

Diamond Substrate Market Size Worth \$282.38 Mn, Globally by 2031 at 12.9% CAGR - TMR

Diamond Substrate Market is driven by rise in demand for diamonds in medical devices and growth in penetration of diamond substrates in microelectronics

ALBANY , NY, US, December 14, 2021 /EINPresswire.com/ -- Transparency Market Research delivers key insights on the global [diamond substrate market](#). In terms of revenue, the global diamond substrate market is estimated to expand at a CAGR of 12.9% during the forecast period, owing to numerous factors, regarding which TMR offers thorough insights and forecast in its report on the global diamond substrate market. The global diamond substrate market is broadly affected by several factors, including rise in demand for diamond substrate in optical applications.



Diamond Substrate Market: Dynamics

Diamond offers a new level of thermal performance. It delivers greater system performance, stability, and device life. [Thermal management](#) is a one of the necessary parameter in most of the electronic devices. Diamond spreads heat efficiently in a planar direction, with low density, chemical inertness and good mechanical stability. Diamond has the potential to reduce the junction temperature by more than 30% as compared to other thermal management solutions such as aluminum nitride. In order to achieve greater efficiency and better performance of the device, it must be cool during its usage. This is particularly important for high power applications such as satellites.

Hence, the demand for diamond substrate in applications areas such as aerospace, telecommunications, and defense for power devices is rising significantly. This is boosting the demand for diamonds, especially in high-power devices, owing to their electrical resistivity and heat dissipation capabilities.

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The global demand for diamond substrate is expected to be high in optical applications, due to its beneficial qualities and high usage in most of the optical applications such as optical communication, optoelectronics, optics, and laser systems. Its wide optical transmission range has allowed diamond windows to make their way into cutting-edge, future generation lithography systems for semiconductor manufacturing. Reflective optical surface is required in several optical applications. Diamond can be used as a thin film in these optical applications considering its versatile properties. For instance, optical windows require high transparency in the range of wavelength considered. The transparency is linked to the diamond's intrinsic quality as well as its roughness. Thus, increase in demand for diamond substrate in various optical applications is likely to drive the diamond substrate market over the next few years.

Rising Applications of Chemical Vapor Deposition (CVD) Substrate to Create Revenue Streams

Lab grown diamonds using CVD and HPHT methods are increasing popular among various end-use industries. Chemical Vapor Deposition (CVD) is a technique wherein diamonds can be grown in a controlled environment from a hydrocarbon gas mixture. In a vacuum chamber, a thin seed diamond is placed, filled with gases such as hydrogen and methane, and then subjected to high temperatures. This heat turns the gases into plasma, which help in binding the layers of the diamonds. The increasing demand for CVD diamond substrate from the optical industry is creating income sources for the market players. The CVD diamond is an important component for manufacturing infrared windows, lenses, X-ray windows, cutting tools, machineries, etc. due to its outstanding properties.

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Increasing Adoption of Diamond Substrate in Various End-use Industries

The diamond substrate market is projected to reach the valuation of US\$ 282.38 Mn by 2031. This growth is due to the increasing adoption of diamond substrate in various end-use industries such as healthcare, telecommunication, power electronics, defense & aerospace, semiconductor industries, etc. The adoption of diamond substrate in thermal applications, heat spreaders, and ionizing radiation detectors is also contributing to the diamond substrate market growth.

Diamond Substrate Market: Prominent Regions

The diamond substrate market in North America is expected to expand significantly during the forecast period, owing to the presence of major market players, rise in technological advancements, and ample opportunities provided by the U.S. and Canada for manufacturers on a long-term basis. Increase in adoption of diamond substrate in the aerospace & defense sector is further driving the diamond substrate market in the region. Steady growth in industrialization and presence of a well-established supply chain network that caters to a wide range of end-use

industries such as aerospace & defense, IT & telecommunication, health care, and semiconductor & electronics are expected to fuel the demand for diamond substrates, thereby boosting the diamond substrate market in North America. In terms of value, the U.S. accounted for major share of the diamond substrate market in North America in 2020. The diamond substrate market in North America is projected to expand further due to the significant rise in demand for diamond substrate in the aerospace & defense industry for applications such as wireless communication devices and radar technology. The market in North America is projected to reach US\$ 136.76 Mn by 2031. The diamond substrate market in Asia Pacific is likely to expand at a CAGR of 13% during the forecast period, owing to the rise in demand for diamond substrate in power electronics applications in the region.

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Diamond Substrate Market: Key Players

Major players operating in the global diamond substrate market are Blue Wave Semiconductor, AKHAN Semiconductor Inc., Applied Diamond Inc., CIVIDEC, Diamond Microwave Limited, Diamond SA, Electro Optical Components, Inc., Element Six, Ila Technologies Pte. Ltd., II-VI Incorporated, New Diamond Technology LCC, Seki Diamond Systems, Sumitomo Electric Industries, Ltd, and WD Lab Grown Diamonds.

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Our data repository is continuously updated and revised by a team of research experts, so that it always reflects the latest trends and information. With a broad research and analysis capability, Transparency Market Research employs rigorous primary and secondary research techniques in developing distinctive data sets and research material for business reports.

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