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Global IGBT and SiC Module Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global IGBT and SiC Module market size is expected to reach $ 23824 million by 2032, rising at a market growth of 11.4% CAGR during the forecast period (2026-2032).
This report studies the IGBT modules and Silicon Carbide (SiC) Modules. An IGBT Power Module is a power semiconductor component used in power electronic devices in several industries as they have high-power efficiency, high blocking voltage, and ability to work in low power. An IGBT Power Module is formed by arranging several IGBTs in parallel in a single casing. Silicon carbide as a semiconductor has a wide band-gap, used in MOSFET it has very low switching losses and therefore allows higher switching frequencies compared to regular silicon devices. At the same time, it can be operated at higher temperatures and at higher voltages compared to traditional Si semiconductors. The use of SiC power semiconductors is expected to grow exponentially due to its crucial efficiency characteristics that enables cost reductions while at the same time improving system performance in a variety of applications such as EV chargers, solar inverters, e-mobility, and motor drives.
The global power module market currently presents a parallel pattern of 'IGBT's steady dominant market share and SiC's rapid penetration': IGBT modules remain the mainstream device type for medium-to-high power electric energy conversion, and are widely used in industrial frequency conversion/servo drives, wind power/photovoltaic grid-connected inverters and energy storage PCS, rail transit traction, UPS and high-power power supplies, as well as HVDC and other ultra-high voltage power grid converter equipment.
Meanwhile, SiC modules are accelerating volume growth in scenarios featuring 'high efficiency + high power density + high frequency', with the most typical applications being new energy vehicle traction inverters, OBC/DC-DC converters and ultra-fast charging power supplies; data from the IEA shows that global electric vehicle sales will reach approximately 17 million units in 2024 (accounting for more than one-fifth of total

vehicle sales), directly driving the demand for volume expansion and structural upgrading of automotive power modules.

On the power grid and new energy front, the IEA also points out that the global annual renewable energy installed capacity increment will reach about 666 GW in 2024 and keep rising, which not only maintains the robust 'large-scale demand' for IGBTs in grid-connected and power quality equipment, but also creates penetration opportunities for SiCs with higher efficiency and higher switching frequency in high-end inverter/energy storage systems.

In terms of technological and industrial trends, the core direction of IGBT modules is 'higher current density, lower power loss, higher reliability and lower system cost', and they continue to evolve iteratively in applications prioritizing service life and robustness, such as industrial control, power grids and rail transit.

The main trend of SiC modules is 'shifting from performance leadership to large-scale cost reduction', including: ? Industrialization migration from 6-inch to 8-inch/200mm wafers and yield improvement; ? The evolution of module form toward higher integration, low inductance and high heat dissipation (such as double-sided cooling, silver sintering, etc.), along with the emergence of 'Si + SiC hybrid/graded solutions' to achieve more flexible trade-offs between cost and efficiency; ? New demand growth on the demand side is not limited to the automotive sector: the energy efficiency pressure of AI data center power supplies is driving up demand for high-performance power devices.

The global IGBT module market size will reach USD 7.854 billion in 2025, and is projected to hit USD 15.665 billion by 2032, with a compound annual growth rate (CAGR) of 10.52% during the period from 2026 to 2032.

Core global IGBT module manufacturers include Infineon, Mitsubishi Electric, Fuji Electric, CRRC Times Electric, BYD Semiconductor, Semikron Danfoss, StarPower Semiconductor, onsemi, Denso and Silan Microelectronics, etc. In 2025, the world?s top 10 IGBT module producers will account for approximately 85% of the total market share.

The global silicon carbide (SiC) module market size will reach USD 2.833 billion in 2025, and is expected to reach USD 7.829 billion by 2032, with a CAGR of 14.22% from 2026 to 2032.

Key global SiC module suppliers include STMicroelectronics, onsemi, Infineon, Bosch (United Automotive Electronic Systems), Wolfspeed, BYD Semiconductor, ChipLink Integrated Circuits and CoreJoining Semiconductor, etc. In 2025, the top 10 global SiC module manufacturers will hold around 87% of the market share.

In 2025, China will account for 33.59% of the global market share, while North America will make up 15.95%. The Chinese market is projected to achieve a CAGR of 14.09% in the next six years, with its market size reaching USD 9.343 billion by 2032; during the same period, the North American market is expected to have a CAGR of approximately 10.42%.

In the coming years, the important market position of the Asia-Pacific region will become more prominent; apart from China, Japan, South Korea, India and Southeast Asia will also play significant roles.

On the production side, Europe is currently the world?s largest production base for IGBT and SiC modules (in terms of corporate headquarters location), accounting for about 34.2% of the global market share, followed by China with approximately 28.21%.

The global market is basically dominated by manufacturers from Europe, Japan and the United States; leading global IGBT and SiC module suppliers mainly include STMicroelectronics, Infineon, Wolfspeed, Rohm and onsemi, etc. The top 10 manufacturers hold around 80% of the global market share.

