

TSYS02 Series Digital Temperature Sensor

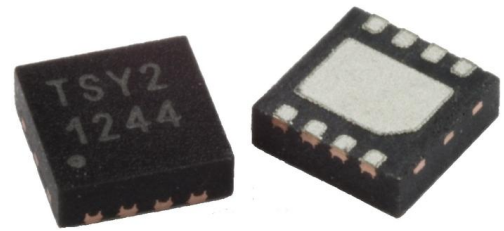
Digital Temperature Sensor

±0.2°C Accuracy

16 bit Resolution

I²C/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.

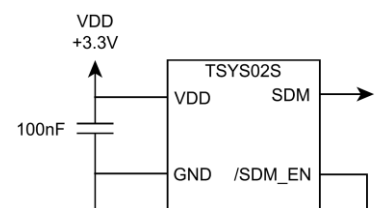
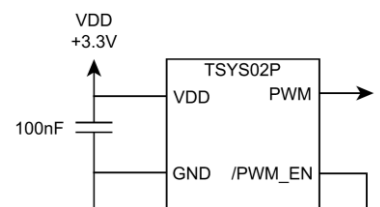
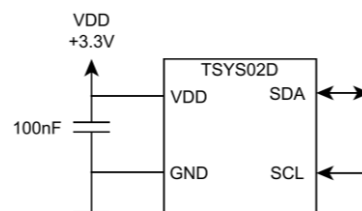
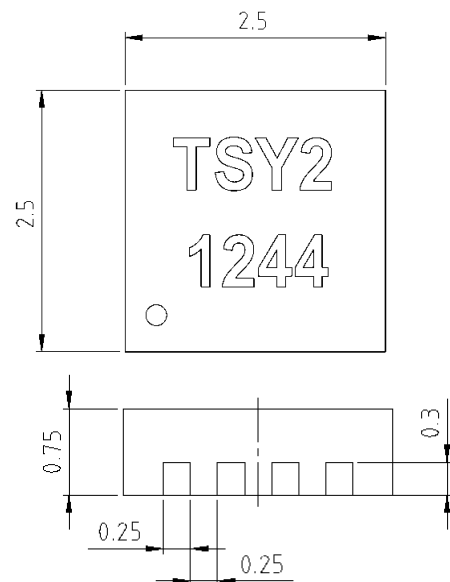
FEATURES

- Temperature Range: -40°C ... +125°C
- Accuracy: ±0.2°C @ -5°C ... +50°C
- Output: I²C / PWM / SDM
 - I²C: 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)

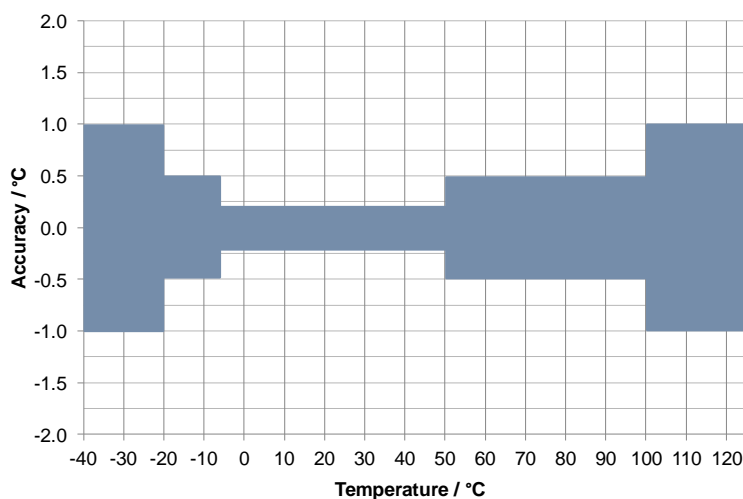


TSYS02 Series Digital Temperature Sensor

performance specifications

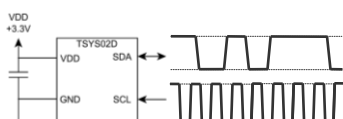
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Operating Supply Voltage	V _{DD}	stabilized	1.5	3.3	3.6	V
Supply Current	I _{DD}	1 sample per second		18		μA
Standby current	I _S	No conversion, V _{DD} = 3V T = 25°C T = 85°C		0.02 0.70	0.14 1.40	μA μA
Conversion time	T _{CONV}			43		ms
Temp. Measurement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

accuracy



application examples

TSYS02D (I²C)



TSYS02P (PWM)



TSYS02S (SDM)



ordering information

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

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.