

STMicroelectronics releases 750W motor-drive reference board in tiny outline for home and industrial equipment

Delivers high power density with STDRIVE101 3-phase gate-driver IC and extremely low power consumption in sleep mode

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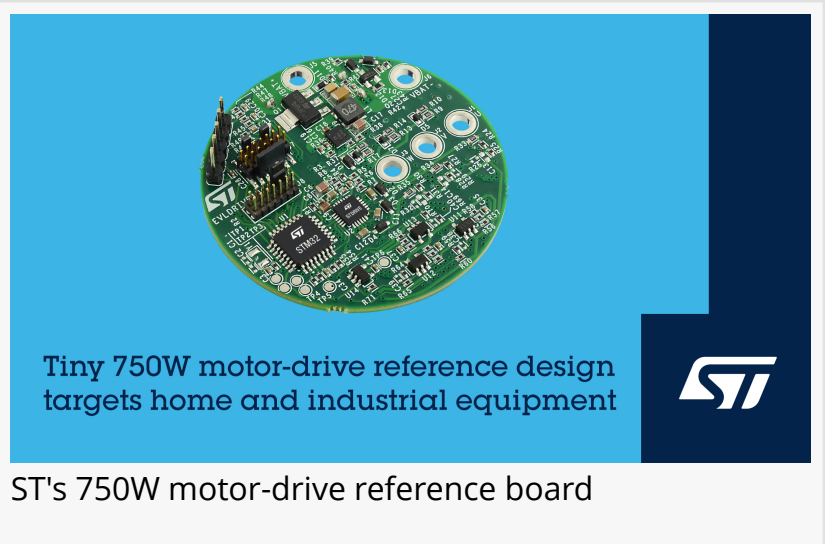
[EVLDRIVE101-HPD](#) (High Power Density) motor-drive reference design by STMicroelectronics packs a 3-phase gate driver, STM32G0 microcontroller, and 750W power stage on a circular PCB just 50mm in diameter. The board

features extremely low power consumption in sleep mode, below 1µA, and its tiny outline can fit directly in equipment like hairdryers, handheld vacuums, power tools, and fans. It also fits easily into drones, robots, and drives for industrial equipment such as pumps and process-automation systems.

Built with ST's robust and compact [STDRIVE101](#) 3-phase gate driver, the reference design gives flexibility to choose the motor-control strategy, such as trapezoidal or field-oriented control (FOC), with sensed or sensorless rotor-position detection. The STDRIVE101 IC contains three-half bridges with 600 mA source/sink capability and operates from 5.5V to 75V to handle any low-voltage application. The chip integrates voltage regulation for the high-side and low-side gate drivers and configurable drain-source-voltage (V_{ds}) monitoring protection. It also provides an external pin for choosing direct high-side and low-side gate inputs or PWM control.

Developers can take advantage of the STM32G0 single-wire debug (SWD) interface to interact with the microcontroller, while support for direct firmware update allows applying bug fixes and new features.

The power stage of the EVLDRIVE101-HPD reference design features [STL220N6F7](#) 60V STripFET F7 MOSFETs, which preserve efficiency with their 1,2mΩ typical R_{ds(on)}, easing plug-and-play connection of the motor. Additional features include fast-acting power-on circuitry that



disconnects the power source when idle to save energy and extend operation in battery-powered applications. Protection built into the driver IC ensures system safety and efficiency, including the Vds monitoring of the power-stage MOSFETs, as well as under-voltage lockout (UVLO), overtemperature protection, and cross-conduction prevention.

The EVLDRIVE101-HPD is ready to use out of the box and is available now from the eStore, for \$92.00.

Please visit <https://www.st.com/evldrive101-hpd> for more information.

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