

Automotive Dc-Dc Converter Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The Automotive DC-DC converter market was valued at USD 9.9 Billion in 2021 and is expected to reach USD 18.7 Billion by 2027, registering a CAGR of over 10% during the forecast period 2022-2027.

The COVID-19 pandemic caused several vehicles and component manufacturing facilities to shut down temporarily. This factor is hindering the growth of the automotive industry. However, with the gradual removal of lockdowns in several countries, the demand for vehicles has slightly increased, which is expected to propel the market growth during the forecast period.

The market's growth is fueled by the demand for electronic systems, such as infotainment and enhanced safety through the integration of ADAS in modern automobiles. The increasing adoption of both battery-powered and hybrid electric vehicles has enhanced the demand for DC-DC converters, as a DC-DC converter is vital for converting a 24V or 48V power supply into a 12V power supply to ensure the safe and reliable operation of onboard electronic systems.

Prominent economies and vehicle manufacturing companies are investing in research and development of 200-450V converters with features including fast circuit breaker control to comply with automotive safety. However, the market's growth may be limited by factors, such as fluctuations in global automotive production, resulting in an oversupply condition that could hamper the financial position of the market players.

Market players are trying to integrate the DC converter and inverter units as a single unit. Further, the market is highly R&D-intensive and focused on integrating DC-DC converters in larger vehicles. This trend has encouraged manufacturers of DC-DC converters to launch new product offerings to facilitate integration into commercial vehicles.

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Asia-Pacific is anticipated to dominate the market, owing to the region's higher automotive production rate and annual sales, particularly in China. Moreover, The proliferation of ADAS and in-cabin infotainment has turned vehicles into complex electronic systems on wheels that require multi-level, noise-free DC-DC converters to fuel market growth.

Automotive DC-DC Converter Market Trends

Rising R&D Activities to Integrate DC-DC Converters into Commercial Vehicles

The growing adoption of stringent emission norms is driving automotive OEMs to integrate advanced technologies in their vehicle offerings to enhance fuel efficiency. This trend has resulted in the development of electric drivetrains for medium and heavy commercial vehicles (M&HCVs). The electric drivetrain mandates the integration of a DC-DC converter to ensure higher efficiency. The increase in sales of commercial vehicles has driven component manufacturers to upgrade their product offerings.

□ On this note, Prodrive recently launched a 48V to 12V DC-DC converter compliant with the ISO/DIS 21780 standard for 48V automotive systems. The converter can be configured to suit automotive networks, including CAN and FlexRay, and is available in multiple power options, ranging from 400W to 2.2kW.

□ Similarly, Ricoh Europe (Netherlands) BV introduced the R1273L synchronous buck DC/DC converter that can function efficiently over a wide input voltage range up to 34V to deliver a maximum output of 14A.

With increasing freight and logistics activities, the demand for pickup trucks has seen significant demand from the logistics and municipal sectors. Recently, a significant demand for electric pickup trucks for personal applications has been observed, especially in European and North America. In context, automakers such as Ford, General Motors, and Volkswagen have sharpened their focus on electrified production vehicles. Several new companies/startups have announced plans to manufacture hybrid or fully electric pickup truck models in the coming years. For instance-

□ Ford has announced that it is working on developing a fully electric pickup truck, which is expected to have a 300 miles range. Although Ford initially planned to develop a hybrid powertrain, the company has changed its plan from a hybrid to a fully electric truck. The F-150 electric is expected to be launched in 2022.

□ Rivian, the American vehicle manufacturer and automotive technology company, has developed a fully electric pickup truck, the RT1. This vehicle is expected to have a range of 450 miles and has level-3 autonomous features. The RT1 will be delivered to the customer by September 2022.

□ In April 2022, G-Pulse, a leading automotive ECU solution and mobility service provider, came under a constructive alliance with Silicon Mobility to design a high voltage multiphase DC-DC converter for upcoming new energy vehicles in the market. The high voltage DC-DC converter shall be compatible with FCEV, BEV, HEV, and PHEV.

