

# Temperature Sensor

## Ovens & Cooktops Applications



# THINKING SENSOR

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### Feature

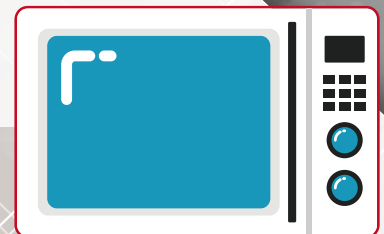
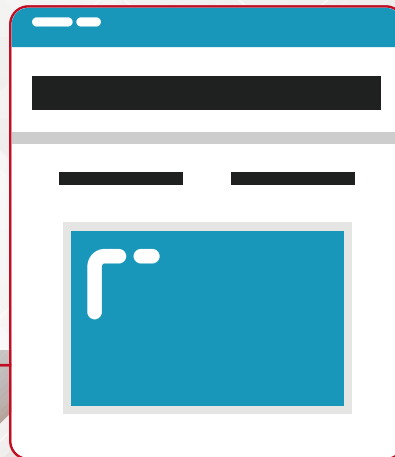
- ◆ High-temperature resistance and fast response
- ◆ THINKING Pt sensor is the first UL 60730-1 certified product in industry.
- ◆ Pt sensor is highly stable and durable.
- ◆ Various electrical characteristics are available for your choice.
- ◆ Screw-on type, metal case type, and plastic case type sensors are available, and the sensors are customizable.

### Function

- ◆ Sensor is generally installed in heating board or contacts surface of heat receiving board.
- ◆ Sensor is installed in bottom, top, and broadside of oven for multiple point temperature detection.
- ◆ Sensor is applied in ovens, cooktops, ranges, etc.

### Application

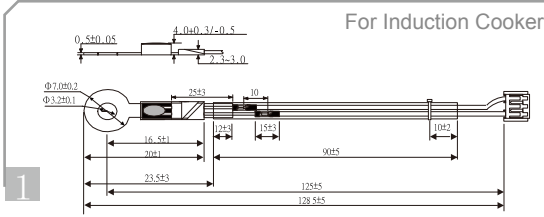
Induction cooker, induction heating cooktop, microwave oven, oven, gas stove, cooking table, etc.



## Screw-On Type

**Feature:** Screw-on design is for easy installation

**Application:** The sensor is installed on metallic surface for temperature detection, and the sensor is mostly installed in induction cooker, induction heating cooktop, and heat sink of kitchen appliances.



**Component** | Sensing top (terminal+NTC chip+epoxy)+lead wire +tie+tube+terminal+housing

**Moisture Resistance** | 40°C 95% RH X 1000 hours

**Operation Temperature** | -20~+150°C

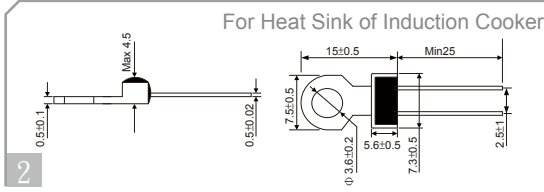
**Insulation Test** | DC 500V 100MΩ (Min)

**R Value** | R100°C=3.3KΩ±3%

**B Value** | B0/100=3970K±2%

**Thermal Time Constant** | Around 6 seconds (heating board)

**Hi-Pot Test** | AC 1500V 10mA (Max)



**Component** | Sensing top (terminal+NTC chip+epoxy)+lead wire

**Moisture Resistance** | 40°C 95% RH X 1000 hours

**Operation Temperature** | -20~+125°C

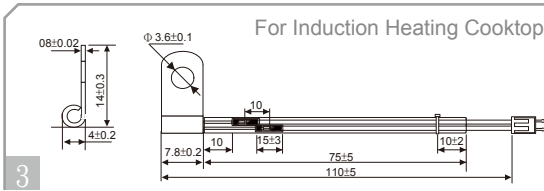
**Insulation Test** | DC 500V 100MΩ (Min)

