SiC Power Modules to Support Delta's Solar PV Inverters

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Delta's Three-Phase PV Inverter benefits from the efficiency offered by SiC technology

PHOENIX, Ariz. – July 20, 2020 – ON Semiconductor (Nasdaq: ON), driving energy efficient innovations, has introduced a full SiC power module for solar inverter applications, which has been selected by the global leading provider of power and thermal management solutions, Delta, to support its M70A three-phase PV string inverter portfolio.

The NXH40B120MNQ family of full SiC power modules integrate a 1200 V, 40mΩ SiC MOSFET and 1200 V, 40 A SiC boost diode with dual boost stage. The use of SiC technology delivers the low reverse recovery and fast switching characteristics needed to achieve the high levels of power efficiency required in applications such as solar inverters.

"Silicon Carbide technology has the potential to revolutionize the energy market," commented Asif Jakwani, senior vice president of the Advanced Power Division at ON Semiconductor. "The full SiC integrated power modules developed by ON Semiconductor address the need for higher system efficiency at elevated power levels in solar inverters, and demonstrate the maturity of SiC technology."

"With our focus on providing innovative, clean and energy-efficient solutions for a better tomorrow, we are always looking to engage with suppliers that can help us achieve highest efficiency, reduce product volume and weight, and meet the needs of the global solar PV market," said Raymond Lee, head of Delta's PV Inverter Business Unit. He added, "The full SiC power modules from ON Semiconductor were selected for our M70A 70kW three-phase PV string inverter because they provide best in class performance, which combined with our unique expertise in high-efficiency power electronics, allow our products to achieve peak energy conversion efficiency as high as 98.8%."

As part of ON Semiconductor's growing portfolio of Power Integrated Modules (PIMs) based on wide bandgap (WBG) technology , the NXH40B120MNQ offers a high level of integration with pin assignment optimized for inverter design. By using SiC components, the power module delivers low conduction and switching losses, enabling the use of higher switching frequencies, which contributes to higher inversion efficiency. The modules are designed for ease of use, with solderless press-fit connections and customer-defined thermal interface options, depending on customer preferences.

The NXH40B120MNQ full SiC power module is available in 2-channel and 3-channel variants, and is complemented by the NXH80B120MNQ0, a 2-channel module that integrates a 1200 V, 80mΩ SiC MOSFET with 1200 V, 20 A SiC diode.

Additional resources & documents:

- Landing page: Solar Power Solution, Wide Bandgap Solutions
- Video: Solar Home and Battery Storage Demo

About ON Semiconductor
ON Semiconductor (Nasdaq: ON) is driving energy efficient innovations, empowering customers to reduce global energy use. The company is a leading supplier of semiconductor-based solutions, offering a comprehensive portfolio of energy efficient power management, analog, sensors, logic, timing, connectivity, discrete, SoC and custom devices. The company's products help engineers solve their unique design challenges in automotive, communications, computing, consumer, industrial, medical, aerospace and defense applications. ON Semiconductor operates a responsive, reliable, world-class supply chain and quality program, a robust compliance and ethics program, and a network of manufacturing facilities, sales offices and design centers in key markets throughout North America, Europe and the Asia Pacific regions. For more information, visit https://www.onsemi.com.

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