



FY2026 Medium-Term Management Plan

Semiconductor Business Group

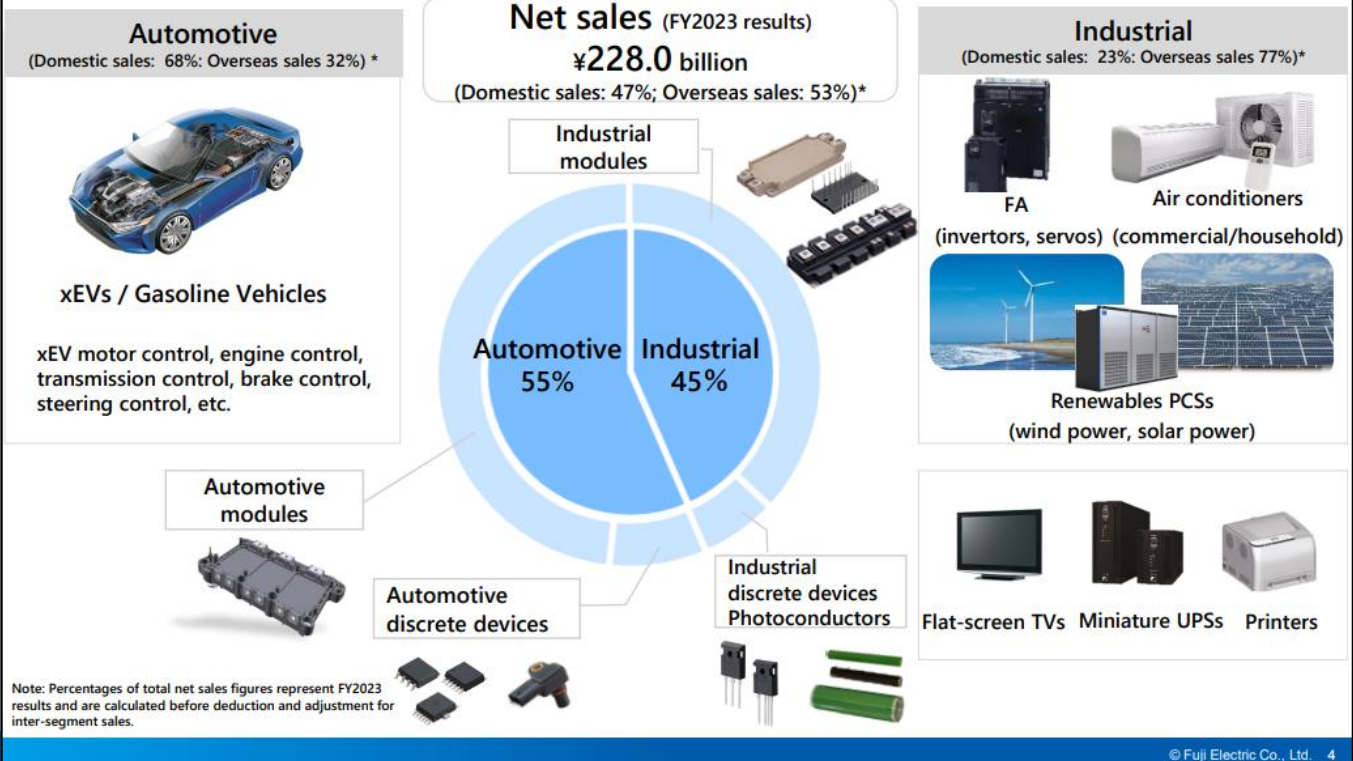
May 23rd, 2024

Hello, my name is Hosen. I'm from the Semiconductor Business Group.

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I . Business Overview

Contributions to vehicle electrification, more compact power electronics, energy savings, and CO₂ emissions reductions



First up is the business overview. The Semiconductor Business Group has traditionally been divided into two segments: automotive and industrial.

Last fiscal year, sales amounted to ¥228.0 billion, with 45% in the industrial electronics field and 55% in the automotive electronics field.

In FY2022, the industrial electronics field accounted for 51% of sales, so the automotive electronics field surpassed it in FY2023.

The automotive electronics field is primarily domestic, while the industrial electronics field is mainly focused overseas.

