

# **Gallium Nitride (GaN) Power Device Market Forecasts to 2032 – Global Analysis By Device Type (Power Discrete Devices, Power Integrated Circuits (ICs), and Power Modules), Voltage Range, Application, End User and By Geography**

<https://marketpublishers.com/r/G4D2A2BC1CA0EN.html>

Date: July 2025

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: G4D2A2BC1CA0EN

## **Abstracts**

According to Statistics MRC, the Global Gallium Nitride (GaN) Power Device Market is accounted for \$615.8 million in 2025 and is expected to reach \$7205.2 million by 2032 growing at a CAGR of 42.1% during the forecast period. The Gallium Nitride (GaN) Power Device focuses on semiconductors that provide superior efficiency, switching speed, and power density compared to silicon-based devices. GaN devices are critical in consumer electronics, automotive, renewable energy, data centers, and telecom infrastructure. Growing demand for fast charging, electric vehicles, and energy-efficient systems is fueling adoption. Advancements in 5G networks, aerospace, and defense applications further expand opportunities. With increasing investments in R&D and production, the GaN market is positioned as a key enabler of next-generation power electronics.

According to IEEE Spectrum, GaN devices offer 40% higher efficiency and are being adopted in EVs, 5G base stations, and aerospace applications.

Market Dynamics:

Driver:

Growth in Electric Vehicles (EVs) and Renewable Energy

The surge in electric vehicle (EV) adoption and the global shift towards renewable

energy are pivotal drivers for the Gallium Nitride (GaN) power device market. GaN's superior efficiency and compactness make it ideal for EVs, enhancing power conversion in onboard chargers and inverters. Additionally, the renewable energy sector benefits from GaN's performance in solar inverters and energy storage systems. This synergy between EVs and renewable energy accelerates the demand for GaN power devices, positioning them as essential components in the transition to sustainable energy solutions.

Restraint:

#### Competition from Silicon-Based Technologies

Silicon components are well-established, cost-effective, and widely adopted across various industries. The transition to GaN requires substantial investment in new manufacturing processes and infrastructure. Moreover, the higher initial cost of GaN devices can deter potential adopters, especially in price-sensitive markets. This entrenched preference for silicon technologies presents a notable challenge to the widespread adoption of GaN power devices.

Opportunity:

#### Expansion in Data Centers and Telecom Infrastructure

The rapid expansion of data centers and telecom infrastructure presents a significant opportunity for GaN power devices. These sectors demand high-efficiency power solutions to manage increasing data loads and energy consumption. GaN's ability to handle high voltages and frequencies with minimal energy loss makes it an attractive option for power supplies and voltage regulators in these applications. As digital transformation accelerates, the need for efficient power solutions in data centers and telecom networks is expected to drive the adoption of GaN technology.

Threat:

#### Economic Factors Affecting Investment

Economic uncertainties, such as inflation, supply chain disruptions, and fluctuating raw material costs, pose threats to the GaN power device market. These factors can lead to increased production costs and delayed investments in new technologies. Additionally, economic downturns may result in reduced capital expenditure from industries that are

potential adopters of GaN devices. Such economic challenges can hinder the growth and development of the GaN power device market, affecting its expansion prospects.

#### Covid-19 Impact:

The COVID-19 pandemic initially disrupted the GaN power device market due to global supply chain challenges and manufacturing halts. However, the increased reliance on digital infrastructure and the subsequent rise in data consumption accelerated the demand for efficient power solutions. Moreover, the pandemic highlighted the need for energy-efficient technologies in various sectors, including healthcare and logistics. As industries adapted to new operational norms, the GaN power device market witnessed resurgence, driven by the growing emphasis on energy efficiency and digitalization.

The 200V–600V segment is expected to be the largest during the forecast period

The 200V–600V segment is expected to account for the largest market share during the forecast period. This segment caters to a wide array of applications, including consumer electronics, industrial machinery, and electric vehicles. GaN devices within this voltage range offer enhanced efficiency and thermal performance, making them suitable for high-power applications. The versatility and performance benefits of GaN devices in the 200V–600V range are key factors contributing to their projected dominance in the market.

