

Power Discrete and Modules Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

<https://marketpublishers.com/r/PB4338A3A5ADEN.html>

Date: May 2025

Pages: 180

Price: US\$ 4,850.00 (Single User License)

ID: PB4338A3A5ADEN

Abstracts

The Global Power Discrete And Modules Market was valued at USD 29.8 billion in 2024 and is estimated to grow at a CAGR of 6.1% to reach USD 53.4 billion by 2034, fueled by rising demand from high-growth industries such as consumer electronics, data centers, and 5G infrastructure. Adopting advanced power electronics has become critical in these applications to support efficiency, miniaturization, and performance. As devices become smarter and power-dense, components like IGBTs, MOSFETs, and power modules are essential to managing energy use, thermal efficiency, and switching speed.

Trade tariffs enacted during the Trump administration placed pressure on US-based semiconductor manufacturers by raising import costs for critical materials and components. Many companies operating in the US market responded by localizing production, reengineering their supply chains, and investing in regional wafer fabrication facilities. Global players, particularly in Asia, also ramped up R&D around GaN and SiC technologies to reduce foreign dependency. These geopolitical shifts significantly influenced procurement patterns, pricing strategies, and innovation timelines across the industry. Moreover, the continued rise of consumer electronics, from personal devices to smart appliances, reinforces the role of discrete power solutions in high-frequency, compact environments.

In 2024, the power module segment generated USD 12.4 billion. Its high demand stems from superior heat dissipation, compact design, and power-handling capability critical in EVs, industrial drives, and renewable energy systems. With the continued development of wind turbines, solar farms, and EV charging networks, the deployment of high-voltage power modules, especially those based on SiC, is expanding rapidly.

MOSFETs segment in the power discrete and modules market accounted for USD 8.7 billion in 2024 due to their high efficiency and reliability in low- to mid-power applications. Their prominence in consumer gadgets, automotive control units, and fast-charging technologies reflects their versatility and ongoing innovation in form factor and switching performance. GaN-based variants push growth in applications requiring compact high-speed switching.

U.S. Power Discrete and Modules Market was valued at USD 7.9 billion in 2024, driven by rising EV demand, large-scale investments in solar and wind infrastructure, and increased use of power modules in defense and aerospace applications. Industrial automation is another key driver, where discrete components enable power-efficient, responsive smart factory systems. The country's shift toward clean energy and electrified mobility has accelerated the integration of high-performance power devices, particularly in applications like EV charging stations, battery management systems, and renewable inverters.

Key players in the industry include Powerex, Littelfuse, Infineon Technologies, Danfoss, STMicroelectronics, Fuji Electric, Texas Instruments, ROHM Semiconductor, Renesas Electronics, Semikron, Microchip Technology, Toshiba, ON Semiconductor, Vishay Intertechnology, Wolfspeed, Mitsubishi Electric, and Sanken Electric. To maintain a competitive edge, leading firms are advancing wide-bandgap technology (SiC/GaN), enhancing product efficiency and thermal performance. They are also expanding fabrication capacity, forming supply chain alliances, and pursuing strategic mergers to strengthen vertical integration and serve high-growth regional markets.

Companies Mentioned

Danfoss, Fuji Electric, Infineon Technologies, Littelfuse, Microchip Technology, Mitsubishi Electric, ON Semiconductor, Powerex, Renesas Electronics, ROHM Semiconductor, Sanken Electric, Semikron, STMicroelectronics, Texas Instruments, Toshiba, Vishay Intertechnology, Wolfspeed

Contents

CHAPTER 1 METHODOLOGY AND SCOPE

- 1.1 Market scope and definitions
- 1.2 Research design
 - 1.2.1 Research approach
 - 1.2.2 Data collection methods
- 1.3 Base estimates and calculations
 - 1.3.1 Base year calculation
 - 1.3.2 Key trends for market estimation
- 1.4 Forecast model
- 1.5 Primary research and validation
 - 1.5.1 Primary sources
 - 1.5.2 Data mining sources

CHAPTER 2 EXECUTIVE SUMMARY

- 2.1 Industry 360° synopsis

CHAPTER 3 INDUSTRY INSIGHTS

- 3.1 Industry ecosystem analysis
- 3.2 Trump administration tariffs
 - 3.2.1 Impact on trade
 - 3.2.1.1 Trade volume disruptions
 - 3.2.1.2 Retaliatory measures
 - 3.2.2 Impact on the industry
 - 3.2.2.1 Supply-side impact (raw materials)
 - 3.2.2.1.1 Price volatility in key materials
 - 3.2.2.1.2 Supply chain restructuring
 - 3.2.2.1.3 Production cost implications
 - 3.2.2.2 Demand-side impact (selling price)
 - 3.2.2.2.1 Price transmission to end markets
 - 3.2.2.2.2 Market share dynamics
 - 3.2.2.2.3 Consumer response patterns
 - 3.2.3 Key companies impacted
 - 3.2.4 Strategic industry responses
 - 3.2.4.1 Supply chain reconfiguration

