



# TSic™ 206/203/201/306/303/301

## Temperature Sensor IC



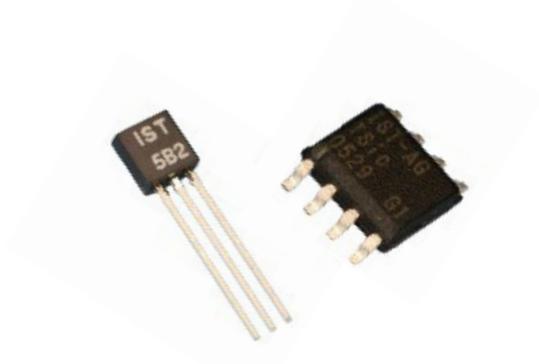
INNOVATIVE SENSOR TECHNOLOGY

### For a fully calibrated and accurate low power temperature measurement

### Benefits & Characteristics

- Fully calibrated
- Outstanding accuracy of +/- 0.3 K (TSic™ 30x)
- Very low power consumption
- Excellent long-term stability
- Custom calibration and assembly available
- Accuracy range of 80 K can be shifted (default: 10 °C to 90 °C)
- Available with digital, analog and ratiometric output signal

### Illustration



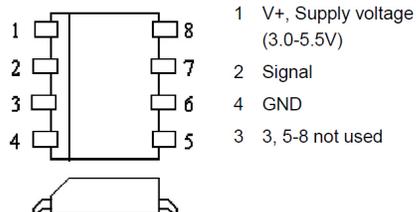
### Technical Data

Operating temperature range:*	-50 °C to +150 °C (+/- 3 °C of measurement limits)
Accuracy:*	TSic 20x +/- 0.5 K in the range of 10 °C to 90 °C (other ranges on request) TSic 30x +/- 0.3 K in the range of 10 °C to 90 °C (other ranges on request)
Resolution:*	0.1 K
Sampling rate:*	10 Hz
Supply voltage:	V+ = 3 V to 5.5 V, high precision operation in range V+ = 4.5 V to 5.5 V
Supply current:	typ. 30 µA at 25 °C and V+ = 3.3 V for minimal self-heating
Packaging:*	SOP-8 or TO92 (other packaging on request)

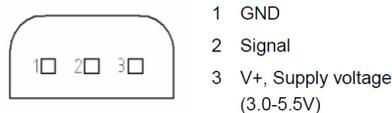
\* Customer specific alternatives available

Packaging pin assignment:	Pin 1	Pin 2	Pin 3	Pin 4
SOP-8 (5, 6, 7 and 8 not used)	V+, Supply voltage (3 V to 5.5V)	Signal	Not used	GND
TO92	GND	Signal	V+, Supply voltage (3 V to 5.5 V)	

#### SOP-8:



#### TO92:





# TSic™ 206/203/201/306/303/301

## Temperature Sensor IC

### For a fully calibrated and accurate low power temperature measurement



INNOVATIVE SENSOR TECHNOLOGY

Absolute max. rating	Min	Max
Supply voltage (V <sup>+</sup> )	-0.3 V	6 V
Voltages to analog I/O – Pins (V <sub>INA</sub> , V <sub>OUTA</sub> )	-0.3 V	V <sub>DDA</sub> +0.3 V
Storage temperature range (T <sub>STOR</sub> )	-20 °C	80 °C

Operating conditions	Min	Typ	Max
Supply voltage to GND (V <sup>+</sup> )	2.97 V	5 V	5.5 V
Supply current (I <sub>V+</sub> ) @ V <sup>+</sup> = 3.3 V, RT	25 µA	30 µA	60 µA
Operating temperature range (T <sub>amb</sub> )	-50 °C		+150 °C
Output load capacitance (C <sub>L</sub> )			15 nF
External capacitance between V <sup>+</sup> and GND <sup>1)</sup> (C <sub>V+</sub> )	100 nF (recommended)		
Output load resistance between signal and GND (or V <sup>+</sup> )	47 kOhm		

Temperature accuracies <sup>2)</sup>	TSic 30x	TSic 20x
T1: +10 °C to 90 °C	+/- 0.3 K	+/- 0.3 K
T2: -20 °C to +110 °C	+/- 0.6 K	+/- 1 K
T3: -50 °C to +150 °C	+/- 1.2 K	+/- 2 K

<sup>1)</sup> Recommended as close to TSic V<sup>+</sup> and GND-Pins as possible

<sup>2)</sup> The sensor is calibrated at 5 V. The provided accuracy is applicable for a supply voltage between 4.5 V and 5.5 V. The accuracy is smaller with a supply voltage between 2.97 V and 4.5 V. For applications where the best accuracy at 3 V is requested, ask for a custom specific 3 V calibrated device. Other TSic™ products with custom specific calibrations are available upon request e.g. other temperature range for high accuracy. Accuracy at delivery; the assembly method can influence the accuracy!

