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U.S. Semiconductor Devices Market Size, Share & Trends Analysis Report, By Compound (GaN, GaAs, GaP, GaSb, SiC), By Product(LED, Optoelectronics, RF Devices, Power Electronics, Others), By Application, And Segment Forecasts, 2025 - 2030

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Abstracts

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U.S. Semiconductor Devices Market Trends

The U.S. semiconductor devices market size was estimated at USD 9.17 billion in 2024 and is projected tgrow at a CAGR of 7.3% from 2025 t2030. The U.S. semiconductor devices market is poised for significant growth driven by its rising demand in applications such as wired communication, consumer electronics, industrial electronics, automotive electronics, wireless communication, and computing & data storage, among others. The widespread application of semiconductor devices, coupled with advancements in areas such as 5G and Artificial Intelligence, is expected tfuel market growth in the coming years.

In the U.S. semiconductor devices industry, technological trends center around integrating advanced materials such as GaN (Gallium Nitride) and SiC (Silicon Carbide). These materials, with their wider bandgaps, offer higher voltage resistance, faster switching speeds, and greater thermal efficiency, making them ideal for applications demanding robust performance under stringent conditions. This shift is driving innovations in power electronics and high-frequency devices, enhancing the efficiency and durability of semiconductor components.

The U.S. semiconductor devices industry is witnessing a surge in the adoption of

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Artificial Intelligence (AI) and Internet-of-Things (IoT)-driven chip designs. Startups are developing multifunctional chipsets that incorporate microcontrollers and analytics directly intIoT devices, moving computing tthe edge treduce latency and vulnerability. AI's integration intsemiconductor manufacturing processes is alsoptimizing design and production workflows, enabling predictive maintenance and improving product quality. This convergence of AI and IoT is fostering the development of smarter, more efficient semiconductor devices that can handle complex computational tasks and enhance industrial applications.

In 2024, The U.S. Department of Energy's Office of Electricity initiated the American-Made Silicon Carbide (SiC) Packaging Prize, a USD 2.25 million contest aimed at encouraging participants tpropose, develop, construct, and evaluate cutting-edge SiC semiconductor packaging designs. The competition aims tenhance the performance of these devices in high-voltage settings, particularly in applications such as energy storage. This initiative promotes collaboration among entrepreneurs, innovators, the private sector, and the DOE's National Labs.

Numerous players across the U.S. are expanding and investing in advanced manufacturing processes, stringent quality control systems, and thorough testing procedures toffer efficient semiconductors for end use applications. For instance, in January 2024, Wolfspeed, Inc., a leading global manufacturer of silicon carbide wafers, announced the expansion of a long-term silicon carbide wafer supply agreement with Infineon Technologies AG, a global semiconductor company valued at approximately USD 275 million. This supply agreement would focus on facilitating silicon carbide applications in renewable energy, electric vehicles, charging infrastructure, industrial power supplies, and variable speed drives, driving advancements in electrification, thereby fueling the growth of the U.S. semiconductor devices industry.

Furthermore, the widespread adoption of 5G is expected tcatalyze innovation across various industries, from healthcare and transportation tentertainment and manufacturing, by enabling new applications and services that were previously impossible with older wireless technologies. As these industries evolve and adapt tthe capabilities of 5G, the demand for specialized semiconductor devices tailored tspecific use cases is likely tfurther increase. The ongoing advancements in 5G technology alsencourage greater collaboration between semiconductor companies and other tech sectors, fostering an ecosystem of innovation that drives continuous improvement and adaptation. Consequently, the synergy between 5G deployment and semiconductor development is anticipated tpropel the growth of the U.S. semiconductor devices industry.

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U.S. Semiconductor Devices Market Report Segmentation

This report forecasts revenue growth at country level and provides an analysis of the industry trends in each of the sub-segments from 2018 t2030. For this study, Grand View Research has segmented the U.S. semiconductor devices market report by compound, product, and application:

Compound Outlook (Revenue, USD Million, 2018 - 2030)

GaN

GaAs

GaP

GaSb

Sic

Others

Product Outlook (Revenue, USD Million, 2018 - 2030)

LED

Optoelectronics

RF Devices

Power Electronics

Others

Application Outlook (Revenue, USD Million, 2018 - 2030)

Electronics & Consumer Goods

Aerospace & Defense

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Telecommunication

Others

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CHAPTER 7. COMPETITIVE LANDSCAPE

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