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OVERVIEW OF THE POWER SEMICONDUCTOR DEVICE INDUSTRY

With the global energy structure accelerating its transition towards low-carbonisation, the demand for electricity is continuously rising. As a result, power electronic systems face greater challenges in terms of reliability, efficiency, and sustainability, heightening an urgent need for development towards higher power density, high-frequency efficiency, and miniaturisation.

Under this trend, power semiconductor devices, as core components for power conversion and management, are becoming increasingly important in power electronic systems. Power semiconductor devices are not only widely used in consumer electronics, automotive electronics, and industrial control fields, but are also undergoing continuous transformation and development with the rise of infrastructure such as electric vehicles, renewable energy inverter systems, industrial variable frequency drives, energy storage systems, and AI data centres, taking it one step further to becoming the key to improving energy efficiency and equipment performance.

Definition and classification of power semiconductor device

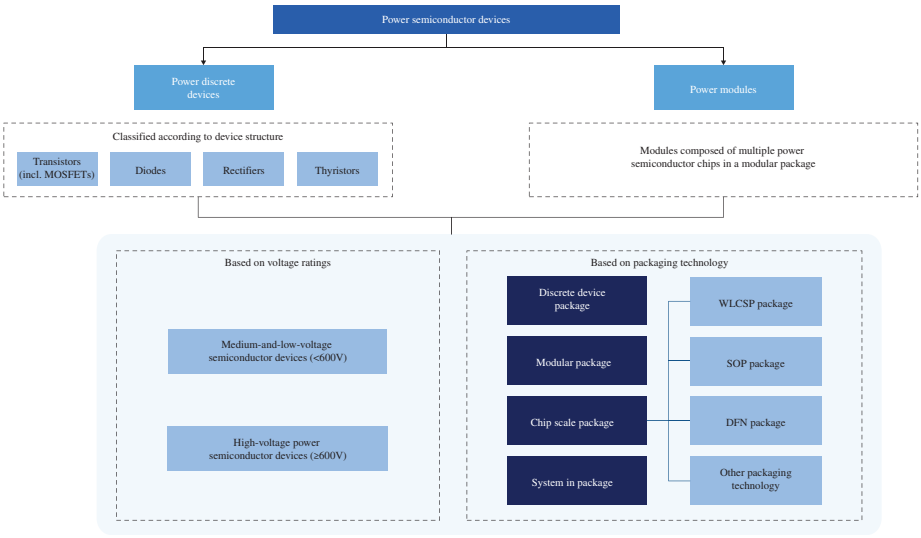
Power semiconductor devices are core electronic components in electronic devices that enable power conversion and circuit control. Their main functions include efficient voltage conversion, precise frequency regulation, and conversion between alternating current (AC) and direct current (DC). Power semiconductor devices, being the key components of power electronic systems, effectively regulate energy flow and ensure system stability through functions such as rectification, inversion, power amplification, power switching control, and circuit protection, which are referred as the 'heart' of power electronic systems.

Based on their components, power semiconductor devices mainly include power discrete devices and power modules. The former can be further classified according to device structure into transistors, diodes, rectifiers, and thyristors, which are mainly MOSFETs, IGBTs, BJTs, etc., while the latter are modules composed of multiple power semiconductor chips in a modular package; Additionally, based on voltage, power semiconductor devices are divided into medium-and-low voltage (below 600V), and high-voltage (600V and higher). 600V is widely recognized as the threshold dividing medium-and-low and high-voltage power devices, fundamentally driven by standard power system applications and safety margin. Fundamentally, the distinction between medium-and-low-voltage and high-voltage devices depends on the specific circuit environment they are designed for. Medium-and-low-voltage devices are engineered for secondary-side circuits, whereas high-voltage components are explicitly designed to interface directly with primary AC mains. For globally prevalent 220V AC grids, the peak sinusoidal voltage is approximately 310V. Accounting for peak voltage under grid fluctuations, reflected voltage from the transformer, and transient switching spikes from leakage inductance, engineers generally design high-voltage devices with an extra safety

margin of approximately 300V, which leads the high-voltage designed minimum rating to 600V. Thus, 600V is recognized as the general high-voltage devices threshold for the balance of safety and economic efficiency.

In addition, based on packaging technology, power semiconductor devices can also be classified into WLCSP power semiconductor devices, SOP power semiconductor devices, DFN power semiconductor devices, and other packaged power semiconductor devices.

