

**[ 01 ] Bosch sensor helps engine management systems reduce fuel consumption and emissions**

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## **Bosch sensor helps engine management systems reduce fuel consumption and emissions** SMP580 barometric pressure sensor

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- ▶ Digital interface for air pressure and temperature
- ▶ Applications in engine management and seat comfort systems
- ▶ Ultra-compact, robust package is smallest on market
- ▶ Very high measurement accuracy

Today, at this year's electronica in Munich, Germany, Bosch launches the SMP580, a new barometric pressure sensor for ambient pressure and temperature measurement in automotive engine management applications. Barometric pressure sensors are a key component in engine management. The SMP580 measures the current ambient barometric pressure, which continuously fluctuates based on altitude, weather conditions and ambient temperature.

The engine management system utilizes the sensor data to seamlessly adjust the optimum air-fuel mixture. This reduces fuel consumption as well as CO<sub>2</sub> emissions and other pollutants. Having the ideal air-fuel mixture also helps to maximize engine performance and lowers engine noise.

### **Compact and accurate**

The SMP580 is the smallest sensor of its type available on the market - it comes in a robust, ultra-compact SOIC8 cavity package measuring only 4.9 x 3.9 x 1.5 mm<sup>3</sup>. A wheatstone bridge together with piezo-resistors transforms the movement of a flexible membrane into a varying electrical current, which is processed and calibrated by an integrated ASIC.

The new sensor delivers very high measurement accuracy and long term stability, with a highly accurate 12-bit digital SPI interface for pressure and temperature readings. Over the sensor's lifetime, pressure readings are accurate to a tolerance of less than 1.0 kPa, and temperature to less than 3 K.

The SMP580 has low power consumption, with a supply current of less than 5 mA. It also has a power-down mode which consumes less than 15  $\mu$ A. The operating temperature range is -40 °C to +125 °C.

The sensor's measurement range is 40 kPa to 115 kPa for engine management, and 60 kPa to 165 kPa for seating systems. Customized pressure ranges and transfer functions are available upon request.

### **Dynamic seat adjustment**

As well as helping with engine management, the SMP580 can be used in dynamic multi-contour seats. The sensors are integrated into the air chambers of the multi-contoured air cushioned seats, and ensure that the seats adapt to the anatomy of the driver and front-seat passenger. In addition to position and form-adjustable lumbar support, adjustable side bolsters on the backrest and seat area can stabilize the driver when driving on winding roads and a massage function can also be activated. Particularly on long drives, the SMP580 provides increased comfort and helps reduce driver fatigue.

### **MEMS technology**

Bosch is a pioneer and the global leader in the manufacture of MEMS technology. Bosch has now manufactured more than 7 billion MEMS sensors in its state-of-the-art wafer fab in Reutlingen, Germany (2015: more than 1.5 billion).

### **Availability**

Samples of the SMP580 are scheduled to be available within the second quarter of 2017.

**Press photos:** #534937, #534939, #534941

**Related link:** [www.bosch-semiconductors.com](http://www.bosch-semiconductors.com)

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