Industrial	Motor Drive Systems (Factory Automation, Air Conditioning, etc.) 	IGBT Modules 	<ul style="list-style-type: none">■ Low loss achieved using 7th-generation IGBTs■ Compact yet high output equipment made possible using RC-IGBTs*1→ <u>No. 3 global share for IGBT modules</u>
	Renewable Energy 	IGBT and SiC Modules 	
Automotive	Electrified Vehicles (Full-hybrid vehicles, EVs) 	IGBT and SiC Modules 	<ul style="list-style-type: none">■ Low loss and ease of use through SiC-MOSFETs

* Reverse Conducting-IGBT: Chips integrating both IGBT and FWD chips

This slide shows our strengths in the power semiconductor business. Currently, strengths in both the industrial and automotive electronics segments are centered around IGBT.

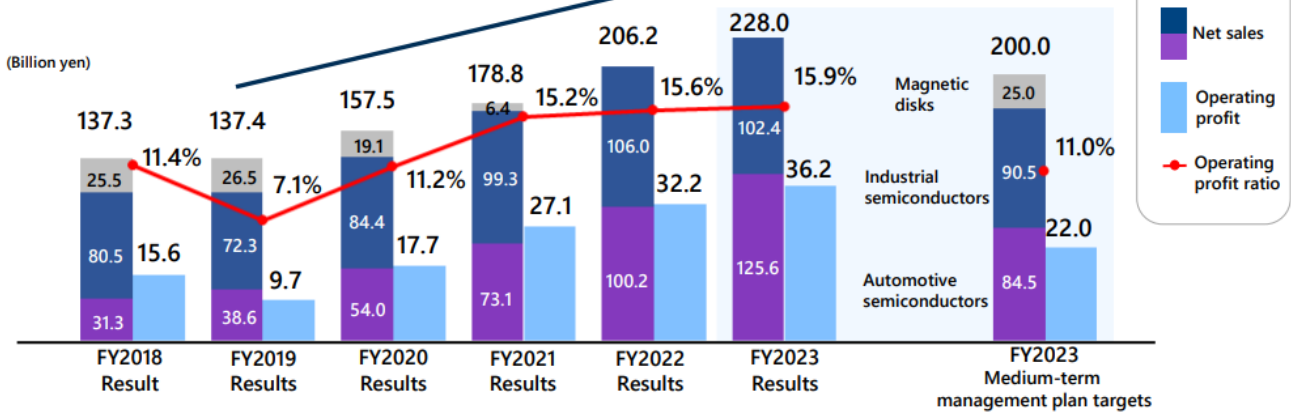
In IGBTs, our strengths are low loss with 7th-generation IGBTs and compact, high output with RC-IGBTs, and we place third globally in IGBT module market share. Moving forward, we aim to expand sales by leveraging these strengths, i.e., the low loss and ease of use of our SiC-MOSFETs.

II. Review of FY2023 Medium-Term Management Plan

Review of FY2023 Medium-Term Management Plan

Net sales target of medium-term management plan achieved one year ahead of schedule, operating income target achieved two years ahead of schedule, and record-breaking performance posted in FY2023

Massive growth of power semiconductor business compensating for impacts of withdrawal from magnetic disk business



Successes

- Doubled sales of power semiconductors (in comparison to FY2018)
- Fourfold increase in automotive semiconductor sales (in comparison to FY2018)
- Fivefold increase in 8-inch Si device production capacity (in comparison to March 31, 2019, on March 31, 2024)

Challenges

- Further expansion of sales in growing electrified vehicle market
- Augmentation of 8-inch SiC and Si device production capacity
- Swift development of 8th-generation IGBTs and 3rd-generation SiC devices

Slide 7 reviews our previous medium-term management plan. Last fiscal year, Fuji Electric generated net sales of ¥228.0 billion. Despite withdrawing from the magnetic disk business in FY2021, the Company absorbed this impact and exceeded its sales targets, achieving operating profit of ¥36.2 billion with a profit ratio of 15.9%, setting new records.

Our successes include doubling power semiconductor sales compared to FY2018. In the automotive electronics field, net sales have quadrupled, and we have expanded 8-inch wafer production capacity for silicon devices to approximately five times the 2018 level.

However, challenges remain. To further expand sales in the growing electrified vehicle market, Fuji Electric must continue to increase 8-inch wafer production capacity for both SiC and Si. Additionally, it is crucial to quickly develop and bring to market eighth-generation IGBTs and third-generation SiC devices, which are currently under development.