Definition and classification of power semiconductor device



Source: CIC

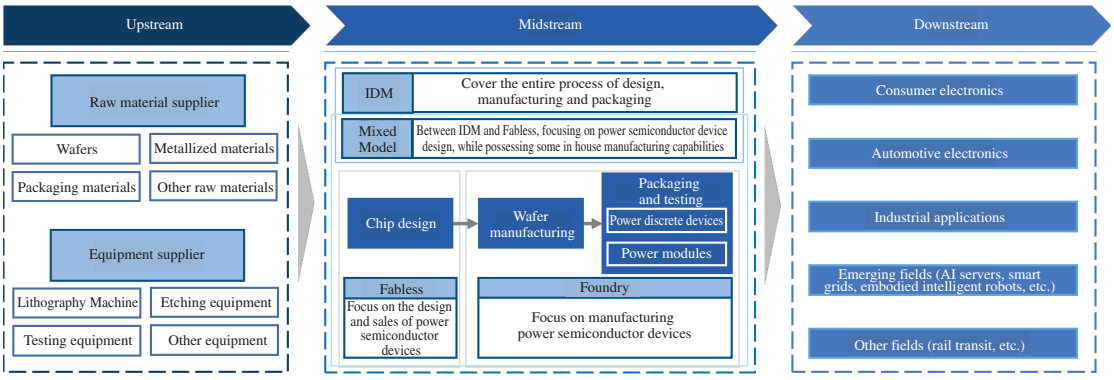
Industry Chain of Power Semiconductor Device Industry

The upstream segments of the power semiconductor device industry chain primarily include the production and supply of raw materials such as wafers and wide bandgap materials, as well as the supply of semiconductor manufacturing equipment.

The midstream segment covers the entire process from chip design and wafer manufacturing to packaging and testing. Depending on the business model, it can be further divided into Fabless, foundry, IDM and mixed model. The mixed model achieves a balance between asset-light operations and technological autonomy by retaining core processes and outsourcing standard manufacturing. It is increasingly becoming the preferred transformation direction for many power semiconductor device companies.

In downstream applications, power semiconductor devices are widely used in many important fields covering areas including consumer electronics, automotive electronics, industrial applications and emerging fields.

The Industry Chain of the Power Semiconductor Device Industry



Source: CIC

Market Size of China's Power Semiconductor Device Industry

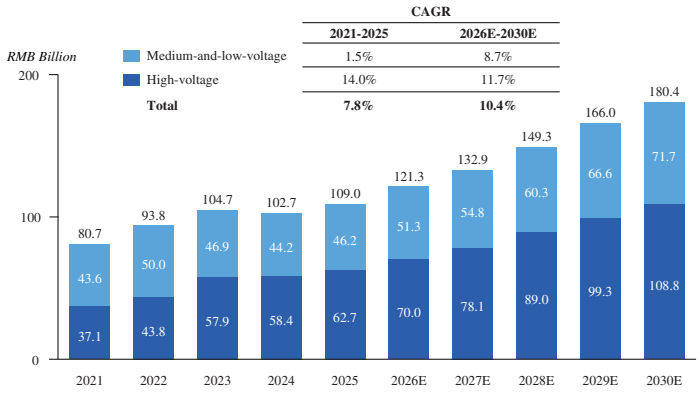
The global semiconductor industry is inherently cyclical. In the past 10 years, the market reached over 20% increase in 2017 and 2021, while recorded lower than 5% increase in 2016 and 2022. The fluctuation in growth rate is mainly driven by the changes in the end-market demands and corresponding inventory adjustment within downstream industry.

The market size of power semiconductor devices in China grew from RMB80.7 billion in 2021 to RMB109.0 billion in 2025, with a CAGR of 7.8% during the period. Driven by continued expansion in downstream demand, the Chinese power semiconductor device market is expected to reach RMB180.4 billion by 2030, with a CAGR of 10.4% from 2026 to 2030.

The contraction of the medium-and-low-voltage power semiconductor and consumer electronics power semiconductor markets since 2022 was primarily driven by the cyclical downturn in downstream consumer electronics. Following an anomalous demand surge in 2020 and 2021 fueled by pandemic, the consumer electronics sector experienced significant inventory accumulation. Subsequently, from 2022 to early 2024, macroeconomic headwinds, including global inflation and subdued consumer confidence, led to weakened end-market demand. Consequently, downstream manufacturers initiated prolonged inventory correction cycles, directly reducing procurement orders for medium-and-low-voltage power semiconductor devices. Since the second half of 2024, downstream demand has gradually recovered and inventory levels have normalized, supporting a rebound in the medium-and-low-voltage power semiconductor market, which reached RMB46.2 billion in 2025.

Although the fluctuation existed, the industry fundamentally exhibits a long-term trajectory of fluctuating growth. Meanwhile it is anticipated that traditional cyclical fluctuations will be significantly dampened by the continued expansion of automotive electronics demand, particularly driven by vehicle electrification and intelligentization, as well as the explosive emergence of new structural demands, particularly from the AI sector and data center computing power requirements. The market size is expected to reach RMB71.7 billion by 2030, representing a CAGR of 8.7% from 2026 to 2030.

