

# Silicon Carbide Power Semiconductors Market to Reach USD 11.7 Bn by 2035, Rising at a CAGR of 19.0% | TMR

*Surging electric vehicle adoption, growing renewable energy integration, and demand for high-efficiency power electronics are propelling market growth.*

WILMINGTON, DE, UNITED STATES, September 10, 2025 / EINPresswire.com/ -- The global [silicon carbide \(SiC\) power semiconductors market](#) is witnessing unprecedented growth momentum. Valued at US\$ 1.8 Bn in 2024, the market is projected to expand at a robust CAGR of 19.0% between 2025 and 2035, ultimately reaching US\$ 11.7 Bn by 2035.

Increasing deployment of SiC devices in electric mobility, renewable energy systems, industrial automation, and consumer electronics is shaping this high-growth trajectory.

SiC devices are gaining preference over conventional silicon counterparts due to their wide bandgap, higher efficiency, improved thermal conductivity, and faster switching speeds, which make them ideal for next-generation power systems. Despite challenges such as higher fabrication costs and raw material supply constraints, market penetration is accelerating through technological innovation and growing economies of scale.

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## Market Overview

The silicon carbide power semiconductors market is undergoing rapid transformation as demand intensifies for smaller, more energy-efficient, and highly reliable power electronics across a range of applications. Unlike traditional silicon-based devices, SiC semiconductors excel

### SILICON CARBIDE POWER SEMICONDUCTORS MARKET OUTLOOK 2035

The global industry  
was valued at

**US\$ 1.8 Bn**  
IN 2024



It is estimated  
to advance at a

**19.0%**  
CAGR

from 2025 to 2035  
and reach

**US\$ 11.7 Bn**  
BY THE END OF 2035



Silicon Carbide Power Semiconductors

in high-temperature, high-frequency, and high-voltage environments, making them essential in the transition toward clean mobility and renewable energy ecosystems.

SiC power devices, including MOSFETs, diodes, and integrated power modules, are increasingly deployed in EV traction inverters, photovoltaic inverters, industrial motor drives, telecom base stations, aerospace power systems, and consumer electronics. The sector is also witnessing heavy R&D investments and strategic collaborations among semiconductor giants and automotive OEMs aimed at optimizing efficiency and reducing production costs.

### Analyst Viewpoint

Analysts at Transparency Market Research emphasize that silicon carbide technology is a cornerstone of the global shift toward electrification and sustainability. The increasing adoption of EVs, renewable integration, and smart grids is set to create a surge in demand for SiC semiconductors, as industries pursue higher energy efficiency and reduced carbon emissions.

SiC MOSFETs and diodes are playing a critical role in enabling faster charging, higher driving ranges, and lighter system designs for electric vehicles. Similarly, renewable energy providers are leveraging SiC-based systems to maximize conversion efficiency in solar and wind installations. However, manufacturing complexities and elevated device prices continue to pose barriers to mass adoption. Analysts note that companies that succeed in cost optimization and supply chain resilience will hold a strong competitive advantage.

### Key Drivers of Market Growth

#### Growing Demand for Electric Vehicles (EVs)

With global EV sales surging, SiC devices are increasingly deployed in traction inverters, battery management systems, onboard chargers, and power distribution units. Their higher energy efficiency and power density enable extended vehicle ranges, faster acceleration, and compact system design, making SiC indispensable in the EV ecosystem.

#### Need for Fast-Charging Solutions

Consumer demand for ultra-fast charging and expansion of global EV charging networks are accelerating SiC adoption. SiC devices support high-voltage operation with lower energy loss, reducing charging times significantly compared to silicon alternatives.

#### Advancements in Power Electronics for Renewable Energy

SiC-based devices enhance the efficiency of solar inverters, wind converters, and smart grid systems, enabling renewable energy projects to achieve greater energy conversion rates. With governments reinforcing clean energy policies and net-zero commitments, SiC is becoming a

preferred technology for power optimization.

## Segment Analysis

### By Product Type

**MOSFETs:** Accounted for 37.28% share in 2024 and are projected to grow at nearly 20% CAGR through 2035, driven by their use in EV traction systems, industrial drives, and renewable inverters.

**Diodes and Power Modules:** Witnessing rising demand for energy-efficient solutions across aerospace, defense, and industrial automation applications.

### By End-use Industry

**Automotive & Transportation:** EVs, onboard chargers, and power distribution systems dominate demand.

**Aerospace & Defense:** Adoption in UAVs, avionics, and electrified defense vehicles.

**Consumer Electronics:** Increasing use in fast chargers, audio-visual devices, and home appliances.

**IT & Telecommunication:** Deployed in telecom base stations, data centers, and networking equipment.

**Industrial Applications:** Including motor drives, robotics, automation, and power management.

**Others:** Such as energy & utilities and healthcare systems.

### Regional Insights

**East Asia:** Led the market with 43.3% share in 2024 and is expected to maintain dominance with strong government EV mandates, robust semiconductor manufacturing hubs, and growing renewable capacity.

**North America & Europe:** Benefit from aggressive EV adoption policies, renewable deployment, and technological innovation.

**South Asia, Latin America, Middle East & Africa:** Emerging markets witnessing rising energy demand, infrastructure modernization, and renewable adoption, positioning them for accelerated growth.

## Key Players

The competitive landscape is marked by intense innovation, strategic partnerships, and vertical integration. Major players include:

Analog Devices, Inc.

Coherent Corp.

Fuji Electric Co., Ltd.

GeneSiC Semiconductor Inc.

Infineon Technologies AG

Littelfuse, Inc.

Microchip Technology Inc.

Mitsubishi Electric Corporation

NXP Semiconductors N.V.

ON Semiconductor Corp.

Renesas Electronics Corporation

ROHM Co. Ltd.

Semikron Danfoss

STMicroelectronics N.V.

Toshiba Electronic Devices & Storage Corporation

Wolfspeed, Inc.

## Recent Developments

STMicroelectronics (Sept 2024): Unveiled its fourth-generation SiC MOSFETs designed for traction inverters, pushing efficiency and reliability benchmarks.

Onsemi (July 2024): Released its EliteSiC M3e MOSFET family, offering cost-effective

electrification solutions with enhanced reliability and efficiency.

## Opportunities and Challenges

Opportunities: Accelerating EV demand, clean energy transition, government incentives for semiconductor innovation, and industrial automation.

Challenges: High production costs, limited supply chain scalability, and technical complexities in large-scale manufacturing.

## Market Trends

Rapid integration of SiC into fast-charging EV infrastructure

Shift toward miniaturized, high-density power electronics

Rising investments in fab expansion and R&D programs

Vertical integration strategies by semiconductor leaders to strengthen supply security

## Future Outlook

The silicon carbide power semiconductors market is positioned for exponential growth by 2035, supported by:

Global electrification of transport

Expansion of renewable and distributed energy resources

Continuous technological advancements in wide bandgap semiconductors

East Asia's dominance in production and R&D

Strong government support for sustainable energy technologies

Companies investing in scalable, cost-effective manufacturing will be best placed to capture growth opportunities in this multi-billion-dollar market.

## Why Buy This Report?

Detailed market size forecasts and CAGR projections through 2035

Segmentation analysis by product type, end-use industry, and geography

Profiles of leading players with strategies, product portfolios, and financial insights

In-depth examination of drivers, restraints, opportunities, and trends

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