

POWER SEMICONDUCTOR MARKET INTELLIGENCE

Power Semiconductor Market Trends

2026 Edition: Comprehensive Analysis Report

Target Companies: BYD Semiconductor, CRRC Times Electric, Fuji Electric, Infineon, Mitsubishi Electric, Navitas Semiconductor, onsemi, Renesas Electronics, ROHM, BorgWarner / Semikron Danfoss, Silan Microelectronics, STMicroelectronics, Toshiba Electronic Devices & Storage, Wolfspeed

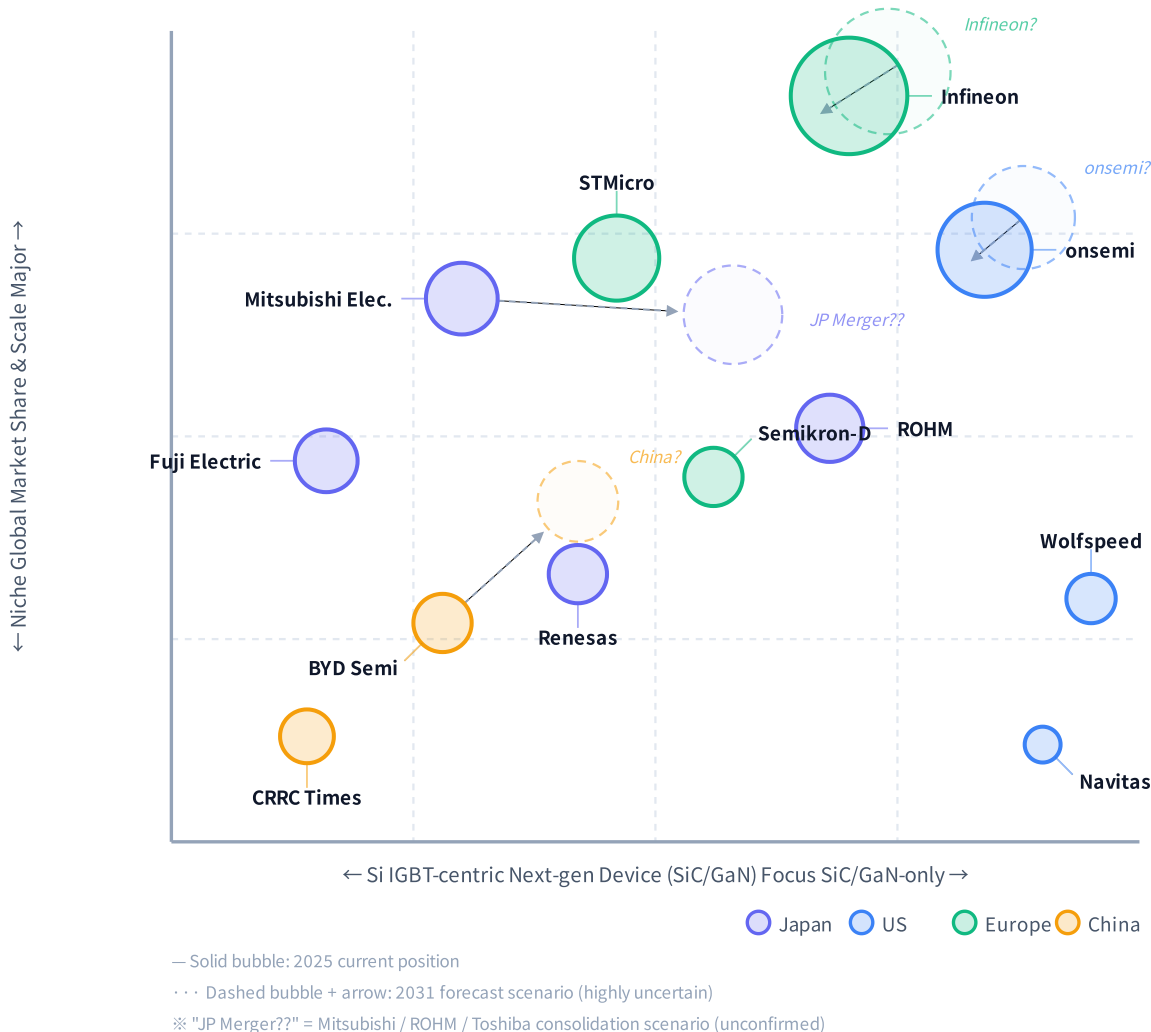
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Major Vendor Competitive Positioning Map (2025 Current / 2031 Forecast)

