

IGBT Modules Simplify Design And Reduce Costs For Renewable Energy Applications

[onsemi's](#) NXH800H120L7QDSG and SNXH800H120L7QDSG are seventh-generation 1200-V QDual3 IGBT power modules that offer increased power density and deliver up to 10% more output power than other available competing products, according to the vendor. Based on the latest Field Stop 7 (FS7) IGBT technology, the 800-A QDual3 modules are said to deliver industry-leading efficiency to reduce system costs and simplify designs.

For example, in a 150-kW inverter, the QDual3 module will dissipate 200 W less than the closest competition, significantly reducing heatsink size, according to the company. QDual3 is engineered to work under harsh conditions, making it well suited for applications such as central inverters in solar farms, energy storage systems (ESSs), commercial agricultural vehicles (CAVs) and industrial motor drives (see the figure).

For large systems, the modules can be paralleled to increase the output power up to a couple of megawatts and compared to traditional 600-A module solutions, the 800-A QDual3 significantly reduces the module quantity, greatly simplifying design complexity and cutting system costs, says the vendor.

The QDual3 IGBT modules feature an 800-A half-bridge configuration that integrates the latest Gen7 trench Field Stop IGBT and diode technology using onsemi's advanced packaging techniques to reduce switching and conduction losses. With FS7 technology, the die size is reduced by 30% says the vendor, allowing more die per module, increasing the power density to enable the maximum current capacity of up to 800 A or higher.

With an IGBT $V_{CE(SAT)}$ as low as 1.75 V (175°C) and low E_{OFF} , the 800-A QDual3 module dissipates 10% lower energy losses than the next-best alternative, according to onsemi. The modules also meet the stringent standards required of an automotive application.

"With its industry-standard pin-out and market-leading efficiencies, QDual3 enables power electronics designers to plug and play these modules for an immediate performance boost in their systems." said Sravan Vanaparthi, vice president, Industrial Power Division, Power Solutions Group, onsemi.

For more information, see the [NXH800H120L7QDSG](#) and [SNXH800H120L7QDSG](#) product pages.



Figure. The NXH800H120L7QDSG and SNXH800H120L7QDSG 1200-V QDual3 IGBT modules offer 10% more power than competing products in the same form factor, according to the vendor.