Power Current Protector (PCP)
- PSx series Datasheet -

Dexerials Corporation

2024/09/13

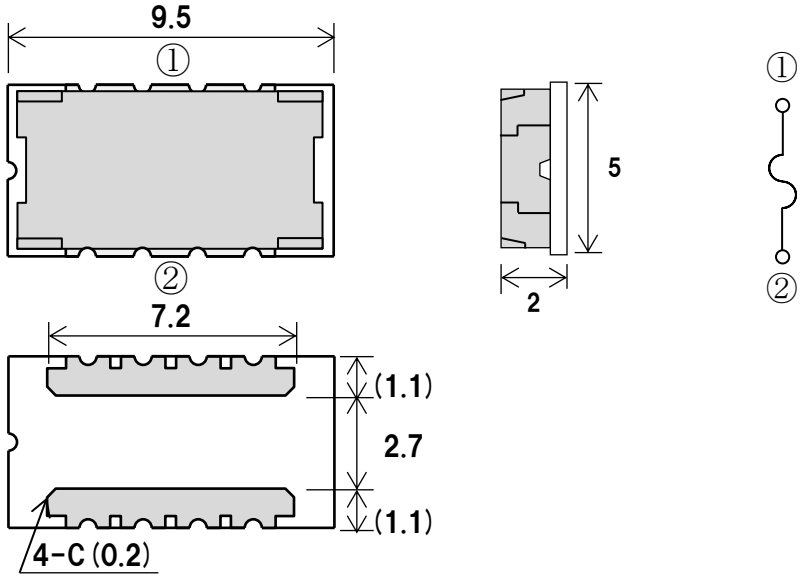
Table of Contents

PSK series

PSK-062065A

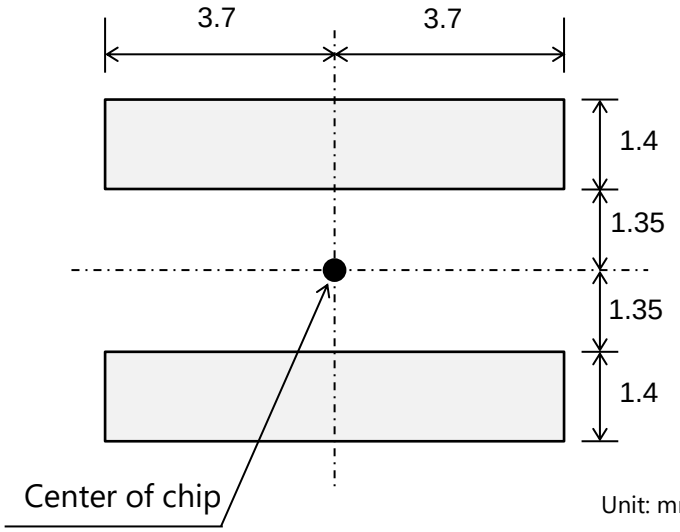
Items	General Specification
Rated Current	65 A
Rated Voltage	62 VDC
Size	$9.5^{\pm 0.3}$x$5.0^{\pm 0.3}$x$2.0^{\pm 0.3}$ mm
Fuse Resistance (Typ.)	0.8 m-ohm
Environmental Compliance	Compliant with RoHS
Halogen Free	Bromine (Br)=900 ppm or less, Chlorine (Cl)=900 ppm or less, Br + Cl=1500 ppm or less (By weight)
Qualification	UL248-14 (File No. E167588), TUV (Certificate No. J50384089)
Rated Breaking Capacity	300 A
Re-flow Temp.(MAX)	260 °C

