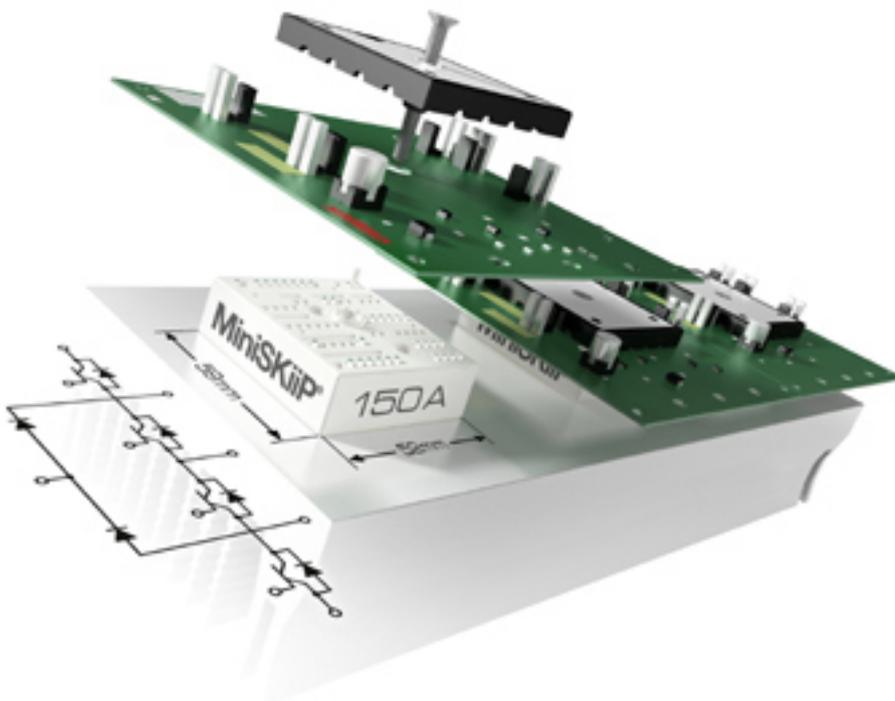


# IGBT module for 3-level inverters

ECN Europe

[Semikron](#) [1] presents its newest MiniSKiiP IGBT power semiconductor module, which is now also available in 3-level topology. The new module boasts a rated current of 4.9 A/cm<sup>2</sup>, the highest rated current per unit of area in comparison to competitor products, and one phase leg per module, enabling the development of compact inverters with output power of up to 85 kVA. The MiniSKiiP is characterised by the fast and easy single-screw assembly and therefore optimised for the efficient manufacture of 3-level solar inverters and UPS systems.

The rated current per unit of area is up to twice that of other 3-level modules. Since no solid busbars are needed between the three phases/modules, more compact inverters can be made. The reverse voltage of the IGBTs and diodes used has been increased to 650 V to enable DC link voltages of 900 V for 480 V three-phase power applications typical in commercial or industrial settings in the United States. Each module has a 3-level phase leg with sufficient space for ten power semiconductors each.



**[2] Picture: Semikron**

Across the world, more than 15 million MiniSKiiP modules are in use in drives and frequency converters. The success of this module platform continues in the new 3-level topology, which improves electrical efficiency and makes power converters more efficient. Thermal and electrical connection between the module and the heat sink and the driver board is established with a single screw or two screws for rated module currents of up to 150 A or 200 A, respectively.

## IGBT module for 3-level inverters

Published on Electronic Component News (<http://www.ecnmag.com>)

---

This means that solder equipment and time-consuming soldering processes are done away with in the assembly stage. For solar inverter output power of 60 kVA and above, i.e. for rated current of 150 A and higher, modules with screw connections were previously used for the busbars. Thanks to MiniSKiiP 200 A 3-level modules, the busbars can be replaced with cheaper PCBs in inverters with outputs of up to 85 kVA. Former complex 8-screw connections have been reduced to simple 2-screw-assembly solutions.

The 3-level product range from Semikron covers rated currents of 20 A to 600 A: featuring SEMITOP solder modules for up to 150 A, MiniSKiiP spring contact modules for up to 200 A and SKiM screw connection modules for up to 600 A.

[SOURCE](#) [3]

**Source URL (retrieved on 07/29/2015 - 5:33am):**

<http://www.ecnmag.com/blogs/2011/05/igbt-module-3-level-inverters>

### Links:

[1] <http://www.semikron.com>

[2] [http://ecneurope.files.wordpress.com/2011/05/kl-semikron\\_miniskiip-igbt.jpg](http://ecneurope.files.wordpress.com/2011/05/kl-semikron_miniskiip-igbt.jpg)

[3] <http://ecneurope.wordpress.com/2011/05/13/igbt-module-for-3-level-inverters/>