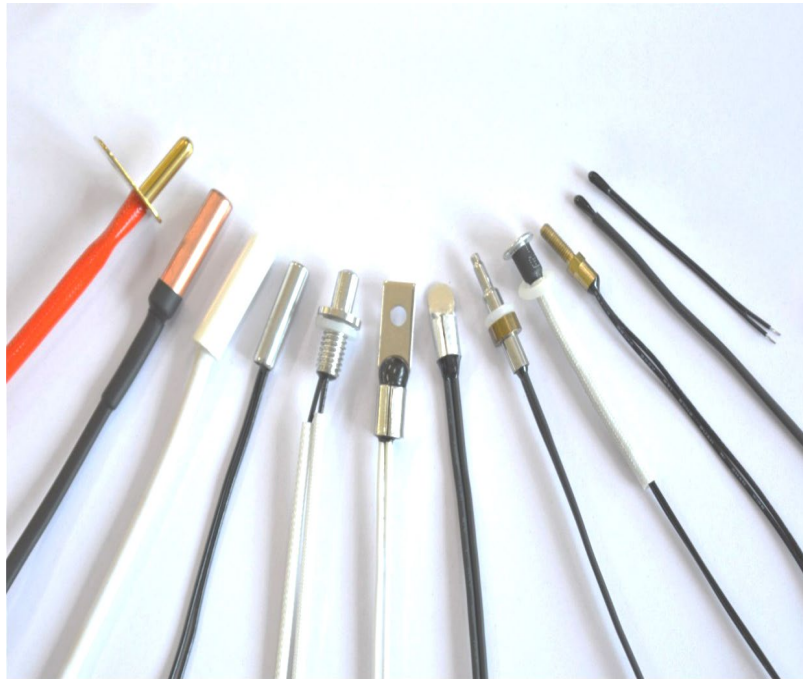


NTC热敏电阻

NTC THERMISTOR



优良品质 · 诚信经营

一起携手 · 共创辉煌

CWF 精密型温度传感器

CWF PRECISION TEMPERATURE SENSOR

产品简介 PRODUCTS BRIEF INTRODUCTION

将高精度、高灵敏、高可靠的 NTC 热敏电阻器与 PVC 导线连接，用绝缘、导热、防水材料封装成需要，的形状，便于安装与远距离测控温。

That combining the high precision, Sensitive and security NTC thermistor with PVC wire, packing into the needed shape with the insulating, heat-conduction and water-protection material will be convenient for installation and long-distance temperature measurement and control.

特点 CHARACTERISTIC

- 1、CWF 系列产品为 NTC 热敏电阻深加工型温度传感器。
- 2、电阻值及 B 值精度高、一致性好、灵敏度高、反应速度快。
- 3、提供定制化线、R-T 特性及连接器。
- 4、具有良好的绝缘密封性和抗机械碰撞、抗折弯能力、可靠性高。

应用范围 APPLIED RANGE

- 1、家电：空调、冰箱、洗衣机、电饭煲、电压力锅、电磁炉、微波炉、热水器、电水壶、咖啡壶、洗碗机、巧克力机、养生壶、电熨斗、智能灶、榨汁机、榨油机、油榨锅等等。
- 2、汽车：汽车空调、车载冰箱、发动机、后视镜、新能源汽车电池等等。
- 3、电源：PC 电源等。
- 4、电池：新能源汽车电池等。
- 5、医疗：电子体温计、医疗器械。
- 6、消防：烟雾感应器。

