

Power MOSFET Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028

Segmented By Type (Depletion Mode and Enhancement Mode), By Power Rate (High Power, Medium Power, and Low Power), By Channel Type (N-Channel and P-Channel), By Application (Energy & Power, Inverter & UPS, Consumer Electronics, Automotive, Industrial, and Others), By Region and Competition

<https://marketpublishers.com/r/P14795E823FEEN.html>

Date: October 2023

Pages: 170

Price: US\$ 4,900.00 (Single User License)

ID: P14795E823FEEN

Abstracts

Global power MOSFET (Metal–Oxide–Semiconductor Field-Effect Transistor) market is expected to grow at a robust pace in the forecast period owing to the increasing use of power electronics in various industries. Applications like electric vehicles (EVs), renewable energy systems, industrial motor drives, consumer electronics, telecommunications, and data centers all require power MOSFETs as these industries continue to expand. Moreover, power MOSFETs are essential to increasing energy efficiency. Additionally, power MOSFETs are in high demand due to their capacity to switch power effectively and minimize system energy losses, both of which are becoming increasingly important in light of the growing emphasis on lowering energy consumption and power losses. They contribute to the improvement of power conversion and control systems efficiency, which results in energy savings.

A power MOSFET is made to handle significant power levels. The insulated-gate bipolar transistor (IGBT) or thyristor, two other power semiconductor devices, offer similar advantages in terms of switching speed and efficiency at low voltages. It shares an isolated gate with the IGBT, making it simple to drive. They may have low gain,

sometimes to the point where the gate voltage must be higher than the control voltage.

Today's electronics have a lot of features that help customers feel more at ease and sell more. Consumer safety standards have been raised and new business opportunities for improved electronics and devices have emerged as a result of technological advancements in electronic components, such as cellphones, computers, wireless communication, and cloud systems, among others. Power MOSFET has critical potential due to the fast enhancements in innovation, expanded productivity, and little size of electronic parts. Furthermore, the nano regulator is fundamental for dealing with cycles with minimal measure of force misfortune. It is anticipated that coordinating various electronic gadgets would give market players a lot of possibilities.

Improved Emphasis on Power Saving

It is expected to face power problems in the future because fossil fuels are running out quickly. It shouldn't come as a surprise that energy conservation is getting more and more attention. A MOSFET is a switching component used in electric vehicle management, an inverter, and power supply. MOSFETs are frequently utilized in industrial settings with low switching frequencies. The increasing emphasis on energy efficiency and renewable sources has made this industry its own. It is anticipated that renewable energy with the greatest number of installations would make up a larger portion of the power module. Thus, these factors are expected to drive the global power MOSFET market.

Wide use of Power MOSFETs in Semiconductors is Driving the Global Power MOSFET Market

MOSFETs are most generally involved semiconductor gadget in advanced and simple circuits, as well as the most frequently utilized power gadget. It is the primary tiny semiconductor, equipped for being cut back and efficiently manufactured for many applications. MOSFET scaling and contracting have driven the fast-outstanding development of electronic semiconductor innovation, empowering high-thickness incorporated circuits (ICs), for example, memory chips and microchips.

The power MOSFET is the world's most widely used power gadget. MOSFETs enjoy upper hands over bipolar intersection semiconductors in power hardware since they don't need a steady progression of driving current to stay in the ON state, offer more prominent exchanging speeds, lower exchanging power misfortunes, lower on-

protections, and are less inclined to warm out of control. Power MOSFET impacts power supply, taking into consideration more prominent working frequencies, less size and weight, and bigger volume production. Thus, it is expected to boost the growth of global power MOSFET market.

Increased Dependence on Electrical Equipment and Machinery is Thriving the Growth of Global Power MOSFET Market

Machines today are extremely flexible, minimal, and productive in doing what they are made to do, to such an extent as they have assumed control over a ton of exercises that were done physically. The market for machines and electronic equipment is expected to continue growing or grow faster than demand in the coming years. The majority of machinery manages power with power MOSFETs. The MOSFET module is frequently utilized for voltage switching operations, and there are approximately 78,124 gigawatt (GW) of wind and solar installations worldwide. The rising reliance on electrical machinery and equipment, which directly benefits power MOSFET, is one of the primary factors influencing the market for global power MOSFET.

Growing Demand for Electric Vehicle Components to Propel the Growth of Global Power MOSFET Market

The global power MOSFET market is anticipated to expand over the forecast period as a result of government initiatives to provide tax rebates and subsidies to encourage the use of low-range, zero-emission vehicles worldwide. The global market is also anticipated to be driven by rising investments in the creation of hydrogen fueling and electric vehicle charging stations. In addition, it is anticipated that the global market will benefit from a decrease in the price of electric vehicle batteries as a result of their widespread production and ongoing technological advancements. Another significant factor that would propel the global market is the high demand for electric vehicle equipment and components like portable chargers, adapters, connectors, and charging cables.

Limitations in Operations and High Costs are Expected to Hinder the Growth of Global Power MOSFET Market

Limitations like breakdown caused by gate oxide, drain to source voltage, maximum drain current, and temperature prevent this market from expanding. Because of its thinness, gate oxide has a shallow breakdown limit. The MOSFET's life is further shortened by a high gate to source voltage, and this has little to no effect on reduction.

The MOSFET too needs a particular measure of channel to source voltage and current; A breakdown could occur quickly if these requirements are not met.

Additionally, power MOSFET's have a tendency to leak current, impacting its market growth. The high installation costs for power MOSFETs may limit market expansion as this component raises vehicle prices. Due to the vehicle's numerous technological components, its serviceability is challenging and necessitates skilled personnel. The lifespan of systems with complex architectures is shorter. Subsequently, it is guessed that the factors referenced above are expected to cause hindrance to the growth of global power MOSFET market.

Market Segmentation

The global power MOSFET market is segmented based on type, power rate, channel type, application, and region. Based on type, the market is bifurcated into depletion mode and enhancement mode. Based on power rate, the market is bifurcated into high power, medium power, and low power. Based on channel type, the market is bifurcated into N-channel and P-channel. Based on application, the market is bifurcated into energy & power, inverter & ups, consumer electronics, automotive, industrial, and others. Based on region, the market is further bifurcated into North America, Asia-Pacific, Europe, South America, and Middle East & Africa.

Market players

The main market players in the global power MOSFET market are Digi-Key Corporation, Infineon Technologies AG, Renesas Electronics Corporation, Toshiba Corporation, IXYS Corporation, STMicroelectronics N.V., Microchip Technology Inc., Power Integration Inc., Sumitomo Electric Industries Ltd., and Hitachi Power Semiconductor Device Ltd.

Report Scope:

In this report, global power MOSFET market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Power MOSFET Market, By Type:

Depletion Mode

Enhancement Mode

Power MOSFET Market, By Power Rate:

High Power

Medium Power

Low Power

Power MOSFET Market, By Channel Type:

N-Channel

P-Channel

Power MOSFET Market, By Application:

Energy & Power

Inverter & UPS

Consumer Electronics

Automotive

Industrial

Others

Power MOSFET Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

India

Japan

South Korea

Australia

China

Europe

Germany

United Kingdom

France

Italy

Spain

South America

Brazil

Argentina

Colombia

Middle East

Saudi Arabia

South Africa

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global power MOSFET market.

Available Customizations:

Global power MOSFET market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to ten).

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