### Order Information - SOP-8

Output signal	Analog	Analog ratiometric	Digital, ZACWire protocol
201/203/206	TSic 201 SOP-8	TSic 203 SOP-8	TSic 206 SOP-8
Order code	030.00038	030.00060	030.00005
301/303/306	TSic 301 SOP-8	TSic 303 SOP-8	TSic 306 SOP-8
Order code	030.00036	030.00024	030.00006



# TSic™ 206/203/201/306/303/301

## Temperature Sensor IC

For a fully calibrated and accurate low power temperature measurement



INNOVATIVE SENSOR TECHNOLOGY

### Order Information - TO92

---

Output signal	Analog	Analog ratiometric	Digital, ZACWire protocol
201/203/206	TSic 201 TO92	TSic 203 TO92	TSic 206 TO92
Order code	030.00056	030.00095	030.00049
301/303/306	TSic 301 TO92	TSic 303 TO92	TSic 306 TO92
Order code	030.00047	030.00074	030.00044

### Additional Electronics

---

Labkit

Document name:

DTTSicLABkit\_E



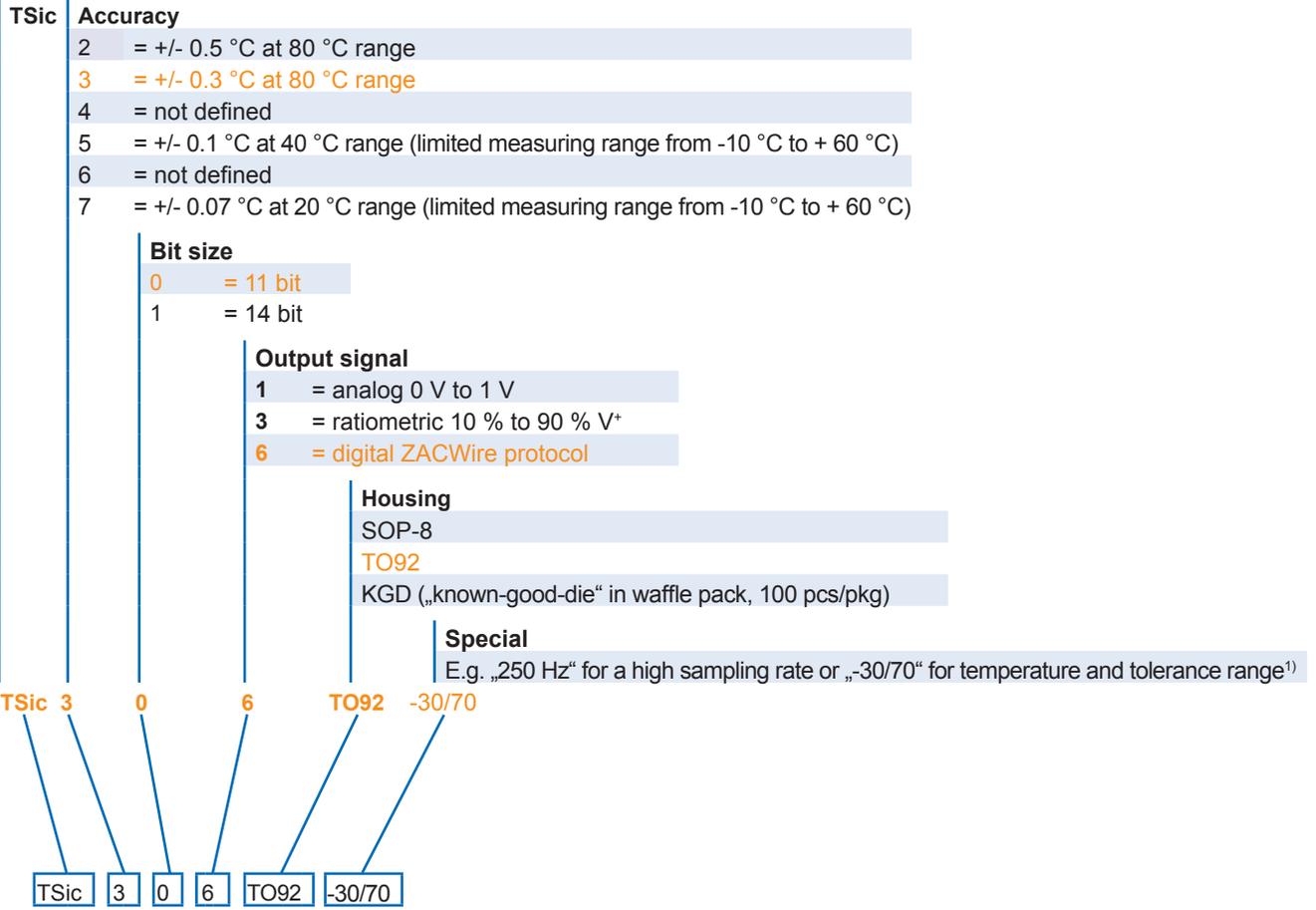
# Order Information

## Temperature Sensor IC

### Secondary reference



INNOVATIVE SENSOR TECHNOLOGY



1) Standard: no value

DTTSic20x\_30x\_E2.1



INNOVATIVE SENSOR TECHNOLOGY

Innovative Sensor Technology IST AG, Stegrütistrasse 14, CH-9642 Ebnet-Kappel, Switzerland,  
 Phone: +41 (0) 71 992 01 00 | Fax: +41 (0) 992 01 99 | E-mail: info@ist-ag.com | Web: www.ist-ag.com



All mechanical dimensions are valid at 25 °C ambient temperature, if not differently indicated • All data except the mechanical dimensions only have information purposes and are not to be understood as assured characteristics • Technical changes without previous announcement as well as mistakes reserved • The information on this data sheet was examined carefully and will be accepted as correct; No liability in case of mistakes • Load with extreme values during a longer period can affect the reliability • The material contained herein may not be reproduced, adapted, merged, translated, stored, or used without the prior written consent of the copyright owner • Typing errors and mistakes reserved • Product specifications are subject to change without notice • All rights reserved