



Further developments in the field of MEMS sensors **Bosch Sensortec acceleration sensors – exceptionally small and economical** BMA222 and BMA250 with 2 x 2 mm LGA footprint

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- ▶ Portfolio expansion to include consumer sensors in the smallest possible package
- ▶ Very low power consumption
- ▶ Comprehensive internal signal analysis

With the new BMA222 and BMA250 triaxial acceleration sensors, Bosch Sensortec is expanding its product portfolio to include small digital sensors in the LGA package with a footprint of 2 x 2 mm to become the market standard. Frank Melzer, Bosch Sensortec's Chief Executive, says there has been no decrease in the market growth for acceleration sensors in the consumer markets. "The smallest possible package and minimum power consumption are the key requirements," said Melzer. "In December 2009, we were the first to start series production of an acceleration sensor in a 2 x 2 mm LGA package. In terms of saving energy, we are again setting the standards with far lower consumption."

In fact the two new sensors, differing only with respect to accuracy of measurement, have exceptionally low power consumption: At full bandwidth and maximum data rate, they only use 139 μ A of power, which is about 30 percent less than usual for components of this type, thereby extending battery life. The sensors are used in mobile consumer products such as cell phones, PDAs, game consoles, hard disks, notebooks, pedometers and electronic compasses in which they trigger position and motion controlled reactions. Bosch Sensortec already produces the BMA222 in large quantities; samples of the BMA250 are available.

With four programmable measuring ranges from ± 2 g to ± 16 g, the BMA222 offers designers a high degree of latitude for applications. An 8 bit data

width ensures maximum resolution better than 16 milli-g.

The BMA250 model, which is pin and software compatible with the BMA222, even offers a resolution of as low as 4 milli-g at 10 bits. And the already low power requirement of both sensors can be significantly lowered even further by reducing the data rate, making it possible to achieve values of less than 5 µA. Another ideal feature is the minimum allowable supply voltage, which at only 1.62 volts represents a new minimum value, just as the minimum allowable I/O voltage, which at only 1.2 volts, ensures that the sensors can communicate with state-of-the-art microcontrollers.

Both of these acceleration sensors are equipped with programmable algorithms for internal motion analysis, which means they can automatically recognize specific motion patterns such as tapping on the device, falling (dropping) or lifting the device from its resting position. In movements of this type, the energy-consuming analysis using an external microcontroller can be eliminated. Recognized motion patterns are reported by the sensors with two independent interrupt outputs on the host application that can be programmed by the customer.

Technical data	BMA222	BMA250
Dimensions [mm]	2 x 2 x 0.95	same as BMA222
Measuring ranges	±2 g, ±4 g, ±8 g, ±16 g	same as BMA222
Digital resolution	8 Bit	10 Bit
Maximum resolution (at ±2 g)	<16 milli-g	<4 milli-g
Operating voltage	1.62 V ... 3.6 V	same as BMA222
I/O voltage	1.2 V ... 3.6 V	same as BMA222
Allowed operating temp.	-40°C ... +85°C	same as BMA222
Interfaces	SPI, I ² C, 2 x Interrupt	same as BMA222

About Bosch Sensortec

Bosch Sensortec GmbH – a fully owned subsidiary of Robert Bosch GmbH, the leading provider of vehicle sensor technology – develops and markets micro-mechanical sensors and their applications for consumer electronics, safety systems, industrial technology and logistics. The product portfolio to date includes triaxial acceleration sensors and pressure sensors. The company was founded in 2005 and is headquartered in Reutlingen near Stuttgart. For more information about Bosch Sensortec, visit: www.bosch-sensortec.com

About MEMS development at Bosch

Bosch has been active in the field of micro-electromechanical systems (MEMS) since 1988, being a pioneer in this technology. The Bosch group now has several hundred developers working in the field of MEMS technology. Bosch offers a wide range of sensors to the automotive and consumer electronics industries – including pressure sensors, acceleration sensors and rotational speed sensors. In 2009, Bosch was able to achieve a production of around 220 million MEMS sensors, thus affirming its position as the global market leader.

