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Automotive Power Management IC Market - A Global and Regional Analysis: Focus on Product, Application, and Country Analysis - Analysis and Forecast, 2025-2035

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Abstracts

The automotive power management IC (PMIC) market is projected to grow from $6,160.5 million in 2024 to $20,297.9 million by 2035, demonstrating strong expansion driven by increasing electrification across vehicle architectures and rising semiconductor content per vehicle.

Growth is primarily supported by the rapid adoption of electric vehicles (EVs), hybrid electric vehicles (HEVs), and advanced driver-assistance systems (ADAS), all of which require efficient power regulation, voltage conversion, and energy distribution. PMICs play a critical role in managing multiple power domains across automotive systems, including infotainment, safety electronics, telematics, and battery management systems. Among applications, body electronics and infotainment dominate with a share of 26.7%, followed by powertrain at 24.3% and ADAS and safety at 19.8%, reflecting the growing integration of electronics across vehicle platforms.

Introduction of the Automotive Power Management IC (PMIC) Market

The study conducted by BIS Research identifies the automotive power management IC (PMIC) market as a critical enabler of modern vehicle electrification and electronic system integration. PMICs are rapidly evolving into multifunctional components that ensure efficient power delivery, voltage stability, and thermal management across increasingly complex automotive architectures.

These systems are essential in supporting next-generation mobility solutions,

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particularly as vehicles transition toward electrified powertrains and autonomous driving capabilities. With advancements in semiconductor design, integration of multi-output regulators, and increased demand for compact and energy-efficient solutions, PMICs are becoming more sophisticated and scalable.

Their modular integration allows automotive OEMs and Tier-1 suppliers to optimize system performance across applications such as battery management, infotainment, ADAS, and telematics. As the automotive industry shifts toward electrification and digitalization, PMICs provide a competitive advantage through improved energy efficiency, reliability, and system-level optimization.

Market Introduction

The automotive power management IC (PMIC) market is becoming a cornerstone of modern automotive electronics, driven by the increasing demand for efficient power distribution, energy optimization, and system integration across vehicles.

As vehicles incorporate a growing number of electronic systems, including advanced infotainment, connectivity platforms, and autonomous driving technologies, the need for efficient power management solutions is intensifying. PMICs enable precise voltage regulation and power sequencing, ensuring reliable operation of critical automotive subsystems.

Advancements in semiconductor technologies, including miniaturization and integration of multiple power functions into single-chip solutions, are enhancing performance while reducing system complexity. Additionally, the rise of electric and hybrid vehicles is accelerating demand for high-efficiency PMICs capable of managing battery systems and high-voltage architectures.

With increasing regulatory focus on energy efficiency and vehicle safety, PMIC solutions are expected to play a vital role in enabling next-generation automotive systems.

Industrial Impact

The automotive power management IC (PMIC) market is exerting a significant industrial impact, fundamentally transforming the automotive electronics and semiconductor ecosystem through the increasing electrification of vehicles and the rising complexity of in-vehicle electronic architectures. PMICs serve as critical components enabling efficient power distribution, voltage regulation, and system-level optimization across

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modern vehicles, supporting a wide range of applications from infotainment and connectivity to advanced driver-assistance systems (ADAS) and battery management systems.

The growing integration of electronic control units (ECUs), sensors, and high-performance computing platforms within vehicles is driving demand for highly integrated, multi-channel PMIC solutions capable of managing multiple voltage domains simultaneously. This shift is accelerating the adoption of compact, energy-efficient semiconductor designs that reduce power losses while maintaining system stability under dynamic operating conditions. As automotive platforms evolve toward centralized and zonal architectures, PMICs are becoming increasingly essential in enabling scalable and modular system designs.

Advancements in semiconductor technologies, including higher integration levels and improved thermal management capabilities, are further enhancing the performance and reliability of PMIC solutions. These developments are particularly critical in electric and hybrid vehicles, where efficient power management directly impacts battery performance, driving range, and overall system efficiency. The transition toward electrified powertrains and software-defined vehicles is also increasing the need for intelligent power management solutions that can adapt to varying load conditions and support real-time system optimization.

Additionally, the automotive PMIC market is fostering strong cross-industry collaboration between semiconductor manufacturers, automotive OEMs, and Tier-1 suppliers. These collaborations are focused on developing next-generation power management solutions that meet stringent automotive safety and reliability standards while enabling faster time-to-market. The increasing emphasis on functional safety, system redundancy, and energy efficiency is further driving innovation in PMIC design and integration.

As the automotive industry continues to prioritize electrification, connectivity, and autonomy, the PMIC market is expected to play a pivotal role in enabling reliable and energy-efficient vehicle systems. The industrial ecosystem surrounding automotive PMICs is evolving rapidly, supported by growing investments in semiconductor R&D, advancements in manufacturing processes, and increasing demand for high-performance automotive electronics, positioning PMICs as a foundational technology in the future of mobility.

