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Global New Energy Vehicle Power Chip Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global New Energy Vehicle Power Chip market size was valued at US$ 4952 million in 2025 and is forecast to a readjusted size of US$ 17665 million by 2032 with a CAGR of 20.1% during review period.

New Energy Vehicle Power Chips are core semiconductor devices used in the power electronics systems of battery electric vehicles, plug-in hybrid electric vehicles, and extended-range electric vehicles, where they perform essential functions including power conversion, energy control, and electrical management. These chips are widely deployed in traction inverters, onboard chargers, DC/DC converters, auxiliary power supplies for battery management systems, electric compressors, electric power steering systems, and high-voltage power distribution units. They are designed to address the demanding requirements of new energy vehicles under high-voltage, high-current, and high-frequency operating conditions, helping improve energy conversion efficiency, reduce power loss and heat generation, enhance system compactness, and ensure automotive-grade reliability over long service cycles. The development of new energy vehicle power chips has closely followed the electrification of the automotive industry. Early generations were mainly based on silicon IGBT and MOSFET technologies for motor drive and basic power conversion, while the shift toward higher-voltage vehicle platforms, faster charging systems, and more efficient drivetrains has accelerated the adoption of advanced wide-bandgap semiconductor materials such as silicon carbide. As a result, the industry is moving toward higher efficiency, higher switching frequency, and smaller, lighter, and more integrated vehicle power systems. Upstream of this industry are key materials such as silicon wafers, silicon carbide substrates, epitaxial wafers, photoresists, masks, electronic gases, wet chemicals, and sputtering targets,

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together with supporting components including leadframes, bonding wires, package substrates, ceramic substrates, thermal interface materials, encapsulation resins, and connectors, as well as semiconductor manufacturing equipment and process technologies used in lithography, etching, ion implantation, thin-film deposition, dicing, packaging, and testing.In 2025, the global production capacity of new energy vehicle power chips is estimated at approximately 450 million units, while sales volume is expected to reach about 367 million units. The average selling price is around USD 13.1 per unit, and the gross profit margin of manufacturers is estimated to range from 30% to 40%.

The new energy vehicle power chip market is now moving from a phase driven mainly by electrification penetration into one shaped by higher-voltage architectures, platform upgrading, and parallel technology adoption. Traction inverters, onboard chargers, DC/DC converters, and high-voltage power distribution units remain the most important application areas. IGBTs still retain a broad base in mainstream vehicle platforms, while silicon carbide is accelerating its penetration in premium vehicles, 800V systems, and efficiency-focused architectures. As automakers continue to push for longer driving range, faster charging, better thermal performance, and improved vehicle efficiency, power chips are becoming more deeply integrated with e-drive systems, charging systems, and the overall vehicle electrical architecture. As a result, competition is shifting away from standalone device specifications toward system-level compatibility, automotive-grade reliability, supply assurance, and co-development capability with vehicle manufacturers.

Looking ahead, the market is likely to evolve toward higher-voltage platforms, more efficient topologies, greater packaging integration, and a more structured division of roles among different semiconductor materials. As 800V and higher-voltage systems expand into a wider range of vehicle segments, SiC is expected to gain further ground in high-voltage, high-power applications such as traction inverters. At the same time, GaN is beginning to show complementary potential in onboard chargers and auxiliary power systems, suggesting that the future of vehicle power chips will not be defined by one material replacing all others, but by IGBT, SiC, and GaN being deployed according to power level, cost target, and application requirement. In parallel, leading suppliers are investing in 200mm SiC manufacturing, advanced packaging, and vertically integrated supply chains, highlighting that long-term competitiveness will depend on manufacturing consistency, cost reduction, delivery capability, and the ability to work with OEMs on next-generation vehicle platforms.

At the same time, the market still faces meaningful constraints. Automotive power chips

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must meet extremely demanding standards in reliability, lifetime, consistency, and functional safety, which means qualification cycles are long and barriers to entry remain high. SiC offers strong advantages in efficiency and power density, but its broader adoption is still affected by substrate cost, manufacturing complexity, yield, and packaging economics, while IGBT continues to be highly competitive in cost-sensitive models and mature vehicle platforms. In addition, the market is influenced by fluctuations in vehicle demand, inventory corrections, price pressure, and the restructuring of global supply chains. This means suppliers must manage not only technology transitions, but also capacity utilization, customer relationships, regional manufacturing strategies, and supply resilience. Overall, the main growth drivers remain higher-voltage vehicles, faster charging, and efficiency optimization, while the key restraints lie in cost control, qualification timelines, and supply-chain maturity.

This report is a detailed and comprehensive analysis for global New Energy Vehicle Power Chip market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global New Energy Vehicle Power Chip market size and forecasts, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global New Energy Vehicle Power Chip market size and forecasts by region and country, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global New Energy Vehicle Power Chip market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global New Energy Vehicle Power Chip market shares of main players, shipments in revenue ($ Million), sales quantity (K Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

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To determine the size of the total market opportunity of global and key countries
To assess the growth potential for New Energy Vehicle Power Chip
To forecast future growth in each product and end-use market
To assess competitive factors affecting the marketplace
This report profiles key players in the global New Energy Vehicle Power Chip market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include STMicroelectronics, Infineon, Wolfspeed, Rohm, onsemi, BYD Semiconductor, Microchip (Microsemi), Mitsubishi Electric (Vincotech), Semikron Danfoss, Fuji Electric, etc.
This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

New Energy Vehicle Power Chip market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

SiC MOSFET Modules

SiC MOSFET Discretes

SiC Diode/SBD

Market segment by Wafer Size

4-inch SiC Power Chip

6-inch SiC Power Chip

8-inch SiC Power Chip

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Market segment by Voltage Range

- Below 650V SiC Power Chip
- 650V-1200V SiC Power Chip
- Above 1200V SiC Power Chip

Market segment by Application

- Motor Drive
- Battery Management
- Air Conditioning Drive
- Others

Major players covered

- STMicroelectronics
- Infineon
- Wolfspeed
- Rohm
- onsemi
- BYD Semiconductor
- Microchip (Microsemi)
- Mitsubishi Electric (Vincotech)
- Semikron Danfoss

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Fuji Electric

Navitas (GeneSiC)

Toshiba

Qorvo (UnitedSiC)

San'an Optoelectronics

Littelfuse (IXYS)

CETC 55

WeEn Semiconductors

BASiC Semiconductor

SemiQ

Diodes Incorporated

SanRex

Alpha & Omega Semiconductor

Bosch

KEC Corporation

PANJIT Group

Nexperia

Vishay Intertechnology

Zhuzhou CRRC Times Electric

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China Resources Microelectronics Limited

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)
Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)
Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)
South America (Brazil, Argentina, Colombia, and Rest of South America)
Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe New Energy Vehicle Power Chip product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of New Energy Vehicle Power Chip, with price, sales quantity, revenue, and global market share of New Energy Vehicle Power Chip from 2021 to 2026.

Chapter 3, the New Energy Vehicle Power Chip competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the New Energy Vehicle Power Chip breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and New Energy Vehicle Power Chip market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

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Chapter 13, the key raw materials and key suppliers, and industry chain of New Energy Vehicle Power Chip.

Chapter 14 and 15, to describe New Energy Vehicle Power Chip sales channel, distributors, customers, research findings and conclusion.

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