III. Overview of FY2026 Medium-Term Management Plan

Industrial: Market growth anticipated centered on renewable energy

Automotive: Growth of overall electrified vehicle market, despite recent slowdown in growth of EVs

Business Fields	Market Outlook (FY2024–FY2026)		
Industrial	Factory automation	Adjustment phase to continue until mid-FY2024, but market growth anticipated due to recovery in capital investment expected to begin in second half of fiscal year	
	New energy	Ongoing trend toward decarbonization anticipated to sustain favorable conditions	
	Consumers, etc.	Slow market growth for private-sector and air-conditioning equipment in FY2024, but market recovery anticipated in leading up to 2026	
Automotive	xEVs	Recent slowdown in growth of BEVs, but growth in overall electrified vehicle market anticipated	
	Gasoline vehicles	Ongoing decline in demand related to gasoline vehicles due to continuation of trend toward electrified vehicles	

Next is our market outlook in the FY2026 Medium-Term Management Plan. In the industrial field, we anticipate that the adjustment phase for factory automation-related demand will continue until mid-FY2024. However, we expect a recovery in capital investment in the second half of the fiscal year, leading to market growth through FY2026.

We expect the favorable conditions to continue for renewable energy.

In the consumer electronics field, we do not anticipate significant growth in consumer electronics and air conditioning equipment in FY2024, but we expect a market recovery leading up to 2026.

In the automotive electronics field, while growth in battery electric vehicles (BEVs) has recently slowed, we anticipate significant growth in the overall electrified vehicle market. Conversely, we think demand for gasoline engine vehicles will decline as the transition to electric vehicles progresses.

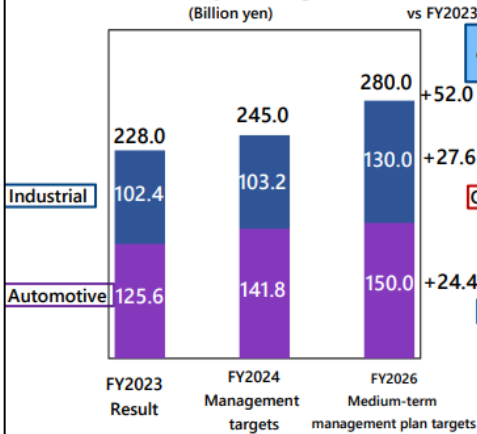
Business Policies

Expansion of sales due to strong progress soliciting specifications for use in growing fields (electrified vehicles, renewable energy)

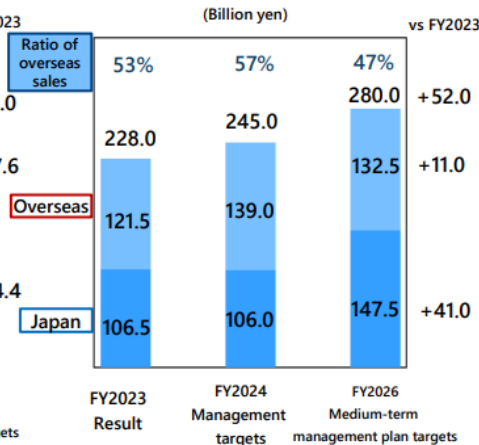
Construction of production system capable of accommodating growing SiC device demand

Business Targets

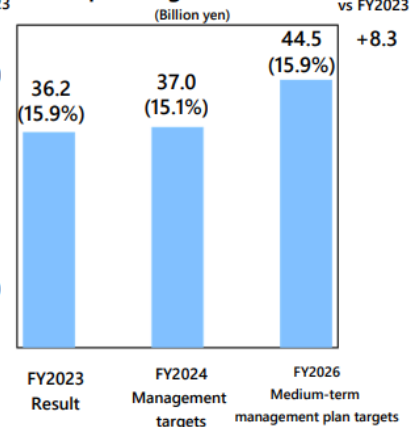
Net Sales by Subsegment



Net Sales in Japan / Overseas



Operating Profit / Operating Profit Ratio



Our business policy aims to expand sales by ensuring our specifications are used in the growing fields of electric vehicles and renewable energy. Additionally, we will establish a robust production system to meet increasing demand for SiC devices.

We forecast net sales of ¥280.0 billion in FY2026, an increase of ¥52.0 billion compared to FY2023. While sales are likely to increase both domestically and internationally, we anticipate stronger growth in domestic sales and estimate the overseas sales ratio will be 47% in FY2026.

Fuji Electric targets operating profit of ¥44.5 billion, an increase of ¥8.3 billion compared to FY2023, and an operating profit ratio of 15.9%.

