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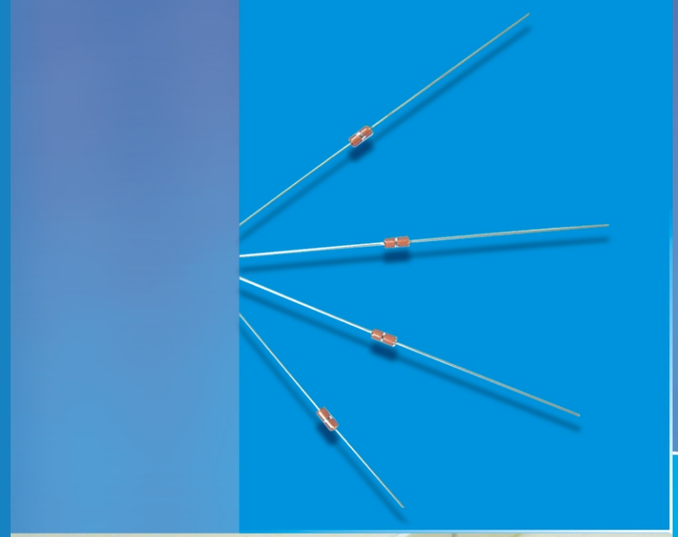

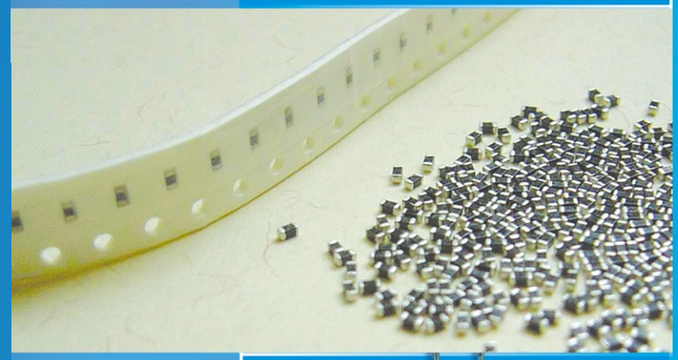

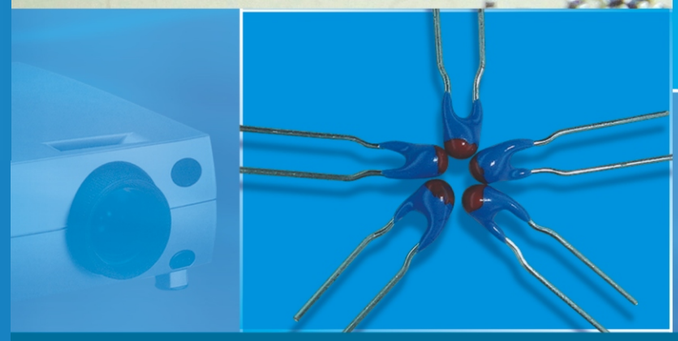



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# NTC Thermistor / Temperature Sensors

## 熱敏電阻及溫度感測器

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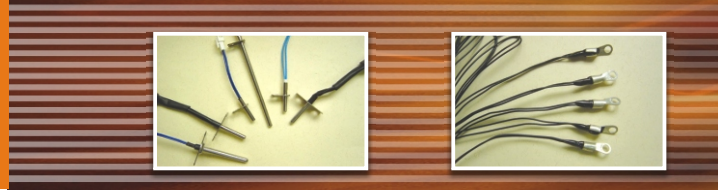
# NTC Thermistor / Sensors



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## Contents
## 目 次

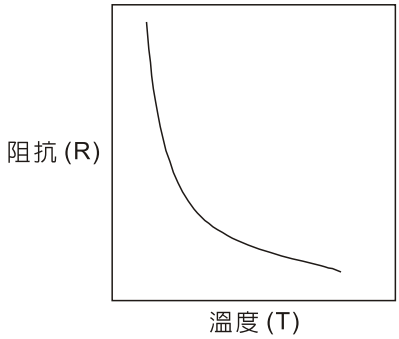


### NTC 熱敏電阻概述

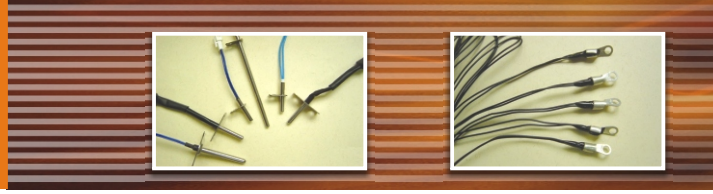
NTC Thermistor 是因溫度的變化改變阻值的電阻器。久尹的 NTC (Negative Temperature Coefficient) 熱敏電阻的主要原料爲混合氧化物，如：氧化錳及氧化鎳等，經由燒結製成半導体陶瓷製品，是具有高負溫度係數，對溫度敏感的電阻。

### About NTC Thermistor

NTC Termistors stand for very large negative temperature coefficient thermally sensitive resistors which are composed of manganese and nickel oxide formulation, carefully prepared and sintered to display specific electrical properties .