X-axis: Next-gen device (SiC/GaN) strength / Y-axis: Global market share & scale / Bubble size: Revenue (approx.)



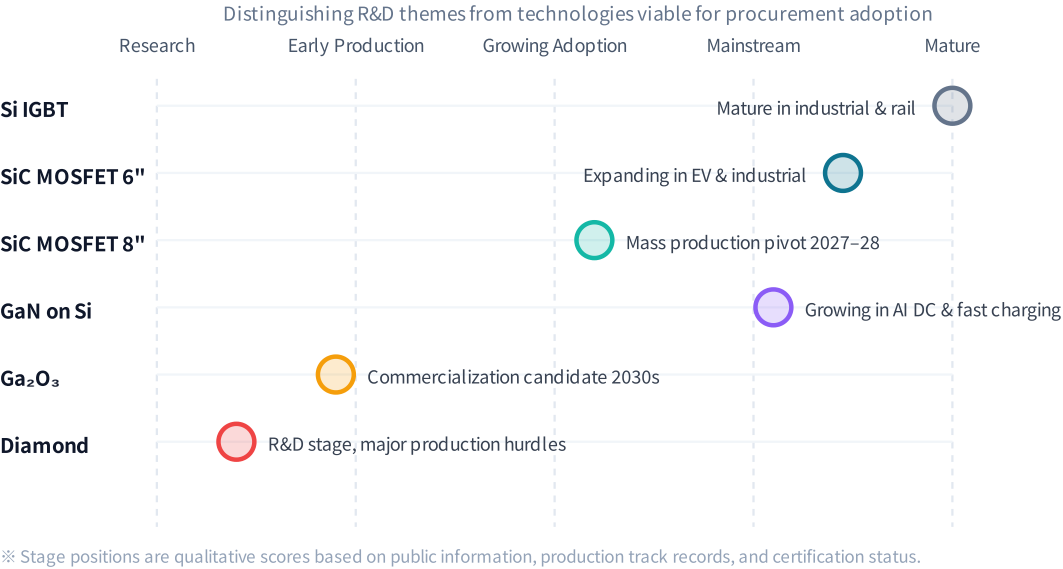
How to Read

The horizontal axis represents the degree of focus on next-generation devices (SiC/GaN); the vertical axis represents business scale and market penetration. Vendors toward the upper right offer greater stability as procurement candidates in both technology investment and supply capacity.

Procurement Implications

Japanese vendors have competitive strengths on the technology axis but lag European and US majors in scale. When evaluating Japanese consolidation scenarios, supply continuity and product rationalization risk should be assessed separately rather than at the individual company level.

Material Technology Lifecycle & Mass Production Stage



How to Read

This chart separates "research themes" from "technologies viable for mass production" for each material. Materials further right are closer to procurement adoption; those further left are future technologies or R&D themes to monitor.

Procurement Implications

Si IGBT remains in mature, stable supply. 6-inch SiC is expanding into mainstream adoption. 8-inch SiC is at a mass-production inflection point. Ga₂O₃ and diamond are not yet procurement candidates — they warrant monitoring as patent and research topics.