External View and Equivalent Circuit



Unit: mm

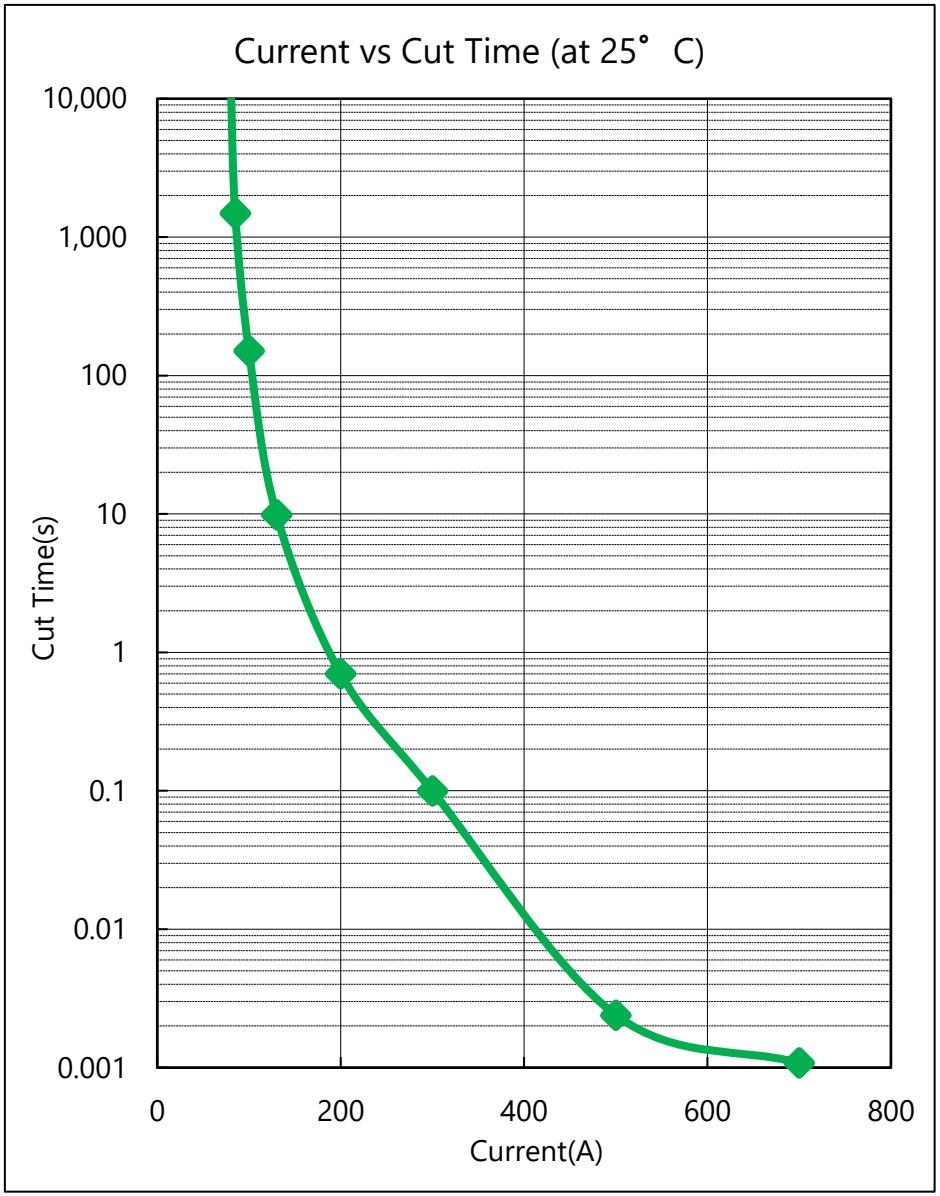
Recommended Land

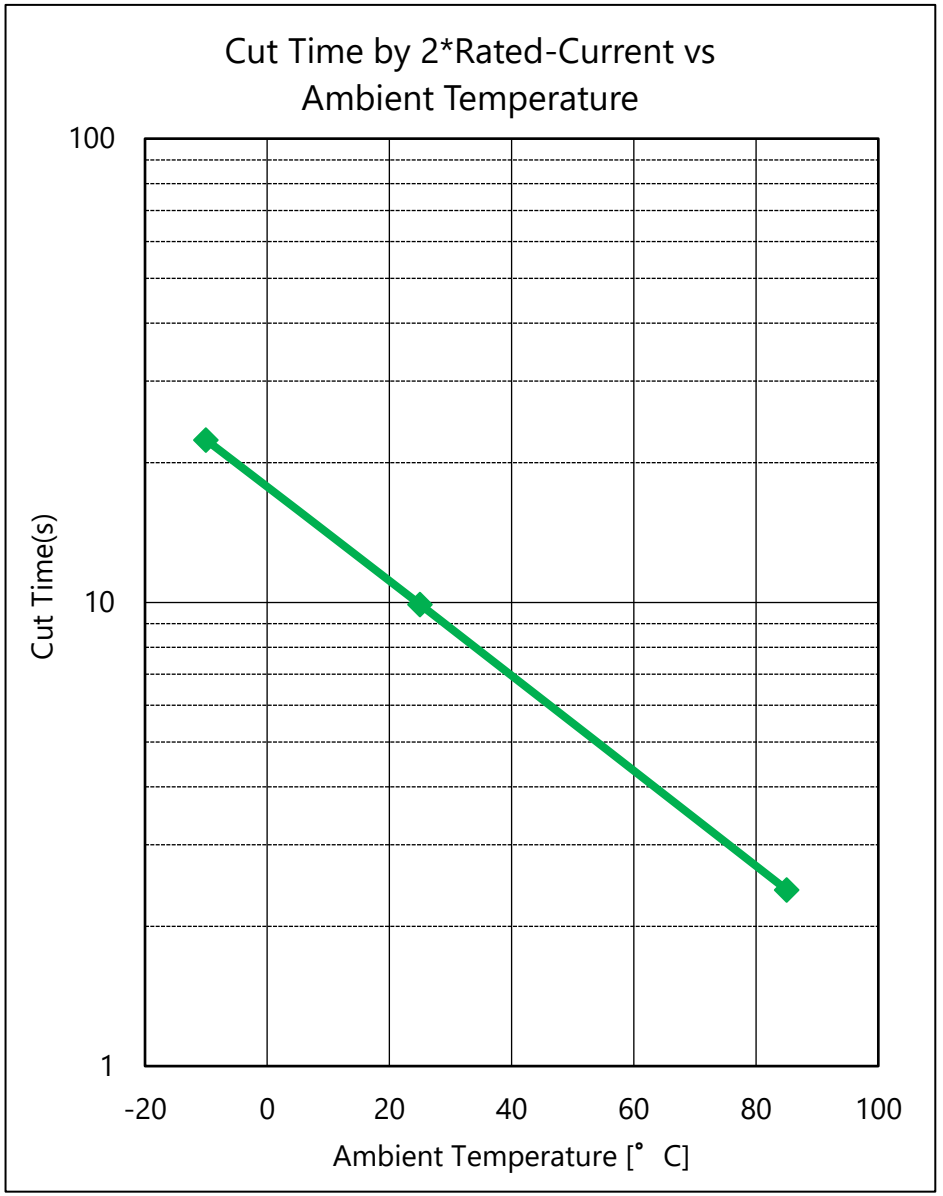


Unit: mm

(*Note) The information in this document is subject to change without notice.

