

JIS

JAPANESE INDUSTRIAL STANDARD

**General Rules for
Directly Heated Negative Temperature
Coefficient Thermistors**

JIS C 2570^{—1989}

Translated and Published

by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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1. Scope

This Japanese Industrial Standard specifies standards for common matters and matters to be specified in detail specifications for directly heated negative temperature coefficient thermistors, hereinafter referred to as the "thermistors", which are used primarily in electronic equipment as heat sensing elements or circuit components.

2. Definitions

For the main terms used in this Standard the definitions in JIS C 5602 apply, and the rest of the terms shall be as follows:

- (1) NTC thermistor A thermistor whose resistance decreases as the temperature rises.
- (2) zero-power resistance The d.c. resistance of a thermistor, when measured at a specified temperature under conditions such that the change in resistance due to the internal generation of heat is negligible with respect to the total error of measurement. It is also referred to as the no-load resistance.
- (3) nominal zero-power resistance The zero-power resistance value that is used as the typical value in the Standard.
- (4) resistance/temperature characteristic Relationship between zero-power resistance and temperature within a certain temperature range. It is approximated by the following formula:

$$R_1 = R_2 \exp \left\{ B \left(\frac{1}{T_1} - \frac{1}{T_2} \right) \right\}$$

- where
- R_1 : zero-power resistance (Ω) at absolute temperature T_1 (K)
 - R_2 : zero-power resistance (Ω) at absolute temperature T_2 (K)
 - B : B-value (K)

- (5) B-value A constant representing the rate of resistance change, obtained from the temperatures at optional two points on the resistance/temperature characteristic. It is expressed by the following formula:

$$B = \frac{\log_e R_1 - \log_e R_2}{\frac{1}{T_1} - \frac{1}{T_2}}$$

- where
- B : B-value
 - R_1 : zero-power resistance (Ω) at absolute temperature T_1 (K)
 - R_2 : zero-power resistance (Ω) at absolute temperature T_2 (K)

Applicable Standard:

JIS C 5602-Glossary of Passive Components for Electronic Equipment

Corresponding International Standard:

ICE 539 Directly heated negative temperature coefficient thermistors