# NTC Thermistor / Sensors



## 基本特性

### 電阻 - 溫度特性

熱敏電阻的電阻 - 溫度特性是指在某個溫度範圍下其零功率電阻與溫度的關係可以以下列公式表示。

$$R1=R2*\exp\ B\,(1/T1-1/T2)$$

T1： 任意溫度 (K)
T2： 與T1不同的任意溫度 (K)
R1： 溫度T1 (K) 的零功率電阻 (Ω)
R2： 溫度T2 (K) 的零功率電阻 (Ω)
B ： B常數 (K)

### 零功率電阻

在忽略自我發熱狀態下，以電力功率小於1/20的散逸係數條件所測出元件之電阻值。

### B 常數

零負載阻值的溫度變化大小、在電阻 - 溫度特性的任意二個溫度求出的定數、可用下列的公式表示。

$$B=(LnR1-LnR2)/(1/T1-1/T2)\ (K)$$

### 電阻溫度係數 ( $\alpha$ )

在任意的溫度下、1°C 的零功率電阻的變化率所表示的係數、可以下列公式表示。

$$\alpha=(1/R*dR/dT)\times 100(\%)=-B/T2\times 100(\%)$$

### 熱散逸係數 ( $\delta$ )

在熱平衡狀態下 、 Thermistor 的溫度經由自熱上昇 1°C 時所需要的功率。
計算出熱敏電阻的消耗功率及片子的溫度上昇的比值。

$$W=I^2R=\delta\ (T-Ta)$$
$$\delta=I^2R/\ (T-Ta)$$

$\delta$ ：熱散逸係數 (mW/°C)
W ：熱敏電阻的功率 (mW)
T ：熱敏電阻的熱平衡溫度 (°C)
Ta：周圍溫度 (°C)
I ：溫度T時、通過熱敏電阻的電流值 (mA)
R ：溫度T時熱敏電阻的電阻值 (kΩ)

### 熱時常數

在零功率的狀態下、熱敏電阻周圍溫度急速變化、熱敏電阻的片子、從最初的溫度到最終的溫度之間的溫度變化達到 63.2% 時、所需要的時間。

## Basic Characteristic

### Resistance-Temperature Characteristic

Resistance and temperature characteristics of a thermistor depict the relation between Zero-Power Resistance and the temperature.
It shows approximately by the following quation.

$$R1=R2*\exp\ B\,(1/T1-1/T2)$$

T1 : Arbitrary temperature(K)
T2 : Different temperature from T1(K)
R1 : Zero-Power Resistance( Ω ) at T1(K)
R2 : Zero-Power Resistance( Ω ) at T2(K)
B : B Constant

### Zero-Power Resistance

Under an ignorable self-heating situation, the zero power resistance can be measured by using detection power level less than 1/20 power of heat dissipation constant.

### B Constant

B constant is assigned as a quantitative characteristic of thermistors materials, which indicates a relationship of material resistance to temperature. B constant is calculated by measuring two different temperatures by the following equation:

$$B=(LnR1-LnR2)/(1/T1-1/T2)\ (K)$$

### Resistance Temperature Coefficient ( $\alpha$ )

It is defined as the rate of change of the zero-power resistance associated with a temperature variation of 1°C at any given temperature. The $\alpha$ value can be depicted by following equation.

$$\alpha=(1/R*dR/dT)\times 100\ (\%)=-B/T2\times 100\ (\%)$$

### Thermal Dissipation Constant ( $\delta$ )

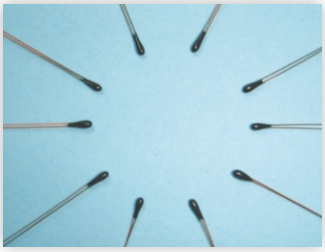
It is defined as the power required to raise the thermistors' body temperature by 1°C.

$$W=I^2R=\delta\ (T-Ta)$$
$$\delta=I^2R/\ (T-Ta)$$

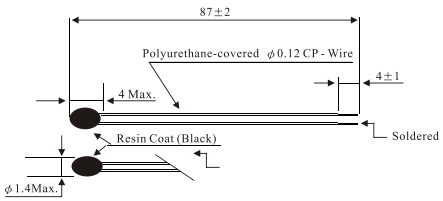
$\delta$ : Thermal dissipation constant (mW / °C)
W : Consumed power (mW)
T : Temperature ( °C) in a heat equilibrium
Ta : Ambient temperature ( °C)
I : Current (mA) on the thermistor at temperature T
R : Thermistor resistance (kΩ) at temperature T

### Thermal Time Constant

This constant is expressed as the time elapsed for the temperature at the electrodes of thermistors with no load applied, to become 63.2% of its initial temperature.



外觀尺寸圖 **Dimension (in mm)**




## 高感度熱敏電阻

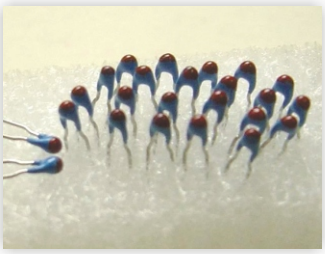
JTD Thermistor 是用超小型之高精度的 NTC 晶片加上極細絕緣導線所作成的高感應度溫度感應器、可應用在體溫計、電池模組上以及各種溫度感測器。

## JTD Type High Sensitive Thermistor

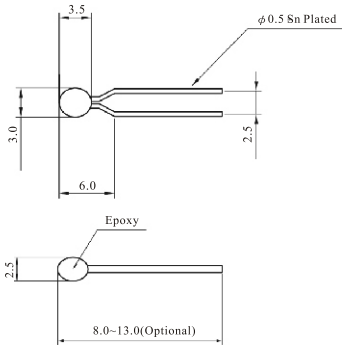
JTD Thermistor is a small and high accuracy chip with ultra thin lead wire coated with insulating polymer. It is used as bodily temperature thermometer, battery pack, and various temperature sensors.

| Type No. | R25* (kΩ) | B25-85** | mW/°C | τ (sec) | Operating Temperature (°C) |
|---|---|---|---|---|---|
| JTD103*344* | 10 | 3435 | 0.7 | 0.8 | -40～110 |
| JTD503*406* | 50 | 4055 | | | |
| JTD104*439* | 100 | 4390 | | | |
| JTD234*427* | 232 | 4274 | | | |