- Automotive business
 - Expansion of sales centered on SiC devices in growing electrified vehicle market
- Industrial business
 - Expansion of sales of 7th-generation IGBTs driven by favorable renewable energy market trends
- Enhancement of manufacturing
 - Front-end: Ongoing bolstering of 8-inch Si and SiC wafer production capacity
 - Back-end: Construction of mass production line for automotive SiC modules
Augmentation of industrial IGBT module production capacity and expansion of range of products manufactured
- Development of competitive new products
 - Development and mass-production of IGBTs and SiC modules for automotive and industrial (large-capacity) applications
 - Development of 3rd-generation SiC-MOSFETs
 - Development of 8th-generation IGBTs

Our priority measures are as follows:

For the automotive electronics field, we aim to expand sales centered on SiC devices in the growing electrified vehicle market.

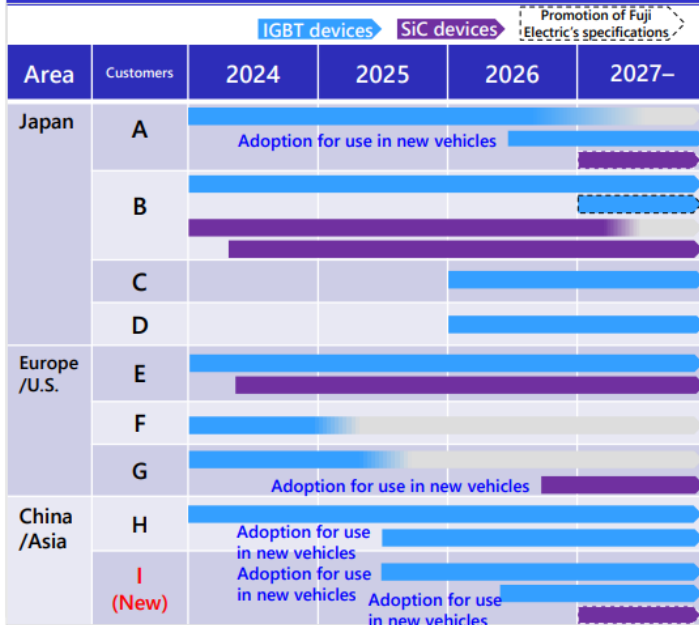
In the industrial electronics field, we will focus on increasing sales of seventh-generation IGBTs, driven by favorable trends in the renewable energy market.

To reinforce manufacturing, in front-end processes, we intend to strengthen production capacity for 8-inch Si and SiC wafers. For back-end processes, we plan to construct mass production lines for SiC modules for electric vehicles, and increase production capacity for IGBT modules for industrial applications, while expanding the range of products manufactured.

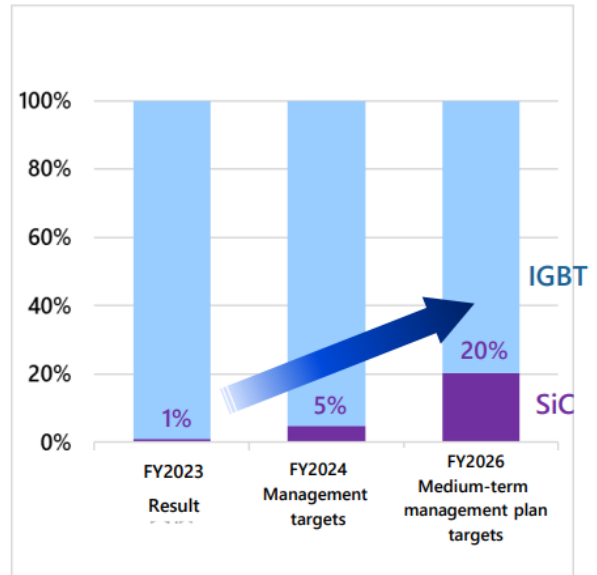
In developing competitive new products, as priority measures, we will focus on the development of IGBT and SiC modules for electric vehicles and industrial applications, as well as the development of third-generation SiC-MOSFETs and eighth-generation IGBTs.

- Advancement of campaigns to encourage use of Fuji Electric’s specifications aimed at target customers
- Rapid growth in portion of sales represented by SiC devices beginning in 2026 due to increased sales of vehicles using Fuji Electric SiC devices and adoption for use in new vehicles

Adoption of New IGBT and SiC Products for xEVs



Breakdown of Sales of Automotive Modules



This slide outlines the status of specification solicitation in the automotive electronics field.