Regarding the competitive landscape, the global market is shifting from 'device performance competition' to comprehensive competition centered on 'vertical integration capability + automotive-grade delivery capability + production capacity/cost curve + module packaging technology'.

In the SiC industry chain, leading manufacturers are binding automotive platform customers through long-term supply agreements and localized manufacturing (e.g., onsemi signed a multi-year agreement with the Volkswagen Group to provide SiC power box/module solutions for next-generation platform traction inverters), while ramping up capital expenditure and ecological collaboration around 200mm wafer migration.

In the IGBT industry chain, leading enterprises continue to deepen their advantages in 'high reliability, long service life and system-level certification barriers' in power grid, industrial and rail transit sectors, and enhance cost competitiveness through wafer size upgrading and process platformization.

The upstream of the industrial chain consists of silicon/SiC substrates and epitaxy (SiC is more constrained by crystal growth, cutting, grinding, polishing and epitaxy yield), as well as power device manufacturing and testing.

The midstream covers module packaging (including DBC/AMB ceramic substrates, substrate metallization, bonding/sintering, potting and reliability verification) and system-level integration.

The downstream is driven by automakers and Tier 1 suppliers, power grid and energy equipment manufacturers, as well as complete machine factories in industrial automation, rail transit and shipping sectors.

The differentiation of module manufacturers is increasingly concentrated in 'packaging platforms (low stray inductance/thermal resistance) + automotive-grade quality systems + large-scale manufacturing yield'.

Therefore, future competition will present the following characteristics: competition in the SiC sector is more like a race for integration and scale-up capabilities across the 'material-device-module-system' value chain; competition in the IGBT sector is more like a long-term positional warfare focused on 'reliability + system certification + cost optimization', and IGBTs will coexist with SiCs for a long time in different power segments and cost ranges.

This report studies the global IGBT and SiC Module production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for IGBT and SiC Module and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of IGBT and SiC Module that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global IGBT and SiC Module total production and demand, 2021-2032, (K Units)

Global IGBT and SiC Module total production value, 2021-2032, (USD Million)

Global IGBT and SiC Module production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Units), (based on production site)

Global IGBT and SiC Module consumption by region & country, CAGR, 2021-2032 & (K Units)

U.S. VS China: IGBT and SiC Module domestic production, consumption, key domestic manufacturers and share

Global IGBT and SiC Module production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (K Units)

Global IGBT and SiC Module production by Type, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

Global IGBT and SiC Module production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

This report profiles key players in the global IGBT and SiC Module market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include STMicroelectronics, Infineon, Wolfspeed, Rohm, onsemi, BYD Semiconductor, Microchip (Microsemi), Mitsubishi Electric, Semikron Danfoss, Fuji Electric, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World IGBT and SiC Module market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$

Millions), volume (production, consumption) & (K Units) and average price (US$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global IGBT and SiC Module Market, By Region:

- United States
- China
- Europe
- Japan
- South Korea
- ASEAN
- India
- Rest of World

Global IGBT and SiC Module Market, Segmentation by Type:

- IGBT Modules
- SiC Modules

Global IGBT and SiC Module Market, Segmentation By Voltage:

- MV and LV Module
- HV Power Module

Global IGBT and SiC Module Market, Segmentation by Application:

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Automotive

Industrial Motors

Home Appliances

Wind Power/PV/Energy Storage/Power Grid

Rail Transit

UPS/Data Center/Communication

Aviation and Military

Others

Companies Profiled:

STMicroelectronics

Infineon

Wolfspeed

Rohm

onsemi

BYD Semiconductor

Microchip (Microsemi)

Mitsubishi Electric

Semikron Danfoss

Fuji Electric

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Toshiba

Littelfuse

CETC 55

BASiC Semiconductor

SemiQ

SanRex

Bosch

GE Aerospace

Vishay Intertechnology

Denso

Hitachi Energy

Minebea Power Semiconductor Device

Zhuzhou CRRC Times Electric

China Resources Microelectronics Limited

StarPower

Guangdong AccoPower Semiconductor

Hangzhou Silan Microelectronics

United Nova Technology (UNT)

InventChip Technology (IVCT)

Leadrive Technology

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HAIMOSIC (SHANGHAI)

Suzhou Sko Semiconductor

Shenzhen Aishite Technology

Suzhou Xizhi Technology

Archimedes Semiconductor (Hefei)

Grecon Semiconductor (Shanghai)

Hebei Sinopack Electronic Technology

MacMic Science & Technolog

ZhiXin Semiconductor

NJSM Electronics

Hefei Cpower Technology

GeePak

Key Questions Answered:

1. How big is the global IGBT and SiC Module market?
2. What is the demand of the global IGBT and SiC Module market?
3. What is the year over year growth of the global IGBT and SiC Module market?
4. What is the production and production value of the global IGBT and SiC Module market?
5. Who are the key producers in the global IGBT and SiC Module market?
6. What are the growth factors driving the market demand?

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