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Microsemi's New 30 kW Three-Phase Vienna PFC Reference Design Leveraging its Leading SiC Diodes and MOSFETs Offers High Ruggedness and Performance

Solution Ideally Suited for Fast EV Charging and Industrial Applications to be Showcased in Hall 6, Booth 318 at PCIM Europe June 5-7

ALISO VIEJO, Calif.—May 22, 2018—Microsemi Corporation (Nasdaq: MSCC), a leading provider of semiconductor solutions differentiated by power, security, reliability and performance, today announced the availability of its new scalable [30-kilowatt \(kW\), three-phase Vienna power factor correction \(PFC\) topology reference design](#) featuring its Silicon Carbide (SiC) diodes and MOSFETS. Developed in collaboration with North Carolina State University (NCSU), the scalable, user-friendly solution is ideally suited for fast [electric vehicle \(EV\) charging](#) and other high power [automotive](#) and [industrial applications](#), providing customers with more efficient switching as well as high avalanche/repetitive unclamped inductive switching (UIS) and high short-circuit withstand ratings when utilizing the company's robust SiC MOSFETs and diodes. The active rectifier PFC reference design, along with other solutions in the SiC product family, will be demonstrated June 5-7 in hall 6, booth 318 at [PCIM Europe 2018](#), held at the Exhibition Centre in Nuremberg, Germany.

"As the automotive market transitions toward more hybrid electric vehicle (HEV) and battery electric cars, SiC allows for better efficiency, resulting in better mileage. This continues to drive high demand for these SiC devices in our portfolio, as well as our other high-reliability product offerings," said Leon Gross, vice president and business unit manager for Microsemi's Discrete and Power Management group. "After successfully releasing our SiC MOSFET and diode product portfolio over the past few years, our new three-phase three-switch three-level PFC reference design is a concrete example of how to leverage these parts in demanding applications that showcase its ruggedness, high performance and overall value."

Microsemi's user-friendly 30 kW three-phase PFC reference design includes design files for use with the company's next-generation SiC diodes and MOSFETS, open source digital control software and a user guide. The topology offers advantages over single-phase PFC and two-level, six-switch boost pulse width modulated (PWM) rectifier designs, which include operation in continuous conduction mode with extremely low distortion, reduced switching losses on power devices of approximately 98 percent for high efficiency and a compact form factor compared to Si/IGBT solutions.

The reference design also offers a detailed 3-D mechanical and thermal design with an integrated fan and cooling channel to reduce thermal resistance and total system size. Its printed circuit board (PCB) layout was developed with considerations for safety, current stress, mechanical stress and noise immunity, and the reference design package features ready-to-use hardware and verified open source software to reduce the technical risk of high power switching designs while accelerating product time to market.

In addition to its suitability for fast EV/HEV chargers and high power three-phase power supplies in the automotive and industrial markets, Microsemi's new active three-phase PFC reference design can also be used in [medical](#), [aerospace](#), [defense](#) and [data center](#) markets. This reference design adds to the company's overall SiC solutions portfolio, which can also be used for HEV/EV charging, conductive/inductive onboard charging (OBC), DC-DC converters, EV powertrain/traction controls, [photovoltaic \(PV\) inverters](#) and [actuation applications](#).

Market research firms including IndustryARC and Technavio expect the EV power electronics market will grow between a 19 percent to 33 percent compound annual growth rate (CAGR) through 2021, with the adoption of wideband gap semiconductors including SiC devices increasing due to their high operating temperature capability and efficiency for EV powertrain, DC-DC converters, charging and switching power supply applications.

Demonstrations at PCIM June 5-7 in Hall 6, Booth 318

Microsemi's product experts will be at the company's booth at PCIM during show hours to showcase its new Vienna PFC reference design and Microsemi SiC solutions. For more information or to request a meeting at the show, visit <https://www.microsemi.com/details/346-pcim-europe>.

Product Availability

Microsemi's PFC reference design is available now. For more information, visit <https://www.microsemi.com/product-directory/discretes/3613-silicon-carbide-sic> or contact sales.support@microsemi.com.

About Microsemi

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California, and has approximately 4,800 employees globally. Learn more at www.microsemi.com.

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looking statements. The potential risks and uncertainties include, but are not limited to, such factors as rapidly changing technology and product obsolescence, potential cost increases, variations in customer order preferences, weakness or competitive pricing environment of the marketplace, uncertain demand for and acceptance of the company's products, adverse circumstances in any of our end markets, results of in-process or planned development or marketing and promotional campaigns, difficulties foreseeing future demand, potential non-realization of expected orders or non-realization of backlog, product returns, product liability, and other potential unexpected business and economic conditions or adverse changes in current or expected industry conditions, difficulties and costs in implementing the company's acquisitions and divestitures strategy or integrating acquired companies, uncertainty as to the future profitability of acquired businesses and realization of accretion from acquisition transactions, difficulties and costs of protecting patents and other proprietary rights, inventory obsolescence and difficulties regarding customer qualification of products. In addition to these factors and any other factors mentioned elsewhere in this news release, the reader should refer as well to the factors, uncertainties or risks identified in the company's most recent Form 10-K and all subsequent Form 10-Q reports filed by Microsemi with the SEC. Additional risk factors may be identified from time to time in Microsemi's future filings. The forward-looking statements included in this release speak only as of the date hereof, and Microsemi does not undertake any obligation to update these forward-looking statements to reflect subsequent events or circumstances.

Source: Microsemi Corporation