

SEMICONDUCTOR & DEVICE BUSINESS 2024

Semiconductor & Device Business

MITSUBISHI ELECTRIC CORPORATION

May 29, 2024



Contents

1. Executive Summary	.....	P3
2. Business Overview	.....	P5
3. Growth Strategy of Key Growth Business - Power Device -	.....	P9
Growth Strategy	.....	P10
Further Solid Initiatives to Promote Growth Strategy	.....	P11
Strengths of SiC Power Modules	.....	P12
Expansion of SiC Power Modules into Various Markets	.....	P13
4. Financial Targets for FY2026	.....	P14
5. Continuous Growth by Leveraging Business Synergies	.....	P16

1

Executive Summary

- The FY2026 revenue and operating profit margin targets*1 for Power Device Business, the Key Growth Business, were achieved ahead of schedule in FY2024

Revised FY2026 targets upwards to over 260 billion yen in revenue and over 10% in OPM, aiming for further growth

		FY2024 Actual	FY2025 Plan	FY2026 Target
Semiconductor & Device	Revenue	¥289.8 billion	¥290.0 billion	¥0.3 trillion
	OPM	10.3%	11.0%	12%
Power Device	Revenue	¥247.6 billion	¥250.0 billion+	¥240.0 billion+ → ¥260.0 billion+
	OPM	10.3%	10%+	10%+

- Continue to strengthen profitability and build a business foundation for the next business growth, and accelerate growth by strengthening SiC power module capability, making the most of market expansion
- To promote growth strategy, we will strengthen vertical collaboration and alliances in the supply chain, along with enhancing production capacity, and steadily implement solid initiatives that cover material procurement, product development and sales promotion
- SiC power module installation in electric vehicles will drive significant demand growth and expand market opportunities into various applications

Mitsubishi Electric will contribute to the realization of GX*2 by providing highly competitive SiC power modules leveraging our strengths across a wide range of applications

*1: Announced in May 2023 *2 GX: Green Transformation

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Business Overview

Provide key devices to support carbon-neutral, safe, secure and comfortable society for a sustainable future

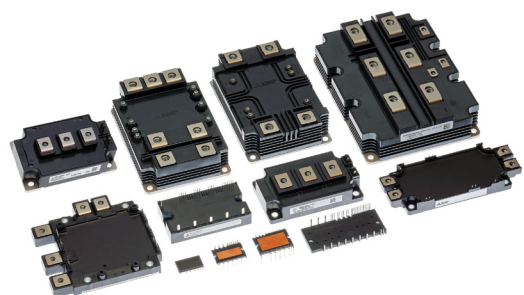
Power Device Business

Key Growth Business

Pursue technological evolution and contribute to the realization of GX

Revenue ratio 85%

Contribute to the realization of a decarbonized society and comfortable life by implementing energy-saving power electronics equipment such as electric vehicles, consumer products (air conditioners, etc.), industrial equipment, renewable energy and railways



Si Power Device

- IPM
- IGBT module
- Power MOSFET module
- HVIC, etc.

SiC Power Device

- SBD-embedded SiC-MOSFET module
- Full SiC power module
- Full SiC-IPM
- Hybrid SiC power module , etc.

High-Frequency and Optical Device Business

Resilient Business

Contribute to the advancement of DX through changes in functions and applications

Revenue ratio 12%

Contribute to the realization of a safe and secure world and a comfortable digital society with compound semiconductor devices, applied to various applications such as wireless communication, optical fiber communication and sensing applications



High-Frequency Device

Satellite Communications, 5G Base Stations, Millimeter Wave Radar, etc.



Optical Device

Optical Fiber Communication, Data Center, etc.



Infrared Sensor Device

Security, Monitoring, People Counting, Air Conditioning, Vehicle Interior Sensor, etc.

