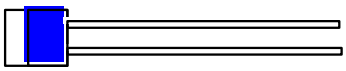
Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



PTFC102BC1G0

Platinum Temperature Sensor

- **Platinum Temperature Sensor**
- **Conformal to DIN EN 60751**
- **Global interchangeability**
- **Wide temperature range**
- **Fast response time**
- **Special Class B (F0.3) tolerance for -196°C measurements**
- **Small outline dimensions**
- **Blister box packing**

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 glass coating. The connection wires are protected with glass on the welding area.

The connection wires are gold coated nickel wire.

The characteristic curve of this Platinum RTD complies with DIN EN 60751. Within the extended temperature range between -200 °C and -50 °C the characteristic curve of this Platinum RTD can be calculated using the same mathematical expression as between -50 °C and 0 °C.

To avoid hysteresis, the element is pre aged in liquid nitrogen. The element is designed, to perform measurements at -196°C (liquid nitrogen).

The usage of Platinum as resistive material guarantees high long term stability.

Due to 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.

Sensors are packed as bulk goods in blister box.

Features

- R_0: 1000 ⎵
- TCR 3850ppm/K
- Application temperature -200°C…200°C
- resistance tolerance ±0.12%
- Size 2 x 2.3 x 1.1 mm³ (width/length/height)
- Gold coated nickel wire, 10 mm length, 0.25 mm diameter

Applications

- Specific temperature feedback control at -196°C (liquid N)
- Medical
- Industrial applications

Sensor properties

Parameter	Symbol	Condition	Min	Typical	Max	Unit
Nominal Resistance at 0 °C	R_0	Class B (F0.3)	998.80	1000.0	1001.20	Ω
Nominal Resistance at -196 °C	R-196		196.90	202.50	208.10	Ω
Temperature Tolerance at -196 °C	⇆↑↑		-1.3	0	+1.3	K
Temperature Coefficient of Resistance	TCR	0 °C, 100 °C		3850		ppm/°C
Temperature Range		Class B (F0.3)	-200		200	°C
Selfheating Coefficient in air, flow: 1 m/s				0.5		°C/mW
Response Time Water Flow: 0.4 m/s	$◀_{W,0.9}$			0.2		s
Response Time Air Flow: 1 m/s	$◀_{A,0.9}$			10		s
Measuring Current		Class B (F0.3)			0.4	mA
Lead wire Au-coated Ni-wire		Diameter length		0.25 10		mm mm
Pre aging conditions			-200		150	°C

Calculation Formulas

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

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

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

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

Tolerances: class F0.3 (B): ± (0.3+0.005*|T/°C|) °C (-200 … +200 °C)

Mechanical Dimensions

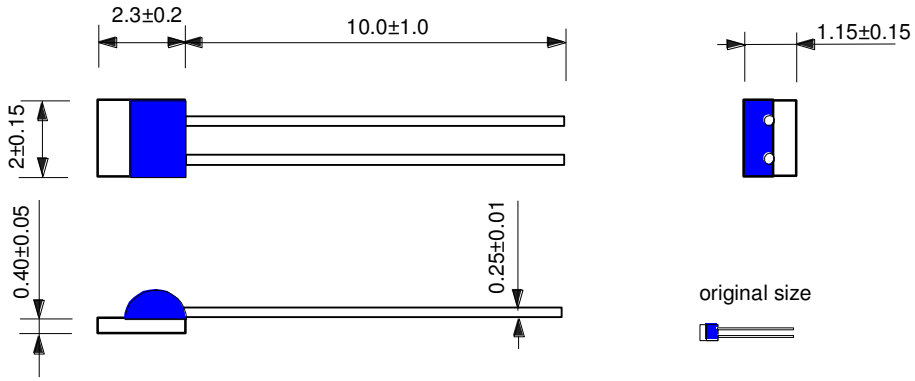


Figure 1: Mechanical dimensions of Platinum Temperature Sensor

Ordering Information

Description	Part Number
PTFC102BC1G0:PT1000,2.0X2.3,B	NB-PTCO-295

Packing and Minimum Order Quantity

Packing	PCS per Packing Unit	MOQ
Transparent Blister Reel 80mm x 250mm x 6mm	200	200

NORTH AMERICA
Measurement Specialties, Inc.,
a TE Connectivity Company
1711 139th Lane NW
Andover, MN 55304
Tel: +1 763 689 4870
Fax: +1 763 689 5033

customercare.ando@te.com

EUROPE
TE Connectivity Sensors Germany GmbH
Hauert 13
44227 Dortmund
Germany
Tel : +49 231 9740-0
Fax : +49 231 9740-20

customercare.dtmd@te.com

ASIA
Measurement Specialties (China), Ltd.,
a TE Connectivity Company
No. 368 Wulian 1st Road
Gongxing Town
Shuangliu, Chengdu
Sichuan, 610200
China
Tel: +86 (0) 28 8573 9088
Fax: +86 (0) 28 8573 9070

customercare.chdu@te.com

te.com/sensorsolutions

[Model Rev]
[Internal ECN]