Industry Reorganization, M&A, and Partnership Trends

With the construction cost of a single SiC manufacturing line now reaching tens of billions of yen, the pressure for consolidation and reorganization is rapidly mounting for mid-tier players who find it difficult to make such capital investments alone. Additionally, a plateau in EV demand, a price offensive from Chinese competitors, and geopolitical fragmentation symbolized by the CHIPS Act are forcing each company to choose between three options: "integrate, specialize, or withdraw."

Key M&A, Merger, and Business Restructuring Events (Including Completed and Attempted Deals)

July 2022 | Semikron + Danfoss Merger (Completed)

By becoming a wholly-owned subsidiary of Denmark's Danfoss, Semikron has committed to a chip-independent strategy in power conversion modules, focusing on the industrial, renewable energy, and commercial vehicle sectors. The company has also indicated it is considering the sale of its passenger car module business, setting a precedent for "selection and concentration" style integration. The full subsidiary transition was completed in early 2026.

November 2022 | BYD Semiconductor IPO Cancellation (Abandoned)

BYD Semiconductor withdrew its plans for a Shenzhen A-share listing, clarifying its policy to reallocate the raised funds toward production capacity investment. This is seen as a move to prioritize the construction of a vertically integrated supply chain over the financial transparency an IPO would bring. The company has concentrated its capital on the Xi'an plant's Phase 3 plan (annual production of 2.4 million wafers by 2026) while remaining private.

Circa 2023 | Denso/Toyota Group's Acquisition Overture to ROHM (Attempted)

According to industry observers, the Toyota Group approached ROHM, a leader in SiC technology, about a capital participation deal, aiming to internalize its SiC supply chain for EVs. However, ROHM's management insisted on maintaining its independent course, and the talks are believed to have effectively ended at the informal contact stage. While the group companies will continue to maintain their design-in relationship, it has not led to capital integration.

2023–2024 | JIC-led "All-Japan Power Semiconductor" Initiative (Under Discussion)

A scenario emerged, centered on the Japan Investment Corporation (JIC), to strengthen SiC competitiveness by merging three companies: Mitsubishi Electric, ROHM, and Toshiba Electronic Devices & Storage. In March 2026, the three companies signed a basic agreement and entered the discussion phase, but challenges remain in post-merger integration (PMI), including streamlining overlapping product lines, bridging differences in corporate culture, and debates over management control.

2023 | Infineon's Acquisition of GaN Systems (Completed)

Infineon acquired Canada's GaN Systems (a company with strengths in >670V GaN devices for EV and industrial applications), establishing a power semiconductor portfolio driven by both SiC and GaN. The addition of GaN product lines, a move that differentiates it from competitors leaning heavily on SiC, enables a simultaneous offensive on the data center and consumer electronics markets.

Vendor Selection Matrix by Application

Application	First Choice	Alternative Candidate	Points to Note
EV Traction Inverter (SiC)	Infineon, onsemi	ROHM, STMicro	Infineon has price increase risk. onsemi's 8-inch transition timing needs confirmation.
EV Ultra-Fast Charging (>1000V)	BYD Semiconductor, Infineon	onsemi	For BYD Semiconductor, check certification status outside the Chinese market individually.
AI Data Center Power Supply (GaN)	Navitas, Renesas (Transphorm)	Infineon (GaN Systems)	For Navitas, confirm quality stability during foundry transition period.
Industrial Inverter / Railway (High-Capacity IGBT)	Mitsubishi Electric, Infineon	Fuji Electric, CRRC Times Electric	For Mitsubishi Electric, confirm roadmap continuity during integration talks.
Renewable Energy (Wind/Solar)	Semikron Danfoss, Infineon	Mitsubishi Electric, CRRC Times Electric	For Semikron Danfoss, confirm business continuity policy as it considers selling its passenger car business.
Commercial Vehicles / Off-Road (SiC/IGBT)	Semikron Danfoss, onsemi	Fuji Electric, CRRC Times Electric	Semikron Danfoss offers flexibility in supplier changes due to its chip-independent strategy.
SiC Substrate/Wafer Procurement	ROHM (SiCrystal), Wolfspeed	onsemi (GTAT-related)	For Wolfspeed, securing multiple procurement sources is essential as it is under restructuring.

