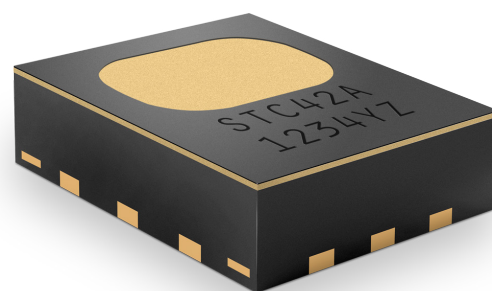


STC42A Automotive H₂ sensor for thermal runaway detection

The STC42A is Sensirion's digital thermal conductivity hydrogen sensor, specifically designed for automotive battery monitoring systems (BMS) for early thermal runaway detection in electric vehicles. Certified according to AEC-Q100 (grade 2), the STC42A meets stringent automotive reliability and robustness requirements and is optimized for safety-relevant battery applications. The sensor features a digital I²C interface and supports autonomous communication with an external SHT41A humidity and temperature sensor. Via the I²C controller interface, humidity and temperature data are read from the SHT41A sensor and directly fed into the STC42A, enabling real-time absolute humidity compensation of the hydrogen signal.

Based on Sensirion's expertise in thermal conductivity sensing, the STC42A is factory calibrated and delivers a fully compensated digital hydrogen output. The proven thermal conductivity measurement principle provides excellent robustness, and long-term stability at lowest power consumption, making the STC42A a reliable sensing solution for safety-critical thermal runaway detection in all battery systems.



Applications

- Battery thermal runaway detection
- Hydrogen leakage
- Thermal propagation

Sensor specifications

Name	Sensor output	Accuracy	Supply voltage	Interface	Size (l × w × h) mm
STC42A	H ₂ gas concentration, temperature. Humidity and pressure (fed by user)	±(0.4 vol % + 2% m.v.)	3.3V or 5V	I ² C	3.5 × 3 × 1 mm ³

Start evaluating the STC42A today

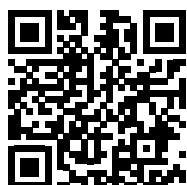
The SEK-STC42A evaluation kit has been designed for easy evaluation of Sensirion's STC42A hydrogen sensor. It features an onboard STC42A hydrogen sensor as well as an SHT4x sensor for measuring humidity directly on the board. The kit is supplied with an adapter cable that connects the evaluation board to the Sensirion SensorBridge, enabling quick and straightforward setup. Hydrogen concentration values can then be easily monitored and analyzed using Sensirion's ControlCenter software, providing a convenient and user-friendly evaluation environment.

More information can be found at

www.sensirion.com/sek-stc42a

Compile your own environmental sensing evaluation kit at

www.sensirion.com/sek



Learn more about
STC42A

SENSIRION