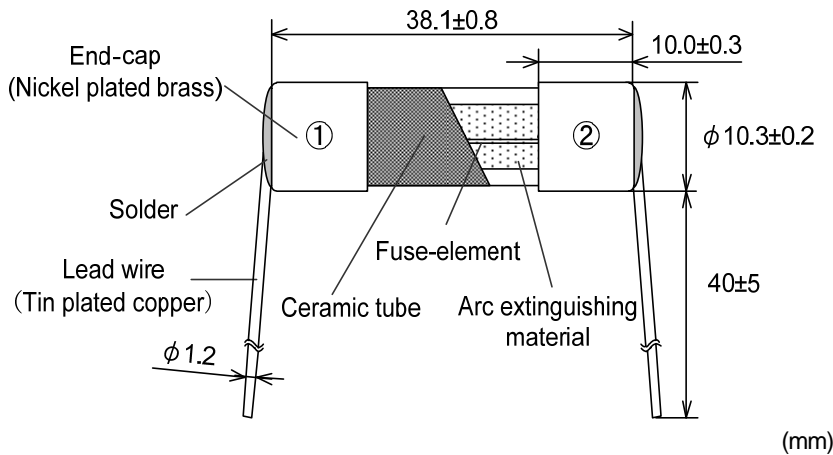




This protector is not certified under any safety standard of Japan, North America, the EU, or any other country.

**SOC product name** LLD6500 15A

**Dimensions and construction**



**Marking** Marking ①: SOC 15A Marking ②: DC600V LLD6500

**Electrical characteristics**

Maximum working voltage	Rated current ( $I_N$ )	Maximum breaking current		Temperature rise	Current carrying capacity	Overload operation
DC 600 V	15 A	500 A	Resistive circuit	Not more than 150 K at 1.0 $I_N$ on the external surface of the protector	1.0 $I_N$ until temperature stabilization occurs	Within 2 min at 2.0 $I_N$

**Rated currents**

Your part number	SOC product name	Rated current
	LLD6500 15A	15 A

**Environment-related substances**

The six hazardous substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)) specified in the EU RoHS Directive are not used intentionally in this product, except high melting temperature type solders, containing 85 wt% or more lead, that are exempted from the Directive. This product conforms to the EU RoHS Directive 2011/65/EU.

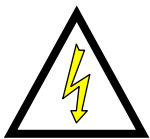


# Safety Precautions When Selecting and Using Protectors

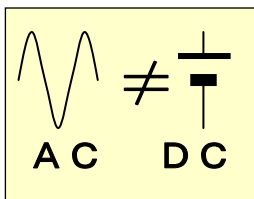
**WARNING:** Read and follow these precautions before selecting and using protectors. Failure to properly select, install, and use protectors can result in serious injury, death, or property damage. Before final protector selection, always test the proposed protector in your actual equipment to ensure that the protector satisfies all your operational and safety requirements.



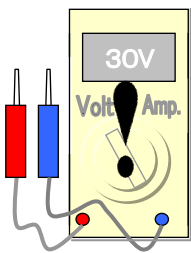
Use the protectors within the specification requirements. Exceeding specification requirements may result in injury, death, or fire.



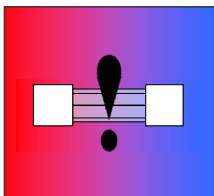
Shut down the power before touching the protector. Failure to do so may result in electrocution or serious burns.



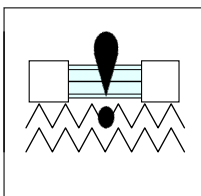
Be aware that the breaking ability of a protector will differ depending on whether the circuit is an AC or a DC circuit. Protectors intended for use in AC circuits should therefore not be employed in DC circuits, and vice versa, as this may result in accidents such as explosions, property damage, and serious injury.



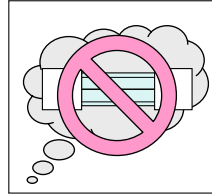
Check if the circuit voltage is large enough for protector operation. When the circuit voltage is too small, the protector may not operate even though an abnormal current passes through it as the current decreases due to the increase of the protector resistance.



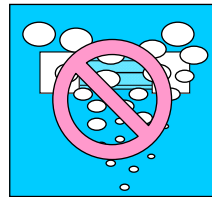
Consider the effect of the ambient temperature when you use the protector. Electrical performance of the protector may vary depending on the temperature.



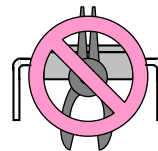
Use the protector in a place where the vibration and impact levels are within the specified limits. Exceeding these limits may result in disconnection of the fuse-element.



