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BME680 proves technology leadership Bosch Sensortec launches combo MEMS solution with integrated gas sensor

**World's first environmental sensor combining pressure,
humidity, temperature and indoor air quality**

- ▶ Equips mobile devices and wearables with indoor air quality measurement
- ▶ Expands existing product family of environmental sensors
- ▶ Low power consumption and tiny package

Expanding Bosch Sensortec's existing family of environmental sensors, the BME680 integrates a gas sensor with best-in-class air pressure, humidity and ambient air temperature sensing functions within a single 3.0 x 3.0 mm² footprint package.

The BME680 environmental sensor enables multiple new capabilities for portable and mobile devices such as air quality measurement, personalized weather stations, indoor navigation, fitness monitoring, home automation and other applications for the Internet of Things (IoT).

The gas sensor within the BME680 can detect a broad range of gases in order to measure indoor air quality for personal well being, including Volatile Organic Compounds (VOC) from paints (such as formaldehyde), lacquers, paint strippers, cleaning supplies, furnishings, office equipment, glues, adhesives and alcohol.

“Our latest, integrated environmental sensor provides the opportunity to deliver differentiated mobile devices,” says Dr. Stefan Finkbeiner, CEO of Bosch Sensortec. “With its high accuracy, low power consumption and tiny package, the BME680 enables developers to integrate new functionality within their products in an efficient and cost-saving manner.”

Combination of four sensors in one package fulfills needs for the Internet of Things (IoT)

With its combination of four sensors in one package, the BME680 provides the accurate, detailed real-world data required for many IoT applications. Expected uses include smart homes, smart offices and buildings, smart energy, smart transportation, HVAC, elderly care and sport/fitness applications.

Accurate performance

The BME680 builds on the success of Bosch Sensortec's existing BME280 environmental sensor module. By integrating a new gas sensor, the BME680 delivers superior environmental measurement performance, made possible by the internal compensation and calibration of the gas, pressure, temperature and humidity sensors. The gas sensor can detect Volatile Organic Compounds (VOCs) down to the ppm range.

The BME680's pressure accuracy of ± 0.12 hPa provides precise altitude information to ± 1 m, making it ideally suited for applications such as indoor navigation with floor level tracking. Additionally, the best-in-class response time for measurement of humidity and ambient temperature enables new applications such as personalized weather information and air quality monitoring for well being in the home.

An offset temperature coefficient of only 1.5 Pa/K enables altitude stability over temperature of 12.6 cm/K. This is important in applications requiring the user's vertical position within a building over a wide range of ambient temperatures.

Features and package

The BME680 is equipped with both I²C and SPI communication interfaces. Three power modes and oversampling rates for pressure and temperature measurements that can be configured separately help designers to easily adapt the BME680 to different applications. An integrated IIR filter eliminates short-term measurement fluctuations caused by potential environmental influences. Proven settings are available for specific applications such as weather logging or indoor navigation.

The BME680 is housed in a 3 x 3 x 0.93 mm³ LGA metal lid package.

Availability

Samples are scheduled to be available to selected customers within the first quarter of 2015.

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Bosch Sensortec GmbH is a fully owned subsidiary of Robert Bosch GmbH, dedicated to the consumer electronics world offering a complete portfolio of micro-electro mechanical systems (MEMS) sensors and solutions that enable mobile devices to feel and sense the world around them. Bosch Sensortec develops and markets a wide portfolio of MEMS sensors and solutions for smart phones, tablets, wearable devices and IoT (Internet of Things) applications.

The product portfolio includes 3-axis acceleration, gyroscope and geomagnetic sensors, integrated 6- and 9-axis as well as environmental sensors and a comprehensive software portfolio. Since its foundation in 2005 Bosch Sensortec emerged as the technology leader in the addressed markets. The Bosch Group has been the global market leader for MEMS sensors since 1998 and has to date sold more than 4 billion MEMS sensors.

For more information, go to www.bosch-sensortec.com

The Bosch Group is a leading global supplier of technology and services. In 2013, its roughly 281,000 associates generated sales of 46.1 billion euros. (NB: Due to a change in accounting policies, the 2013 figures can only be compared to a limited extent with the 2012 figures). Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. The Bosch Group comprises Robert Bosch GmbH and its roughly 360 subsidiaries and regional companies in some 50 countries. If its sales and service partners are included, then Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. In 2013, the Bosch Group invested some 4.5 billion euros in research and development and applied for some 5,000 patents. This is an average of 20 patents per day. The Bosch Group's products and services are designed to fascinate, and to improve the quality of life by providing solutions which are both innovative and beneficial. In this way, the company offers technology worldwide that is "Invented for life."

The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. 92 percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

Additional information is available online at www.bosch.com, www.bosch-press.com and <http://twitter.com/BoschPresse>