

Electric Vehicle High-Voltage DC-DC Converter - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Electric Vehicle High-Voltage DC-DC Converter Market size is estimated at USD 1.67 billion in 2025, and is expected to reach USD 3.21 billion by 2030, at a CAGR of 14.05% during the forecast period (2025-2030).

Over the long term, factors such as the increasing shift toward electric vehicles, stringent emission regulations, government initiatives to promote sales of electric vehicles, expansions in charging infrastructure, and advancements in battery technology and EV components contribute to the market's growth. For instance,

According to the International Energy Agency, in Q1 2024, electric car sales grew by around 25% compared to Q1 2023, with China holding the largest share of 45% in terms of electric car sales, followed by Europe (25%).

With the rise in EV sales worldwide, recent advancements in high-voltage DC-DC converter technology have focused on increasing efficiency, reducing size and weight, and enhancing reliability. Innovations such as silicon carbide (SiC) and gallium nitride (GaN) semiconductors are leading to more efficient converters that operate at higher frequencies, thus reducing the size of passive components.

Considering the scenario, various manufacturers are focusing on upgrading their technologies for electric vehicles and their components, such as converters.

In June 2024, Samsung Electro-Mechanics introduced the CL32B104KHU6PN#, a high-voltage multi-layer ceramic capacitor (MLCC) tailored for EV applications, such as DC-DC converters. The features include miniaturization, high voltage, stability, and higher capacitance, which are driving the usage of MLCCs in vehicles.

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The deployment of technologies like cloud computing and IoT (Internet of Things) in battery management systems of electric cars, coupled with a DC-DC converter to ensure a regulated output voltage, have increased the use of converters in electric vehicles.

Asia-Pacific is estimated to hold a prominent share in the electric vehicle high voltage DC-DC converter market, as countries like India and China hold the largest share in EV sales. North America and Europe are also expected to grow rapidly due to the increasing adoption of electric vehicles and the government's increasing focus on achieving emission goals in the future.

These factors are expected to positively impact the market's growth during the forecast period.

Electric Vehicle High-Voltage DC-DC Converter Market Trends

Passenger Cars Hold the Highest Share in the Market

Over the long term, the growing demand for automobiles that provide enhanced driving experiences, comfort, and safety may increase the demand for fuel-efficient engines. The increasing sales of electric vehicles have further boosted the sales of passenger cars as various countries promote their adoption through strict regulations, subsidies, tax credits, and other incentives.

According to the International Energy Agency, new electric car registrations in Europe reached nearly 3.2 million in 2023, increasing by almost 20% compared to 2022, with battery electric cars accounting for 70% of the electric car stock in the same year.

Governments worldwide have also launched various schemes and policies to encourage buyers to opt for electric vehicles over conventional ones. One such initiative that promotes the purchase of electric vehicles is the California Zero Emission Vehicle (ZEV) program, which aims to have 1.5 million electric vehicles on the road by 2025. Other countries offering various incentives include India, China, the United Kingdom, South Korea, France, Germany, Norway, and the Netherlands.

Similarly, vehicles registered in Europe until December 31, 2025, are exempted from the ownership tax for 10 years, and this exemption is valid until December 31, 2030. Such policies are boosting the sales of electric passenger cars.

Owing to the growth of electric passenger car sales, companies manufacturing EV connectors are seeing a growing opportunity in the EV segment and are focusing on various technological advancements to develop new products.

In May 2024, Eaton launched the higher-power version of its low-voltage 48-volt DC-DC converter. The newly released converter takes power from a 48-volt system and steps it down to 12 volts to run accessories and other low-power systems.

Such factors, along with high disposable income, rising brand awareness, and high-power purchase parity, contribute to the segment's growth.

Asia-Pacific is Dominating the Market

Asia-Pacific holds the majority share in the electric vehicle high voltage DC-DC converter market. With countries like China leading the EV sales, the market is expected to grow significantly during the forecast period.

China and Japan are inclined toward innovation, technology, and the development of advanced electric vehicles. Moreover, countries such as Indonesia are engaged in large electric mobility projects.

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China is a key player in the electric vehicle industry worldwide. The country's government is encouraging people to adopt electric vehicles. China plans to switch to electric mobility entirely by 2040. The Chinese electric passenger cars market is also one of the largest worldwide, and it has been growing rapidly over the last few years. It is expected to grow further during the forecast period, which may positively impact the electric vehicle high voltage DC-DC converter market. Several key players in the market are partnering with other players to develop power electronics components.

Heavy investments made by automotive companies are expected to cater to the growing demand for electric vehicles and contribute to the high sales of vehicles. OEMs offer electric vehicles in different segments, ranging from hatchbacks like the MG Comet EV to high-end sedans like Tesla Model 3.

The transition to electric vehicles requires significant investments as carmakers focus on upgrading manufacturing sites, which is important in companies fulfilling electrification targets.

The Indian electric vehicle market is in its growing stage. Automobile manufacturers in India, such as TATA, Mahindra, and MG, are taking initiatives to provide affordable electric driving options. The government is also supporting electric mobility to reduce the exhaust emissions of greenhouse gases in the country.

In March 2024, the Indian government approved an EV policy under which import duty concessions will be given to companies setting up manufacturing units in the country with a minimum investment of USD 500 million, a strategic move to attract major global players like US-based Tesla.

Automobile manufacturers in India are also taking initiatives and investing in R&D practices to provide affordable electric cars in India. For instance, in February 2021, Hyundai announced an investment of USD 0.12 billion to develop new affordable EVs. The vehicles would be manufactured locally, and the company is in talks with local vendors to source the components. Hyundai may also seek a strategic partnership with its sister brand, Kia, as it plans to add EVs to its portfolio in India. The company is working on a mass-market, more affordable electric car for India, which was planned to be launched in 2024.

Due to such factors, the demand for DC-DC converters in vehicles is likely to increase, thus boosting the market's growth over the forecast period.

Electric Vehicle High-Voltage DC-DC Converter Industry Overview

The electric vehicle high voltage DC-DC converter market is consolidated and led by global and regionally established players. The companies adopt strategies such as new product launches, collaborations, and mergers to sustain their market positions.

- In June 2024, TDK announced the addition of adjustable current limit models to the TDK-Lambda brand 300W-rated i7C non-isolated DC-DC converter series. The new models are suitable for generating additional high-power DC outputs from 12 V, 24 V, and 48 V system voltages in medical, automated guided vehicles (AGV), and other industries.

Some of the major players in the market include Robert Bosch GmbH, TDK Corporation, Toyota Industries Corporation, and HELLA GmbH & Co. KGaA.

Additional Benefits:

- The market estimate (ME) sheet in Excel format

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