



Quarterly Financial Results Briefing Second Quarter of FY2025

QD Laser, Inc.
November 2025

Remarks from Kiyoshi Okubo, President & CEO

We are pleased to present the financial results briefing materials for QD Laser, Inc. for the Second quarter of Fiscal Year 2025 (April to September 2025).

For the cumulative results through the second quarter, we received stable orders from a wide range of customers, recording net sales of 631 million yen (up 13% year on year) and an operating loss of 169 million yen (an improvement of 125 million yen year on year). Although we still posted an operating loss, we achieved year-on-year growth in both revenue and profit.

In the Laser Device Business, while sales growth varied by product, we are steadily advancing our business activities toward achieving the full-year plan. In the Visual Information Device Business, we are progressing with a structural shift toward providing retinal projection technology to corporate customers in B2B and B2B2C models, and we have begun new initiatives with customers both in Japan and overseas.

We also applied for the “Growth Acceleration Subsidy for SMEs” administered by the Small and Medium Enterprise Agency and were selected in September. This subsidy program supports bold capital investments by growth-oriented SMEs aiming for over 10 billion yen in annual sales. In line with this, our company has declared a long-term goal of achieving 10 billion yen in net sales over the next ten years and submitted the subsidy application accordingly. With this selection, we will accelerate capital investment in the Laser Device Business using the subsidy and work toward realizing our growth vision and enhancing corporate value.

Through these initiatives, we aim to balance profitability and growth potential as outlined in our medium-term management plan and continue taking steps toward achieving company-wide profitability in the fiscal year ending March 2027. We sincerely appreciate your continued support of QD Laser.

Kiyoshi Okubo
President & CEO

Mission

Unlocking new possibilities, with semiconductor lasers.

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Our company was the first in the world to successfully mass-produce quantum dot lasers for optical communications—technology once thought impossible.

We don't just make the impossible possible; we also create entirely new possibilities that don't yet exist.

By harnessing laser technology, we aim to achieve groundbreaking advancements in the biomedical field, ultra-precision manufacturing, and information processing. At the same time, we drive the evolution of high-performance visual information devices, continuously challenging ourselves to unlock new human capabilities.

Company Profile

Spin-off venture from Fujitsu.

IPO in February 2021 at TSE Mothers (currently Growth): securities code: 6613

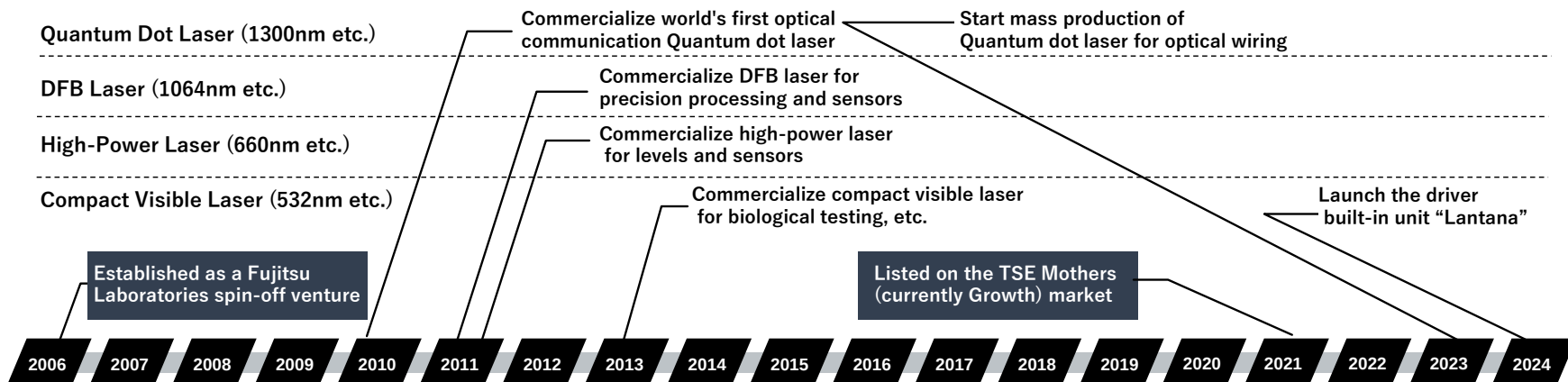
Company Name	QD Laser, Inc.
Foundation	April 24, 2006
Fiscal year-ended	March 31
Representative	Kiyoshi Okubo, President and CEO
Number of Persons *1	47
Location	Headquarters: 1-1 Minamiwatarida-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa
Business	• Semiconductor Laser Device business • Development, manufacturing, and sales of advanced semiconductor lasers for communication, processing, and sensing. • Development, manufacturing, and sales of quantum-dot lasers for silicon photonics and related applications. • Visual Information Device business • Development, manufacturing, and sales of “RETISSA”, the world’s first product utilizing laser retinal projection technology. • Development, manufacturing, and sales of devices and components utilizing retinal projection technology and ‘laser + optics’ optical units.
Licenses	• Class II Marketing License for Medical Devices • Registration of medical equipment manufacturer • ISO 9001



