

TSYS03 DIGITAL TEMPERATURE SENSOR

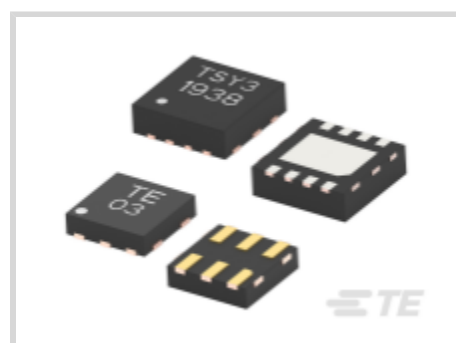


MEAS | MEAS TSYS

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Sensors > Temperature Sensors > Digital Temperature Sensors

The TSYS03 is a miniature digital temperature sensor that provides factory calibrated, highly accurate temperature data. Available in miniature (TDFN8) or ultra-small (XDFN6) surface mount package sizes.



Resolution: **16 bit**

Accuracy (at T_{ref}): **± .5 °C**

Output Interface: **I2C**

Supply Voltage: **2.4 - 5.5 V**

Supply Current (Max): **400 μA**

The device contains a durable temperature sensor element, A/D converter, and microcontroller to manage data communications via an I2C interface.

TSYS03 is available in a TDFN8 (2.5mm x 2.5mm) or a XDFN6 (1.5mm x 1.5mm) package size to easily adapt to the space available on a PC board. These packages are very small and have low thermal mass which provides a quick response to temperature changes. The operating and measurement temperature range is -40°C to +125°C with a resolution of ±0.01°C. Operating and sleep currents are extremely low, making this sensor ideal for mobile and battery power applications.

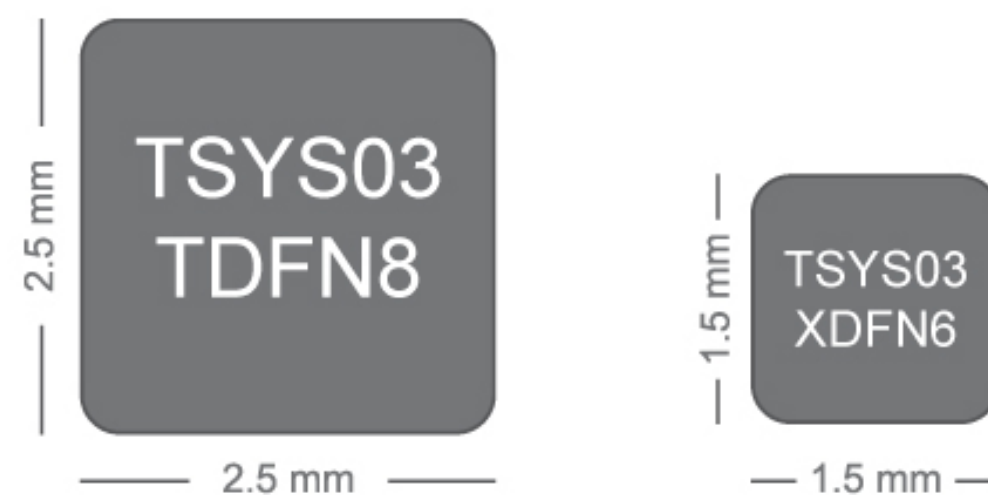
Featured Benefits

- High accuracy ±0.5°C
- Adjustment of high accuracy temperature range on request
- I²C interface up to 1MHz
- Programmable I²C address
- Low Supply Current < 5 μA (standby < 0.3 μA)
- Operating temperature range: -40°C to +125°C

Applications

- [Consumer goods and appliances](#)
- [HVAC](#) and weather stations
- [Industrial control](#) and food monitoring
- Vehicle battery monitoring
- [Medical probes and patient monitoring](#)

TSYS03 is available
in two different sizes



Smarter with Sensors

In this episode of our SMARTER WITH SENSORS video series our technical sensor expert will introduce the TSYS03 digital temperature sensor. Watch this short video to learn about the range applications where the TSYS03 is used, technical details, how the digital temperature sensor works and more.

