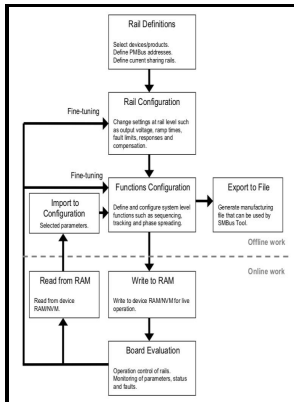


# Power electronic modules - design and manufacture

CRC Press - USI



Description: -

- Power semiconductors -- Design and constructionPower electronic modules - design and manufacture

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## Power Electronics

Organized into three main sections, coverage begins with discussions on the materials used and their key properties, including a comparison of those properties with the requirements of high-performance, cost-effective power modules and the pros and cons of selected materials. The platform's firmware also implements a virtual com port that provides access to internal parameters for reading metrology data, modifying the internal configuration, and calibrating the board. Board-level products include distributed power architecture DPA and intermediate bus architecture IBA.

## Predictable Designs is where electronics and entrepreneurship intersect

For example, IGBT modules will contain a number of semiconductor dies within a small footprint bonded to substrates with aluminum wires and wide area solder joints. Motion Control: Intelligent Motion The pursuit of digital motion control was already well underway in the mid-1970s.

## Reference Designs

Recent product introductions include the first industry-standard sixteenth-brick isolated converter and a new generation of switching power supplies featuring sophisticated digital management. Among its other IGBT accomplishments, Fairchild from its Harris legacy pioneered the use of ignition IGBTs with Motorola for production vehicles in 1993. Like a string inverter or central inverter, they convert the DC power produced by the panels to AC power that can be sent to the grid and used in the home.

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The company is currently delivering engineering samples to leading VR11 power supply licensees. Three people who have been important in Infineon's power semiconductor product development include Dr. Patrizio Vinciarelli founded Vicor in 1981 after the first issues of Solid-State Power Conversion magazine were already collectors' items.

## Automotive power electronics

Its broad product line includes IGBTs Insulated Gate Bipolar Transistors , HVIGBTs, IPMs Intelligent Power Modules , rectifiers, thyristors,

custom power modules, and assemblies. Achieving a major improvement over the conventional MOSFET structure by employing the super junction charge-balance principle: essentially, it allows the thick drift region of a power MOSFET to be heavily doped, thereby reducing the electrical resistance to electron flow without compromising the breakdown voltage. They offer up to 60% reduction of E on and 30% reduction of E off compared to a standard silicon diode solution.

### **Automotive power electronics**

For instance, if shading only affects selected modules in your system, DC optimizers could be added to those specific modules so that they will not bring down the power output of the rest of the string. The devices address the trend toward higher input voltages, driven by the growing need for higher efficiency in industrial and consumer applications. The STISO621 features two independent channels with Schmitt-trigger inputs that delivers high noise immunity and keep pulse distortion below 3 ns.

### **Power Electronic Modules: Design and Manufacture**

Micrel Micrel is an industry leader in analog ICs, power management and a global manufacturer of IC solutions for Ethernet and high-bandwidth markets.

### **Power module**

Although silicon has been the predominant material for semiconductors, wide bandgap materials that include silicon carbide SiC and gallium nitride GaN now power higher-performance power electronics systems. The trade-offs between voltage, current, and frequency ratings also exist for a switch. Conrad, who is senior vice president and general manager of Analog Products, and Izak Bencuya, who is chief strategy officer, executive vice president and general manager.

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