

SemiQ Unveils High-Performance QSiC™ Power Modules in Half-Bridge Packages

New 1200V SiC MOSFET modules deliver reliable, high-efficiency operation in photovoltaic inverter, battery charger and high-voltage DC-DC converter applications

LAKE FOREST, CALIFORNIA, UNITED STATES, December 13, 2023 /EINPresswire.com/ -- SemiQ Unveils High-Performance QSiC™ Power Modules in Half-Bridge Packages

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SemiQ Inc, a designer, developer, and global supplier of superior SiC solutions for ultra-efficient, high-performance, and high-voltage applications, has expanded its QSiC™ power modules

portfolio with the introduction of a new series of 1200V silicon-carbide (SiC) power MOSFETs in half-bridge packages.

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Our high-performance QSiC™ MOSFET modules are proven to withstand challenging conditions, enabling engineers to develop reliable systems for the renewable, automotive, medical, and industrial sectors.”

Dr. Timothy Han, President

Engineered and tested to operate reliably in demanding environments, these new compact, high-performance modules enable high-power-density implementations while minimizing dynamic and static losses. Featuring high breakdown voltage (>1400V), the new QSiC™ modules support high-temperature operation ($T_j = 175^{\circ}\text{C}$) with low $R_{ds}(\text{On})$ shift over the full temperature range. In addition, the modules exhibit industry-leading gate oxide stability and long gate oxide lifetime, avalanche unclamped

inductive switching (UIS) ruggedness and long short-circuit withstand time.

With a solid foundation of high-performance ceramics, the new SiC modules are suitable for EV charging, on-board chargers (OBCs), DC-DC converters, E-compressors, fuel cell converters, medical power supplies, photovoltaic inverters, energy storage systems, solar and wind energy systems, data center power supplies, UPS/PFC circuits, Vienna rectifiers, and other automotive and industrial applications.

Part Numbers	Circuit Configuration	Ratings	Typ. RdsOn [mΩ]
GCMX010A120B2B1P	Half-bridge	1200V/214A, B2	9
GCMX020A120B2B1P	Half-bridge	1200V/102A, B2	19
GCMX005A120B3B1P	Half-bridge	1200V/383A, B3	4.4
GCMX010A120B3B1P	Half-bridge	1200V/173A, B3	9

See the QSiC™ family of 1200V MOSFET modules in half-bridge configurations, or start at the product page here (<https://semi.com/module-packages/>).

To ensure that each module has a stable gate threshold voltage and high-quality gate oxide, SemiQ's modules undergo gate burn-in testing at the wafer level. Besides the burn-in test, which helps to stabilize the extrinsic failure rate, stress tests such as gate stress, high-temperature reverse bias (HTRB) drain stress, and high humidity, high voltage, high temperature (H3TRB) allow achieving the required automotive and industrial grade quality levels. The devices also have extended short-circuit ratings. All modules have undergone testing exceeding 1350V.

Dr. Timothy Han, President at SemiQ, said, "SemiQ's commitment to reliability and testing sets us apart in the semiconductor industry. Our high-performance QSiC™ 1200V MOSFET modules are proven to withstand challenging conditions, enabling engineers to develop reliable systems for the renewable, automotive, medical, and industrial sectors."

SemiQ's new 1200V 5mΩ, 10mΩ, and 20mΩ SiC MOSFET are available in industry standard half-bridge packages. A table with part numbers is shown above.

Please visit [SemiQ.com](https://semi.com) for specifications and to request samples or volume pricing. Download the datasheets for parts GCMX010A120B2B1P, GCMX020A120B2B1P, GCMX005A120B3B1P and GCMX010A120B3B1P from the QSiC™ family of 1200V MOSFET modules in half-bridge configurations, or start at the [product page here](https://semi.com/module-packages/).

About SemiQ

SemiQ provides high-quality, efficient standard, and custom silicon carbide (SiC) power semiconductors for high-voltage applications. Our product portfolio – including MOSFETs and diodes, in discrete, module, and bare die formats - combines high performance with industry-leading reliability.

For over a decade, SemiQ's experienced team has worked with customers from various application areas, including solar energy, EV charging, automotive, medical, and energy storage. From the initial concept stage through prototyping and production, we help design, test, and deploy high-density and optimized solutions, providing exceptional service and engineering

support to all our partners within the shortest possible timeframe.

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