On the left, the slide shows the status of specification adoption, by customer, for electric vehicles. Blue indicates silicon IGBTs, and purple indicates SiC devices. Newly confirmed adoptions refers to specifications that will be adopted from FY2023 onward.

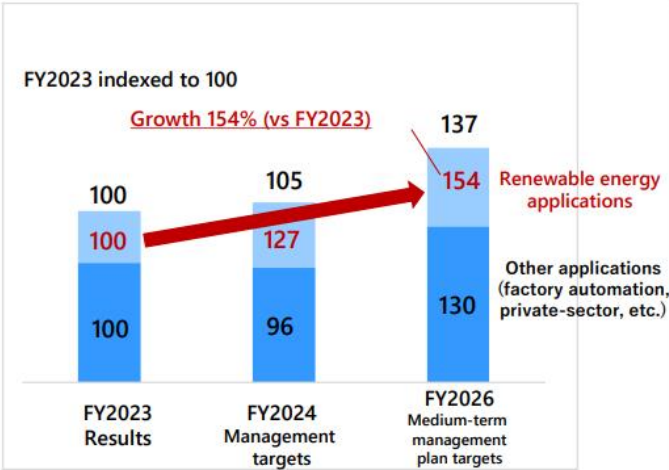
A new customer, Company I, has been added as a new adopter. We will continue to promote new adoptions and specifications in FY2026 and beyond.

SiC is taking off this year. New SiC adoptions by customers in Europe and the U.S. are to begin in the latter half of FY2026, with plans that call for about 20% of automotive modules to be switched to SiC in FY2026.

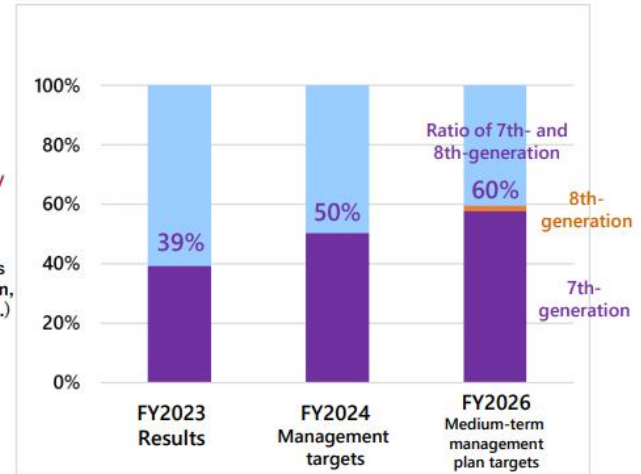
- Increased sales of industrial semiconductors for renewable energy applications following growth in share among major industry customers
- Rise in portion of sales presented by 7th- and 8th-generation IGBTs (60% in FY2026)

Note: Sales of 8th-generation IGBTs scheduled to commence in late FY2025

Sales by Application



Ratio of Sales from Industrial IGBTs



This slide outlines our sales targets for industrial semiconductors.

In industrial electronics, we are strengthening the promotion of specifications in the growing renewable energy field. We project that sales in FY2026 will be 154% of the FY2023 level.

We aim to increase the sales ratio of seventh-generation and eighth-generation products to 60% by FY2026. Sales of eighth-generation products are scheduled to start at the end of FY2025, and we plan for them to contribute to sales from FY2026, as shown in the graph.

Bases



Japan (Matsumoto)

- Mother factory
- Mass production of 8th-generation IGBTs scheduled to begin in FY2025
- Augmentation of SiC device production capacity to start in FY2025



Japan(Yamanashi)

- Principal 8-inch Si wafer factory
- Production of automotive IGBTs and 7th-generation IGBTs



Japan (Tsugaru)

- Mass production of SiC devices scheduled to begin in FY2024
- Augmentation of SiC device production capacity scheduled for FY2025



Malaysia

- Augmentation of 8-inch Si wafer production capacity scheduled for FY2024 (Mass production commenced in FY2023)

Measures

- Augmentation of 8-inch Si wafer production capacity (Malaysia) and accommodation of new products
- Commencement of mass production of 6-inch SiC wafers (Tsugaru) and expansion of production capacity (Matsumoto, Tsugaru) in FY2024