**R Value** | R25°C=10KΩ±2%

**B Value** | B0/100=3435K±2%

**Thermal Time Constant** | Around 15 seconds (heating board)

**Hi-Pot Test** | AC 1000V 10mA (Max)



**Component** | Sensing top (terminal+NTC chip)+lead wire+tube+tie +terminal+housing

**Moisture Resistance** | 40°C 95% RH X 1000 hours

**Operation Temperature** | -5~+150°C

**Insulation Test** | DC 500V 100MΩ (Min)

**R Value** | R100°C=3.3KΩ±3%

**B Value** | B0/100=3970K±2%

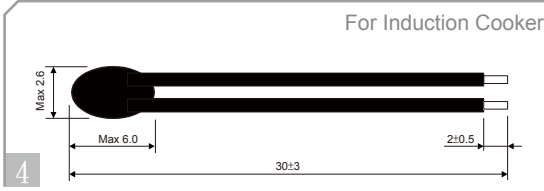
**Thermal Time Constant** | Around 6 seconds (heating board)

**Hi-Pot Test** | AC 3000V 0.5mA (Max)

## Epoxy Coating Type

**Feature:** Structure of the sensor is simple, and it directly detects temperature in air.

**Application:** The sensor is mostly used for temperature detection of ambient environment or exhaust air.



**Component** | Sensing top(NTC chip+epoxy)+lead wire

**Moisture Resistance** | 40°C 95% RH X 1000 hours

**Operation Temperature** | -40~+125°C

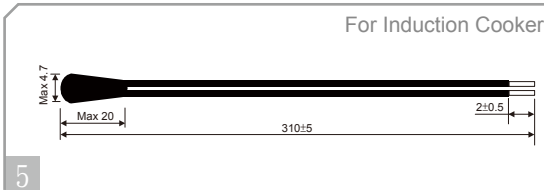
**Insulation Test** | DC 500V 100MΩ (Min)

**R Value** | R25°C=10KΩ±1%

**B Value** | B25/85=3435K±1%

**Thermal Time Constant** | Around 3 seconds (in water)

**Hi-Pot Test** | AC 1000V 10mA (Max)



**Component** | Sensing top (NTC chip+ epoxy)+lead wire

**Moisture Resistance** | 40°C 95% RH X 1000 hours

**Operation Temperature** | -30~+150°C

**Insulation Test** | DC 500V 100MΩ (Min)

**R Value** | R25°C=5KΩ±1%

**B Value** | B25/50=3470K±1%

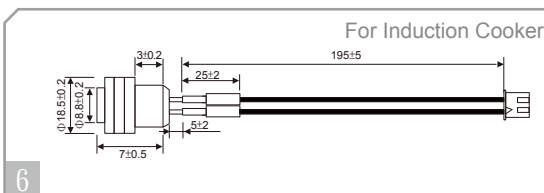
**Thermal Time Constant** | Around 5 seconds (in water)

**Hi-Pot Test** | AC 1000V 10mA (Max)

## Metal Case Type

**Feature:** The sensor fits heating board or directly contacts food to for temperature detection.

**Application:** The sensor is mostly installed in heating board for direct temperature detection, or installed in oven for multiple point temperature detection.



**Component** | Sensing top (NTC chip+aluminum cap)+connector +lead wire+terminal+housing

**Moisture Resistance** | 40°C 95% RH X 1000 hours

**Operation Temperature** | 0~+250°C

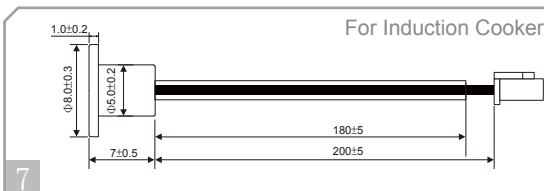
**Insulation Test** | DC 500V 100MΩ (Min)

**R Value** | R100°C=3.3 KΩ± 2.5%

**B Value** | B0/100=3970K±2%

**Thermal Time Constant** | Around 2 seconds (heating board)

**Hi-Pot Test** | AC 1500V 10mA (Max)



**Component** | Sensing top (NTC chip+ceramic cap)+tube+lead wire +terminal+housing

**Moisture Resistance** | 40°C 95% RH X 1000 hours

**Operation Temperature** | -40~+150°C

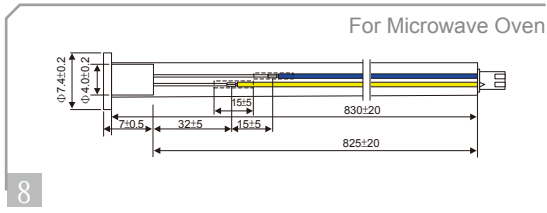
**Insulation Test** | DC 500V 100MΩ (Min)

