

# Power Semiconductor Market Set for Steady Expansion, Reaching USD 107.35 Billion by 2035

*Power Semiconductor Market Size, Share and Research Report By Component (Discrete, Modules, Power IC), By Material (Silicon, Silicon Carbide, Gallium Nitride)*

NEW YORK,, NY, UNITED STATES, August 6, 2026 /EINPresswire.com/ -- The Global [Power Semiconductor market](#) reached a valuation of USD 60.85 billion in 2025 and is projected to climb from USD 64.40 billion in 2026 to USD 107.35 billion by 2035, registering a CAGR of 5.84% during the forecast period 2026–2035. Two structural

catalysts underpin this trajectory: the U.S. CHIPS and Science Act, which has committed over USD 52 billion toward domestic semiconductor manufacturing, and the European Chips Act, which channels an estimated EUR 43 billion into fabrication sovereignty.



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Power Semiconductor Market: Increasing electrification, renewable energy deployment, and electric vehicle production are boosting the demand for advanced power semiconductor solutions.”

*Market Research Future  
(MRFR)*

These policy-driven investments have created a capital expenditure cycle that directly benefits power device producers. The market's 5.84% CAGR reflects the convergence of EV traction inverter and onboard charger proliferation (+1.4% impact), renewable energy inverter deployment (+1.1%), data center power density escalation from AI workloads (+0.9%), and government fab-reshoring subsidies (+0.8%) accelerating across the world's largest automotive and semiconductor-manufacturing economies simultaneously.

A generational technology shift is redefining the market as legacy silicon-only platforms give way to wide-bandgap

architectures. Silicon carbide and gallium nitride devices now command premium pricing

because they deliver superior thermal conductivity and switching frequencies at higher voltages, with automakers alone expected to absorb over USD 9 billion worth of SiC modules annually by 2030. Grid-scale inverters, EV onboard chargers, and 5G base station power amplifiers are accelerating this transition at a pace few analysts anticipated five years ago.

Asia-Pacific dominates the market with a 54.9% revenue share in 2025, propelled by end-to-end wafer fabrication ecosystems in China, Japan, and South Korea. North America holds an 18.5% share, buoyed by reshoring incentives and defense-grade device demand, while Europe captures 17.8% and is the second-fastest-growing region, driven by automotive electrification mandates and the EU Chips Act pipeline. The decade ahead will hinge on how quickly wide-bandgap capacity scales relative to surging downstream demand.

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### □ How Significant Is the Power Semiconductor Market's Growth?

The power semiconductor market's trajectory from USD 60.85 billion in 2025 to a projected USD 107.35 billion by 2035 represents a durable, electrification-anchored expansion over the forecast decade, reflecting the structural shift from silicon-only device platforms toward wide-bandgap architectures embedded across EV powertrains, renewable energy inverters, and AI-scale data centers. The market's 5.84% CAGR is anchored in an electrification supercycle where EV adoption, renewable capacity additions, and hyperscale AI power delivery are all converging to make power semiconductors one of the few segments in the broader chip industry with genuinely secular, rather than cyclical, growth underpinnings.

Discrete devices accounted for 47.7% of market share in 2025, reflecting sustained demand for IGBTs and diodes in industrial motor drives, while power ICs are forecast to expand at a 6.44% CAGR through 2035, driven by integration trends in consumer and automotive applications. By material, silicon-based devices generated approximately USD 43.87 billion in 2025, underscoring the material's entrenched role in cost-sensitive applications, while gallium nitride is projected to register a 9.66% CAGR through 2035, the fastest among all material segments, and silicon carbide is advancing at an 8.14% CAGR as EV traction inverters and renewable converters scale. By end-user, the automotive sector retained a 33.2% share in 2025, anchored by traction inverter and onboard charger volumes, though energy and power end users are set to record a 7.72% CAGR through 2035 as solar inverter and battery storage deployments intensify.

### □ What Does the Future Hold for the Power Semiconductor Market?

EV traction inverter and onboard charger proliferation contributes approximately +1.4 percentage points to the power semiconductor market's CAGR the single highest driver impact. In 2024, roughly 14.2 million [battery electric vehicles](#) were manufactured worldwide, with power semiconductor content ranging from USD 350 to USD 600 per vehicle depending on charging

architecture and drivetrain voltage. The move from 400V to 800V platforms means the amount of SiC MOSFETs per car will quadruple, and bidirectional onboard chargers will increase device demand even further, with OEM roadmaps to 2030 including more than 35 new 800V models across Europe and China alone.

Renewable energy inverter deployment contributes approximately +1.1 percentage points to the CAGR, establishing solar and storage buildout as a primary structural demand source. Annual solar PV additions are projected to exceed 700 GW by 2030, and each gigawatt requires roughly USD 8–12 million in power module content for string and central inverters, while a single 100 MWh grid storage installation utilizes around 2,400 IGBT or SiC modules. Data center power density escalation adds a further +0.9% to the CAGR as a single AI training rack can demand 70–120 kW compared with 15–20 kW for a traditional compute rack, increasing voltage regulator and power-stage semiconductor content by a factor of four to six, with U.S. hyperscalers alone commissioning more than 15 GW of new data center capacity between 2025 and 2030.