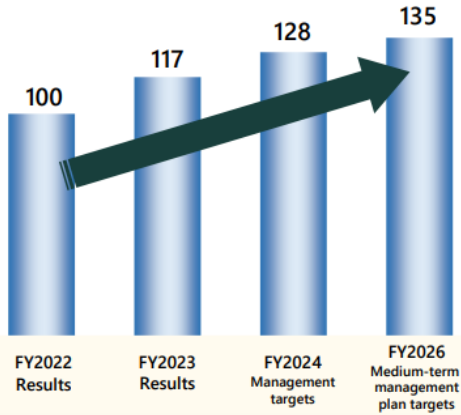
To reinforce manufacturing in the front-end process, we are focusing on increasing the production capacity of 8-inch Si wafers, primarily in Malaysia. Malaysia began producing IGBTs on 8-inch wafers last fiscal year, and we plan to increase capacity again this fiscal year.

For SiC devices, mass production will begin in Tsugaru this fiscal year. Along with increasing capacity in Tsugaru, we will also expand production capacity at the Matsumoto factory from FY2025.

- Augmentation of 8-inch Si wafer production capacity scheduled for FY2026 (35% increase from FY2022)
- Mass production of SiC devices scheduled to begin in FY2024 and massive increase in production capacity slated for FY2026

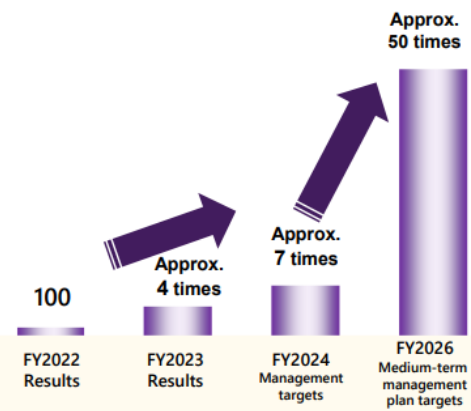
Front-End 8-Inch Si Wafer Production Capacity

Note: Figures are as of March 31 of respective year. FY2022 is indexed to 100.



Front-End 6-Inch SiC Wafer Production Capacity

Note: Figures are as of March 31 of respective year. FY2022 is indexed to 100.



We plan to increase the production capacity of 8-inch Si wafers by 35% compared to FY2022 by FY2026. For SiC wafers, we will expand capacity at Matsumoto and Tsugaru, aiming to increase production capacity 50 times compared to FY2022 by FY2026.

Bases



Japan (3 bases)

- Mother base for assembly products
- Manufacturing of products for domestic customers
 - : Augment of automotive module production capacity
 - : Start of production of 8th-generation IGBTs (FY2025)



Philippines

- Principal base for production of discrete devices and air-conditioner modules
- Start of production of 7th-generation IGBTs (FY2025)



China (Shenzhen)

- Production base for IGBT modules for Chinese market
 - : Augment of 7th-generation IGBT production capacity



Malaysia

- Production base for industrial IGBT modules for U.S. market
 - : Augment of 7th-generation IGBT production capacity

Measures

- Promotion of **local production and consumption** and start of industrial IGBT module production in the Philippines (FY2025)
- Augmentation of electrified vehicle module production and **start of production of new products** (Approx. 35% increase from March 31, 2024, to March 31, 2027)
- Bolstering of 7th-generation industrial IGBT module production capacity and **expansion of range of products manufactured** (Approx. 30% increase from March 31, 2024, to March 31, 2027)

In the back-end process, in the Philippines, where we had been focusing on discrete devices, we will begin producing seventh-generation IGBT modules from FY2025. We will also expand production capacity for seventh-generation IGBTs in Shenzhen, China, and Malaysia, while working to increase the production capacity for modules used in electric vehicles in Japan.

