

Compound Semiconductor Market - Forecasts from 2021 to 2026

<https://marketpublishers.com/r/C8226C69D67EN.html>

Date: April 2021

Pages: 130

Price: US\$ 4,250.00 (Single User License)

ID: C8226C69D67EN

Abstracts

The compound semiconductor market has been growing in recent years and it is estimated to attain a market size of US\$102.764 billion in 2026 from US\$50.606 billion in 2019, growing at a CAGR of 10.65%. Compound semiconductors are made from two or more elements. Most of the compound semiconductors are made from the combination of elements from Group 3 and Group 5 of the periodic table of elements (GaAs, InP, and others). Other compound semiconductors are made from Group 2 and 4 (CdTe, ZnSe, and others). It is possible to make semiconductors using different elements within the same group. (4), to make compound semiconductors such as Silicon Carbide (SiC). Compound semiconductors are more fragile. A compound semiconductor has a large application base like this material is used in electronic film's coatings, electronic wafer, fabrication of integrated circuits which makes the demand for compound semiconductor in the market.

Impact of COVID on the compound semiconductor market.

The Compound semiconductor market has been severely impacted by the outbreak of coronavirus. Due to lockdown conditions in various parts across the globe, the market players had to halt the operations in the manufacturing units. Therefore, businesses have been impacted due to COVID, however, it is being anticipated that with the revival of the economy post COVID, the market of compound semiconductors is estimated to grow.

Market Drivers.

The automotive industry is using compound semiconductors for power devices in segments

such as charging infrastructure and EV/HEV. Owing to the environmental concerns the demand for electronic vehicles is increasing, this in turn will boost the demand for compound semiconductors in the market.

Healthcare has various applications of compound semiconductors like in-memory power management devices, discrete devices, microcontrollers, sensors, and motion micro-electromechanical systems. A lot of new technologies are developed using compound semiconductors for a more reliable, specific, and integrative approach to diagnosis and treatment.

The growing demand for consumer electronics with growth in urbanization will boost the demand for compound semiconductors in the market. For instance, LEDs also use compound semiconductors. The demand for LEDs has grown recently due to the various advantages they provide, such as lower energy consumption, longer life, smaller size, improved physical robustness, etc.

The telecommunication industry is to witness increasing demand for compound semiconductors owing to the increasing penetration of smartphones and the burgeoning

adoption of LTE and 5G networks. This growth is largely driven by the introduction of smartphones powered by GaAs-based solar cells coupled with an increase in the number of smartphones and other smart devices in the market.

Market Restraints.

The high costs involved in the complete industry processes in the supply chain is a major factor limiting the growth of the compound semiconductor market. The overall estimated cost of all supply chain operations (including the full upstream as well as downstream expenditure) per compound semiconductor is significantly higher than the average price per pure silicon semiconductor device. This is mostly because both systems are complicated, modern, use innovative technology, and include state-of-the-art, high-priced equipment. Also, there is a lack of familiarity and expertise in the engineering community and executives of compound semiconductor industry players.

The Asia Pacific is estimated to witness growth in the forecast period

The Asia Pacific region is expected to witness the fastest growth due to the huge demand for electronic devices, wireless technologies, automation, and transportation industries, and the established semiconductor and electronics industry in the region over the forecast period. An increase in research and development in the Asia Pacific region will boost the demand for compound semiconductors in the market.

North America and Europe market to see a boost in demand for compound semiconductors due to the growing aerospace & defense and IT & Telecommunication industry in the region. The presence of major players in these regions will drive the growth in the market of compound semiconductors.

Key Developments.

In December 2020, Texas Instruments announced the availability of its high-reliability semiconductor products for online purchase on TI.com. This would help defense and aerospace companies to get authentic TI products for their next-generation military-grade and space-grade designs. This would help the company to meet the growing need of its product in the market.

In November 2020, Qorvo, Inc won the United States Government Project to create State-of-the-Art (SOTA) Heterogeneous Integrated Packaging (SHIP) RF production and prototyping center.

Texas Instruments in January 2021 revealed its EV battery management system with the industry's best performing wireless BMS solution. It's the first concept assessed for enabling ASIL D systems.

In March 2019, Toshiba announced the consolidation of Toshiba Microelectronics Corporation (TOSMEC) and Toshiba Discrete Semiconductor Technology Corporation (TDIT), two of its subsidiaries into a new company Toshiba Electronic Device Solutions Corporation. This strategic

move will strengthen its capabilities in proposing solutions and bringing efficiency in its research and development for its semiconductor business.

Major Players.

The major players in the compound semiconductor market are Sumitomo Electric Industries, Ltd., Toshiba Corporation, SCIOCS, Mitsubishi Chemical Corporation, Qorvo, Inc, Texas Instruments Incorporated, GaN Systems, and Kyma Technologies. These companies compete with each other on grounds of new product launches, entering into a merger agreement, or through the acquisition of another company. These market players are very competitive and take active advantage of the growing needs in the compound semiconductor market.

Segmentation

By Type

Group II-VI

Group III-V

Group IV-IV

By Fabrication Process

Hydride Vapor Phase Epitaxy (HVPE)

Metalorganic Vapor Phase Epitaxy (MOVPE)

Atomic Layer Deposition (ALD)

Others

By End-User Industry

Automotive

Communication and Technology

Consumer Electronics

Healthcare

Energy and Power

Others

By Geography

North America

U.S.

Canada

Mexico

South America

Brazil

Argentina

Others

Europe

U.K

Germany

Italy

France

Others

Middle East and Africa

Israel

South Africa

Saudi Arabia

Others

Asia-Pacific

China

Japan

Australia

South Korea

India

Others

*Note: The report will be dispatched in 2 business days.

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