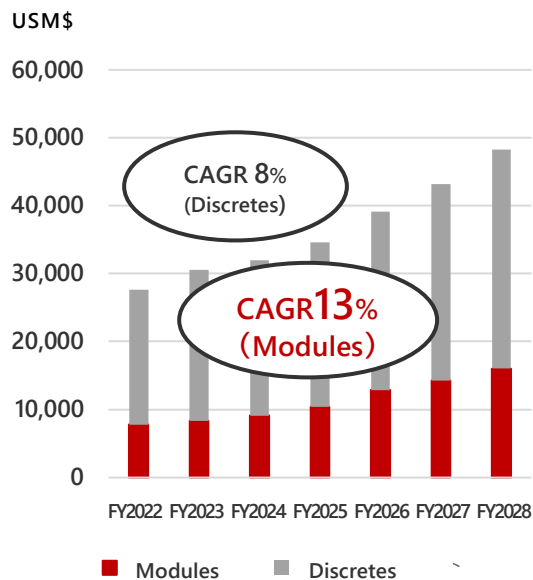
*Revenue ratio: FY2024 actual

Power semiconductor market is expanding significantly towards decarbonization, with the SiC power module market expected to grow rapidly

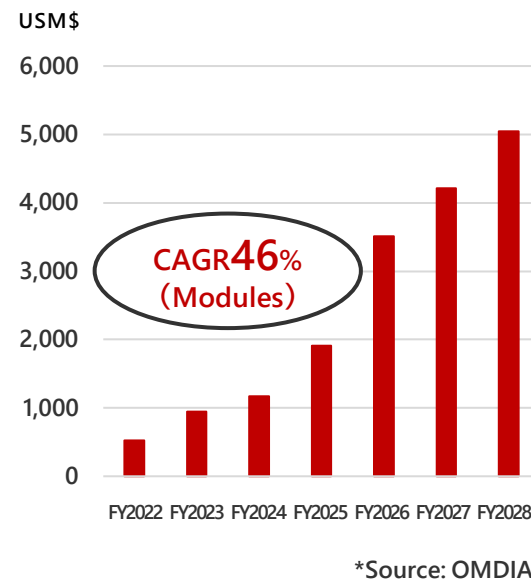
Market Trends

- Power semiconductor market is expanding significantly due to the introduction of renewable energy, the transition to green mobility, and the progress of energy conservation
- SiC power module market is expanding rapidly due to their installation in electric vehicles

Power semiconductor market trends (Si, SiC)



SiC Power module market trends

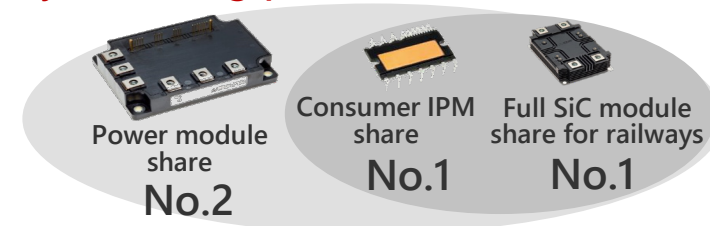


*Source: OMDIA

Our Position

No.2 market share in the global power module market

- ▶ Focusing on modules that require advanced technical know-how amongst power semiconductors, which enabled us to maintain a top-class position in the industry for a long period of time



* All shares are actual results for FY2023, according to Mitsubishi Electric estimate

Our Strength

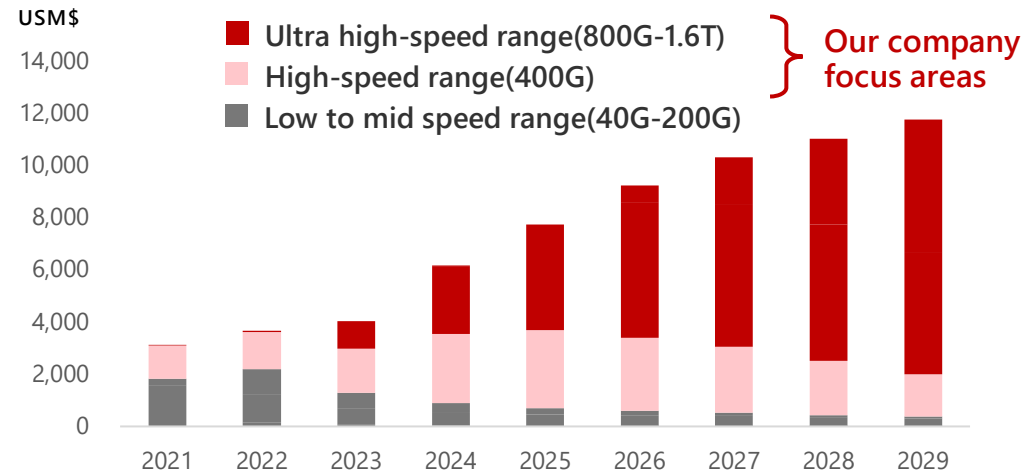
- Combine design and manufacturing technologies to achieve high performance and quality
- Extensive market achievements in power modules for both Si and SiC
- A strong customer base built on a long-standing top-class position in the industry
- ▶ Provide high-quality and competitive products, by leveraging our strong comprehensive technical foundation and customer base