The electric vehicle (EV) chargers segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the electric vehicle (EV) chargers segment is predicted to witness the highest growth rate. GaN's ability to deliver high efficiency and compactness is particularly beneficial in EV charging infrastructure, where space and energy efficiency are critical. As the adoption of electric vehicles continues to rise, the demand for advanced charging solutions that incorporate GaN technology is expected to grow, driving the segment's rapid expansion.

#### Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share. The region's strong emphasis on technological innovation, coupled with substantial investments in electric vehicles and renewable energy, fuels the demand for GaN-based solutions. Additionally, the presence of leading semiconductor

manufacturers and research institutions in North America accelerates the development and adoption of GaN technologies, reinforcing the region's dominant position in the market.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. Factors such as rapid industrialization, increasing adoption of electric vehicles, and significant investments in renewable energy infrastructure contribute to this growth. Countries like China, Japan, and South Korea are at the forefront, with advancements in semiconductor manufacturing and a growing demand for energy-efficient technologies driving the region's expansion in the GaN power device market.

Key players in the market

Some of the key players in Gallium Nitride (GaN) Power Device Market include Wolfspeed, Inc., Qorvo, Inc., MACOM Technology Solutions Holdings, Inc., Infineon Technologies AG, Sumitomo Electric Industries, Ltd., Navitas Semiconductor, Mitsubishi Electric Corporation, Efficient Power Conversion Corporation (EPC), GaN Systems, NXP Semiconductors N.V., Texas Instruments Incorporated, Toshiba Electronic Devices & Storage Corporation, ROHM Co., Ltd., Analog Devices, Inc., ON Semiconductor Corporation, Panasonic Corporation, Fujitsu Limited, Taiwan Semiconductor Manufacturing Company (TSMC), Nexperia Holding B.V., and Innoscience.

Key Developments:

In September 2025, Wolfspeed, Inc. has officially introduced its 200mm silicon carbide (SiC) materials products to the commercial market, marking a pivotal advancement in its ongoing effort to accelerate the industry's shift from traditional silicon to SiC technologies. Following an initial phase in which the company made 200mm SiC available to select customers, the strong feedback and clear benefits prompted Wolfspeed to move forward with a full-scale release.

In June 2025, Qorvo® a leading global provider of connectivity and power solutions, is expanding its SATCOM portfolio with the launch of a new K-band power amplifier (PA) designed to improve the performance and integration of Low Earth Orbit (LEO) satellites. Developed to meet the evolving demands of next-generation payloads, Qorvo's newest PA further expands its proven GaN-on-SiC SATCOM portfolio, giving

system designers a more efficient, compact and scalable option for space-based payloads.

In May 2025, Infineon Technologies AG announced the first of a new family of radiation hardened Gallium Nitride (GaN) transistors, fabricated at Infineon's own foundry, based on its proven CoolGan™ technology. Designed to operate in harsh space environments, the company's new product is the first in-house manufactured GaN transistor to earn the highest quality certification of reliability assigned by the United States Defense Logistics Agency (DLA) to the Joint Army Navy Space (JANS) Specification MIL-PRF-19500/794.

#### Device Types Covered:

Power Discrete Devices

Power Integrated Circuits (ICs)

Power Modules

#### Voltage Ranges Covered:

Below 200V

200V–600V

Above 600V

#### Applications Covered:

Power Drives

Power Supplies

Motor Drives

Photovoltaic (PV) Inverters

Electric Vehicle (EV) Chargers

Data Centers and Telecom Infrastructure

End Users Covered:

