

# TSYS02 Series Digital Temperature Sensor

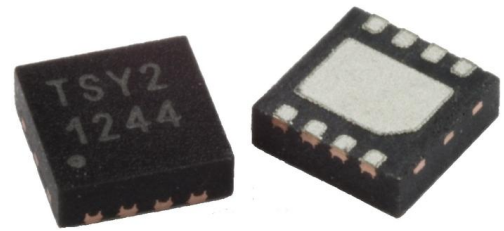
## Digital Temperature Sensor

±0.2°C Accuracy

16 bit Resolution

I<sup>2</sup>C/PWM/SDM Versions available

TDFN8 Package



The TSYS02 Series comprises three digital temperature sensor solutions.

The sensors are located in ultra small TDFN8 packages.

TSYS02 provides precisely temperature information via different output options.

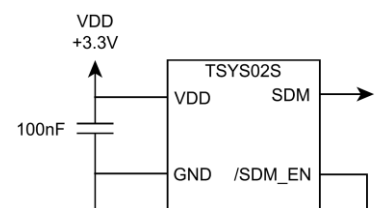
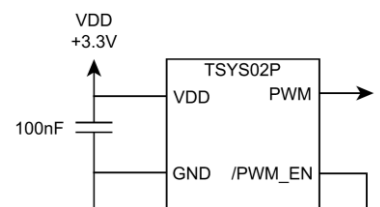
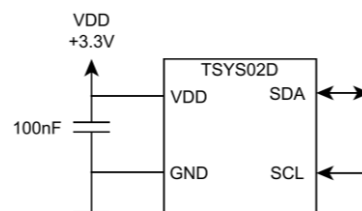
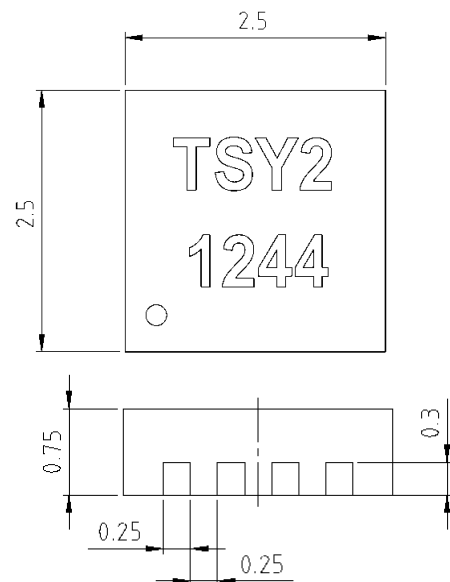
## FEATURES

- Temperature Range: -40°C ... +125°C
- Accuracy: ±0.2°C @ -5°C ... +50°C
- Output: I<sup>2</sup>C / PWM / SDM
  - I<sup>2</sup>C: TSYS02D  
Digital Interface
  - PWM: TSYS02P  
Pulse Width Modulation
  - SDM: TSYS02S  
Pulse sequence representing analogue voltage
- Small Dimensions TDFN8 2.5 x 2.5
- Low Power Consumption

## APPLICATIONS

- Replacement of Precision RTDs, Thermistors & NTCs
- Industrial Control
- Heating / Cooling Systems
- HVAC

## Dimensions (mm)

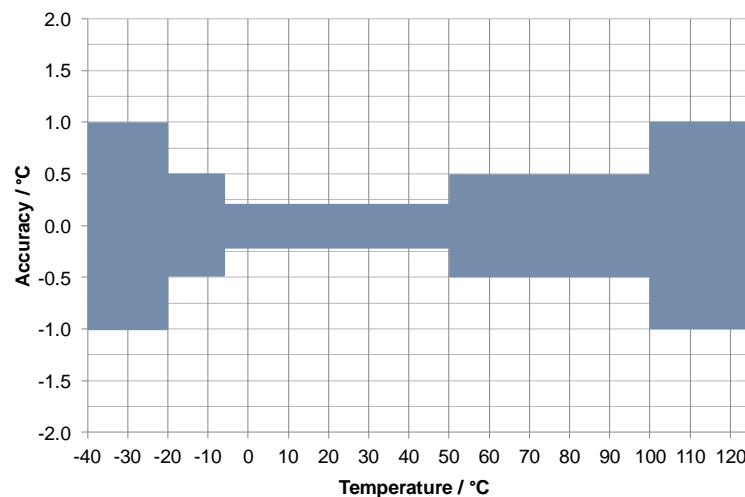


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## performance specifications

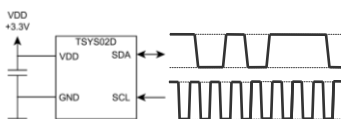
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Operating Supply Voltage	V <sub>DD</sub>	stabilized	1.5	3.3	3.6	V
Supply Current	I <sub>DD</sub>	1 sample per second		18		μA
Standby current	I <sub>s</sub>	No conversion, VDD = 3V T = 25°C T = 85°C		0.02 0.70	0.14 1.40	μA
Conversion time	T <sub>CONV</sub>			43		ms
Temp. Measurement Range	T <sub>RANG</sub>		-40		125	°C
Accuracy 1	T <sub>ACC1</sub>	-5°C < T < +50°C	-0.2		+0.2	°C
Accuracy 2	T <sub>ACC2</sub>	-20°C < T < +100°C	-0.5		+0.5	°C
Accuracy 3	T <sub>ACC2</sub>	-40°C < T < +125°C	-1.0		+1.0	°C
Temperature Resolution	T <sub>RES</sub>				0.01	°C

## accuracy

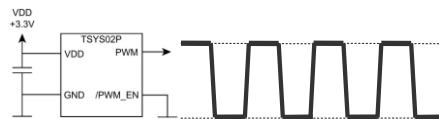


## application examples

### TSYS02D (I<sup>2</sup>C)



### TSYS02P (PWM)



### TSYS02S (SDM)



## ordering information

Part Number	Part Description	Interface	Detailed Datasheet
G-NIMO-003	TSYS02D	I <sup>2</sup> C	TSYS02D_datasheet
G-NIMO-004	TSYS02P	PWM	TSYS02P_datasheet
G-NIMO-005	TSYS02S	SDM	TSYS02S_datasheet

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