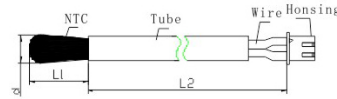
应用范围
APPLIED RANGE

<u>1 2 3</u>	<u>4 5</u>	<u>6 7 8</u>	<u>9</u>	<u>10 11 12 13</u>	<u>14 15</u>																										
↓	↓	↓	↓	↓	↓																										
产品类别	系列号	电阻值(R25)	阻值精度	流水号	特殊码																										
CWF 精密型温度 传感器	A0/A1:电工端子结构 B0/B1:其他外形结构 E0:封装料涂装结构 F0/F1:金属结构 G0/G1:塑料壳结构 H0/H1:组合型结构	<table border="1"> <tr><td>102</td><td>1kΩ</td></tr> <tr><td>103</td><td>10kΩ</td></tr> <tr><td>104</td><td>100kΩ</td></tr> </table>	102	1kΩ	103	10kΩ	104	100kΩ	<table border="1"> <tr><td>D</td><td>±0.5%</td></tr> <tr><td>E</td><td>±0.75%</td></tr> <tr><td>F</td><td>±1%</td></tr> <tr><td>G</td><td>±2%</td></tr> <tr><td>H</td><td>±3%</td></tr> <tr><td>J</td><td>±5%</td></tr> <tr><td>K</td><td>±10%</td></tr> <tr><td>L</td><td>±15%</td></tr> <tr><td>M</td><td>±20%</td></tr> <tr><td>X</td><td>其他</td></tr> </table>	D	±0.5%	E	±0.75%	F	±1%	G	±2%	H	±3%	J	±5%	K	±10%	L	±15%	M	±20%	X	其他	A001-Z999	
102	1kΩ																														
103	10kΩ																														
104	100kΩ																														
D	±0.5%																														
E	±0.75%																														
F	±1%																														
G	±2%																														
H	±3%																														
J	±5%																														
K	±10%																														
L	±15%																														
M	±20%																														
X	其他																														

家用电器类
HOUSEHOLD APPLIANCES CATEGORY
产品性能简述 Product characteristic description

空调室内盘管 温度传感器 (1)

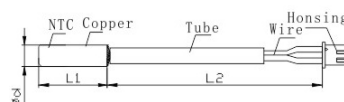
Temperature sensor



代码 Code	d	L1	L2
尺寸 Size	客户自定义 Customerization		≥50mm
产品性能 Product Property	1、线材规格：依客户需求 2、耐压：AC1000V ~AC2000V, 3Sec 3、绝缘：DC500V Min 100MΩ, 3Sec 4、使用温度范围：-30℃~105℃ -30℃ ~ 125℃		1. Wire specification: By Customer's Requirements 2. withstand voltage : AC1000V ~ AC2000V, 3Sec 3. insulation: DC500V Min 100MΩ, 3Sec 4. Use temperature range: -30℃~ 105℃ -30℃ ~ 125℃
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装，测量温差小，温度更准确 2、产品特殊防水、防潮处理，潮湿环境工作稳定 3、室内盘管温传感器独立设计，安装更方便		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term
产品用途 Product Use	适用于空调室内盘管温控模块		Suitable for indoor coil temperature control module of airconditioning

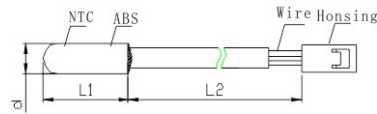
空调室内盘管 温度传感器 (2)

Temperature sensor



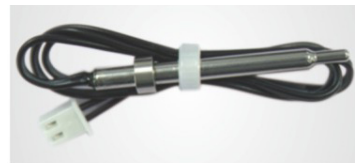
代码 Code	D	L1	L2
尺寸 Size	客户自定义 Customerization		≥50mm
产品性能 Product Property	1、线材规格：依客户需求 2、耐压：AC1000V ~AC2000V, 3Sec 3、绝缘：DC500V Min 100MΩ, 3Sec 4、使用温度范围：-30℃~105℃ -30℃ ~ 125℃		1. Wire specification: By Customer's Requirements 2. withstand voltage : AC1000V ~ AC2000V, 3Sec 3. insulation: DC500V Min 100MΩ, 3Sec 4. Use temperature range: -30℃~ 105℃ -30℃ ~ 125℃
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产品用途 Product Use	适用于空调室内环温温控模块		Suitable for indoor coil temperature control module of airconditioning