Market Segmentation:

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Segmentation 1: by Application

- Body Electronics and Infotainment
- Powertrain
- ADAS and Safety
- Battery Management System (BMS)
- Telematics
- Others

Body Electronics and Infotainment to Dominate the Automotive PMIC Market (by Application)

Body electronics and infotainment represent the largest application segment in the automotive PMIC market, accounting for 26.7% of the total market share. This dominance is primarily attributed to the rapid proliferation of in-vehicle digital systems, including advanced infotainment units, digital instrument clusters, head-up displays, and connected user interfaces. These systems require stable and multi-rail power delivery, making PMICs essential for ensuring uninterrupted performance and energy efficiency.

The transition toward software-defined vehicles and enhanced in-cabin experiences is further increasing the complexity and number of electronic control units (ECUs), thereby amplifying demand for integrated power management solutions. PMICs in this segment are increasingly designed to support multiple voltage domains, reduce electromagnetic interference, and optimize thermal performance, particularly in high-density electronic environments.

Powertrain applications follow closely with a 24.3% share, driven by the electrification of propulsion systems across battery electric vehicles (BEVs), hybrid electric vehicles (HEVs), and plug-in hybrid electric vehicles (PHEVs). PMICs play a critical role in managing power flow across inverters, DC-DC converters, and auxiliary subsystems, ensuring efficient energy utilization and system reliability.

ADAS and safety systems account for 19.8%, reflecting the growing integration of

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advanced sensing, perception, and decision-making technologies in vehicles. These systems demand highly reliable and low-noise power management solutions to support radar, LiDAR, cameras, and processing units operating under stringent safety requirements.

Battery management systems contribute 13.9%, where PMICs are essential for monitoring voltage, current, and temperature across battery cells, ensuring safe operation and extending battery life. Meanwhile, telematics account for 10.2%, driven by increasing demand for vehicle connectivity, over-the-air updates, and fleet management solutions.

Overall, the application landscape reflects a shift toward highly electronic and connected vehicle architectures, where PMICs serve as foundational components enabling efficient and reliable system operation.

Segmentation 2: by Vehicle Type

Passenger Cars

Light Commercial Vehicle

Heavy Commercial Vehicle

Passenger Cars to Lead the Market (by Vehicle Type)

The passenger cars segment is the leading vehicle type in the automotive PMIC market, supported by the widespread adoption of advanced automotive technologies and the increasing demand for energy-efficient solutions. Passenger cars are the primary platform for integrating electrification, infotainment, connected services, and advanced safety systems, all of which require sophisticated power management. The growing consumer preference for electric vehicles and hybrid electric vehicles has further increased demand for PMICs to manage battery systems, infotainment systems, and body electronics. As the largest segment in the automotive industry, passenger cars remain at the center of the transition toward sustainable and connected mobility, sustaining their dominant position in the PMIC market.

Segmentation 3: by Mounting Style

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Surface-Mount Technology (SMT)

Plated Through Hole (PTH)

Surface-Mount Technology (SMT) to Dominate the Automotive PMIC Market (by Mounting Style)

Surface-mount technology (SMT) dominates the automotive PMIC market, driven by its compatibility with high-density circuit designs and advanced manufacturing processes. SMT enables compact packaging, reduced parasitic effects, and improved electrical performance, making it the preferred choice for modern automotive electronic systems.

As vehicle architectures evolve toward higher levels of integration, the demand for smaller, more efficient components is increasing. SMT-based PMICs support this trend by allowing manufacturers to integrate multiple power management functions within a single package, thereby reducing board space and simplifying system design. This is particularly critical in applications such as ADAS, infotainment, and battery management systems, where space constraints and performance requirements are stringent.

In addition to size advantages, SMT offers improved thermal management capabilities, which are essential for maintaining reliability in high-power and high-temperature automotive environments. The ability to automate SMT assembly processes also contributes to cost efficiency and scalability in mass production.

In contrast, plated through hole (PTH) technology holds a relatively smaller share and is primarily utilized in applications requiring enhanced mechanical strength and durability. While PTH components offer robustness, they are less suitable for high-density and miniaturized designs, limiting their adoption in next-generation automotive systems.

The overall trend indicates a continued shift toward SMT, supported by advancements in semiconductor packaging and increasing demand for integrated and energy-efficient automotive electronics.

Segmentation 4: by Input Voltage

32V

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6 to 32 V to Lead the Automotive PMIC Market (by Input Voltage)

The 6 to 32 V segment leads the automotive PMIC market, accounting for 70.1% of total market revenue in 2024. Its dominance is driven by broad applicability across body electronics, infotainment, ADAS modules, and conventional as well as hybrid vehicle systems. PMICs in this range offer strong adaptability and cost efficiency, allowing automakers to manage multiple vehicle systems without the need for additional front-end converters. The 32 V segment accounts for 2.0%, reflecting its use in more specialized high-voltage automotive power domains, particularly in advanced electrified architectures.