Market Size of China's Power Semiconductor Device Industry, in Terms of Revenue, by Voltage Level, 2021-2030E

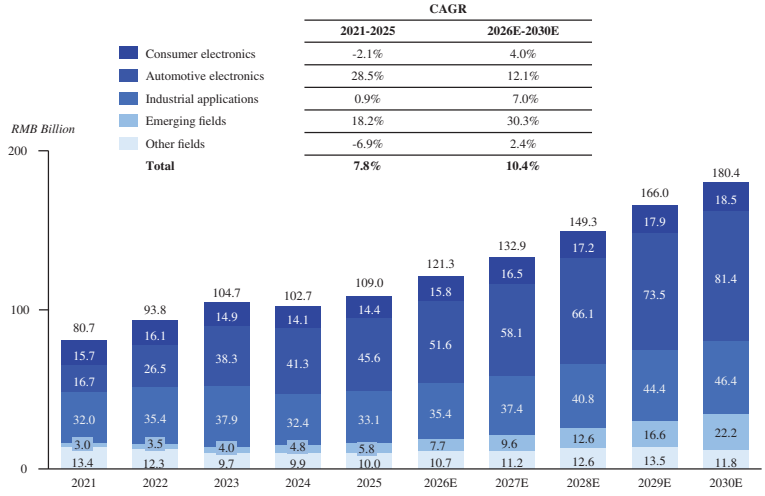


Sources: Omdia, Expert Interviews, CIC

Benefiting from the intelligent upgrade of consumer electronics, the consumer sector achieved sales revenue of RMB14.4 billion in the power semiconductor device market in 2025, with a CAGR of 4.0% expected between 2026 and 2030. In addition, benefiting from the strong growth of new energy vehicles, the automotive sector achieved sales revenue of RMB45.6 billion in the power semiconductor device market in 2025, with a CAGR of 12.1% expected between 2026 and 2030. At the same time, benefiting from the continuous growth of renewable energy, the industrial sector achieved sales revenue of RMB33.1 billion in the power semiconductor device market in 2025, with a CAGR of 7.0% expected between 2026 and 2030.

Emerging fields are becoming a new growth driver for the power semiconductor device market. The rapid development of cutting-edge applications such as AI servers, smart grids, and embodied intelligent robots is creating strong demand for power semiconductor devices, with a CAGR of 30.3% expected between 2026 and 2030.

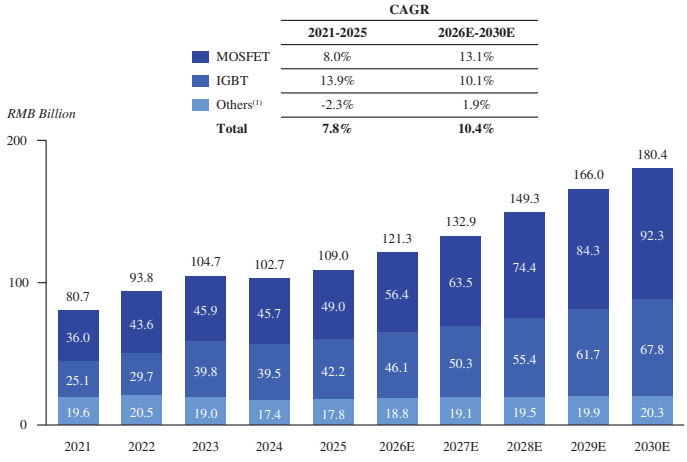
Market Size of China's Power Semiconductor Device Industry, in Terms of Revenue, by Application Areas, 2021-2030E



Source: Omdia, Expert Interviews, CIC

In China's power semiconductor device market, MOSFET power semiconductor devices have secured the largest market share and maintained rapid growth thanks to their advantages of fast switching speed, low conduction loss, and simple drive. Its market size grew from RMB36.0 billion in 2021 to RMB49.0 billion in 2025, with a CAGR of 8.0% during the period. It is estimated that by 2030, the market size of MOSFET power semiconductor devices in China will reach RMB92.3 billion, with a CAGR of 13.1% from 2026 to 2030.

Market Size of China's Power Semiconductor Device Industry, in Terms of Revenue, by Production Types, 2021-2030E



Source: Omdia, Expert Interviews, CIC

Note: Others includes other power semiconductor devices such as BJT.

Driving Factors in China's Power Semiconductor Device Industry

- **Growing demand in downstream applications.** Driven by the global energy transformation and intelligentization, the power semiconductor device market is experiencing continuous growth due to its high efficiency conversion, high reliability, energy saving and environmental protection performance advantages. In the consumer sector, with the rapid proliferation of smart consumer products, the demand for improved energy efficiency has increased the demand for power semiconductor devices. In the automotive sector, electric vehicle power systems and charging equipment require more power semiconductor devices to achieve power conversion and control, with per-vehicle usage significantly higher than that of traditional fuel-powered vehicles. In the industrial sector, the large-scale application of photovoltaic and wind power systems has created a vast market for high-voltage power semiconductor devices. In emerging fields, embodied intelligent robots and AI servers require power semiconductor devices to provide them with high-efficiency conversion and intelligent support.

- **AI technology is reshaping downstream applications.** Artificial intelligence technology is accelerating the empowerment of emerging industries such as data centres and smart manufacturing. While improving the technical indicators of power conversion systems, it is also driving significant growth in the demand for power semiconductor devices. For example, in AI servers, smart grids, and embodied intelligent robots, traditional silicon-based IGBT and MOSFET power semiconductor devices, with their mature processes and stable performance, remain the core component choices for power electronic systems.

