The SiC device market is promising, with a compound annual growth rate (CAGR) of 31% from 2017-2021. This will increase to 44% to 2022 due to expansion among automotive and industrial applications. In total, the SiC market will exceed $1.35B in 2023.

Rohm is the second-placed company in SiC MOSFET discrete devices and modules, offering a wide range of devices from 650V-1700V. Just seven years after starting commercial SiC production, Rohm has launched its trench SiC MOSFET, becoming the first player commercially producing this type of technology.

This product family is based on its proprietary double trench design, which includes the gate trench and the source trench. This design reduces the on-resistance (Rdson) by almost half with respect to a planar SiC device and increases current density almost fivefold with respect to a silicon IGBT with the same voltage.

Rohm includes the Gen3 design in 650V and 1200V devices in discrete or module packaging.

The report goes into depth in its analysis of the Gen3 trench MOSFETs at 650V and 1200V, with optical and scanning electron microscope (SEM) images of the complex SiC trench structure.

It also includes production cost analysis of the SCT3120AL discrete device and of the MOSFET die of the BSM180D12P3C007 module.

In addition, the report provides comparisons between 650V and 1200V Gen3 technology devices and between Rohm’s Gen3 and Gen2 SiC MOSFETs.
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**Comparison Between ROHM’s 3G SiC Trench 650V and 1200V MOSFETs**

**Comparison with Infineon’s Trench MOSFET design**

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