

# TSYS02D PERIPHERAL MODULE

Digital Temperature Sensor

# **General Description**

The TSYS02D peripheral module provides the necessary hardware to interface the TSYS02D digital temperature sensor to any system that utilizes Xplained pro compatible expansion ports configurable for I<sup>2</sup>C communication. The TSYS02D sensor is a self-contained temperature sensor that is fully calibrated during manufacture. The sensor can operate from 1.5V to 3.6V. The TSYS02D has a low power stand-by mode for power-sensitive applications.

# Specifications

- Measures temperature from -40℃ to 125℃
- I<sup>2</sup>C communication
- Fully calibrated
- Fast response time
- Very low power consumption

# **Features**

- 20-pin Xplained pro compatible connector
- I<sup>2</sup>C interface
- Xplained Pro hardware identification chip
- Atmel Studio 6 Project available for download
- μC C code available for download
- 24/16 bit resolution for temperature
- Parameters stored on chip

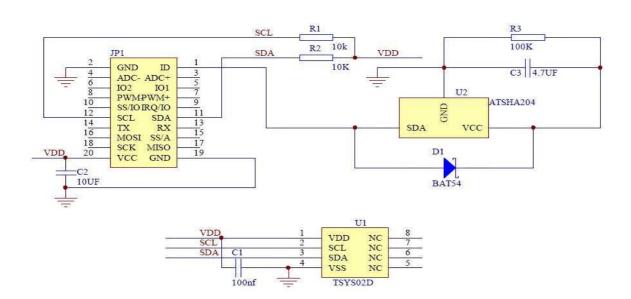


Digital Temperature Sensor

# Performance

- -5℃ to 50℃ accuracy: 0.2℃
- -20℃ to 100℃ accuracy: 0.5℃
- -40℃ to 125℃ accuracy:1℃
- Very low power consumption
- Operates from 1.5V to 3.6V
- Time constant -4 second typical
- Conversion time 43 mS typical

## Schematic

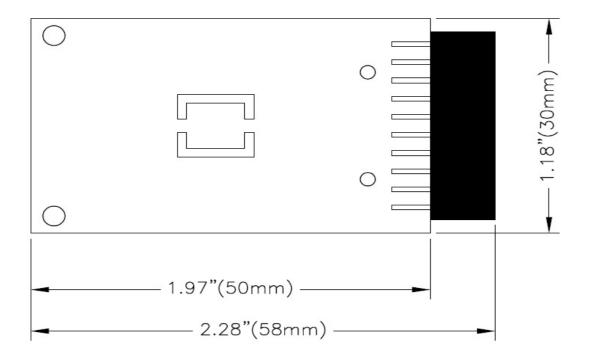


# Connector Pin Assignments (1<sup>2</sup>C Communications)

System Plug (Table 1)

Connector JP1						
Pin No.	Signal	Description	Pin No.	Signal	Description	
1	ID	Address	11	SDA	I2C Serial Data	
2	GND	Ground	12	SCL	I2C Serial Clock	
3	N/C	Not Connected	13	N/C	Not Connected	
4	N/C	Not Connected	14	N/C	Not Connected	
5	N/C	Not Connected	15	N/C	Not Connected	
6	N/C	Not Connected	16	N/C	Not Connected	
7	N/C	Not Connected	17	N/C	Not Connected	
8	N/C	Not Connected	18	N/C	Not Connected	
9	N/C	Not Connected	19	GND	Ground	
10	N/C	Not Connected	20	Vdd	Power Supply	

# Dimensions(mm)



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# **Detailed Description**

#### I<sup>2</sup>C Interface

The peripheral module can interface to the host being plugged directly into an Xplained Pro extension port (configured for I2C) through connector JP1

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#### **External Control Signals**

The IC operates as an  $I^2C$  slave using the standard 2 wire  $I^2C$  connection scheme. The IC is controlled either by the host (through the Xplained pro connector). In cases where one or more of the SCL and SDA signals are driven from an external source, resistors R1, R2 provide pull-up. However, this also increases the apparent load to the external driving source. If the external source is incapable of driving these loads, they should be removed.

#### Reference Material

- Detailed information regarding operation of the IC: TSYS02D Datasheet
- Detailed information regarding SAMD2x Driver: TSYS02D SAMD2x Driver
- Complete software sensor evaluation kit for Xplained Pro: TSYS02D SAMD2x Software

# **Ordering Information**

Description	Part Number
TSYS02D PERIPHERAL MODULE	DPP202A000

#### te.com/en/products/sensors.html

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#### PRODUCT SHEET

#### Contact us:

Measurement Specialties Inc – MEAS France Impasse Jeanne Benozzi CS 83 163 31027 Toulouse Cedex 3, FRANCE Tel:+33 (0)5 820.822.02 Fax:+33 (0)5.820.821.51 Sales: sales.tlse.fr@meas-spec.com
MEAS Website: http://www.meas-spec.com/DCS TBD

