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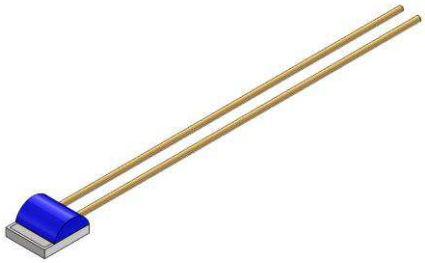


RoHS

PTFC102S1G1

Platinum Temperature Sensor

Pt1000, 2.0x2.3x1.1, Class B, PTFC102S1G1

Product Description

This sensor is a resistance temperature detector (RTD) using a platinum resistor as sensing element. This platinum resistor consists of a structured platinum film on a ceramic substrate, passivated by a glass cover. The connection wires are protected with glass ceramic on the welding area.

The material for the connection wire is gold coated nickel wire.

The characteristic curve of this Platinum RTD complies with DIN EN 60751. The usage of Platinum as resistive material guarantees high long term stability.

Due to relative small outline and low mass this RTD has a low time constant; therefore it is a suitable solution for fast and precise feedback control systems.

The sensor is designed for temperature applications up to 600°C.

Sensors are packed as bulk goods in blister box.

Features

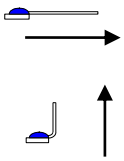
- R0: 1000 Ω
- TCR 3850ppm/K
- Application temperature -50…600°C
- Resistance tolerance ±0.12% (Class B)
- Size 2.0 x 2.3 x 1.1 mm³ (width/length/height)
- Gold coated Nickel wire 17.5 mm length, 0.25mm diameter

Applications

- automotive applications
- Specific temperature feedback control
- Flame detection in pre-heater systems
- …

- Platinum Temperature Sensor
- Conformal to DIN EN 60751
- Global interchangeability
- Wide temperature range
- Fast response time
- Class B (F0.3) tolerance
- Small outline dimensions
- Gold coated nickel lead wires, specific length
- Blister box packing

Sensor properties

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Nominal Resistance at 0 °C	R_0	Class B (F 0.3)	998.8	1000.0	1001.2	Ω
Nominal Resistance at 25 °C	R_{25}	Class B (F0.3)	1095.74	1097.34	1098.94	Ω
Temperature tolerance at 25 °C		Class B (F0.3)	-0.43		+0.43	°C
Temperature Coefficient of Resistance	TCR	0 °C, 100 °C		3850		ppm/°C
Tolerance Temperature Range *		Class B (F 0.3)	-50		600	°C
Self Heating Coefficient in air, flow: 1 m/s				0.5		°C/mW
Response Time Water Flow: 0.4 m/s	$\tau_{W,0.9}$			0.2		s
Response Time Air Flow: 1 m/s	$\tau_{A,0.9}$			10		s
Measuring Current		Class B (F 0.3)			0.4	mA
Lead wire **Au-coated Ni-wire**		Diameter length	 16.5	0.25 17.5	 18.5	mm mm
Lead wire pull strength	F		7 3			N N

** possible operating temperature range is, -200°C to +600°C for elements with Au-coated Ni wire.*
Specified accuracy is not guaranteed if the sensor is exposed to temperatures outside the specified tolerance temperature range.

Calculation Formulas

The calculation formulas of this Pt-RTD are defined in DIN EN 60751 as following:

For T ≥ 0 °C: $R(T) = R_{(0)} * (1+a * T + b * T^2)$

For T < 0 °C: $R(T) = R_{(0)} * [1+a * T + b * T^2 + c * (T-100°C) * T^3]$

Coefficients: a = 3.9083E-03 b = -5.775E-07 c = -4.183E-12

Tolerances: Class B (F 0.3): ± (0.33+0.005*|T/°C|) °C (-50 … +600 °C)

(inaccuracy of measurement included due to room temperature calibration)

Mechanical Dimensions

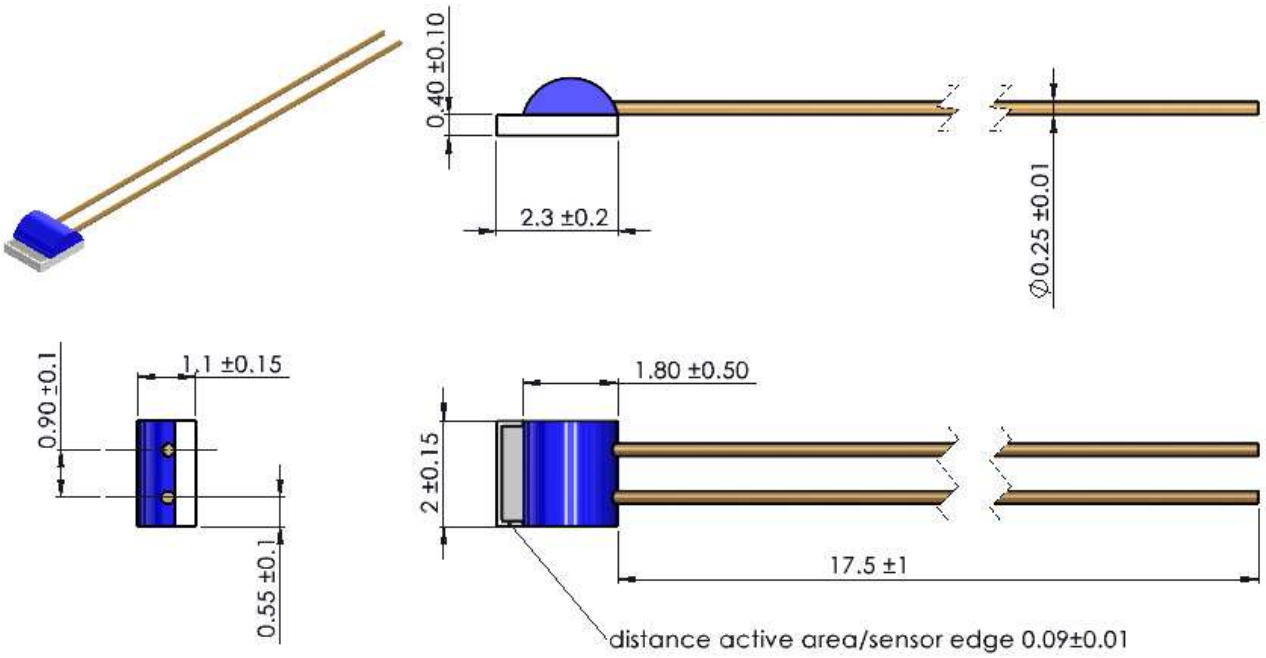


Figure 1: Mechanical dimensions of Platinum Temperature Sensor

Ordering Information

Description	Part Number	Configuration information
Pt1000, 2.0x2.3x1.1, Class B, PTFC102S1G1	NB-PTCO-230	1000 Ohms, 2.0 mm x 2.3 mm x 1.1 mm, F 0.3 (B), 17.5mm Au-coated Ni-wire

Packing and Minimum Order Quantity

Packing	PCS per Packing Unit	MOQ
Transparent Blister Box 80(120) x 50(60) x 20mm³	500	500

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