

STMicroelectronics' low-resistance MOSFETs save energy and PCB area in power distribution applications

New series leverages advanced Smart STripFET F8 power technology for best static performance and smaller die size

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STMicroelectronics has introduced a series of low-RDS(on) MOSFETs made with new Smart STripFET F8 technology, which is engineered for optimum conduction performance and small die size. The devices target space-constrained applications including power distribution and battery management in automotive products.



The first device in the new series, the [STL059N4S8AG](#), is a 40V/420A N-channel enhancement-mode MOSFET with RDS(on) 0.59mΩ, housed in a PowerFLAT 5x6 package. The compact outline saves PCB space, easing the design of smaller control modules, while high thermal conductivity and efficient dissipation help meet stringent reliability targets. The devices also have an extended maximum operating temperature of 175°C. The STL059N4S8AG is available as an AEC-Q101 qualified part in a package with wettable flanks that facilitates optical inspection in automotive assemblies.

ST's Smart STripFET F8 technology builds on the conventional STripFET F8 with a modified trench gate that enhances on-state performance and silicon-area efficiency. These devices are optimized for applications where minimizing conduction losses is key to improving overall efficiency. They are particularly well suited for high-current power distribution, where the devices combine effectively with STi²Fuse VIPower gate drivers that offer tunable circuit breaking to safeguard PCB traces, connectors, and wiring. In automotive applications, Smart STripFET F8 MOSFETs efficiently deliver more of the battery's energy to on-board electrical systems while reducing power dissipation, thereby contributing to extended driving range. In a battery-management system (BMS), where the main functions are monitoring cell states, balancing, and protection, the MOSFETs' lower RDS(on) enhances efficiency during battery charging and

discharging.

The STL059N4S8AG is in production now, in automotive grade. Please contact your local ST sales office for pricing and sample requests. The STL075N4S8AG with 350A current rating and 0.75mΩ RDS(on), and the STK035N4S8AG with 780A and 0.35mΩ will be introduced later.

Please visit <https://www.st.com/smart-stripfet-f8> for more information.

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