

## **Optoelectronics - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

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### **Report description:**

The Optoelectronics Market size is estimated at USD 47.56 billion in 2024, and is expected to reach USD 62.87 billion by 2029, growing at a CAGR of 5.74% during the forecast period (2024-2029).

The increasing adoption of advanced manufacturing and fabricating technologies is driving the demand for optoelectronic components in the industrial sector using laser and machine vision systems.

#### Key Highlights

- Advances in optoelectronics have made considerable contributions to the efficient transmission of information via optical fibers (including communication between processing machines and within them), to the high-capacity mass storage of information in laser disks, and several other specific applications. Moreover, the increasing demand in the automotive industry, specifically with the adoption of electric vehicles, self-driven trucks, and autonomous vehicles, is expected to boost optoelectronic devices' adoption, further driving the market.
- Laser diodes are the most widely adopted optoelectronic components deployed in laser generation. The current market trends in optoelectronics are toward scaling down the sizes of different devices and attaining high levels of integration in systems, such as arrays of light-emitting diodes, laser arrays, and integrated systems, with other electronic elements on the same chip.
- Laser diodes are witnessing demand across various applications, including fiber optic communications, barcode readers, DVD/Blu-ray players, printing, and communication technologies. In comparison, growing demand for lasers in the industrial sector has also been identified to boost the market's growth.
- The price of optoelectronics-based goods is higher than that of traditional products, which is among the factors limiting industry growth. Customers may prefer substitute technologies to optoelectronics-based goods, including LCD displays, over LED displays since LCD is a more cost-effective solution. Further, compared to typical goods, the cost of replacing spare components is more

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significant. Post-COVID-19, the market has gained impetus, with production facilities restarting full-capacity production to fulfill the increased demand for optoelectronic parts throughout various industrial verticals.

## Optoelectronics Market Trends

### Laser Diodes are Expected to Witness a Significant Growth

- Laser diodes are widely utilized optoelectronic elements in laser generation, with capabilities ranging from fiber DVD/Blu-ray recorders to printing and networking technologies, optic communications, and barcode readers. Furthermore, high usage of electronic equipment has established standard display technology, with consumers wanting better resolution and efficiency, driving the rising demand for electronic devices and increasing the optoelectronics industry.
- High Power lasers are finding extensive demand in industrial sectors for a wide range of applications, including cutting, welding, and fabrication. Companies are moving towards laser technologies to take advantage of high performance and reliability, which is driving the demand for high-power laser diodes.
- Laser diodes are employed in a variety of industries, including automobile industries. Laser diodes are utilized in the automobile sector to produce car headlights that improve driver visibility, leading to better road safety. Furthermore, the tendency to downsize vehicle headlights is increasing demand for laser diodes.
- Moreover, increasing development in the automobile industry is expected to contribute to segment growth over the forecast period. For instance, in November 2022, Kyocera Corporation announced the introduction of an Automotive Night Vision System capable of reliably identifying collision-risk items in low-visibility operating circumstances such as rain, night, snow, fog, or smoke. The technology is designed to minimize traffic accidents and encourage safer driving.
- Increasing development in laser diodes is expected to drive market demand over the forecast period. For instance, in April 2022, The FemtoBlade laser technology was developed by Lumentum as the second version of the company's line of high-precision ultrafast industrial lasers. The novel system has a flexible architecture and a lot of power.

### Asia Pacific is Expected to Hold a Significant Share

- The region's rapid expansion is primarily attributable to the region's foremost consumer electronics and automobile markets. Furthermore, development in optoelectronic devices is expected in other areas, including smart city initiatives, emerging innovations including virtual and simulated reality, big data, the Internet of Things (IoT), and intelligent industrial appliances.
- Asia-Pacific is the manufacturing center for semiconductor components. The region is home to the bulk of significant companies in the optoelectronics industry, including Rohm Co., Ltd, Sony Corporation, Renesas, Samsung Electronics Co., Ltd., Panasonic Corporation, Hamamatsu Photonics K.K., and Sharp Corporation, as well as several minor regional businesses which in turn is expected to drive market growth over the forecast period.
- Increasing developments by governments in emerging economies such as India and China are expected to contribute to market growth over the forecast period. For instance, in April 2022, the Navi Mumbai Municipal Corporation chose to convert all streetlights to LED lights; 35,000 streetlights were to be replaced this year, resulting in an INR 7 Crore (USD 0.85 million) yearly savings. All city roadways, including motorways, will have LED illumination installed. While several were changed in the fiscal year 2021, the majority will be changed in the fiscal year 2022. The bidding procedure for the project has begun
- In modern automobiles, optoelectronics automates vehicle operations, including brake signals and headlights. As a result, rising revenues from luxury and ultra-luxurious automobiles boost demand for the optoelectronics sector. As per the Federation of Automotive Dealers Associations (FADA), a nationwide organization comprising automobile sellers in India, retail luxury car sales in December 2021 would increase by 19.7% due to increasing inventory and partnerships with OEMs. As a result, rising sales of

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premium and ultra-luxury automobiles propel the optoelectronics business over the forecast period.

## Optoelectronics Industry Overview

The competitive rivalry in the optoelectronics market is high owing to the presence of major players like General Electric Company, Panasonic Corporation, Samsung Electronics, Omnivision Technologies Inc., and Sony Corporation, among others. Their ability to innovate their products, coupled with hefty investments in research and development, has allowed them to gain a competitive advantage over their competitors. Strategic partnerships, mergers, and acquisitions have allowed the companies to grow and gain a substantial market share and maintain a strong foothold in the market.

In September 2022, GaNo Optoelectronics Inc., a spin-off from Nanjing University in China that provides ultraviolet (UV) detectors and modules centered on wide-bandgap semiconductors like silicon carbide (SiC) and gallium nitride (GaN), officially launched the first commercialized SiC-based extreme ultraviolet (EUV) photodiodes.

In July 2022, Nationstar Optoelectronics, located in China, established a formal "cooperation agreement" with Huawei to manufacture mini-LED and micro-LED display technology. The collaboration is founded on complementary advantages, reciprocal benefits, and joint development principles. It will focus on both parties' fundamental technology and industrial resources. The two firms want to conduct extensive innovation and research to broaden their potential economic coverage.

In June 2022, OpenLight, a newly created independent business funded by Synopsys and Juniper, revealed the world's first open silicon photonics architecture with integrated lasers. The California-based corporation aims to give chip makers a way to construct photonic integrated circuits (PICs) with the greatest potential performance.

### Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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