



TSic™ 206/203/201/306/303/301

Temperature Sensor IC



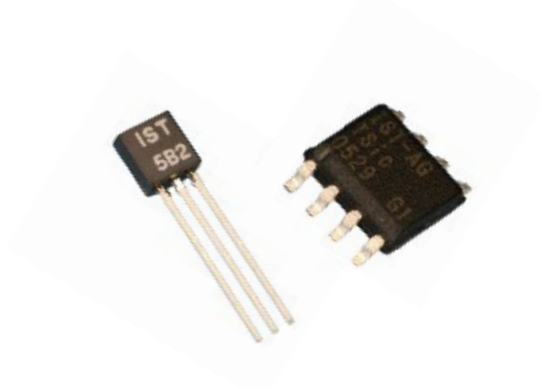
INNOVATIVE SENSOR TECHNOLOGY

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



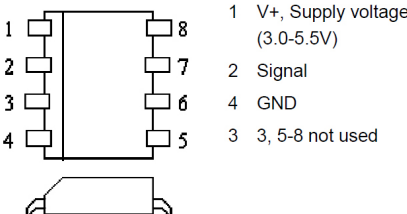
Technical Data

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 μ A at 25 °C and $V^+ = 3.3$ V for minimal self-heating
Packaging:*	SOP-8 or TO92 (other packaging on request)

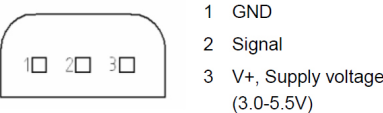
* Customer specific alternatives available

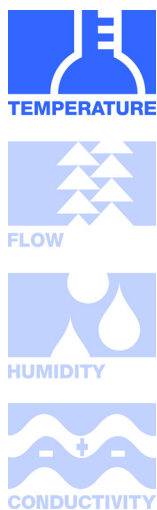
Packaging pin assignment:	Pin 1	Pin 2	Pin 3	Pin 4
SOP-8 (5, 6, 7 and 8 not used)	V^+ , Supply voltage (3 V to 5.5V)	Signal	Not used	GND
TO92	GND	Signal	V^+ , Supply voltage (3 V to 5.5 V)	

SOP-8:



TO92:





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

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

Temperature accuracies ²⁾	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

¹⁾ Recommended as close to TSic V⁺ and GND-Pins as possible

²⁾ 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



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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



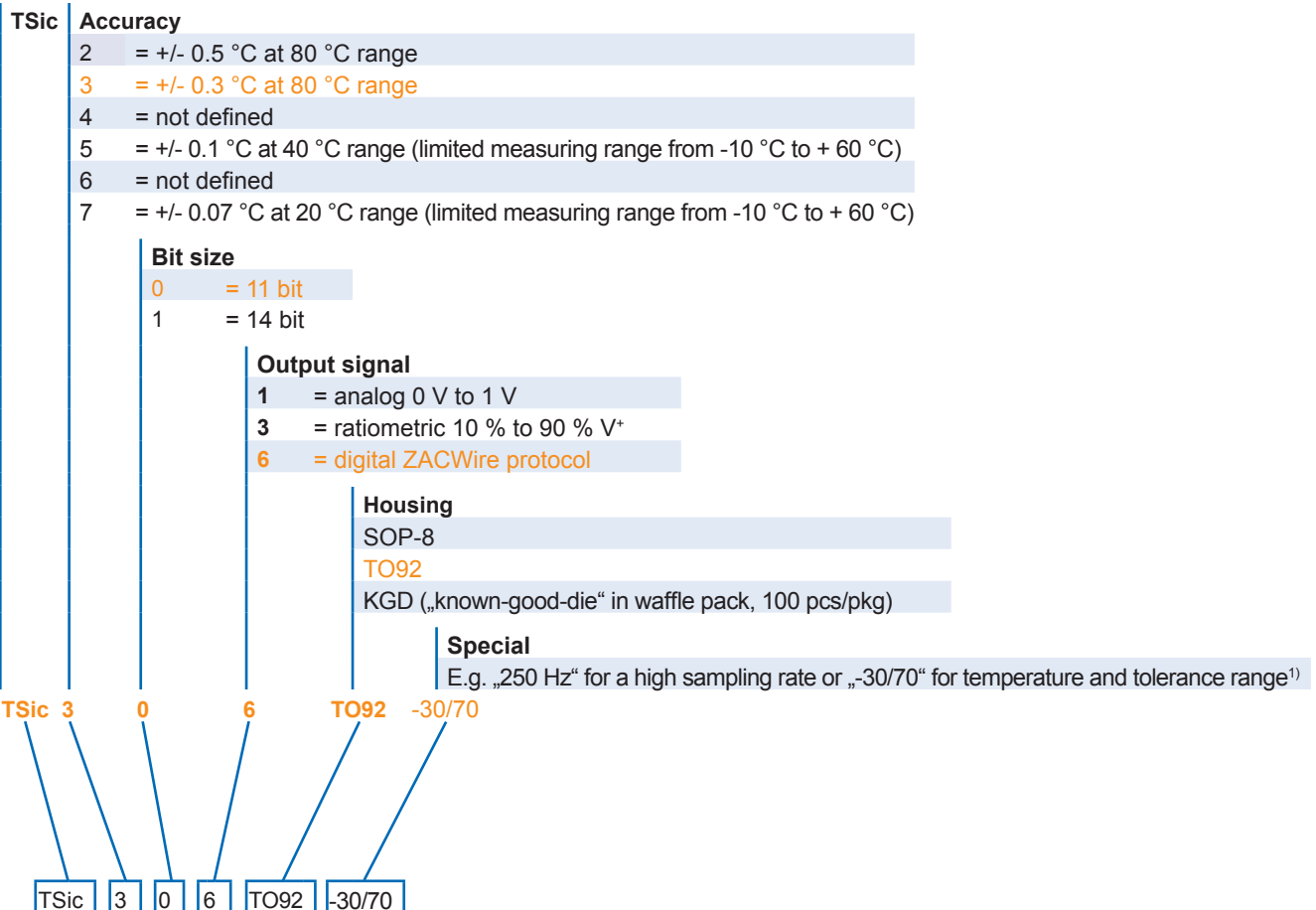
Order Information

Temperature Sensor IC

Secondary reference



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1) Standard: no value

DTTSic20x_30x_E2.1



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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