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Replace Silicon IGBTs with Industry's Most Rugged Silicon Carbide Power Solutions Now Available at 1700V

Silicon carbide portfolio with 1700V MOSFET die, discrete and power module devices extend designers' options for efficiency, power density

CHANDLER, Ariz., July 27, 2021 (GLOBE NEWSWIRE) -- Today's energy-efficient electric charging systems powering commercial vehicle propulsion, as well as auxiliary power systems, solar inverters, solid-state transformers and other transportation and industrial applications all rely on high-voltage switching power devices. To meet these requirements, Microchip Technology Inc. **(Nasdaq: MCHP)** today announced the expansion of its silicon carbide portfolio with a family of high-efficiency, high-reliability **1700V silicon carbide MOSFET die, discrete and power modules**.

Microchip's 1700V silicon carbide technology is an alternative to silicon IGBTs. The earlier technology required designers to compromise performance and use complicated topologies due to restrictions on switching frequency by lossy silicon IGBTs. In addition, the size and weight of power electronic systems are bloated by transformers, which can only be reduced in size by increasing switching frequency.

The new silicon carbide product family allows engineers to move beyond IGBTs, instead using two-level topologies with reduced part count, greater efficiency and simpler control schemes. Without switching limitations, power conversion units can be significantly reduced in size and weight, freeing up space for more charging stations, additional room for paying passengers and cargo, or extending the range and operating time of heavy vehicles, electric buses and other battery-powered commercial vehicles – all at reduced overall system cost.

"System developers in the transportation segment are continuously asked to fit more people and goods into vehicles that cannot be made larger," said Leon Gross, vice president of Microchip's discrete product business unit. "One of the best ways to help achieve this is through the enormous reductions in size and weight of power conversion equipment that utilizes high-voltage silicon carbide power devices. These same advantages for transportation bring similar benefits to many other industry applications."

Features include gate oxide stability where Microchip observed no shift in threshold voltage even after an extended 100,000 pulses in repetitive unclamped inductive switching (R-UIS) tests. R-UIS tests also showed excellent avalanche ruggedness and parametric stability and with gate oxide stability, demonstrated reliable operation over the life of the system. The degradation-free body diode can eliminate the need to use an external diode with the silicon carbide MOSFET. A short-circuit withstand capability comparable to IGBTs survives harmful electrical transients. A flatter RDS(on) curve over junction temperature from 0 to 175 degrees Celsius (C) enables the power system to operate at greater stability than other silicon carbide MOSFETs that exhibit more sensitivity to temperature.

Microchip streamlines the adoption of its technology with a family of **AgileSwitch® digital programmable gate drivers** and wide range of discrete and power module packaging, available in standard and customizable formats. These gate drivers help speed silicon carbide development from benchtop to production.

Other Microchip silicon carbide products include families of MOSFETs and Schottky Barrier diodes at 700V and 1200V, available in bare die and a variety of discrete and power module packages. Microchip unifies in-house silicon carbide die production with low-inductance power packaging and digital programmable gate drivers to enable designers to make the most efficient, compact and reliable end products.

The company's total system solutions also include a portfolio of microcontrollers (MCUs), analog and MCU peripherals, and communication, wireless and security technology.

Development Tools

Silicon carbide SPICE simulation models compatible with Microchip's MPLAB® Mindi™ analog simulator provide system developers with resources to simulate switching characteristics before committing to hardware design. The Intelligent Configuration Tool (ICT) enables designers to model efficient silicon carbide gate driver settings for Microchip's AgileSwitch® family of digital programmable gate drivers.

Availability

Microchip's 1700V silicon carbide MOSFET die, discrete and power modules are available now for order in a variety of package options.

For information including pricing, contact a Microchip sales representative, authorized worldwide distributor or visit the **company's website**. To purchase products mentioned here, contact a Microchip authorized distributor.

Resources

High-res image available through Flickr or editorial contact (feel free to publish):

- Application image**:** **https://www.flickr.com/photos/microchiptechnology/51311094191/**
- Product image: **https://www.flickr.com/photos/microchiptechnology/51311838234/**

About Microchip Technology

Microchip Technology Inc. is a leading provider of smart, connected and secure embedded control solutions. Its easy-to-use development tools and comprehensive product portfolio enable customers to create optimal designs which reduce risk while lowering total system cost and time to market. The company's solutions serve more than 120,000 customers across the industrial, automotive, consumer, aerospace and defense, communications and computing markets. Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at **www.microchip.com**.

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