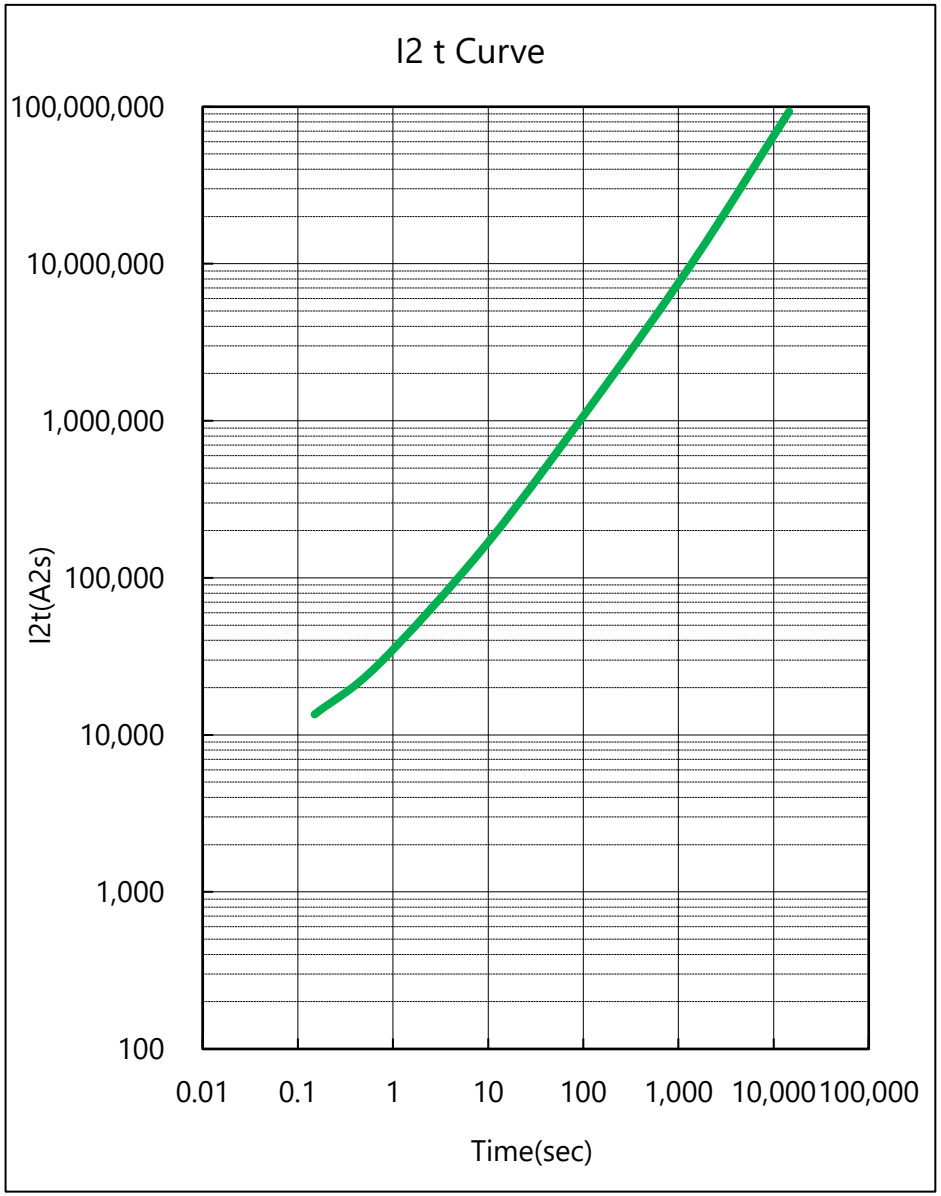
PSK-65A Current Characteristics

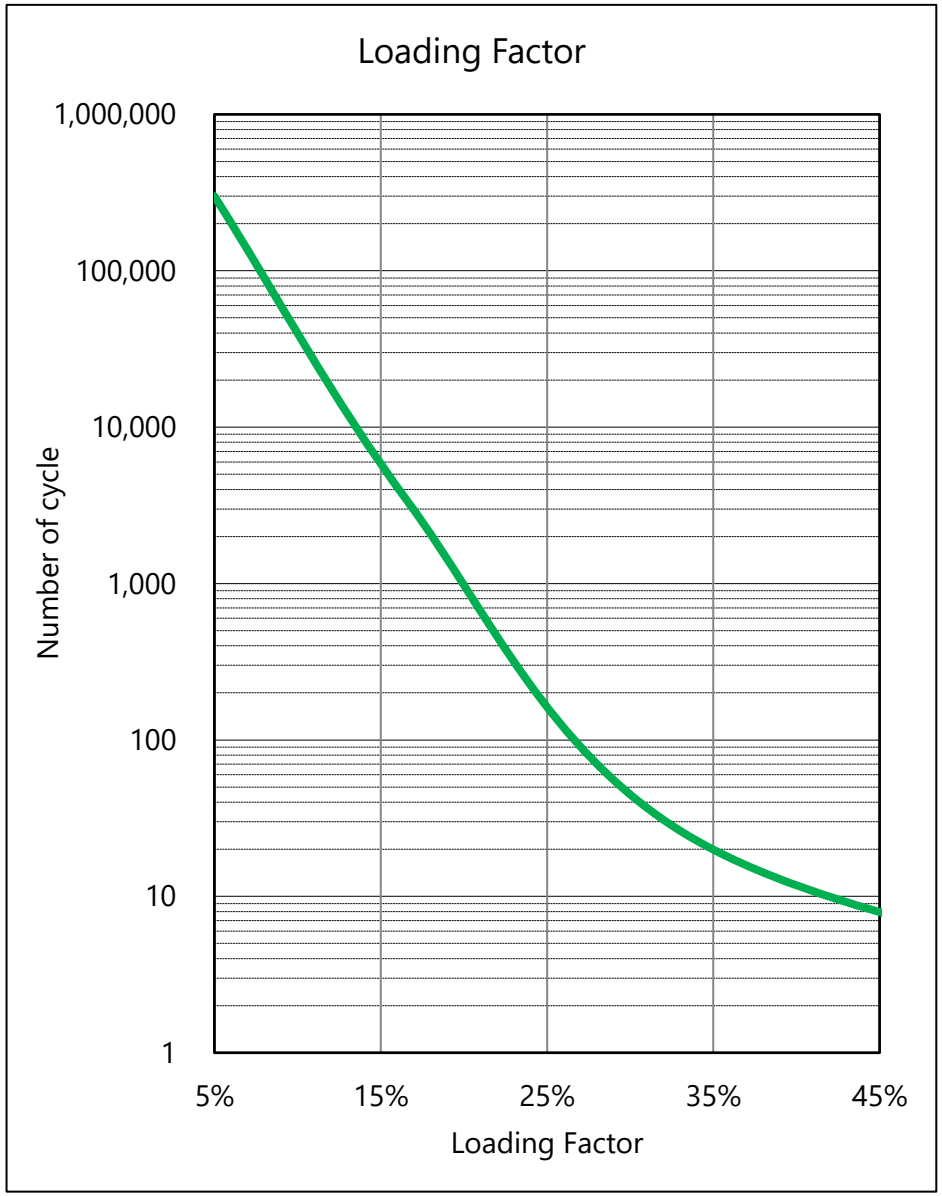




(*Note) This is the typical value with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).
The thermal capacity of the PCB can affect it, so we recommend verifying it with your specific PCB.

