

STMicroelectronics launches gate drivers for brushless control in cordless appliances, robots, and industrial drives

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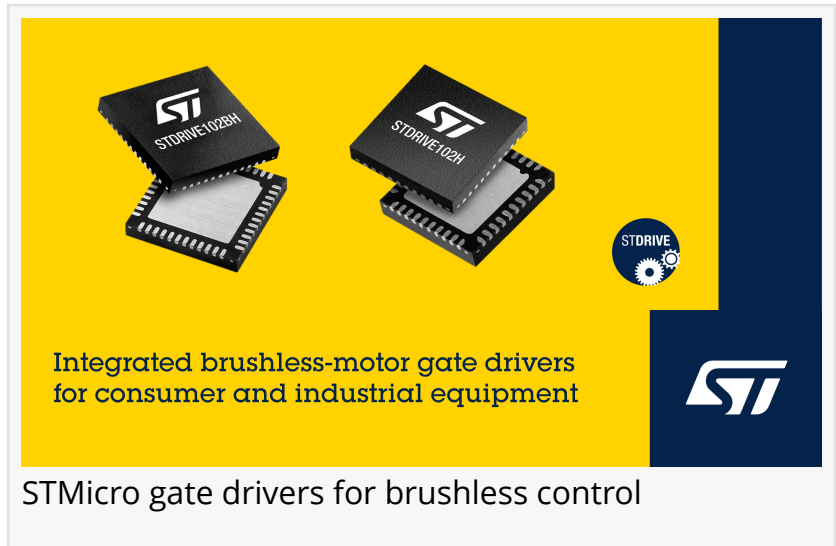
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STMicroelectronics has introduced the [STDRIVE102H](#) and [STDRIVE102BH](#), beginning a new generation of integrated gate drivers for three-phase brushless motors to boost performance, efficiency, and economy in consumer and industrial equipment.

With an operating-voltage range of 6V to 50V, the STDRIVE102H for single-shunt control and STDRIVE102BH for three-shunt control are easily configured through two analog pins. A simple resistor divider can program the gate-drive current supplied to the external MOSFETs and lets designers optimize the power-stage performance, including limiting the switching slew rate, without using gate resistors. With a low-current stand-by mode that effectively preserves battery performance, the new drivers are suited to cordless power tools and appliances, e-bikes, and mobile robots, as well as industrial drives.

The drivers integrate charge-pump circuitry capable of sustaining unlimited on-time of the high-side MOSFETs, which simplifies the design of applications that require a PWM duty cycle of 100%. Also, the charge pump ensures the high-side and low-side MOSFETs are driven with identical gate-source voltage to balance the behavior of the power stage. In addition, internal low-dropout regulators (LDOs), which provide 12V and 3.3V for the drivers' low-side circuitry and analog front-end (AFE), can be used for conveniently powering external components.

Further features include extensive protection against electrical and thermal hazards. In addition to undervoltage lockout (UVLO) and thermal shutdown, drain-source voltage (VDS) monitoring is provided on both high-side and low-side MOSFETs that guarantees redundancy in overcurrent protection. Rapid fault signaling responds promptly when any protection mechanism is triggered to enhance system safety and reliability.



The EVLDRIVE102H and EVLDRIVE102BH evaluation boards accelerate development of systems using various schemes including field-oriented control (FOC) and six-step motion control. With motor back-EMF sensing on-board, as well as inputs for motors equipped with position sensors for extra precision, the boards provide standard headers for connecting STM32 Nucleo host-microcontroller boards. The X-CUBE-MCSDK STM32 motor-control software development kit (MCSDK) provides the tools and code engineers need to get the motor up and running and develop their application.

The STDRIVE102H and STDRIVE102BH are available now in a 5mm x 5mm or 6mm x 6mm QFN packages, priced from \$1.20 for orders of 1000 pieces.

Please visit www.st.com/gate-drivers for more information.

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