



PT RECTANGLE MOTOR TEMPERATURE SENSOR

- Shrink Tube Encapsulation
- Teflon® Insulated Lead-wire
- Wide Temperature Design

Product Description

The temperature sensor is designed to monitor the temperature of the electric motor system. The PT sensing element is sealed and protected by Teflon® material. The design provides a rectangular or cylinder shape and smaller size, making the assembly well suited to motor stator system or industrial system or other temperature monitoring system. The sensor design to fulfill reliability requirements, including high and low temperature storage, temperature cycling, temperature and humidity cycling and ATF oil proof testing.

Features

- PT
- Temperature range: $-40^{\circ}\text{C} \sim +200^{\circ}\text{C}$
- Insulation resistance: $\geq 100\text{Mohm}$
- High-pot strength: 3000VAC
- Rectangle or cylinder sensor body
- ATF oil proof

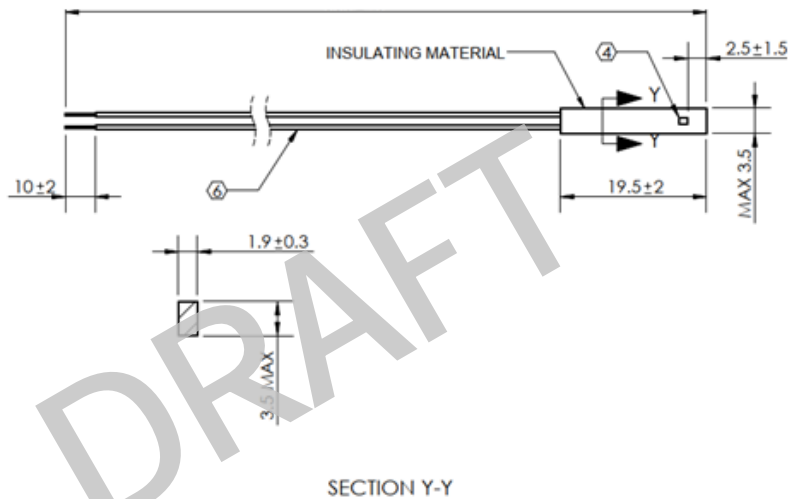
Applications

- Motor stator
- Industrial system
- Air conditioning systems
- White Goods

Sensor specifications

Sensor Dimension	Rectangle 3.5 max*1.9*19.5 mm
Temperature Coefficient of Resistance	3850 ppm/°C
Temperature Range	-40°C~+200°C
Operating Current	PT100: 0.3~1.0mA
	PT1000: 0.1~0.3mA
Insulation Resistance	≥100MΩ, 1000 VDC, at room temperature
Dielectric Strength	3000VAC, 1mA Max, at room temperature
Response time	T ₅₀ (25/35)<4s

Diagrams and Dimensions



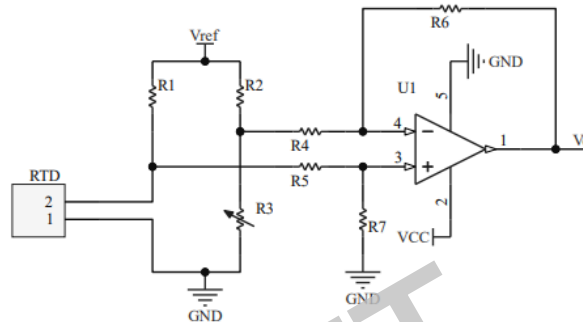
Reliability

Item	Condition	Criteria
Thermal cycling	-55°C to +125°C, 1000cycles	Drift ≤Tolerance IEC 60751
Thermal shock	-40°C to +150°C, 300cycles	Drift ≤Tolerance IEC 60751
Temperature and humidity test	85RH/85°C 1000H	Drift ≤Tolerance IEC 60751
High temperature storage	200°C 1000H	Drift ≤Tolerance IEC 60751
Low temperature storage	-40°C 1000H	Drift ≤Tolerance IEC 60751
Water boiling	85°C 1000H	Drift ≤Tolerance IEC 60751
ATF oil proof	-40°C 500H & +150°C 500H	Drift ≤Tolerance IEC 60751

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Insulating paint proof	145°C ±5°C, 6H	Drift ≤Tolerance IEC 60751
Drop fall	1M, 3times	Drift ≤Tolerance IEC 60751
Pull strength	15N, 5s	Drift ≤Tolerance IEC 60751
Mechinical shock	Half-sine, peak value : 100g's ; duartion : 6ms ; velocity12.3ft/s	Drift ≤Tolerance IEC 60751
Vibration test	5g's for 20min 12cycles of 3 orientations test from 10HZ~2000HZ	Drift ≤Tolerance IEC 60751

Circuit Suggestion



Calculation Formulas

The calculation formulas of these Pt-RTD according to DIN EN 60751:

Condition	Formulas
For $T \geq 0^\circ\text{C}$	$R(t) = R(0) * (1 + At + Bt^2)$
For $T < 0^\circ\text{C}$	$R(t) = R(0) * [1 + At + Bt^2 + C(t-100)t^3]$
Coefficients	$A = 3.9083\text{E-}03$, $B = -5.775\text{E-}07$, $C = -4.183\text{E-}12$

Tolerances: class F0.15 (A): $\pm (0.15 + 0.002 * |T/^\circ\text{C}|) ^\circ\text{C}$

Tolerances: class F0.3 (B): $\pm (0.3 + 0.005 * |T/^\circ\text{C}|) ^\circ\text{C}$

Customize parameter

Model Sensor	Resistance [Ω] @ +0°C	Tolerance
1	100	class F0.15 (A)
2	100	class F0.3 (B)
3	1,000	class F0.15 (A)
4	1,000	class F0.3 (B)

Ordering Information

Total Length	Wire color	Wire size(Optional)
---- Define 'L' Length in mm	Transparency	22AWG
Example: 500 = 550 mm		26AWG

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Description	Length	Stocked Part Number
PT1000 Rectangle temperature sensor	550	20029370-00

Recommended Storage Conditions

The recommended storage conditions.

Parameter	Symbol	Min	Typical	Max	Units
Storage Temperature Range	T _{store}	-20	+25	+85	°C

Installation Tips

- For the sensor assembly to accurately track temperature, it should be installed as deep as possible into a well or holder to let the sensor head as closer as measurement point.
- Don't grip the sensor head with high pressure.

Compliance

- RoHS and Reach Compliance

Change History

Date	Version	Change Description
2023-11-10	1	Initial Release
2024-03-19	2	Remove cylinder shape and added part number

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