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Microchip to Provide Silicon Carbide MOSFETs and Digital Gate Drivers for Mersen's SiC Power Stack Reference Design

Electric vehicle, commercial transportation, renewable energy and storage system designers can benefit from silicon carbide stack solution that drives performance and cost efficiencies and accelerates time to market by up to six months

CHANDLER, Ariz., Dec. 08, 2021 (GLOBE NEWSWIRE) -- E-mobility and renewable energy systems require power management solutions that drive performance and cost efficiencies in addition to speeding up development time. To keep pace with these requirements, Microchip Technology Inc. **(Nasdaq: MCHP)** today announced the collaboration with Mersen on their 150 kilovolt-ampere (kVA) three-phase silicon carbide **Power Stack Reference Design**. Mersen is a global provider of power management solutions for numerous industrial sectors including e-mobility and energy storage.

Mersen's three-phase SiC Power Stack Reference Design provides system designers with a complete, compact, high-power silicon carbide solution without the need for individual device sourcing, testing and qualification. The Power Stack Reference Design includes Microchip's silicon carbide power modules and digital gate drivers and Mersen's bus bar, fuses, capacitors and thermal management, optimally designed together in a single high-performance stack reference design. With Microchip's 1200V **MSCSM120AM042CD3AG** silicon carbide MOSFET and AgileSwitch® **2ASC-12A1HP** digital gate driver, the Power Stack Reference Design enables engineers to rapidly develop high voltage systems using kits predesigned for their applications – reducing time to market by up to six months.

"Microchip customers will benefit from our collaboration with Mersen to provide silicon carbide MOSFETs and digital gate driver solutions," said Leon Gross, vice president of Microchip's discrete product business unit. "When power inverter designers can source a proven solution, they can avoid sourcing individual parts and reduce risk through reliability – and that helps avoid downtime. Designers now have an all-in-one evaluation system."

The Power Stack Reference Design provides 16 kilowatts per liter (kW/l) of power density and up to 130°C T_j, peak efficiency at 98%, with up to 20 kilohertz (kHz) switching frequency. Utilizing Microchip's rugged silicon carbide MOSFETs and AgileSwitch family of configurable digital gate drivers, the reference design enables engineers to select from 700V and 1200V options in currents up to 750A. Microchip also provides a choice in module construction including baseplate material, Direct Bonding Copper (DBC) ceramic material and die attach method.

“We worked closely with Microchip on the design and development of this silicon carbide Power Stack Reference Design given the availability of highly robust silicon carbide MOSFETs and compatible digital gate drivers from a single source,” said Philippe Roussel, PhD, vice president, Global Strategic Marketing Executive Expert at Mersen. “Thus, we can demonstrate our ability to optimize any inverter topologies from our customers, relying on our line of highly reliable bus bars, capacitors, fuses and cooling systems. The versatile Microchip silicon carbide line-up also gives us the capacity to extend these primary specifications to higher voltage, current and switching frequency to meet every customer’s operating point needs.”

In addition to the products in Mersen’s Power Stack Reference Design, Microchip is a provider of other silicon carbide power solutions including families of MOSFETs and Schottky Barrier diodes from 650V to 1700V, available in bare die and a variety of discrete and multi-chip module packages.

Microchip unifies in-house silicon carbide die production with its low-inductance power packaging and digital gate drivers enabling designers to make efficient, compact and reliable end products. These devices pair well with a comprehensive portfolio of microcontrollers (MCUs), analog and MCU peripherals, plus communication, wireless and security technology, providing system designers across many applications with proven total system solutions.

Development Tools
Microchip’s AgileSwitch 2ASC-12A1HP 1200V dual-channel digital gate driver with Augmented Switching™ technology is production qualified and fully configurable. The AgileSwitch 2ASC-12A1HP gate driver and next-generation 2ASC-12A2HP are supported by Microchip’s Intelligent Configuration Tool (ICT), an interface allowing users to configure gate driver parameters including the gate switching profiles, system critical monitors and controller interface settings. The ICT, a free-of-charge download, saves development time.

Availability
For additional information on stack visit **Mersen Stack Optimization Assembly,** or contact a Microchip sales representative or authorized worldwide distributor. More about Microchip products is at **Microchip.com/SiC**.

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

- Application image**:**
  https://www.flickr.com/photos/microchiptechnology/51655174748/sizes/l/
- Product image:
  https://www.flickr.com/photos/microchiptechnology/51654975011/sizes/l/

About Microchip Technology
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