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Chip-on-Board LED Market Forecasts to 2034 – Global Analysis By Type (Lateral Chip, Vertical Chip, Flip Chip and Other Types), Material (MCPCB, Ceramic and Other Materials), Application (Illumination, Automotive, Backlighting and Other Applications) and by Geography

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Abstracts

According to Stratistics MRC, the Global Chip-on-Board LED Market is accounted for $3.94 billion in 2026 and is expected to reach $17.09 billion by 2034 growing at a CAGR of 20.1% during the forecast period. Chip-on-Board (COB) LED technology is a small and effective lighting solution. This design does away with the need for separate packaging by directly mounting several LED chips onto a single substrate. This densely packed configuration produces a more consistent light output and improves overall luminous efficacy. Because COB LEDs have advantages like better brightness, smaller size, and better thermal management, they are a popular option for a variety of lighting applications. Moreover, their adaptability makes them suitable for home and business environments, offering a dependable, low-energy lighting option with a clean, simple appearance.

According to the Illuminating Engineering Society (IES), Chip-on-Board (COB) LED technology has emerged as a groundbreaking innovation, offering improved luminous efficacy, thermal management, and versatility in lighting applications.

Market Dynamics:

Driver:

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Increasing need for energy-saving lighting fixtures

The market for chip-on-board (COB) LEDs is being driven largely by the growing global focus on energy efficiency. Additionally, the need for lighting solutions with high energy efficiency has increased as sustainable practices become more and more important to industries and governments alike. Because of their increased luminous efficacy over conventional lighting technologies, COB LEDs offer a greener solution that lowers carbon emissions and energy use.

Restraint:

High starting prices

The relatively high initial costs of chip-on-board (COB) LED technology are a major barrier to their widespread adoption. For consumers and businesses, the materials and manufacturing techniques needed to produce COB LEDs may result in a higher initial cost. Furthermore, the higher entry barrier can be a deterrent, especially for applications with limited funding, even though the long-term energy savings and lower maintenance costs frequently outweigh this initial investment.

Opportunity:

Developments in intelligent lighting systems

Smart lighting systems offer a great opportunity for the integration of chip-on-board (COB) LEDs. Smart lighting control and customization are made possible by the emergence of Internet of Things (IoT) technology. Moreover, this includes functions like automated dimming, color correction, and remote monitoring. Because of their highly efficient design and small size, COB LEDs can be easily integrated into sophisticated smart lighting systems, opening up new markets for the commercial, industrial, and residential sectors.

Threat:

Rivalry of alternative led technologies

The widespread adoption of chip-on-board (COB) LEDs is threatened by the LED industry's rapid pace of innovation. There's a chance that more affordable, more efficient, or more effective alternative LED packaging technologies will surface and draw

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the market away from COB LEDs. Additionally, COB LED manufacturers need to be on their toes to stay competitive in a changing market.

Covid-19 Impact:

The COVID-19 pandemic caused significant disruptions in the supply chain, manufacturing processes, and demand dynamics in the chip-on-board (COB) LED market. During the early stages of the pandemic, lockdowns, restrictions, and economic uncertainty caused a slowdown in production and a drop in consumer spending. Furthermore, the growth of the COB LED market was hindered by setbacks experienced by the construction and automotive industries, which are critical sectors. But as everyone adapted to the new normal, there was a surge in demand for energy-efficient lighting options, such as COB LEDs, due to the growing significance of remote work arrangements, home upgrades, and the recognition of the value of effective lighting in public areas like hospitals.

The Flip Chip segment is expected to be the largest during the forecast period

The flip-chip segment, which uses its creative design to solve thermal issues and improve overall performance, is predicted to hold the largest share of the market. Because the LED chip and substrate are directly bonded in this configuration, heat dissipation is efficient, and light extraction is enhanced. This design makes LED packages more dependable and compact while also producing a higher brightness. Moreover, flip-chip LEDs are widely used in displays, automotive lighting, and general lighting, demonstrating their adaptability and efficiency in a variety of sectors.

The Automotive segment is expected to have the highest CAGR during the forecast period

The industry's quick shift to more energy-efficient and sophisticated lighting solutions is reflected in the Automotive LED lighting segment, which is predicted to have the highest CAGR in the market. Because of LED technology's increased brightness, energy efficiency, and design flexibility, the automotive industry has embraced it, which has resulted in a surge in demand for applications like interior lighting, taillights, and headlights. Additionally, the transition to electric vehicles and the incorporation of cutting-edge features like adaptive lighting systems are factors driving the automotive LED lighting market's rapid expansion.

Region with largest share:

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Due to the combined strength of economies like China, Japan, South Korea, and Taiwan, the Asia-Pacific region has held the largest share in the chip-on-board (COB) LED market. The region's strong manufacturing base, large R&D expenditures and growing need for energy-efficient lighting solutions are the main causes of its dominance. Furthermore, China has become a major player in this market thanks to its broad capabilities in electronics manufacturing and the widespread use of LED technology in many different industries.

Region with highest CAGR:

Due to the region's dedication to environmental sustainability and energy efficiency, the chip-on-board (COB) LED market is expected to grow at the highest CAGR in Europe. Europe's nations have embraced COB LED technology for a variety of uses, such as general lighting and the automotive industry. Moreover, tight energy efficiency laws benefit the European market by encouraging the use of cutting-edge lighting technologies.

Key players in the market

Some of the key players in Chip-on-Board LED market include GE Lighting, Lextar Electronics Corporation, PerkinElmer, Nichia Corporation, Lumileds Holding B.V., Eaton, Philips Lumileds Lighting Co., LG Innotek Co. Ltd., Bridgelux, Inc, Seoul Semiconductor Co., Ltd., Osram Opto Semiconductors GmbH, Samsung Electronics Co. Ltd., Everlight Electronics Co. Ltd. and Sharp Electronics Corporation.

Key Developments:

In December 2023, PerkinElmer has signed an agreement to acquire life sciences firm Covaris, which will expand its life sciences portfolio and provide entrance into the high-growth diagnostics end market. Both companies are majority owned by New Mountain Capital, a New York-based investment firm; financial and other terms of the transaction were not disclosed.

In September 2023, Intelligent power management company Eaton today announced an exclusive global alliance with Michigan-based technology developer Traxen to sell, distribute, service, and provide installation support for their cutting-edge iQ-Cruise® system. This collaboration aims to support the commercial transportation industry by improving fuel efficiency and environmental sustainability while helping fleet profitability.

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In March 2023, GE Renewable Energy's Grid Solutions business announced today that it has been awarded three High-Voltage Direct Current (HVDC) contracts for a total of approximately 6 billion euros as part of a specially formed consortium with Sembcorp Marine for TenneT's innovative 2GW Program in the Netherlands. The contracts have been awarded as part of a five-year Framework Cooperation Agreement with the possibility to extend for another three years.

Types Covered:

- Lateral Chip
- Vertical Chip
- Flip Chip
- Other Types

Materials Covered:

- MCPCB
- Ceramic
- Other Materials

Applications Covered:

- General Lighting
- Automotive
- Backlighting
- Other Applications

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  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand
  - South Korea
  - Rest of Asia Pacific

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South America

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Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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All the customers of this report will be entitled to receive one of the following free customization options:

- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation
  - Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)
- Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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