

Low Voltage MOSFET Market - Forecast from 2026 to 2031

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Abstracts

The Low Voltage MOSFET Market, sustaining a 4.96% CAGR, is projected to expand to USD 7.018 billion in 2031 from USD 5.250 billion in 2025.

The low voltage MOSFET market represents a critical segment of the power semiconductor industry, characterized by devices engineered to operate efficiently at voltage levels typically up to 100 volts. These components are fundamental to modern electronics, prized for their capabilities in high-speed switching and signal amplification. Key performance attributes include exceptionally low on-resistance and fast switching speeds, which collectively minimize power losses and enable efficient operation even in high-frequency circuits. This combination of low power consumption and high reliability makes them an ideal choice for a vast array of applications, particularly in battery-operated devices and other systems where energy efficiency is paramount.

Primary Market Drivers

The expansion of the low voltage MOSFET market is propelled by two dominant, interconnected forces. The first is the escalating global demand for energy-efficient solutions across virtually all electronic sectors. Regulatory pressures mandating higher efficiency, coupled with rising energy costs and a concerted global effort to reduce carbon emissions, are compelling manufacturers to adopt components that minimize power waste. Low voltage MOSFETs are increasingly being specified for use in power supplies, lighting systems, and motor controls to meet these stringent efficiency targets. As the push for sustainability intensifies, these devices are poised to become even more integral to electronic design.

The second major driver is the robust growth and transformation within the automotive

industry. The proliferation of electric and hybrid vehicles is creating substantial demand for advanced power management systems where low voltage MOSFETs are extensively utilized. Applications such as electric power steering, engine control units, and sophisticated battery management systems rely on the efficiency and reliability of these semiconductors. The automotive sector's overarching goals of improving fuel efficiency, reducing emissions, and enhancing vehicle performance are directly fueling the adoption of low voltage MOSFETs, establishing the industry as a key growth pillar.

Market Challenges and Geographical Outlook

Despite strong demand, the market faces significant headwinds. The increasing complexity of semiconductor design and manufacturing presents a considerable challenge. Developing next-generation MOSFETs requires sophisticated and capital-intensive equipment, leading to high production costs. Furthermore, the market is characterized by intense competition among a large number of established and emerging players, creating pricing pressures that can compress profit margins and potentially stifle innovation. Added to these commercial challenges is a growing scrutiny of the environmental impact of semiconductor production, with regulators and consumers increasingly focused on the waste and pollution generated during manufacturing.

From a geographical perspective, North America holds a significant share of the global low voltage MOSFET market. The region's growth is underpinned by the rapid adoption of advanced technologies, including 5G networks and the Internet of Things (IoT). The strong automotive sector, particularly the shift toward electric and hybrid vehicles, further drives demand for efficient power management components. Additionally, the need for high-performance computing in data centers and other infrastructure relies on low voltage MOSFETs to manage power consumption and thermal output. The presence of major semiconductor companies in the region, combined with government initiatives promoting clean energy and energy efficiency, consolidates North America's position as a leading and expanding market for low voltage MOSFET technology.

Key Benefits of this Report:

Insightful Analysis: Gain detailed market insights covering major as well as emerging geographical regions, focusing on customer segments, government policies and socio-economic factors, consumer preferences, industry verticals, and other sub-segments.

Competitive Landscape: Understand the strategic maneuvers employed by key players globally to understand possible market penetration with the correct strategy.

Market Drivers & Future Trends: Explore the dynamic factors and pivotal market trends and how they will shape future market developments.

Actionable Recommendations: Utilize the insights to exercise strategic decisions to uncover new business streams and revenues in a dynamic environment.

Caters to a Wide Audience: Beneficial and cost-effective for startups, research institutions, consultants, SMEs, and large enterprises.

What do businesses use our reports for?