Demand for high-speed optical devices, where Mitsubishi Electric is a market leader, is expected to expand reflecting trends toward ultra high-speed optical networks

Market Trends

- With the proliferation of cloud services and artificial intelligence (AI), the transmission speed of optical networks for data centers is advancing towards further high-speed
- Demand for optical devices capable of operating in ultra-high-speed range is expanding in the market for data centers

Optical network market trends for data centers



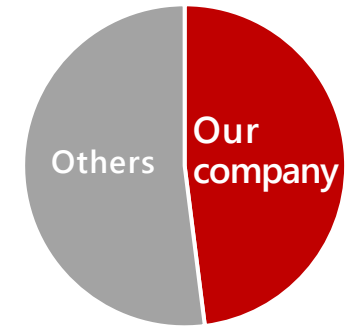
Sales of Ethernet transceivers for deployments in Cloud data centers

(Source: LightCounting High-Speed Ethernet Optics: Cloud, Enterprise And Telecom - published March 2024)

Our Position

Optical device global share for data centers: No.1*

▶ Satisfy the needs for high-speed transmission required by the hyperscale data centers of major U.S. IT companies



Our Strength

- Cutting edge product performance cultivated through long-standing achievements in the optical device market
- Close connections with leading companies in the industry
- Advanced manufacturing technology and know-how in compound semiconductors

▶ Provide innovative optical devices that lead technology trends in a timely manner

* Shares is actual results of EML to data centers for FY2023, according to Mitsubishi Electric estimate

3 Growth Strategy of Key Growth Business - Power Device -

Growth Strategy

Focus on enhancing business in the rapidly growing automotive, renewable energy and consumer applications where we are strong, while maintaining industrial and railway applications as solid business base

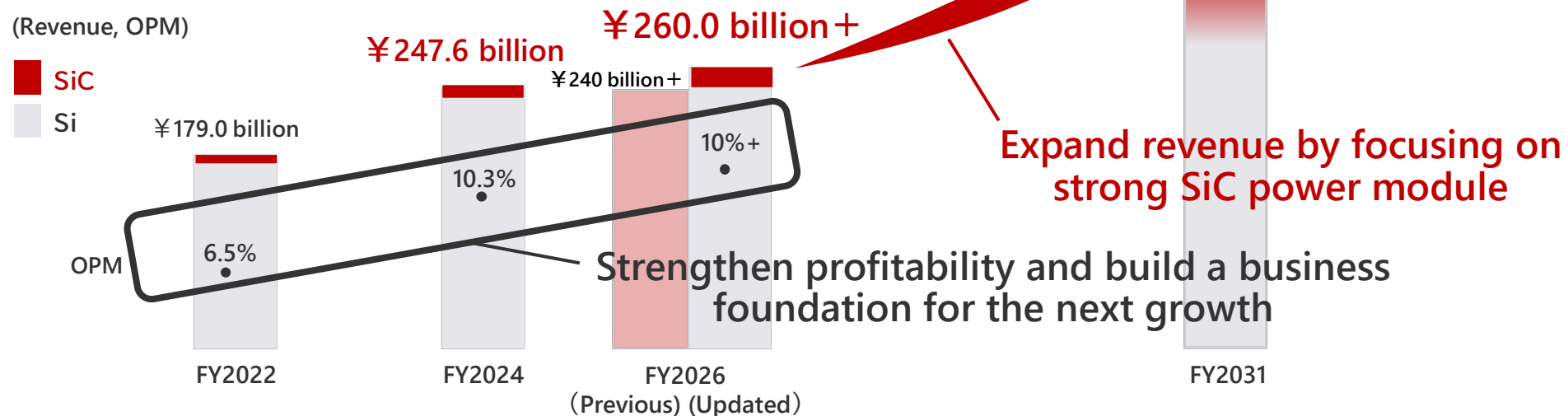
Strengthen the growth capability based on our long-term experience and expertise in SiC power modules, then accelerate business growth by making the most of market expansion

