STMicroelectronics’ unveils new STSPIN32G0 series of motor drivers for industrial applications and home appliances

GENEVA, SWITZERLAND, November 11, 2024 /EINPresswire.com/ -- STMicroelectronics has extended the STSPIN32 series of integrated motor drivers, adding eight new products to tackle cost-sensitive yet performance-hungry applications including power tools, home appliances and industrial automation.

STSPIN32G0 motor drivers

ST’s STSPIN32 drivers combine a general-purpose STM32 microcontroller (MCU) with a feature-rich three-phase gate driver to simplify design, save PCB area and accelerate time to market. The eight new STSPIN32G0 devices contain gate drivers rated 45V, 250V and 600V, targeting applications from battery-operated appliances and power tools to industrial automation, robots, HVAC systems and line-powered home appliances.

The new devices integrate an STM32G031 microcontroller, based on the Arm® Cortex®-M0+ core, which has the computing power to handle popular control algorithms, including six-step control and field-oriented control (FOC). FOC implementation can be sensored or sensorless, with one, two, or three shunts. Additional features that help simplify system design include a 12-bit ADC, internal voltage reference buffer, an advanced motor-control timer, and digital interfaces including I2C, USART, and SPI. Up to 32 general-purpose I/O pins (GPIOs), 64KB of Flash, and 8KB of SRAM give developers flexibility to host complex applications and innovate value-added features.

The four new low-voltage variants are based on a feature-rich 45V gate driver suitable for applications powered from sources such as lithium battery packs or industrial buses up to 36V. Examples include portable power tools and appliances, cordless vacuum cleaners, robots, fans and pumps. The four product variants offer different combinations of analog sensing inputs, GPIOs, and dedicated analog reference-voltage pins. All drivers have 600mA source/sink current capability and also integrate a 3.3V DC/DC converter and 12V linear regulator to power internal

circuitry and external devices, making these four devices self-supplied.

The four high-voltage variants present a choice of 250V or 600V driver voltage rating and 200mA/350mA or 1.0A/0.85A source/sink current capability. All have ST SmartShutDown capability to guarantee fast protection of the external power stage in case of a fault. They are intended for applications such as home appliances, air conditioners, home and industrial refrigerators, industrial pumps and industrial automation.

All STSPIN32G0 devices integrate circuit protection including overcurrent and overload protection, cross-conduction prevention, and undervoltage lockout to ensure system safety and help further simplify the design.

An evaluation board is available for each variant, which enables a fast start to new designs and all STSPIN32 family members connect users with the STM32 MCU development ecosystem. This provides an extensive selection of tools, software, and evaluation boards including the X-CUBE-MCSDK motor-control software development kit (SDK) with parameterizable firmware libraries and motor-control workbench GUI. There are also MCU-specific software packs and middleware, and the STM32CubeMX configurator that facilitates project setup and performance analysis.

The STSPIN32G0 controllers are in production now and available from $2.00 for the low-voltage variants, in a 7mm x 7mm VFQFPN48, for orders of 1000 pieces. The 250V and 600V variants are $2.14 and $2.44 respectively, both available in a 10mm x 10mm QFN 72L.

For more information, please visit www.st.com/STSPIN32G0.

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