Isolated gate drivers protect IGBT switches

Susan Nordyk - September 10, 2016

Gate drivers in the Si828x series from Silicon Labs provide industrial-grade isolation with a dielectric withstand voltage of 5.0 kV RMS per UL1577. These isolated, high-current devices protect sensitive IGBT switches in power inverter and motor drive applications.

Each 4-A gate driver operates over the full industrial temperature range of -40°C to +125°C and achieves product lifetimes of up to 100 years. System safety features include fast desaturation detection to monitor IGBT overcurrent, fault feedback, undervoltage lockout, and soft shutdown during fault conditions. They also feature split outputs and a Miller clamp to prevent parasitic gate turn-on.

An optional integrated DC/DC converter simplifies board layout and driver supply design. A single power bus can be routed across the system, eliminating complex spacing concerns. Localizing power supplies to each driver reduces inductance, minimizes noise, and removes transients.

Si828x drivers provide fast, accurate timing specifications with low propagation delay of less than 55 ns—up to 10 times better than optocoupler designs and up to 2 times better than competing CMOS solutions, according to the manufacturer.

Samples and production quantities of the Si828x series isolated gate drivers are available now in a variety of compact wide-body SOIC packages. Prices start at $1.59 for base driver products and $2.87 for devices with an integrated DC/DC converter, both in lots of 10,000 units. Several evaluations kits are available for $19 each.

Si828x series product page

Silicon Labs, www.silabs.com

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