The next phase of the market's evolution centers on AI-driven power architecture redesign, as rack power densities exceeding 100 kW require voltage regulation modules operating at switching frequencies above 2 MHz, a domain where gallium nitride devices hold a decisive efficiency advantage over silicon. By 2030, AI-related power semiconductor content in hyperscale facilities alone could represent a USD 4–6 billion annual addressable segment. Autonomous vehicle redundancy requirements will also amplify automotive's weight within the market through the 2030s, as Level 3-plus architectures mandate redundant power distribution networks that create incremental device sockets worth an estimated USD 120–180 per vehicle beyond baseline EV power electronics, while ESG-linked efficiency mandates such as the EU's Ecodesign for Sustainable Products Regulation are setting minimum energy-efficiency thresholds that increasingly require wide-bandgap devices to meet Tier-2 efficiency floors.

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#### □ Who Are the Key Players in the Power Semiconductor Market?

The power semiconductor market exhibits medium concentration, with an estimated Herfindahl-Hirschman Index of 900–1,100 and a top-five player combined share in the 42–50% range. Infineon Technologies holds a clear leadership position, while a cluster of Japanese, European, and American suppliers compete intensely across device categories and material platforms, with strategic differentiation increasingly hinging on vertical integration into SiC and GaN substrate production. MRFR identifies the following key participants with estimated revenue share ranges:

□ Infineon Technologies (~13–16% share) - the full-spectrum leader providing IGBT modules, SiC MOSFETs, GaN HEMTs, and power ICs, vertically integrated into SiC supply and having launched phase one of its EUR 2 billion 200mm SiC fabrication facility at its Kulim 3 site in Malaysia.

□ onsemi (~7–10% share) - an automotive-focused SiC strategist providing SiC MOSFETs, IGBTs, and intelligent power modules through its EliteSiC platform, positioned around traction-inverter and onboard-charger design wins.

□ STMicroelectronics (~6–9% share) - a dual-fab SiC expander providing SiC MOSFETs, IGBTs, GaN devices, and power ICs, having finalized a multi-year agreement to supply high-efficiency SiC power modules to Renault Group's dedicated Ampere EV platforms.

□ Texas Instruments (~5–8% share) - an analog-integration leader providing GaN FETs, power MOSFETs, gate drivers, and power ICs, having started commercial chip production at its new 300mm SM1 fabrication facility in Sherman, Texas.

□ Mitsubishi Electric (~4–7% share) - an industrial and rail traction module specialist providing IGBT and SiC modules, IPMs, and HVIGBT, with deep entrenchment across Japanese and global industrial motor-drive applications.

□ Toshiba Electronic Devices (~3–6% share) - a broad discrete portfolio provider offering MOSFETs, IGBTs, SiC SBDs, and power ICs, leveraging its established Japanese automotive supply base.

□ Fuji Electric (~3–5% share) - an industrial drive and renewable inverter specialist providing IGBT modules, SiC modules, and IPMs, positioned across motor-drive and grid-inverter applications.

□ Renesas Electronics (~3–5% share) - an MCU-power integration specialist providing power MOSFETs, IGBTs, and gate drivers, targeting automotive systems that combine microcontroller and power-device functionality.

□ Wolfspeed (~2–4% share) - a pure-play SiC substrate and device manufacturer providing SiC MOSFETs, substrates, and power modules, anchoring much of the industry's upstream wide-bandgap wafer supply.

□ ROHM Semiconductor (~2–4% share) - an early SiC mover providing SiC MOSFETs, SiC SBDs, and GaN HEMTs built on trench-gate SiC MOSFET technology, having announced mass-production shipment of its 4th-generation SiC MOSFETs for Toyota's bZ5 EV platform.

Strategic competition in the power semiconductor market is increasingly defined by vertical integration into wide-bandgap substrate production with the SiC substrate supply bottleneck cited as the top structural constraint, as lead times for device-quality six-inch SiC wafers averaged 30–40 weeks through 2024, alongside cyclical inventory corrections that stripped nearly 3 percentage points from growth during the 2023 destocking cycle, U.S.–China export-control friction affecting equipment and IP flows, and high upfront capital costs for wide-bandgap fab construction.

## □ What Are the Emerging Trends in the Power Semiconductor Market?

Several transformational trends are redefining the power semiconductor market's evolution through 2035:

**EV Electrification as a Volume Anchor:** The shift from 400V to 800V vehicle platforms is quadrupling SiC MOSFET content per car, with bidirectional onboard chargers adding further device demand as OEMs plan more than 35 new 800V models across Europe and China through 2030.