冰箱 温度传感器 (5) Temperature sensor



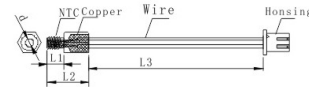
代码 Code	d	L1	L2
尺寸 Size	客户自定义 Customerization		≥50mm
产品性能 Product Property	1、线材规格：依客户需求 2、耐压：AC1000V ~ AC2000V, 3Sec 3、绝缘：DC500V Min 100MΩ, 3Sec 4、使用温度范围：-30℃~105℃ -30℃ ~ 125℃		1. Wire specification: By Customer's Requirements 2. withstand voltage : AC1000V ~ AC2000V, 3Sec 3, insulation: DC500V Min 100MΩ, 3Sec 4, Use temperature range: -30℃~ 105℃ -30℃ ~ 125℃
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装，测量温差小，温度更准确 2、产品特殊防水、防潮处理，潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作。		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term
产品用途 Product Use	适用于冰箱温控模块		Suitable for refrigerator temperature control module

制冰设备 温度传感器 (6) Temperature sensor



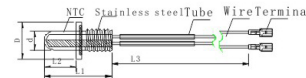
代码 Code	d	D	L1	L2
尺寸 Size	客户自定义 Customerization			≥50mm
产品性能 Product Property	1、线材规格：依客户需求 2、耐压：AC1000V ~ AC2000V, 3Sec 3、绝缘：DC500V Min 100MΩ, 3Sec 4、使用温度范围：-30℃~105℃、 -30℃ ~ 125℃			1. Wire specification: By Customer's Requirements 2. withstand voltage : AC1000V ~ AC2000V, 3Sec 3, insulation: DC500V Min 100MΩ, 3Sec 4, Use temperature range: -30℃~ 105℃ -30℃ ~ 125℃
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装，测量温差小，温度更准确。 2、产品特殊防水、防潮处理，潮湿环境工作稳定。 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作。			1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3 .The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term
产品用途 Product Use	适用于制冰设备温控模块			Suitable for temperature control module of ice making equipment

咖啡机 温度传感器 (11) Temperature sensor



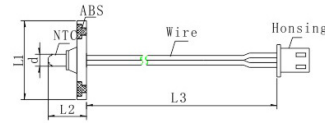
代码 Code	d	L1	L2	L3
尺寸 Size	客户自定义 Customerization			≥50mm
产品性能 Product Property	1、线材规格: 依客户需求 2、耐压: AC1000V ~ AC2000V, 3Sec 3、绝缘: DC500V Min 100MΩm, 3Sec 4、使用温度范围: -30°C ~ 105°C -30°C ~ 125°C -30°C ~ 150°C		1、Wire specification: By Customer's Requirements 2、withstand voltage AC1000V ~ AC2000V, 3Sec 3、insulation: DC500V Min 100MΩ, 3Sec 4、Use temperature range: -30°C ~ 105°C -30°C ~ 125°C -30°C ~ 150°C	
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装, 测量温差小, 温度更准确 2、产品特殊防水、防潮处理, 潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term	
产品用途 Product Use	适用于咖啡机温控模块		Suitable for temperature control module of coffee machine	

电水壶 温度传感器 (12) Temperature sensor



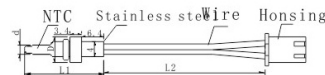
代码 Code	d	D	L1	L2	L3
尺寸 Size	客户自定义 Customerization				≥50mm
产品性能 Product Property	1、线材规格: 依客户需求 2、耐压: AC1000V ~ AC2000V, 3Sec 3、绝缘: DC500V Min 100MΩm, 3Sec 4、使用温度范围: -30°C ~ 105°C -30°C ~ 125°C -30°C ~ 150°C		1、Wire specification: By Customer's Requirements 2、withstand voltage AC1000V ~ AC2000V, 3Sec 3、insulation: DC500V Min 100MΩ, 3Sec 4、Use temperature range: -30°C ~ 105°C -30°C ~ 125°C -30°C ~ 150°C		
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装, 测量温差小, 温度更准确 2、产品特殊防水、防潮处理, 潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term		
产品用途 Product Use	适用于电水壶温控模块		Suitable for temperature control module of electric kettle		

