

SiC Schottky-Based Power Modules Maximize Ruggedness And Reliability

[Microchip Technology](#) has expanded its portfolio of smaller, lighter and more-efficient SiC power modules. Microchip's SiC family includes commercially-qualified Schottky Barrier Diode (SBD)-based power modules in 700-, 1200- and 1700-V variants. The new power module family includes various topologies including dual diode, full bridge, phase leg, dual common cathode and three-phase bridge, in addition to offering different current and package options. The addition of SiC SBD modules simplifies designs by integrating multiple SiC diode die with the option to mix and match substrate and baseplate material into a single module, which maximizes switching efficiency, reduces thermal rise and allows for a smaller system footprint (see the figure).

"SiC technology adoption and expansion is a driving force in today's system innovation and Microchip is at the forefront, collaborating with customers across all segments and global regions," said Leon Gross, vice president of Microchip's Discrete Product Group business unit. "Our focus continues to be delivering reliable and innovative solutions. From definition to product release, our SiC technology provides superior reliability and ruggedness, helping power system designers to ensure a long application life with no degradation in performance."

The flexible portfolio of 700-, 1200- and 1700-V SiC SBD modules use Microchip's newest generation of SiC die, which maximizes system reliability and ruggedness and enables stable and lasting application life. The devices' high avalanche performance allows system designers to reduce the need for snubber circuits, and the body diode stability allows designs to use the internal body diode without long-term degradation. According to Microchip, both internal and third-party testing of critical reliability metrics have proven the superior performance of Microchip devices when compared to other SiC manufactured devices.

Microchip's SiC SBDs power modules are released and available for order. The complete SiC portfolio is supported by a range of SiC SPICE models, SiC driver board reference designs and a PFC Vienna reference design. Microchip SiC products are available in production volumes along with their associated support offerings. A variety of die and package options are available for the SiC MOSFETs and SiC diodes. For additional information, visit Microchip's SiC product portfolio [website](#).



Figure. The flexible portfolio of 700-, 1200- and 1700-V SiC SBD modules use Microchip's newest generation of SiC die, which maximizes system reliability and ruggedness and enables stable and lasting application life. The power module family includes various topologies including dual diode, full bridge, phase leg, dual common cathode and three-phase bridge, in addition to offering different current and package options.