

Global Semi-Insulating Silicon Carbide Wafer Market Size Study & Forecast, by Type (4 Inch SiC Wafer, 6 Inch SiC Wafer), by Application (Power Device, Electronics & Optoelectronics, Wireless Infrastructure, Others), and Regional Analysis, 2023-2030

<https://marketpublishers.com/r/G9334F64D8D6EN.html>

Date: October 2023

Pages: 200

Price: US\$ 4,950.00 (Single User License)

ID: G9334F64D8D6EN

Abstracts

Global Semi-Insulating Silicon Carbide Wafer Market is valued at approximately USD 438.05 million in 2022 and is anticipated to grow with a healthy growth rate of more than 19.1% over the forecast period 2023-2030. A Semi-insulating Silicon Carbide (SiC) wafer is a type of substrate utilized in the production of high-power and high-frequency electronic devices. SiC wafer is a semiconductor material formed with a combination of silicon and carbon. Semi-insulating SiC wafers have a resistance that ranges between a conductor and an insulator, in contrast to ordinary silicon wafers, which are conductive. They are mostly used in power devices, electronics & optoelectronics, wireless infrastructure, and others. The Semi-Insulating Silicon Carbide Wafer Market is expanding because of factors such as the surging demand for power electronic devices, rising focus on energy efficiency and the transition to clean energy solutions, and significant investments from both public and private sectors in SiC manufacturing capabilities.

In addition, the semi-insulating silicon carbide wafer market is expected to rise due to the rising use of SiC wafer in 5G communication networks and electric cars to supply high power, high voltage, and high-frequency devices. The India Brand Equity Foundation (IBEF) reported that approximately 10% of global car sales were electric in the year 2021, which shows a four-fold increase from the market share in 2019. With this, there are over 16.5 million electric vehicles on the road worldwide, which is three

times more than there were in 2018. Accordingly, the growing initiatives for promoting the adoption of electric cars, coupled with the increasing benefits of using semi-insulating silicon carbide wafers in electric vehicles are positively influencing the market growth across the globe. Moreover, the increasing number of government initiatives to promote the adoption of advanced technologies and energy-efficient solutions, as well as the extensive research and development activities present various lucrative opportunities over the forecast years. However, the availability of substitutes and the complex manufacturing process are challenging the market growth throughout the forecast period of 2023-2030.

The key regions considered for the Global Semi-Insulating Silicon Carbide Wafer Market study include Asia Pacific, North America, Europe, Latin America, and Middle East & Africa. Asia Pacific dominated the market in 2022 owing to due to the immense economic growth of nations such as China and India. The adoption of high-tech power devices and high-end gadgets with reduced costs for electronics has increased the consumption of electronic products throughout the region. Major telecom firms in the nations are constructing a network of 5G infrastructure, which is promoting the expansion of the SiC wafer market. The demand for Semi-Insulating Silicon Carbide Wafer has also surged as the country's auto electrification rate rises. Whereas, North America is expected to grow at the highest CAGR over the forecasting years. The substantial presence of well-known companies such as Wolf speed Inc., II-VI Incorporated, and others is promoting regional market growth. Also, the demand for SiC wafers has also been fueled by the increased use of power electronics and the shift to renewable energy sources. The growth of the automotive sector in North American nations such as the US and Canada is also boosting demand and aiding in the expansion of the market for semi-insulating silicon carbide wafers market during the estimated period.

Major market players included in this report are:

Wolfspeed, Inc. (U.S.)

II-VI Incorporated (U.S.)

STMicroelectronics (Switzerland)

ROHM CO., LTD (Japan)

SHOWA DENKO K.K. (Japan)

SICC Co., Ltd. (China)

SK siltron Co. Ltd. (South Korea)

TankeBlue CO., LTD. (China)

CETC Solar Energy Holdings Co., Ltd. (China)

Synlight (China)

Recent Developments in the Market:

In May 2022, Rhombus Energy Solutions- an EV charging and power conversion technology company declared that Wolfspeed is supplying SiC technology to enhance the power density, and efficiency, along with promoting faster charging times of their products.

In March 2022, Showa Denko announced that the company starts the mass production of a 6-inch diameter silicon carbide single-crystal wafer. The objective of this initiative is to enhance the downsizing and energy efficiency of a power module.

In August 2020, Coherent Corp. announced the acquisition of Ascatron- a pioneer in silicon carbide epitaxial wafer technology, to its vertically integrated Silicon Carbide power electronics technology platform.

Global Semi-Insulating Silicon Carbide Wafer Market Report Scope:

Historical Data – 2020 - 2021

Base Year for Estimation – 2022

Forecast period - 2023-2030

Report Coverage - Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Segments Covered - Type, Application, Region

Regional Scope - North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope - Free report customization (equivalent up to 8 analyst's working hours) with purchase. Addition or alteration to country, regional & segment scope*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values to the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within countries involved in the study.

The report also caters detailed information about the crucial aspects such as driving factors & challenges which will define the future growth of the market. Additionally, it also incorporates potential opportunities in micro markets for stakeholders to invest along with the detailed analysis of competitive landscape and product offerings of key players. The detailed segments and sub-segment of the market are explained below:

By Type:

4 Inch SiC Wafer

6 Inch SiC Wafer

By Application:

Power Device

Electronics & Optoelectronics

Wireless Infrastructure

Others

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

ROE

Asia Pacific

China

India

Japan

Australia

South Korea

RoAPAC

Latin America

Brazil

Mexico

Middle East & Africa

Saudi Arabia

South Africa

Rest of Middle East & Africa

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