*±0.5%～ ±3%　　**±0.5%



外觀尺寸圖 **Dimension (in mm)**




## 高精度熱敏電阻

JSR Thermistor 是使用小型、高精度的 NTC 晶片加上漆包鋼線、樹脂包封完成的熱敏電阻製品、可使用在主機板及裝置在電子機器內作溫度檢測用、並且廣泛應用在電池模組以及各種熱敏感測器使用。

## JSR Type Thermistor

JSR Thermistor is using small and high accuracy chip connected with resin-coated CP wire radial type. It is mountable on motherboard, for detecting temperature of electronic devices equipment, battery pack and various type of sensors.

| Type No. | R25* (kΩ) | B25-85** | mW/°C | τ (sec) | Operating Temperature (°C) |
|---|---|---|---|---|---|
| JSR502*332* | 5.000 | 3324 | 3 | 12 | -40～120 |
| JSR203*344* | 20.000 | 3435 | | | |
| JSR103*344* | 10.000 | | | | |
| JSR402*352* | 4.000 | 3518 | | | |
| JSR203*397* | 20.000 | 3970 | | | |
| JSR103*397* | 10.000 | | | | |
| JSR502*397* | 5.000 | | | | |
| JSR202*394* | 2.000 | 3944 | | | |
| JSR282*408* | 2.795 | 4075 | | | |

*±0.5%～ ±3%　　**±0.5%～ ±2%

## Ordering Code :

**JTD　503　F　406　D**

Product Type
JTD Type Thermistor
JSR Type Thermistor

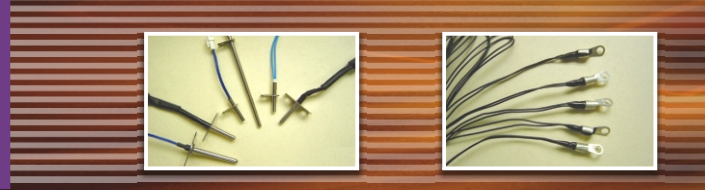
Resistance at 25°C
101 = 100 (100Ω)
102 = 1000 (1kΩ)
103 = 10000 (10kΩ)

Resistance tolerance
D = ±0.5 %　H=±3%
F = ±1%　　J =±5%
G = ±2%

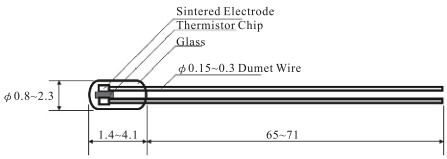
B constant tolerance
D = ± 0.5 %
F = ± 1%
G = ± 2%
H = ± 3%

B constant
397 = 3970K
352 = 3520K
415 = 4145K

# NTC Thermistor / Sensors



外觀尺寸圖 **Dimension (in mm)**




## 一般耐熱用熱敏電阻

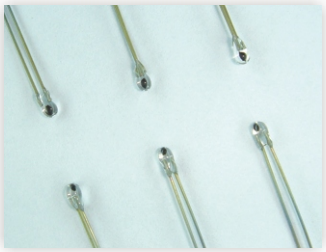
JG Thermistor 是屬於耐熱性及精度高、阻值經時變化少的製品、可以作爲各種不同用途之感測器使用。本系列產品亦含有超小高反應型元件。

### JG Type Heat Resistance Thermistor (chip in glass)

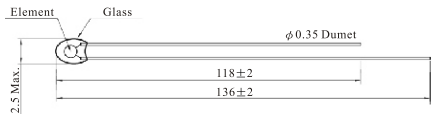
JG Thermistor is excellent for heat-resistance and high accuracy, such as small deviation in resistance. It is used for all sorts of temperature sensing applications. A very small and fast response type is also available in this series.

| Type No. | R25* | B25-85** | mW/°C | τ (sec) | Operating Temperature (°C) |
|---|---|---|---|---|---|
| JG222*342* | 2.186 | 3420 | 0.25～1.3 | 1～12 | -50～300 |
| JG542*348* | 5.369 | 3480 | | | |
| JG113*348* | 10.74 | 3480 | | | |
| JG492*399* | 49.12 | 3992 | | | |
| JG993*407* | 98.63 | 4066 | | | |
| JG234*424* | 231.4 | 4240 | | | |
| JG145*456* | 1388 | 4557 | | | |

*±1%～±5%　　** ±1%～±3%



外觀尺寸圖 **Dimension (in mm)**




## 中溫耐熱用熱敏電阻

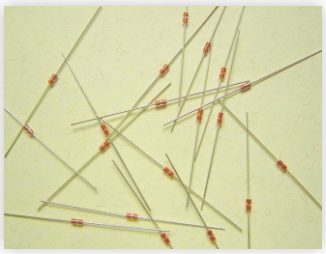
JGH Thermistor 是可使用於高溫450°C的環境之熱敏電阻元件，例如可用在石油熱暖器上的石油氣化用品或使用在工業量測器等方面。

### JGH Type Heat Resistance Thermistor(chip in glass)

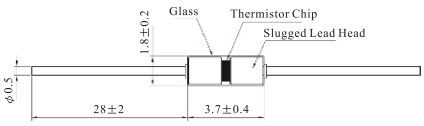
JGH Thermistor of higher heat-resistance such as being used for carburetor of room heaters and industrial measuring kits at temperature up to 450°C.

| Type No. | R25* | B25-85** | mW/°C | τ (sec) | Operating Temperature (°C) |
|---|---|---|---|---|---|
| JGH401*478H | 0.4 | 4780 | 0.9 | 2.5 | -50～400 |
| JGH232*487H | 2.26 | 4870 | | | |
| JGH702*525H | 7.02 | 5250 | | | -50～450 |
| JGH802*525H | 8.02 | | | | |
| JGH902*525H | 9.02 | | | | |

