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Brushless DC motor control solutions by Micronas migrating towards 0.18 micrometer high-voltage embedded flash CMOS process

0.18 μm technology node is enabling compact, highly integrated single chip designs with direct connections to 12 V power supply, actuator and communication networks.

Freiburg, June 23, 2014 – Micronas (SIX Swiss Exchange: MASN), known and recognized in the automotive and industrial business as a global partner for intelligent, sensor-based system solutions, today announces the use of the XH018 process technology from X-FAB for its next generation of brushless DC motor control solutions.

XH018 is X-FAB's 0.18 μm modular mixed signal high-voltage (HV) CMOS technology. Based upon the single poly 0.18 μm process with up to six metal layers, with integrated high-voltage and Non-Volatile-Memory (NVM) modules, the XH018 technology is ideal for System-on-Chip (SoC) solutions aiming at both the automotive and the high-voltage industrial markets as targeted by Micronas embedded controller solutions.

"The possible integration of digital logic as well as analog, HV and NVM capabilities in a single technology process node will help us to meet the technical and commercial demands of our targeted applications in which space requirements and system complexity need to be matched," says Dirk Behrens, Vice President Automotive at Micronas. "This paves the way to providing a new class of highly versatile, single-chip smart actuator solutions with direct connection to the power supply, the actuator and as well to the communication network".

"We are very pleased to materialize our strategic partnership with Micronas through the announcement of such state-of-the art embedded controllers" says Rudi De Winter, CEO of X-FAB. "It leverages the complementarity of our two companies while providing an ideal foundation for the sustainable expansion of our respective market positions."

Micronas' embedded controllers for use in automotive and industrial applications are single-chip, high-voltage controllers with flexible peripherals and direct motor driving capabilities. The various integrated digital and analog components include comparators with virtual star point reference, power management features, diagnosis and protection functions, a programmable gain amplifier, an A/D converter, communication interfaces, regulators for direct 12 V operation, as well as all needed power bridges. The computation capacity supports complex motor control algorithms such as Space Vector Modulation in addition to six-step commutation with sensor feedback or sensorless control. With all of these features the system efficiency in the customers' motion control solutions can be improved, e.g. by removing gear stages, reducing the motor

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size and weight, etc. In addition, they enable a very compact and cost-effective motor system design and help to save important space within the application. All the different commutation schemes supported by the Micronas embedded controllers can be operated either in a sensor-less or in a sensor based mode in combination with the HAL 2xy/HAL 5xy and HAL 15xy switches or with the 2D Hall sensor families. Smart actuator system solutions are used in various applications, like DC motor drives with integrated electronics, fans and pumps.

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About Micronas

Micronas (SIX Swiss Exchange: MASN) is known and recognized in the automotive and industrial business as a reliable global partner for intelligent, sensor-based system solutions. Micronas offers a variety of Hall sensors and embedded controllers for smart actuators for automotive and industrial applications, such as drivetrains, chassis frames, engine management and convenience functions.

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.