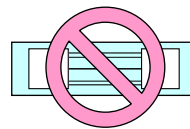
Do not use the protector where it is exposed to high humidity, and corrosive and flammable gases. Doing so may result in nuisance operations, disconnection of the fuse-element, or explosions.



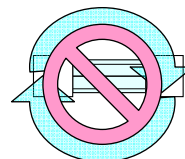
Do not apply ultrasonic cleaning to the protector. Ultrasonic cleaning may result in disconnection of the fuse-element.



Do not form the lead when the temperature of the protector is greater than or equal to 40 °C. Lead forming at these temperatures may result in disconnection of the fuse-element as the load is applied to it.



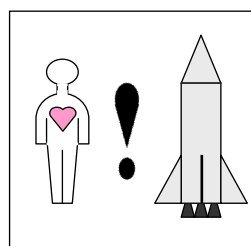
Do not apply coating or potting to the protector. Doing so may result in disconnection of the fuse-element or a change in the protector's characteristics.



Use sample protectors only for evaluation. Do not reuse protectors. Properly dispose of used protectors.



When inserting a protector into a fuseholder, avoid applying excessive force as this may result in the protector cracking or contact failure which will significantly reduce its ability to work properly or shorten its life.



When the protector is used for a life support system or equipment that requires high reliability, examine and evaluate the protector in actual circuit conditions more carefully than is necessary for other general electronic equipment.

FOR REFERENCE ONLY (ご参考)