PSK-65A Loading Factor





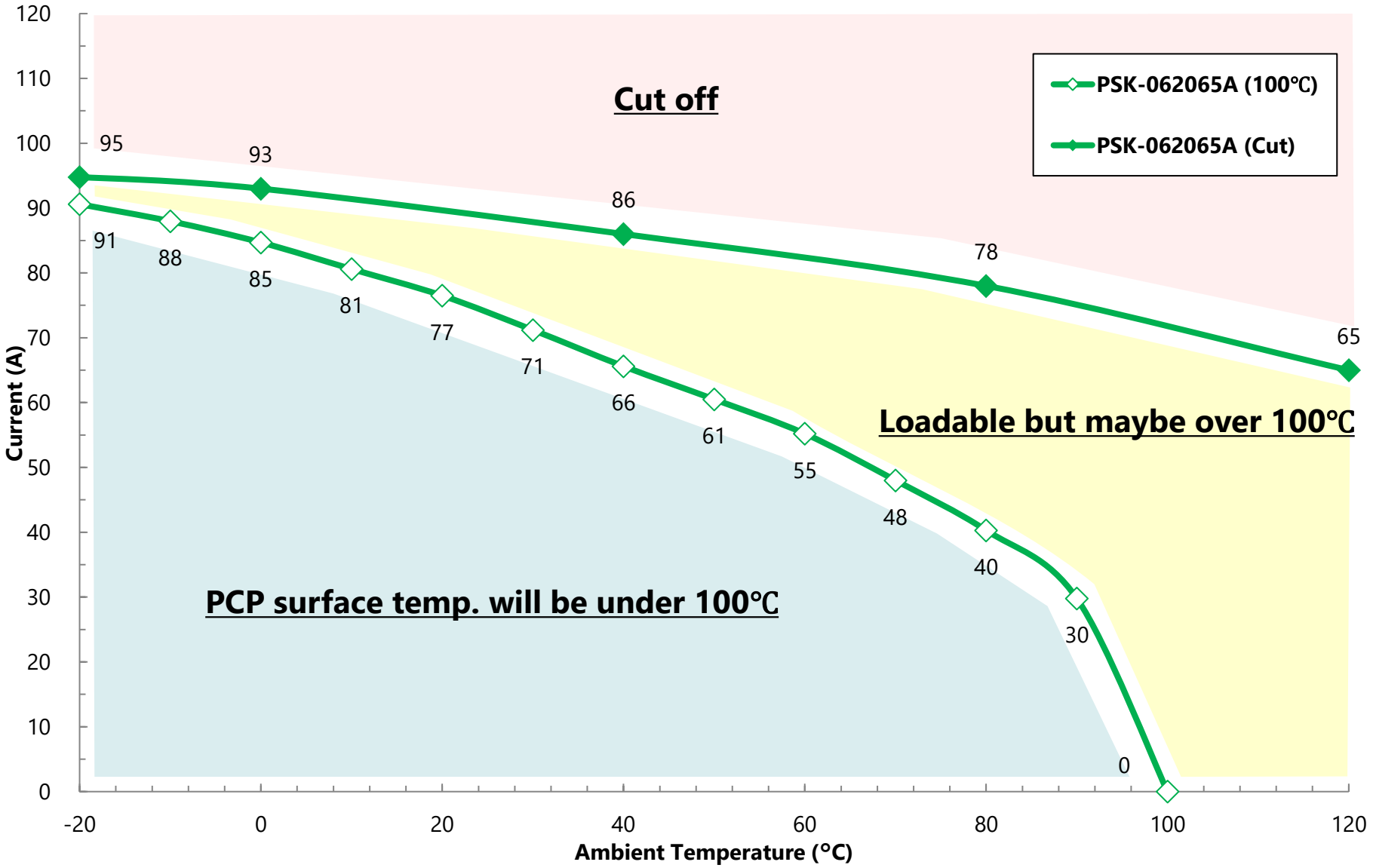
This is the typical value at 300A with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).
The thermal capacity of the PCB can affect it, so we recommend verifying it with your specific PCB.

PSK-65A Current Rush Withstand

Product Name	Test Conditions		
	Input	Interval	Number
PSK-062065A	200 A – 5 ms	0 A – 995 ms	100,000 cycles
	300 A – 9 ms	0 A – 999 ms	1,000 cycles

(*Note)
This is the typical value with 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.
Reliability was confirmed under the test conditions. However, this does not mean critical conditions for SCP.

PSK-65A Current Carrying Capacity



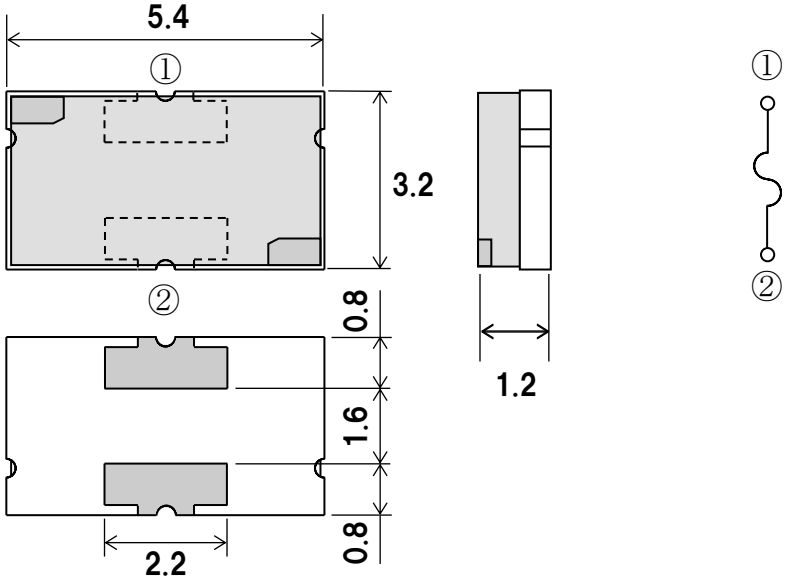
(*Note) This is the typical value with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).
The thermal capacity of the PCB can affect it, so we recommend verifying it with your specific PCB.

PSH series

PSH-036035A

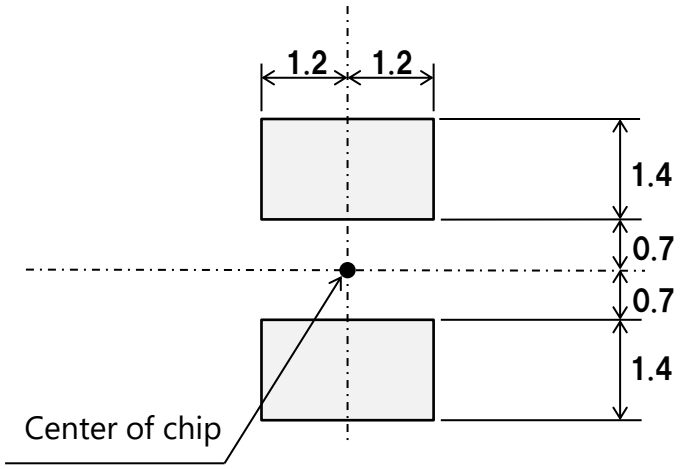
Items	General Specification
Rated Current	35 A
Rated Voltage	36 VDC
Size	$5.4^{+0.3/-0.2}$ x $3.2^{+0.3/-0.2}$ x $1.2^{+0.3/-0.2}$ mm
Fuse Resistance (Typ.)	1.0 m-ohm
Environmental Compliance	Compliant with RoHS
Halogen Free	Bromine (Br)=900 ppm or less, Chlorine (Cl)=900 ppm or less, Br + Cl=1500 ppm or less (By weight)
Qualification	UL248-14 (File No. E167588), TUV (Certificate No. J50384089)
Rated Breaking Capacity	100 A
Re-flow Temp.(MAX)	260 °C