Basic Strategy

- Concentrate resources on applications where our strengths align market needs
- Expand revenue by further strengthening the automotive, renewable energy and consumer applications as growth

dri **FY2026 target* for the mid-term plan was achieved ahead of schedule in revenue**

⇒ Revised FY2026 target upwards to over 260 billion yen in revenue

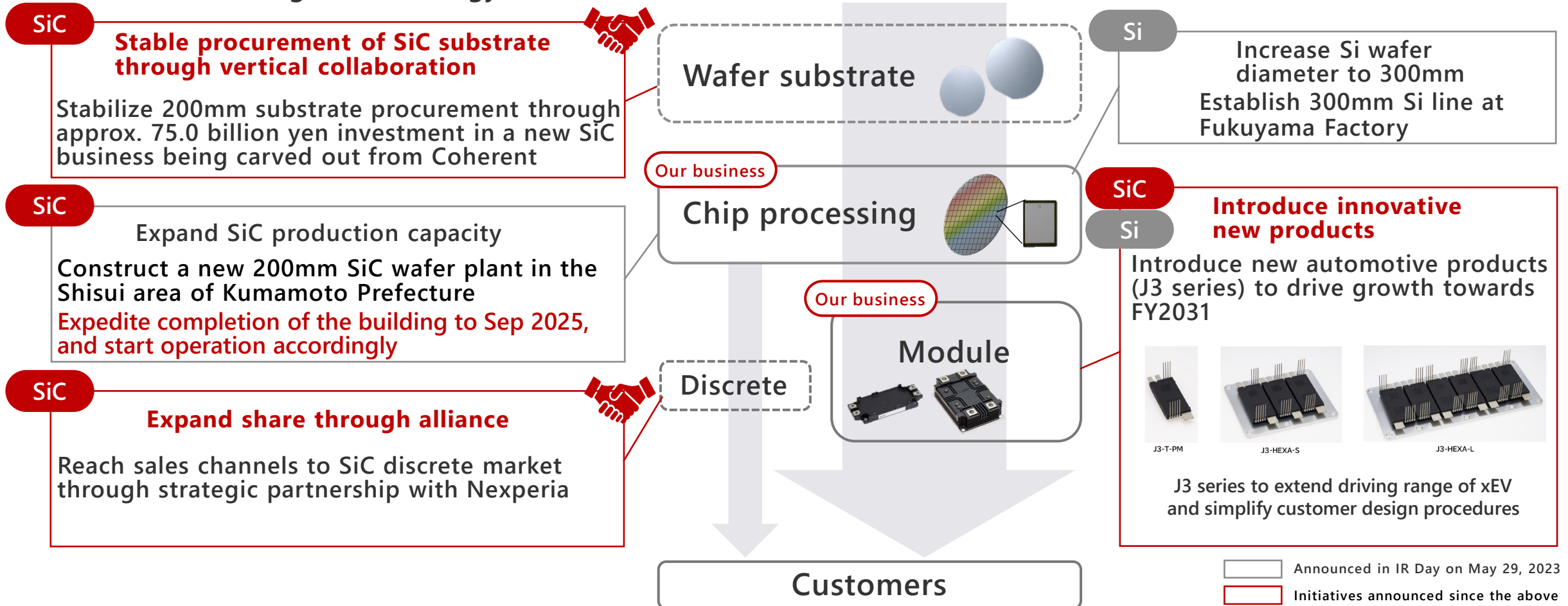


* Announced in May, 2023

Further Solid Initiatives to Promote Growth Strategy

Solid initiatives to strengthen procurement, product, and sales capabilities, in addition to investing approximately 260.0 billion yen to enhance production capacity announced in 2023

Strengthen vertical collaboration with Coherent in the US and alliance with Nexperia in Netherland to ensure execution of the growth strategy



Strengths of SiC Power Module

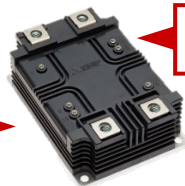
Combining diverse elemental technologies (compound semiconductor technology, chip technology, and module technology) and our extensive achievements in the market

