

## **MOSFET Power Transistors - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

Market Report | 2024-02-17 | 120 pages | Mordor Intelligence

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### **Report description:**

The Global Power MOSFET Market was valued at USD 6.55 billion in the previous year and is expected to reach USD 9.94 billion by the end of the forecast period, registering a CAGR of 4.49 percent during the forecast period. The electronics industry is one of the major consumers of the MOSFET power transistor. As the consumer electronics industry is anticipated to grow significantly, the forecast period will bring opportunities to the studied market.

#### Key Highlights

- The global proliferation of electronic gadgets among millennials, healthcare appliances, and upcoming HEVs and EVs in the automotive sector strongly supports the growth of the studied market. The development of the power MOSFET transistors market will also be aided by rising technical advancements and a steady stream of innovative technologies. Over the forecasted period, power MOSFET transistors have a lot of potential to support the exponentially growing electronics and vehicle industries.
- Power MOSFET transistors are widely used for lighting, solar, EV charging, DC-DC converters, and onboard chargers. Due to the recent growth in the demand for electric and hybrid electric vehicles globally, the power MOSFET transistors market is expected to offer lucrative opportunities.
- Furthermore, MOSFET Power transistors are also witnessing substantial growth in aerospace and defense applications. With the global aerospace industry growing significantly, driven by the growing passenger traffic and military expenditure, the demand is anticipated to continue its positive growth trend. Furthermore, the emerging application areas also encourage researchers to develop innovative solutions. For instance, in June 2023, scientists from GE Research demonstrated SiC MOSFETs that can tolerate temperatures exceeding 800 degrees C, which is significantly higher than any such previous demonstrations, showing the potential of SiC MOSFETs to support future applications in extreme operating environments.
- Further, power MOSFETs are discrete transistor devices utilized in industrial, automotive, and consumer applications to switch high-voltage and high-current signals. In these sectors, the demand for high-efficiency power solutions is growing, posing new

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challenges such as higher switching frequencies, smaller footprints and weights, and improved thermal management.

-With the miniaturization trend becoming dominant in the global electronics and semiconductor industry, the manufacturing complexity of advanced MOSFET power transistors has also grown significantly, creating new challenges for the manufacturers such as the selection of raw materials, fabrication process/equipment, etc., which is also among the major challenging factor for the growth of the studied market.

## MOSFET Power Transistors Market Trends

### Automotive and Transportation is Expected to Hold Significant Market Share

- With the increasing demand for electric vehicles worldwide and to keep drivers safe, MOSFET Power Transistors are widely used in cars. MOSFET Power Transistors improve connectivity driving and safety innovation among drivers, which is expected to fuel market demand. The rapid electrification of vehicles is driving the growth of the automotive MOSFET Power Transistors market.

- The growing adoption of advanced driver-assistance systems (ADAS) and increasing government regulations globally mandating ADAS are also expanding the scope of this segment. Also, the ever-increasing adoption of vehicle infotainment is expected to provide growth opportunities. However, the growing complexity of automotive digital applications requires the constant evolution of MOSFET Power Transistors and technologies.

- With electrification and autonomous technologies becoming prevalent in the automotive industries, more electronic and control units are being installed, which in turn is driving the demand for MOSFET power transistors in the studied market. For instance, in 2022, BYD surpassed Tesla as the leading manufacturer of plug-in electric vehicles. Around 1.85 million plug-in electric vehicles were sold by BYD that year. Additionally, technological advancements, such as the implementation of AI, IoT, and favorable government standards for the production of autonomous, connected, and low-emission vehicles, are further fuelling the studied market's growth.

- Furthermore, the growing demand and use cases of MOSFETs in the automotive sector also encourage the vendors to develop innovative solutions, which is anticipated to further facilitate the studied market's growth. For instance, in July 2022, Toshiba Electronic Devices & Storage Corporation announced developing silicon carbide (SiC) MOSFETs with low on-resistance and significantly reduced switching loss. While SiC power devices are now increasingly being utilized in inverters for trains, the broader application is on the horizon, coming in vehicle electrification and the miniaturization of industrial equipment.

### Asia-Pacific Expected to Witness Significant Market Share

- The Asia-Pacific is projected to account for the highest MOSFET Power Transistors market growth. The growth in the market is attributed to factors such as the increasing adoption of consumer electronics devices, growing disposable income of consumers in the region, rising technological advancements, and the booming infrastructure, and rising technological advancements in the region are some of the driving factors behind the growth of the market.

- The growth of the studied market in the Asia Pacific is also anticipated to be influenced by factors such as the presence of several manufacturers of Power MOSFET in the region, making it easy for the buyers to get the product. Furthermore, the presence of a large consumer base, the expanding demand for consumer electronics products, and the steady growth of automotive industries in the region together create a market suitable for developing the MOSFET Power Transistors market.

- In the last few decades, China has emerged as the major economy in this region owing to the rapid development of the industrial sector. According to the World Bank, the industrial sector in China has averaged almost 10 percent a year in the last few decades, making the country the global manufacturing hub while also driving the demand for MOSFET power transistors as they are widely used in products/equipment across various industries.

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- Furthermore, Japan also holds a significant position in the MOSFET Power Transistors market, home to some substantial manufacturers and the electronics and healthcare equipment industry. According to the Ministry of Finance, Japan, in 2023, exports of medical & pharmaceutical products stood at JPY 101,815 million (USD 680086). In recent years, the company has also started focusing on luring semiconductor companies and engaging in partnerships with other nations to boost its semiconductor industry, which is anticipated to drive opportunities in the studied market.

## MOSFET Power Transistors Industry Overview

The MOSFET Power Transistors Market is moderately competitive, with many regional and global players. Various acquisitions and collaborations of large companies are expected to take place shortly, focusing on innovation. Some key market players include Analog Devices Inc., Texas Instruments, Broadcom Inc., and NXP Semiconductors, among others.

In July 2023, Micro Commercial Components Corp. launched an innovative TO-Leadless (TOLL) package designed to enable high currents in a small N-channel MOSFET. According to the company, the four new TOLL high-power MOSFETs are smart solutions for the stringent demands of Industrial applications. Additionally, These solutions are equipped with additional features to remove size as a design constraint, reduce overall component costs, and provide maximum operational efficiency.

In June 2022, Toshiba introduced a new series of N-channel power MOSFETs. The TK055U60Z1 is the first product in the 600V DTMOSVI series and is based on the company's latest-generation process with a super junction structure. According to the company, the new product employs the latest TOLL package, which features a Kelvin connection for the signal source terminal to ensure the source wire's inductance has less impact, reducing the switching oscillation.

### Additional Benefits:

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

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