- **Improvements in manufacturing processes and yield rates drive cost reductions and efficiency gains in the industry.** The power semiconductor device industry has benefited from continuous process technology optimisation, significantly improving product yield rates, performance, and cost-effectiveness. Domestic manufacturers have made breakthroughs in key areas such as wafer preparation, device design, and manufacturing processes, achieving comprehensive performance improvements, including better energy conversion efficiency, stronger current handling capabilities, and more reliable high-temperature operational stability. At the same time, the improvement in yield and simplification of processes brought about by large-scale production are driving a continuous decline in the unit cost of power semiconductor devices, making their economic benefits and technological advantages even more prominent.

Development Trends in China's Power Semiconductor Device Industry

- **High integration, high performance, low power consumption, and miniaturisation trends.** As downstream applications such as new energy vehicles, photovoltaic storage, and AI computing place increasingly stringent demands on the performance of power semiconductor devices, the industry is accelerating its transition towards high integration, high performance, low power consumption, and miniaturisation. In line with this trend, integrated technologies such as system-level packaging and smart power modules are being widely adopted, while innovative devices such as super-junction MOSFETs and trench-gate IGBTs are accelerating iteration. The former significantly improves switching frequency through optimised structural design, while the latter achieves performance breakthroughs through carrier control technology. In addition, the miniaturization characteristics of power semiconductor devices are also reflected in the form of more compact structure and smaller volume, which further improves the integration and power density, and meets the increasingly stringent space and weight requirements.

- **Accelerated domestic substitution process.** Driven by policy support and technological breakthroughs, the domestic power semiconductor device industry has achieved rapid development. Key wafer production lines have completed intelligent upgrades and renovations, significantly improving manufacturing technology levels and driving continuous optimisation of product yield rates. As the cost advantages brought about by continuous improvements in yield rates become increasingly evident, the competitiveness of domestic manufacturers' products has significantly strengthened, driving the domestic production rate from 31.4% in 2021 to 42.0% in 2025. In key sectors such as consumer goods and industry, domestically produced products have achieved large-scale application, driving the continuous enhancement of the industry chain's self-reliance and control capabilities.

- **Silicon-based power semiconductor devices remain dominant, complementing third-generation power semiconductor devices.** In China's power semiconductor device industry landscape, silicon-based power semiconductor devices continue to dominate. In 2025, silicon-based power semiconductor devices accounted for approximately 86.2% of the Chinese power semiconductor device market. Meanwhile, continuous innovation in third-generation power semiconductor device materials has penetrated relevant downstream sectors. Silicon carbide and gallium nitride offer unique advantages in high frequency, high power density, and high efficiency conversion applications, effectively complementing silicon-based devices in traditional applications with low power applications and stringent stability requirements. Through their synergistic development, silicon-based and third-generation semiconductor materials can jointly meet the growing, diverse demands of the market, providing more intelligent and efficient solutions for various industries.

OVERVIEW OF CHINA'S MEDIUM-AND-LOW-VOLTAGE POWER SEMICONDUCTOR DEVICE INDUSTRY

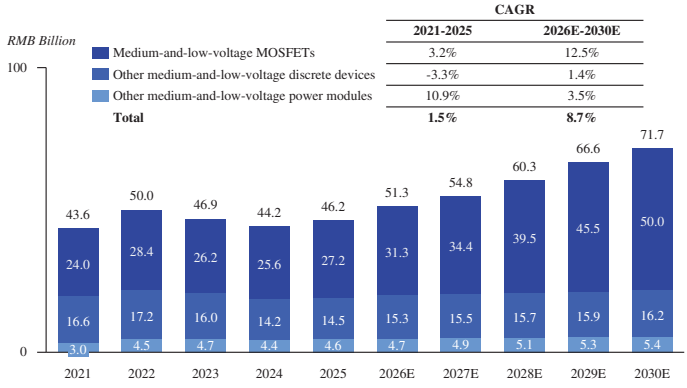
Definition and classification of medium-and-low-voltage power semiconductor devices

Medium-and-low-voltage power semiconductor devices refer to power semiconductor devices with a withstand voltage or breakdown voltage below 600V. These devices are primarily used for power conversion and management in low-voltage environments, featuring efficient switching and low conduction loss.

Market size of China's medium-and-low-voltage power semiconductor device industry

In China's medium-and-low-voltage power semiconductor device industry, medium-and-low-voltage MOSFET power semiconductor devices continue to occupy the largest market share. In 2025, sales revenue reached RMB27.2 billion, and in 2030, sales revenue is expected to reach RMB50.0 billion, with a CAGR of 12.5% from 2026 to 2030.

