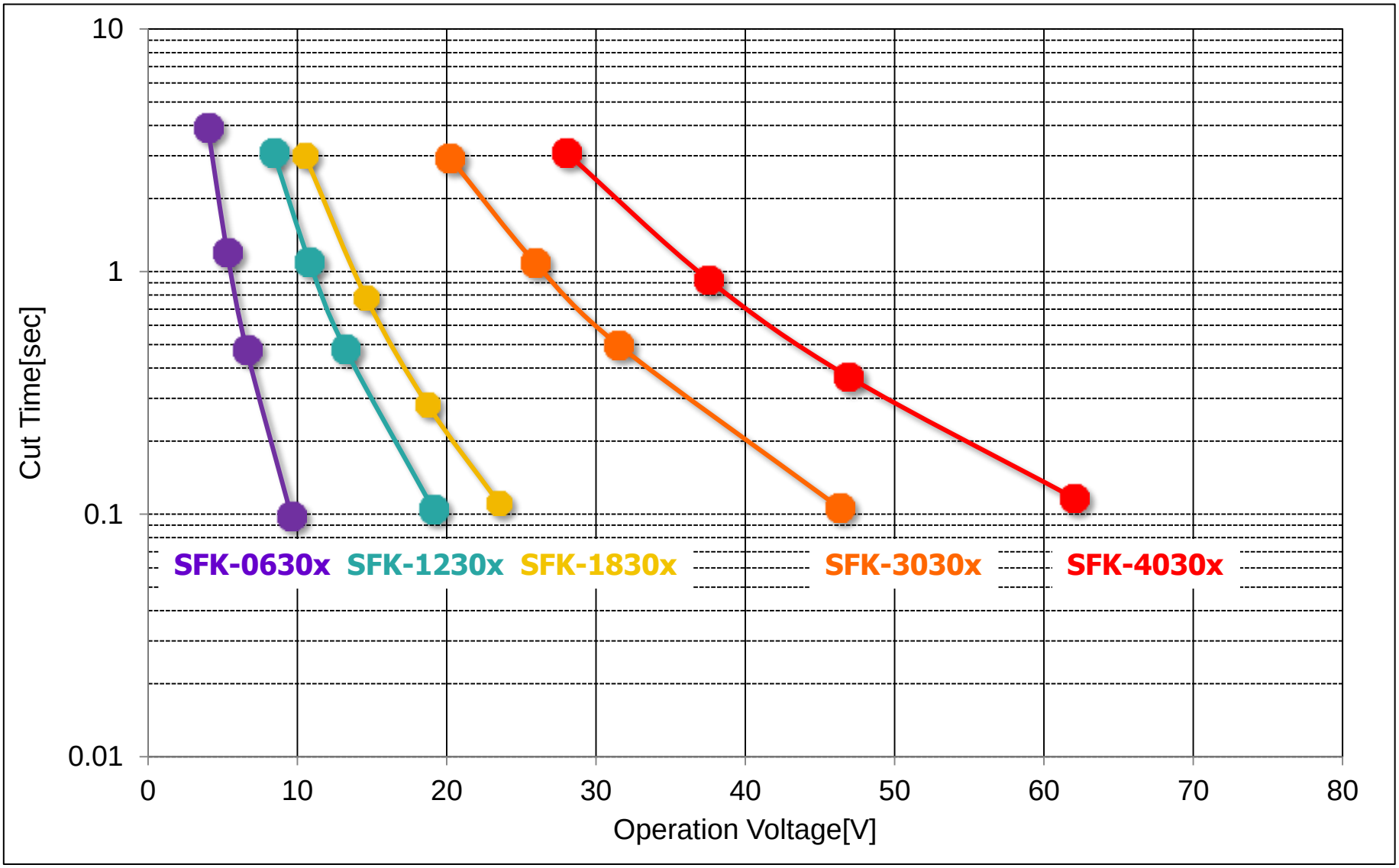



(*)"x" is defined according to the version of the product. The latest letter is "A"

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

(*Caution)There are possibilities that the specification may be revised without notice in the future.

