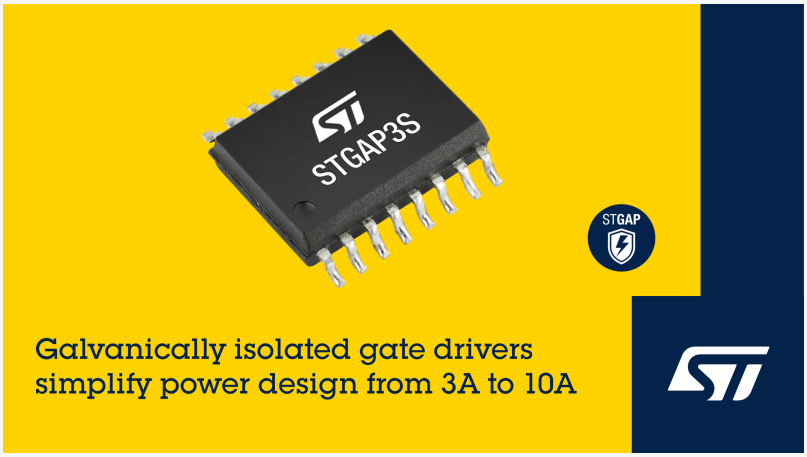
STMicroelectronics’ new galvanically isolated gate drivers simplify power design with advanced isolation

New 3A drivers with internal active Miller clamp enhance efficiency in charging stations, energy storage systems, induction heaters, drives, and automation



STGAP3S gate drivers

GENEVA, SWITZERLAND, July 29, 2026 /EINPresswire.com/ -- STMicroelectronics has extended the STGAP3S family of gate drivers that feature enhanced galvanic isolation for greater reliability, introducing an efficient and economical 3A series for circuits that need lower drive current. The new STGAP3S3S is optimized for silicon carbide (SiC) MOSFETs, while the STGAP3S3IF is suited to IGBTs.

All STGAP3S drivers work with high-voltage rails up to 1200V in circuits such as power-factor correction (PFC), power supply units, DC/DC converters, and inverters. International safety and insulation certifications, including UL 1577 and IEC 60747-17, independently confirm robust isolation, safe operation, and reliable long-term performance at high voltage. Typical applications include charging stations, energy-storage systems (ESS), solar inverters, industrial electric vehicles like forklifts, induction heating equipment, and general drives, pumps and fans.

ST’s state-of-the-art reinforced galvanic isolation protects the power-stage circuitry against transients up to 9.6kV and ensures Common Mode Transient Immunity (CMTI) up to 200V/ns. The family contains three series capable of sinking/sourcing up to 10A, 6A, and now 3A, each containing variants optimized for driving IGBTs and silicon-carbide MOSFETs.

The new STGAP3S3 series, with 3A drive strength, integrates the complete active Miller clamp, including clamping MOSFET, to prevent unwanted induced turn-on of the power switch thereby avoiding shoot-through currents. Integrating the MOSFET saves PCB space, simplifies the circuit design, and reduces the bill of materials, while providing suitable clamping performance with gate drive up to 3A. The 6A STGAP3S6 and 10A STGAP3SX series contain a pre-driver for an

external MOSFET, giving extra flexibility to optimize the clamping speed in systems with high gate-drive current.

All STGAP3S drivers have desaturation detection with soft turn-off to ensure controlled voltage and current transitions, which protects the power switch during dangerous overload or short-circuit conditions. The 6A and 10A drivers, and the new 3A drivers for SiC MOSFETs, let designers connect an external resistor to optimize the soft turn-off speed.

All devices have diagnostic pins that indicate when desaturation protection, undervoltage-lockout UVLO, and thermal shutdown are active. The drivers allow negative gate voltage that strengthens unwanted turn-on prevention, protects the device during fault turn-off, and ensures robust switching without ringing during normal turn-off transitions.

An evaluation board is available for each STGAP3S driver, including the latest 3A models. These two boards, the EVLSTGAP3S3S and EVLSTGAP3S3IF, are half-bridge boards that come with protection already configured and provide test points and diagnostic LEDs to assist development.

The complete STGAP3S family for driving IGBTs and SiC MOSFETs, including STGAP3S3, STGAP3S6, and STGAP3SX series, is in production now. The drivers are offered in the SO16W wide-body package, from $1.93 for orders of 1000 pieces.

Please visit www.st.com/stgap3s for more information.

Alexander Jurman
STMicroelectronics
Alexander.Jurman@st.com