Market Size of China's Medium-and-Low-Voltage Power Semiconductor Device Industry, in Terms of Revenue, by Device Structure, 2021-2030E



	CAGR	
	2021-2025	2026E-2030E
Medium-and-low-voltage MOSFETs	3.2%	12.5%
Other medium-and-low-voltage discrete devices	-3.3%	1.4%
Other medium-and-low-voltage power modules	10.9%	3.5%
Total	**1.5%**	**8.7%**

Source: Omdia, Expert Interviews, CIC

Market Drivers for China's Medium-and-Low-Voltage Power Semiconductor Device Industry

- **Growing demand for power management drives market expansion.** With the intelligent upgrade of consumer electronics and the continuous optimization of fast-charging technology, demand for power management in the medium-and-low-voltage fields continues to grow. Meanwhile, the rise of emerging applications such as wearable devices and IoT has further expanded the industry boundaries, continuously driving market demand for power management in the medium-and-low-voltage sector.

- **Process and yield rates upgrade in domestic manufacturers.** In recent years, with the continuous optimization of manufacturing processes, Chinese companies have made significant progress in the design and production capabilities of medium-and-low-voltage power semiconductor devices, resulting in significantly enhanced product performance and stability. The improvement in yield rates has not only effectively reduced production costs but also enhanced the stability and responsiveness of the supply chain, thereby strengthening the market competitiveness of manufacturers. As a result, the penetration rate of domestic products in various application scenarios has continued to rise.

OVERVIEW OF THE WLCSP MOSFET INDUSTRY IN CHINA

Common packaging technologies for MOSFET include WLCSP, SOP, DFN, and other surface mount packaging technologies. Among these, WLCSP is a highly integrated miniaturized packaging technology that directly packages chips at the wafer level, achieving smaller package volumes and higher I/O densities. It is widely used in electronic devices with high requirements for volume, power consumption, and performance.

Compared to SOP and DFN, WLCSP offers higher integration, lower power consumption, and superior thermal performance, making it more suitable for ultra-compact, high-performance, high-frequency, and space-constrained applications such as smart wearable devices, AR/VR, and high-frequency communication equipment. WLCSP MOSFETs can integrate more functions in a smaller space while offering lower power consumption and thermal resistance, making them suitable for high-end consumer electronics and applications requiring high-density connections.

Market size of China's WLCSP MOSFET industry

Driven by the rapid development and adoption of high-end consumer electronics, smart wearable devices, and smart cockpits, the market size of China's WLCSP MOSFET industry has been growing at a high rate. In terms of revenue, the market size of China's WLCSP MOSFET industry grew from 2.1 billion in 2021 to 3.1 billion in 2025, with a CAGR of 9.4% during the period. Looking ahead, driven by the ongoing penetration of fully intelligent cockpits and smart wearable devices, the market size of China's WLCSP MOSFET industry is expected to grow to 5.5 billion by 2030, with a CAGR of 14.3% from 2026 to 2030. WLCSP MOSFETs, due to their advantages in miniaturization and integration, are widely applied in high-end consumer electronics, automotive electronics, and drones. By revenue, WLCSP MOSFETs currently account for approximately 11.3% of China's medium-and-low-voltage MOSFET discrete device market in 2025 and are expected to accelerate penetration in the future as demand from smart wearable devices and automotive electronics increases.

Driving Factors and Development Trends in China's WLCSP MOSFET Industry

- **Technological advances driving further improvements in WLCSP MOSFET performance.** The enhancements in WLCSP MOSFET performance achieved through WLCSP packaging technology are primarily manifested in four key areas. First, enabling miniaturization, high density, and multifunctionality in packaging; second, reducing power consumption, enhancing bandwidth, and minimizing signal transmission delay; Third, enabling heterogeneous system integration; fourth, reducing the design complexity and manufacturing costs of advanced-node chips, shortening development cycles, and improving product yield rate. WLCSP packaging technology, with its superior performance and cost advantages, has become an important trend in the chip packaging field. In the future, driven by emerging technologies such as 5G, the Internet of Things, and artificial intelligence, WLCSP packaging will evolve toward smaller nanoscale dimensions, enabling higher-density chip packaging and further enhancing the performance and reliability of WLCSP MOSFET.

- **Volume expansion in downstream application scenarios of WLCSP MOSFETs.** While WLCSP MOSFETs are accelerating their penetration into the consumer electronics sector, their application scenarios in high-end markets continue to expand. In the consumer electronics sector, WLCSP MOSFETs with higher integration can meet the demand for slim designs in smart wearable devices. Additionally, the highly integrated nature of WLCSP MOSFETs enables circuits to accommodate more transistors in a smaller space,

enhancing performance and meeting the demand for diverse functions in smart wearable devices. In the automotive electronics and industrial sectors, with the advancement of cabin intelligence, 5G, IoT, and other technologies, WLCSP MOSFETs are continuously expanding their application scope and achieving large-scale adoption.

COMPETITIVE OVERVIEW OF CHINA'S POWER SEMICONDUCTOR DEVICE INDUSTRY

Competitive Landscape of China's Power Semiconductor Device Industry

In 2025, the concentration of China's power semiconductor device industry was relatively high, with the top ten market players accounting for approximately 56.0% of the market share in terms of sales. As leading manufacturers enter the market early, they possess the first-mover advantage, leveraging the longterm technological accumulation spanning from epitaxy, precise wafer fabrication, advanced packaging, proprietary device architectures, to the extensive data moat of high manufacturing yields and field reliability, they have developed a diversified product portfolio encompassing a wide range of power semiconductor products. In recent years, with the expansion of application scenarios in the downstream market, leading manufacturers have actively responded to market demand by providing diverse, higher-standard compatible and energy-efficient solutions.