Various agreements, partnerships, and ventures between the component manufacturers will benefit the electric vehicle high-voltage DC-DC converter market shortly. For instance,

□ In May 2020, ZF Friedrichshafen AG partnered with VisIC, an Israel technology company. The main focus of the joint effort is to produce inverters and high voltage DC converter systems for electric vehicles.

Due to the increased adoption of DC-DC converters in commercial vehicles, the market is poised to register moderate growth during the forecast period.

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Asia Pacific Region to Play Prominent Role in the Market During the Forecast period

The Asia-Pacific region is expected to hold a dominant share in the market during the forecast period in the wake of rising vehicle production and the growing focus of major countries on the electrification of vehicles. Further, some notable non-automotive companies, like Alibaba, are also entering the rapidly growing EV market in the country. For instance,

□ In January 2021, Alibaba Group introduced two electric models in the country, under the IM label (Intelligence in Motion), in partnership with SAIC Motor. CATL supplies battery cells for these vehicles

The Asia-Pacific electric passenger car market is also one of the largest worldwide and has been growing rapidly over the last few years. It is expected to grow higher in the forecast period, which will also positively impact the demand for high voltage DC-DC Converter Market. Several key players in the market are partnering with other players to develop power electronics components. For instance,

□ In November 2021, G-Pulse and Silicon Mobility announced a partnership to develop a high voltage multiphase interleaving bidirectional DC-DC converter platform for new energy vehicles (NEVs), such as fuel cell electric vehicles (FCEVs), battery electric vehicles (BEVs), hybrid electric vehicles (HEVs), and plug-in hybrid electric vehicles (PHEVs) (PHEV).

□ In May 2021, TDK Corporation (TDK) announced it entered a partnership with Contemporary Amperex Technology Co., Limited (CATL) to strengthen its businesses, such as electric components for electric vehicles and DC-DC converters. TDK will supply automotive electrical and power supply products to CATL for automotive power units.

□ Hyundai Motors plans to invest USD 16 billion to increase its market share in the world by 2023. With the increase in the manufacturing and launching of new products, the demand for DC-DC converters is bound to increase in the upcoming years.

With most of the electric vehicles and components being manufactured locally and with the government's key national strategies and plans, the country's market is expected to have a high growth rate during the forecast period. In addition, DC-DC converters play a primary role. They are also used in different types of applications, such as hybrid electric vehicles (HEV, Hybrid Electric Vehicle), and hence growing adoption of these converters coupled with notable launches from manufacturers, expected to drive demand in the market. For instance,

□ In November 2021, EPC Launched a 2 kW, 48 V/12 V DC-DC Demonstration Board for More Efficient, Smaller, Faster, Bidirectional Converters for Cars. The DC-DC converter is three times faster, greater than 35% smaller and lighter, and offers greater than 1.5% higher efficiency and lower overall system costs compared to silicon MOSFET solutions.

Therefore, such factors mentioned above and instances are likely to drive demand in the Asia-Pacific region during the forecast period.

Automotive DC-DC Converter Market Competitor Analysis

The market is moderately consolidated and actively highly competitive owing to several active vendors competing for an enhanced market share based on product innovation. The vendors with sales directed prominently to mature markets are required to effectively innovate their product offerings to ensure low environmental impact and well-designed digital features.

□ In March 2021, Infineon Technologies AG (Infineon) announced that it had launched the 650 V CoolSiC Hybrid Discrete for automotive. The device contains a 50 A TRENCHSTOP 5 fast-switching IGBT and a CoolSiC Schottky diode, enabling a cost-efficient performance boost and high reliability. It makes the device ideal for fast switching automotive applications such as onboard

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chargers (OBC), power factor correction (PFC), DC-DC, and DC-AC converters.

□ In February 2021, Vitesco Technologies announced a new DC/DC converter, the heating discs of the electrically heated EMICAT catalyst can now also be supplied with electricity in high-voltage vehicles. The innovative e-catalyst enables the lowest emissions in real operation, which is becoming increasingly important considering forthcoming regulations such as Euro 7. The newly-developed DC/DC converter now generates the low voltage and power for the heating disc from the high voltage of the drive system.

Besides, these vendors' business operation models and product concepts must also align with the specific requirements of emerging economies to encourage sustainability in high-growth, low-cost markets.

Additional Benefits:

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

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