TSic™
High Precision Temperature Sensor IC

Features

- Best accuracy on the market (±0.1°C)
- Fast response
- Long-term stability
- Calibrated, ready to use
- Output: absolute analog voltage (0 to +1V) or digital one-wire (11bit)
- Supply voltage +2.97 to +5.5V for TSic 106, 206, 306; +4.5 to +5.5V for TSic 101, 201, 301, 506
- Low current consumption (typ. 45µA)
- Measurement range –50 to +150°C
- Different accuracy classes available (with 100% upward compatibility)
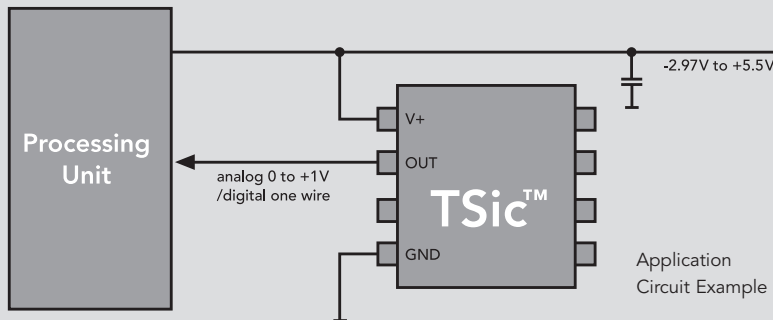- Available in different packages (TO92, SOP8, COF) or as bare die

Benefits

- No external trimming components needed
- No calibration by customer necessary
- Small, simple to integrate
- Ideal for portable and battery operated applications

Brief Description

TSic™ is a leading-edge digital temperature sensor IC, combining outstanding accuracy with fast response and long-term stability.
The device is very simple to use, fully tested and calibrated for accuracy on delivery – no further calibration is needed.
TSic™ is available in different accuracy classes and provides an absolute analog voltage output (0 to +1V) or an 11bit digital output at the one-wire serial interface.
TSic™ is specifically designed for high-performance, cost-effective temperature sensing in medical instruments, industrial process control, automobiles, building automation, white goods, office equipment and mobile measurement devices.

- Samples and TSic™ LABkit available
- Application support available
- Customized calibration possible

Processing Unit

V+

OUT

analog 0 to +1V /digital one wire

GND

-2.97V to +5.5V

TSic™

Application Circuit Example

Based on IST Calibration Technology

INNOVATIVE SENSOR TECHNOLOGY

Product Version	Resolution	T-Range 1	Accuracy 1	T-Range 2	Accuracy 2	T-Range 3	Accuracy 3
TSic 101/106	0.1°C	+15°C to +25°C	< ±0.5°C	0°C to +40°C	< ±1.0°C	-50°C to +150°C	no limits, typ. ±1.5°C
TSic 201/206	0.1°C	+10°C to +90°C	< ±0.5°C	-20°C to +110°C	< +0.95°C > -0.5°C	-50°C to +150°C	< +2.0°C > -0.5°C
TSic 301/306	0.1°C	+10°C to +90°C	< ±0.3°C	-20°C to +110°C	< +0.95°C > -0.3°C	-50°C to +150°C	< +2.0°C > -0.3°C
TSic 506	0.034°C	+5°C to +45°C	< ±0.1°C	-5°C to +55°C	< +0.2°C > -0.1°C	-10°C to +60°C	< +0.3°C > -0.1°C

TSic™ Applications

Application Fields	Application Examples	TSic Recommendations
Industrial process control	liquid- and gas monitoring	TSic 20X, 30X, 506
IT	processor chip and hard disk monitoring	TSic 106, 206
Consumer products	cellphones, PDAs, table weather stations	TSic 106, 206
White goods	refrigerators, washing machines, dish washers	TSic 10X, 20X, 30X
Food logistics	dataloggers, T-probes	TSic 10X, 20X, 30X
HVAC	thermostats	TSic 10X, 20X
Medical instrumentation	thermometers, respirators, incubators	TSic 306, 506
Automotive	climate control, engine control	TSic 10X, 20X

TSic™ LABkit

- Provides fast TSic™ evaluation and demonstration
- PC-connectable via USB
- Contains USB module, 4 wired TSic™ devices,
  CD-ROM with software & documentation, USB cable
- Drives up to 4 TSic™ devices in parallel
- Displays actual temperatures, minima, maxima, averages
- Including TSic™ Recording Software for Microsoft Excel™

TSic™ Ordering Code

Example:	TSic 506 FST

Accuracy Code
(as shown in table on front side)

Output Type
1 … analog voltage 0 to +1V
6 … 11bit digital serial interface

Operating Temperature Range
W … wide (-50 to +150 °C)
F … focused (-10 to +60 °C)

Not all possible ordering code combinations are available.
Please ask ZMD Sales for availability.

Delivery Form
T … Tube (only for SOP8)
B … Bulk (only for TO92 and COF)
On request
U … Unsawn wafer (only for TSic 10X, 20X)

Package Type
S … SOP8
T … TO92
C … COF
D … Bare die

SOP8

TO92

COF

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