The mixed model strikes an optimal strategic balance by offering the agile capital efficiency and low depreciation risks of a Fabless approach, while securing the proprietary process control and supply chain resilience inherent to an IDM. It also presents unique operational challenges for mixed model. Companies face complex supply chain management, requiring seamless coordination between in-house facilities and external foundries. Additionally, they remain partially exposed to global foundry capacity constraints during industry cycles and must meticulously manage technology transfers and intellectual property protection. The comparative advantages and challenges analysis of the 3 models is listed below:

Comparative Analysis of Three Semiconductor Business Models

Model	IDM	Fabless	Mixed
Key Concept	Full stack capability	Designing only	Mixed strategy
Wafer Fabrication	●	○	◔
Packaging & Testing	●	○	◔
Manufacturing Process Control & Efficiency	●	◔	◕
Flexibility in Adapting to Evolving Demand	◔	●	◕
Asset & Capital Expenditure	●	◔	◕

Source: CIC

Note: The larger shadow area indicates stronger performance or higher investment.

In 2025, China's power semiconductor device industry has a market size of RMB109.0 billion, in terms of revenue. The non-IDM market remains fragmented. With the development of downstream industries such as domestic consumer electronics, new energy, photovoltaics and the gradual implementation of domestic replacement policies, the localization rate is expected to increase further.

In 2025, our Company ranked sixth among the top ten domestic non-IDM suppliers of power semiconductor devices in China, in terms of revenue, with a market share of 0.7%.

Ranking of suppliers of Chinese power semiconductor devices market, by Revenue of Power Semiconductor Devices, 2025

Rank	Company	Headquarter	Operating Model	Revenue (RMB Billion)	Market Share (%)
1 . .	Company A	Germany	IDM	12.4	11.4%
2 . .	Company B	US	IDM	7.4	6.8%
3 . .	Company C	Netherlands	IDM	6.5	6.0%
4 . .	Company D	Chinese Mainland	IDM	6.4	5.9%
5 . .	Company E	Chinese Mainland	IDM	6.0	5.5%
6 . .	Company F	Switzerland	IDM	5.1	4.7%
7 . .	Company G	Chinese Mainland	IDM	4.8	4.4%
8 . .	Company H	Chinese Mainland	IDM	4.7	4.3%
9 . .	Company I	US	IDM	4.0	3.7%
10 .	Company J	Chinese Mainland	IDM	3.7	3.4%
.....					
18 .	The Company	Chinese Mainland	Mixed	0.8	0.7%
	Top 10 in Total			**61.0**	**56.0%**
	Total of Market			**109.0**	**100.0%**

Sources: Annual Reports, Expert Interviews, CIC

Notes:

(1) Company A, established in Germany in 1999 and listed on the Frankfurt Stock Exchange in 2000, is a leading global semiconductor company covering four main business areas. Its products are highly prominent in automotive electronics, power systems, microcontrollers and other related fields.

(2) Company B, established in 1999, headquartered in USA, and is listed on Nasdaq. It primarily provides intelligent power and sensing solutions.

(3) Company C, established in 2017, headquartered in Netherlands, and is listed on the Shanghai Stock Exchange (SSE). It primarily provides essential semiconductor components including MOSFETs, discrete components, and logic devices.

(4) Company D, established in 1997, headquartered in China, and is listed on SSE. It primarily provides integrated circuits and discrete semiconductor products.

(5) Company E, established in 1995, headquartered in China, and is listed on HKEX and Shenzhen Stock Exchange (SZSE). It primarily provides new energy vehicles, power batteries, and power semiconductors.

(6) Company F, established in 1987, headquartered in Switzerland, and is listed on NYSE, Euronext Paris, and Borsa Italiana. It primarily provides microcontrollers, power discretes, and analog ICs.

(7) Company G, established in 2003, headquartered in China, and is listed on SSE. It primarily provides power semiconductors and intelligent sensors.

(8) Company H, established in 2006, headquartered in China, and is listed on SZSE. It primarily provides discrete semiconductor chips and power modules.

(9) Company I, established in 2000, headquartered in USA, and is listed on Nasdaq. It primarily provides power semiconductor solutions including MOSFETs and IGBTs.

(10) Company J, established in 2005, headquartered in China, and is listed on SSE. It primarily provides power semiconductor chips and IGBT modules.

Ranking of China's top ten suppliers of medium-and-low-voltage MOSFET discrete devices

The medium-and-low-voltage power semiconductor market comprises MOSFETs, BJTs, and other devices. These devices differ fundamentally in underlying semiconductor structures, manufacturing processes, and performance parameters. Consequently, MOSFETs serve specific end-market applications and are not interchangeable with other discrete devices. Given these significant technological and commercial distinctions, industry participants typically specialize in specific device categories. In 2025, the medium-and-low-voltage MOSFET discrete devices in China has a market size of RMB 27.2 billion, in terms of revenue. In 2025, our Company ranks tenth among the top ten suppliers of medium-and-low-voltage MOSFET discrete devices in China, and fifth among Chinese Mainland manufacturers in terms of revenue, with a market share of 2.8%.