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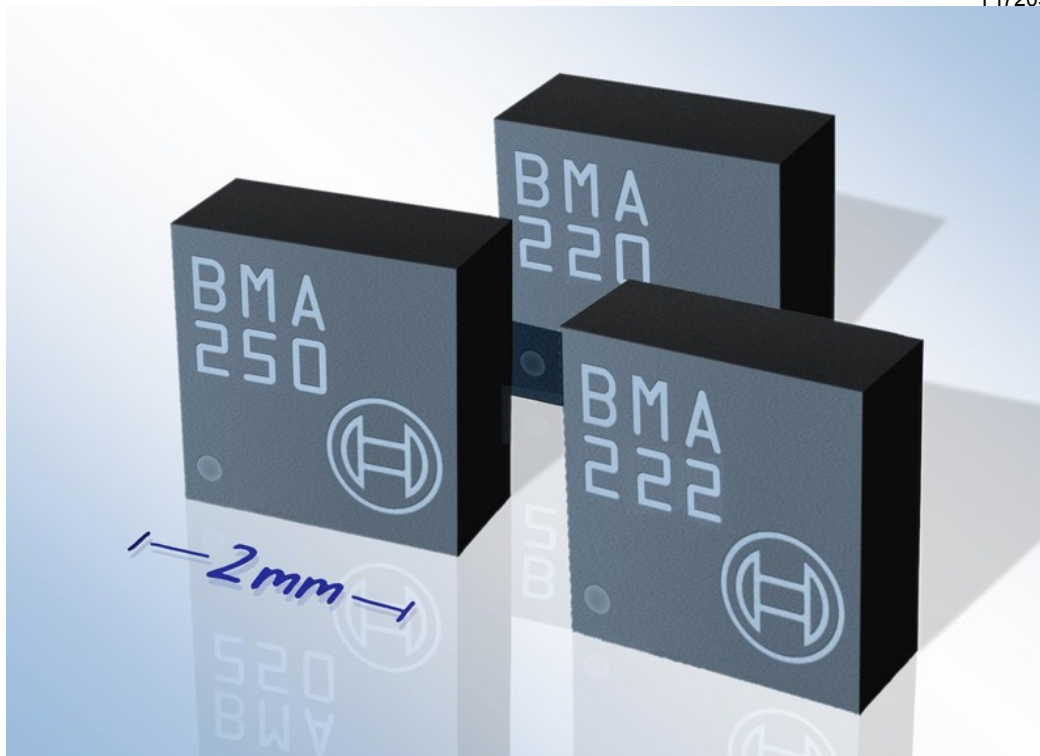
The Bosch Group is a leading global supplier of technology and services. In the areas of automotive and industrial technology, consumer goods, and building technology, some 275,000 associates generated sales of 38.2 billion euros in fiscal 2009. The Bosch Group comprises Robert Bosch GmbH and its more than 300 subsidiaries and regional companies in over 60 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 growth. Each year, Bosch spends more than 3.5 billion euros for research and development, and applies for some 3,800 patents worldwide. With all its products and services, Bosch enhances the quality of life by providing solutions which are both innovative and beneficial.

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. Ninety-two 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 can be accessed at www.bosch.com.

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Bildtext | Caption

Die neue Familie der 2 x 2 mm Beschleunigungssensoren von Bosch Sensortec mit reduziertem Stromverbrauch und minimaler Versorgungsspannung von 1.2 Volt

Die neuen Beschleunigungssensoren BMA222 und BMA250 sind vielseitig verwendbare dreiachsige Digitalsensoren im neuen kleinen LGA-Gehäuse mit 2 x 2 mm Footprint. Mit ihrem geringen Energiebedarf und der kleinen Baugröße sind sie für den Einsatz in mobilen Geräten bestens geeignet.

The new family of 2 x 2 mm accelerometer from Bosch Sensortec with reduced power consumption and smallest supply current

The new accelerometers BMA222 and BMA250 are triaxial digital sensors in a small LGA package with 2 x 2 mm footprint. With their low power consumption and small dimension they are suitable for various applications in all kinds of mobile devices.



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