**R Value** | R25°C=100KΩ±1%

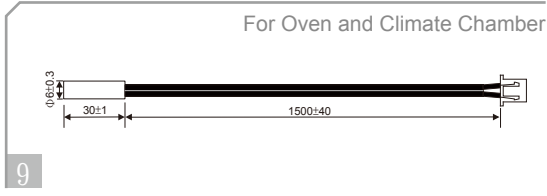
**B Value** | B25/85=4085K±1%

**Thermal Time Constant** | Around 5 seconds (heating board)

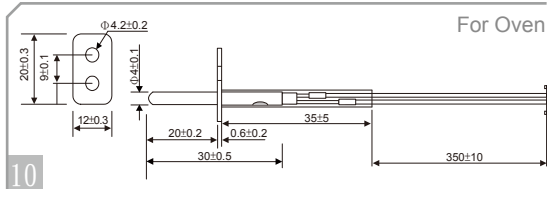
**Hi-Pot Test** | AC 1500V 10mA (Max)



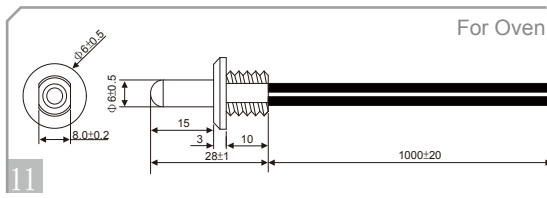
**Component** | Sensing top (NTC chip+aluminum cap)+tube+terminal+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+150°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R100°C=3.3KΩ±5%      **B Value** | B0/100=3970K±3%  
**Thermal Time Constant** | Around 5 seconds (heating board)  
**Hi-Pot Test** | AC 1500V 10mA(Max)



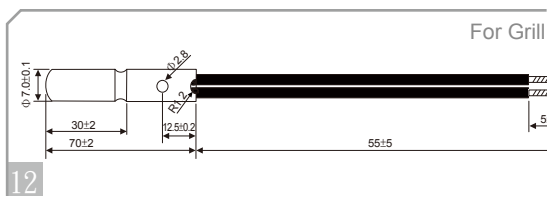
**Component** | Sensing top (NTC chip+copper cap)+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+120°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R25°C=10KΩ±3%      **B Value** | B25/85=3435K±1%  
**Thermal Time Constant** | Around 15 seconds (in water)  
**Hi-Pot Test** | AC 1500V 10mA(Max)



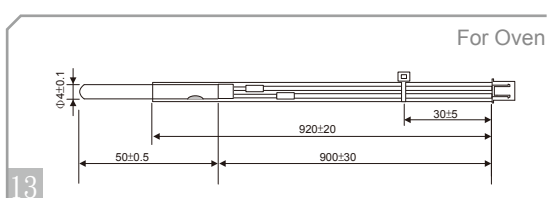
**Component** | Sensing top (NTC chip+stainless steel cap+holder)+tube+terminal+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+260°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R25°C=100KΩ±2%      **B Value** | B0/100=4036K±1%  
**Thermal Time Constant** | Around 90 seconds (in air)  
**Hi-Pot Test** | AC 1800V 5mA (Max)



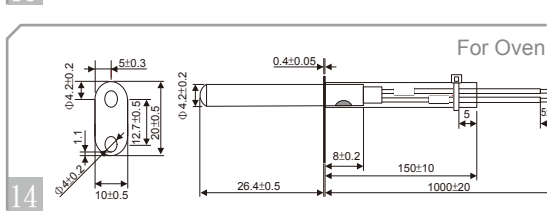
**Component** | Sensing top (NTC chip+stainless steel screw cap)+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+200°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R200°C=1KΩ±1%      **B Value** | B100/200=4537K±2%  
**Thermal Time Constant** | Around 10 seconds (in water)  
**Hi-Pot Test** | AC 1500V 10mA(Max)



**Component** | Sensing top (NTC chip+stainless steel cap)+lead wire  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -40~+240°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R50°C=17.69KΩ±4.8%      **B Value** | B25/85=3992K±2%  
**Thermal Time Constant** | Around 12 seconds (in water)  
**Hi-Pot Test** | AC 1500V 10mA (Max)



