

## **Automotive Power Module Packaging - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)**

Market Report | 2025-07-01 | 120 pages | Mordor Intelligence

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### **Report description:**

Automotive Power Module Packaging Market Analysis

The automotive power module packaging market size reached USD 3.34 billion in 2025 and is forecast to climb to USD 4.57 billion by 2030, reflecting a compound annual growth rate (CAGR) of 6.5%. The automotive power module packaging market is expanding because automakers accelerated electrification programs, pushed higher voltage architectures into volume production, and demanded advanced thermal-management solutions for wide-bandgap devices. Rising investments in 200 mm SiC wafer fabs, partnerships that compress development cycles, and tighter emission standards collectively reinforce long-term demand. Suppliers that master wire-bondless interconnects, double-sided cooling, and silver sintering are securing design wins in traction inverters, on-board chargers, and DC-DC converters. Meanwhile, supply constraints for SiC substrates and fragmented qualification rules remain headwinds.

Global Automotive Power Module Packaging Market Trends and Insights

Rapid EV and HEV production growth

Global battery-electric and hybrid output climbed sharply in 2024, and automotive applications already accounted for more than 70% of SiC demand. Tesla's Cybertruck power converter illustrated how 800 V platforms double voltage stresses and intensify thermal management needs. Tier-1 suppliers such as BorgWarner reported 47% year-on-year eProduct sales growth, signaling that established drivetrain specialists are pivoting resources toward high-density modules. Commercial vehicle programs, including

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ZF's 300 kW eBeam axle, further widen the addressable base for ruggedized packaging.

Shift toward SiC and GaN wide-bandgap devices

Fourth-generation SiC MOSFETs now sustain junction temperatures above 200 C, intensifying the need for copper clips, silver sintering, and direct die cooling. Infineon forecasts 2025 as an inflection year for automotive GaN, especially in on-board chargers and high-frequency DC-DC converters. Supply bottlenecks for SiC substrates sharpened focus on 200 mm wafer transitions and on multi-source agreements that stabilize capacity.

Lack of standardized qualification protocols

Power-electronics suppliers faced repeated test loops because AEC-Q100, AEC-Q101, and AEC-Q200 were interpreted differently by regional OEMs, prolonging time-to-market and inflating non-recurring expenses. IECQ launched its Automotive Qualification Programme to harmonize procedures, yet adoption remained uneven.

Other drivers and restraints analyzed in the detailed report include:

Vehicle electrification demands higher power-density modules / Stringent global emission regulations / High cost and supply constraints of SiC/GaN substrates /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Intelligent Power Modules held 38.1% of 2024 revenue and remained the volume choice for entry-level EVs and hybrids. SiC Power Modules, though costlier, achieved 15.4% CAGR forecasts as premium and commercial platforms prioritized efficiency. The automotive power module packaging market size for SiC devices is projected to capture an additional 7.5 percentage-point share by 2030. ROHM and Valeo's TRCDRIVE pack showed how SiC enables inverter downsizing without thermal compromise. Meanwhile, GaN penetrated on-board chargers where high-frequency switching outweighed current limits. IGBT and FET modules continue to serve mid-range and auxiliary loads, and recent Mitsubishi Electric releases reduced switching losses by 15% while extending moisture tolerance.

Market diversification persisted across the automotive power module packaging market as OEMs balanced cost, efficiency, and availability. SiC cost declines are expected once 200 mm wafers reach scale and vertical-integration strategies mature. Hence, suppliers that bundle design tools, gate drivers, and thermally optimized housings are positioning themselves to capture multi-year platform awards. The competitive split between integrated device makers and specialized assembly firms is likely to narrow as customers demand turnkey module sub-systems.

Systems up to 600 V retained a 44.3% share in 2024, anchored by existing 400 V passenger-car platforms. However, the 601-1200 V band is the automotive power module packaging market's fastest climber at 6.9% CAGR, mirroring the shift to 800 V topologies that cut fast-charging times. Aptiv outlined insulation challenges and creepage requirements that raise the value of robust packaging. Above-1200V modules remain niche, targeting heavy-duty and infrastructure roles.

Higher voltage demands intensified the development of thicker insulation gels, copper clips with lower inductance, and press-fit pins rated beyond 1.5 kV. Infineon's 1200 V CoolSiC MOSFETs were selected by Forvia Hella for 800 V DC-DC converters, underscoring the platform shift. Packaging suppliers that guarantee partial discharge endurance and field-failure analytics will win specifications as OEMs standardize on next-generation high-voltage domain controllers.

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Automotive Power Module Packaging Market is Segmented by Module Type (IPM, SiC Power Module, Gan Power Module, and More), Power Rating (Up To 600V, 601-1200V, and More), Packaging Technology (Wire-Bond, Wire-bondless/Power Overlay, and More), Propulsion Type (BEV, HEV, PHEV, and FCEV), Vehicle Type (Passenger Cars, and More), Application (Traction Inverter, On-Board Charger, DC-DC Converter, Auxiliary/Climate/EPS), and Geography.

## Geography Analysis

Asia-Pacific retained a 57.2% share in 2024 and posted the highest outlook at 8.9% CAGR to 2030. China's dual-credit rules and scale advantages drew major SiC investments, including Infineon's USD 2 billion 200 mm fab in Malaysia that addressed regional capacity resilience. Local supply chains spanning substrates, metallization pastes, and molding compounds shortened lead times and trimmed costs.

North American demand accelerated as domestic OEMs unveiled new 800 V pickups and SUVs. onsemi committed USD 2 billion to build an end-to-end SiC line in the Czech Republic, ensuring wafer-to-module control and reducing import dependency. Federal manufacturing tax credits also encouraged module assembly within the United States.

Europe focused on premium EV brands and strict emissions mandates. Vitesco Technologies invested EUR 576 million (USD 650 million) to expand advanced-electronics production in Ostrava, signaling confidence in regional electrification momentum. Collectively, regional diversification initiatives are diluting single-region risk and fostering technology transfers that elevate global quality benchmarks.

## List of Companies Covered in this Report:

Amkor Technology, Inc. / Kulicke & Soffa Industries, Inc. / Powertech Technology Inc. (PTI) / Infineon Technologies AG / STMicroelectronics N.V. / Fuji Electric Co., Ltd. / Toshiba Electronic Devices & Storage Corporation / SEMIKRON Danfoss GmbH & Co. KG / JCET Group Co., Ltd. / StarPower Semiconductor Ltd. / Mitsubishi Electric Corporation / ROHM Co., Ltd. / onsemi Corporation / Nexperia B.V. / Wolfspeed, Inc. / Microchip Technology Inc. / Littelfuse, Inc. (IXYS) / Vitesco Technologies Group AG / Vincotech GmbH / CISSOID SA / Hitachi Astemo, Ltd. / Danfoss Silicon Power GmbH / BYD Semiconductor Co., Ltd. / Dynex Semiconductor Ltd. / Shenzhen BASiC Semiconductor Ltd. /

## Additional Benefits:

The market estimate (ME) sheet in Excel format /  
3 months of analyst support /

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