+357 96 030922
info@marketpublishers.com

The Global Power Electronics Market 2026-2036

https://marketpublishers.com/r/G0083112CE9FEN.html
Date: January 2026
Pages: 430
Price: US$ 1,500.00 (Single User License)
ID: G0083112CE9FEN

Abstracts

Power electronics is no longer confined to specialist applications. Its influence now spans electric vehicles, renewable energy systems, industrial automation, data-centre infrastructure and advanced consumer equipment. What links these sectors is the need to move energy more efficiently and at higher power densities. The global power electronics market is experiencing unprecedented growth and transformation, driven by the electrification of transportation, renewable energy expansion, and surging demand for data center infrastructure. This dynamic sector encompasses the critical components that convert and control electrical power across virtually every modern application, from electric vehicle powertrains to grid-scale energy storage systems. At the heart of this market evolution is a fundamental technology transition from traditional silicon-based devices to wide bandgap (WBG) semiconductors, specifically silicon carbide (SiC) and gallium nitride (GaN). This paradigm shift represents the most significant advancement in power electronics since the introduction of IGBTs in the 1980s. SiC MOSFETs offer compelling advantages over silicon IGBTs, including higher temperature operation, superior thermal conductivity, switching speeds up to five times faster, and the potential to increase electric vehicle range by approximately 7%. These characteristics enable more compact, efficient power conversion systems with smaller passive components and reduced cooling requirements.

The electric vehicle sector stands as the primary growth driver for power electronics demand. Key components include traction inverters, onboard chargers (OBCs), and DC-DC converters, with the market increasingly adopting 800V architectures to enable faster charging and improved efficiency. SiC MOSFETs are rapidly gaining market share in EV inverters, with projections indicating they will become the majority technology by 2035. Meanwhile, GaN devices are making significant inroads in lower-power applications such as onboard chargers and DC-DC converters, where their high-frequency switching capabilities enable dramatic reductions in size and weight.

+357 96 030922
info@marketpublishers.com

The supply chain for power electronics is undergoing significant restructuring, with vertical integration emerging as a key strategic trend. Major automotive OEMs and semiconductor suppliers are securing supply through acquisitions, partnerships, and in-house development of SiC capabilities. The transition from 150mm to 200mm SiC wafers represents a critical milestone that will substantially increase production capacity and reduce costs, with multiple suppliers worldwide scaling up 200mm wafer production. Chinese manufacturers have entered the market aggressively, with four Chinese companies now ranking among the top 20 global power device suppliers.

Data centers represent another rapidly expanding application, driven by artificial intelligence workloads that demand unprecedented power levels. Power supply units are evolving to meet stringent efficiency standards, with the 80 PLUS Ruby certification requiring up to 96.5% efficiency. Wide bandgap adoption is accelerating in this sector, with hybrid designs combining silicon, SiC, and GaN emerging as the preferred approach for maximizing efficiency across different power conversion stages.

The industry is also witnessing a conceptual evolution from discrete converter design toward integrated system-level approaches. This "Power Electronics 2.0" paradigm emphasizes energy management over simple power conversion, incorporating smart grid integration, distributed control architectures, and mission-oriented efficiency metrics. Multi-cell converter architectures are gaining traction, offering advantages including switching frequency multiplication, improved redundancy, and standardization benefits.

Despite the rapid advancement of WBG technologies, silicon devices continue to hold significant market share due to their maturity, established supply chains, and cost advantages. The market is characterized by intense cost pressure, particularly in price-sensitive segments like solar inverters and battery energy storage systems. Looking forward, the global power electronics market is projected to grow with a compound annual growth rate exceeding 8%, adding more than $15 billion in market value by 2030, driven by the continued expansion of electric mobility, renewable energy deployment, and digital infrastructure requirements.

The Global Power Electronics Market 2026-2036 provides comprehensive analysis of the rapidly evolving power semiconductor industry, examining the transformative shift from silicon-based devices to wide bandgap (WBG) technologies including silicon carbide (SiC) MOSFETs and gallium nitride (GaN) HEMTs. This in-depth market intelligence report delivers granular 10-year forecasts covering market size in US dollars and gigawatts across key segments including electric vehicle inverters, onboard

+357 96 030922
info@marketpublishers.com

chargers, DC-DC converters, data center power supply units, renewable energy systems, and industrial applications.

