



## TSic 503 TO92 5V

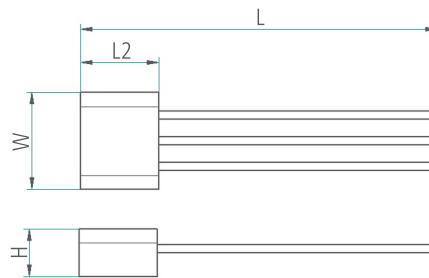
### Temperature Sensor IC

For a fully calibrated and very accurate low power temperature measurement

#### Benefits & Characteristics

- Fully calibrated
- Outstanding accuracy of  $\pm 0.1$  K
- Very low power consumption
- Excellent long-term stability
- Accuracy range of 40 K can be shifted (default: +5 °C to +45 °C)

#### Illustration



#### Technical Data

|  |  |
|--|--|
| Dimensions (L / L2 x W x H in mm): <sup>2)</sup> | 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:*                                       | $\pm 0.1$ K in the range of +5 °C to +45 °C  |
| Resolution:*                                     | 0.034 K  |
| Sampling rate:*                                  | 10 Hz  |
| Supply voltage:                                  | $V_{dd} = 3$ V to 5.5 V, high precision operation in range $V_{dd} = 4.5$ V to 5.5 V |
| Supply current:                                  | typ. 30 $\mu$ A at 25 °C and $V_{dd} = 3.3$ V for minimal self-heating               |
| Packaging:*                                      | TO92   |
| Output signal:                                   | Ratiometric - see application note ATTSic_E  |

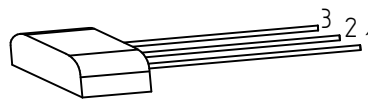
2) For tolerances, see Application Note



## Product Photo



## Pin Assignment



|      | Pin 1 | Pin 2  | Pin 3                                    |
|------|-------|--------|--|
| T092 | 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                  | Typ        | Max        |
|--|----------------------|------------|------------|
| Supply voltage to GND ( $V^+$ )                              | 2.97 V               | 5 V        | 5.5 V      |
| Supply current ( $I_{V_{dd}}$ ) at $V_{dd} = 3.3$ V, RT      | 25 $\mu$ A           | 30 $\mu$ A | 60 $\mu$ A |
| Operating temperature range ( $T_{amb}$ )                    | -10 °C               |            | +60 °C     |
| Output load capacitance ( $C_L$ )                            |                      |            | 15 nF      |
| External capacitance between $V_{dd}$ and GND <sup>1)</sup>  | 100 nF (recommended) |            |            |
| Output load resistance between signal and GND (or $V_{dd}$ ) | 47 k $\Omega$        |            |            |

<sup>1)</sup> Recommended as close to TSic  $V_{dd}$  and GND-Pins as possible



## Temperature accuracies<sup>2)</sup>

|                      |        |
|----------------------|--------|
| T1: +5 °C to +45 °C  | ±0.1 K |
| T2: -10 °C to +60 °C | ±0.2 K |

<sup>2)</sup> 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 503 TO92 5V | 103519       | 030.00115              |

## Additional Documents

|                   |                |
|-------------------|----------------|
| Application Note: | Document name: |
|                   | ATTSIC_E       |