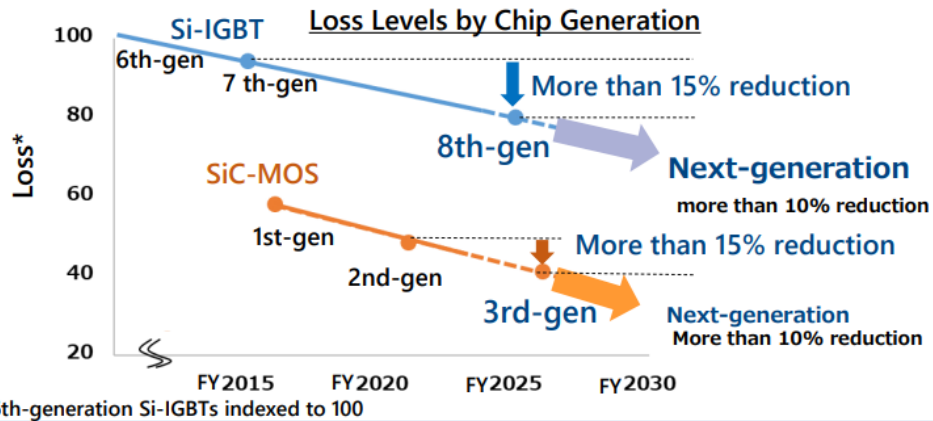
Development of new 3rd-generation SiC-MOSFETs and 8th-generation Si-IGBT chip products and next-generation technologies

SiC-MOSFET

- 3rd-generation SiC-MOSFETs (mass production scheduled to commence in FY2026)
 - Reduction of more than 15% in loss in comparison to 2nd generation
 - Series with voltage-resistance spanning from 750 V to 3,300 V
- Development of next-generation SiC MOSFET technologies
 - Reduction of more than 10% in loss in comparison to 3rd generation

Si-IGBT

- 8th-generation IGBTs (mass production scheduled to commence in FY2025)
 - Reduction of more than 15% in loss in comparison to 7th generation
- Development of next-generation IGBT technologies
 - Reduction of more than 10% in loss in comparison to 8th generation



This slide covers the development of SiC and IGBT chips.

For SiC, we are advancing the development of third-generation SiC, with mass production scheduled to start in FY2026. This generation will have at least 15% lower loss compared to the second generation. We intend to expand the voltage range from 750V to 3300V.

For Si-IGBTs, we plan to launch mass production of eighth-generation IGBTs in FY2025, offering at least 15% lower loss compared to the seventh generation. Additionally, we are advancing the development of next-generation technologies for both SiC and IGBTs.

Development of Competitive Modules

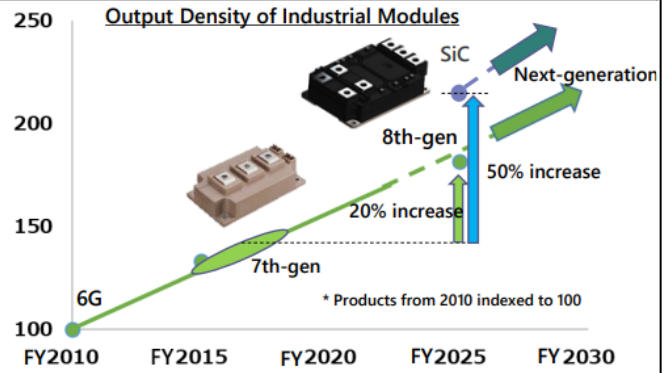
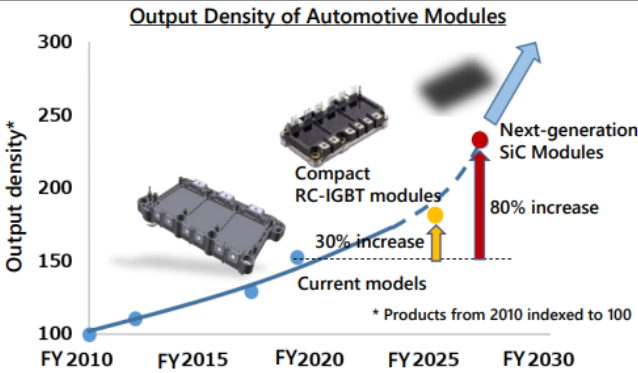
- Development of modules employing 8th-generation IGBT and 3rd-generation SiC technologies
- Improvement of output density through high-density mounting technologies and functionality under high temperatures

Automotive Modules

- Compact RC-IGBT modules (mass production scheduled to commence in FY2025)
 - Improved output density through use of RC-IGBT and high-density mounting technologies
- Next-generation SiC modules (mass production scheduled to commence in FY2026)
 - Improved output density through use of 3rd-generation SiC and 3D wiring

Industrial Modules

- 8th-generation industrial IGBT modules (mass production scheduled to commence in FY2025)
 - Increased output through use of 8th-generation IGBT technologies and functionality under high temperatures
- Large-capacity SiC modules (mass production scheduled to commence in FY2025)
 - Massive reduction in loss through use of 3rd-generation SiC technologies and low inductance packages
 - Contribution to increased inverter output through higher output density