Adoption Candidates and Risks by Material

Material	Main Application	Leading Vendors	Items to Confirm When Adopting
SiC MOSFET (650-1200V)	EV drive, industrial inverters, solar PCS	Infineon, onsemi, ROHM, STMicro	Infineon's price revision scope and timing. STMicro's yield status due to epi-defects.
SiC MOSFET (>1700V)	Railway auxiliary power supplies, large UPS, wind converters	ROHM, Mitsubishi Electric, Wolfspeed	Wolfspeed is undergoing financial restructuring. For Mitsubishi Electric, confirm impact of integration negotiations.
Si IGBT (600-1200V)	Home appliance inverters, industrial drives, EV auxiliary equipment	Fuji Electric, Mitsubishi Electric, Toshiba TDSC, Infineon	For Toshiba TDSC's 300mm products, operation confirmation required. Price pressure from Chinese players (Silan) is intensifying.
GaN FET (<650V)	Data center power supplies, fast chargers, industrial SMPS	Navitas, Renesas (Transphorm), Infineon (GaN Systems)	Navitas has foundry transition period risk. For Renesas, confirm financial impact related to Wolfspeed.
SiC Power Module	EV, railway, wind power, large UPS	Semikron Danfoss, Mitsubishi Electric, Fuji Electric, CRRC Times Electric	Semikron Danfoss's passenger car business sale trends. Risk of product lineup changes after the three-company integration.

Major Power Semiconductor Vendor Competitiveness Ranking (2025)

#	Company	Region	Revenue	SiC	GaN	Market Position	Key Risk
1	Infineon	EU	\$8.5B			EV & Industrial: Overall Leader	SiC yield
2	onsemi	US	\$4.1B			EV SiC-focused	EV demand volatility
3	STMicro	EU	\$3.8B			SiC in-house + Si balance	Wafer in-house delay
4	Mitsubishi Elec.	JP	\$3.2B			Rail & Industrial IGBT	Behind on EV
5	ROHM	JP	\$1.8B			SiC/GaN pioneer	Scale & M&A risk
6	Fuji Electric	JP	\$1.6B			Industrial IGBT	High Si dependency
7	Wolfspeed	US	\$0.9B			SiC substrate & device pure-play	Under restructuring
8	Semikron-D	EU	\$1.5B			EV drive modules	Integration PMI
9	BYD Semi	CN	\$1.2B			China EV in-house	Export restrictions
10	Navitas	US	\$0.3B			GaN IC pure-play	Production scale
11	CRRC Times	CN	\$0.8B			Rail & China domestic	Export regulations
12	Renesas	JP	\$0.7B			MCU-integrated approach	Not a power specialist

※ Revenue covers power semiconductor segments only. SiC/GaN scores are composite ratings of technology, products & supply (out of 5).

Application-based Recommended Vendor Matrix

Application	Material	Primary Candidates	Alternatives	Key Checkpoints
xEV Main Inverter	SiC MOSFET	Infineon / onsemi / STMicro	ROHM / BYD Semi	Long-term supply contract, AQC324 cert
Industrial Servo & UPS	Si IGBT / SiC	Mitsubishi / Fuji Electric / Infineon	Semikron-Danfoss	Maintenance period, product continuity
Solar & Storage PCS	SiC / Si IGBT	Infineon / Mitsubishi / CRRC Times	Silan / StarPower	Price decline and Chinese vendor entry
AI Data Center Power	GaN HEMT	Navitas / Infineon / ROHM	EPC / Transphorm	Mass supply capacity, thermal design
Consumer Fast Charging	GaN on Si	Navitas / Innoscience / Infineon	ROHM	Price competition, certification costs

※ Recommendations are candidate lists based on public information. Actual adoption requires individual qualification, pricing, and supply contract verification.