Temperature Sensors

Experts for Smart Sensor Solutions
High-Accuracy Digital Temperature Sensors

The high-accuracy digital temperature sensors are based on Sensirion’s CMOSens® Technology, which combines the strengths of standard CMOS production processes and advanced MEMS technology on a single silicon chip. The working principle behind all STSxx temperature sensors is a silicon bandgap thermometer. Our temperature sensors provide the following key features:

- Highest accuracy
- Low power consumption and minimal size
- Designed for mass production
- Fully calibrated, linearized signal

For more information, please visit: www.sensirion.com/temperature

What We Offer

1. **EXPERT FIRST CONTACT**
   - Specialized and experienced sales force
   - Worldwide presence with a global distribution network

2. **FAST AND EASY PRODUCT EVALUATION**
   - Comprehensive product portfolio
   - Technical documents – datasheets, sample codes, application notes

3. **DESIGN-IN SUPPORT**
   - Assistance in the integration of STSxx sensors into your application
   - Proven best practices to ensure that your production concept accommodates the requirements of STSxx sensors

4. **LIFETIME SUPPORT**
   - Reliable and flexible production
   - Sustainable product innovation roadmap to meet your future needs
# Selection of Temperature Sensors

## STS3x SERIES
- Compact package: 2.5 x 2.5 x 0.9 mm³
- Wide supply voltage range: 2.15 – 5.5 V
- Features: Alert function, two user selectable I²C addresses

<table>
<thead>
<tr>
<th>Temperature sensor</th>
<th>STS30</th>
<th>STS31</th>
<th>STS35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical accuracy (°C)</td>
<td>±0.2 (0 to 65 °C)</td>
<td>±0.2 (0 to 90 °C)</td>
<td>±0.1 (20 to 60 °C)</td>
</tr>
<tr>
<td>Typ long-term drift (°C/yr)</td>
<td>&lt; 0.03</td>
<td>&lt; 0.03</td>
<td>&lt; 0.03</td>
</tr>
<tr>
<td>Operating range (°C)</td>
<td>–40 to 125</td>
<td>–40 to 125</td>
<td>–40 to 125</td>
</tr>
<tr>
<td>Response time τ63% (s)</td>
<td>&gt; 2</td>
<td>&gt; 2</td>
<td>&gt; 2</td>
</tr>
</tbody>
</table>

### Electrical

<table>
<thead>
<tr>
<th>Interface</th>
<th>FC</th>
<th>FC</th>
<th>FC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage range (V)</td>
<td>2.15 to 5.5</td>
<td>2.15 to 5.5</td>
<td>2.15 to 5.5</td>
</tr>
<tr>
<td>Measurement duration (high/low) (ms)²</td>
<td>12.5 (high)</td>
<td>12.5 (high)</td>
<td>12.5 (high)</td>
</tr>
<tr>
<td>Avg current consumption (high/low) (µA)³</td>
<td>10 (high)</td>
<td>10 (high)</td>
<td>10 (high)</td>
</tr>
<tr>
<td>Idle current (µA)</td>
<td>2 (low)</td>
<td>2 (low)</td>
<td>2 (low)</td>
</tr>
</tbody>
</table>

Please note that above values are of indicative value only. For detailed information please consult the respective datasheets.

1 Temperature response times very much depend on thermal conductivity of the substrate material of the sensor.
2 Different measurement modes possible (differing either in resolution or repeatability).
3 "High" indicates a measurement with the highest precision/power mode (highest resolution, best repeatability). "low" indicates a measurement with the lowest precision/power mode (lowest resolution, least repeatability).
4 Values for one T measurement per second VDD = 3 V; different measurement modes possible (differing either in resolution or repeatability).