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650-V IGBT Targets Solar Inverters

Magnachip Semiconductor's MBQ75T65P is a 650-V IGBT designed for use in solar inverters. This device is built with advanced "field stop trench technology" for fast switching speed and high breakdown voltages. The company was set to begin mass production of the MBQ75T65P last month. This device complements a 1200-V IGBT that the company previously introduced for the solar energy market (see the table).

The current density of this new 650-V IGBT was improved by 30% compared to the prior generation by adopting the latest technology. This IGBT is also designed to provide a minimum short-circuit withstand time of 5 µs and it is optimized for parallel switching because of its positive temperature coefficient. The parallel switching of this IGBT will increase the load current.

In addition, the 650-V IGBT features anti-parallel diodes for fast switching and low switching loss, while guaranteeing a maximum operating junction temperature of 175°C. Based on JEDEC standards, this IGBT can be widely used for applications requiring strict power level and high efficiency, such as solar boost inverters and converters, uninterruptible power supplies and universal power inverters.

"Magnachip's first IGBT was introduced in 2013, and since then, we have been committed to developing high-efficiency products for a variety of markets, while strengthening our presence around the world," said YJ Kim, CEO of Magnachip. With this new product, we are expanding our efforts to deliver high-performance products for the eco-friendly renewable energy market."

For more information, see the website.

Table. Magnachip's IGBT products for the solar energy market.

Model	V_{CES}	I_C (T_C = 100℃)	Package
MBQ75T65P	650 V	75 A	TO-247
MBQ40T120Q	1200 V	40 A	TO-247