

Product updates

BiMOS and BiPolar

Products in the pipeline Part no.	Voltage V	Current A	Housing	Description
5SNA 1500G4500300	4500	1500	HiPak2	HiPak SPT ⁺⁺ module
5SED 0890T2240	2200	890	60 mm, industry standard	Diode module
5SHZ 60L2500	2500	6000	L size, 85 mm	Reverse blocking IGCT
5SHX 36L4520	4500	1050	L size, 85 mm	HPT ⁺ RC-IGCT, optimized for low switching losses
5SHX 36L4521	4500	1300	L size, 85 mm	HPT ⁺ RC-IGCT, optimized for low on-state losses
5SDD 75Y8500	8500	7500	Y, 140 mm	Standard rectifier diode

Product features

4500 V 1500 A HiPak2 module with 150 °C junction operation temperature

The SPT⁺⁺ enhanced planar cell sets a new benchmark in lowest losses and highest ruggedness.

- Up to 150 °C junction operation temperature enables customers to increase their inverter rating or develop more compact designs
- SPT⁺⁺ chipset tuned for an optimal trade-off between switching and conduction losses enabling an optimal IGBT usage
- Lowest overall losses allow a significant increase in current density
- The enhanced planar cell represents the most robust and easiest to use technology available

Thyristor / diode modules

All thyristor / diode modules feature industry standard housings and very low losses together with the highest operating temperatures. Typical applications are AC motor soft starters, variable speed drives and renewable energies. Features within high-power semiconductors are also used in our thyristor/diode module product line. The benefits of these features include highest performance, outstanding reliability, increased overload capability and many more. The 60Pak diode-diode (DD) module with 2200 V is available for sampling now. The lineup will be expanded rapidly to different voltages and configurations in the coming years.

2500 V Reverse-Blocking IGCT (RB-IGCT)

Reverse Blocking-Integrated Gate Commutated Thyristor (RB-IGCT) designed and optimized for extreme low conduction losses and highest turn-off current capability.

- Record low on-state losses of below 1 kW at 1 kA, enables customer to design applications with highest efficiency ratings

- Highest robustness and reliability well-known from ABB's IGCT platform
- Optimized for DC Solid State Circuit Breaker (SSCB) application. The IGCT based SSCB allows to interrupt extreme currents faster than ever before (around 100 times faster than traditional electro-mechanical breakers)

4500 V Reverse-Conducting IGCT (RC-IGCT)

A new platform for Reverse-Conducting Integrated Gate Commutated Thyristors (RC-IGCTs) has been developed to meet the ever increasing demand for higher power capability coupled with lower operating losses. New devices offer more active area, larger controllable current, higher junction temperature and better cooling efficiency than the existing products. The devices are available in two variants, one optimized for medium switching frequency application, such as medium voltage drives and wind power converter, the second optimized for low switching frequency intended for use in Multi-Level Modular Converter (MMC) for e.g. static synchronous compensators (STATCOM) or pumped hydro plants. Design features:

- Device diameter increase within same footprint by making better use of raw silicon wafer
- Gate-circuit impedance minimization by changing to a gate contact infrastructure placed at the device periphery and by improving routing of the gate contact through the housing
- Moving the gate contact to the periphery for better cooling, as the pole piece trenches for conveying the gate signal no longer needed
- Increasing the maximum controllable current by adjusting the HPT+ platform for use with the RC-IGCT process flow · Samples available now

8500 V Standard rectifier diode

ABB's 6 Inch 8.5 kV diode sets new record standard in its class.

- Lowest on state and switching losses
- Designed for highest surge current performance
- First choice in many demanding applications · Now ready for sampling

New qualified products Part no.	Voltage V	Current A	Housing	Description
5SNG 0225R170300	1700	2 x 225	LoPak1	LoPak phase leg module
5SNG 0300R170300	1700	2 x 300	LoPak1	LoPak phase leg module
5SNG 0450R170300	1700	2 x 450	LoPak1	LoPak phase leg module
5SNA 1200N330400	3300	1200	HiPak1	HiPak single enhanced Trench IGBT module
5SNA 1800E330400	3300	1800	HiPak2	HiPak single enhanced Trench IGBT module
5SNA 1800G330400	3300	1800	HiPak2	HiPak single enhanced, high Iso housing Trench IGBT module
5SNA 1000G650300	6500	1000	HiPak2	HiPak single enhanced planar IGBT module
5STP 27N8500	8500	2450	N	Phase control thyristor

Product features

1700 V LoPak1 module available in three current ratings and up to 175 °C junction operation temperature

ABB's LoPak1 is 100 % mechanical compatible with Econo-type dual IGBT modules.

- Up to 175 °C junction operation temperature sets a new benchmark and enables customers to utilize higher inverter power per rated ampere
- 1700 V SPT++ chipset with lowest switching losses, enables operation at higher switching frequencies or more ecofriendly inverters
- Press-fit auxiliary connection for reliable, fast and cost effective inverter assembly

3300 V 1800 A HiPak2, 1200 A HiPak1 modules

ABB's TSPT+ enhanced Trench cell IGBT technology combines the merits of our unique enhanced planar cell with trench IGBT design.

- TSPT+ chipset with lowest losses enable 20 % higher current rating
- 20 % larger diode area with FCE technology for improved surge current, lower losses and soft recovery behavior
- High-voltage trench cell with excellent dynamic avalanche robustness
- Available in standard and high isolation housing

6500 V 1000 A HiPak2 module with 150 °C junction operation temperature

The SPT++ enhanced planar cell design of the 2nd generation sets a new benchmark in lowest losses and highest ruggedness.

- Up to 150 °C junction operation temperature enables customers to increase their inverter rating or develop more compact designs
- SPT++ chipset tuned for an optimal trade-off between switching and conduction losses enabling an optimal IGBT usage
- Lowest overall losses allow an increase in current density of more than 30 %
- The enhanced planar cell represents the most robust and easiest to use technology available on the market for the 6500 V class

8500 V phase control thyristors

- Latest high performance thyristor generation, developed with focus on minimizing the losses and maximizing the power rating
- Addressing demanding high-end industrial applications such as pumped hydro, drives and SVC

Process change notifications	Part no.	Subject	PCN issuing date
IGBT 20-02	3300V SPT HiPaks	Integrated gate resistor	2020-02-28

—
ABB Power Grids Switzerland Ltd
Semiconductors
Fabrikstrasse 3
CH-5600 Lenzburg
Switzerland

abb.com/semiconductors

—
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB AG. Copyright© 2019 ABB

All rights reserved