Automotive

Consumer Electronics

Industrial Automation

Renewable Energy

Telecommunications

Military and Aerospace

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

#### Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

#### Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

#### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

## Contents

### **1 EXECUTIVE SUMMARY**

### **2 PREFACE**

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
  - 2.4.1 Data Mining
  - 2.4.2 Data Analysis
  - 2.4.3 Data Validation
  - 2.4.4 Research Approach
- 2.5 Research Sources
  - 2.5.1 Primary Research Sources
  - 2.5.2 Secondary Research Sources
  - 2.5.3 Assumptions

### **3 MARKET TREND ANALYSIS**

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Application Analysis
- 3.7 End User Analysis
- 3.8 Emerging Markets
- 3.9 Impact of Covid-19

### **4 PORTERS FIVE FORCE ANALYSIS**

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

## **5 GLOBAL GALLIUM NITRIDE (GAN) POWER DEVICE MARKET, BY DEVICE TYPE**

- 5.1 Introduction
- 5.2 Power Discrete Devices
- 5.3 Power Integrated Circuits (ICs)
- 5.4 Power Modules

## **6 GLOBAL GALLIUM NITRIDE (GAN) POWER DEVICE MARKET, BY VOLTAGE RANGE**

- 6.1 Introduction
- 6.2 Below 200V
- 6.3 200V–600V
- 6.4 Above 600V

## **7 GLOBAL GALLIUM NITRIDE (GAN) POWER DEVICE MARKET, BY APPLICATION**

- 7.1 Introduction
- 7.2 Power Drives
- 7.3 Power Supplies
- 7.4 Motor Drives
- 7.5 Photovoltaic (PV) Inverters
- 7.6 Electric Vehicle (EV) Chargers
- 7.7 Data Centers and Telecom Infrastructure

## **8 GLOBAL GALLIUM NITRIDE (GAN) POWER DEVICE MARKET, BY END USER**

- 8.1 Introduction
- 8.2 Automotive
- 8.3 Consumer Electronics
- 8.4 Industrial Automation
- 8.5 Renewable Energy
- 8.6 Telecommunications
- 8.7 Military and Aerospace

## **9 GLOBAL GALLIUM NITRIDE (GAN) POWER DEVICE MARKET, BY GEOGRAPHY**

- 9.1 Introduction
- 9.2 North America

- 9.2.1 US
- 9.2.2 Canada
- 9.2.3 Mexico
- 9.3 Europe
  - 9.3.1 Germany
  - 9.3.2 UK
  - 9.3.3 Italy
  - 9.3.4 France
  - 9.3.5 Spain
  - 9.3.6 Rest of Europe
- 9.4 Asia Pacific
  - 9.4.1 Japan
  - 9.4.2 China
  - 9.4.3 India
  - 9.4.4 Australia
  - 9.4.5 New Zealand
  - 9.4.6 South Korea
  - 9.4.7 Rest of Asia Pacific
- 9.5 South America
  - 9.5.1 Argentina
  - 9.5.2 Brazil
  - 9.5.3 Chile
  - 9.5.4 Rest of South America
- 9.6 Middle East & Africa
  - 9.6.1 Saudi Arabia
  - 9.6.2 UAE
  - 9.6.3 Qatar
  - 9.6.4 South Africa
  - 9.6.5 Rest of Middle East & Africa

## **10 KEY DEVELOPMENTS**

- 10.1 Agreements, Partnerships, Collaborations and Joint Ventures
- 10.2 Acquisitions & Mergers
- 10.3 New Product Launch
- 10.4 Expansions
- 10.5 Other Key Strategies

## **11 COMPANY PROFILING**

- 11.1 Wolfspeed, Inc.
- 11.2 Qorvo, Inc.
- 11.3 MACOM Technology Solutions Holdings, Inc.
- 11.4 Infineon Technologies AG
- 11.5 Sumitomo Electric Industries, Ltd.
- 11.6 Navitas Semiconductor
- 11.7 Mitsubishi Electric Corporation
- 11.8 Efficient Power Conversion Corporation (EPC)
- 11.9 GaN Systems
- 11.10 NXP Semiconductors N.V.
- 11.11 Texas Instruments Incorporated
- 11.12 Toshiba Electronic Devices & Storage Corporation
- 11.13 ROHM Co., Ltd.
- 11.14 Analog Devices, Inc.
- 11.15 ON Semiconductor Corporation
- 11.16 Panasonic Corporation
- 11.17 Fujitsu Limited
- 11.18 Taiwan Semiconductor Manufacturing Company (TSMC)
- 11.19 Nexperia Holding B.V.
- 11.20 Innoscience

