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Laser Diode Market by Wavelength (Infrared, Green, Blue, Ultraviolet), Doping Material, Technology (Distributed Feedback, Quantum Cascade, VCSEL), Application (Industrial, Medical, Consumer Electronics, Telecommunication), Region -Global Forecast to 2027

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Abstracts

The global laser diode market is projected to grow from USD 5.9 billion in 2022, to USD 10.9 billion in 2027, at a CAGR of 13.1% between 2022 and 2027. One of the factors driving the growth of the laser diode market include surge in demand for high-power laser diodes for industrial applications and increasing investments in military & defense leading to high demand for laser technology.

Developments in laser diode technologies are revolutionizing the biomedical field. Recently, laser manufacturing companies are developing red laser diodes in the 640 nm band, which is close to the He-Ne laser wavelength. These are used for fluorescence bio-imaging, for example, confocal microscopy and scattering measurements, such as flow cytometry and particle size measurement.

'Red laser diode is the second fastest growing segment of laser diode market during the forecast period”

New Red laser diodes are based on doping material such as GaInP or AlGaInP and are available with different output power levels ranging from 625 nm to 680 nm. The features of red laser diodes include high stability, high efficiency, ease of use, high reliability, low noise, and excellent laser beam quality. Optically pumped semiconductor lasers either directly emit red light or generate red light via second-harmonic generation.

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Red laser diodes are used in various applications such as laser pointers for optical data recording or retrieval, laser projection displays, interferometers, military, industry, pumping of certain solid-state lasers, and in medical therapies among others.

“Gallium nitride (GaN) segmentis the fastest growing segment of laser diode market by 2027”

Gallium nitride (GaN) segment is expected to grow at the highest CAGR during forecasted period. The use of GaN-based laser diodes in LiDAR applications is projected to create growth opportunities in the long term for the players operating in the ecosystem. Technological innovation in consumer electronics besides smartphones, such as augmented reality and virtual reality (AR/VR) devices, are projected to further increase the demand for GaN-based laser diodes in 3D sensing applications.

“VCSEL Diodessegmentis the fastest growing segment of laser diode market by 2027”

The VCSEL laser diodes is the fastest growing segment in the laser diode market. The driving factors responsible for the growth of the VCSEL market include the growing adoption of VCSEL technology in LiDAR application and increasing usage of VCSEL in data communications. VCSELs are highly efficient and economical for use in various applications such as data communication and 3D sensing. Increase in application of 3D sensing in smartphones is projected to be the major factor driving the growth of the VCSEL market.

“North America is the second fastest growing market for laser diode during the forecast period”

Advanced medical facilities in the US employ various medical devices that are manufactured using laser diodes. The usage of laser diodes in surgical operations is increasing steadily. Moreover, the presence of prominent telecommunication, aerospace & defense, and automotive companies, such as AT&T, Verizon Wireless, Boeing, and General Motors, is also expected to boost the growth of the laser diode market in North America.

Breakdown of the profiles of primary participants:

By Company Type: Tier 1 -40%, Tier 2 -30%, and Tier 3 -30%

By Designation: C-level Executives -40%,Directors-40%, and Others -20%

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By Region: North America -40%, Europe -30%, Asia Pacific-20%, and RoW-10%

The laser diode market is dominated by a few globally established players such asII-VI Incorporated (US), IPG Photonics Inc. (US), Jenoptik AG (Germany), Lumentum Holding Inc. (US), MKS Instruments (US), amsOSRAM AG (Austria), ROHM Co., Ltd. (Japan), Sharp Corp. (Japan), Ushio, Inc. (US), and Hamamatsu Photonics K.K. (Japan).

Research Coverage

The report segments the laser diode market and forecasts its size, by value and volume, based on wavelength (infrared, red, blue, green, blue-violet, ultra-violet), doping material (InGaN, GaN, AlGaInP, GaAlAs, GaInAsSb, GaAs), technology (Double hetero structure laser diodes, quantum well laser diodes, quantum cascade, distributed feedback, SCH, VCSEL, and VECSEL), application (telecommunication, industrial, medical & healthcare, military & defense, consumer electronics, automotive, and others), and region (Asia Pacific, Europe, North America, and RoW).

The report also provides a comprehensive review of market drivers, restraints, opportunities, and challenges in the laser diode market. The report also covers qualitative aspects in addition to the quantitative aspects of these markets.

Key Benefits of Buying the Report:

The report will help the leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall market and the sub-segments. This report will help stakeholders understand the competitive landscape and gain more insights to better position their businesses and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the laser diode market and provides them information on key market drivers, restraints, challenges, and opportunities.

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* Business Overview, Products Offered, Recent Developments, and MnM View might not be captured in case of unlisted companies.

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