Infineon FS820R08A6P2B HybridPACK Drive IGBT Module

The newest HybridPACK Drive power module from Infineon with EDT2 IGBT technology

With the push from various energy-saving applications, the overall IGBT market was worth USD860 Million in 2016. 25 million electrified vehicles were sold last year. As vehicle numbers increased worldwide and people adopted electrified vehicles, IGBT sales in automotive applications showed rapid growth. This will continue at a fast pace from 2016–2022.

As one of the leading vendors of IGBTs, Infineon has devoted more than 20 years to device design innovation. It now commands more than 20 percent of the market, leading in both IGBT discretes and modules.

The HybridPACK Drive power module is the latest power packaging specifically designed for automotive applications. The FS820R08A6P2B drives 820A and uses a new copper pin-fin dissipation structure optimized for direct liquid cooling. This improves its thermal cycling capability and extends the lifetime of the power module.

The terminals are connected directly to the Direct-Bonded Copper (DBC) substrate, without wire bonding. The new press-fit pin technology allows easy and optimized system integration.

The IGBT diode is manufactured with the new Electric Drive Train 2 (EDT2) design, which reduces conduction and switching losses. The innovative structure is based on Micro-Pattern-Trench-Field-Stop cell design and is composed of active gate, source and dummy gates with inactive mesas.

Based on a complete teardown analysis, the report provides an estimation of the production cost of the IGBT, diode and package. It offers a comparison between Infineon’s IGBT4 and EDT2 devices and HybridPACK 2 and HybridPACK Drive modules. It highlights the differences in design and manufacturing processes and their impact on device size and production cost.
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