

Cree 1200V Z-Rec Family of Silicon Carbide Schottky Diodes Offers Higher Performance at Lower Cost for Power Conversion Applications



Cree announces a new family of seven 1200V Z-Rec silicon carbide Schottky diodes optimized for price and performance and available in a range of amperages and packages. Cree is advancing the adoption of silicon carbide power devices into mainstream power applications by introducing a comprehensive family of SiC diodes with a wide range of amperage ratings and package options.

"In order to develop the next generation of power electronics, design engineers are looking for the unique performance advantages of SiC Schottky diodes - zero reverse recovery losses, temperature-independent switching losses, higher frequency operation - all with a lower EMI signature," said John Palmour, Cree co-founder and chief technology officer, Power and RF.

"This new family of diodes allows a higher current density and increased avalanche capability over previous generation SiC Schottky diodes with no penalty in performance. Cree's recent innovations in device design and commitment to continuous process improvement are allowing us to offer significantly higher amperage ratings at lower cost per amp."

Cree Z-Rec diodes feature zero reverse recovery, resulting in up to a 50% reduction in switching losses versus comparable silicon diodes. They also exhibit consistent switching performance across their entire temperature range, which simplifies circuit design and reduces the need for complex thermal management. When used in conjunction with Cree's recently-introduced 1200V SiC power MOSFETs, these SiC Schottky diodes enable the implementation of all-SiC power electronic circuits with the capability to operate at up to four times higher switching frequencies when compared to conventional silicon diodes and IGBTs. This enables a reduction in the size, complexity and cost of inverter circuitry, while achieving extremely high system efficiency. Finally, this new family has the additional benefits of higher surge

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ratings and avalanche capabilities than the previous generation of SiC Schottky diodes, helping to increase overall system reliability.

These devices are ideal as boost diodes and anti-parallel diodes in solar inverters and 3-phase motor drive circuits, as well as in power factor correction (PFC) boost circuits in power supplies and UPS equipment. They can also be used in applications where engineers typically parallel many devices to address higher power requirements.

Devices now released are rated for 2A[C4D02120x], 5A[C4D05120x], 10A[C4D10120x], 20A[C4D20120x] and 40A[C4D40120x]. Dependent on amperage ratings, the parts are available in standard or fully-isolated TO-220 and standard TO-247 packages. Check with Cree for availability of devices in die form.

These new Z-Rec 1200V Schottky diodes are fully qualified and released for production use. For samples and more information about Cree's SiC power devices, please visit www.cree.com/power [1].

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Links:

[1] <http://www.cree.com/power>