External View and Equivalent Circuit



Unit: mm

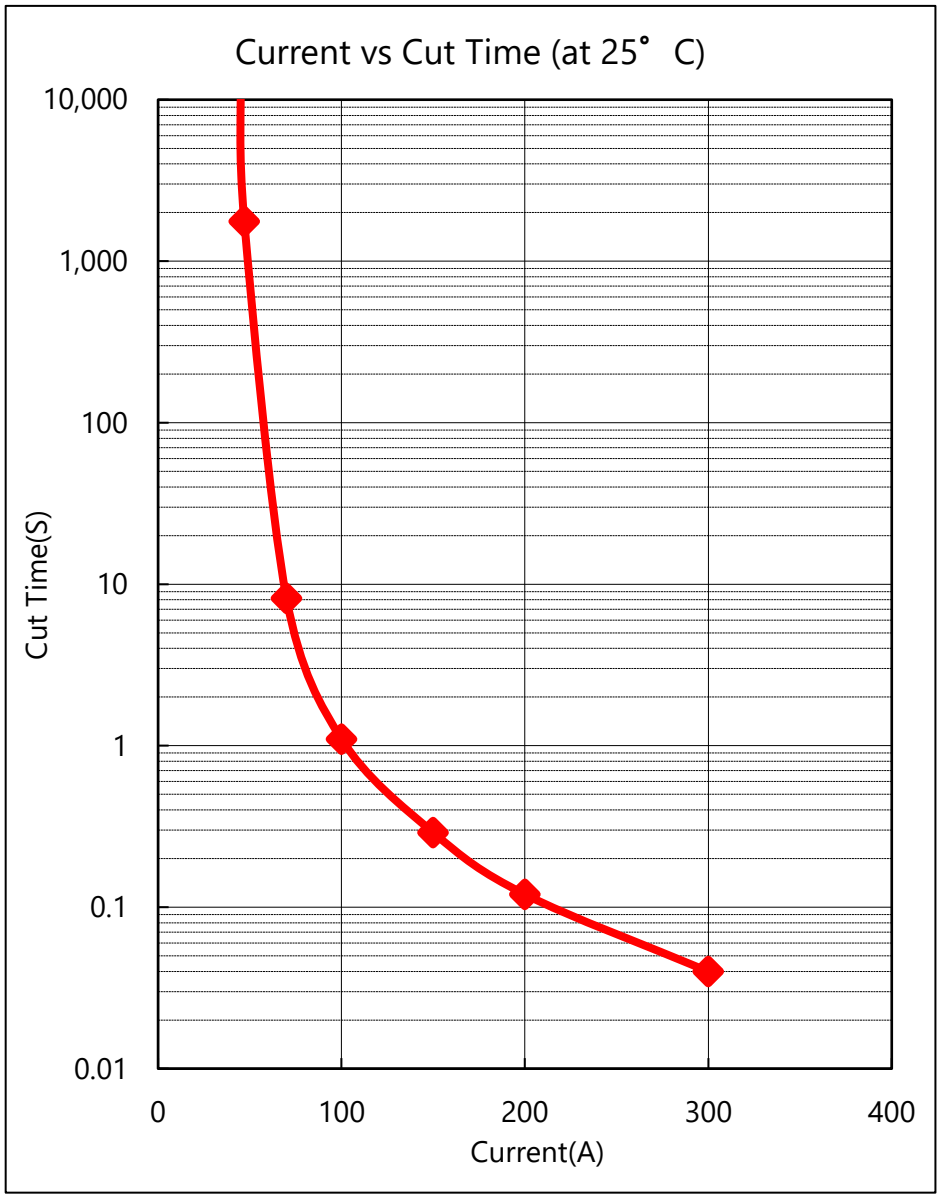
Recommended Land

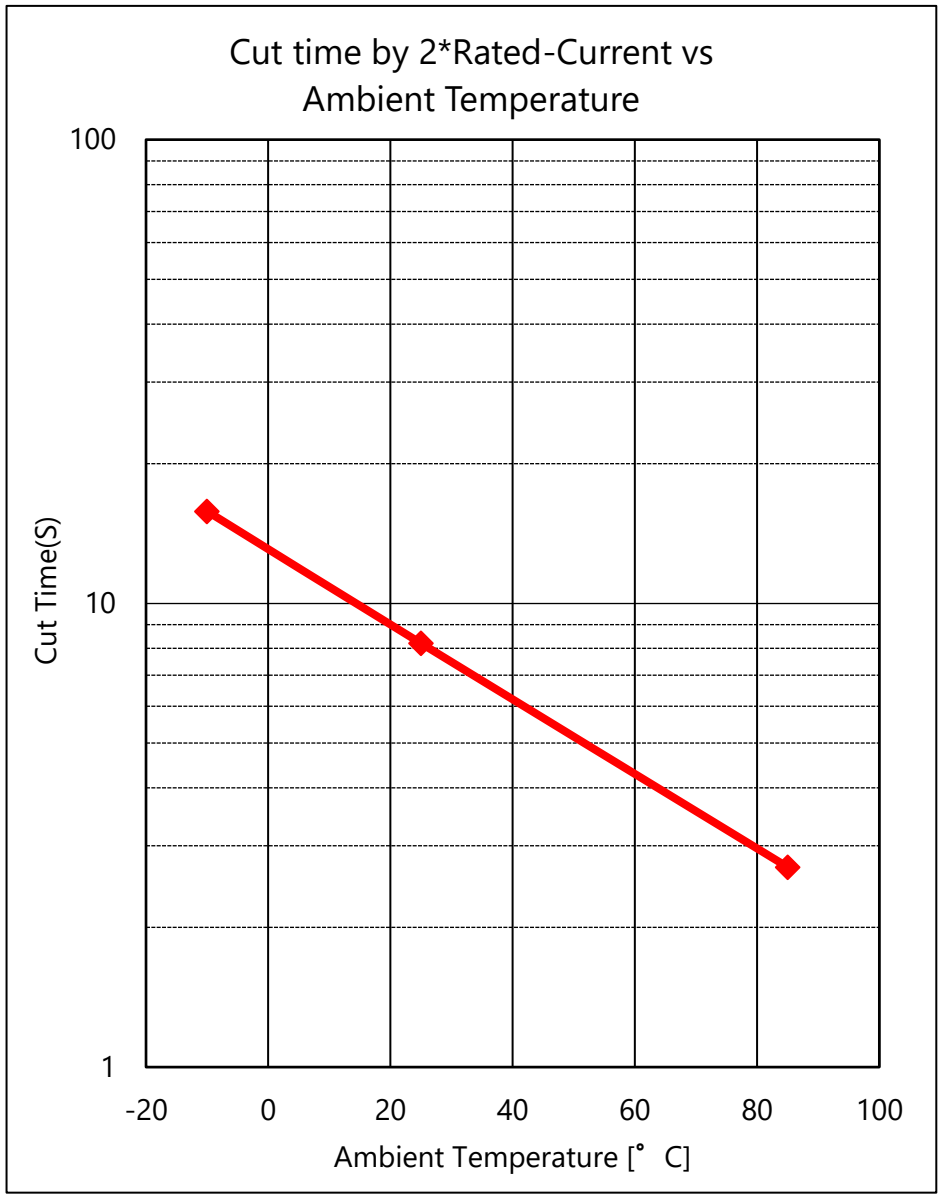


Unit: mm

(*Note) The information in this document is subject to change without notice.

