Latest Trends and Prospects for Power Module Technology

Power electronics (PE) is a core technology that allows efficient utilization of electric energy, which is an urgent issue. At the heart of PE equipment are power devices, and the performance of a power device effectively determines the performance of the PE equipment. At Mitsubishi Electric, Si (silicon)-IGBT (Insulated Gate Bipolar Transistor) chips, which control high current density by conductivity modulation of bipolar devices are used in combination with module package technology, allowing us to offer a lineup of power module products ranging from over 100 watt class to several megawatt class. With this lineup, we provide high performance PE equipment in the fields of consumer products, industries, automobiles, electric railway, and electric power.

Along with the expansion of applications, the diversification in user demands for power modules. In response, we are actively introducing not only the latest 7th generation Si chip technology and SiC (silicon carbide) device technology to reduce the loss of energy but also high-density package technology to realize smaller, lighter modules. We are improving electromagnetic interference performance on modules and moreover, enhancing their functionality.

We will strive to help create highly reliable and efficient industrial equipment, offering for industrial use advantageous power modules characterized by high quality, low energy loss, excellent noise performance, and simple assembly for the benefit of users.