SiC Modules and Advanced 3-Level Dedicated Circuits

Fuji Electric has played a significant role in the development of highly reliable SiC power modules that incorporate SiC-SBD and SiC-MOSFET devices capable of breakdown voltages of 1,200 V.

Featuring a lower resistance and a higher ability to withstand destruction, these new SiC devices were developed on a new production line constructed within the National Institute of Advanced Industrial Science and Technology (AIST), which is an independent administrative agency with whom Fuji Electric developed the devices.

In terms of the packages, the wiring and substrate structure were developed from the material stage to create a new structure with a high heat-dissipating capability. It has been verified that the modules can support operation at 200ºC despite their extremely small sizes by incorporating the SiC devices into this new structure.

Furthermore, in order to give full rein to the special features of these devices and modules, advanced 3-level dedicated circuits have also been developed, and the volume per output has been successfully slashed to one-fifth compared with previous Si-IGBTs.