暖奶器 温度传感器 (13) Temperature sensor



代码 Code	d	L1	L2	L3
尺寸 Size	5.0mm	33.0mm	16.0mm	≥50mm
产品性能 Product Property	1、线材规格：依客户需求 2、耐压：AC1000V ~ AC2000V, 3Sec 3、绝缘：DC500V Min 100MΩm, 3Sec 4、使用温度范围：-30℃ ~ 105℃		1、Wire specification: By Customer's Requirements 2、withstand voltage AC1000V ~ AC2000V, 3Sec 3、insulation: DC500V Min 100MΩ, 3Sec 4、Use temperature range: -30℃ ~ 105℃	
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装，测量温差小，温度更准确 2、产品特殊防水、防潮处理，潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term	
产品用途 Product Use	适用于暖奶器温控模块		Suitable for temperature control module of milk heater	

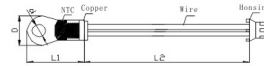
咖啡机 温度传感器 (14) Temperature sensor



代码 Code	d	D	L1	L2
尺寸 Size	5.0mm	33.0mm	客户自定义 Customerization	≥50mm
产品性能 Product Property	1、线材规格：依客户需求 2、耐压：AC1000V ~ AC2000V, 3Sec 3、绝缘：DC500V Min 100MΩm, 3Sec 4、使用温度范围：-30℃ ~ 105℃		1、Wire specification: By Customer's Requirements 2、withstand voltage AC1000V ~ AC2000V, 3Sec 3、insulation: DC500V Min 100MΩ, 3Sec 4、Use temperature range: -30℃ ~ 105℃	
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装，测量温差小，温度更准确 2、产品特殊防水、防潮处理，潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term	
产品用途 Product Use	适用于咖啡机温控模块		Suitable for temperature control module of coffee machine	

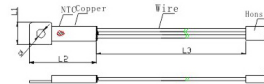
工具类
INDUSTRIAL EQUIPMENT CATEGORY
产品性能简述 Product characteristic description

电源模块 温度传感器 (1)

Temperature sensor


代码 Code	d	D	L1	L2
尺寸 Size	客户自定义 Customerization			≥50mm
产品性能 Product Property	1、线材规格: 依客户需求 2、耐压: AC1000V ~ AC2000V, 3Sec 3、绝缘: DC500V Min 100MΩm, 3Sec 4、使用温度范围: -30°C ~ 105°C		1、Wire specification: By Customer's Requirements 2、withstand voltage AC1000V ~ AC2000V, 3Sec 3、insulation: DC500V Min 100MΩ, 3Sec 4、Use temperature range: -30°C ~ 105°C	
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装, 测量温差小, 温度更准确 2、产品特殊防水、防潮处理, 潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term	
产品用途 Product Use	适用于电源温控模块		Suitable for power supply temperature control module	

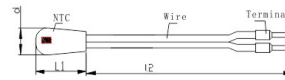
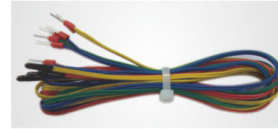
灭蚊机 温度传感器 (2)

Temperature sensor


代码 Code	d	L1	L2	L3
尺寸 Size	3.6mm	9.6mm	29.0mm	≥50mm
产品性能 Product Property	1、线材规格: 依客户需求 2、耐压: AC1000V ~ AC2000V, 3Sec 3、绝缘: DC500V Min 100MΩm, 3Sec 4、使用温度范围: -30°C ~ 105°C -30°C ~ 125°C -30°C ~ 150°C		1、Wire specification: By Customer's Requirements 2、withstand voltage AC1000V ~ AC2000V, 3Sec 3、insulation: DC500V Min 100MΩ, 3Sec 4、Use temperature range: -30°C ~ 105°C -30°C ~ 125°C -30°C ~ 150°C	
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装, 测量温差小, 温度更准确 2、产品特殊防水、防潮处理, 潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term	
产品用途 Product Use	适用灭蚊机温控模块		Suitable for temperature control module of mosquito control machine	

消防器材 温度传感器 (3)

