

40-V Trench MOSFETs Offer Enhanced Noise Immunity

STMicroelectronics' 40-V STripFET F8 MOSFETs with standard threshold voltage ($V_{GS(th)}$), combine the advantages of the enhanced trench gate technology with superior noise immunity for applications with non-logic-level control. The industrial-grade STL300N4F8 and automotive-grade STL305N4F8AG MOSFETs have a drain current rating above 300 A and maximum $R_{DS(on)}$ of 1 m Ω , permitting outstanding efficiency in high-power applications.

Enhancing dynamic performance, the total gate charge of 65 nC (typical) with low device capacitances (C_{iss} and C_{rss}) ensure minimal losses at high switching frequency. The MOSFET body diode assists efficiency and reliability with low forward voltage and fast reverse recovery.

With the new device series, designers can take advantage of ST's latest STripFET F8 technology in power supplies, converters, and motor drives of equipment like cordless appliances and industrial tools. The MOSFETs' efficiency extends runtime per battery charge and reduces heat dissipation allowing operation at sustained high output with simplified thermal management to save space and lower bill-of-materials costs.

The automotive-qualified devices target motor drives and dc-dc converters throughout a vehicle, including body electronics, chassis, and powertrain systems. Applications include window lifters, seat positioners, sunroof openers, fans and blowers, electric power steering, active suspension, and control systems for emissions reduction.

ST's STripFET F8 technology ensures ruggedness within a large safe operating area (SOA), enabling the devices to handle high power levels that impose large drain-source voltage (V_{DS}) drops. In addition, the high maximum operating junction temperature of 175°C lets the MOSFETs withstand harsh usage in extreme environments.

In addition, the technology enables a small die size allowing low $R_{DS(on)}$ at a competitive price in a package that has a compact footprint. Both devices are available in a space efficient PowerFLAT 5 x 6 package, also including the wettable flanks option requested by the automotive industry (see the figure).

The STL300N4F8 is available now priced from \$0.8370 for orders of 1000 units. The STL305N4F8AG is priced from \$0.9730 per 1000 units. For more information, see the [website](#).



Figure. STripFET F8 offers a 40% figure of merit (FoM) improvement on the previous generation, helping engineers design more compact power stages with higher power density in computer and peripheral applications, data centers, telecom, solar, power supplies, battery chargers, home and professional appliances, gaming, drones, and more. STripFET F8 technology also saves energy and ensures low noise in power conversion, motor control and power distribution circuits for automotive designs. The STL300N4F8 targets the industrial applications while the STL305N4F8AG is for the automotive designs.