Industry and Market Insights, Opportunity Assessment, Product Demand Forecasting, Market Entry Strategy, Geographical Expansion, Capital Investment Decisions, Regulatory Framework & Implications, New Product Development, Competitive Intelligence

Report Coverage:

Historical data from 2021 to 2025 & forecast data from 2026 to 2031

Growth Opportunities, Challenges, Supply Chain Outlook, Regulatory Framework, and Trend Analysis

Competitive Positioning, Strategies, and Market Share Analysis

Revenue Growth and Forecast Assessment of segments and regions including countries

Company Profiling (Strategies, Products, Financial Information, and Key Developments among others.

Segmentation

By Technology

Silicon (Si) Mosfet

Silicon Carbide (SiC) Mosfet

By Application

Power Conversion

Energy & Power

By End-User

Consumer Electronics

It & Telecommunication

Automotive

Others

By Geography

North America

USA

Canada

Mexico

South America

Brazil

Argentina

Others

Europe

Germany

France

United Kingdom

Spain

Others

Middle East and Africa

Saudi Arabia

UAE

Others

Asia Pacific

China

India

Japan

South Korea

Indonesia

Thailand

Others

Contents

1. EXECUTIVE SUMMARY

2. MARKET SNAPSHOT

- 2.1. Market Overview
- 2.2. Market Definition
- 2.3. Scope of the Study
- 2.4. Market Segmentation

3. BUSINESS LANDSCAPE

- 3.1. Market Drivers
- 3.2. Market Restraints
- 3.3. Market Opportunities
- 3.4. Porter's Five Forces Analysis
- 3.5. Industry Value Chain Analysis
- 3.6. Policies and Regulations
- 3.7. Strategic Recommendations

4. TECHNOLOGICAL OUTLOOK

5. LOW-VOLTAGE MOSFET MARKET BY TECHNOLOGY

- 5.1. Introduction
- 5.2. Silicon (Si) Mosfet
- 5.3. Silicon Carbide (SiC) Mosfet

6. LOW-VOLTAGE MOSFET MARKET BY APPLICATION

- 6.1. Introduction
- 6.2. Power Conversion
- 6.3. Energy & Power

7. LOW-VOLTAGE MOSFET MARKET BY END-USER

- 7.1. Introduction
- 7.2. Consumer Electronics

- 7.3. It & Telecommunication
- 7.4. Automotive
- 7.5. Others

8. LOW-VOLTAGE MOSFET MARKET BY GEOGRAPHY

- 8.1. Introduction
- 8.2. North America
 - 8.2.1. USA
 - 8.2.2. Canada
 - 8.2.3. Mexico
- 8.3. South America
 - 8.3.1. Brazil
 - 8.3.2. Argentina
 - 8.3.3. Others
- 8.4. Europe
 - 8.4.1. Germany
 - 8.4.2. France
 - 8.4.3. United Kingdom
 - 8.4.4. Spain
 - 8.4.5. Others
- 8.5. Middle East and Africa
 - 8.5.1. Saudi Arabia
 - 8.5.2. UAE
 - 8.5.3. Others
- 8.6. Asia Pacific
 - 8.6.1. China
 - 8.6.2. India
 - 8.6.3. Japan
 - 8.6.4. South Korea
 - 8.6.5. Indonesia
 - 8.6.6. Thailand
 - 8.6.7. Others

9. COMPETITIVE ENVIRONMENT AND ANALYSIS

- 9.1. Major Players and Strategy Analysis
- 9.2. Market Share Analysis
- 9.3. Mergers, Acquisitions, Agreements, and Collaborations

9.4. Competitive Dashboard

10. COMPANY PROFILES

- 10.1. Infineon Technologies AG
- 10.2. Fuji Electric Corp. of America
- 10.3. Toshiba Electronic Devices & Storage Corporation
- 10.4. NXP Semiconductors
- 10.5. Vishay Intertechnology Inc.
- 10.6. ROHM Co., Ltd.
- 10.7. Microchip Technology Inc.
- 10.8. Mitsubishi Electric Corporation
- 10.9. IXYS Corporation

11. APPENDIX

- 11.1. Currency
- 11.2. Assumptions
- 11.3. Base and Forecast Years Timeline
- 11.4. Key Benefits for the Stakeholders
- 11.5. Research Methodology
- 11.6. Abbreviations

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