Kiyoshi Okubo, President & CEO

History of product expansion

Laser Device

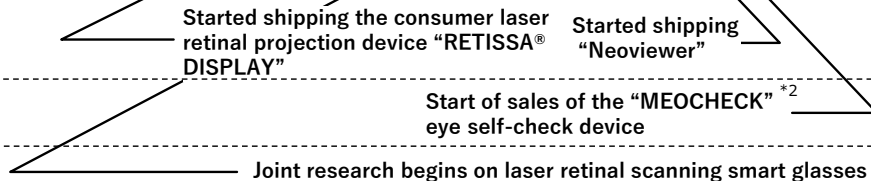


Visual Information Device

Vision Support ^{*1}

Vision Health Care

Smart Glass

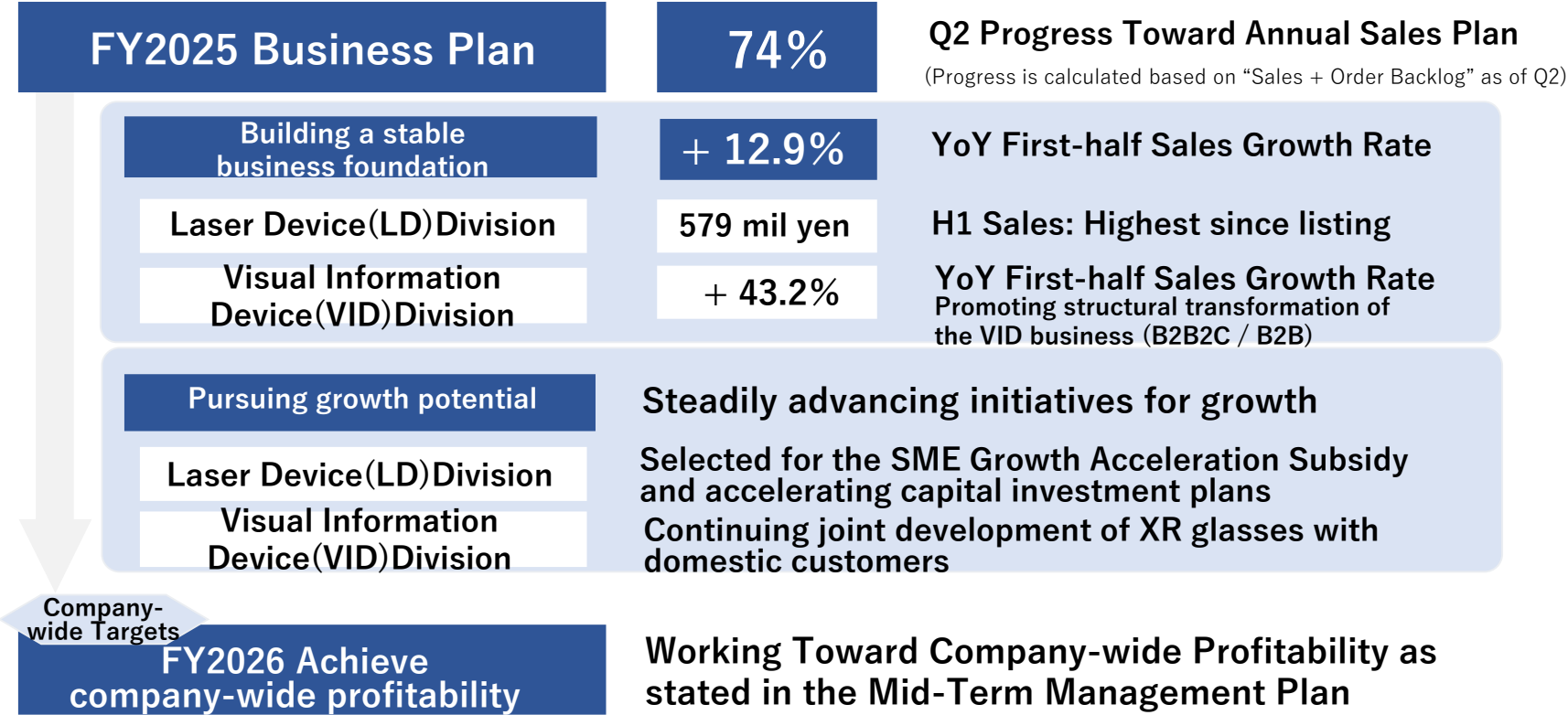


To realize our philosophy, “Illuminate Human Potential,”

- ✓ leveraging our proprietary technologies as growth drivers
- ✓ providing cutting-edge optical semiconductor devices, modules, and applied products
- ✓ become the technology partner for global customers

Through these efforts, we aim to become a major player in the optical semiconductor field.

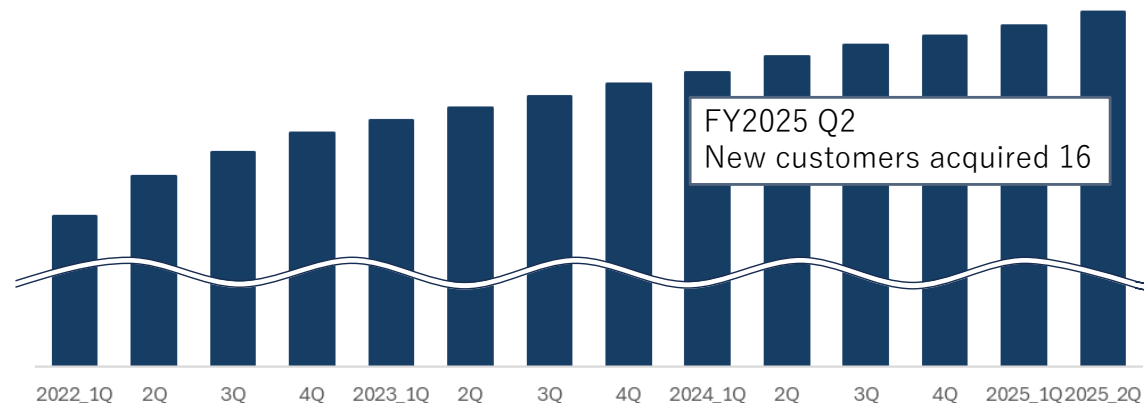
QD LASER | Initiatives Toward Achieving Business Plan



Laser Device(LD) Division | Building a Stable Business Foundation

Core businesses are performing steadily; the first half recorded the highest sales since listing

Growth in the cumulative number of customers (since FY2022)



FY2025 Q2 Result

Sales 579 mil yen

Certified customers
(as of September)

113

Q2 Initiatives

- Promoted development of new products (high-power, ultra-high-speed, etc.)
- Completing samples by Q4 and starting marketing activities; market launch planned next fiscal year

Laser Device(LD) Division | Pursuing Growth Potential

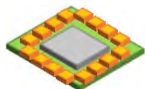
Strong R&D demand for “semiconductor optical interconnects” for data centers using quantum-dot lasers, and we are advancing efforts toward securing mass-production orders from key customers, including major global semiconductor companies.

