

# Silicon Carbide Wafer Market Projected to Reach USD 86.28 Billion by 2032 | Reports and Data

*The global silicon carbide wafer market size was USD 21 Billion in 2022 and is expected to reach USD 86.28 Billion in 2032, and register a revenue CAGR of 17%*

NEW YORK, NY, UNITED STATES , May

10, 2023 /EINPresswire.com/ -- The

[global Silicon Carbide Wafer Market](#)

was USD 21 billion in 2022 and is

projected to reach USD 86.28 billion in 2032, with a compound annual growth rate (CAGR) of 17% during the forecast period. The increasing utilization of silicon carbide wafers in various industries such as automotive, aerospace, and electronics is driving the growth of the market. This is due to their outstanding physical properties including high thermal conductivity, strength, and durability. Silicon carbide wafers are extensively used in the manufacturing of power and high-frequency devices because of their ability to withstand high temperatures and voltages.

The demand for silicon carbide wafers in the automotive and energy sectors is being propelled by the growing adoption of electric vehicles and renewable energy systems. The rise in environmental concerns and the need to reduce carbon emissions have led to an increased usage of electric vehicles. Power devices like Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs) and Insulated-Gate Bipolar Transistors (IGBTs), which are essential for effective power control in electric vehicles, are manufactured using silicon carbide wafers.

Moreover, the telecommunications industry is witnessing a surge in demand for silicon carbide wafers due to the increasing deployment of 5G technology. High-frequency components such as Radiofrequency (RF) transistors and diodes, which are widely used in 5G base stations and mobile devices, are fabricated on silicon carbide wafers. The aerospace and defense sectors are also embracing silicon carbide wafers due to their ability to withstand high temperatures and harsh conditions. These wafers are used in the production of electronic components for communication systems, missile guidance systems, and radar systems.

Furthermore, the demand for silicon carbide wafers with high-quality substrates is driven by the



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need for efficient and reliable power electronics. The requirement for enhanced performance and longer component lifespans is increasing the demand for superior substrates. The development of larger-diameter silicon carbide wafers, which enables the production of more electronic components per wafer, is expected to contribute to the growth of the market.

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### Segments Covered in the Report

The market for silicon carbide wafers can be analyzed based on wafer size and application outlook. In terms of wafer size, the following sizes are considered: 2-inch, 4-inch, 6-inch, and 8-inch.

When it comes to application outlook, the utilization of silicon carbide wafers can be categorized into three main areas: power devices, electronics and optoelectronics, and others.

In terms of wafer size, the 2-inch wafers hold significance in the market. These wafers have their own distinct applications and are utilized in various industries. The 4-inch wafers also play a crucial role and are widely adopted in different sectors for their specific requirements. Moving up in size, the 6-inch wafers offer a larger surface area, allowing for increased efficiency and higher production capacity. The 8-inch wafers, being the largest among the considered sizes, provide even greater potential for manufacturing a larger number of electronic components.

When considering the application outlook, power devices stand out as a key sector for silicon carbide wafers. These wafers are essential for the production of power devices such as Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs) and Insulated-Gate Bipolar Transistors (IGBTs). The unique properties of silicon carbide wafers, including their ability to withstand high temperatures and voltage, make them ideal for efficient power control in devices such as electric vehicles and renewable energy systems.

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### Strategic development:

Companies operating in the Silicon Carbide Wafer Market are actively engaged in various strategic initiatives, including the development of innovative products, expansion of production capacity, and establishment of strategic partnerships and agreements. Recent notable developments in the market include:

In 2021, Cree Inc. forged a strategic partnership with Delphi Technologies, a renowned global player in propulsion technologies. The collaboration aims to jointly create novel SiC-based

technological solutions for the automotive industry, with a focus on enhancing the efficiency and reliability of electric and hybrid vehicles.

In 2020, Infineon Technologies AG completed the acquisition of Cypress Semiconductor Corporation, a prominent provider of high-performance computing, networking, and memory solutions. This acquisition enables Infineon to broaden its product portfolio in the SiC wafer market and solidify its position as a leading supplier of power electronics solutions.

In 2020, United Silicon Carbide Inc. announced a partnership with STMicroelectronics, a leading semiconductor solutions provider. The objective of this partnership is to collaboratively develop new SiC-based power electronics solutions targeting the automotive, industrial, and renewable energy sectors.

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Competitive Landscape:

Cree Inc.

Infineon Technologies AG

STMicroelectronics N.V.

United Silicon Carbide Inc.

II-VI Incorporated

ROHM Semiconductor

Fuji Electric Co. Ltd.

ON Semiconductor

GeneSiC Semiconductor Inc.

Ascatron AB

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