*±5%～10%



外觀尺寸圖 **Dimension (in mm)**




## 耐熱用熱敏電阻

JD-series Thermistor 是臥式玻璃封裝型的熱敏電阻 、具有耐環境的優越性及耐熱性，信賴性極高可應用在各種烹調器具上。本系列產品亦有導線型式可以裝置在基板表面。

### JD (Diode) Type Thermistor

JD-series Thermistor is axial glass type, high heat-resistance and high reliability. It can be used for cooking appliance. An on-board mounting type with lead wire is also available in this series.

| Type No. | R25* | B25-85** | mW/°C | τ (sec) | Operating Temperature (°C) |
|---|---|---|---|---|---|
| JD222*342* | 2.186 | 3420 | 1.3～2.3 | 6～12 | -50～300 |
| JD542*348* | 5.369 | 3480 | | | |
| JD113*348* | 10.74 | 3480 | | | |
| JD492*399* | 49.12 | 3992 | | | |
| JD993*407* | 98.63 | 4066 | | | |
| JD234*424* | 231.4 | 4240 | | | |
| JD145*456* | 1388 | 4557 | | | |

*±1%～±5%　　** ±1%～5%

## Ordering Code :

**JG 222 F 342 G 1**

Product Type
- JG Type Thermistor (~300°C)
- JGH Type Thermistor (~450°C)
- JD Type Thermistor

Resistance at 25℃ (JGH at 250°C)
- 101 = 100 (100Ω)
- 102 = 1000 (1kΩ)
- 103 = 10000 (10kΩ )

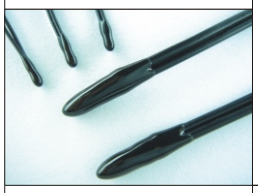
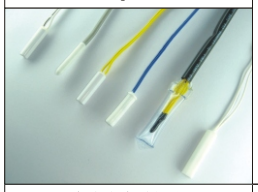
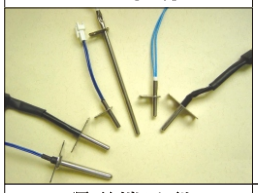
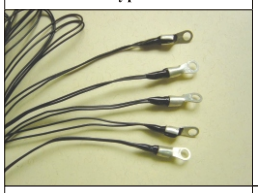
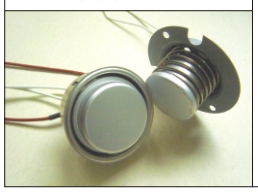
Resistance tolerance
- F = ± 1%　　H = ±3%
- G = ± 2%　　J = ±5%

B constant
- 397 = 3970K
- 352 = 3520K
- 415 = 4145K

B constant tolerance
- F = ±1%　　H = ±3%
- G = ±2%

**Type (for JG type only)**
- 1 = standard
- 3 = middle
- 5 = small
- 7 = minuteness

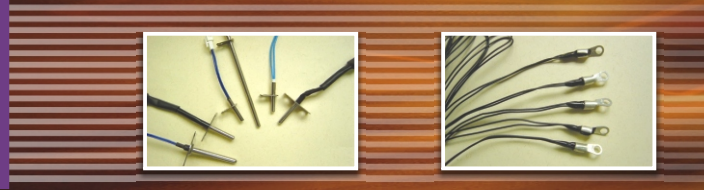
## NTC Sensor Applications

| 用途 Application / 種類 Sensors | 家庭電器 Home Appliance | | | | 資訊 IT | 熱水器 Boiler | 產業 Industry | 汽車 Automobile |
|---|---|---|---|---|---|---|---|---|
| | 空調冷氣機<br>Air-Conditioner | 電冰箱<br>Refrigerator | 電子鍋<br>微波爐<br>熱水瓶<br>Rice Cooker<br>Microwave-Ovens<br>Thermos | 空調冷暖機<br>乾燥機<br>除濕機<br>Conditioner<br>Air Dryers<br>Dehumidifier | 電池模組<br>印表機<br>顯示器<br>投影機<br>Battery Pack<br>Printer<br>Display<br>Projector | 瓦斯熱水器<br>電氣熱水器<br>Gas Boiler<br>Hot Water-Boiler | 自動販賣機<br>冷凍箱<br>工業計器<br>Vending-Machine<br>Freezer<br>Industrial-Measuring-Kits | 車用空調<br>電池<br>馬達<br>冷卻器<br>Car Air - Conditioner<br>Batteries<br>Motors<br>Radiator |
| 樹脂塗裝型<br>Resin Coated Sensors<br>  | ● (see P.6) | | | ● | ● | | | ● |
| 樹脂套管型<br>Resin Pipe Sensors<br>  | ● | ● (see P.6) | | | | ● | ● | ● |
| 金屬套管型<br>Metal Type Sensors<br>  | ● (see P.7) | | ● | ● | | ● | ● | ● |
| 金屬固定套管型<br>Metal with Flange Type Sensor<br>  | | ● (see P.7) | ● | | | ● | ● | ● |
| 環形端子型<br>Screw Type Sensor<br>  | | | ● | ● | ● (see P.8) | | ● | ● |
| 特殊需求品<br>Custom-Mode<br>  | ● | ● | ● (see P.8) | ● | ● | ● | ● | ● |

Thermistor要當作溫度感測器使用時、須確保感測器組裝之機械強度、所適用之氣氛及溫度環境、**6~8頁**代表各種不同組裝的範例、本公司也有因應客戶使用需求及規格提供各種不同的設計及組裝之服務。

Our NTC Sensor offers different electronic characteristics and structures in terms of specific utility purpose of applied equipment and devices. Examples of assembly kits are displayed on **page 6 to 8**. We are capable of providing needed design and assembly methodology to meet customer's requirements .