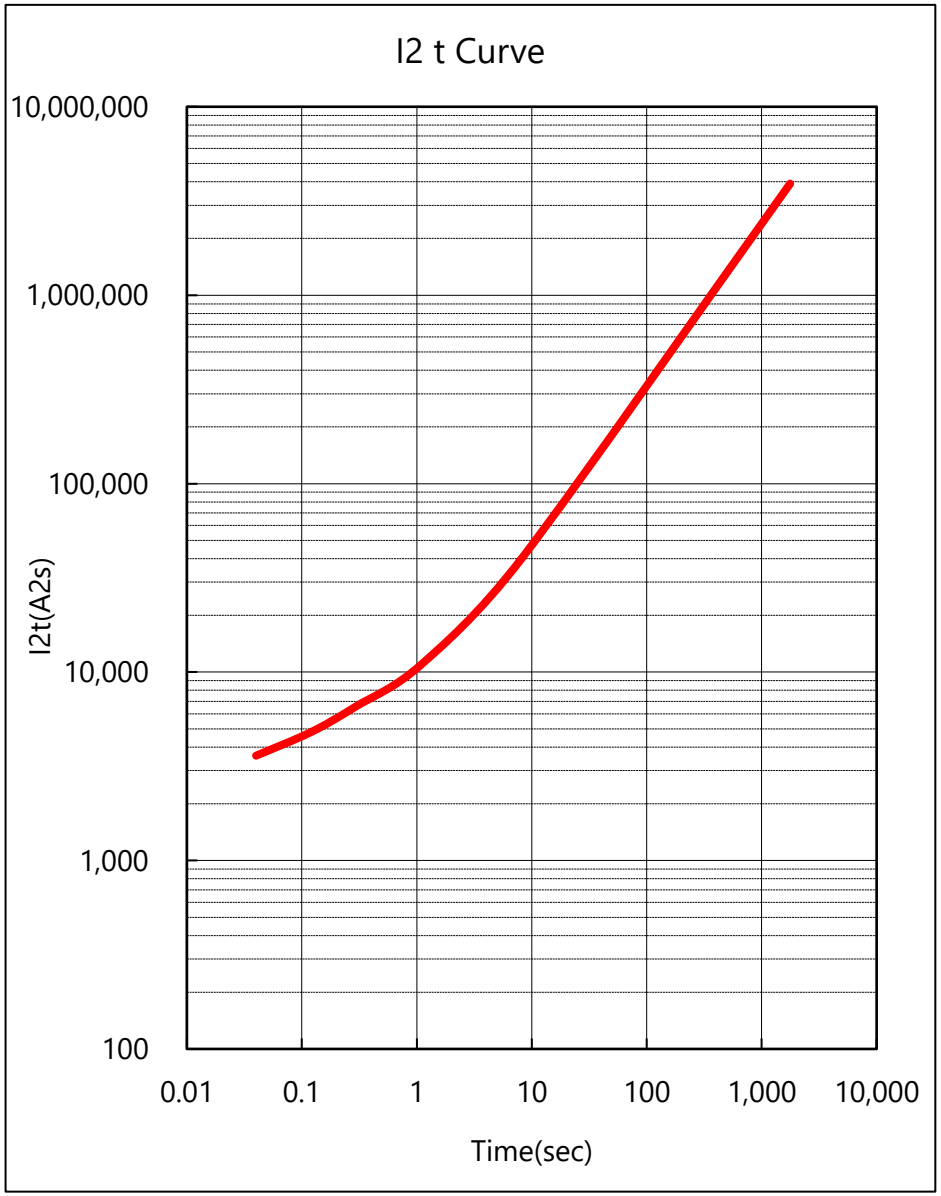
PSH-35A Current Characteristics

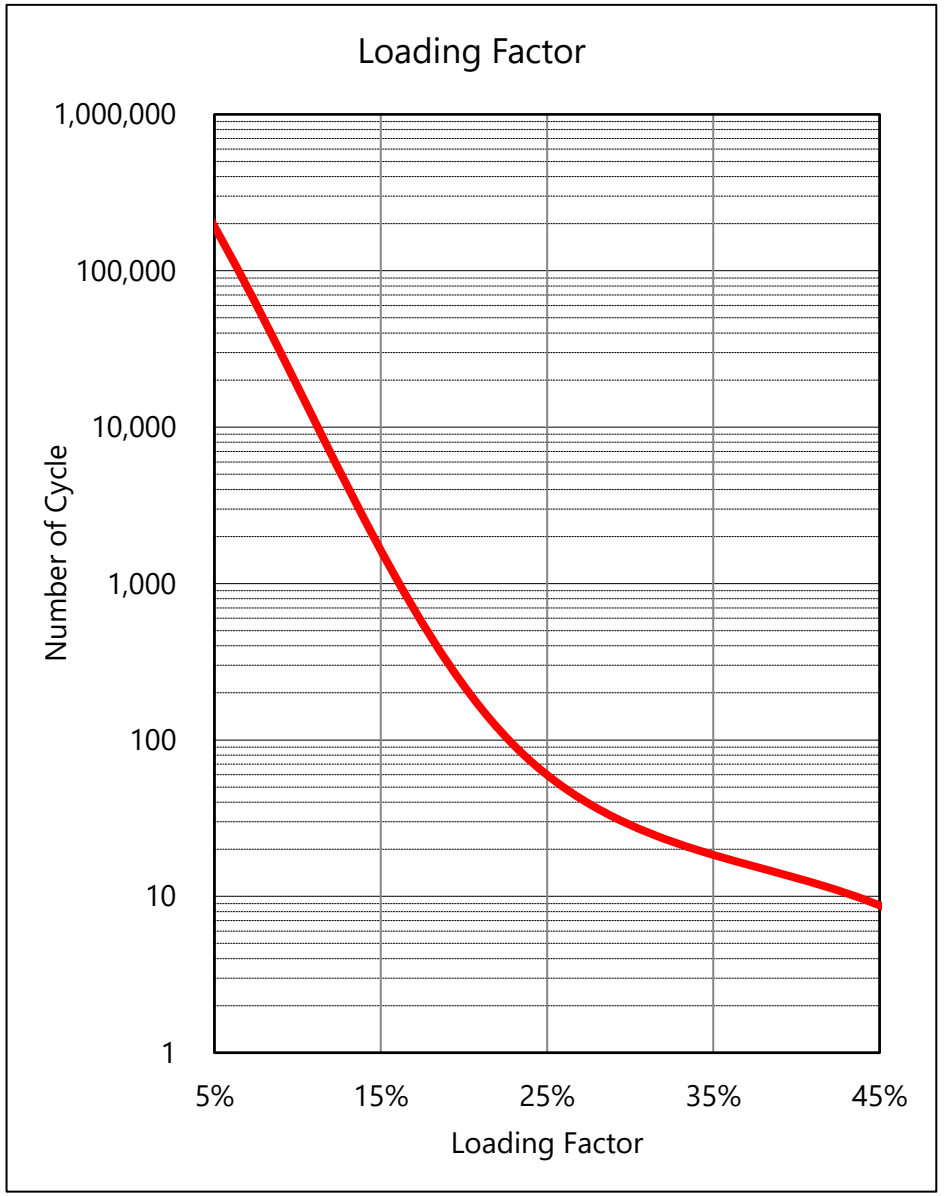




(*Note) This is the typical value with our company's standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).
The thermal capacity of the PCB can affect it, so we recommend verifying it with your specific PCB.

PSH-35A Loading Factor





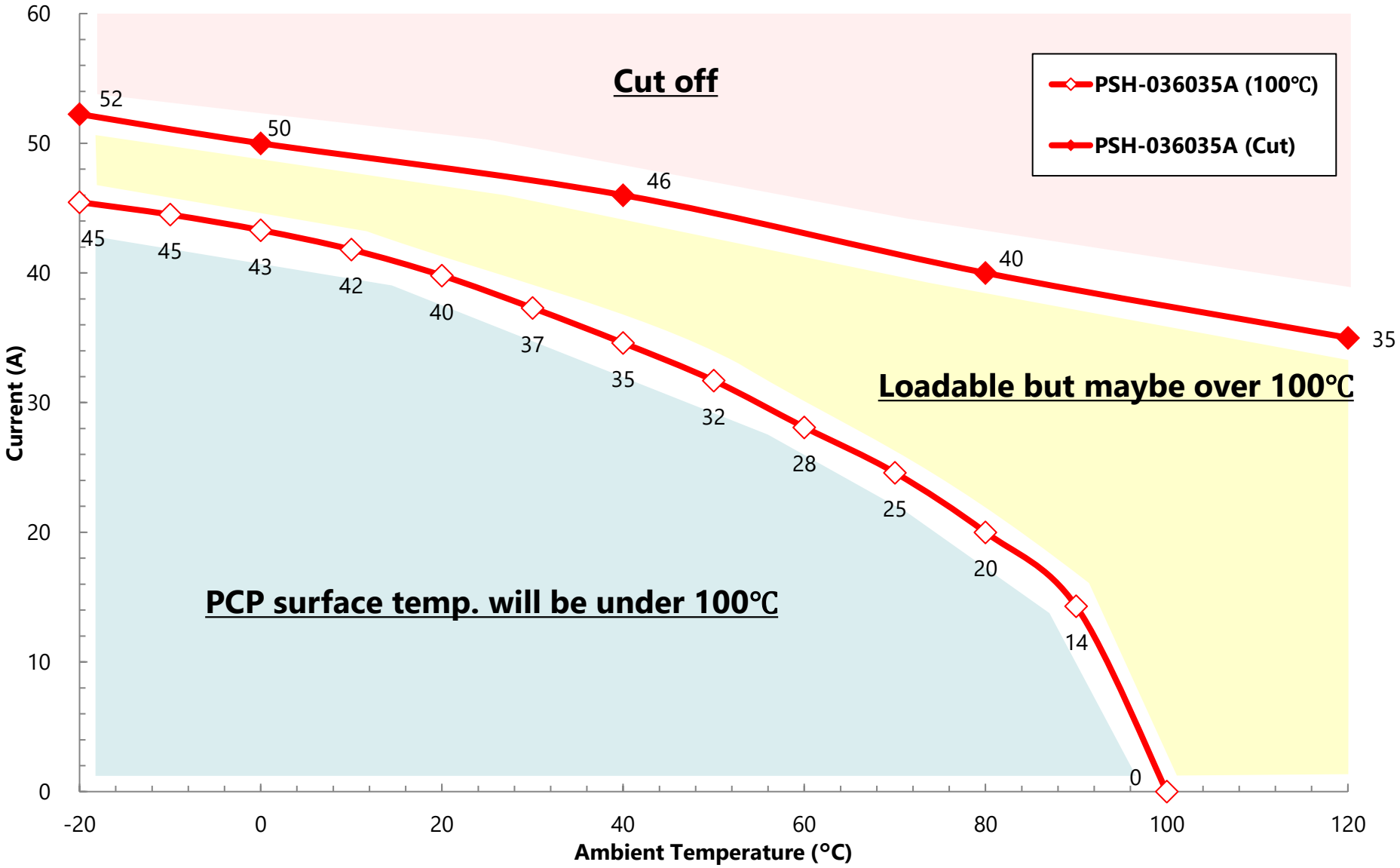
This is the typical value at 170A with our company' s standard PCB (0.6t Glass Epoxy single-sided copper-clad laminates).
The thermal capacity of the PCB can affect it, so we recommend verifying it with your specific PCB.

PSH-35A Current Rush Withstand

Product Name	Test Conditions		
	Input	Interval	Number
PSH-036035A	100 A – 5 ms	0 A – 995 ms	100,000 cycles
	170 A – 10 ms	0 A – 9,990 ms	1,000 cycles

(*Note)
This is the typical value with 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.
Reliability was confirmed under the test conditions. However, this does not mean critical conditions for SCP.

PSH-35A Current Carrying Capacity



(*Note) This is the typical value with 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.

