

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 to grow at a CAGR of 7.3% from 2025 to 2030. 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 to fuel 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

Artificial Intelligence (AI) and Internet-of-Things (IoT)-driven chip designs. Startups are developing multifunctional chipsets that incorporate microcontrollers and analytics directly into IoT devices, moving computing to the edge to reduce latency and vulnerability. AI's integration into semiconductor manufacturing processes is also optimizing 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 to propose, develop, construct, and evaluate cutting-edge SiC semiconductor packaging designs. The competition aims to enhance 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 to offer 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 to catalyze innovation across various industries, from healthcare and transportation to entertainment and manufacturing, by enabling new applications and services that were previously impossible with older wireless technologies. As these industries evolve and adapt to the capabilities of 5G, the demand for specialized semiconductor devices tailored to specific use cases is likely to further increase. The ongoing advancements in 5G technology also encourage 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 to propel the growth of the U.S. semiconductor devices industry.

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 to 2030. 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

Telecommunication

Others

Contents

CHAPTER 1. METHODOLOGY AND SCOPE

- 1.1. Market Segmentation & Scope
- 1.2. Market Definition
- 1.3. Information Procurement
- 1.4. Information Analysis
 - 1.4.1. Data Analysis Model
- 1.5. Market Formulation & Data Visualization
- 1.6. Data Validation & Publishing

CHAPTER 2. EXECUTIVE SUMMARY

- 2.1. Market Outlook
- 2.2. Segment Outlook
- 2.3. Competitive Insights

CHAPTER 3. U.S. SEMICONDUCTOR DEVICES MARKET VARIABLES, TRENDS & SCOPE

- 3.1. Market Lineage Outlook
- 3.2. U.S. Semiconductor Devices Market Dynamics
 - 3.2.1. Market Driver Analysis
 - 3.2.2. Market Restraints Analysis
- 3.3. Industry Value Chain Analysis
- 3.4. Market Analysis Tools
 - 3.4.1. Industry Analysis - Porter's
 - 3.4.1.1. Bargaining power of the suppliers
 - 3.4.1.2. Bargaining power of the buyers
 - 3.4.1.3. Threats of substitution
 - 3.4.1.4. Threats from new entrants
 - 3.4.1.5. Competitive rivalry
 - 3.4.2. PESTEL Analysis
 - 3.4.2.1. Political landscape
 - 3.4.2.2. Economic and social landscape
 - 3.4.2.3. Technological landscape

CHAPTER 4. U.S. SEMICONDUCTOR DEVICES MARKET: PRODUCT ESTIMATES

& TREND ANALYSIS

4.1. Segment Dashboard

4.2. U.S. Semiconductor Devices Market: Product Movement Analysis, 2024 & 2030 (USD Million)

4.3. GaN

4.3.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by GaN, 2018 - 2030 (USD Million)

4.4. GaAs

4.4.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by GaAs, 2018 - 2030 (USD Million)

4.5. GaP

4.5.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by GaP, 2018 - 2030 (USD Million)

4.6. GaSb

4.6.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by GaSb, 2018 - 2030 (USD Million)

4.7. SiC

4.7.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by SiC, 2018 - 2030 (USD Million)

4.8. Others

4.8.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by Others, 2018 - 2030 (USD Million)

CHAPTER 5. U.S. SEMICONDUCTOR DEVICES MARKET: PRODUCT ESTIMATES & TREND ANALYSIS

5.1. Segment Dashboard

5.2. U.S. Semiconductor Devices Market: Product Movement Analysis, 2024 & 2030 (USD Million)

5.3. LED

5.3.1. LED Market Revenue Estimates and Forecasts, 2018 - 2030 (USD Million)

5.4. Optoelectronics

5.4.1. Optoelectronics Market Revenue Estimates and Forecasts, 2018 - 2030 (USD Million)

5.5. RF Devices

5.5.1. RF Devices Market Revenue Estimates and Forecasts, 2018 - 2030 (USD Million)

5.6. Power Electronics

5.6.1. Power Electronics Market Revenue Estimates and Forecasts, 2018 - 2030 (USD Million)

5.7. Others

5.7.1. Others Market Revenue Estimates and Forecasts, 2018 - 2030 (USD Million)

CHAPTER 6. U.S. SEMICONDUCTOR DEVICES MARKET: APPLICATION ESTIMATES & TREND ANALYSIS

6.1. Segment Dashboard

6.2. U.S. Semiconductor Devices Market: Application Movement Analysis, 2024 & 2030 (USD Million)

6.3. Electronics & Consumer Goods

6.3.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by Electronics & Consumer Goods, 2018 - 2030 (USD Million)

