

Press Information No. 1610_E

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Micronas presents sensor solution for multidimensional measurement with integrated decoupling capacitors

The direct-angle Hall-effect sensors HAC 37xy with superior angular measurement accuracy fulfill the high demands for electromagnetic compatibility (EMC) of the automotive industry.

Freiburg, April 26, 2016 – Micronas, a TDK group company, expands its Hall-effect sensor portfolio with integrated capacitors with the HAC 37xy sensors for multidimensional magnetic field measurements in automotive and industrial applications. The TO92UF package was especially designed for this new sensor type and integrates both a chip from the HAL 37xy sensor family based on Micronas' 3D HAL[®] technology for detecting linear movements and angles as well as two capacitors up to 100 nF. The HAC 37xy sensors enable angle measurements of up to 360° or linear measurements of up to 40 mm by use of two-pole bar magnets with a length in the range of 5 mm. At the same time, the sensors achieve an ESD immunity of up to 8 kV and meet all of the stringent EMC requirements, such as the current Bulk Current Injection (BCI), for example. Micronas will present its HAC 37xy sensors from May 10 to 12, 2016, at the Sensor+Test exhibition in Nuremberg at booth 204 in hall 1.

With the HAC 37xy sensors, Micronas offers its customers three different direct-angle sensor variants: The proven HAL 37xy sensor family, a version with redundancy function via two integrated Hall elements (HAR 37xy) and a version with integrated capacitors (HAC 37xy). While the HAL 37xy and HAR 37xy sensors are available in the SOIC8 SMD package, the pins of the TO92UF package can be welded or soldered directly to a lead frame. This eliminates the need for a printed circuit board (PCB), thus reducing the total system size and cost. Furthermore, the overall system long-term reliability is significantly improved.

All members of the HAC 37xy use a so-called pixel cell, which consists of one horizontal (BZ) and two vertical (BX, BY) Hall elements. The pixel cell measures three magnetic field vector components at one point. Magnetic field lines in parallel to the sensor surface are detected by the vertical Hall elements, whereas the component perpendicular to the chip surface is captured by the horizontal Hall element. The ability to evaluate the relative strength out of the horizontal and vertical magnetic field components is the key for excellent angular performance. Thanks to the 3D HAL technology, the HAC 37xy sensors allow temperature-stable position measurements with high accuracy at reduced system cost. The new sensors suit particularly for PCB-free module solutions in automotive applications, such as turbo chargers, EGR and throttle valves. In these applications, the HAC 37xy sensors not only increase EMC performance, but also the system reliability.

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For these applications, the sensors provide a high degree of flexibility by offering various output formats. The HAC 37xy sensors come both with a ratiometric analog output (HAC 372x) as well as with a digital output (HAC 373x). Besides pulse-width modulation (PWM) output, the SENT protocol according to the latest generation of SAEJ2716 is also supported.

Samples will be available from mid-May 2016. Start of production is planned for early 2017.

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About Micronas

Micronas, a TDK group company, is the most preferred partner for sensing and control. Micronas serves all major automotive electronics customers worldwide, many of them in long-term partnerships for lasting success. While the holding company is headquartered in Zurich (Switzerland), operational headquarters are based in Freiburg (Germany). Currently, the Micronas Group employs around 900 persons. For more information about Micronas and its products, please visit www.micronas.com.

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