# NTC Sensors



## 樹脂塗裝型感測器

這是直接將晶片焊接導線及樹脂塗裝的簡單感測器、適用於空氣中之溫度測定。本系列產品亦有小型化的製品、可用於電池模組。

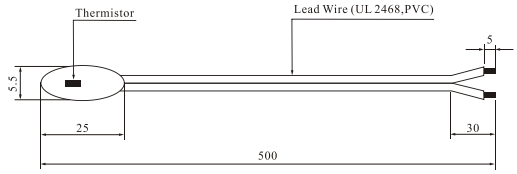
## Resin Coated Sensor

This simple sensor of the NTC chip soldered with lead wire coated by epoxy resin suitable to detect temperature in the air. The smaller size type is avaible for battery pack uses.

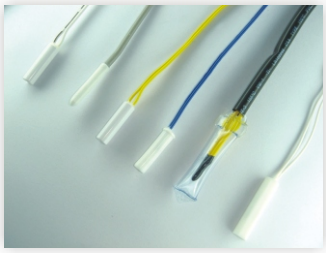
例：
用途：**空 調**
使用溫度範圍：-20°C～＋80°C
熱散逸係數：約 4mW / °C (靜態空氣中)
絕緣耐壓：AC 1500V 1分間
熱時常數：約 5 秒 (水中)

Example :
Application : **Air conditioner**
Operating temperature range：-20°C～＋80°C
Thermal dissipation constant：Approx. 4mW / °C（still air）
Insulation voltage resistance：AC 1500V for 1 minute
Thermal time constant：Approx. 5sec. (under water)

**Epoxy Coated Type**




外觀尺寸圖 **Dimension (in mm)**



## 樹脂套管型感測器

樹脂套管感測器是把感測器用環氧樹脂封在ABS套管中，具有耐寒性、耐濕性之優點，用於電冰箱及冷凍庫。

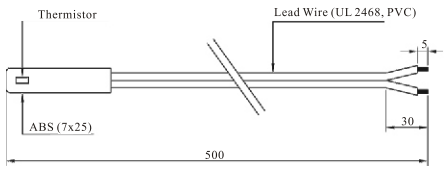
## Resin Pipe Sensor

Resin pipe sensors are filled with epoxy resin in ABS cap, which are excellent in lower temperature condition and moisture resistant for refrigerators and ice box.

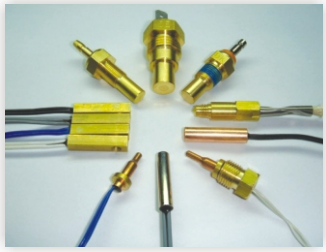
例：
用途：**冷藏庫**
使用溫度範圍：-30°C～＋80°C
熱散逸係數：約 2.6mW / °C (靜態空氣中)
絕緣耐壓：AC 1000V 1分間
熱時常數：約 20秒 (水中)

Example :
Application : **Refrigerator**
Operating temperature：-30°C～＋80°C
Thermal dissipation constant：Approx. 2.6mW / °C（still air）
Insulation voltage resistance：AC 1000V for 1 minute
Thermal time constant：Approx. 20sec. (under water)

**ABS Cap Type**




外觀尺寸圖 **Dimension (in mm)**



## 金屬套管型感測器

這是考慮過機械的強度、耐濕性、耐熱性、耐久性的感測器，適用於空調設備、熱水器、烹調器具等，可以作爲各種不同用途的溫度感測器。

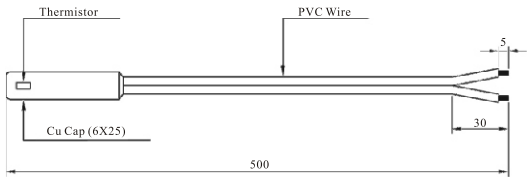
## Metal Pipe Sensor

The sensors of reasonably good mechanical strength, moisture resistance, heat resistance and durability are ideal for hot water boilers, cooking appliances and various temperature sensors as well.

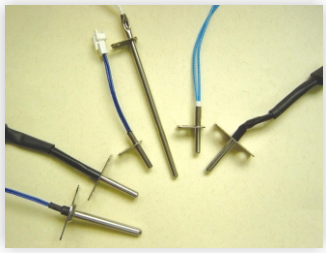
例：
用途：**空 調**
使用溫度範圍：-20°C～＋80°C
熱散逸係數：約 5mW / °C (靜態空氣中)
絕緣耐壓：AC 1000V 1分間
熱時常數：約 7 秒 (水中)

Example :
Application : **Air conditioner**
Operating temperature range：-20°C～＋80°C
Thermal dissipation constant：Approx. 5mW / °C（still air）
Insulation voltage resistance：AC 1000V for 1 minute
Thermal time constant：Approx. 7sec. (under water)

**Metal Case Type 1**




外觀尺寸圖 **Dimension (in mm)**



## 金屬固定型套管感測器

金屬固定型套管感測器是一種容易裝置之感測器，可以使用於電冰箱內的溫度監測、洗衣機、洗碗機等的液溫監測。

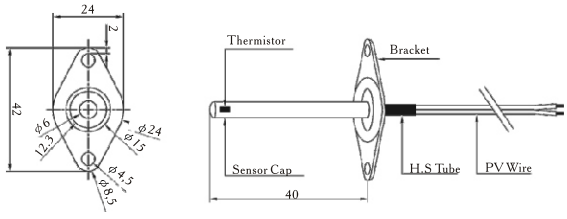
## Metal Pipe Sensor with Flange

Metal pipe sensors having flange are easy to install in many ways. You can use them for detecting temperature inside refrigerator, liquid temperature in washing machine, and dish washer.