6.4. Aerospace & Defense

6.4.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by Aerospace & Defense, 2018 - 2030 (USD Million)

6.5. Telecommunication

6.5.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by Telecommunication, 2018 - 2030 (USD Million)

6.6. Others

6.6.1. U.S. Semiconductor Devices Market Revenue Estimates and Forecasts, by Others, 2018 - 2030 (USD Million)

CHAPTER 7. COMPETITIVE LANDSCAPE

7.1. Company Categorization

7.2. Company Market Positioning

7.3. Company Heat Map Analysis

7.4. Company Profiles/Listing

7.4.1. Samsung Semiconductor, Inc.

7.4.1.1. Company Overview

7.4.1.2. Financial Performance

7.4.1.3. Product Benchmarking

7.4.1.4. Recent Developments

7.4.2. Qorvo, Inc.

7.4.2.1. Company Overview

7.4.2.2. Financial Performance

7.4.2.3. Product Benchmarking

- 7.4.2.4. Recent Developments
- 7.4.3. Skyworks Solutions, Inc.
 - 7.4.3.1. Company Overview
 - 7.4.3.2. Financial Performance
 - 7.4.3.3. Product Benchmarking
 - 7.4.3.4. Recent Developments
- 7.4.4. Intel Corporation
 - 7.4.4.1. Company Overview
 - 7.4.4.2. Financial Performance
 - 7.4.4.3. Product Benchmarking
 - 7.4.4.4. Recent Developments
- 7.4.5. Texas Instruments Incorporated
 - 7.4.5.1. Company Overview
 - 7.4.5.2. Financial Performance
 - 7.4.5.3. Product Benchmarking
 - 7.4.5.4. Recent Developments
- 7.4.6. Broadcom Inc.
 - 7.4.6.1. Company Overview
 - 7.4.6.2. Financial Performance
 - 7.4.6.3. Product Benchmarking
 - 7.4.6.4. Recent Developments
- 7.4.7. WOLFSPEED, INC.
 - 7.4.7.1. Company Overview
 - 7.4.7.2. Financial Performance
 - 7.4.7.3. Product Benchmarking
 - 7.4.7.4. Recent Developments
- 7.4.8. Analog Devices, Inc.
 - 7.4.8.1. Company Overview
 - 7.4.8.2. Financial Performance
 - 7.4.8.3. Product Benchmarking
 - 7.4.8.4. Recent Developments
- 7.4.9. Microchip Technology Inc.
 - 7.4.9.1. Company Overview
 - 7.4.9.2. Financial Performance
 - 7.4.9.3. Product Benchmarking
 - 7.4.9.4. Recent Developments
- 7.4.10. MACOM Technology Solutions Holdings, Inc.
 - 7.4.10.1. Company Overview
 - 7.4.10.2. Financial Performance

- 7.4.10.3. Product Benchmarking
- 7.4.10.4. Recent Developments
- 7.4.11. GlobalFoundries Inc.
 - 7.4.11.1. Company Overview
 - 7.4.11.2. Financial Performance
 - 7.4.11.3. Product Benchmarking
 - 7.4.11.4. Recent Developments
- 7.4.12. GPD Optoelectronics Corp.
 - 7.4.12.1. Company Overview
 - 7.4.12.2. Financial Performance
 - 7.4.12.3. Product Benchmarking
 - 7.4.12.4. Recent Developments
- 7.4.13. NTE Electronics, Inc.
 - 7.4.13.1. Company Overview
 - 7.4.13.2. Financial Performance
 - 7.4.13.3. Product Benchmarking
 - 7.4.13.4. Recent Developments

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