Segmentation 5: by Region

North America: U.S., Canada, Mexico

Europe: Germany, France, U.K., Italy, Spain, Rest-of-Europe

Asia-Pacific: China, India, Japan, South Korea, Thailand, Rest-of-Asia-Pacific

Rest-of-the-World: South America, Middle East and Africa

Asia-Pacific holds the dominant position in the automotive PMIC market, accounting for 54.5% of the global market share in 2024, driven by its strong automotive manufacturing base and well-established semiconductor ecosystem. Countries such as China, Japan, and South Korea serve as major hubs for both vehicle production and semiconductor fabrication, enabling close integration across the automotive value chain.

The region benefits from high vehicle production volumes, rapid adoption of electric vehicles, and substantial investments in semiconductor manufacturing capabilities. Government initiatives supporting domestic chip production and EV adoption are further accelerating market growth. Additionally, the presence of leading automotive OEMs and semiconductor companies facilitates innovation and rapid deployment of advanced PMIC solutions.

Europe accounts for 20.1% of the market, supported by strong regulatory frameworks promoting vehicle electrification and emissions reduction. The region is characterized by advanced automotive engineering capabilities and increasing investments in electric mobility and semiconductor technologies.

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North America holds a 19.5% share, driven by technological innovation, the strong presence of leading semiconductor companies, and the growing adoption of electric and autonomous vehicles. The region also benefits from increasing investments in domestic semiconductor manufacturing and supply chain resilience.

The Rest-of-the-World, accounting for 5.8%, represents emerging opportunities in regions such as Latin America, the Middle East, and Africa. Growth in these regions is supported by increasing vehicle demand, infrastructure development, and the gradual adoption of advanced automotive technologies.

Overall, regional dynamics highlight the concentration of market leadership in Asia-Pacific, while other regions continue to expand through technological advancement and policy-driven adoption of electrified mobility.

Demand: Drivers, Limitations, and Opportunities

Market Demand Drivers: Increasing Electrification and Rising Semiconductor Content per Vehicle

The automotive power management IC (PMIC) market has been experiencing strong demand growth, driven by the convergence of electrification trends, increasing semiconductor content per vehicle, and the rapid evolution of vehicle electronics architectures. One of the primary drivers is the accelerating adoption of electric vehicles (EVs), hybrid electric vehicles (HEVs), and plug-in hybrid electric vehicles (PHEVs), all of which require advanced power management solutions to regulate voltage, optimize energy distribution, and ensure safe battery operation across high- and low-voltage domains.

The increasing integration of advanced driver-assistance systems (ADAS), infotainment platforms, and connectivity modules is further driving demand for PMICs capable of managing multiple power rails simultaneously. These systems require stable and noise-free power delivery to support sensors, processors, and communication units operating in real time. As vehicles transition toward software-defined architectures and centralized computing platforms, the complexity of power management requirements is increasing significantly.

Additionally, the rise of 48 V mild-hybrid systems and the transition toward higher voltage architectures are expanding the scope of PMIC deployment across both

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conventional and electrified vehicles. The growing emphasis on energy efficiency, driven by regulatory mandates and OEM sustainability targets, is also accelerating the adoption of highly integrated and energy-efficient PMIC solutions. Together, these factors are driving sustained growth in the global automotive PMIC market.

Market Challenges: Design Complexity, Qualification Standards, and Supply Chain Constraints

The automotive PMIC market faces several structural and operational challenges that could impact its scalability. A key technical challenge is the increasing complexity of automotive electronic architectures, which require PMICs to support multiple voltage domains, ensure electromagnetic compatibility, and maintain thermal stability under varying operating conditions. Designing highly integrated PMICs that meet these requirements while maintaining cost efficiency remains a significant hurdle for semiconductor manufacturers.

Stringent automotive qualification standards, including functional safety requirements and long product lifecycle expectations, further increase development time and validation costs. PMICs must comply with rigorous reliability standards, which can delay time-to-market and limit flexibility in design iterations.

Supply chain constraints and semiconductor shortages continue to pose challenges, particularly in the context of increasing global demand for automotive chips. Disruptions in raw material supply, geopolitical factors, and manufacturing bottlenecks are impacting production timelines and increasing costs. In parallel, the shortage of skilled engineering talent in advanced semiconductor design is limiting innovation capacity and slowing product development cycles.

Together, these challenges highlight the need for resilient supply chains, advanced design methodologies, and continued investment in semiconductor manufacturing capabilities to support long-term market growth.

