DATA SHEET

TSIC™ Digital Semiconductor
Temperature Sensors TSIC 206 / 306, with ZACwire communication

Description

Characteristic features

- Fast response behaviour
- Excellent long term stability
- Accuracy 0.5 / 0.3 K (TSic 206 / 306)
- Wider temperature range 50 ... +150 °C
- Compact housing TO92 / SO8
- Minimum development cost and time
- Simple integration, ZACwire-interface

Typical areas of applications

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

Technical data

Digital Temperature sensors		
Measuring range	-50 ... +150 °C	
Connection	Digital connection, 11 Bit, ZACwire	
Accuracy (in range 10 ... 90 °C)	TSic 206 TSic 306	±0.5 K ±0.3 K
Resolution	0.1 K	
Measuring rate	10 Hz	
Operating voltage	2.97 ... 5.5 V	
Operating current (at 3.3 V)	< 80 µA at 25 °C (30 ... 80 µA)	
Load at output	R_L > 10 kOhm C_L < 10 nF	
V_{DD} Capacitor	80 ... 470 nF	
Housing	3-pin TO92 (wire terminals) or 8-pin SO8 (SMD)	

Article no.	
Digital Semiconductor-temperature sensor TSIC206, TO92-Housing	TSIC206-TO92
Digital Semiconductor-temperature sensor TSIC206, S08-Gehäuse	TSIC206-S08
Digital Semiconductor-temperature sensor TSIC306, TO92-Gehäuse	TSIC306-TO92
Digital Semiconductor-temperature sensor TSIC306, S08-Gehäuse	TSIC306-S08

Features

TSIC™ temperature sensors are known for its high accuracy, fast response behaviour and also its special long term stability Against other semiconductor temperature sensors, they offer an extended measuring range of -50... 150 °C with a resolution of 0.1K.
Through the digital ZACwire-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.

B+B Thermo-Technik GmbH | Heinrich-Hertz-Straße 4 | D-78166 Donaueschingen
Fon +49 771 83160 | Fax +49 771 831650 | info@bb-sensors.com | bb-sensors.com

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Digital Temperature value

Measuring range –50 .. +150 °C / -58 ..+302 °F		
Temp (°C)	Temp (°F)	Tsic 206 / 306 (digital)
-50	-58	0x000
-10	14	0x199
0	32	0x200
25	77	0x2FF
60	140	0x465
125	257	0x6FE
150	302	0x7FF

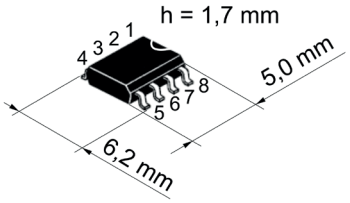
Temperature accuracy TSIC 206

Parameter	Max	Units
T1: +10 ... 90 °C	±0.5	K
T2: -20 ... 110 °C	±1.0	K
T3: -50 ... 150 °C	±2.0	K

Temperature accuracy TSIC 306

Parameter	Max	Units
T1: +10 ... 90 °C	±0.3	K
T2: -20 ... 110 °C	±0.6	K
T3: -50 ... 150 °C	±1.2	K

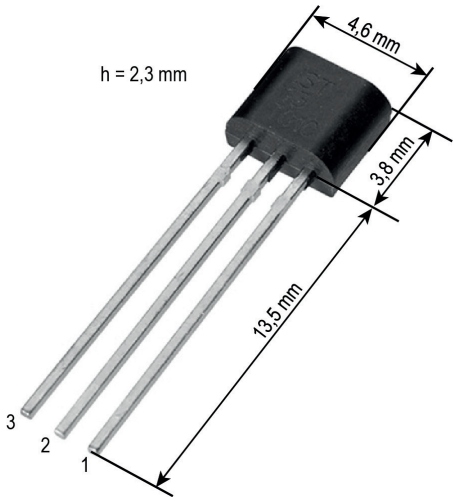
SO8-Housing



SO8 Housing (150 mil, Standard SMT Technology, SOIC-8) as per IEC 191-2Q: Type 076E35 B

Pin Nr.	Name	Description
1	V+	Operating voltage (3 ... 5.5 V)
2	Signal	Temperature ZACwire
4	Gnd	Ground
3, 5 - 8	TP/NC	Test Pin / NC (not connected)

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