## List Of Tables

### LIST OF TABLES

Table 1 Global Gallium Nitride (GaN) Power Device Market Outlook, By Region (2024-2032) (\$MN)

Table 2 Global Gallium Nitride (GaN) Power Device Market Outlook, By Device Type (2024-2032) (\$MN)

Table 3 Global Gallium Nitride (GaN) Power Device Market Outlook, By Power Discrete Devices (2024-2032) (\$MN)

Table 4 Global Gallium Nitride (GaN) Power Device Market Outlook, By Power Integrated Circuits (ICs) (2024-2032) (\$MN)

Table 5 Global Gallium Nitride (GaN) Power Device Market Outlook, By Power Modules (2024-2032) (\$MN)

Table 6 Global Gallium Nitride (GaN) Power Device Market Outlook, By Voltage Range (2024-2032) (\$MN)

Table 7 Global Gallium Nitride (GaN) Power Device Market Outlook, By Below 200V (2024-2032) (\$MN)

Table 8 Global Gallium Nitride (GaN) Power Device Market Outlook, By 200V–600V (2024-2032) (\$MN)

Table 9 Global Gallium Nitride (GaN) Power Device Market Outlook, By Above 600V (2024-2032) (\$MN)

Table 10 Global Gallium Nitride (GaN) Power Device Market Outlook, By Application (2024-2032) (\$MN)

Table 11 Global Gallium Nitride (GaN) Power Device Market Outlook, By Power Drives (2024-2032) (\$MN)

Table 12 Global Gallium Nitride (GaN) Power Device Market Outlook, By Power Supplies (2024-2032) (\$MN)

Table 13 Global Gallium Nitride (GaN) Power Device Market Outlook, By Motor Drives (2024-2032) (\$MN)

Table 14 Global Gallium Nitride (GaN) Power Device Market Outlook, By Photovoltaic (PV) Inverters (2024-2032) (\$MN)

Table 15 Global Gallium Nitride (GaN) Power Device Market Outlook, By Electric Vehicle (EV) Chargers (2024-2032) (\$MN)

Table 16 Global Gallium Nitride (GaN) Power Device Market Outlook, By Data Centers and Telecom Infrastructure (2024-2032) (\$MN)

Table 17 Global Gallium Nitride (GaN) Power Device Market Outlook, By End User (2024-2032) (\$MN)

Table 18 Global Gallium Nitride (GaN) Power Device Market Outlook, By Automotive

(2024-2032) (\$MN)

Table 19 Global Gallium Nitride (GaN) Power Device Market Outlook, By Consumer Electronics (2024-2032) (\$MN)

Table 20 Global Gallium Nitride (GaN) Power Device Market Outlook, By Industrial Automation (2024-2032) (\$MN)

Table 21 Global Gallium Nitride (GaN) Power Device Market Outlook, By Renewable Energy (2024-2032) (\$MN)

Table 22 Global Gallium Nitride (GaN) Power Device Market Outlook, By Telecommunications (2024-2032) (\$MN)

Table 23 Global Gallium Nitride (GaN) Power Device Market Outlook, By Military and Aerospace (2024-2032) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

## I would like to order

Product name: Gallium Nitride (GaN) Power Device Market Forecasts to 2032 – Global Analysis By Device Type (Power Discrete Devices, Power Integrated Circuits (ICs), and Power Modules), Voltage Range, Application, End User and By Geography

Product link: <https://marketpublishers.com/r/G4D2A2BC1CA0EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

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

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/G4D2A2BC1CA0EN.html>