

Capacitor For Power Electronics - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Capacitor Market For Power Electronics Industry is expected to grow from USD 5.29 billion in 2025 to USD 7.12 billion by 2030, at a CAGR of 6.1% during the forecast period (2025-2030).

In electrical circuits, capacitors are frequently employed to block direct current (DC) while allowing alternating current to flow.

Key Highlights

- In 2022, the cost of the capacitor made up around 10% of the entire cost of the power converter. Film capacitors are the costliest form of capacitors and are frequently employed for high power levels. Consequently, as more capacitors are required due to the system's increasing power level, the cost of capacitors in a power converter rises.
- Electric automobiles contribute to significant market demand, in addition to the numerous commercial and public electric vehicles, such as buses, trains, trams, and industrial trucks and equipment, that are used daily. Besides, hybrid cars are now on the roads as people search for more environment-friendly forms of personal transportation in response to the skyrocketing price of oil. The DC link power capacitor is only one example of how the electrical systems and parts that have made it possible to build such a wide range of electric cars have all undergone significant change.
- Capacitors are used in electric cars to smooth out changes in DC bus voltage and stop ripple currents from returning to the power source. Additionally, capacitors are utilized for safeguarding semiconductors like IGBTs rather than the original thyristors.
- It is expected that by the end of the forecast period, the market share of capacitors for power electronics used in EVs will rise from 29% to 44%. As a result, many capacitor businesses are eager to grow and concentrate on the present and future requirements of the automobile sector.
- The most common electrical motors are induction motors because of their dependability, affordability, and durability. Most pieces of equipment used in industrial and mining applications use three-phase AC induction motors as their main power source.

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These motors use 70-80% of all the power used worldwide. Induction motors have relatively low power factors when there is no load. It becomes better at going from zero load to full load. Power factor correction can be implemented at the starter, switchboard, or distribution panel and is accomplished by adding capacitors in parallel with the related motor circuits.

Capacitor Market Trends

Supercapacitor/EDLC Segment to Register Significant Growth

- Clean and renewable energy storage technologies have been developed due to the energy crisis and environmental damage. The Electrical Double Layer Capacitor (EDLC), often known as a supercapacitor, offers a very high capacitance in a compact form. Because it does not undergo the wear and tear associated with the chemical process, it may store electric energy as an electric field between two conducting plates and perform hundreds of thousands more charge-discharge cycles than batteries. Because of this and its growing application in electric drives, UPS, active filters, traction, and automotive industries have drawn interest to learn more about their peculiarities.
- The exceptional storage capacity of supercapacitors has led to their widespread usage in various applications, including SSDs, LED lamps, electric drives, UPS, traction, and electric cars. Supercapacitors are the sole power source for buses in Shanghai, and they are recharged every third stop in one to two minutes using regenerative braking energy. China has shown the rest of the world that this technology can be used extensively. However, the technology that combines a supercapacitor and battery is more favorable for buses.
- According to IEA, in 2022, 54 thousand electric bus registrations were completed in China and five thousand in Europe. This trend is gradually increasing as oil prices are hiking to prevent air pollution. This growing adoption of EVs will boost the growth of the market for capacitors in power electronics during the forecast period.
- Supercapacitors are utilized in radio tuners, mobile phones, laptop memory, and other electronic equipment. They are used in situations like LED flash units when a brief power surge is necessary.

Asia-Pacific to Hold a Significant Market Share

- The Asia-Pacific region is one of the most important markets for capacitors in power electronics applications. The popularity of EVs is growing, and China is regarded as one of the most dominant adopters of electric vehicles. The country's 13th Five-Year Plan promotes the development of green transportation solutions, such as hybrid and electric cars, for advancements in the country's transportation sector.
- China's electric cars are reached the 20% nationwide penetration goal in 2022, well ahead of the Chinese government's 2025 forecast, due to new models by dozens of competitors attracting new buyers and encouraging owners to switch to electric vehicles.
- Capacitors in power electronics applications are expected to benefit significantly from the government's growing interest in expanding electric distribution networks throughout India. To encourage the use of e-2W, the demand incentive under the FAME-II plan was raised from INR 10,000 (USD 119.67)/KWh to INR 15,000 (USD 179.51)/KWh with a ceiling increase from 20% to 40% of vehicle cost. Additionally, after March 31, 2022, phase II of the FAME-India Scheme was extended for an additional two years. This strategy was developed to provide more economical, environment-friendly transportation, strengthen national fuel security, and help India's car sector take the lead in global manufacturing.
- The region is witnessing an increase in market investments. For instance, in February 2024, Keltron, partnered with the Indian Space Research Organisation, has inaugurated a state-of-the-art supercapacitor manufacturing plant in Kannur. This move signifies a major advancement in energy storage technology. The facility, backed by a INR 42 crore investment, not only boasts

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exceptional energy storage capabilities but also propels India to the forefront of cutting-edge capacitor technology.

Capacitor Industry Overview

The capacitors market for power electronics is fragmented and highly competitive, as several international and domestic players are operating in the market. Some key players include TDK Corporation, Vishay Intertechnology Inc., Murata Manufacturing Co. Ltd, AVX Corporation (Kyocera Group), and Kemet Corporation (Yageo Company), among others. To maintain their position in a highly competitive market, the players are continuously innovating new products and undertaking various other business development strategies.

- April 2023: The Vishay BC components 172 RLX series, developed by Vishay Intertechnology Inc., is a new line of low-impedance automotive-grade miniature aluminum electrolytic capacitors. It features 14 case sizes with dimensions ranging from 10mm by 12mm to 18mm by 40mm, and it can operate at temperatures up to +105 C. The switch mode power supplies, DC/DC converters, motor drives, and control units for automotive, telecommunications, industrial, audio-video, and electronic data processing (EDP) applications can benefit from the smoothing, filtering, and buffering capabilities of the Vishay BC components 172 RLX series of polarised aluminum electrolytic capacitors with non-solid electrolyte.
- December 2022: TDK Corporation offers ModCap HF, a modular capacitor idea that can operate at extremely high switching frequencies for DC link applications. The six newly created power capacitors in the B25647A* series are rated for voltages between 900 and 1600 volts and have capacitance ranges between 640 and 1850 volts. The highest allowable hot spot temperature is 90 C, and the rated currents range from 160 A to 210 A depending on the kind. ModCap HF is especially well suited for fast-switching SiC-based inverters because of its ultra-low ESL value of just 8 nH and flat ESR vs. Freq evolution that allows minimizing losses even at high frequency. The power semiconductors don't experience voltage overshooting when the current is turned off due to the extremely low self-inductance.

Additional Benefits:

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

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