600V ICs for Energy-Efficient Automotive Gate Drive Applications

International Rectifier, IR® announces the introduction of a family of rugged 600V ICs for energy-efficient automotive gate drive applications including Piezo and common rail injection, starter alternator, electronic power steering, fan and compressor applications.

The family of five high speed power MOSFET and IGBT driver ICs provides output source/sink current capability up to +1.9A/-2.3A for rapid turn-on and turn-off time, while high current capability enables the new devices to efficiently drive larger switches for higher power applications. The offering includes two half-bridge drivers; the AUIRS2184S, featuring a fixed deadtime of 500ns and the AUIRS21844S featuring programmable deadtime between 400ns and 5µs. The AUIRS2181S, AUIRS21811S and AUIRS21814S are dual channel high-side and low-side driver ICs with various input logic and propagation delays.

The ICs feature proprietary high-voltage integrated circuit (HVIC) and latch immune CMOS technologies to offer ruggedized monolithic construction. The output drivers feature a high pulse current buffer stage designed for minimum driver cross-conduction. The floating channel can be used to drive an N-channel power MOSFET or IGBT in the high-side configuration, operating up to 600V. In addition, the devices feature benchmark negative voltage spike immunity for reliable operation even under extreme switching conditions and short circuit events.

Other key features common to the family include under-voltage lockout for both channels, 3.3V and 5V input logic compatibility and lower di/dt for better noise immunity. A separate Vss logic ground pin featured in specific parts offers higher immunity to transient shifts on COM voltage.

The devices are qualified according to AEC-Q100 standards, feature an environmentally friendly, lead-free and RoHS compliant bill of materials, and are part of IR’s automotive quality initiative targeting zero defects.

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