TSYS02 Series Digital Temperature Sensor
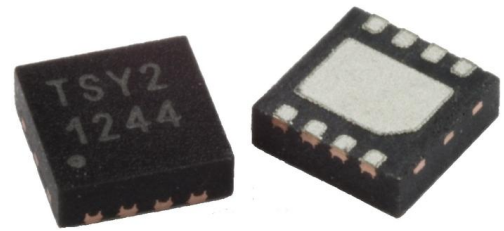
measurement
S P E C I A L T I E S™

Digital Temperature Sensor
±0.2°C Accuracy
16 bit Resolution
I^{2}C/PWM/SDM Versions available
TDFN8 Package

✓RoHS

The TSYS02 Series compromises three digital temperature sensor solutions.

The sensors are located in ultra small TDFN8 packages.

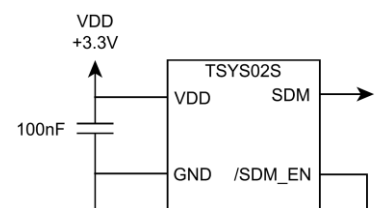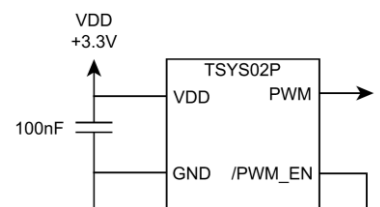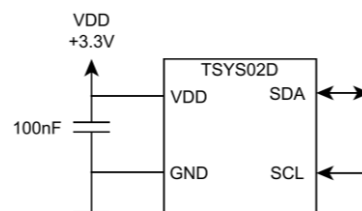TSYS02 provides precisely temperature information via different output options.
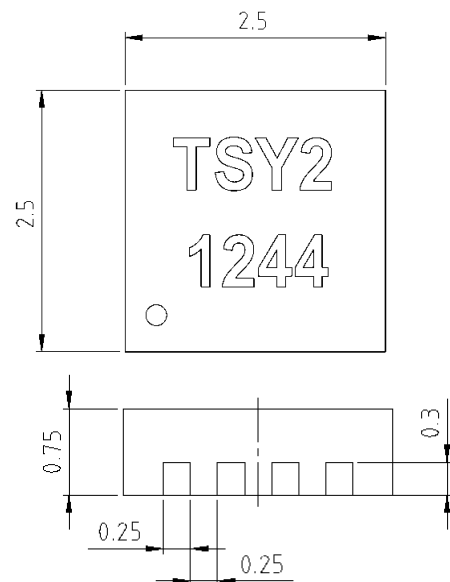
Dimensions (mm)

FEATURES

- Temperature Range: -40°C … +125°C
- Accuracy: ±0.2°C @ -5°C … +50°C
- Output: I^{2}C / PWM / SDM
  - I^{2}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

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, VDD = 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
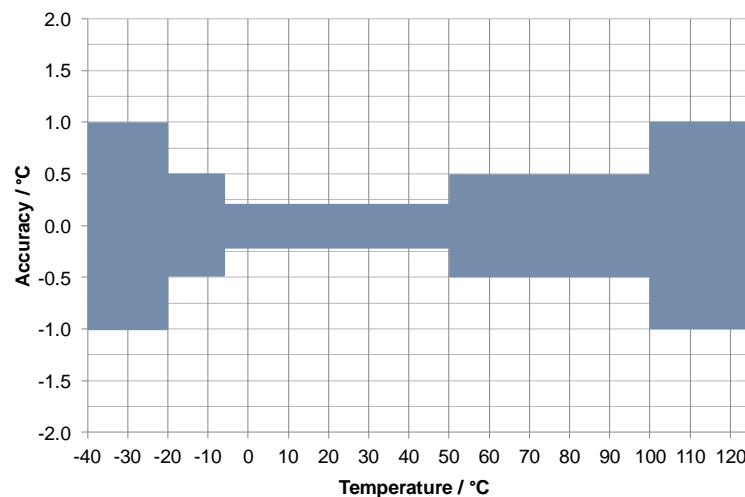
application examples

TSYS02D (I^{2}C)
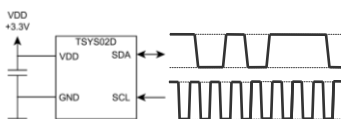
TSYS02P (PWM)
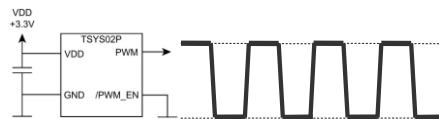
TSYS02S (SDM)

ordering information

Part Number	Part Description	Interfae	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