Temperature sensor



代码 Code	d	L1	L2
尺寸 Size	客户自定义 Customerization		≥50mm
产品性能 Product Property	1、线材规格：依客户需求 2、耐压：AC1000V ~ AC2000V, 3Sec 3、绝缘：DC500V Min 100MΩ, 3Sec 4、使用温度范围：-30℃ ~ 105℃ -30℃ ~ 125℃ -30℃ ~ 150℃		1、Wire specification: By Customer's Requirements 2、withstand voltage AC1000V ~ AC2000V, 3Sec 3、insulation: DC500V Min 100MΩ, 3Sec 4、Use temperature range: -30℃ ~ 105℃ -30℃ ~ 125℃ -30℃ ~ 150℃
产品特点 Product Characteristics	1、采用高精度、高稳定性元件封装，测量温差小，温度更准确 2、产品特殊防水、防潮处理，潮湿环境工作稳定 3、产品安装方便、抗寒、耐热性能优良可长期负荷工作		1. using element component with high precision and stability for encapsulation can narrow down the range of measuring temperature and raise the precision of temperature measurement 2. the product is waterproofing and dampproofing, which makes it stable in damp conditions 3. The product is easy to install and stable in under all range of temperatures. It also possesses high performance which makes it able to work to full capacity for long term
产品用途 Product Use	适用于消防器材温控模块		Suitable for temperature control module of fire fighting equipment

NTC热敏电阻注意事项

请遵循以下事项，否则可能会造成 NTC 热敏电阻损坏，使用设备损伤或引起误动作等后果。

- 1、请勿在使用温度范围以外使用，请勿施加超出使用温度范围上下限的急剧温度变化。
- 2、请在额定功率条件下使用 NTC 热敏电阻。各规格最大额定功率为中 $\phi 5$ —0.7W $\phi 7$ —1.2W $\phi 9$ —1.9W $\phi 11$ —2.3W $\phi 13$ —3W $\phi 15$ —3.5W $\phi 20$ —4W。
- 3、在高湿高温环境下使用护套型 NTC 热敏电阻时应采取仅使护套封闭部分暴露于环境（水中、湿气）中，而护套开口部分不会直接接触到水及蒸汽的设计。
- 4、配线时应确保导线端部（含连接器）不会深入水、蒸汽、电解质液等否则会造成接触不良。
- 5、请勿在腐蚀性气体的环境（C12、NH₃、SO_x、NO_x）以及会接触到电解质液、盐水、酸、碱、有机溶剂的场所中使用。
- 6、请勿过度拉伸及弯曲导线，请勿施加过度的振动、冲击及压力。
- 7、金属腐蚀可能会造成设备功能故障，故在选择材质时应确保金属护套型及螺钉紧固型 NTC 热敏电阻与安装的金属件之间不会产生接触的电位差。
- 8、功率型 NTC 周围应避免安装发热和易燃元件，建议选用弯脚上部引线较高的产品，使 NTC 热敏电阻在线路板上高出其它元件，以免发热影响其它元件正常工作。
- 9、NTC 热敏电阻是按不同的功能用途分别进行设计的，如有疑问可与我司联络。

MATTERS NEEDING ATTENTION FOR NTC THERMISTORS

Please follow the rules listed below when using NTC thermistors. Otherwise, you may cause damage to the NTC thermistor and relevant equipment or hurt yourself.

Do not use the thermistor under temperature beyond the operating temperature range. Do not apply rapid temperature changes which exceed the upper and lower limits of the operating temperature range.

Please use the NTC thermistor under the standard power. The maximum standard powers of each specification are: $\phi 5$ —0.7W $\phi 7$ — 1.2W $\phi 9$ — 1.9W $\phi 11$ —2.3W $\phi 13$ —3W $\phi 15$ —3.5W $\phi 20$ —4W.

When using the sheath type NTC thermistors in the high humidity and high temperature environment, the sealing part of the sheath should be exposed to the environment (moisture or water) while the opening part of the sheath is not directly exposed to the water or steam.

When wiring, the ends of the wire (including connectors) should not be posited deeply inside water, steam, electrolyte solution, etc. Otherwise, it will result in poor contact.

Please do not expose the thermistor to corrosive gas (NH_3 , SO_x , NO_x , Cl_2) or any saline solution, acid solution, alkaline solution and electrolyte solution.

Do not over stretch or bend the wire. Please do not apply excessive vibration, pressure and impact on the thermistor. To avoid equipment faults caused by metal corrosion, please choose the right material to make sure there is no potential difference at the contact point between metal sheath type or screw fastening type NTC thermistor and the metal components.