Handling Instructions for these data

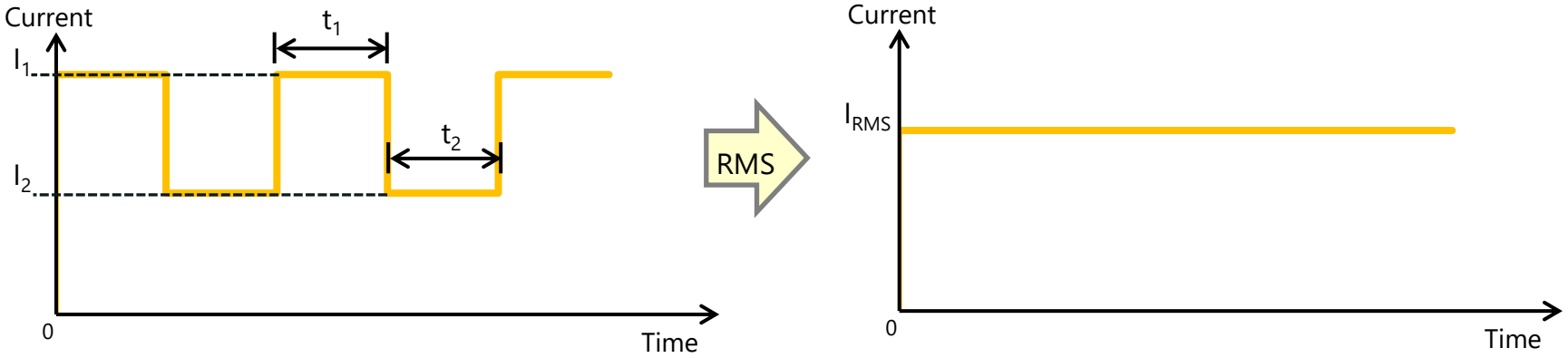
- 1. Please confirm the latest product information before a design.
  - You can confirm the latest information about PCP on the following homepage.
  - http://www.dexerials.jp/en/products/c3/
- 2. PCP complies with following environmental regulation.
  - 1) RoHS.
  - 2) General requirement for Halogen 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, 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] 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 PCP 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 PCP. For instance, if PCP's temperature exceeds this, it does not immediately fuse off like a typical thermal fuse. PCP'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 PCP 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 PCP 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 PCP that removed by the solder correction.
  - 5) PCP should be stored in a shaded, low-dust area with a temperature of 40℃ 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.

Appendix

RMS of Pulse Current

〔RMS=Root Mean Square value〕

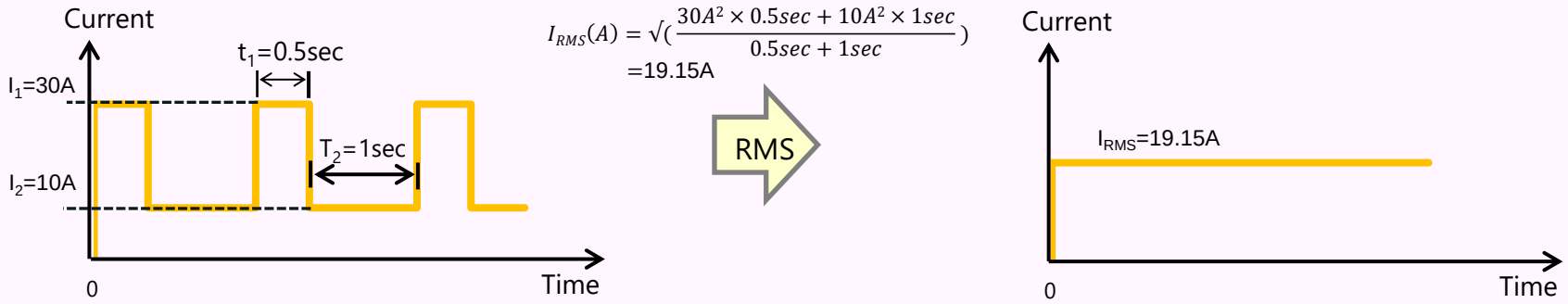
[Pulse Current]



[Formula]

$$I_{RMS}(A) = \sqrt{\left(\frac{I_1^2 \times t_1 + I_2^2 \times t_2}{t_1 + t_2}\right)}$$

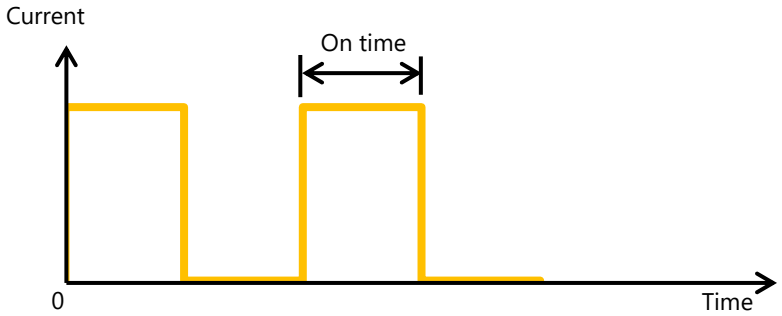
※Example



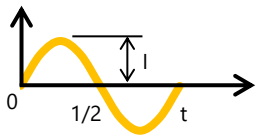
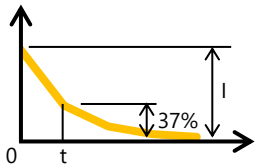
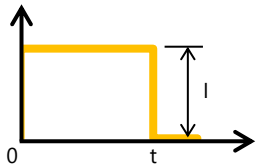
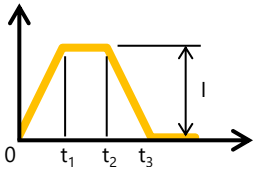
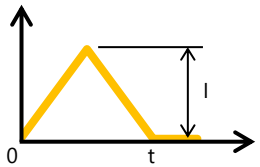
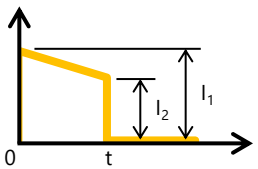
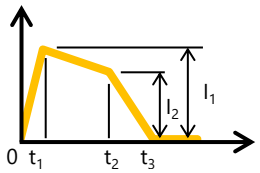
Calculation Method

[Loading factor]

$$Loading\ Factor = \frac{On\ time}{Cut\ time}$$



[I^2t at various wave forms]

Wave form	Formula	Wave form	Formula
	$\frac{1}{2}I^2t$		$\cong \frac{1}{2}I^2t$
	I^2t		$\frac{1}{3}I^2t_1 + I^2(t_2 - t_1) + \frac{1}{3}I^2(t_3 - t_2)$
	$\frac{1}{3}I^2t$		$\frac{1}{3}(I_1 - I_2)^2t + I_1I_2t$
	$\frac{1}{3}{I_1}^2t_1 + \left\{I_1I_2 + \frac{1}{3}(I_1 - I_2)^2\right\}(t_2 - t_1) + \frac{1}{3}{I_2}^2(t_3 - t_2)$		

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