- 3.2.4.2 Pricing and product strategies
- 3.2.4.3 Policy engagement
- 3.2.5 Outlook and future considerations
- 3.3 Industry impact forces
 - 3.3.1 Growth drivers
 - 3.3.1.1 Rising adoption of smart grids & smart meters
 - 3.3.1.2 Expansion of renewable energy infrastructure
 - 3.3.1.3 Expansion of 5G infrastructure & data centres
 - 3.3.1.4 Growth in consumer electronics
 - 3.3.1.5 Advancements in wide-bandgap semiconductors
 - 3.3.2 Industry pitfalls and challenges
 - 3.3.2.1 High cost of wide-bandgap technologies
 - 3.3.2.2 Design complexity and integration issues
- 3.4 Growth potential analysis
- 3.5 Regulatory landscape
- 3.6 Technology landscape
- 3.7 Future market trends
- 3.8 Gap analysis
- 3.9 Porter's analysis
- 3.10 PESTEL analysis

CHAPTER 4 COMPETITIVE LANDSCAPE, 2024

- 4.1 Introduction
- 4.2 Company market share analysis
- 4.3 Competitive analysis of major market players
- 4.4 Competitive positioning matrix
- 4.5 Strategy dashboard

CHAPTER 5 MARKET ESTIMATES AND FORECAST, BY TYPE, 2021 – 2034 (USD BILLION & MILLION UNITS)

- 5.1 Key trends
- 5.2 Power discrete
- 5.3 Power module

CHAPTER 6 MARKET ESTIMATES AND FORECAST, BY COMPONENT, 2021 – 2034 (USD BILLION & MILLION UNITS)

- 6.1 Key trends
- 6.2 Thyristor
- 6.3 Diode
- 6.4 Rectifier
- 6.5 MOSFET
- 6.6 IGBT
- 6.7 Others

CHAPTER 7 MARKET ESTIMATES AND FORECAST, BY MATERIAL, 2021 – 2034 (USD BILLION & MILLION UNITS)

- 7.1 Key trends
- 7.2 Si
- 7.3 SiC
- 7.4 GaN
- 7.5 Others

CHAPTER 8 MARKET ESTIMATES AND FORECAST, BY APPLICATION, 2021 – 2034 (USD BILLION & MILLION UNITS)

- 8.1 Key trends
- 8.2 Telecom & data centers
- 8.3 Industrial
- 8.4 Automotive
- 8.5 Renewable energy
- 8.6 Consumer electronics
- 8.7 Others

CHAPTER 9 MARKET ESTIMATES AND FORECAST, BY REGION, 2021 – 2034 (USD BILLION & MILLION UNITS)

- 9.1 Key trends
- 9.2 North America
 - 9.2.1 U.S.
 - 9.2.2 Canada
- 9.3 Europe
 - 9.3.1 Germany
 - 9.3.2 UK
 - 9.3.3 France

9.3.4 Spain

9.3.5 Italy

9.3.6 Netherlands

9.4 Asia Pacific

9.4.1 China

9.4.2 India

9.4.3 Japan

9.4.4 Australia

9.4.5 South Korea

9.5 Latin America

9.5.1 Brazil

9.5.2 Mexico

9.5.3 Argentina

9.6 Middle East and Africa

9.6.1 Saudi Arabia

9.6.2 South Africa

9.6.3 UAE

CHAPTER 10 COMPANY PROFILES

10.1 Danfoss

10.2 Fuji Electric

10.3 Infineon Technologies

10.4 Littelfuse

10.5 Microchip Technology

10.6 Mitsubishi Electric

10.7 ON Semiconductor

10.8 Powerex

10.9 Renesas Electronics

10.10 ROHM Semiconductor

10.11 Sanken Electric

10.12 Semikron

10.13 STMicroelectronics

10.14 Texas Instruments

10.15 Toshiba

10.16 Vishay Intertechnology

10.17 Wolfspeed

I would like to order

Product name: Power Discrete and Modules Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

Product link: <https://marketpublishers.com/r/PB4338A3A5ADEN.html>

Price: US\$ 4,850.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/PB4338A3A5ADEN.html>