Ranking of China's top ten suppliers of medium-and-low-voltage MOSFET discrete devices, by Revenue of Medium-and-Low-Voltage MOSFET Discrete Devices, 2025

Rank	Company	Headquarter	Operating Model	Revenue (RMB Billion)	Market Share (%)
1 . .	Company G	Chinese Mainland	IDM	3.1	11.4%
2 . .	Company A	Germany	IDM	3.0	11.0%
3 . .	Company D	Chinese Mainland	IDM	2.3	8.5%
4 . .	Company B	US	IDM	2.1	7.7%
5 . .	Company I	US	IDM	1.6	5.9%
6 . .	Company K	Chinese Mainland	Mixed	1.3	5.0%
7 . .	Company C	Netherlands	IDM	1.3	4.8%
8 . .	Company L	Taiwan, China	IDM	1.1	3.9%
9 . .	Company M	Chinese Mainland	IDM	0.9	3.2%
10 .	The Company	Chinese Mainland	Mixed	0.8	2.8%
	Top 10 in Total			**17.4**	**64.1%**
	Total of Market			**27.2**	**100.0%**

Sources: Annual Reports, Expert Interviews, CIC

Notes:

(1) Company K, established in 2013, headquartered in China, and is listed on SSE. It focuses on the research and development, design and sales of semiconductor power devices.

(2) Company L, established in 2008, headquartered in Taiwan, China, and is listed on Taiwan Stock Exchange (TWSE). It primarily provides semiconductor products, including microcontrollers (MCUs), audio ICs, cloud computing ICs, and foundry services.

(3) Company M, established in 1995, headquartered in China, and is listed on the SZSE. It is a company that focuses on the R&D, design, production and sales of power semiconductor chips and devices.

Ranking of China's top five WLCSP MOSFET suppliers

In 2025, the China's WLCSP MOSFET industry has a market size of RMB3.1 billion, in terms of revenue. In 2025, our Company ranked second among the top five WLCSP MOSFET suppliers in China and first among Chinese Mainland manufacturers in terms of revenue, with a market share of 10.5%.

Ranking of China's top five WLCSP MOSFET suppliers, by Revenue, 2025

Rank	Company	Headquarter	Operating Model	Revenue (RMB Billion)	Market Share (%)
1 . .	Company L	Taiwan, China	IDM	1.00	32.7%
2 . .	The Company	Chinese Mainland	Mixed	0.32	10.5%
3 . .	Company I	US	IDM	0.28	9.1%
4 . .	Company N	Chinese Mainland	Mixed	0.25	8.2%
5 . .	Company O	Chinese Mainland	Mixed	0.15	4.9%
	Top 5 in Total			2.00	65.4%
	Total of Market			3.06	100.0%

Sources: Expert Interviews, CIC

Notes:

(1) Company N, established in 2018, headquartered in China, and is currently unlisted. It primarily provides semiconductor products, including discrete devices (such as diodes, transistors, and MOSFETs) and power management ICs.

(2) Company O, established in 2007, headquartered in China, and is listed on SSE. It primarily provides semiconductor products, including CMOS image sensors (CIS), display solutions, and analog solutions.

Entry Barriers and Key Success Factors of China's Power Semiconductor Device Industry

- **Advanced technical capabilities.** The power semiconductor device industry is a typical technology-intensive industry, requiring companies entering the market to possess an advanced technology stack layout and efficient iterative capabilities. At the same time, in order to respond to the diverse demands brought about by expansion of downstream applications, major players in the industry often combine the performance requirements of power semiconductor devices for customer end products with targeted research and development and iterative technical development to form differentiated production processes. For new entrants to the industry, the complex chip design process and the highly efficient and flexible technical iterative level depend on substantial and sustained R&D investment and long-term technology accumulation, thus forming harsh technical entry barriers.

- **Rich product portfolio and excellent product performance.** The power semiconductor device industry has a high technical threshold, and customers have stringent requirements for product coverage, performance stability and reliability. Leading companies usually have a complete product matrix covering multiple voltage levels, multiple product categories, multiple packaging forms and multiple application scenarios, and have achieved key performance advantages such as low conduction loss, high efficiency, strong withstand voltage and excellent thermal management through long-term technology accumulation. Entering the core customer supply chain requires a rigorous verification and certification process. The ability to offer both a diverse range of product selection and outstanding performance is a key success factor for companies seeking to break through industry barriers, build customer loyalty, and maintain market competitiveness.