Advanced epitaxial growth and wafer processing technology

- ◆ Compound semiconductor technology cultivated by High-Frequency and Optical Device Business

Ensured high reliability and productivity with highly precise screening technology

Improve productivity



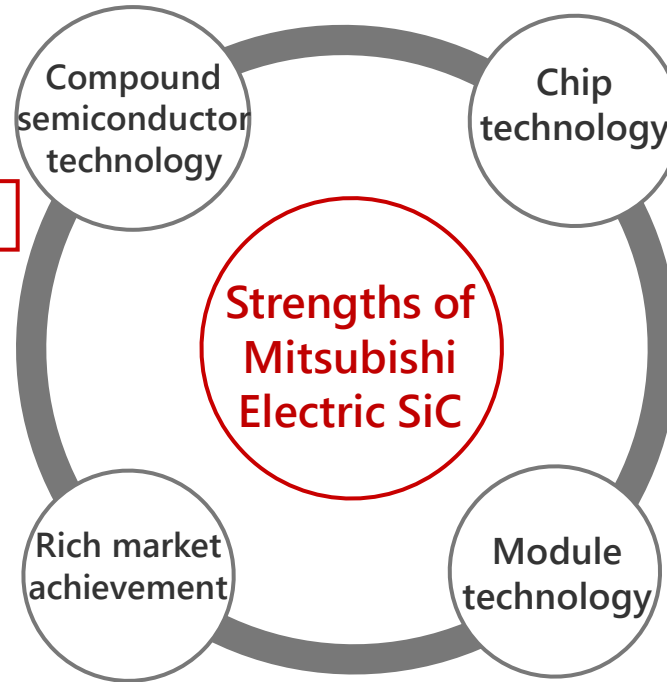
3.3kV Full SiC Module

Quality improvement

Extensive achievements for SiC across a wide range of markets

1990s	World's first (Released in October 2010) Hybrid SiC DIPIPM™ installed in room air conditioner "Kirigamine"	
2012	World's first (Released in December 2012) Hybrid SiC-IPM installed in numerical controller (CNC) drive unit	
2015	World's first (Press released in June 2015) High-capacity full SiC power module installed in main converter for high-speed railway	
2019	World's highest output (Development announced in February 2019) For xEV full SiC power module installed in ultra-compact power unit	

*World's first and world's highest: According to Mitsubishi Electric research at the time of press release

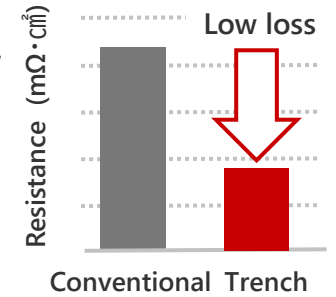


Provide module solutions, optimized for various applications

World's highest level of low loss*1

- ◆ Unique trench MOSFET structure, reduces electric field, achieves approx. **50%** lower resistance compared to conventional SiC*2.

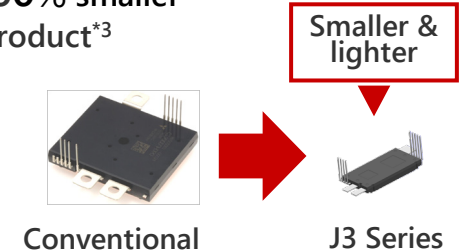
Contribute to xEV's longer cruising range and reduced system costs



Industry-leading technology for compact designs and reduced weight

- ◆ J3 Series is approx. **60%** smaller than conventional product*3

Contribute to compact design and cost reduction of inverters



*1: For devices withstand voltage of 1500V or more. According to Mitsubishi Electric research as of Sep 30, 2019, press release *2: Our planar MOSFET *3: J Series T-PM

