



TSic™ 506F/503F/501F

Temperature Sensor IC

For a fully calibrated and very accurate low power temperature measurement



INNOVATIVE SENSOR TECHNOLOGY

Benefits & Characteristics

- Fully calibrated
- Outstanding accuracy of +/- 0.1 K
- Very low power consumption
- Excellent long-term stability
- Custom calibration and assembly available
- Available with digital, analog and ratiometric output signal
- Accuracy range of 40 K can be shifted (default: 5 °C to 45 °C)

Illustration



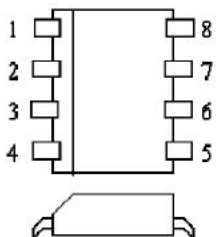
Technical Data

Operating temperature range:*	-10 °C to +60 °C (+/- 3 °C of measurement limits)
Accuracy:*	+/- 0.1 K in the range of 5 °C to 45 °C (other ranges upon request)
Resolution:*	0.034 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

* Customer specific alternatives available

Packaging pin assignment:	Pin 1	Pin 2	Pin 3	Pin 4
SOP-8	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:



- 1 V+, Supply voltage (3.0-5.5V)
- 2 Signal
- 4 GND
- 3 3, 5-8 not used

TO92:



- 1 GND
- 2 Signal
- 3 V+, Supply voltage (3.0-5.5V)



TSic™ 506F/503F/501F

Temperature Sensor IC

For a fully calibrated and very accurate low power temperature measurement



INNOVATIVE SENSOR TECHNOLOGY

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}):	-10 °C		+60 °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⁾

T1: 5 °C to 45 °C	+/- 0.1 K
T2: -10 °C to 60 °C	+/- 0.2 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
501/503/506	TSic 501F SOP-8	TSic 503F SOP-8	TSic 506F SOP-8
Order code	030.00034	030.00054	030.00007



TSic™ 506F/503F/501F

Temperature Sensor IC

For a fully calibrated and very accurate low power temperature measurement



INNOVATIVE SENSOR TECHNOLOGY

Order Information - TO92

Output signal	Analog	Analog ratiometric	Digital, ZACWire protocol
501/503/506	TSic 501F TO92	TSic 503 TO92 5V	TSic 506F TO92
Order code	030.00046	030.00115	030.00045