# Cut By Heater Voltage at 25C




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

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

(*Caution)There are possibilities that the specification may be revised without notice in the future.

# Current Carrying Capacity

| Product Name | Nominal Rated current | Current-Carrying Capacity (*1) | | | Current Rush Withstand (*2) |
|---|---|---|---|---|---|
| | | 25C | 40C | 60C | |
| SFK-45Ampare series | 45A | 49A | 44.5A | 37A | 200A-10ms |
| SFK-30Ampare series | 30A | 34A | 30A | 25A | 170A-10ms |

(*Note)

1. It is the typical value that is calculated from 100 deg.C, the temperature that we confirmed the reliability with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates). It is influenced by thermal capacity of PCB and so we recommend checking it with your PCB.
   -> 25deg.C, 40reg.C and 60deg.C are ambient temperature.
   -> The temperature that we confirmed the reliability is not a critical condition. SCP fusing-off temperature is 200deg.C or more.
   -> Current-carrying capacity is measured in thermal equilibrium condition. Therefore, if Current-carrying time is short, Current-carrying capacity will increase.
2. It is the test condition (10ms-On, 9990ms-Off, 500cycle) that we confirmed the reliability. But it is not necessarily a critical condition for SCP.

# Handling Instructions for these data

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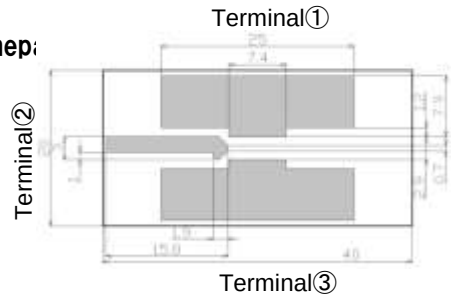
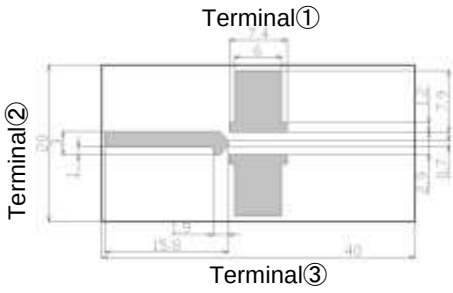
For SFK-45A




For SFK-30A




- 1. Please confirm the latest product information before a design.
  - You can confirm the latest information about SCP on the following homepa
  - http://www.dexerials.jp/en/products/dd6/
- 2. SCP complies with environmental regulation.
  - 1) SCP complies with RoHS.
  - 2) SCP complies with general requirement for Halogen Free.
- 3. These data are typical value.
  - 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, when thermal capacity of PCB increases, Current-carrying capacity will increase and Clearing-time will be long.
- 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 deg.C) and so it is not Current-carrying capacity. Therefore, please select a product on the basis of 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 accept the test (Current-carrying capacity and Clearing-characteristics and so on) with your PCB. Please request to us unreservedly.
- 5. Current-carrying capacity
  - 1) Current-carrying capacity is the current-carrying value that SCP reaches temperature that we confirmed the reliability in our company.
  - 2) The temperature that we confirmed the reliability is 100 deg.C. But it is not a critical condition for SCP. For example, if SCP temperature exceeds it, SCP is not immediately fusing-off like a common thermal fuse. SCP fusing-off temperature is 200 deg.C or more and so it has much more capability for the temperature rise.
  - 3) Current-carrying capacity is measured in thermal equilibrium condition so that if Current-carrying time is short, 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 or immersion-cleaning and so on must not be done to SCP before and after mounted. When cleaning is done, flux on element would flow, and it would not be satisfied its specification. Moreover, a similar influence happens when the product comes in contact with cleaning-solution. These products after cleaning 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 removed by the solder correction.

# END

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