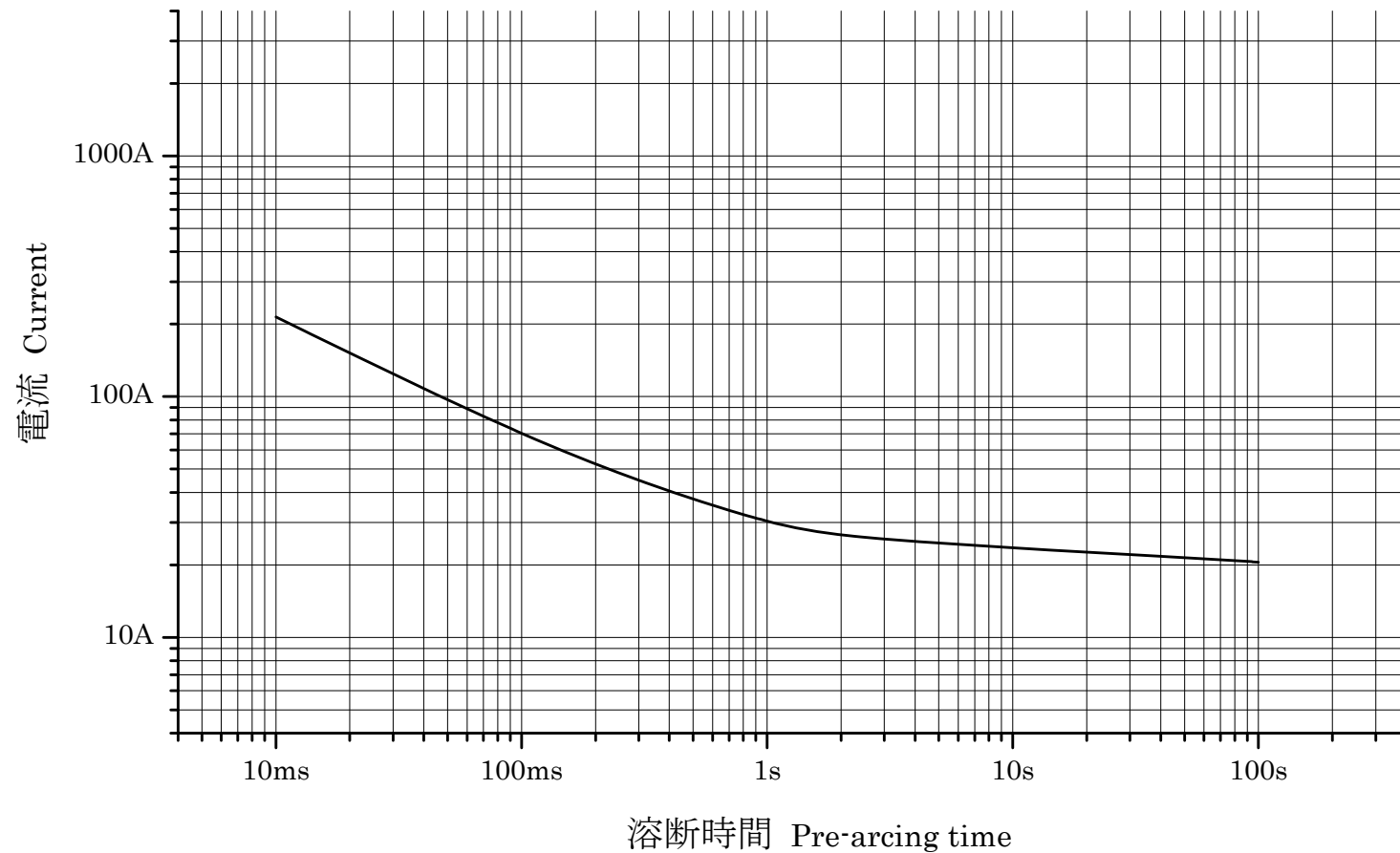
## I-t Curve

このI-t特性図は、弊社が試験条件を特定して測定した実測値の平均値だけをプロットしてあります。参考値であり保証値ではありません。プロテクターの特性はその使用条件により変化しますので、お客様にプロテクターのご使用条件下で、プロテクターがお客様のご要求を満足しているかを実際にご確認頂く必要があります。

This I-t curve is a plot of the average values of the measurements obtained under conditions specified by our company. These data are for reference only and are not intended to infer any guaranteed values. The characteristics of the protector may vary depending on the usage conditions. Always test the protector under the actual circuit conditions.

Type: LLD6500 15A

Control No.: 140707



FOR REFERENCE ONLY (ご参考)

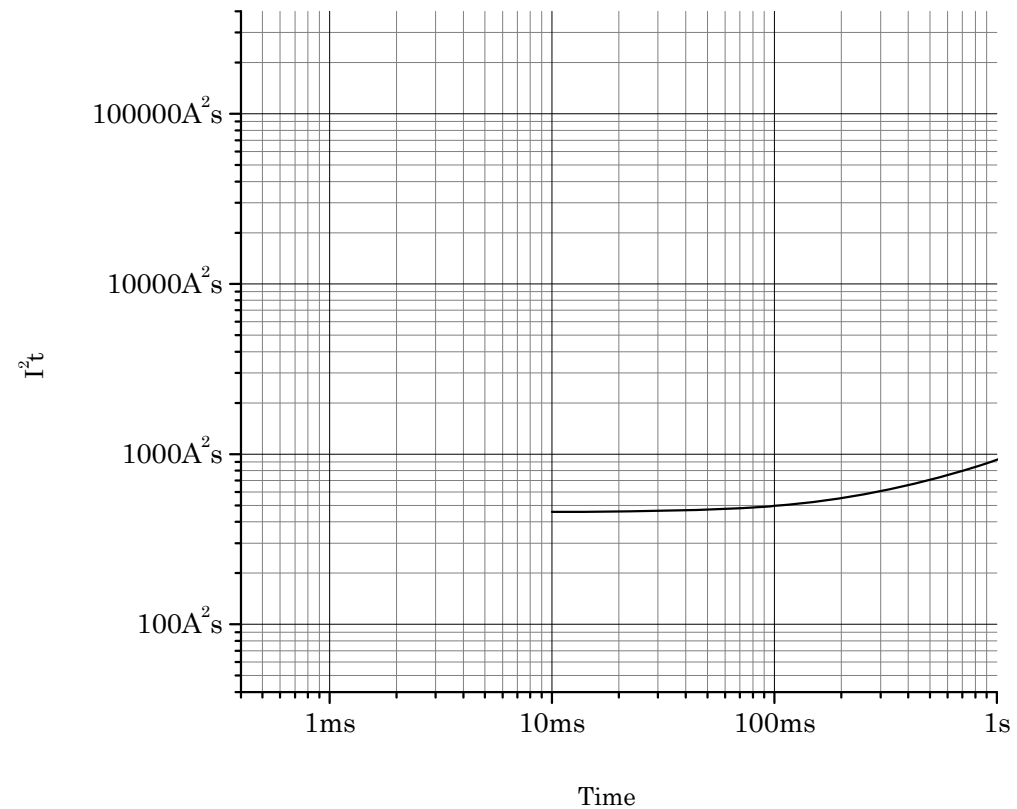
## $I^2t$ Curve

この $I^2t$ - $t$ 特性図は、弊社が試験条件を特定して測定した実測値の平均値だけをプロットしてあります。参考値であり保証値ではありません。プロテクターの特性はその使用条件により変化しますので、お客様にプロテクターのご使用条件下で、プロテクターがお客様のご要求を満足しているかを実際にご確認頂く必要があります。

This  $I^2t$  curve is a plot of the average values of the measurements obtained under the conditions specified by our company. These data are for reference only and are not intended to infer any guaranteed values. The characteristics of the protector may vary depending on the usage conditions. Always test the protector under the actual circuit conditions.

