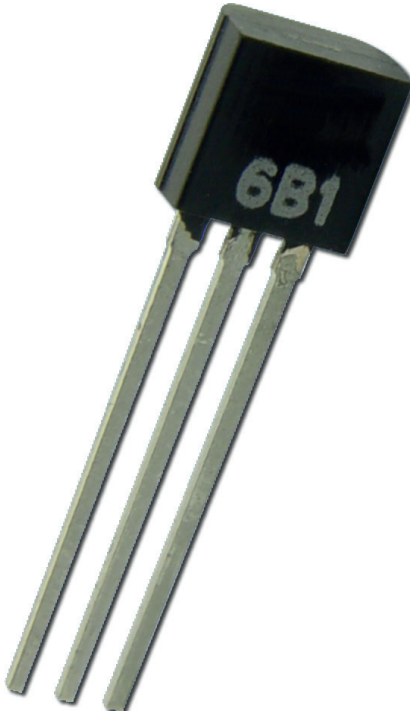


## TSIC™ Digital semiconductor temperature sensor TSIC 506, with ZACwire communication

### Description



### Characteristic features

- Temperature range -10 - +60 °C
- Highly precise accuracy  $\pm 0.1^\circ\text{C}$
- High-resolution
- TO92-Housing
- Fast response behaviour
- Excellent long term stability
- Minimum development cost and time
- Simple integration, ZACwire-interface

### Typical areas of application

- Measuring and control systems
- Medical applications
- Temperature monitoring
- Battery operated systems
- Industrial measuring systems

### Features

TSIC™ temperature sensors are known for its high accuracy, fast response behaviour and also its special long term stability. Different than the 206 and 306 models this model offers a highly precise accuracy of  $\pm 0.1^\circ\text{C}$  at  $40^\circ\text{C}$ . And this sensor is more accurate than a 1/3 DIN B platinum-sensor. Even if the cable is longer ( $>10\text{m}$ ) the accuracy stays in between the specialised accuracy limits. Through the digital interface, connection to a micro-controller is very simple, otherwise an additional analog-digital converter is required.

The sensors are calibrated, hence any further adjustment work by the device manufacturer or the customer is not necessary. These innovative semiconductor sensors are powerful and cost effective solution for temperature measurements in industrial measurement and regulation systems. This model allows the installation in stainless steel and other probe tubes and is advisably used in highly precise applications.

### Technical data

Digital temperature sensor	
Measuring range	-10°C ... +60 °C
Connection	Digital connection, 11 Bit, ZACwire
Accuracy (at 40 °C)	TSic 506 $\pm 0.1^\circ\text{C}$
Resolution	0.034°C
Measuring rate	10 Hz
Operating voltage	2,97 ... 5,5 V
Operating current (at 3,3 V)	Typ. 30µA at 25 °C
Load at output	$RL > 47 \text{ k}\Omega < 15 \text{ nF}$
VDD Capacitor	80 ... 470 nF
Housing	3-pin TO92 (wire terminals)

# DATA SHEET

## TSIC™ Digital semiconductor temperature sensor TSIC 506, with ZACwire communication

Digital temperature value

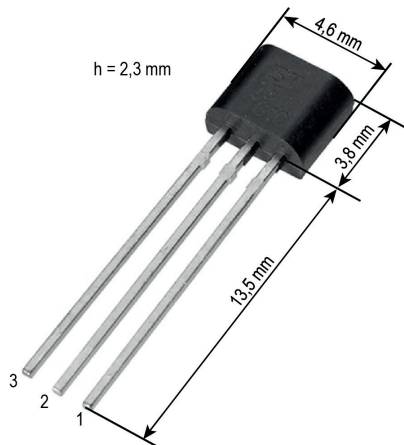
Measuring range -10 ... +60 °C / 14 ... 140 °F		
Temp(°C)	Temp (°F)	digital
≤-10	≤ 14	0x000
0	32	0x124
25	77	0x3FF
≥ 60	≥ 140	0x7FF

Temperature accuracy TSIC 506

Parameter	Min	Typ	Max	Einheit
T1: +5 ... +45 °C	-0,1	±0,07	0,1	°C
T2: -5 ... +5 °C	-0,2	0,1	0,2	°C
T3: +45 ... +55 °C	-0,2	0,1	0,2	°C

Genauigkeitsangabe als 2σ Wert zuzüglich 1 digit Quantisierungsfehler

TO92-Housing



Small THT Housing, TO92 type

Pin Nr.	Name	Description
1	V+	Operating voltage (3 ... 5,5 V)
2	Signal	Temperature ZACwire
3	Gnd	Ground