EV Semiconductors Market by Technology (Silicon-based, Wide-Bandgap), Propulsion, Application (Battery Management System, Powertrain, ADAS, and more), Component (Power ICs & Modules, MCUs & Processors, Sensors, and more), and Region - Global Forecast to 2032

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Report description:

The EV semiconductors market is projected to reach USD 57.48 billion in 2032, growing from USD 24.09 billion in 2025, at a CAGR of 9.1%. The market's growth is driven by increasing semiconductor content per passenger car and the shift to fully electric platforms. EVs use more sensors and computing for safety and automation features, so ADAS requires high-performance MCUs, radar, and vision chips at higher penetration than ICE vehicles. Battery electronics are becoming more advanced because fast charging, longer cycle life, and precise cell monitoring need high-accuracy analog front ends, power devices, and functional safety processors. Wide-bandgap technologies, including SiC and GaN, hybrid SiC GaN inverters, and advanced packaging, improve efficiency, lower heat, and enable compact high-power designs. Government initiatives, such as the US CHIPS Act and the EU Chips Act, drive local fab expansion by Texas Instruments, Infineon, and STMicroelectronics. Software-defined vehicle platforms increase the demand for memory and processing, and tighter OEM supplier collaboration accelerates innovation. 800V architectures in premium BEVs are pushing the adoption of advanced power semiconductors for faster charging and a longer range. 48V systems in models like Audi A6 and Mercedes-Benz C Class sustain demand for efficient power devices to support high electrical load without moving to full high voltage EV designs.

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"Battery management system applications are expected to witness notable demand in the EV semiconductors market during the forecast period."

Battery management system applications are set to witness substantial growth in the EV semiconductors market. Modern BMS hardware must deliver precise measurement, fast data processing, and efficient thermal control inside large battery packs. Advanced microcontrollers, power management ICs, sensors, and communication modules are required to achieve cell voltage, temperature, charge state, and health accuracy.

In April 2025, STMicroelectronics announced its Stellar with xMemory MCUs that support software-driven battery control and flexible cell balancing architectures. Similarly, in March 2025, Renesas launched the RBMS F platform, which combines fuel gauge ICs, microcontrollers, and analog front ends in one design that improves safety through faster fault detection and optimizes charging and discharging. Likewise, in June 2025, NXP Semiconductors completed its acquisition of TTTech Auto to enhance real-time functional safety computing for high-energy battery systems. Packaging improvements and shifting toward high-power-density batteries also increase the use of SiC and GaN-based components inside BMS modules because they reduce heat and improve efficiency. These developments make BMS one of North America and China's strongest semiconductor demand drivers across EV production hubs.

"By component type, the power ICs & modules segment is projected to register strong growth in the EV semiconductors market during the forecast period."

Power ICs & modules, including MOSFETs, IGBTs, and wide-bandgap devices such as SiC and GaN, are critical for inverters, onboard chargers, and DC-DC converters and directly impact vehicle efficiency, range, and thermal performance. Porsche Taycan and Ford Mustang Mach-E employ SiC-based inverters to enhance energy efficiency and enable faster charging. Reflecting the industry's focus on scaling these next-generation power devices, Infineon and ROHM's March 2025 memorandum of understanding to collaborate on SiC power packages highlights industry efforts to scale next-generation power devices. Similarly, STMicroelectronics' investment in September 2025 in panel-level packaging further improves the efficiency and reliability of power semiconductors for automotive applications.

The accelerated adoption of 800V platforms in high-performance BEVs and ongoing global EV production are increasing the demand for high-efficiency power devices. Investments in hybrid SiC-GaN solutions and advanced thermal management packaging are helping OEMs achieve high power density, low losses, and improved overall system reliability, positioning the power semiconductor segment as a significant growth driver in the EV semiconductors market.

"Europe is projected to witness significant growth in the EV semiconductors market during the forecast period."