Type: LLD6500 15A

Control No.: 140707



## 周囲温度の影響－定格電流値のリレーティング

### Influence of Ambient Temperature - The Re-rating of the Rated Current

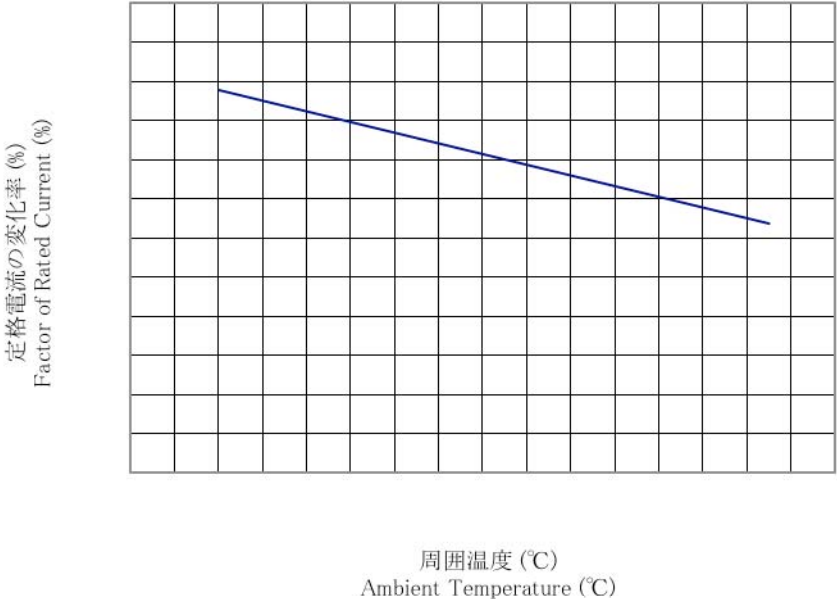
この周囲温度に対する定格電流の変化を示すグラフは、周囲温度-40 °C、25 °C 及び 85 °C に於いて弊社が特定した条件で測定した 3 点の実測値であり、お客様での実使用条件を考慮したものではありません。

プロテクターの特性はその使用条件により変化しますので、お客様にプロテクターのご使用条件下で、プロテクターがお客様のご要求を満足しているかを実際にご確認頂く必要があります。

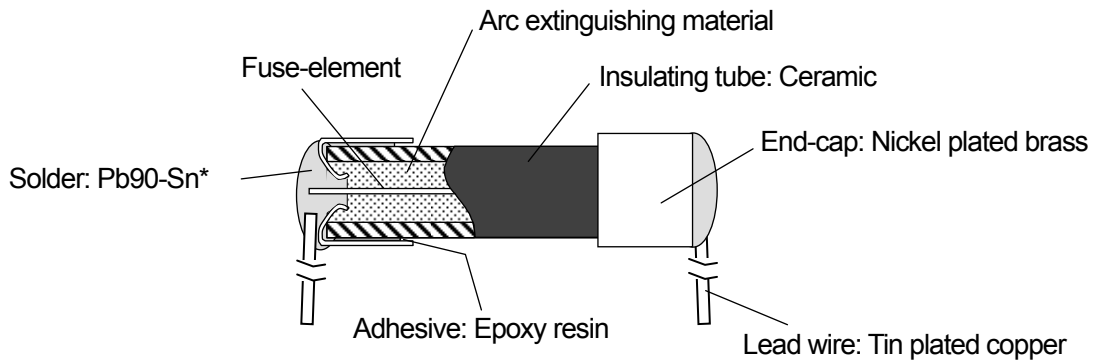
This chart is a plot of the measurements obtained at the ambient temperatures of -40 °C, 25 °C and 85 °C under the conditions specified by SOC. The conditions of your actual application are not considered in this chart. These data are for reference purposes only and are not intended to infer any guaranteed values. Protector characteristics may vary depending on the usage conditions. Always test the protector in the circuit under the actual circuit conditions.

Type: LLD6500 15A

Control No.: 141219



**1. Construction**



\* High melting temperature type solders, containing 85 wt% or more lead, that are exempted from the EU RoHS Directive for hazardous substances are used.

**2. Usage conditions**

Ambient temperature: -40 °C--+85 °C

Note: The current carrying capacity of the protector may vary depending on the ambient temperature.

Ambient humidity: 85% RH or less

**3. Storage conditions and storage period**

Products packaged as delivered can be stored for one year after shipping from SOC.