Use of quantum-dot lasers in semiconductor optical interconnects (CPO)



- ✓ The latest R&D by major semiconductor companies
- ✓ A solution for lowering data center power consumption with high potential demand

Meeting customer R&D needs



- ✓ Providing customer-specified products (for R&D use)
- ✓ Improving quantum-dot laser performance (higher power output, multi-wavelength support)

Accelerating our development speed through facility expansion

Among our key quantum-dot laser customers, those advancing R&D for data centers

Major global semiconductor companies etc.

6 companies (FY2025)

Achieving growth potential by securing mass-production orders from 1 to 2 major global customers

Initiatives in the second quarter

Conducting a detailed review of capital investment plans related to quantum-dot laser manufacturing (with planned use of the SME Growth Acceleration Subsidy)

Laser Device(LD) Division | Pursuing Growth Potential

Column

From Electrics to Photonics : Developing Low-Environmental-Impact Information Transmission Technology Using the Optical Communication Technologies.

Needs for High-Speed and Low-Power Data Centers (DCs)

The reason we can use social media, watch videos on our smartphones, or leverage AI is that data centers continuously process information gathered from around the world.

As a result, the power required by DCs is enormous—especially for AI-focused DCs, which may need dedicated small-scale power plants due to high energy consumption.

To handle the ever-increasing volume of information in the future, it is necessary to simultaneously improve DC processing speed and reduce power consumption. One approach is to replace part of the traditionally electrical information transmission with optical technology.

Research and development for the introduction and improvement of **CPO (Co-Packaged Optics)** as such a technology is steadily progressing.

CPO (※Uses Silicon Photonics)

CPO is a technology that replaces electrical wiring around semiconductor chips with optical wiring.

Next-generation CPO, which connects semiconductor chips via optical wiring, is being developed mainly by major semiconductor manufacturers.

Taking advantage of the fact that **quantum dot lasers can operate in high-temperature environments**, research and development is underway to apply them to CPO.

Power Consumption of Data Centers

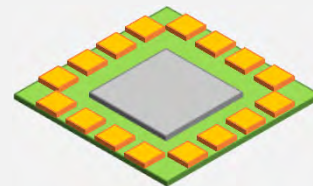
Required Power for
One Server Rack

Equivalent to the Power
Consumption of Three
Households



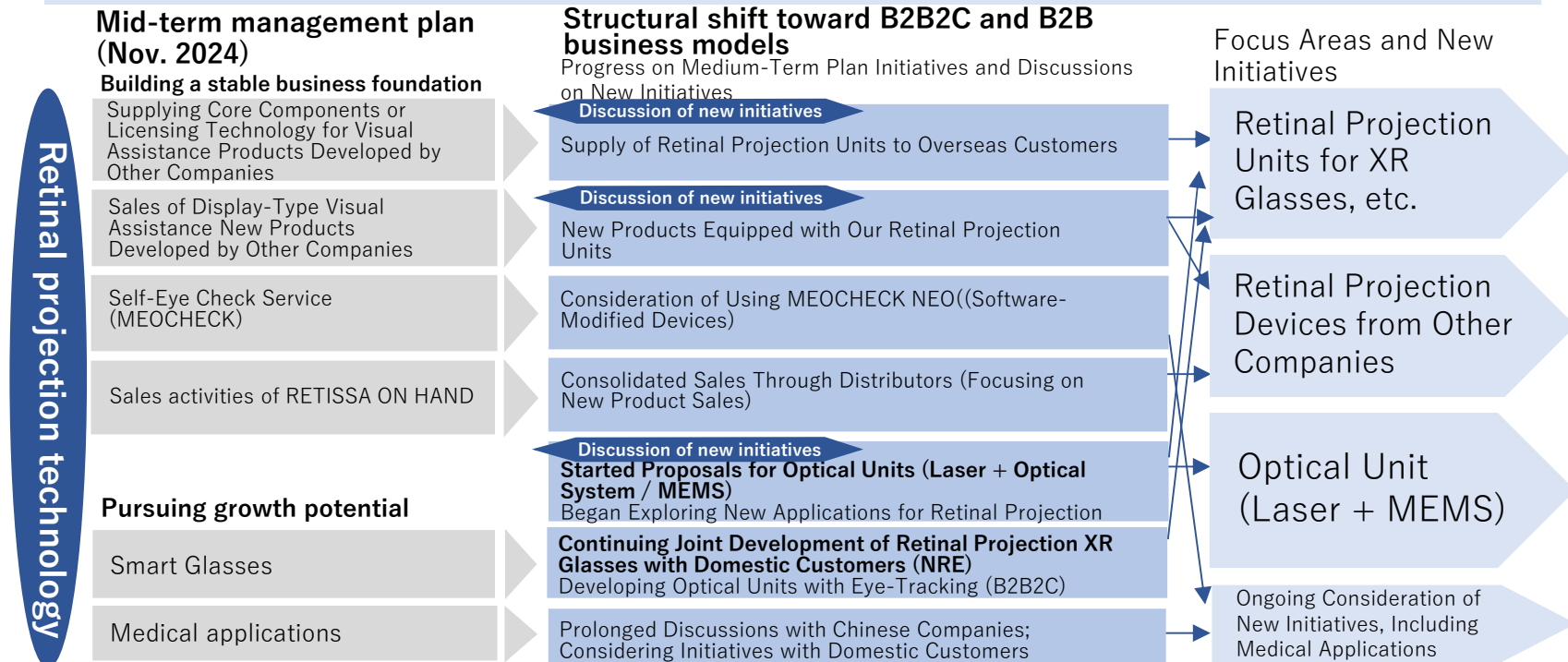
One Data Center Has Several Hundred to Several Thousand
Racks—Equivalent to a Whole Town

