



TSic 301

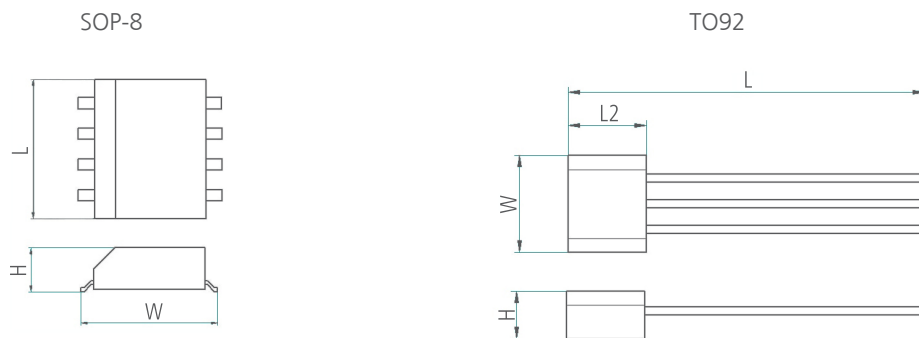
Temperature Sensor IC

For a fully calibrated and accurate low power temperature measurement

Benefits & Characteristics

- Fully calibrated
- Very low power consumption
- Accuracy of ± 0.3 K
- Excellent long-term stability
- Accuracy range of 80 K can be shifted (default: $+10$ °C to $+90$ °C)

Illustration



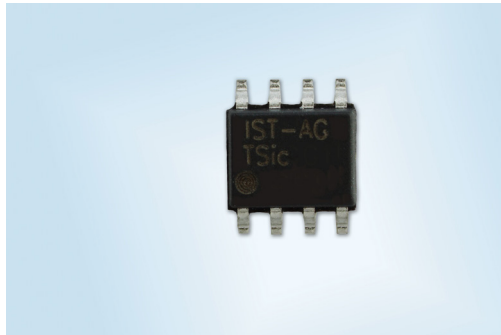
Technical Data

Dimensions (L / L2 x W x H in mm): ²⁾	SOP-8	4.93 x 5.99 x 1.63
	TO92	17.30 / 3.81 x 4.57 x 2.3
Operating temperature range:*	-50 °C to +150 °C (-47 °C to +147 °C guaranteed)	
Accuracy:*	± 0.3 K in the range of $+10$ °C to $+90$ °	
Resolution:*	0.1 K	
Sampling rate:*	10 Hz	
Supply current:	typ. 30 μ A at 25 °C and $V_{dd} = 3.3$ V for minimal self-heating	
Packaging:*	SOP-8 or TO92	
Output signal:	Analog - see application note ATTSic_E	

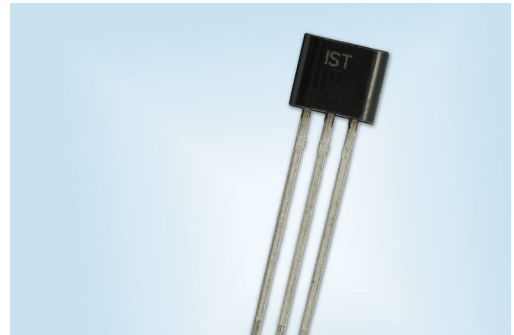
2) For tolerances, see Application Note



Product Photo

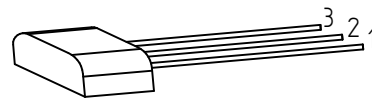
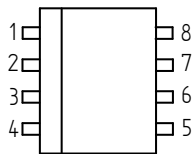


SOP-8



TO92

Pin Assignment



	Pin 1	Pin 2	Pin 3	Pin 4
SOP-8 (3, 5, 6, 7 and 8 not connected)	V_{dd} Supply voltage (3 V to 5.5 V)	Signal		GND
TO92	GND	Signal	V_{dd} Supply voltage (3 V to 5.5 V)	

Absolute maximal ratings

	Min	Max
Supply voltage (V_{dd})	-0.3 V	6 V
Voltages to analog I/O – Pins (V_{SIG} , V_{GND})	-0.3 V	$V_{dd} + 0.3$ V
Storage temperature range (T_{STOR})	-20 °C	+80 °C
Non-operating temperature range	-50 °C	+150 °C

Operating conditions

	Min	Typ	Max
Supply voltage to GND (V_{dd})	2.97 V	5 V	5.5 V
Supply current ($I_{V_{dd}}$) at $V_{dd} = 3.3$ V, RT	25 μ A	30 μ A	60 μ A
Operating temperature range (T_{amb})	-50 °C		+150 °C
Output load capacitance (C_L)			15 nF
External capacitance between V_{dd} and GND ¹⁾	100 nF (recommended)		
Output load resistance between signal and GND (or V_{dd})	47 k Ω		

¹⁾ Recommended as close to TSic V_{dd} and GND-Pins as possible



Temperature accuracies²⁾

T1: +10 °C to +90 °C	±0.5 K
T2: -20 °C to +110 °C	±1 K
T3: -50 °C to +150 °C	±2 K

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

Description:	Item number:	Former main reference:
TSic 301 SOP-8	103487	030.00036
TSic 301 TO92	103492	030.00047

Additional Documents

Application Note:	Document note:
	ATTSIC_E