Ambient temperature: -30 °C--+40 °C (No condensation)

Ambient humidity: 85% RH or less

Ambient atmosphere: Not exposed to corrosive gas or sea breeze.

No visible dust.

Not exposed to direct sunlight.

Load: No application of load that may cause deformation or degradation of the product.

**4. Typical cold resistance (for reference only)**

15A: 9.7 mΩ

**5. Resistance to soldering heat**

The soldering conditions shown below are examples when the facilities of our company are used. These conditions may vary depending on the facilities to be used. Please evaluate a sufficient number of samples under the actual conditions in your company prior to production.

(1) Wave soldering

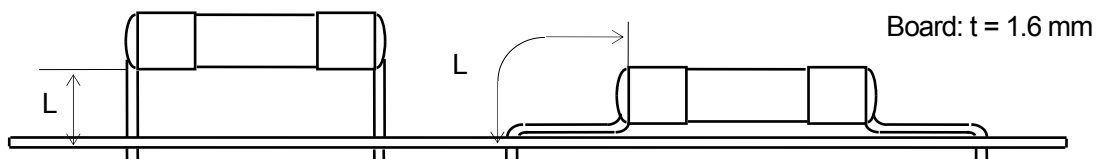
The soldering conditions stated below may be influenced by the material/shape and dimensions of the board, size of the copper foil, and/or heat capacity of the respective components on the board, besides such factors as temperature/duration of preheating, material of solder, temperature of the solder bath, and/or the duration of dipping.

- Length of the lead between the protector body and the soldered surface of the board: L = 8 mm or more
- Pre-heating: 80 °C–140 °C, 30 s–60 s
- Temperature of molten solder: 260 °C or less
- Duration: 7 s or less

(2) Hand soldering with soldering iron

Depending on the components to which the protector is attached (e.g. copper foil of the board) and/or heat capacity of the soldering iron tip, the soldering conditions may vary from those specified below.

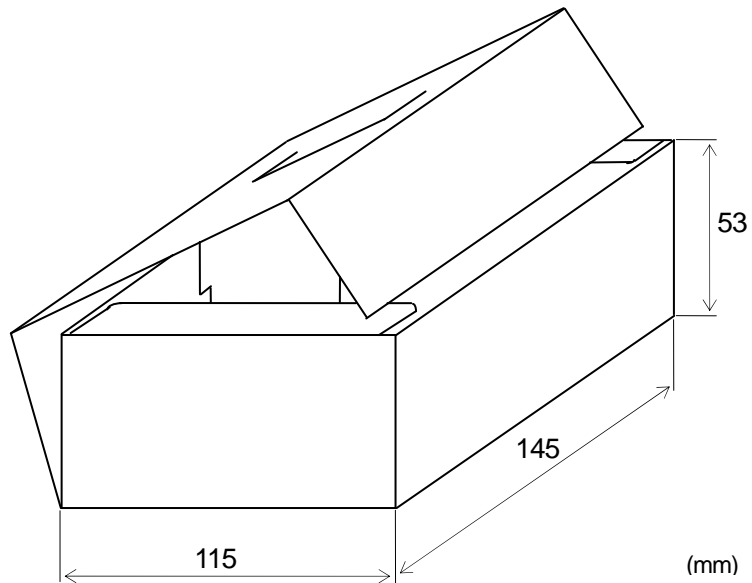
- Length of the lead between the protector body and the soldered surface of the board: L = 5 mm or more
- Soldering iron tip temp.: 380 °C
- Duration: 3 s or less



- Care must be taken not to apply any stress such as bending, twisting, rotating or tension to the lead wire and the end-cap during heating of the protector body by soldering and while it is kept at a high temperature of 40 °C or more.
- Do not apply any stress to the lead wire while the protector body is being held, otherwise it may cause degradation of the end-cap portion. The root of the lead wire should be held firmly when it is formed.

**1. Protectors to be delivered shall be packed as follows:**

- (1) 50 protectors are packed into a colorless transparent polyethylene bag.
- (2) An identification label is attached to each bag.
- (3) Each bag of 50 protectors is packed into the cardboard case shown in the figure below. If the number of protectors to be packed in is less than 50, the protectors are still packed into the case in the same manner.
- (4) The following are indicated on the surface of the cardboard case:
  - Your part number (by request)
  - Quantity of protectors
  - Packaged date
  - Country of origin
  - Manufacturer
  - Production facilities



**2. Lot number**

The lot number indicates the following:

Example: 1 5 0 1 2 3 9 1

			Date manufactured			Process code	
			(January 23, 2015)				