**Renewable Energy Inverter Expansion:** Annual solar PV additions projected to exceed 700 GW by 2030 and grid-scale battery storage installations, each requiring roughly 2,400 IGBT or SiC modules per 100 MWh, are creating a dual demand tailwind for utility-scale and distributed power module content.

**Data Center and AI Power Density:** AI training racks demanding 70–120 kW versus 15–20 kW for traditional compute racks are increasing power-stage semiconductor content by four to six times, remaking the market by creating a high-margin niche for 48V-to-point-of-load converters and GaN-based server power supplies.

**Government Fab-Reshoring Subsidies:** The U.S. CHIPS Act's USD 39 billion in direct fabrication incentives, the EU Chips Act's EUR 43 billion public-private investment pipeline, and Japan's JPY 3.9 trillion semiconductor subsidy scheme are collectively lowering capex risk for new 200mm and 300mm wafer lines.

**Vehicle-to-Grid Bidirectional Power Electronics:** V2G architectures require bidirectional power conversion stages rated at 10–19.2 kW, creating an entirely new device socket that did not exist in unidirectional charger designs, with over 40 million EVs projected on global roads by 2030 unlocking multi-billion-dollar incremental demand.

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## □ How Is the Power Semiconductor Market Segmented?

The power semiconductor market report provides a comprehensive segmentation framework:

**By Component:** Discrete (47.7% share, 2025), Modules (USD 16.42 billion, 2025), Power IC (6.44% CAGR)

**By Material:** Silicon (USD 43.87 billion, 2025), Silicon Carbide (8.14% CAGR), Gallium Nitride (9.66% CAGR), Others (USD 0.92 billion, 2025)

By End-User Industry: Automotive (33.2% share, 2025), Consumer Electronics & Appliances (USD 8.95 billion, 2025), ICT (5.92% CAGR), Industrial & Manufacturing (USD 7.68 billion, 2025), Energy & Power (7.72% CAGR), Aerospace & Defense (USD 1.82 billion, 2025), Healthcare & Equipment (5.15% CAGR), Others (USD 1.25 billion, 2025)

By Region: Asia-Pacific (54.9%), North America (18.5%), Europe (17.8%), South America (USD 2.56 billion), Middle East & Africa (4.6%)

## □ What Are the Regional Insights from the Power Semiconductor Market?

Asia-Pacific dominates the power semiconductor market with a 54.9% revenue share in 2025, with China commanding 38.4% of regional share through its domestic EV production and government fab self-sufficiency push. India is posting an 8.52% CAGR within the region through solar inverter demand and its nascent fab incentive program, Japan contributed USD 6.85 billion through Mitsubishi, Toshiba, and Fuji Electric module production, South Korea holds 12.1% of regional share through its EV battery ecosystem and Hyundai-Kia electrification, and ASEAN is growing at a 6.95% CAGR through back-end assembly and packaging hubs.

North America holds an 18.5% share of the global power semiconductor market, with the United States commanding 78.2% of regional revenue as Texas Instruments, Wolfspeed, and onsemi all construct or expand domestic fabrication capacity under CHIPS Act grants alongside hyperscaler data center buildout. Canada is growing at a 5.65% CAGR through EV battery plant investments in Ontario and Quebec, and Mexico contributed USD 0.72 billion through nearshoring assembly and test operations.

Europe captures 17.8% of global power semiconductor market share, with Germany commanding 31.5% of regional revenue through automotive OEM electrification at Volkswagen, BMW, and Mercedes-Benz, anchored by Infineon's Dresden and Villach fabs serving as the continent's primary SiC and IGBT supply nodes. The UK is growing at a 5.42% CAGR through offshore wind power electronics and compound semiconductor R&D, France contributed USD 1.22 billion through STMicroelectronics' fab expansion in Crolles, Italy holds 8.8% of regional share through STMicroelectronics' SiC capacity ramp in Catania, Spain is posting a 4.71% CAGR through solar PV inverter demand, and the Nordic countries contributed USD 0.48 billion through wind turbine converter modules, with the EU Chips Act dispersing investment across both France and Italy.

South America and the Middle East & Africa round out the power semiconductor market's regional footprint. Brazil commands 62.3% of South American revenue through renewable energy auctions and agricultural automation, positioning the country as the region's primary consumption center, while Argentina is growing at a 5.10% CAGR through lithium supply chain development. In the Middle East & Africa, Saudi Arabia commands 28.5% of regional share as its NEOM and Red Sea developments draw significant inverter and motor-drive procurement

volumes under Vision 2030 industrial diversification, the UAE is growing at a 6.32% CAGR through smart grid modernization and accelerating data center investments that create a premium-tier demand pocket in the Gulf, South Africa contributed USD 0.52 billion through renewable independent power producer programs, and Egypt is posting a 5.88% CAGR through grid infrastructure upgrades tied to the Suez economic zone.

□□□ Regional & Country-Level Reports by Market Research Future:

US Power Semiconductor Market -

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