**Component** | Sensing top (NTC chip+stainless steel cap)+tube+terminal+lead wire+tie+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+300°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R200°C=1KΩ±5%      **B Value** | B100/200=4537K±3%  
**Thermal Time Constant** | Around 90 seconds (in air)  
**Hi-Pot Test** | AC 1750V 0.5mA (Max)

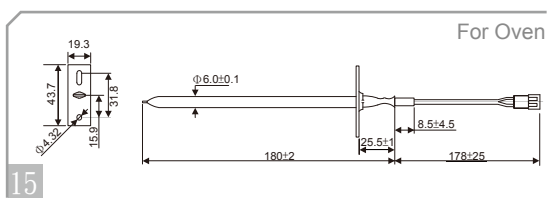


**Component** | Sensing top (NTC chip+stainless steel cap+holder)+tube+lead wire+terminal+tie  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+300°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R100°C=3.3KΩ±2.5%      **B Value** | B25/100=3988K±1%  
**Thermal Time Constant** | Around 3 seconds (in water)  
**Hi-Pot Test** | AC 1500V 10mA (Max)

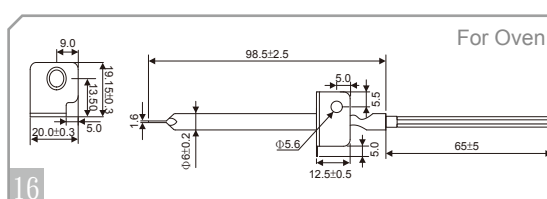
**Platinum Sensor (Pt sensor)**

**Feature:** Pt sensor is similar to PTC thermistor, but is more precise and stable.

**Application:** The sensor is mostly installed in commercial oven or Eco-clean oven.



**Component** | Sensing top (Pt chip+stainless steel cap+holder)+tube+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -40~+500°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R0°C=1000±4 Ω / R23.9°C=1091±5 Ω  
**Temperature Coefficient of Resistance** | 3750 ppm  
**Hi-Pot Test** | AC 1500V 10mA(Max)



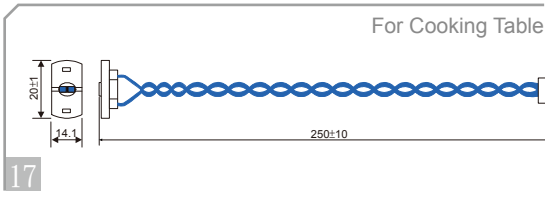
**Component** | Sensing top (Pt chip+stainless steel cap+holder)+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -40~+500°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R0°C=1000±4 Ω / R23.9°C=1091±5 Ω  
**Temperature Coefficient of Resistance** | 3750ppm  
**Hi-Pot Test** | AC 1500V 10mA(Max)



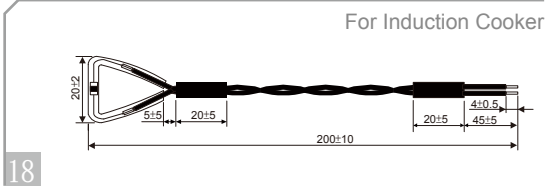
- 1. Temperature sensor is customizable in accordance with customer's needs, and THINKING provides consulting services for sensor design.
- 2. All specifications are subject to change.
- 3. Please contact your sales representative if you have any questions.

**Glass Coating Type**

**Feature:** Glass coated chip is installed on silicon seat or covered by heat shrink tube for direct temperature detection. The sensor responds fast and is installed easily.  
**Application:** The sensor is mostly used in dryer environment, including cooking table, induction cooker, etc.



**Component** | Sensing top (NTC chip+silicon seat)+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | 0~+250°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R185°C= 1.2 KΩ±5%      **B Value** | B100/200= 4015K±3%  
**Thermal Time Constant** | Around 4 seconds (heating board)  
**Hi-Pot Test** | AC 1500V 10mA (Max)

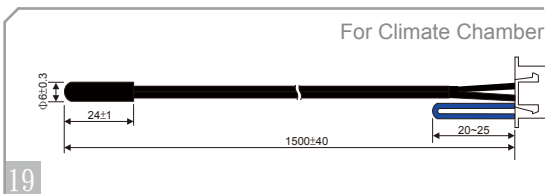


**Component** | Sensing top (NTC chip+terminal+tube)+lead wire+tube  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -10~+200°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R200°C=0.55KΩ±2.5%      **B Value** | B100/200=4300K±3%  
**Thermal Time Constant** | Around 15 seconds (in air)  
**Hi-Pot Test** | AC 1500V 10mA (Max)

