

Half the Size of Conventional 1200 Volt IPM's

Increased power density for higher efficiency

The MiniSKiiP IPM from Semikron sets a new benchmark for power density in 1200V Intelligent Power Modules. At a weight of 55g and a volume of 49cm³, this module is lighter and more compact than any other IPM module in this power class. Plus, the design yields optimum switching properties with regard to electromagnetic interference. This module was developed for inverter applications of up to 15kW.

With an area of 59mm x 52mm and an overall height of 16mm, this module is at least fifty percent smaller than conventional intelligent power modules in this power range. The innovative connection technology allows for the development of compact inverters and reduced production costs.

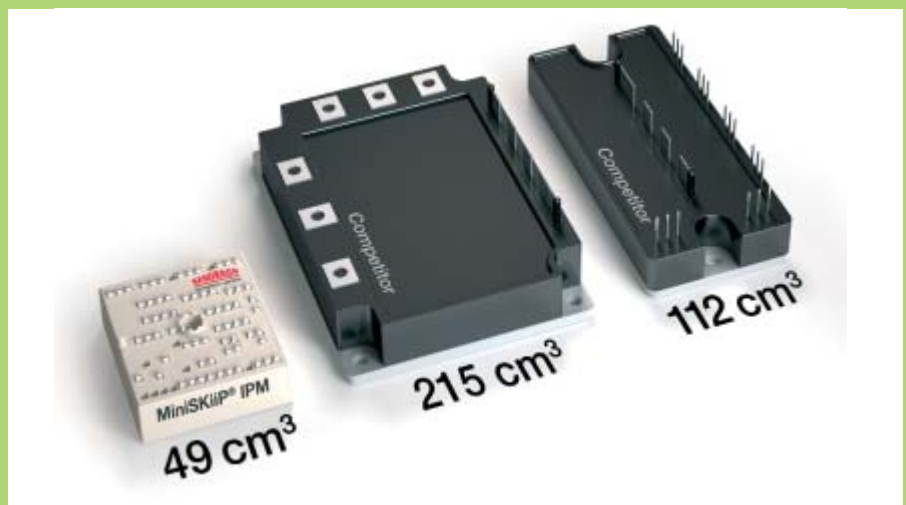
To achieve the high power density offered in the MiniSKiiP[®] IPM module, the power semiconductor chips and the DCB are thermally connected to the heat sink by way of an efficient pressure contact system. Since the module does not contain a base plate, the thermal resistance is much lower than in any other IPM with base plate.

The integrated SOI driver is mounted directly onto the DCB and connected to the gate terminals of the power transistors by short conductor lines via optimised gate resistors. These short connections ensure harmonious switching behaviour and reduce electromagnetic interference. As a result, less complex protection measures are needed to comply with the electromagnetic compatibility requirements. The short paths result in low parasitic inductances, which in turn mean lower over-voltages in the module, allowing for higher DC link voltages and greater efficiency.

The MiniSKiiP[®] IPM module and the power circuit board are mounted to the heat sink using a single standard screw. The entire power, gate and auxiliary connections are made by way of pressure contacts to the PCB rather than soldered contacts. This allows for quick and cost-reduced assembly. Plus, the removal of solders further improves

the quality of the entire construction and brings about a higher degree of reliability than in conventional IPM modules. Users profit from the user-friendly design of this all-inclusive product as compared with discrete solutions.

the Megawatt range. Semikron is the market leader in the field of diode/thyristor semiconductor modules, enjoying a 37% share of the worldwide market. (Source: IMS Research „The worldwide market for power semiconductor discretes and modules“2008).



The 1200V 6-pack MiniSKiiP[®] IPM has a high-voltage driver IC and features state-of-the-art Trench-Field-Stop IGBTs, which are optimised for low switching losses and high current densities. At a rated current of 61A, an output power of up to 15kW is possible. 600V Converter-Inverter-Brake versions are also available. The modules fully comply with the requirements of the EU RoHS directive.

Semikron is an internationally leading power semiconductor manufacturer. Founded in 1951, the German-based family enterprise employs 3200 people worldwide. Semikron comprises a global network of 35 companies with production plants in China, Korea, India, South Africa, Brazil, USA, Italy, France, Slovakia and Germany that guarantees fast and competent on-site customer care.

The products range from chips, discrete semiconductors, transistor, diode and thyristor power modules to customer specific solutions and integrated power electronic systems for applications from one kilowatt into

Semikron technology powers nearly half of the globally installed wind power capacity. According to a survey carried out by BTM Consult ApS, the total wind power capacity installed until 2009 was 122 Gigawatt. 57 Gigawatt comprises semiconductors from Semikron. "Semikron inside" has become a trademark for markets such as industrial drives, power supplies, renewable energy, battery vehicles and the rail industry. The dedication to the electric and hybrid vehicle market was further strengthened with the 50/50 joint venture between Semikron and Magna Electronics and the majority takeover of Compact Dynamics GmbH. As a significant innovator in the power electronics sector, many of Semikron's progressive developments have been accepted as industrial standards.

www.semikron.com