例：
用途：**淨水器**
使用溫度範圍：-30°C～＋80°C
熱散逸係數：約 2.6mW / °C (靜態空氣中)
絕緣耐壓：AC 1000V 1分間
熱時常數：約 20 秒 (水中)

Example :
Application : **Water Purifier**
Operating temperature range：-30°C～＋80°C
Thermal dissipation constant：Approx. 2.6mW / °C（still air）
Insulation voltage resistance：AC 1000V for 1 minute
Thermal time constant：Approx. 20sec. (under water)

**With Flange**




外觀尺寸圖 **Dimension (in mm)**

# NTC Sensors

## 環形端子型感測器

這是環形端子與熱敏電阻組合而成的感測器，它的金屬受熱面使得反應速度較快且易於裝置。

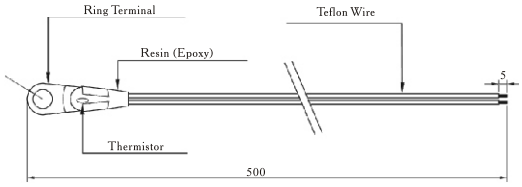
## Screws Type Sensor

Screw type sensors have thermistors connected with terminals. It has faster response by directly heating contact and offers easy installation, since its terminal is made of metal.

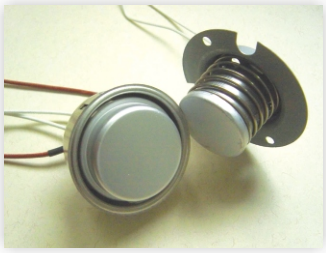
例 :
用途 : **投影機**
使用溫度範圍 : -30°C～＋100°C
熱散逸係數 : 約 13mW / °C (靜態空氣中)
絕緣耐壓 : AC 4000V 1分間
熱時常數 : 約 25 秒 (水中)

Example :
Application: **Projector**
Operating temperature range : -30°C～＋100°C
Thermal dissipation constant : Approx. 13mW / °C (still air)
Insulation voltage resistance : AC 4000V for 1 min.
Thermal time constant : Approx. 25sec. (under water)

**Surface Temperature Sensor**




外觀尺寸圖 **Dimension (in mm)**



## 客製感測器

可依照個客戶的需求提供最適用的感測器。

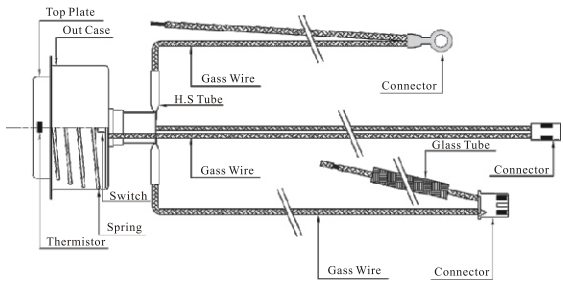
## Custom-made Sensor

We are capable of making special sensors according to customer's requirements or specific designs.

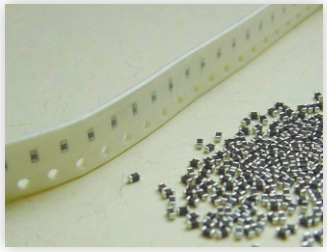
例 :
用途 : **電子鍋**
使用溫度範圍 : -20°C～＋220°C
熱散逸係數 : 約 2.5mW / °C (靜態空氣中)
熱時常數 : 約 15 秒 (水中)

Example :
Application: **Rice cooker**
Operating temperature range : -20°C～＋220°C
Thermal dissipation constant: Approx. 2.5mW / °C (still air)
Thermal Time Constant : Approx 15 sec. (under water)

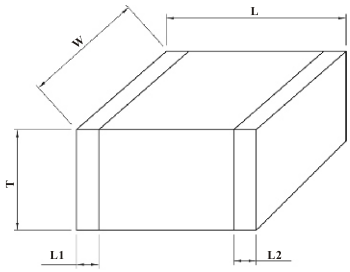
**Rice Cooker Bottom Sensor**




外觀尺寸圖 **Dimension**



外觀尺寸圖 **Dimension (in mm)**




## 表面黏著型熱敏電阻

SMD 熱敏電阻內部電極使用銀鈀合金、具有各種尺寸及特性。可提供阻值、B 常數許容差 ± 1 % 、可用於電池模組及主機板等產品、進行溫度檢測。鍍錫電極、組裝性相當好。

## JSN Type SMD Thermistor

SMD thermistors with electrodes of silver and palladium alloy are highly reliable .
They can be face bonded as thermal compensators, ideal for IC and battery pack applications.