Do not install any flammable component or component generating heat surrounding the power type NTC. Our recommendation is to avoid the negative effect brought by the heat from the NTC, please use products with higher lead wire on the bending feet to make the NTC thermistor on the circuit board higher than the other components. NTC thermistors have specific designs for different functions. Feel free to contact us if you have any question.

附录

参数定义



热敏电阻器

其首要特性是随着阻体温度的变化，电阻值呈现显著变化的热敏感半导体电阻器。



负温度系数热敏电阻器(NTC)

温度升高时，电阻值下降的热敏电阻器。



最大允许电容量

在负载状态下，与一个热敏电阻器连接的电容器的最大允许电容量值。



剩余电阻值

当热敏电阻器上流过最大电流并达到热平衡时的直流电阻值。以欧姆(Ω)表示。



冲击电流

比如已放电的电容器，已冷却的灯丝或者一个静止的马达等等，有极低的起始阻抗，当负载的初期有较高的初始电流称为冲击电流。



零功率电阻

在规定温度下测得的热敏电阻器的直流电阻值。



25°C环境温度下的最大电流

在 25°C 环境温度下，可以连续施加在热敏电阻器上的电流（直流或正弦波交流有效值）最大值。



耗散系数

使热敏电阻器的温度升高 K 所需消耗的功率。通常为规定的环境温度下功耗变化与热敏电阻器阻体温度变化之比。通常以(mW/°C)表示。



热时间常数

在规定的介质中，热敏电阻器自热后冷却其温升的 63.2%所需要的时间（单位为 S）。



B 值

NTC 热敏电阻在某一温度之电阻与另一温度之电阻的比较值，可由下面的公式计算得到。材料常数是 R1,R2 分别为 T1,T2 温度下的零功率电阻 T1=298.15K(25°C)

T2=323.15K(50°C)

$B = \ln(R1/R2) / (1/T1 - 1/T2)$



冲击能量

热敏电阻能承受最少 6000 次而电阻值变化率在±20%以内之冲击能量。此能量与所加之电压及电容值有关。

APPENDIX

PARAMETER DEFINITION



Thermistor

The primary characteristic of a thermally sensitive semiconductor resistor is with a significant change in resistance as the resistance body temperature changes.



Negative temperature coefficient

A thermistor exhibits a decrease in resistance when temperature rises.



Maximum allowable capacitance

The maximum allowable capacitance of a capacitor connected to a thermistor in a load state.



Residual resistance

The DC resistance when the maximum current is passed through the thermistor and the thermal balance is reached. Expressed in ohms(Ω).



Impact current

For example, a capacitor that has been discharged, a cooled filament, or a stationary motor, etc., has a very low initial impedance, and when the initial stage of the load has a higher initial current, it is called an impact current.



Zero-power resistance

The DC resistance of a thermistor measured at specified temperature.



Max. current at 25°C ambient temperature

At 25°C ambient temperature, the maximum value of current (DC or sinusoidal AC RMS) that can be applied continuously on a thermistor.



Dissipation factor

The power required to increase the temperature of a thermistor by 1K. It is the ratio of the change in power consumption to the temperature of the thermistor body at the specified ambient temperature. Expressed in $\text{mW}/^{\circ}\text{C}$.



Thermal time constant

In a specified medium, the time required for the thermistor to cool its temperature rise by 63.2% after heating itself (the unit is S)



B constant

$$B = \ln(R_1/R_2) / (1/T_1 - 1/T_2)$$

A comparison of the resistance of a NTC thermistor at a temperature to that of another, which can be calculated by the below formula. The material constants R_1, R_2 are zero-power resistances at T_1 and T_2 respectively. $T_1 = 298.15\text{K}(25^{\circ}\text{C})$ $T_2 = 323.15\text{K}(50^{\circ}\text{C})$

$$B = \ln(R_1/R_2) / (1/T_1 - 1/T_2)$$



Impact energy

Thermistors can withstand impact energy at least 6000 times, while resistance rates change within $\pm 2\%$. This energy is related to the added voltage and capacitance.