The market outlook for SiC devices is promising, with a compound annual growth rate (CAGR) of 31% from 2017-2023. The Wolfspeed CAS325M12HM2 represents a new generation of all-SiC power modules enabling unprecedented efficiency and power density for high current power electronics. It allows designers to realize lighter weight systems and to achieve improvements in power density compared to using silicon-based technologies.

CAS325M12HM2 is the only All-SiC Module from Wolfspeed, housed in a low-profile high-performance package resulting from Wolfspeed’s acquisition of APEI. The superior thermal characteristics of SiC devices, along with the package design and materials, enable this module to operate at 175°C. This is a key advantage for many industrial, aerospace, and automotive applications. The company claims the design is optimized to reap the benefits of SiC technology and boasts a 66% reduction in module inductance to 5.5nH comparing to 15nH in competing products.

System Plus Consulting presents a deep technical and economic analysis of the CAS325M12HM2 module. Supported by a full teardown of the module’s dies and housing, this report reveals Wolfspeed’s innovative assets that enable it to assemble SiC dies in high-performance packaging.

This report includes an estimated manufacturing cost of all the module’s components and its selling price analysis. It proposes a comparison with the SiC module CAS120M12BM2 from the same manufacturer. Also, it includes a detailed comparison with Wolfspeed’s competitors’ 1200V SiC Modules solutions.

Moreover, the report includes a comparison with STMicroelectronics and Rohm’s 1200V SiC MOSFET and finally a comparison between 1200V Si IGBTs and SiC MOSFETs. These comparisons highlight differences in the electrical parameters, packaging, die characteristics, and production costs.
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