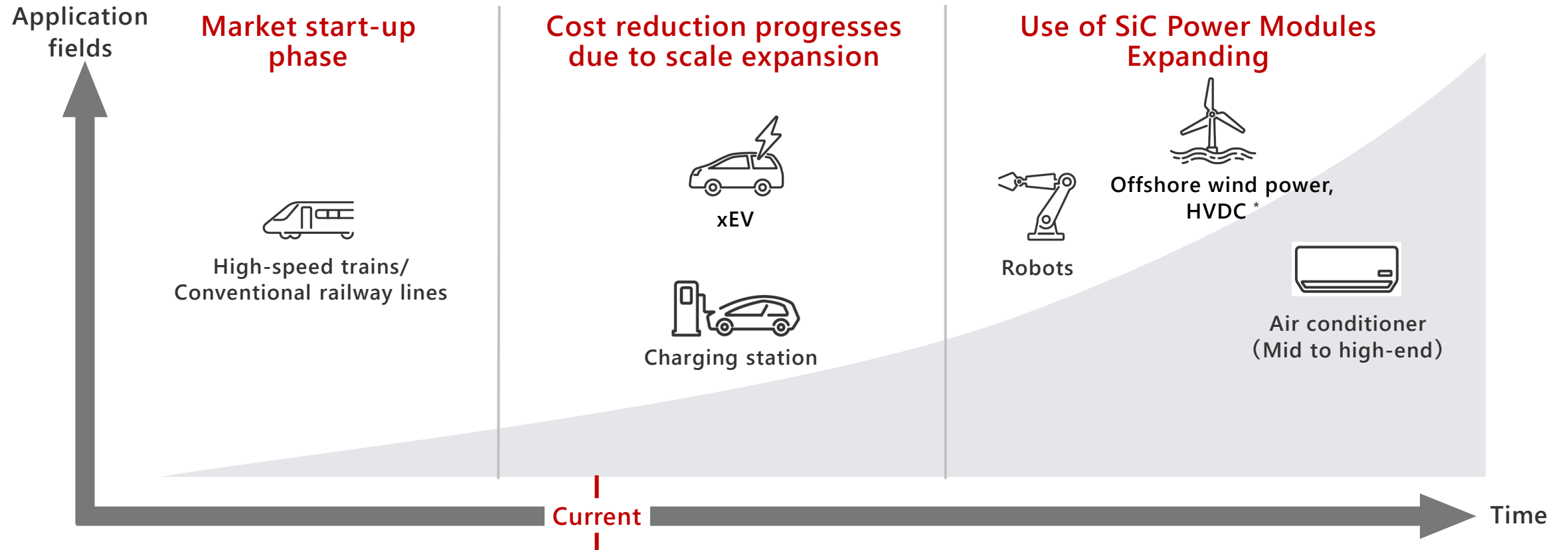
Use of SiC Power Modules Expanding to Various Markets

3. Growth Strategy of Key Growth Business - Power Device -

Extensive SiC power module installation in electric vehicles will drive significant demand growth and expand market opportunities into various applications

Contribute to the realization of GX in a wide range of applications by providing highly competitive SiC power modules leveraging strengths cultivated from the market start-up phase

General Trend of SiC Application Field

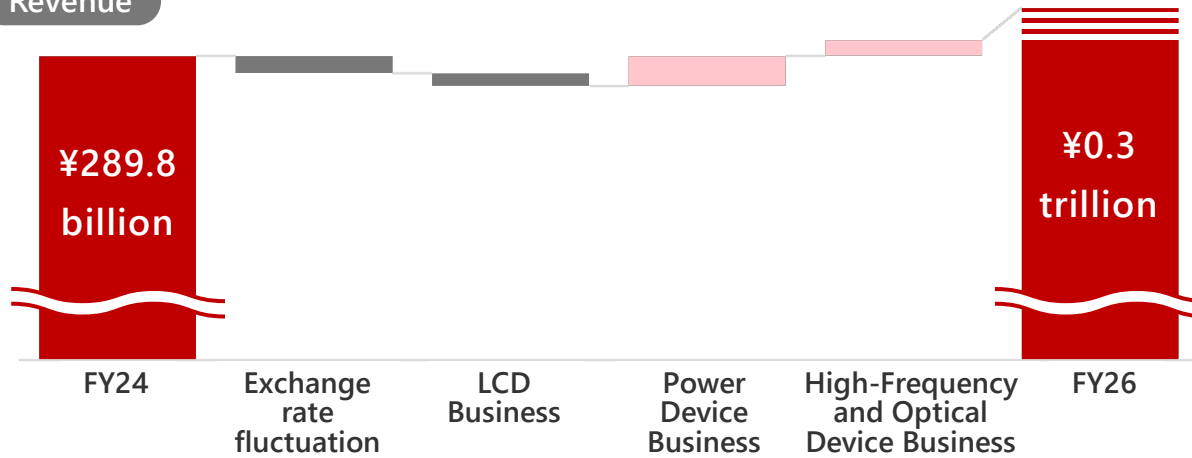


* HVDC: High Voltage Direct Current

4 Financial Targets for FY2026

Factors Leading to Changes in Revenue and Operating Profit (Semiconductor & Device Business)