The report analyzes critical technology trends driving market growth, including the transition from 400V to 800V EV architectures, the evolution from 150mm to 200mm SiC wafer production, and the emergence of integrated power electronics modules. Detailed supply chain analysis covers the complete value chain from raw materials and wafer production through device manufacturing, packaging, and system integration, with particular focus on vertical integration strategies and the rising influence of Chinese manufacturers in the global market.

Regional market analysis examines growth dynamics across China, Europe, North America, Japan, South Korea, and emerging markets, while competitive landscape assessment provides market share rankings, M&A activity tracking, and strategic partnership analysis. The report includes over 90 detailed company profiles spanning semiconductor device manufacturers, GaN specialists, SiC wafer suppliers, tier-1 automotive suppliers, automotive OEMs, and system integrators.

Report Contents include:

Market Analysis & Forecasts

Global power electronics market size and 10-year growth projections (2026-2036)

Device-level forecasts for Si IGBTs, SiC MOSFETs, and GaN devices by voltage class

Application-level forecasts for EV inverters, onboard chargers, and DC-DC converters in units, GW, and US$

Regional market forecasts for China, Europe, North America, and Asia-Pacific

Price trend analysis and cost reduction projections for WBG semiconductors

Technology Analysis

+357 96 030922
info@marketpublishers.com

- Comprehensive comparison of Si, SiC, and GaN semiconductor properties and performance
- Technology S-curve analysis and paradigm shift to Power Electronics 2.0
- Multi-cell converter architectures including parallel and series interleaving
- Packaging evolution including single-sided and double-sided cooling technologies
- 150mm to 200mm SiC wafer transition timeline and cost advantages

Application Markets

- Electric vehicle power electronics including 400V vs 800V architecture analysis
- Traction inverter, onboard charger, and DC-DC converter technology benchmarking
- Data center PSU market including AI server power requirements
- Renewable energy applications covering solar PV, wind, and battery energy storage
- Grid infrastructure including smart grid, solid-state transformers, and HVDC systems

Supply Chain Analysis

- Complete Si, SiC, and GaN supply chain mapping from raw materials to end applications
- SiC wafer supplier market share and 200mm production roadmap
- Vertical integration trends and OEM acquisition strategies

+357 96 030922
info@marketpublishers.com

- Packaging and assembly supply chain including die attach technologies
- Passive component technology roadmap for capacitors and magnetics

Competitive Landscape

- Top 20 power device supplier rankings and market share analysis
- Recent mergers, acquisitions, and strategic partnerships
- Manufacturing capacity expansion plans by region and technology
- OEM-supplier relationship mapping for SiC MOSFETs and Si IGBTs

Future Technology Trends

- Power Electronics 2.0 vision: from converters to systems
- SiC and GaN technology roadmaps through 2035
- Emerging WBG materials including Ga?O? and diamond
- Virtual prototyping and digital twin design methodologies

Companies Profiled include ABB, Advanced Energy Industries, Alpha & Omega Semiconductor, Bimotal, BMW, BorgWarner, Bosch, BYD, Cambridge GaN Devices, China Resources Microelectronics (CR Micro), CM Materials, Coherent, CRRC Corporation, Dana Incorporated, Delta Electronics, Denso, Diodes Incorporated, Dynex Semiconductor, Dynolt Technologies, Eaton, Efficient Power Conversion (EPC), Entuple E-Mobility, Fuji Electric, General Motors, GlobalWafers, HBN Technology, Heron Power, Hitachi Astemo, Hitachi Energy, Huawei, Hyundai Motor Group, Infineon Technologies, Innoscience, Inovance Technology, Lite-On Technology, Littelfuse, Lucid Motors, Magna International, Microchip Technology, Mitsubishi Electric, Navitas Semiconductor, Nexperia, NXP Semiconductors, onsemi and more...

+357 96 030922
info@marketpublishers.com

Contents

+357 96 030922
info@marketpublishers.com

3 TECHNOLOGY ANALYSIS

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

5 REGIONAL MARKET ANALYSIS

+357 96 030922
info@marketpublishers.com

6 SUPPLY CHAIN ANALYSIS

+357 96 030922
info@marketpublishers.com

7 MARKET FORECASTS

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

8 COMPETITIVE LANDSCAPE

+357 96 030922
info@marketpublishers.com

9 FUTURE TECHNOLOGY TRENDS

10 COMPANY PROFILES

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

List Of Tables

LIST OF TABLES

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: The Global Power Electronics Market 2026-2036

Product link: https://marketpublishers.com/r/G0083112CE9FEN.html

Price: US$ 1,500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/G0083112CE9FEN.html