Silicon Carbide Wafer Market Size to Reach USD 4178.4 Million in 2030 with a 17% CAGR

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%

Reports And Data

NEW YORK, NY, UNITED STATES, June 14, 2023 /EINPresswire.com/ -- The global Silicon Carbide Wafer Market reached USD 21 billion in 2022 and is projected to reach USD 86.28 billion by 2032, exhibiting 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 fueling the market's revenue growth. This is attributed to their exceptional physical properties, including high thermal conductivity, strength, and durability. Silicon carbide wafers are extensively employed in the manufacturing of power and high-frequency devices due to their ability to withstand high temperatures and voltage.

The growing demand for silicon carbide wafers in the automotive and energy sectors is primarily driven by the increased adoption of electric vehicles and renewable energy systems. As concerns over the environment and carbon emissions mount, the usage of electric vehicles is on the rise. Silicon carbide wafers are used in the production of power devices like Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs) and Insulated-Gate Bipolar Transistors (IGBTs), which play a crucial role in effective power control in electric vehicles.

Additionally, the demand for silicon carbide wafers in the telecommunications industry is fueled by the growing need for 5G technology. High-frequency components like Radiofrequency (RF) transistors and diodes, widely employed in 5G base stations and mobile devices, are manufactured using silicon carbide wafers. Moreover, the defense and aerospace sectors are increasingly adopting 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 rising demand for efficient and reliable power electronics is driving the need

for high-quality silicon carbide wafers with advanced substrates. The requirement for improved performance and longer lifespan of electronic components is increasing the demand for high-quality substrates. The development of larger-diameter silicon carbide wafers, capable of producing more electronic components per wafer, is expected to further drive revenue growth in 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 market is segmented into 2-inch, 4-inch, 6-inch, and 8-inch wafers.

In the application outlook, silicon carbide wafers are primarily used in three main areas: power devices, electronics & optoelectronics, and others.

Power devices play a significant role in various industries, including automotive, energy, and telecommunications. Silicon carbide wafers are crucial in the manufacturing of power devices such as Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs) and Insulated-Gate Bipolar Transistors (IGBTs), which are widely used in electric vehicles for efficient power control. These wafers are also utilized in the renewable energy sector for the development of efficient power electronics systems.

In the electronics & optoelectronics segment, silicon carbide wafers are employed in the production of high-frequency components like Radiofrequency (RF) transistors and diodes. These components are extensively used in 5G base stations, mobile devices, and other communication systems. Additionally, silicon carbide wafers find applications in optoelectronic devices, which include devices that emit, detect, or control light, such as light-emitting diodes (LEDs) and photovoltaic cells.

The "Others" category encompasses various industries and applications where silicon carbide wafers are utilized. This includes sectors such as aerospace and defense, where the wafers are employed in the production of electronic components for communication systems, missile guidance systems, and radar systems. Silicon carbide wafers are favored in these industries due to their ability to withstand high temperatures and severe conditions.

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Strategic development:

In 2021, Cree Inc. made an announcement regarding its strategic collaboration with Delphi Technologies, a prominent player in propulsion technologies on a global scale. The primary objective of this partnership is to jointly develop innovative solutions utilizing silicon carbide (SiC) technology for the automotive industry. These solutions are expected to enhance the efficiency and reliability of electric and hybrid vehicles.

In 2020, Infineon Technologies AG completed the acquisition of Cypress Semiconductor Corporation, a leading provider of advanced computing, networking, and memory solutions. This acquisition serves as a significant step for Infineon in expanding its product portfolio within the SiC wafer market. Moreover, it strengthens the company's position as a key provider of power electronics solutions.

In the same year, United Silicon Carbide Inc. announced a strategic partnership with STMicroelectronics, a renowned global leader in semiconductor solutions. This collaboration aims to jointly develop novel power electronics solutions utilizing silicon carbide (SiC) technology. The target markets for these solutions include automotive, industrial, and renewable energy sectors.

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

Silicon Nitride Market @ https://www.globenewswire.com/news-release/2019/05/20/1829097/0/en/Silicon-Nitride-Market-To-Reach-USD-157-5-Million-By-2026-Reports-And-Data.html

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