Press Release

New magnetic position sensors for automotive applications support full ISO26262 safety compliance and provide System-in-Package (SiP) format

AS517x devices include full data path diagnostics and enhanced self-test capabilities to enable automotive systems to comply with the highest safety standards

Premstaetten, Austria (26 April, 2016) -- ams AG (SIX: AMS), a leading provider of high performance sensors and analog ICs, today extended its portfolio in automotive safety compliant sensors with the release of its first magnetic position sensors fully developed using the automotive industry's programme for ISO26262 safety compliance. The launch of the new sensor series also includes the introduction of ams' first magnetic position sensor in a System-in-Package (SiP) format, a space savings package, that enables lower system costs and the placement of the sensor device in environments, that are prohibitive to PCB based packages.

The new AS5170 and AS5171 sensors were developed as SEooC (Safety Element out of Context) devices, as defined in the ISO26262 functional safety standard. Consistent with ams' strategy of helping its customers meet the ever-increasing demand for automotive safety features built into critical vehicle systems, the AS517x parts are ams' first magnetic position sensors to provide full data path diagnostics, enabling automotive system OEMs to achieve a higher level of ISO26262 system-level compliance.

The diagnostic system built into the AS517x series tests the entire device, from the Hall sensor front end, through the DSP engine which converts raw measurements of magnetic field strength into sine and cosine vectors, to the back-end interfaces and pins.

The AS517x series of sensors, which are qualified to AEC-Q100 Grade 0, very accurately measure the absolute angle of rotation. Their high 12-bit output resolution enables precise measurements, even for reduced angular excursions down to a minimum arc of 90°. This means, that the ams devices are ideal for a range of safety-critical automotive applications including chassis height, gear shifters, electronic power steering, exhaust gas recirculation, and brake pedal as well as throttle position sensing.

The AS5171 comes in an SiP format, which integrates the sensor die and capacitors in a single, encapsulated three-pin package. The SiP offers improved ESD and EMC performance, as well as enhanced supply protection. The Supply and Output pins are protected against over-voltages up to +20V. The Supply pin also offers -20V of protection against reverse polarity.

The SiP eliminates the requirement to mount a position sensor IC on a PCB, thus reducing component count and system cost, and making for easier design and assembly into the end product.

The AS5171A provides an analog output, and the AS5171B provides a digital output, which may be programmed either as a PWM interface or as a SENT-compliant interface. The analog AS5170A and digital AS5170B ICs are housed in an 8-pin SOIC package.

Like every other magnetic position sensor from ams, the AS5170 and AS5171 benefit from stray magnetic field immunity, enabling unimpaired operation even in the presence of strong magnetic fields generated by electric motors, high current-carrying cables and other external devices. This results in highly reliable performance and reduces system cost since there is no need for the shielding required by other magnetic position sensors.

The high sensitivity of the Hall sensor front-end in the AS517x devices enables the use of small, low cost target magnets and supports a wide magnetic field strength input range of 5-90mT.

“The extreme rigor of the automotive functional safety compliance process calls for the use of components which offer total transparency and traceability of their performance and diagnostic outputs”, said Marcel Urban, Head of Marketing and Product Management for position sensors at ams. “The new AS517x is the first series of magnetic position sensors from ams to provide for this level of safety support, giving automotive OEMs a more complete set of features than ever before available to enable compliance with the ISO26262 standard.”

The AS5170 and AS5171 magnetic position sensors are available immediately in production volumes. Unit pricing is $2.64 (AS5170) and $2.87 (AS5171) in order quantities of 1,000.

Evaluation boards for the AS5170 and AS5171 are available from the ams ICdirect online store.

For sample requests and for more technical information, please go to www.ams.com/position-sensors/AS5170 and www.ams.com/position-sensors/AS5171.

About ams

ams is a global leader in the design and manufacture of advanced sensor solutions and analog ICs. Our mission is to shape the world with sensor solutions by providing a seamless interface between humans and technology. ams’ high-performance analog products drive applications requiring extreme precision, dynamic range, sensitivity, and ultra-low power consumption. Products include sensors, sensor interfaces, power management and wireless ICs for consumer, communications, industrial, medical, and automotive markets.

With headquarters in Austria, ams employs over 2,100 people globally and serves more than 8,000 customers worldwide. ams is listed on the SIX Swiss stock exchange (ticker symbol: AMS). More information about ams can be found at www.ams.com.

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