Additional Electronics

Labkit Document name:
 DTTSicLABkit_E



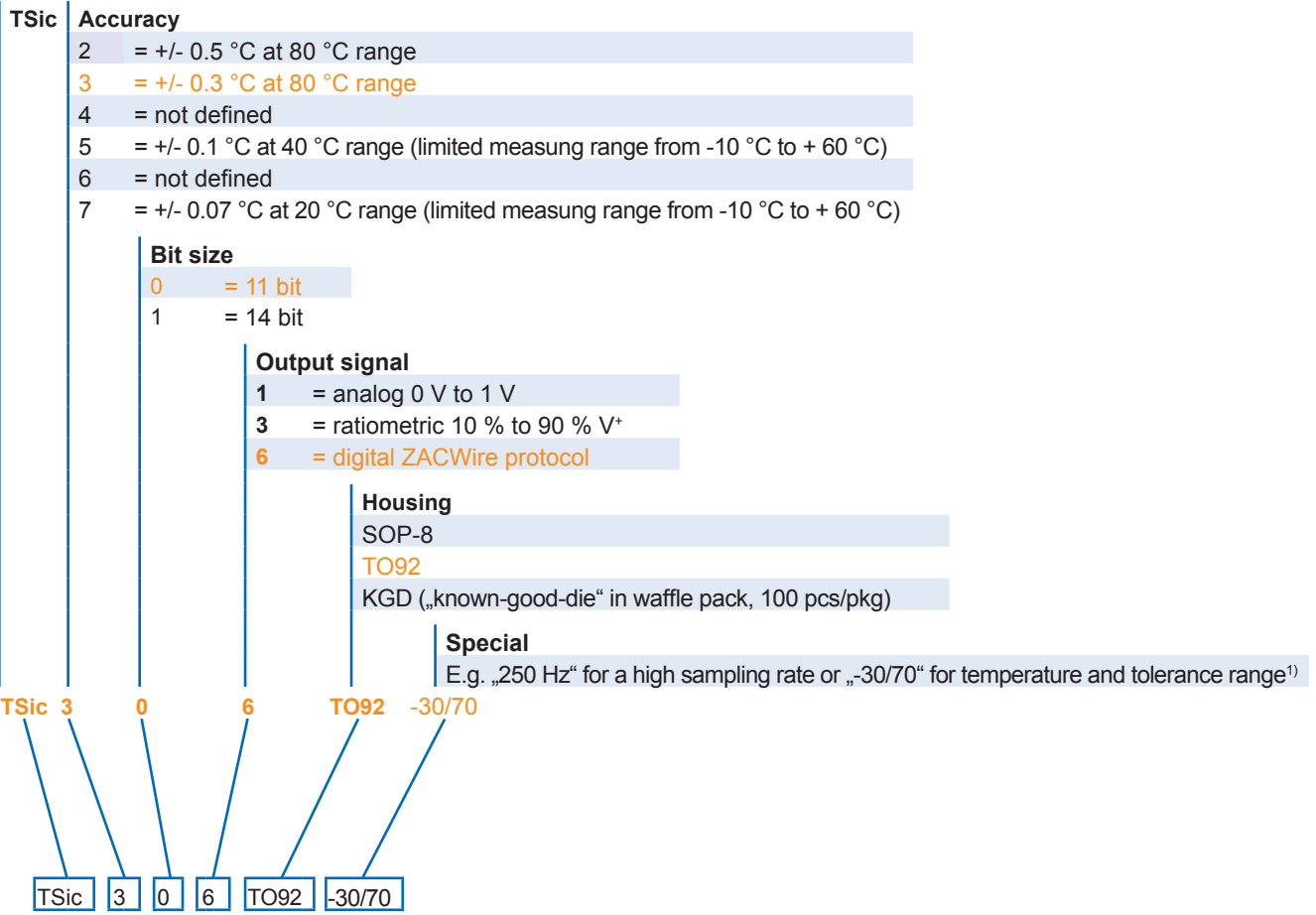
Order Information

Temperature Sensor IC

Secondary reference



INNOVATIVE SENSOR TECHNOLOGY



1) Standard: no value

DTT Sic50x_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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Board Mount Temperature Sensors](#) category:

Click to view products by [1st Innovative Sensor](#) manufacturer:

Other Similar products are found below :

[5962-8757102XA](#) [66F115](#) [MCP9808-EMS](#) [MCP98242T-BEMNY](#) [MCP9843T-BEMC](#) [EMC1063-1-ACZL-TR](#) [NCT218FCT2G](#)
[O53GAB175A-160Y](#) [OH10/62,112](#) [3610085020002](#) [389049M9527](#) [TC622EAT](#) [TC6501P095VCTTR](#) [TC6501P105VCTTR](#)
[TC6501P125VCTTR](#) [MCP9802A0T-M/OT](#) [MCP9803T-M/SN](#) [MCP9843-BEST](#) [TC6501P115VCTTR](#) [TC6502P065VCTTR](#)
[ADM1023ARQZ-REEL](#) [ADM1024ARUZ-REEL](#) [ADM1032ARMZ-1RL](#) [AT30TS74-U1FMBB-T](#) [AT30TS74-U1FMAB-T](#) [AT30TS74-](#)
[U1FMCB-T](#) [AT30TS74-U1FMDB-T](#) [ADT7483AARQZ-RL](#) [ADT7481ARMZ-REEL](#) [ADT7463ARQZ-REEL](#) [MCP98243T-BEMNY](#)
[MCP98243T-BE/MC](#) [66L080-0226](#) [MAX31820MCR+T](#) [MAX1452CAEC8H](#) [DS1780E](#) [TMP05BKSZ-REEL7](#) [5962-8757103XA](#) [WTK-14-](#)
[36/N](#) [E52-CA6D-N 4M](#) [MCP98244T-BEMNY](#) [MCP9802A5T-MOT](#) [MAX6581TG9A+T](#) [DS75S-C11+T&R](#) [S-58LM20A-I4T1U](#)
[MAX6501UKP120+T](#) [MCP98243T-BE/ST](#) [AT30TS01-MAA5M-T](#) [NCT375DR2G](#) [DS18S20-SL+T&R](#)