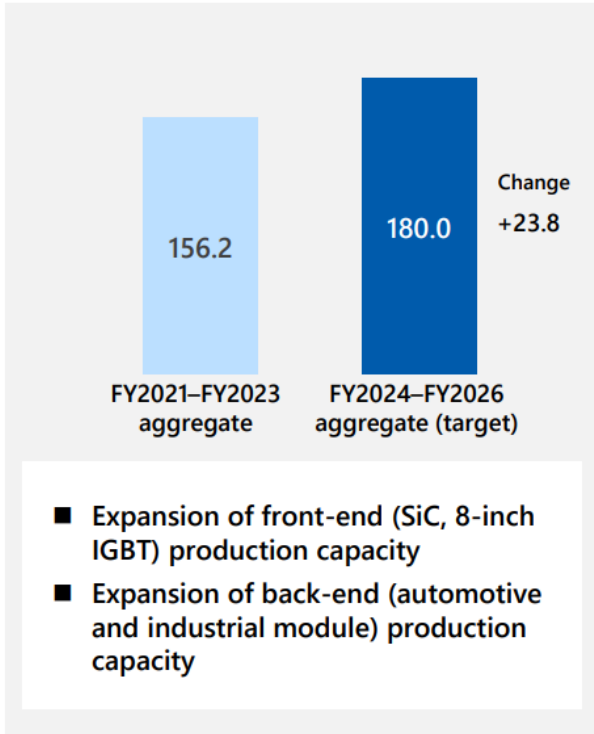


We are developing module products that apply third-generation SiC and eighth-generation IGBT chips. For automotive modules, we will start mass production of compact RC-IGBT modules in FY2025.

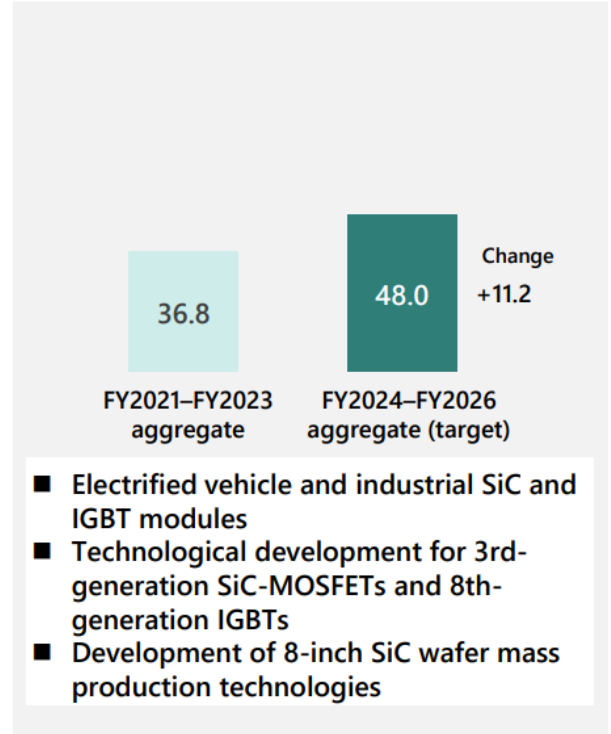
Furthermore, we will begin mass production of next-generation SiC modules in FY2026. Compared to existing IGBT modules, RC-IGBT modules will have 1.3 times the output density, and SiC modules will have 1.8 times the output density.

In the industrial module field, eighth-generation IGBT modules will have 1.2 times the output density compared to the existing seventh generation. We plan to start mass production of large-capacity SiC modules in FY2025, which will have 1.5 times the output density compared to seventh-generation IGBTs.

Capital Investment (Billion yen)



Research and Development (Billion yen)



This slide covers capital investment and research and development.

Fuji Electric's capital investment budget is ¥180.0 billion, an increase of ¥23.8 billion compared to the past three years. We will focus on increasing the production of 8-inch SiC and IGBT wafers and expanding production capacity in back-end processes for modules used in electric vehicles and industrial applications.

We estimate research and development expenses will be ¥48.0 billion, an increase of ¥12.2 billion. For electric vehicles and industrial applications, we will advance the technological development of SiC/IGBT modules, third-generation SiC-MOSFETs, and eighth-generation IGBTs, while moving forward mass production technology for 8-inch SiC wafers.

This concludes the presentation about the semiconductor business. Thank you.

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