

# **Power GaN Devices Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2024 – 2032**

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## **Abstracts**

The Global Power GaN Devices Market was valued at USD 342.9 million in 2023. Projections indicate a CAGR of 35% from 2024 to 2032. This surge is largely attributed to the global push for sustainability and a concerted effort to minimize carbon footprints, leading to heightened demand for energy-efficient solutions across diverse industries. The industry is also experiencing a significant upswing, fueled by a burgeoning demand for energy-efficient solutions. Key sectors driving this demand include renewable energy, electric vehicles (EVs), and consumer electronics. As industries pivot towards reduced energy consumption and enhanced performance, GaN devices are emerging as indispensable tools.

Their advantages over traditional silicon-based devices include superior efficiency, high-frequency operation, and diminished power losses. In the electric vehicle sector, there is a marked acceleration in the adoption of power GaN devices. Manufacturers are increasingly drawn to GaN technology to bolster power conversion efficiency and streamline the size and weight of electronic components. GaN's prowess in operating at elevated frequencies and temperatures, combined with its compactness, positions it as the go-to choice for EV powertrains and charging infrastructures.

The industry is classified into device type, voltage range, application, and region. The market categorizes device types into transistors, diodes, and power ICs. Projections suggest the transistors segment will soar to a valuation exceeding USD 2 billion by 2032. Dominating the power GaN devices landscape, transistors are pivotal for power conversion and amplification. Their edge lies in superior efficiency and elevated switching frequencies, making them the preferred choice for electric vehicles, renewable energy, and consumer electronics.

Applications span consumer electronics, automotive, industrial, telecommunications, aerospace and defense, and healthcare. Notably, the automotive segment is on a rapid

ascent, boasting a CAGR of over 37.5% from 2024 to 2032. While consumer electronics play a pivotal role in the power GaN devices market, driven by the quest for compact and efficient power solutions in smartphones, laptops, and gaming consoles, the ability of GaN technology to facilitate higher power density and expedited charging underscores its significance in contemporary electronics. In 2023, North America emerged as the front-runner in the global power GaN devices arena, clinching a share exceeding 30%. The region's rapid growth is propelled by strides in electric vehicles, renewable energy systems, and data centers. Coupled with a regional emphasis on energy efficiency and sustainability, bolstered by supportive government policies and investments in cutting-edge technologies, North America's momentum in adopting GaN devices is unmistakable.

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