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Electronica 2014

### Most Preferred Partner for Sensing and Control

#### Micronas' new all-in-one controller family brings more flexibility for driving small electric motors



- Highly integrated and efficient solutions with small footprint enable the flexible drive of either brush-type (BDC), brushless (BLDC) or stepper motors
- Customers can significantly reduce their cost of ownership, as a single device can be used for several different motor control applications
- The use of an industry standard core and a state-of-the-art development tool-chain combined with Micronas' demonstration software and application notes guarantees an efficient implementation of the customers' production software – gaining fast time to market
- The new controller family enable a much more efficient control of the various electric motors, important space savings and thus an overall system weight reduction, which at the end leads to lower fuel consumptions and lower emissions

#### Micronas presents smallest integrated capacitor EMC-proof linear Hall sensor



- The HAC 830 combines the precise and robust functionality of the HAL 83x family with decoupling capacitors integrated into a tiny 3-pin TO92UP package
- Thanks to the two 100 nF integrated capacitors, this sensor achieves an ESD level up to 8 kV and meets all stringent EMC requirements
- Due to its TO92UP package, the HAC 830 is the smallest sensor with integrated capacitors on the market thus offering much more design flexibility where space requirements are essential criteria
- The TO92UP can be welded or soldered directly to a leadframe, a connector or a terminal, eliminating the need for a printed circuit board (PCB), thus reducing the total system size and cost

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



- XH018 is X-FAB's 0.18  $\mu\text{m}$  modular mixed signal high-voltage (HV) CMOS technology
- Based upon the single poly 0.18  $\mu\text{m}$  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
- XH018 aims at both the automotive and the high-voltage industrial markets as targeted by Micronas embedded controller solutions
- Micronas' embedded controllers are single-chip, high-voltage controllers with flexible peripherals and direct motor driving capabilities
- Smart actuator system solutions are used in various applications, like DC motor drives with integrated electronics, fans and pumps

### Advanced 3D HAL<sup>®</sup> technology powers Micronas' new sensor generation leading to superior angular accuracy



- HAL 37xy offers outstanding temperature stability, high resistance against air gap variations and magnet aging together with a wide-range of diagnostic functions and very effective protection circuitry
- The HAL 37xy family consists of the following members: HAL 372x featuring a ratiometric analog output and the HAL 373x with PWM and SENT output according SAE-J2716 release 2010
- Possible applications are clutch position detection in gearboxes or in ride-height applications. Further suitable applications are motor air management, such as EGR (Exhaust Gas Recirculation) or throttle position or turbo charger actuators
- In the industrial area, the devices can be used in various applications e.g. in joysticks or as valve position sensor for automation control

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### Micronas presents market's first ISO 26262 compliant, low-power Hall switch family in SOT23 package



- Predecessor of HAL 5xy family, well-known for a long time on the market for excellent quality and highest reliability, and widely used today in all premium car brands
- Designed for operating under harshest environmental conditions from  $-40\text{ }^{\circ}\text{C}$  up to  $150\text{ }^{\circ}\text{C}$
- The customer can choose from a 3-wire version with short-circuit protected open-drain output or a 2-wire version with current source interface
- First generation of ASIL A ready Hall-effect switches on the market, developed with a single-point fault metric greater than 60% according to the latest ISO 26262 standard
- Low current consumption of only 1.6 mA and minimum supply voltage of 2.7 V

### Micronas presents a new affordable USB kit for easy programming of its broad Hall-effect sensor portfolio



- User-friendly and flexible programming of various Hall-effect sensor families
- Developed especially for laboratory purposes
- Efficient, easy to handle and cost effective solution
- The new, very tiny USB kit is characterized by its compact design and by its flexible connectivity in contrast to other current solutions on the market

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### Micronas introduces the next generation of highest precision programmable Hall switches



- HAL 1002 with high programming accuracy under harsh environmental conditions up to a 150°C ambient temperature
- Designed for use in automotive and high-end industrial applications
- Highest ESD robustness up to 8 kV
- Simplified production process and increased production yield by special compensating for mechanical tolerances
- Allows the customer to program the switching thresholds  $B_{on}$  and  $B_{off}$  independently from each other in the extreme wide magnetic range of  $\pm 150$  mT and in very small steps of  $< 0.5\%$  with a maximum threshold precision of  $\pm 0.1\%$

### Brushless DC motor control solutions by Micronas now additionally powered by ARM Cortex®-M3 Processor



- Licensing of the Cortex-M3 32-bit RISC processor from ARM Ltd. for its next generation of brushless DC motor control solutions in a single IC
- Ideal blend of high performance and instruction efficiency with 3-stage pipeline instruction set, hardware divider, and single-cycle multiplier
- The Cortex-M3 processor is equipped with essential microcontroller features
- New motor driving applications targetable, requiring advanced processing capabilities

## Company

- Company backgrounder
- Company presentation
- Contacts for members of the press