



TSic 716 Temperature Sensor IC For a fully calibrated and extremely accurate low power temperature measurement

Benefits & Characteristics

- Easy to integrate (digital output signal)
- Outstanding accuracy of ±0.07 K
- Very low power consumption
- E)

Illust

- Accuracy range of 20 K can be shifted (default: +25 °C to +45 °C)
- Fully calibrated (custom calibration and assembly available)
- Capable of communicating over a distance of > 10 m

1) For actual size, see dimensions

Technical Data

Dimensions (L / L2 x W x H in mm): $^{2)}$	17.30 / 3.81 x 4.57 x 2.3
Operating temperature range:*	-10 °C to +60 °C (-7 °C to +57 °C guaranteed)
Accuracy:*	\pm 0.07 K in the range of +25 °C to +45 °C (other ranges upon request)
Resolution:*	4 mK
Sampling rate:*	1 Hz
Supply voltage:*	4.5 V to 5.5 V
Supply current:	typ. 45 μA at 25 °C and 5 V for minimal self-heating
Digital signal output:	14 bit ZACWire, see application note ATTSic_E
Packaging:*	T092

* Customer-specific alternatives available

²⁾ For tolerances, see Application Note

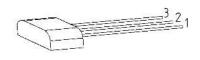


physical. chemical. biological.

Product image



Pin Assignment



	Pin 1	Pin 2	Pin 3
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})	-10 °C	+60 °C
Non-operating temperature range		

Operating conditions

	Min	Тур	Max
Supply voltage to GND (V⁺)	2.97 V	5 V	5.5 V
Supply current (I_{vdd}) at V_{dd} = 3.3 V, RT	30 µA	45 μΑ	80 µA
Operating temperature range (T _{amb})	-10 °C		+60 °C
Output load capacitance (C _L)			15 nF
External capacitance between V_{dd} and $GND^{1)}$	100 nF (recommer	nded)	
Output load resistance between signal and GND (or V_{dd})	47 kΩ		

 $^{\mbox{\tiny 1)}}$ Recommended as close to TSic $V_{\mbox{\tiny dd}}$ and GND-Pins as possible



Temperature accuracies²⁾

T1: +25 °C to +45 °C	±0.07 K
T2: -10 °C to +60 °C	±0.2 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 - TO92	
Output signal	
Output signal	Digital, ZACWire
716	TSic 716 TO92
Order code	103493
Former order code	030.00048
Additional Electronics	
	Document name:
LabKit	DTTSicLabKit_E
Additional Documents	
	Document name:
Application Note:	ATTSic_E



Order Information Temperature Sensor IC Secondary reference



Ι.								
	cura							
2	=	±0.5	5°(2 at	+80 °	°C r	ange	
3	=	±0.3	3 °C	C at	+80 9	°C r	ange	
4	=	not	def	fined	b			
5	=	±0.1	1 °(C at	+40 °	°C r	ange (li	limited measuring range from -10 °C to +60 °C)
6	=	not	def	fined	b			
7	=	±0.0	[،] 7ر	°C a	t +20) °C	range ((limited measuring range from -10 °C to +60 °C)
			Bit	size				
			0	=	11 bi	it		
		- 1	1	=	14 bi	it		
					Ou	tpu	t signal	
					1	=	= analo	log 0 V to 1 V
			$3 = \text{ratiometric } 10 \% \text{ to } 90 \% \text{V}_{dd}$					
					6			tal ZACWire
							5	
							Housin	ng
			T092					
								Special
								E.g. "250 Hz" for a high sampling rate or "-30/70" for temperatur and tolerance range
3		0			6	ТО	92 -30	0/70



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