Compound Semiconductor Packaging Market Outlook Report - Market Size, Share Analysis and Forecast (2025-2034)

Market Report | 2025-08-11 | 166 pages | EMR Inc.

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Report description:

The global compound semiconductor packaging market attained a value of about USD 17.65 Billion in 2024. The market is further expected to grow in the forecast period of 2025-2034 at a CAGR of 11.30% to reach nearly USD 51.49 Billion by 2034.

Technological Advancements Aiding the Market Growth of Compound Semiconductor Packaging

The advent of the 5G technology and surging internet penetration are increasing the use of compound semiconductors, such as gallium nitride (GaN) and silicon carbide (SiC). Moreover, the use of compound semiconductors as a substitute for silicon-based materials due to global shortage of semiconductors is propelling the industry growth. Compound semiconductors provide high temperature, high-pressure resistance, and high efficiency, due to which they are increasingly used in various electronic components. This, in turn, is increasing the applications of compound semiconductor packaging, which is invigorating the industry growth.

The rising integration of the Internet of things (IoT) in various applications is fuelling the growth of the compound semiconductor packaging industry. The advent of smart homes and smart buildings is surging the integration of compound semiconductors to increase operational efficiency and functionality of numerous components, consequently boosting the industry growth. In addition, they enhance the efficiency of sensors to collect operational data and enable automation, due to which they are increasingly deployed in smart homes and buildings. They also protect the infrastructure from cyberattacks by providing embedded security solutions, hence providing impetus to the growth of the compound semiconductor packaging industry.

Compound Semiconductor Packaging: Market Segmentation

A compound semiconductor packaging is the packaging of compound semiconductors to connect them to electronic components while protecting them from the external environment. The packaging material used is typically made up of glass, plastic, metal, or ceramic to provide corrosion and moisture resistance to compound semiconductors.

The major packaging platforms of compound semiconductor packaging are:

- Flip Chip
- Embedded Die
- Fan-in WLP
- Fan-out WLP

The market can be broadly categorised on the basis of its applications into:

- CS Power Electronics
- CS RF/Microwave
- CS Photonics
- CS Sensing
- CS Quantum

Based on end uses, the market is divided into:

- Digital Economy
- Industrial and Energy & Power
- Defence/Security
- Transport
- Consumer Electronics
- Healthcare
- Space

The EMR report looks into the regional markets of compound semiconductor packaging like:

- North America
- Europe
- Asia Pacific
- Middle East and Africa
- Latin America

Rapid Electrification of the Automotive Sector to Bolster the Compound Semiconductor Packaging Industry

The technological evolution and electrification of automobiles are increasing the use of compound semiconductor packaging, therefore aiding the market growth. Compound semiconductor packaging is integral to ensure the functionality and reliability of electric components. The trend of advanced packaging to meet demands for high-quality, safety, and comfortability is expected to propel the growth of the compound semiconductor packaging industry. The extensive use of compound semiconductors in electronic components of automobiles is projected to fuel the market growth. The rapid electrification of the automotive sector and the rising popularity of electric vehicles are escalating the deployment of compound semiconductor packaging in electronic power steering, digital radio tunes, and vehicle-to-vehicle communications. Such extensive uses of compound semiconductor packaging are anticipated to accelerate the industry growth.

The evolution of packaging technology which is enhancing functionality, versatility, and applications of compound semiconductor packaging while improving the performance and cost-effectiveness of electric systems, is propelling the market growth. Increasing research and development (R&D) activities to develop cost-effective and automated compound packaging platforms to enable effective packaging for compound semiconductors such as indium phosphide (InP) is projected to augment the market growth. As applications of compound semiconductors are becoming more complex, their packaging is witnessing an advancement. This is estimated to surge the deployment of compound semiconductor packaging, therefore invigorating the industry growth.

Key Industry Players in the Global Compound Semiconductor Packaging Market

The report presents a detailed analysis of the following key players in the global compound semiconductor packaging market, looking into their capacity, market shares, and latest developments like capacity expansions, plant turnarounds, and mergers and acquisitions:

- Advanced Semiconductor Engineering, Inc.
- Amkor Technology, Inc.
- Deca Technologies
- Jiangsu Changjiang Electronics Technology Co., Ltd
- KLA Corporation
- Others

The comprehensive report looks into the macro and micro aspects of the industry. The EMR report gives an in-depth insight into the market by providing a SWOT analysis as well as an analysis of Porter's Five Forces model.

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