Automotive Semiconductor Market by Discrete Power Device, Analog IC, Light Commercial Vehicle (LCV), Heavy Commercial Vehicle (HCV), Internal Combustion Engine (ICE), Electric, Powertrain and ADAS & Autonomous Driving - Global Forecast to 2030

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Report description:

The automotive semiconductor market is projected to grow from USD 77.42 billion in 2025 to USD 133.05 billion by 2030, at a CAGR of 11.4% between 2025 and 2030. Driven by the accelerating transition toward vehicle electrification, the rising integration of advanced driver-assistance systems (ADAS), and the surge in connected and software-defined vehicles, the market continues to expand rapidly. Increasing semiconductor content per vehicle and advancements in silicon carbide (SiC) and gallium nitride (GaN) technologies enhance energy efficiency, safety, and performance. Expanding EV production, adoption of autonomous features, and government initiatives promoting sustainable mobility further stimulate market growth. However, supply chain disruptions and high production costs remain key challenges, emphasizing the need for collaboration, localization, and innovation to sustain long-term competitiveness.

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"By propulsion type, the electric segment is likely to register the highest CAGR between 2025 and 2030."
The electric segment is projected to record the highest CAGR in the automotive semiconductor market during the forecast period, driven by the accelerating global transition toward clean mobility and stringent emission regulations. EVs rely heavily on semiconductors for efficient power conversion, battery management, and energy optimization across propulsion and control systems. Power devices based on silicon carbide (SiC) and gallium nitride (GaN) materials are increasingly adopted for superior switching efficiency, thermal performance, and compact design, supporting higher driving ranges and faster charging. Advanced

sensors, microcontrollers, and communication chips further enhance safety, connectivity, and real-time control within electric powertrains. The growing deployment of ADAS, vehicle-to-everything (V2X) communication, and intelligent thermal management systems expands semiconductor content per EV. Additionally, government incentives, infrastructure investments, and the scaling of gigafactories across Asia Pacific, Europe, and North America are strengthening the EV semiconductor supply chain. As automakers invest in software-defined and autonomous EV architectures, semiconductor innovations will remain central to achieving worldwide sustainable, efficient, high-performance electric mobility.

"Based on application, the powertrain segment is projected to account for the largest market share in 2030."

The powertrain segment is projected to hold the largest share of the automotive semiconductor market in 2030, driven by the accelerating shift toward vehicle electrification and the integration of advanced control technologies. Market growth is primarily supported by the rising deployment of semiconductors in engine management systems, transmission control units, battery management systems (BMS), and electric drive modules, enabling improved efficiency, reduced emissions, and enhanced performance. With the increasing adoption of electric and hybrid vehicles, demand for power semiconductors-silicon carbide (SiC) and gallium nitride (GaN) devices-surges due to their ability to support higher voltage operations, faster switching, and superior thermal performance. Additionally, automakers emphasize smart powertrain architectures integrating real-time monitoring, predictive maintenance, and energy optimization features, further increasing semiconductor content per vehicle. The expansion of 800 V vehicle platforms and the move toward modular power electronics also contribute to the growing use of semiconductor solutions in inverters, onboard chargers, and DC-DC converters. As a result, the powertrain segment remains a critical revenue driver, with semiconductor suppliers investing heavily in material innovation, system miniaturization, and high-efficiency designs to meet OEMs' evolving electrification and sustainability requirements.

"Europe is projected to exhibit the second-highest CAGR from 2025 to 2030."

During the forecast period, Europe is expected to register the second-highest CAGR in the automotive semiconductor market, driven by strong advancements in electric mobility, vehicle safety technologies, and digital transformation across the automotive sector. The region hosts leading automakers and Tier-1 suppliers, accelerating the adoption of semiconductors for electrification, ADAS, and connectivity applications. Increasing production of electric and hybrid vehicles, supported by stringent carbon dioxide (CO?) emission regulations and the European Green Deal, boosts the demand for power semiconductors, sensors, and microcontrollers. Countries such as Germany, France, and the Netherlands are leading in innovation, supported by government funding for EV infrastructure, autonomous driving trials, and semiconductor R&D. Moreover, collaborations between chipmakers and automotive OEMs foster localized supply chains and next-generation E/E architectures. These factors collectively position the region as a major hub for technological innovation and sustainable growth in the global automotive semiconductor landscape.

The break-up of the profile of primary participants in the automotive semiconductor market-

-□By Company Type: Tier 1 - 35%, Tier 2 - 45%, Tier 3 - 20%

-□By Designation: C-Level Executives - 40%, Directors - 30%, Others - 30%

-□By Region: North America - 40%, Europe - 20%, Asia Pacific - 30%, RoW - 10%

Note: Other designations include sales, marketing, and product managers.

The three tiers of the companies are based on their total revenues as of 2024: Tier 1: >USD 1 billion, Tier 2: USD 500 million-1 billion, and Tier 3: USD 500 million.

The major players in the automotive semiconductor market with a significant global presence include Infineon Technologies AG (Germany), NXP Semiconductors (Netherlands), STMicroelectronics (Switzerland), Texas Instruments Incorporated (US), and Renesas Electronics Corporation (Japan).

Research Coverage

The report segments the automotive semiconductor market and forecasts its size by component, vehicle type, propulsion type, application, and region. It also comprehensively reviews drivers, restraints, opportunities, and challenges influencing market growth. The report covers qualitative aspects in addition to quantitative aspects of the market.

Reasons to buy the report:

The report will help the market leaders/new entrants with information on the closest approximate revenues for the overall automotive semiconductor market and related segments. This report will help stakeholders understand the competitive landscape and gain more insights to strengthen their position in the market and plan suitable go-to-market strategies. The report also helps

stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, opportunities, and challenges.
The report provides insights into the following pointers:
-Analysis of key drivers (rising vehicle electrification to curb emissions, rapid advances in ADAS and autonomous driving technologies, evolution of connected and software-defined vehicle ecosystem), restraints (high development and qualification costs, supply chain and capacity constraints), opportunities (localization and development of semiconductor ecosystem, rising development of ai-driven domain controllers and edge computing solutions, mounting demand for fast-charging and vehicle-to-grid infrastructure), and challenges (issues in scaling wide-bandgap semiconductor production for automotive applications, challenges in meeting rigorous standards related to automotive systems, complexities associated with semiconductor integration)
-Product development/innovation: Detailed insights on upcoming technologies, research & development activities, and strategies, such as new product launches, collaborations, partnerships, expansions, and acquisitions, in the automotive semiconductor market
-Market development: Comprehensive information about lucrative markets-the report analyses the automotive semiconductor market across varied regions
-Market diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the automotive semiconductor market
-Competitive Assessment: In-depth assessment of market shares, growth strategies, and product offerings of leading players, including Infineon Technologies AG (Germany), NXP Semiconductors (Netherlands), STMicroelectronics (Switzerland), Texas Instruments Incorporated (US), Renesas Electronics Corporation (Japan), Semiconductor Components Industries, LLC (US), Robert Bosch GmbH (Germany), Qualcomm Technologies, Inc. (US), Analog Devices, Inc. (US), and Microchip Technology Inc. (US)

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