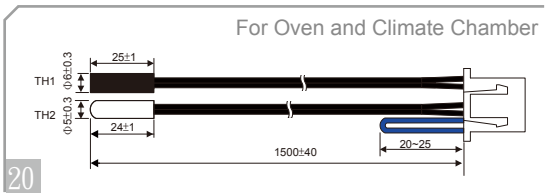
**Other Structures**

**Feature:** Plastic case type offers better water insulation, and is applied in moisture environment, but its environment temperature is not high. In addition, multiple-sensor-structure offers better PCB layout, and structure or electrical characteristics is customizable in accordance with requirement of temperature detection.

**Application:** The sensor is generally applied in climate chamber, low-temperature oven, etc.

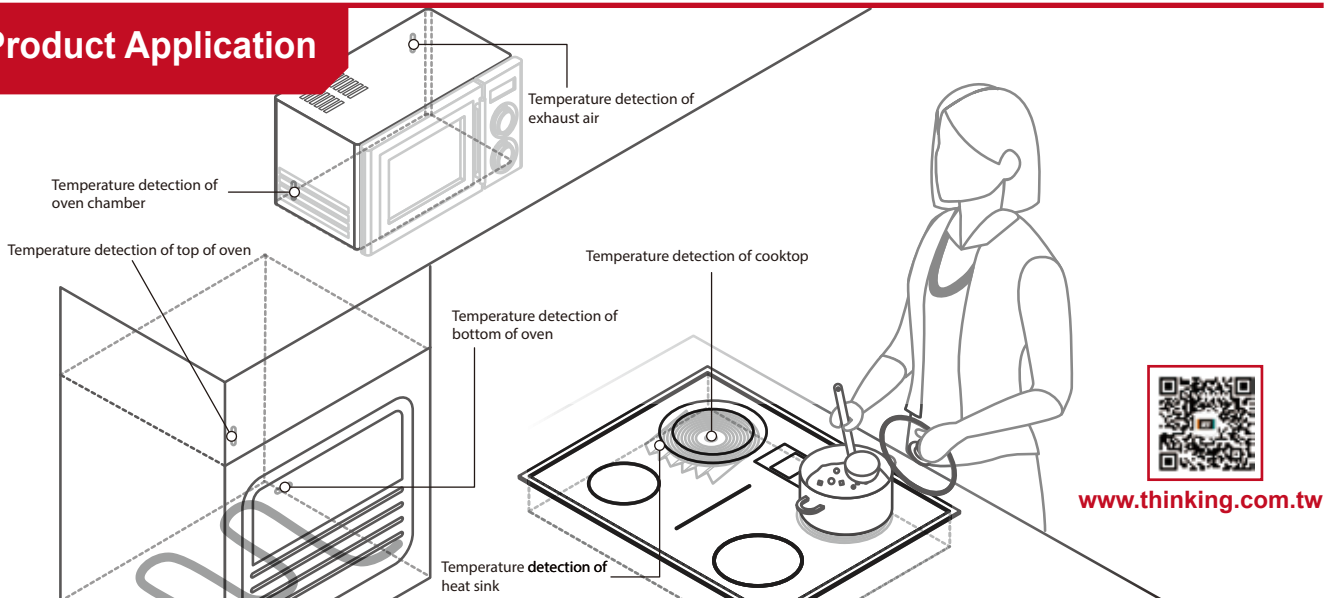


**Component** | Sensing top (NTC chip+plastic cap)+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+105°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R25°C=10KΩ±3%      **B Value** | B25/85=3435K±2%  
**Thermal Time Constant** | Around 20 seconds (in water)  
**Hi-Pot Test** | AC 1500V 10mA (Max)



**Component** | Sensing top (NTC chip+plastic cap/NTC chip+copper cap)+lead wire+terminal+housing  
**Moisture Resistance** | 40°C 95% RH X 1000 hours  
**Operation Temperature** | -20~+105°C  
**Insulation Test** | DC 500V 100MΩ (Min)  
**R Value** | R25°C=10KΩ ± 3%      **B Value** | B25/85=3435K±2%  
**Thermal Time Constant** | Around 15-20 seconds (in water)  
**Hi-Pot Test** | AC 1500V 10mA

**Product Application**



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