**Dimensions** in mm

| Size (inch) | L | W | T | L1, L2 |
|---|---|---|---|---|
| 1005 (0402) | 1.0±0.1 | 0.5±0.1 | 0.5±0.1 | 0.2±0.1 |
| 1608 (0603) | 1.6±0.1 | 0.8±0.1 | 0.8±0.1 | 0.3±0.1 |
| 2012 (0805) | 2.0±0.1 | 1.2±0.1 | 0.8±0.1 | 0.4±0.1 |
| 3216 (1206) | 3.2±0.2 | 1.6±0.2 | 1.0±0.1 | 0.4±0.1 |

| Type No. | R25* | B25-85** | Operating Temperature (°C) |
|---|---|---|---|
| JSN*220*325* | 22 | 3250 | −40～85 |
| JSN*300*325* | 30 | 3250 | |
| JSN*400*325* | 40 | 3250 | |
| JSN*450*325* | 45 | 3250 | |
| JSN*500*325* | 50 | 3250 | |
| JSN*600*325* | 60 | 3250 | |
| JSN*101*325* | 100 | 3250 | −40～125 |
| JSN*502*344* | 5K | 3435 | |
| JSN*103*344* | 10K | 3435 | |
| JSN*102*367* | 1K | 3670 | |
| JSN*222*367* | 2.2K | 3670 | |
| JSN*472*367* | 4.7K | 3670 | |
| JSN*502*367* | 5K | 3670 | |
| JSN*682*367* | 6.8K | 3670 | |
| JSN*103*367* | 10K | 3670 | |
| JSN*103*389* | 10K | 3890 | |
| JSN*223*389* | 22K | 3890 | |
| JSN*443*389* | 44K | 3890 | |
| JSN*202*415* | 2K | 4150 | −40～125 |
| JSN*222*415* | 2.2K | 4150 | |
| JSN*272*415* | 2,7K | 4150 | |

*±1%～±5% **±1%～±3%

| Type No. | R25* | B25-85** | Operating Temperature (°C) |
|---|---|---|---|
| JSN*332*415* | 3.3K | 4150 | −40～125 |
| JSN*103*415* | 10K | 4150 | |
| JSN*333*415* | 33K | 4150 | |
| JSN*473*415* | 47K | 4150 | −40～110 |
| JSN*503*415* | 50K | 4150 | |
| JSN*583*415* | 58K | 4150 | |
| JSN*683*415* | 68K | 4150 | |
| JSN*853*415* | 85K | 4150 | |
| JSN*104*415* | 100K | 4150 | |
| JSN*124*415* | 120K | 4150 | |
| JSN*154*415* | 150K | 4150 | |
| JSN*334*415* | 330K | 4150 | |
| JSN*474*415* | 470K | 4150 | |
| JSN*333*455* | 33K | 4550 | |
| JSN*683*455* | 68K | 4550 | |
| JSN*104*455* | 100K | 4550 | |
| JSN*224*455* | 220K | 4550 | |
| JSN*102*455* | 1K | 4550 | |
| JSN*474*475* | 470K | 4750 | |
| JSN*504*455* | 500K | 4550 | |
| JSN*205*455* | 2M | 4550 | |

*±1%～±5% **±1%～±3%

## 包裝 Packaging

| Size(inch) | Qty (pcs/reel) | Taping Mat'l |
|---|---|---|
| 1005 (0402) | 12000 | Paper Tape |
| 1608 (0603) | 4000 | |
| 2012 (0805) | 4000 | Embossed Tape |
| 3216 (1206) | 4000 | |

## Ordering Code :

**JSN B 103 J 425 H**

JSN = Joyin SMD NTC

Chip Size
A = 1005 (0402)
B = 1608 (0603)
C = 2012 (0805)
D = 3216 (1206)

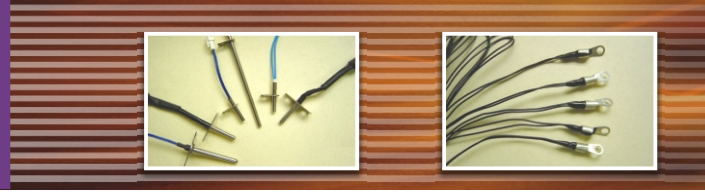
Resistance at 25°C
101 = 100 (100Ω)
102 = 1000 (1 kΩ)
103 = 10000 (10 kΩ)

B constant tolerance
F = ±1% H = ±3%
G = ±2%

B constant
397= 3970K
352 = 3520K
415 = 4145K

Resistance tolerance
F = ±1% H = ±3%
G = ±2% J = ±5%

# NTC Thermistor



## Thermistor R-T Table 阻抗-溫度特性表

### JTD Type Thermistor

| B-constant | 3435K | 4055K | 4390K | 4274K |
|---|---|---|---|---|
| Res. / Temp. | 103 | 503 | 104 | 234 |
| -40 | 188.5 | 1602 | 4572 | 9046 |
| 0 | 27.28 | 161.9 | 365.0 | 808.2 |
| 25 | 10.00 | 50.00 | 100.0 | 232.0 |
| 50 | 4.160 | 17.88 | 32.51 | 78.00 |
| 85 | 1.451 | 5.120 | 8.483 | 21.00 |
| 100 | 0.9731 | 3.142 | 5.111 | 12.75 |
| 110 | 0.7576 | 2.302 | 3.720 | |

### JSR Type Thermistor

| B-constant | 3324K | 3435K | 3435K | 3520K | 3970K | 3970K | 3970K |
|---|---|---|---|---|---|---|---|
| Res. / Temp. | 502 | 203 | 103 | 402 | 203 | 103 | 502 |
| -30 | 52.84 | 220.6 | 110.3 | 49.64 | 361.8 | 173.8 | 90.45 |
| 0 | 13.29 | 54.56 | 27.28 | 11.316 | 65.56 | 32.62 | 16.39 |
| 25 | 5.000 | 20.00 | 10.00 | 4.00 | 20.00 | 10.00 | 5.000 |
| 50 | 2.138 | 8.320 | 4.160 | 1.624 | 7.200 | 3.600 | 1.800 |
| 85 | 0.7725 | 2.902 | 1.451 | 0.5536 | 3.408 | 1.074 | 0.5370 |
| 100 | 0.5267 | 1.9462 | 0.9731 | 0.3676 | 1.366 | 0.683 | 0.3415 |
| 110 | | 1.5152 | 0.7576 | 0.2832 | 1.028 | 0.514 | 0.2570 |

