



# Precautions for use

The components used in our noise filters are made of materials with excellent insulation, voltage resistance, heat resistance, and frequency characteristics, providing high reliability and safety. However, if the design is implemented without sufficient understanding of these characteristics, the product may lead to accidents depending on the application. This section provides specific explanations and precautions for the use of the products. Before use, please be sure to carefully read this document together with the individual technical documents and delivery specifications, and use the products correctly.

In addition, if you intend to use our products in equipment or systems such as automobiles, railway vehicles, ships, aircraft, aerospace equipment, medical devices, or any other applications where a failure or malfunction could directly endanger human life or adversely affect the human body, please contact us in advance.

## 1. Noise Filters

This product is intended to be connected to the power input of equipment to attenuate noise generated within the equipment, thereby preventing interference with external devices, and to attenuate noise entering from external sources, thereby increasing the noise margin of the equipment. However, incorrect usage conditions may lead to failure, and prolonged exposure to adverse conditions may compromise reliability and safety.

Noise filters used for power lines should be recognized as “special-purpose components.” When selecting such filters, please ensure that the operating conditions are fully verified, and use products certified to overseas safety standards as necessary.

## 2. Failure Modes

a. Cracks or breakage may occur if the product is

dropped or subjected to a strong impact, which may result in insufficient performance characteristics.

(Please note that even if no defects are visible externally, internal damage may still be present.)

- b. If a high surge voltage exceeding the specified voltage is applied, the internal parts may break down, and in the worst case, it may lead to heat generation or ignition.
- c. If current exceeding the rating is used for a long time or if it is used exceeding the temperature rating, the characteristics cannot be obtained due to excessive heat generation of the coil, and in the worst case, it may lead to heat generation or ignition.

\* When the above failure modes occur, a short circuit between line and line or between line and ground may occur, resulting in abnormal short circuit current and leakage current.

## 3. Precautions

### 3.1 During circuit design

- Check the operating and installation environment, and use within the standard range described in the product specifications.
- Be careful of overheating due to radiant heat if the ambient temperature during use and storage is within the specified range, or if there are heat generating parts nearby.
- The noise filter generates heat in a power supply with many high frequency components. Please be sure to check before use.
- Make sure that the voltage of the circuit used is within the rating of AC and DC, and there is no influence on abnormal self-heating.
- Please use an over current protection device such as a fuse or a circuit breaker so that the over current does not flow to the product when the device malfunctions.
- About the earth terminal and metal case, be sure

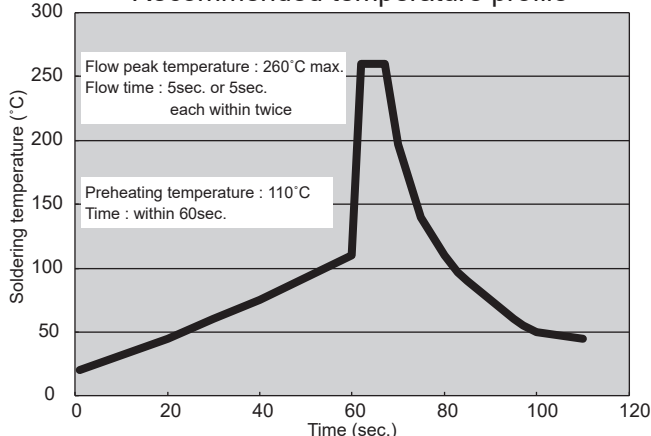


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to ground. If you do not do ground, you may not get electric shock or sufficient characteristics.

- In the case of a board type noise filter, ensure a sufficient insulation distance between adjacent metal parts.
- Design and install in such a way that the case opening is not blocked. If the opening is closed, the internal temperature will rise, and there is a risk of component deterioration, heat generation and fire.
- Do not use for secondary side (output side) such as inverter. There is a risk of burning, smoke or ignition of the internal capacitor due to high frequency current.
- If the inrush current exceeds the rated current and you are considering using it for repeated applications, please contact us in advance.
- Please avoid using under special environment.
  - a. When a large surge voltage is repeated
  - b. Use in environments where vibrations and shocks are continuously applied
  - c. Use in environments where condensation, water, salt water, oil, etc. are exposed
  - d. Use in corrosive, volatile and flammable gas atmospheres such as chlorine, ammonia and hydrogen sulfide.
  - e. Use in an environment exposed to ozone, ultraviolet light, and radiation
  - f. Use at altitudes above 2000 m or below standard pressure 80 kPa

Recommended temperature profile



### 3.2 During mounting

- Please fix with screws etc. so that there is no rattling of the product
- Secure the input / output terminals and products securely within the tightening torque tolerance specified in the product specifications. If the terminals are loosely tightened, poor contact may cause heat or fire. Also, if tightening with a torque higher than specified, do not do so as this may damage the terminals.
- When installing, please work carefully not to damage with tools etc
- Do not fix the product under external pressure (tensile force, torsional force)
- The earth terminal and metal case, be sure to ground.
- When using bare crimp terminals, please use insulating tubes etc. in order to secure a sufficient insulation distance from the surroundings.
- If the product is installed upside down (ceiling etc), please consult in advance

### 3.3 Under use of apparatus and equipment

- Do not touch the product while the power is on. In particular, board type noise filters have exposed components, which may cause electric shock or burns.
- Even after the power is shut off, charge is stored in the internal capacitor, and if you touch the input / output terminals, you may get an electric shock. When touching, please discharge in advance with a resistor etc.
- Do not short the terminals with a conductor while power is on. Rapid charge and discharge adversely affect the product.
- The temperature rise during energization is affected by the component mounting condition and the high frequency component of the load current. When using the product, make sure in



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advance that the product temperature does not exceed the operating temperature range.

- Do not use in a high humidity environment where condensation may occur, as insulation may deteriorate.
- If you are struck by an electric shock while using the equipment, turn off the switch immediately, unplug the plug from the outlet, etc., and check that there is no problem with the product.

## 3.4 Disassembly, remodeling, repair

- Do not disassemble, remodel or repair. It may cause an electric shock, fire or injury.

## 3.5 At the time of conduct of periodical inspection

- At the time of periodic inspection, please discharge after completely discharging the noise filter. If charge remains in the noise filter, you may get an electric shock.
- If any signs of damage, discoloration, or damage to the product surface are observed, discontinue use immediately and confirm the product name and consult.

## 3.6 In an emergency

If any abnormality such as smoke, ignition, offensive odor or abnormal noise occurs during use, please turn off the power immediately and remove the power plug. Also, if necessary, move the equipment to a well-ventilated area free of combustibles, and take smoke and fire extinguishing measures.

## 3.7 Storage and handling

- Store in a place away from direct sunlight, dust, high temperature and humidity, condensation, corrosive gas, or sudden temperature change.
- Do not use in a high humidity environment where

condensation may occur, as insulation may deteriorate.

- If you have stored for more than a year without using, please check the characteristics, appearance, and terminal condition before use.
- Do not apply excessive impact or external force to the product. (Visually, the inside may be damaged even if the appearance does not deteriorate or change)
- Please be careful c,d,e in section 3.1 of this document.

## 3.8 In case of disposal

- This product is classified into industrial waste. Please discard by the disposal plant and processing contractor who received the approval specified by the government ordinance.
- Incinerating this product may generate harmful gases.
- If the product is exposed to wind and rain outdoors, it may cause underground, groundwater and river pollution.