APPLICATION NOTE

[Programming an Alternative I2C Address: TSYS03 \(English\)](#)

The TSYS03 digital temperature sensor offers the option to write an alternative I²C-address statically to the memory that will be used by the TSYS03 to communicate.



DEVELOPMENT BOARD

Thermo 20 Click Board™ from Mikroe™

The Thermo 20 Click (MIKROE-4316) from Mikroe features the TSYS03 digital temperature sensor and allows customers to evaluate the sensor and create reference designs easily. Click boards are plug-and-play modules designed to add extra functionality to existing development kits. These small, function-specific add-on modules all have a common interface to the mikroBUS™ adapter board. Reference design examples are provided to get the user started quickly.

Features

Product Type Features

Sensor Package	TDFN8, XDFN6
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Configuration Features

Electrical Connection	SMD
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Electrical Characteristics

Supply Voltage (V)	2.4 - 5.5
Supply Current (Max) (µA)	400

Dimensions

Product Length (mm)	1.5, 2.5
Product Length (in)	.059, .098
Product Width (mm)	1.5, 2.5
Product Width (in)	.059, .098
Product Height (mm)	.38, .75
Product Height (in)	.015, .03

Usage Conditions

Accuracy T_Range (°C)	-5 - 50
Operating Temperature Range (°C)	-40 - 125
Operating Temperature Range (°F)	-40 - 257
Accuracy (at T_ref) (°C)	± .5

Operation/Application



Output Interface	I2C
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Other

Resolution (bit)	16
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Reference Number

TE Internal Number	CAT-DTS0001
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SEE PRODUCTS ON NEXT PAGE

Products (1 of 1)



TSYS03 TEMP SENSOR TDFN8 2.5X2.5MM I2C



TSYS03 TEMP SENSOR XDFN6 1.5X1.5MM I2C

TE Part #	20011957-00	20011957-01
Sensor Package	TDFN8	XDFN6
Product Length	2.5 mm	1.5 mm
Product Width	2.5 mm	1.5 mm
Product Height	.75 mm	.38 mm
EU RoHS Directive 2011/65/EU	EU RoHS Compliant	EU RoHS Compliant
EU ELV Directive 2000/53/EC	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV
Product Families	MEAS	MEAS
Series	MEAS TSYS	MEAS TSYS

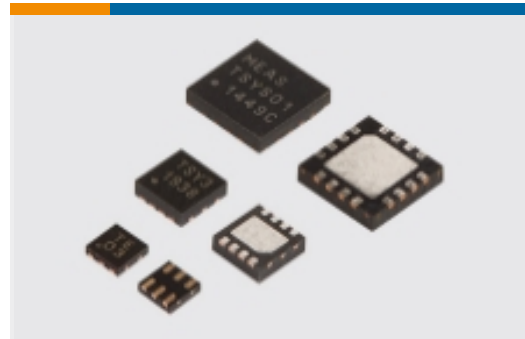
***EU RoHS Directive 2011/65/EU**

These products comply with the substance restrictions of the Restriction on Hazardous Substances Directive 2011/65/EU (RoHS2). The RoHS2 Directive requires that certain electrical and electronic equipment products do not contain mercury, cadmium, hexavalent chromium, PBB, PBDE, lead, DEHP, BBP, DBP and DIBP above defined thresholds. Products indicated as 'Compliant' do not contain any of these substances above the prohibition thresholds. Finished electrical and electronic equipment products will be CE marked as required by the Directive. Components may not be CE marked.

****EU ELV Directive 2000/53/EC**

These products comply with the substance restrictions of the End of Life Vehicles Directive 2000/53/EC (ELV). The ELV Directive requires that materials and components of vehicles do not contain mercury, cadmium, hexavalent chromium, and lead above defined thresholds. Products indicated as 'Compliant' do not contain any of these substances above the prohibition thresholds.

Also in the Series | MEAS TSYS



Digital Temperature Sensors(4)



Sensor Development Boards and Evaluation Kits(4)

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