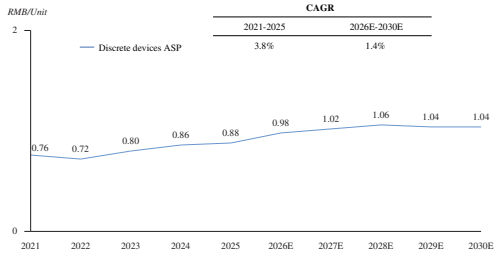
- **Solid customer base.** Due to the stringent requirements of downstream industries for the stability of power semiconductor devices, and customers are strict with the product verification process, the product entry cycle often lasts for months or even years. Industry entrants need to establish a customer-centric value orientation, starting from customer needs and pain points, continuously following up and understanding customers' cutting-edge product solutions, and transforming them into company value. Against the backdrop of increasingly complex downstream customer needs, understanding customers' core demands and securing top customer resources will become the economic moat of leading players in China's power semiconductor device industry.

- **Flexible, high-quality and stable supply chain assurance.** The production chain of power semiconductor devices is long and the process is complex, which places extremely high demands on wafer manufacturing, packaging and testing, and quality control capabilities. Industry-leading companies usually establish independent, controllable, and flexible capacity layouts, and through strict quality control systems and long-term stable upstream cooperation relationships, ensure high consistency, low defect rates, and traceability control in all links from wafers to packaging and testing. This high-quality and highly stable supply chain assurance can not only meet the strict requirements of core customers for safe delivery and continuous supply, but also maintain the delivery ability under large-scale production and sudden demand changes, thereby enhancing the bargaining power of companies and further consolidating market competitive advantage.

Price and Cost structure of Power Semiconductor Products in China

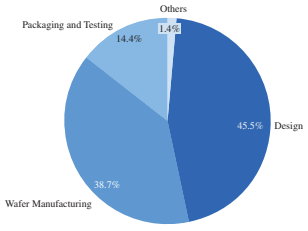
The average price of discrete devices declined from RMB0.8 in 2021 to RMB0.7 in 2022, primarily driven by cyclical inventory adjustments and macroeconomic fluctuations. Prices recovered to RMB0.9 by 2025, representing a CAGR of 3.8% from 2021 to 2025, and are projected to increase to RMB1.0 in 2026, rising upstream wafer fabrication and growing demand from emerging applications. Regarding the 2025 cost structure, design and wafer manufacturing are the primary components, accounting for 45.5% and 38.7%, respectively.

Prices of Power Semiconductor Products, 2021-2030E



Source: Expert Interviews, CIC

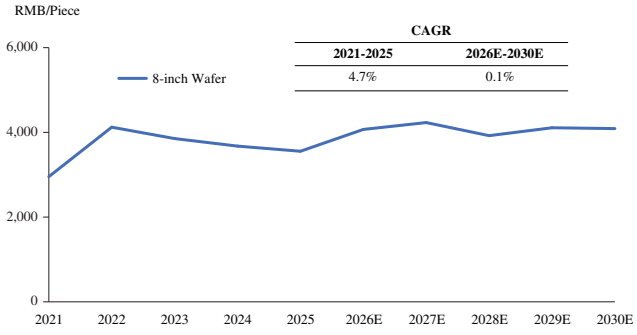
Cost structure of Power Semiconductor Products, 2025



Source: Expert Interviews, CIC

Wafer constitute the primary cost item for power semiconductor production. The prices of 8-inch wafer rose from 2020 pandemic-driven demand and upstream constraints, peaking in 2022. Since then, prices have trended lower as input costs normalized and capacity additions intensified competition. The price in next 5 years is expected to fluctuate following the semiconductor industry cycle.

Industry Average Price of 8-inch Wafer, 2021-2030E



Source: Semi, Expert Interviews, CIC

DATA SOURCES AND RELIABILITY

We have commissioned CIC to analyze and report on China's power semiconductor device market. CIC is a market research and consultancy firm established in Hong Kong and is engaged in the provision of professional consultancy services in a wide range of industries. We have agreed to pay CIC a fee of RMB0.48 million for the preparation of the CIC report. The information referenced in this section, as well as in the "Summary", "Risk Factors", "Business", "Financial Information" and other sections of this document, is intended to provide potential [**REDACTED**] with a fuller picture of the industry in which we operate. Unless otherwise stated, all the information and forecasts contained in this section are derived from the CIC report.

The data collected by CIC has been analyzed, evaluated and verified using CIC's internal analytical models and techniques. During the preparation of the CIC Report, CIC conducted both primary and secondary research, and gathered knowledge, statistics, information and insights on industry trends within the target research markets. The primary research involved interviews with key industry experts and leading industry participants, while the secondary research consisted of analyzing data from various publicly available sources, such as the National Bureau of Statistics. These research findings were then assessed and validated through CIC's proprietary analytical models and methodologies.

The market forecasts in the CIC Report are based on the following key assumptions: (1) During the forecast period, it is expected that China's overall social, economic and political environment is expected to remain stable; (2) During the forecast period, key industry drivers are likely to continue to drive growth in China's power semiconductor device market, such as increasing downstream demand, technological advancements, policy support, etc. and (3) During the forecast period, there will be no extreme force majeure or unforeseen industry regulations that could have a sharp or fundamental impact on the market.