

## **SPT<sup>+</sup> Generation of 4.5kV IGBT modules in mass production**

ABB Switzerland Ltd, Semiconductors starts mass production of 4.5kV SPT<sup>+</sup> IGBT modules after successful qualification and proven ramp-up phase in the traction market.

4.5kV HV-HiPak2 IGBT modules employ the well established SPT<sup>+</sup> IGBT and diode technologies. These modules have significantly lower conduction and switching losses while exhibiting higher SOA capability when compared to the previous generation.

The SPT<sup>+</sup> platform exploits an enhanced carrier profile through planar cell optimization, which is compatible with ABB's advanced and extremely rugged cell design. The on-state losses of the new 4.5kV IGBT exhibit approximately a 30% reduction as compared to the standard SPT device while keeping the same  $E_{off}$  value. For the 1200A rated Hipak2 module the typical on-state voltage drop ( $V_{CE,on}$ ) at nominal current and  $T_j=125\text{ °C}$  is 3.55V. For the same module the typical turn-off switching energy ( $E_{off}$ ) at 2800 V<sub>cc</sub> and  $T_j=125\text{ °C}$  is 6J. The new 4.5kV HV-HiPak2 modules will provide high voltage system designers with enhanced current ratings and simplified cooling while further enhancing the recently acquired robustness of the SPT IGBTs.

ABB's 4.5kV modules are available in current ratings ranging from 650A – 1200A in single IGBT as well as Diode configurations.

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