

SiC Power Device Market to grow USD 12.89 billion by 2032, at a CAGR of 23.6% | SNS Insider

The growth of the SiC Power Device market is driven by the increasing demand for energy-efficient solutions and high-performance power systems

AUSTIN, TX, UNITED STATES, February 4, 2025 /EINPresswire.com/ -- Market Size & Industry Insights

According to the SNS Insider Report, "The [SiC Power Device Market](#) was valued at USD 1.91 billion in 2023 and is expected to grow to USD 12.89 billion by 2032, at a CAGR of 23.6% over the forecast period of 2024-2032."



Energy-Efficient SiC Power Devices Drive Growth in Electric Vehicles Renewable Energy and Industrial Automation

The high demand for energy-efficient and high-performance power solutions is anticipated to drive the growth of the SiC (Silicon Carbide) power device market segment. SiC devices provide better electrical properties including high thermal conductivity, low switching loss, and high-voltage, high-temperature operation capability. These features make them suitable for electric vehicles (EVs), renewable energy systems, and industrial automation. This is one of the major drivers boosting the demand for SiC power devices as the world moves towards cleaner transportation and more use of EVs. The use of SiC power devices enhances EVs by allowing for faster charging and longer battery life.

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SWOT Analysis of Key Players as follows:
- ALLEGRO MICROSYSTEMS INC.
- Infineon Technologies AG

- ROHM Co. Ltd.
- STMicroelectronics N.V.
- ON SEMICONDUCTOR CORPORATION (on semi)
- WOLFSPEED INC.
- Gene Sic Semiconductor
- TT Electronics plc.
- Mitsubishi Electric Corporation
- Powerex Inc.
- Toshiba Corporation
- FUJI ELECTRIC CO. LTD.

Growing Demand for Energy Efficiency Drives SiC Power Device Market with Advancements in Production Processes

The major factor for the SiC power device market is increasing focus on minimizing carbon footprints and improving energy efficiency across various industries. Due to this requirement for reliability and efficiency in modern infrastructure, SiC devices are an important component in power conversion systems as industries migrate to electrification. Advancements in SiC fabrication processes, along with government initiatives in pushing energy-efficient technologies, these developments are leading to lower production costs of SiC power devices, which is making it a feasible choice for a wider range of applications.

Schottky Diodes Lead SiC Market in 2023 with FET MOSFET Transistors and Optoelectronics Set for Growth

By Component: Schottky Diodes led the SiC power device market in 2023 with high power collapse margins and great power loss reduction capabilities, particularly for applications such as electric vehicles and power supplies. They are widely used in power conversion systems due to their capability to work in higher frequencies and lower forward voltage drops.

FET/MOSFET Transistors to surge at the fastest-growing CAGR in the forecast period (2024-2032). This growth is driven by the growing penetration of EVs and renewable energy systems, in which high voltage and efficiency handling are critical. The rapid progress in SiC MOSFET technology continues to improve their performance, opening new opportunities for high-power applications.

By Product: Power semiconductors led the SiC power device market in 2023, thanks to their crucial applications in high-efficiency power conversion systems such as electric vehicles and renewable energy devices. Power semiconductors provide better functionality in terms of high power and high voltage and are widely used in the energy and sustainable industry.

Optoelectronic Devices attire the fastest CAGR from 2024 to 2032. As the need for energy-efficient light-based communication and sensing technologies grows, SiC enables an

optoelectronic device that will be central to LED and photodetector applications.

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KEY MARKET SEGMENTS:

By Component

- Schottky Diodes
- FET/MOSFET Transistors
- Integrated Circuits
- Rectifiers/Diodes
- Power Modules
- Others

By Product

- Optoelectronic Devices
- Power Semiconductors
- Frequency Devices

By Wafer Size

- 1 inch to 4 inches
- 6 inches
- 8 inches
- 10 inches & above

By End-user

- Automotive
- Consumer Electronics
- Aerospace & Defense
- Medical Devices
- Data & Communication Devices
- Energy & Power
- Others

Asia Pacific Leads SiC Power Device Market in 2023 with North America Set for Fastest Growth

Asia Pacific will hold the largest market share through 2023. SiC power devices are taking the lead in high-performance, high-frequency, and high-efficiency applications with low loss and good reliability in the automotive, renewable energy, and industrial automation industries, and thus, widely used in countries including China, Japan, and South Korea. Moreover, strong investments in electric vehicle manufacturing supporting infrastructure by China specifically are particularly spurring demand for SiC components, which create automotive system efficiencies through their faster switching speeds.

North America is projected to grow at the highest CAGR between 2024 and 2032. The major driving factor for the region is the shifting focus on green technologies, which includes the rapid growth of electric vehicle adoption and renewable energy projects. Numerous leading device manufacturers of SiC have also established their operations in North America, and growing research and development activities in power electronics will continue to provide the foundation for accelerated growth. Also, implementation of the government policies and another favorable government incentive for clean energy utilization will be another aspect driving the demand for SiC power devices in the region.

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Recent Developments:

- In November 2024, Allegro MicroSystems unveiled innovative SiC power devices aimed at improving energy efficiency in automotive, industrial, and data center applications.
- In August 2024, Infineon opened the world's largest and most efficient SiC power semiconductor fabrication facility in Kulim, Malaysia, with an EURO 2 billion investment.
- In September 2024, STMicroelectronics launched its fourth-generation STPOWER SiC MOSFET technology, optimized for next-generation EV traction inverters.

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Akash Anand

SNS Insider

+1 415-230-0044

info@snsinsider.com

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