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RoHS

PTFF102C1N1

Platinum Temperature Sensor

Pt1000, 2.0x4.0, Class C, PTFF102C1N1

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 nickel wire, partly pre-tinned.

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 200°C.

Sensors are packed plastic bag.

Features

- R0: 1000 Ω
- TCR 3850ppm/K
- Application temperature -50…600°C
- Resistance tolerance ±0.24% (Class C)
- Size 2.0 x 4.0 x 1.1 mm³ (width/length/height)
- Nickel wire 22 mm length, 0.25mm diameter

Applications

- Specific temperature feedback control
- Automotive
- Flame detection in pre-heater systems
- White goods
- Medical
- HVC
- Industrial applications
- …

- Platinum Temperature Sensor
- Conformal to DIN EN 60751
- Global interchangeability
- Wide temperature range
- Fast response time
- Class C (F0.6) tolerance
- Small outline dimensions
- Nickel lead wires, partly pre-tinned
- Specific wire length
- Plastic bag packing

Sensor properties

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Nominal Resistance at 0 °C	R_0	Class C (F 0.6)	997.6	1000. 0	1002.4	Ω
Nominal Resistance at 25 °C	R_{25}	Class C (F 0.6)	1094.3	1097.35	1100.4	Ω
Temperature Tolerance at 25°C		Class C (F 0.6)	-0.78	0	0.78	°C
Temperature Coefficient of Resistance	TCR	0 °C, 100 °C		3850		ppm/°C
Tolerance Temperature Range*		Class C (F 0.6)	-50		200	°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 C (F 0.6)			0.4	mA
Lead wire **Ni-wire**		Diameter length		0.25 22		mm mm
Pre-tinned length		Length		12		mm

** possible operating temperature range is, -200°C to +200°C for elements with pre-tinned 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 C (F 0.6): ± (0.6+0.007*|T/°C|) °C (-50 … +200 °C)

Mechanical Dimensions

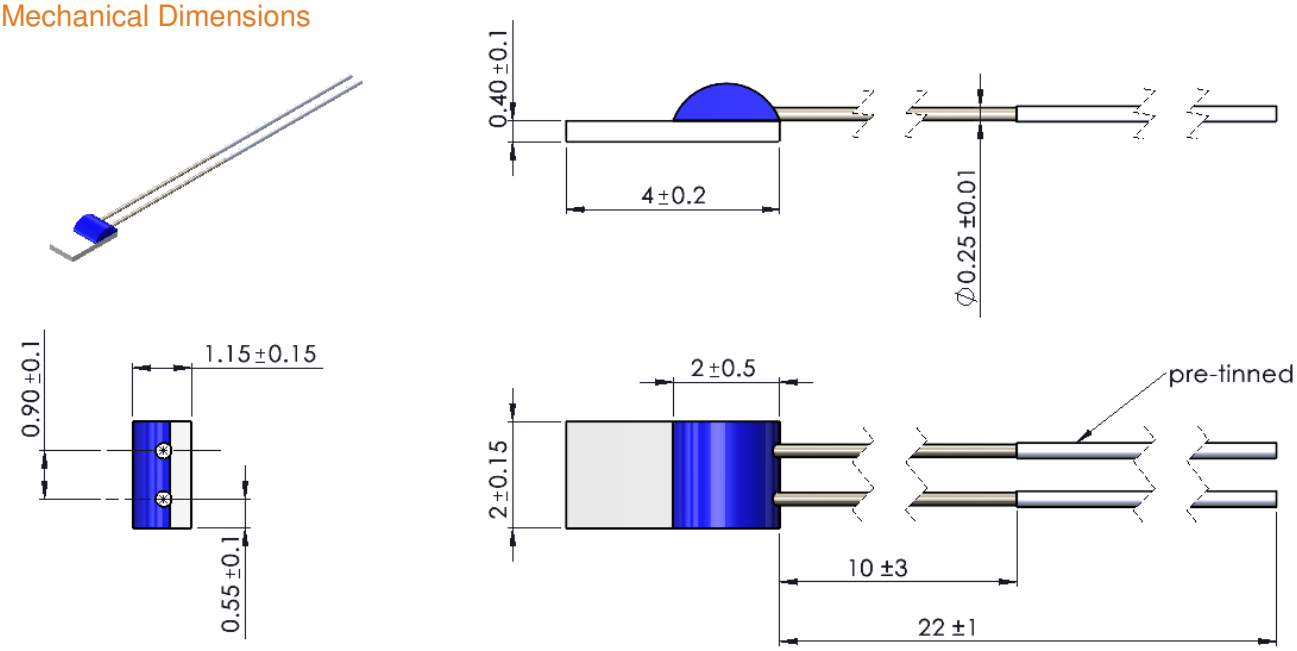

Figure 1: Mechanical dimensions of Platinum Temperature Sensor

Ordering Information

Description	Part Number	Configuration information
Pt1000, 2.0x4.0, Class C, PTFF102C1N1	NB-PTCO-010	1000 Ohms, 2.0 mm x 4.0 mm x 1.1mm, F 0.6 (C), 22 mm Ni-wire, pre-tinned

Packing and Minimum Order Quantity

Packing	PCS per Packing Unit	MOQ
Transparent plastic bag 60mm x 40mm	100	1000

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