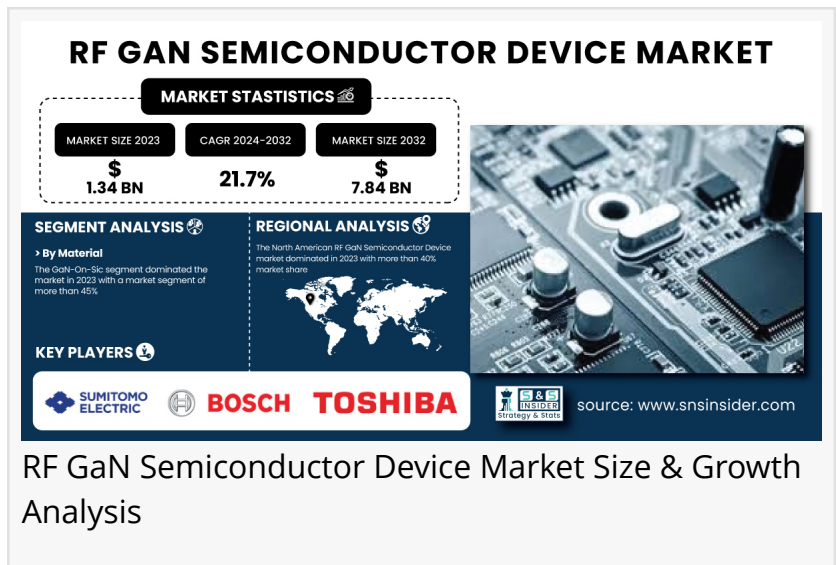


RF GaN Semiconductor Device Market to Hit USD 7.84 Billion by 2032 | SNS INSIDER

The RF GaN Semiconductor Device Market is growing with demand for high-power, high-frequency applications in 5G, radar, aerospace, and defense.

AUSTIN, TX, UNITED STATES, February 14, 2025 /EINPresswire.com/ -- Market Size & Industry Insights

According to the SNS Insider Report, "The [RF GaN Semiconductor Device Market](#) was valued at USD 1.34 billion in 2023 and is expected to grow to USD 7.84 billion by 2032, at a CAGR of 21.7% over the forecast period of 2024-2032."



RF GaN Semiconductor Device Market Size & Growth Analysis

Demand for RF GaN semiconductor devices as high-frequency, high-power, and energy-efficient components in telecom, defense, and aerospace applications is pushing the RF GaN semiconductor device market forward. Growth in global 5G networks, rising utilization of radar solutions, and technological breakthroughs in satellite communications are some factors contributing significantly to this expansion.

Get Free Sample PDF of RF GaN Semiconductor Device Market (with Full TOC & Graphs) @ <https://www.snsinsider.com/sample-request/2639>

SWOT Analysis of Key Players as follows:

- Sumitomo Electric Industries
- Robert Bosch
- Toshiba Corporation
- Infineon Technologies
- Microchip Technology
- Raytheon Company
- STMicroelectronics
- Mitsubishi Electric Corporation

- Panasonic Corporation
- NXP Semiconductor

Key Market Segmentation:

By Material: The GaN-on-SiC segment accounted for the largest share of the RF GaN semiconductor device based on components in 2023. GaN-on-SiC technology, which incorporates GaN's high electron mobility and wide bandgap with the unique thermal capacity and high breakdown voltage characteristics of SiC, produces RF devices that are very efficient, reliable, and robust. Thus, it becomes suitable for high-power and high-frequency applications such as 5G, radar, and satellite communication.

The GaN-on-Silicon segment is expected to record a notable CAGR through 2024-2032 owing to lower prices, available larger wafer sizes, and compatibility with state-of-the-art silicon processing technologies that provide high-frequency operation in heterogeneously integrated devices.

By Application: The RF GaN semiconductor device market was dominated by the wireless infrastructure segment in the year 2023 and is anticipated to grow at the highest CAGR during the forecasted time frame of 2024 and 2032. These will be driven by the rapid growth of the 5G networks, which will drive mobile data traffic in addition to the growing demand for higher frequency /high power RF components. Moreover, RF GaN technology improves network efficiency, coverage, and reliability for both base stations and small cells. Furthermore, the necessity for speedier, low-latency communication and enhancements in Massive MIMO and beamforming drive uptake.

By End Use: The aerospace & defense segment accounted for the largest share of the RF GaN semiconductor device market in 2023 and is expected to register the highest CAGR from 2024 to 2032. The rise of RF GaN is driven by the growing use of RF GaN in high-power and high-frequency applications such as radar, electronic warfare, satellite communication systems, and defense systems. Ideal for next-gen military applications, GaN technology provides higher efficiency, thermal stability, and power density. This massive investment by the global governments in advanced defense technologies is creating a demand. Moreover, the growing usage of UAVs along with secure communication systems is driving the RF GaN market in aerospace & defense.

Connect with Our Expert for any Queries @ <https://www.snsinsider.com/request-analyst/2639>

KEY MARKET SEGMENTS:

BY MATERIAL

GaN-On-Silicon

GaN-On-Sic

GaN-On-Diamond

BY END-USER

IT & telecom

Automotive

Aerospace & Defense

Consumer electronics

Others

BY APPLICATION

Wireless infrastructure

Satellite communication

Power storage

PV inverted

Others

North America Leads RF GaN Market While Asia-Pacific Poised for Rapid Growth

North America led the RF GaN semiconductor device market in 2023. The Northeast US government focuses on advanced radar and EW and Satcom systems driving high-performance demand for RF GaN. This is also because 5G was rolled out faster within this region than any other region and major market players are present within this region. Additionally, the increasing implementation of GaN-based wireless infrastructure solutions such as base stations and satellite networks solidifies North America as a key player in the market.

Asia-Pacific will grow at the fastest CAGR from 2024 to 2032 owing to high demand for 5G networks, increasing defense budgets, and expanding satellite communication systems in the region. Growing telecom infrastructure and military modernization plans in countries such as China, Japan, and South Korea are pushing the adoption of RF GaN. Furthermore, Asia-Pacific's advantages in the semiconductor manufacturing ecosystem, competitively priced production, and government initiatives to create its semiconductor industry only fuel this fire.

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Recent Developments:

-In October 2024, Infineon and AWL-Electricity partnered to enhance wireless power solutions using GaN power semiconductors, improving efficiency and design flexibility across industries.

-In November 2024, Infineon launched the CoolGaN™ 650 V G5 transistors, offering superior efficiency and power density for adapters, chargers, and data centers. With improved switching performance and lower power losses, these GaN discrete enable high-performance, energy-efficient designs.

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