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Chip-on-Board LED Market Assessment, By Power Range [Low, Medium, High], By End-user [Residential, Industrial, Commercial], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

Global chip-on-board LED market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years. With projected revenue of approximately USD 2.21 billion in 2022, the market is forecasted to reach a value of USD 4.81 billion by 2030, displaying a robust CAGR of 10.2% from 2023 to 2030.

Chip-on-board LED market represents a vital sector within the broader illumination industry. COB technology, where multiple LED chips are directly mounted on a single substrate, has revolutionized lighting solutions across diverse applications. One of its key advantages lies in its compact design, offering high lumen density from a smaller surface area. This efficiency makes COB LEDs highly sought after in various sectors, including residential and commercial lighting, automotive lighting, horticulture, and entertainment. The versatility of COB LEDs makes them suitable for both general and specialized lighting needs.

The COB LED market's growth is propelled by its superior performance, like COB LEDs providing excellent thermal management, resulting in prolonged lifespans and enhanced reliability. Moreover, it offers superior color rendering and uniform illumination, enhancing visual experiences for consumers. The market is characterized by intense competition, with major players such as Cree Inc., Lumileds, and Samsung Electronics continually innovating to improve efficiency and reduce production costs.

Energy Efficiency Concerns Creating Significant Demand for Chip-on-Board LED

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Industry

Energy efficiency is a driving force behind the adoption of COB LEDs globally. These LEDs consume minimal power, leading to substantial energy savings and reduced environmental impact. Additionally, COB LEDs align with stringent energy efficiency regulations, making them an environmentally responsible choice for businesses and consumers alike. As the demand for energy-efficient lighting solutions continues to rise, the COB LED market is poised for substantial growth. Advancements in smart lighting technologies and connected systems further expand its influence, making COB LEDs a cornerstone of modern illumination solutions worldwide.

Lighting contributes to nearly 5% of the world's CO2 emissions. A worldwide shift to energy-efficient LED technology could prevent over 1,400 million tons of CO2 emissions and eliminate the need for constructing 1,250 power stations. LED lighting, with its substantial savings ranging from 50-70%, is acknowledged as one of the most practical and readily deployable technologies for cities aiming to transition to a low-carbon economy. The move toward LEDs can aid in peaking emissions and achieving a sustainable environment in the coming decade and further influence the adoption of chip-on-board LED.

Technological Innovations Influencing Chip-on-Board LED Market

COB LED manufacturers are increasingly concentrating on enhancing the quality and brightness of light produced by their products. They are integrating new technologies to create improved COB LED lighting solutions, including the incorporation of tunable lighting features. Tunable lighting allows users to modify the color temperature of LED lights, enabling the adjustment between warm and cool light settings. This adaptable feature is gaining popularity in both commercial and residential settings, encompassing retail stores, hotels, offices, hospitals, homes, and apartment lobbies. Numerous vendors are now introducing COB LEDs equipped with tunable lighting capabilities, responding to the growing demand in the market. The continuous innovations in COB LEDs are expected to boost their adoption significantly in the coming years.

For example, in February 2022, Crestron Electronics, a prominent manufacturer of control and automation systems, revealed their significant expansion into the lighting sector- tunable led light fixtures, particularly focusing on the domain commonly referred to as human-centric lighting (HCL).

Asia-Pacific Holds Largest Share

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Asia-Pacific has consistently held the largest share in the chip-on-board LED market. The dominance can be attributed to several factors. Asia-Pacific has numerous technologically advanced industries and a robust manufacturing sector, driving the demand for high-quality lighting solutions, including COB LEDs. Stringent energy efficiency regulations in countries like India and China have accelerated the adoption of energy-saving lighting technologies, boosting the market for COB LEDs. Additionally, the region's focus on sustainable and eco-friendly practices has increased investment in energy-efficient lighting solutions, further propelling the demand for COB LEDs. Moreover, key players and ongoing research and development activities in the LED industry in Asia-Pacific have contributed to the market's growth. These factors combined have positioned Asia Pacific as a leading consumer and innovator in the COB LED market within the global landscape.

Government Initiatives

In 2021, the Indian government sanctioned a Production Linked Incentive (PLI) initiative for white goods, including Air Conditioners and LED Lights, with a budget allocation of USD 7.5 billion (INR 6,238 crore). Projections indicate that over five years, this scheme will trigger additional investments totaling USD 9.51 billion (INR 7,920 crore), resulting in a surge in production worth USD 201.8 billion (INR 1,68,000 crore). Furthermore, it is anticipated to boost exports, generating revenue of USD 77.3 billion (INR 64,400 crore) and contribute direct and indirect revenues amounting to USD 59.22 billion (INR 49,300 crore). Additionally, the initiative is expected to create approximately four lakh new employment opportunities directly and indirectly.

Impact of COVID-19

The COVID-19 pandemic had a notable impact on the chip-on-board (COB) LED market. Initially, the market faced disruptions in the supply chain due to factory closures and transportation restrictions imposed to curb the virus's spread. This led to delays in manufacturing, affecting product availability and delivery schedules. Additionally, the decreased consumer spending and economic uncertainties during lockdowns caused a temporary decline in demand, particularly in sectors like automotive and non-essential retail, impacting COB LED sales.

However, the pandemic accelerated certain market trends. With increased awareness of health and safety measures, there was a heightened demand for UV-C COB LEDs, used in disinfection applications to combat the virus. Furthermore, the shift towards

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remote working and increased online activities drove demand for high-quality lighting solutions for home offices and studios, indirectly benefiting the COB LED market.

As economies have started recovering, the COB LED market is adapting to new demands, focusing on energy-efficient solutions and innovative applications, aligning with the post-pandemic market trends and consumer preferences.

Key Players Landscape and Outlook

Chip-on-board LED market is witnessing a swift growth trajectory due to the increasing emphasis placed by companies worldwide on establishing energy efficiency and sustainability measures. Furthermore, the market expansion is greatly facilitated by increasing smart LED lighting industry, along with significant investments made by companies to enhance research and development resources, engage in collaboration projects, bolster marketing efforts, and expand distribution networks. These factors collectively contribute to the rapid expansion of the market.

In February 2022, Luminus Inc. broadened its range of chip-on-board (COB) arrays by introducing the new 95CRI-minimum Smooth White COB series. These COB arrays are specifically crafted for spotlights, downlights, as well as lighting applications in museums, hospitality, and architecture. These LED arrays are praised for their outstanding uniformity, consistent color over various angles, and remarkable long-term color stability.

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*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work

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