Revenue



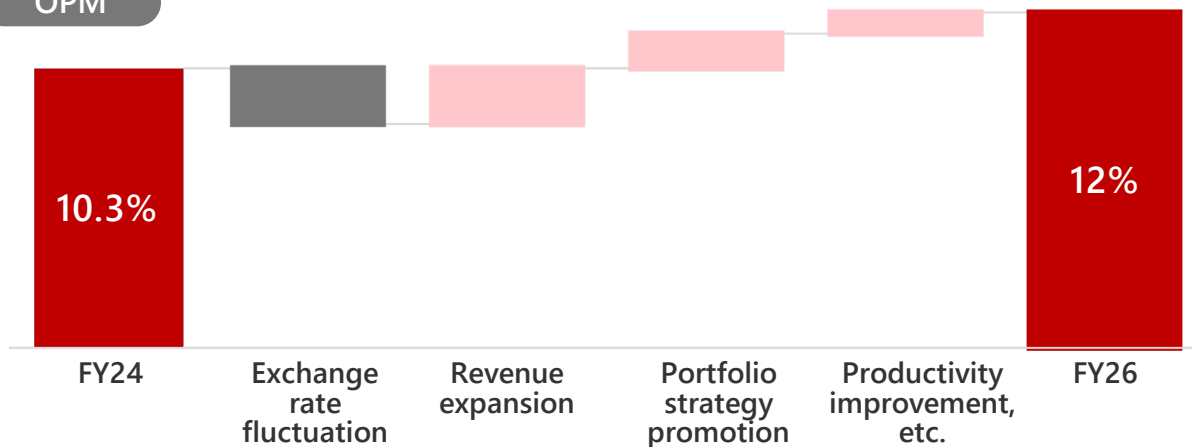
Power Device Business

Expand sales mainly in the automotive, renewable energy and consumer applications

High-Frequency and Optical Device Business

Expand sales mainly on optical devices for data centers

OPM



Promoting portfolio strategy

Shift to products with matched customer value through price improvement, product mix improvement, etc.