Market Opportunities: Integration, Electrification, and Next-Generation Vehicle Architectures

The transition toward electrified and software-defined vehicles is creating significant opportunities in the automotive PMIC market. As vehicles incorporate more electronic systems and move toward centralized and zonal architectures, there is increasing demand for highly integrated PMIC solutions that can manage multiple subsystems

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efficiently while reducing system complexity and cost.

The adoption of high-voltage battery systems in electric vehicles is opening new opportunities for PMICs in battery management, onboard charging, and power conversion applications. At the same time, advancements in semiconductor technologies, including improved packaging and integration techniques, are enabling the development of compact, high-performance PMIC solutions tailored for automotive applications.

Emerging trends such as autonomous driving, vehicle connectivity, and over-the-air updates are further expanding the role of PMICs in enabling reliable and efficient power management across complex electronic ecosystems. These developments are creating opportunities for semiconductor companies to innovate and differentiate through advanced power management capabilities.

As automotive OEMs continue to prioritize electrification, digitalization, and energy efficiency, PMICs are expected to play a central role in enabling next-generation vehicle platforms, positioning the market for sustained long-term growth.

How can this report add value to an organization?

Product/Innovation Strategy: The report provides insights into key technological trends such as integration of multi-channel PMICs, advancements in semiconductor materials, and development of energy-efficient solutions. These insights support R&D teams in prioritizing innovation and optimizing product development strategies.

Growth/Marketing Strategy: The study identifies growth opportunities across regions and applications, enabling companies to expand their market presence through targeted strategies. Opportunities include entry into high-growth markets, expansion of EV-focused solutions, and strategic partnerships with automotive OEMs.

Competitive Strategy: The report offers a comprehensive analysis of the competitive landscape, including key players, product portfolios, and strategic initiatives. It enables organizations to benchmark their capabilities and identify opportunities for differentiation and market expansion.

Research Methodology

Factors for Data Prediction and Modeling

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The base currency considered for the automotive PMIC market analysis is US$. Currencies other than the US$ have been converted to the US$ for all statistical calculations, considering the average conversion rate for that particular year.

The currency conversion rate has been taken from the historical exchange rate of the Oanda website.

Nearly all the recent developments from January 2021 to March 2024 have been considered in this research study.

The information rendered in the report is a result of in-depth primary interviews, surveys, and secondary analysis.

Where relevant information was not available, proxy indicators and extrapolation were employed.

Any economic downturn in the future has not been taken into consideration for the market estimation and forecast.

Technologies currently used are expected to persist through the forecast with no major technological breakthroughs.

Market Estimation and Forecast

The study uses a combination of top-down and bottom-up approaches, supported by data triangulation, to estimate and forecast market size. Extensive secondary research and primary validation ensure robustness of the findings.

The market engineering process involves the calculation of the market statistics, market size estimation, market forecast, market crackdown, and data triangulation (the methodology for such quantitative data processes has been explained in further sections). The primary research study has been undertaken to gather information and validate the market numbers for segmentation types and industry trends of the key players in the market.

Primary Research

The primary sources involve industry experts from the automotive PMIC market and

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various stakeholders in the ecosystem. Respondents such as CEOs, vice presidents, marketing directors, and technology and innovation directors have been interviewed to obtain and verify both qualitative and quantitative aspects of this research study.

The key data points taken from primary sources include:

- validation and triangulation of all the numbers and graphs
- validation of reports, segmentation, and key qualitative findings
- understanding the competitive landscape
- validation of the numbers of various markets for the market type
- percentage split of individual markets for geographical analysis

Secondary Research

This research study involves the usage of extensive secondary research, directories, company websites, and annual reports. It also makes use of databases, such as Hoovers, Bloomberg, Businessweek, and Factiva, to collect useful and effective information for an extensive, technical, market-oriented, and commercial study of the global market. In addition to the data sources, the study has been undertaken with the help of other data sources and websites, such as the Census Bureau, OICA, and ACEA.

Secondary research was done to obtain crucial information about the industry’s value chain, revenue models, the market’s monetary chain, the total pool of key players, and the current and potential use cases and applications.

The key data points taken from secondary research include:

- segmentations and percentage shares
- data for market value
- key industry trends of the top players in the market

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qualitative insights into various aspects of the market, key trends, and emerging areas of innovation

quantitative data for mathematical and statistical calculations

Key Market Players and Competition Synopsis

The companies that are profiled in the automotive power management IC (PMIC) market have been selected based on inputs gathered from primary experts, who have analyzed company coverage, product portfolio, and market penetration across the automotive semiconductor ecosystem.

Global Automotive Power Management IC (PMIC) Provider

Infineon Technologies AG

Texas Instruments Incorporated

NXP Semiconductors

STMicroelectronics

Renesas Electronics Corporation

Analog Devices, Inc.

Rohm Co., Ltd.

Companies that are not a part of the aforementioned pool have been well represented across different sections of the automotive power management IC (PMIC) market report (wherever applicable).

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