

Power Electronics Market Analysis By Material (Si, Sapphire, SiC, GaN, and Others), By Device (Discrete, Module, IC), By Application (ICT, Consumer Electronics, Power, Industrial, Automotive, Aerospace & Defense), And Segment Forecasts, 2014 - 2025

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Abstracts

The global power electronics market is expected to reach USD 39.22 billion by 2025, according to a new report by Grand View Research, Inc. Increased focus on the usage of renewable energy sources has been one of the major factors driving the market. In addition, the development of power infrastructure, coupled with the increasing demand for battery-powered portable devices, has led to the increased adoption of power electronic devices and products across various industry verticals such as power, automotive, communication, aerospace & defense, consumer electronics, and other sectors.

Power electronic devices use switching electronic circuits to regulate the flow of energy. They are also used in alteration of electric power, which is usually performed by the semiconductor devices such as diodes, transistors, and thyristors. Power electronic devices are useful in connecting renewable energy resources with power grids and transportation of energy. They have applications in electric trains, motor drives, and lighting equipment and play a key role by enabling heat sinking and soft starting of the motors.

The power electronics market is extensively consolidated, in terms of applications and materials that are used to produce power electronic devices. The advancements and exhaustive research & development activities in the power devices have enabled the evolution of power electronics. The market possesses significant potential for growth and is dynamic and adaptive in nature. A few highlighting features of the power

electronic devices are durability against coarse environmental conditions, extended life (suitable for rugged industrial applications), and better efficiency & reliability.

The power electronics industry has been undergoing continuous developments and up gradations, since its emergence. Several factors, such as the rapid inception of renewable energy sources and rising adoption of electric vehicles & radio communication, are influencing market growth. The adoption of power electronic devices in healthcare systems & instruments and the automotive industry is expected to drive the market over the forecast period.

The Asia Pacific market is expected to grow at the fastest CAGR of 2.0% from 2017 to 2025, owing to the emergence of manufacturing hubs across the continent. Countries, such as China, India, South Korea and Singapore, are expanding their domestic manufacturing activities across various industry verticals, such as consumer electronics, telecommunication, military & defense, and automotive, to strengthen their economies. In addition to this, prominent industry players are investing and establishing production & distribution units to capture the regional markets. All the above-mentioned factors are further providing additional impetus to power electronics market.

However, the power electronics market is facing challenges such as high initial expenditures and deposition of Gallium Nitride (GaN), Gallium Arsenide (GaAs), and Silicon Carbide (SiC) on the silicon materials which is a quite tedious and complex procedure, especially to reach while in high voltage ranges. Expensive & time-consuming processes and complexity issues involved in manufacturing power devices are anticipated to restrain the market growth.

Further key findings from the report suggest:

The global power electronics market was valued at USD 31.48 billion in 2015 and is expected to grow at a CAGR of 2.2% from 2017 to 2025

The silicon segment emerged as the largest material segment in 2015 and is estimated to generate USD 28.0 billion by 2025

The Integrated Circuit (IC) segment is projected to exhibit the fastest growth rate over the forecast period

The industry is projected to witness substantial growth, in the Asia Pacific region, over

the next decade, owing to the developments in major and emerging economies (across the ICT, automotive, and consumer electronic sectors) such as China, Japan, South Korea, and India. The regional market is expected to grow at a CAGR of 2.8% from 2017 to 2025.

The key players, such as Texas Instruments, Inc., Renesas Electronics Corp, Mitsubishi Electric Corp., Fuji Electric Co., Ltd., and Infineon Technologies AG, dominated the global power electronics market and accounted for 60% of the total revenue in 2015

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