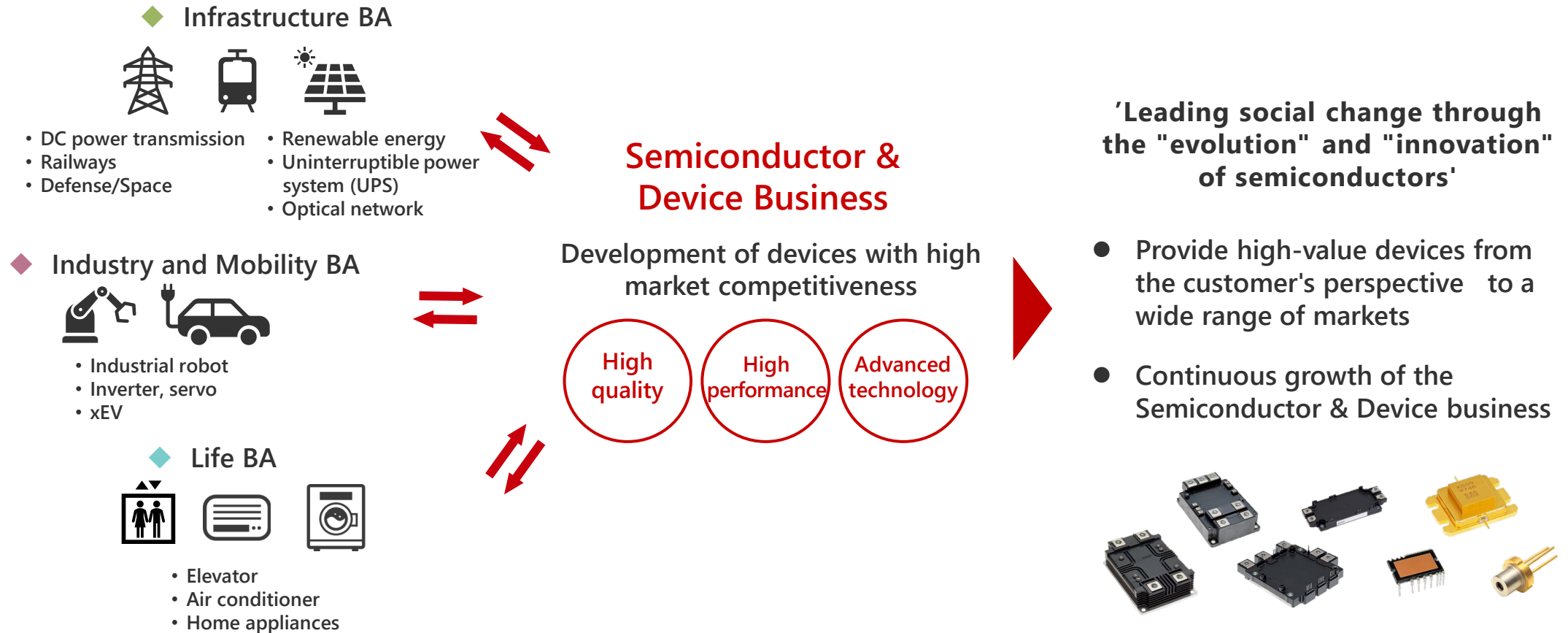
Further improvements in productivity

Standardization and sharing, increase wafer diameter to 200mm for SiC and 300mm for Si, expand production of Si 200mm wafers at the highly productive Fukuyama factory

5 Continuous Growth by Leveraging Business Synergies

Strengthen Mitsubishi Electric Group's integrated solutions by providing key devices

Develop high-value devices from the customer's perspective, incorporating insights from internal application business departments

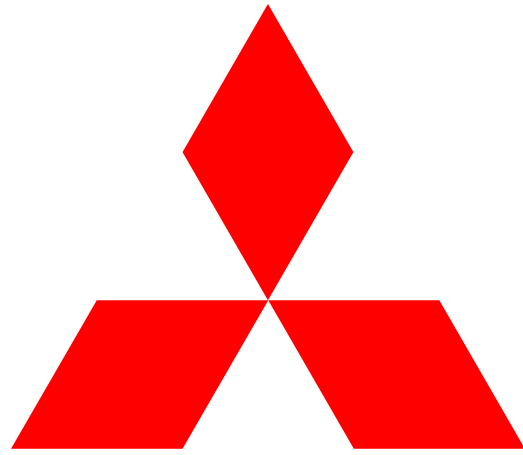


Cautionary Statement

While the statements herein, including the forecasts regarding the Mitsubishi Electric Group, are based on assumptions considered to be reasonable under the circumstances on the date of announcement, actual results may differ significantly from forecasts. The main factors materially affecting the expectations expressed herein include but are not limited to the following:

1. Changes in worldwide economic and social conditions, as well as regulations, taxation and other legislation
2. Changes in foreign currency exchange rates
3. Changes in stock markets
4. Changes in the fund-raising environment
5. Changes in the supply and demand of products, as well as the material procurement environment
6. Establishment of important patents, status of significant licenses and disputes related to key patents
7. Litigation and other legal proceedings
8. Issues related to quality and defects in products or services
9. Laws, regulations and issues related to the global environment, especially responses to climate change
10. Laws, regulations and issues related to human rights
11. Radical technological innovation, as well as the development, manufacturing and time-to-market of products using new technology
12. Business restructuring
13. Information security incidents
14. Large-scale disasters, including earthquakes, tsunamis, typhoons, volcanic eruptions and fires
15. Social, economic and political upheaval due to heightened geopolitical risks, war, conflict, terrorism or other factors
16. Social, economic and political upheaval due to pandemics or other factors
17. Important matters related to Mitsubishi Electric Corporation's directors and executive officers, major shareholders, affiliated companies and other stakeholders

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In the event of any discrepancy between this document and the Japanese original, the original shall prevail.



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Changes for the Better