### JSN Type Thermistor

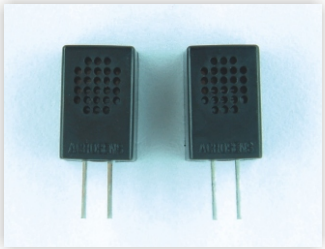
| B-constant | 3250K | 3435K | 3670K | 3890K | 4150K | 4550K | 4550K |
|---|---|---|---|---|---|---|---|
| Res. / Temp. | 220 | 103 | 103 | 103 | 103 | 104 | 205 |
| -40 | 417.2 | 200.8 | 236.9 | 290.1 | 383.3 | 5012 | 100200 |
| 0 | 59.11 | 27.66 | 29.32 | 31.47 | 34.49 | 380.0 | 7599 |
| 25 | 0.022 | 10.00 | 10.00 | 10.00 | 10.00 | 100.0 | 2000 |
| 50 | 9.432 | 4.164 | 3.913 | 3.700 | 3.437 | 31.25 | 625.0 |
| 85 | 3.5423 | 1.452 | 1.272 | 1.124 | 0.974 | 7.755 | 155.0 |
| 100 | 2.488 | 0.966 | 0.832 | 0.715 | 0.607 | 4.574 | 91.00 |
| 110 | 2.006 | 0.746 | 0.638 | 0.539 | 0.451 | 3.281 | 66.00 |
| 125 | | | | | | | |

### JG /JD& JGH Type Thermistor

| Type | JG & JD Type | | | | | | JGH Type | | |
|---|---|---|---|---|---|---|---|---|---|
| B-constant | 3420K | 3480K | 3992K | 4066K | 4240K | 4557K | 5250K | 5250K | 5250K |
| Res. / Temp. | 222 | 113 | 492 | 993 | 234 | 145 | 702 | 802 | 902 |
| -50 | | | | | | | | | |
| -25 | 19.433 | 99.316 | 657.35 | 1317.4 | | | | | |
| 0 | 6.0000 | 30.000 | 162.21 | 329.40 | 806.46 | | | | |
| 25 | 2.1862 | 10.739 | 49.120 | 98.633 | 231.44 | 1388.1 | | | |
| 50 | 0.91057 | 4.4057 | 17.599 | 34.790 | 78.291 | 432.53 | | | |
| 85 | 0.31996 | 1.5196 | 5.2134 | 10.042 | 21.366 | 107.25 | | | |
| 100 | 0.21563 | 1.0165 | 3.3000 | 6.2818 | 13.062 | 63.256 | 378.2 | 431.8 | 485.3 |
| 150 | 0.069706 | 0.32094 | 0.89279 | 1.6323 | 3.1610 | 13.796 | 73.44 | 83.90 | 94.34 |
| 200 | 0.028281 | 0.12725 | 0.31285 | 0.55000 | 1.0000 | 4.0000 | 20.09 | 22.95 | 25.82 |
| 250 | | | 0.13257 | 0.22469 | 0.38650 | 1.4323 | 7.020 | 8.020 | 9.020 |
| 300 | | | 0.064870 | 0.10635 | 0.17428 | 0.60260 | 2.940 | 3.357 | 3.776 |
| 350 | | | | | | | 1.413 | 1.613 | 1.813 |
| 400 | | | | | | | 0.7558 | 0.8621 | 0.9691 |
| 450 | | | | | | | 0.4402 | 0.5018 | 0.5639 |

註 Remarks

- 如果需要每 1°C 的阻抗 - 溫度 詳細特性資料，請向本公司業務人員洽詢。
- For detailed R-T data per one dgree centigrade is required, please contact **Joyin Sales Dept**.



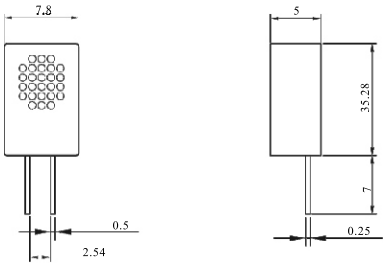
## 高分子型濕度感測器

這是阻抗變化型的高分子型濕度感測器、具有高感應度，濕度範圍大、耐久性、信賴性好等優點。可以使用於空調、加濕機及除濕機。

## JHS Humidity Sensor

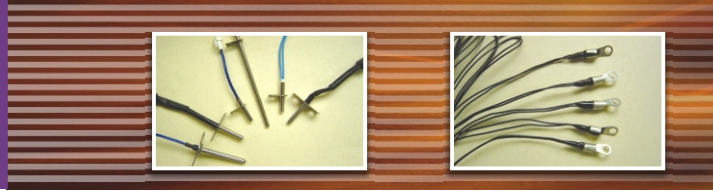
- High Precision & Excellent Sensitivity
- Fast Response & Wide Humidity Range
- Excellent Moisture Durability
- Excellent Long-term Stability & Reliablity
- Used for Air Conditioner, Humidifier & Dehumidifier

外觀尺寸圖 **Dimension (mm)**




## Specifications

| | JHS-01 | JHS-02 |
|---|---|---|
| Rated Voltage | AC 1Vrms(at 1KHz,sine wave) | |
| Rated Power | 0.3mW | |
| Impedance | 32kΩ (at 25°C,60%RH) | 23kΩ (at 25°C,60%RH) |
| Operating Humidity Range | 15%RH～95%RH | 20%RH～95%RH |
| Sensing Accuracy | ±5%RH (at 25°C/60%RH) | |
| Operating Temperature Range | 10°C～60°C | |



# MEMO