



1. For circuit design

- A. Applied voltage shall not exceed the maximum operating voltage. If used with higher voltage than the specified maximum operating voltage, the PTC may be damaged.
- B. The PTC may not work properly at other frequencies than 50 or 60 Hz.
- C. Do not exceed the maximum operating current. The PTC may be damaged if operated at higher-current.
- D. Be aware that components near the PTC may be heated by the PTC.
 - a. Avoid the thermal effect for the vicinity components, especially input terminal and board be heated to high temperature.
 - b. Touching the thermistor with bare hand may cause burns.
- E. Due to the large in-rush current, design sufficient current capacity for leads, fuses, breakers, and switches.
- F. If the PTC is used under sealed or enclosed conditions, the PTC may be damaged. Please consult with HOKURIKU.
- G. When using PTC in a power line, for safety always use a current type fuse in the circuit.
Please apply adequate current fuse to meet the current limit.
The PTC may burn or smoke in a short circuit condition.
- H. The PTC shall not be operated beyond the specified “operating temperature range.”
If used beyond the specified operating temperature range, the PTC may be damaged.
- I. Please confirm the specification regarding insulation or noninsulation.
It is not guaranteed insulation coat. Please give careful consideration to the distance of parts near by.
- J. To prevent damage to the PTC, reliability testing to confirm fit and safety of the assembled unit or electric circuit should be performed.
- K. Do not use PTCs in series. When used in parallel of PTC, confirm operation.
- L. If poly vinyl chloride insulation is used on terminals, the generation of chlorine gas may cause deterioration or damage to the PTC.
Please do not use poly vinyl chloride.

2. For assembly

- A. The ceramic body may be damaged, when a PTC is dropped or exposed to a large impact. Excessive shock and impact should not be applied to the PTC.
- B. Abnormal mechanical stress such as bending or pulling shall be avoided when assembling on a PCB.
- C. PTC thermistors are not waterproof or not bearable to certain chemicals and solvents. Avoid from moisture, chemicals, and solvents.

D. For PTCs, the following general precautions should be followed.

- Don't touch with bare hand, to prevent deteriorating.
- Don't scratch the surface of electrode.
- Abnormal mechanical stress such as falling shocks, pushing forces shall be kept minimum to prevent mechanical failures.
- Precautions be paid for casing materials, of heat resistivity and hazardous gas generation like oxidizing, reducing and halogen.
Do not generate oxide/ reduction gas, halogen gas etc.
- In soldering the element, follow all manufacturer's recommendations(solder, method, cleaning, condition etc.).
- Do not cut or divide element.

E. When soldering the PTC. Please observe following notice.

- Follow the manufacture's recommendations for soldering.
- Use halogen free flux.
- Do not apply flux.

F. Don't apply excess force to case type plug in/ out. Use adequate tool for handling.

G. To avoid damage, do not operate in excess specification.

H. Scrap any PTC thermistors that are used for overload tests and breakdown tests.

3.Storage

PTC thermistor be stored at $-10\sim+40^{\circ}\text{C}$ and 75% RH Max.

PTC should not be exposed to abrupt temperature change, direct sunlight, harmful gas, or dust.

Store with package.

4.Environmental conditions

PTC thermistors may be damaged if used under the following conditions.

- Corrosive gas ambient (Cl_2 , NH_3 , SO_x , NO_x).
- Volatile or flammable gas atmospheres.
- Neutral or reduction gas (H_2 , N_2)
- Avoid exposure to water, salt water oil, etc.
- Abnormal atmospheric pressure conditions (vacuum, compressed air).
- Dusty ambient.



How to order

To order PTC thermistors or make an inquiry, please indicate the following.

1. Purpose

For high Temperature protection, for over current protection, for heater, for degaussing circuit, etc.

2. Operating temperature range

°C ~ °C

3. Dimensions

4. Resistance

± % at °C

5. Curie temperature (for high temperature protection, for over current protection etc.)

± °C

6. Operating Voltage

V

7. Maximum Operating Voltage

V

8. Maximum Current

A

9. Trip Current (for over current protection)

mA Min. at °C

10. Hold Current (for over current protection)

mA Max. at °C

11. Temperature (for heater)

± °C

12. Current Attenuation Characteristic (for degaussing circuit)

① Ap-p Min.

② mA p-p Max. at Sec.

③ mA p-p Max. at Sec.

13. Temperature Sensor

Ω Max. or Min. at °C

| | Over Current Protection | Degauss | Temp.Sense | Heater |
|--------------------|-------------------------|---------|------------|--------|
| 1. Operating Temp. | | | ○ | |
| 2. Dimensions | ○ | ○ | ○ | ○ |
| 3. Resistance | ○ | ○ | ○ | ○ |
| 4. Curie Temp. | ○ | | ○ | |
| 5. Vop. | | ○ | | ○ |
| 6. Maximum Vop. | ○ | ○ | ○ | |
| 7. Maximum Current | ○ | | | |
| 8. Trip Current | ○ | | | |
| 9. Hold Current | ○ | | | |
| 10. Heat Temp. | | | | ○ |
| 11. Current Atten. | | ○ | | |
| 12. Sensing Temp. | | | ○ | |