Europe is projected to experience significant growth in the EV semiconductors market, driven by the increasing passenger car electrification and strong regional automotive manufacturing. Leading OEMs such as Volkswagen, BMW, and Stellantis are expanding BEV lineups and investing in software-defined vehicle platforms, increasing demand for high-performance MCUs, power electronics, and radar/ADAS chips. At the same time, key Chinese OEMs are establishing European manufacturing presence. For instance, in March 2025, BYD announced plans for a new plant in Hungary to serve the European market. The EU Chips Act is a primary catalyst, aiming to double Europe's global semiconductor market share to 20% by 2030 through over USD 46.5 billion in public and private investment, fostering self-sufficiency and supply chain resilience for critical components like automotive chips. Key investments in the region include Infineon's investment of USD 4.9 billion for expansion in Dresden, STMicroelectronics' SiC fab project worth USD 5.5 billion in Catania, and joint ventures (USD 8.2 billion FD-SOI fab by ST and GlobalFoundries near Grenoble, France). European suppliers, including Infineon Technologies AG and STMicroelectronics, are scaling SiC and GaN production to meet demand for high-efficiency inverters and onboard chargers. Combined with government support for electrification, EV mandates, and incentives for energy-efficient vehicle electronics, these developments position Europe as a key growth region for the EV semiconductors market.

In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in this market.

- By Company Type: Tier I - 41%, Tier II - 36%, and Tier III - 23%
- By Designation: Directors - 32%, Managers - 47%, and Others - 21%
- By Region: Asia Pacific - 27%, North America - 42%, and Europe - 31%

The EV semiconductors market is dominated by major players, including Infineon Technologies AG (Germany), STMicroelectronics (Switzerland), NXP Semiconductors (Netherlands), Texas Instruments Incorporated (US), Renesas Electronics Corporation (Japan), and more. These companies are expanding their portfolios to strengthen their market position.

Research Coverage:
The report covers the EV semiconductors market in terms of Technology (Silicon-based Semiconductor, Wide-Bandgap Semiconductor), Propulsion [Battery Electric Vehicle (BEV) and Plug-In Hybrid Electric Vehicle (PHEV)], Application (Battery Management System, Powertrain System, ADAS, Body & Chassis, and Infotainment & Connectivity), Component Type (Power ICs & Modules, Microcontrollers & Processors, Discretes, Communication & Interface ICs, Sensor ICs, Gate Driver ICs, Memory & Storage ICs, Other Semiconductors), and Region. It covers the competitive landscape and company profiles of significant players in the EV semiconductors market. The study includes an in-depth competitive analysis of the key market players, their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.
Key Benefits of Buying the Report:
-The report will help market leaders/new entrants with information on the closest approximations of revenue numbers for the EV semiconductors market and its subsegments.
-This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies.
-The report will also help stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.
-The report will also help stakeholders understand the EV semiconductors market's current and future pricing trends.
-The report will also help market leaders/new entrants with information on various market trends based on technology, propulsion, application, component type, and Region.
The report provides insight into the following pointers:
-Analysis of key drivers (Rising EV adoption, high semiconductor content per EV, technological advancements in chip design and integration), restraints (Long qualification cycles and strict automotive reliability standards; high cost of advanced materials; and geopolitical, trade, and export control risks; fragmented standards and interoperability challenges), opportunities (Growth in wide-bandgap materials, expansion in emerging markets, tier-1 and OEM partnerships/co-development), and challenges (Intense competition and margin pressure; cybersecurity, safety, and liability concerns).
-Product Development/Innovation: Detailed insights into upcoming technologies, research & development activities, and product launches in the EV semiconductors market
-Market Development: Comprehensive information about lucrative markets across varied regions
-Market Diversification: Exhaustive information about new products and services, untapped geographies, recent developments, and investments in the EV semiconductors market
-Competitive Assessment: In-depth assessment of market share, growth strategies, and service offerings of leading players like Infineon Technologies AG (Germany), STMicroelectronics (Switzerland), NXP Semiconductors (Netherlands), Texas Instruments Incorporated (US), and Renesas Electronics Corporation (Japan), among others, in the EV semiconductors market

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