Co-Packaged Optics (Illustration)



Visual Information Device(VID) Division | Business Structure Transformation

Focusing on Transforming to B2B2C and B2B Business Models, Promoting the Launch of New Initiatives



Promoting new initiatives with a view toward FY2026

Retinal projection units for XR glasses and related devices

Continuing Joint Development of Retinal Projection XR Glasses with Domestic Customers (NRE Contracted)

Developing Optical Units with Eye-Tracking (B2B2C)

Discussing the Supply of Units for Retinal Projection Devices (Consumer Products)



Retinal projection devices made by other companies

Started Discussions on the Introduction in Japan of Overseas Customers' Devices (Retinal Projection Devices Equipped with Our Retinal Projection Units)



Optical unit (laser + MEMS)

Started Proposal Activities for Optical Unit (Laser + Optical System / MEMS) Products

Actively proposing for 3D Scanning, LiDAR, and other applications

Development of New Applications for Retinal Projection

Started exploring joint development related to driving and navigation assistance



Ongoing consideration of medical applications and other new initiatives

Exploring Medical Device Applications for Automated Perimeters, Refractometers, etc.

Started exploring medical device applications and potential partners for devices using retinal projection and optical technologies



Initiatives in the Second Quarter

Started discussions on the sales in Japan of overseas retinal projection products (products equipped with our optical units)

Began proposal activities for optical units (Laser + MEMS) to industrial and consumer businesses both domestically and internationally

QD LASER | Future Initiatives for Growth

“¥10 Billion Declaration” and Selection for the SME Growth Acceleration Subsidy

We made the “¥10 Billion Declaration” and were selected for the **SME Growth Acceleration Subsidy**. Using the subsidy, we will invest in the laser device business to accelerate product development. (2025: Investment plan finalized, 2026: Equipment installation and ramp-up, 2027: Start of production)

Measures for Further Strengthening the Business Foundation

We actively consider various partnerships, investments, and M&A. In these initiatives, we place importance on the following points:

The initiative contributes to the establishment of a stable management foundation.

The initiative leverages our technological capabilities and business experience

Acceleration of Innovation = Technology × Capital

We aim to achieve **company-wide profitability in the fiscal year ending March 2027**, establish a business structure with positive cash flow, and appropriately invest capital in the technologies we possess to accelerate innovation.

QD LASER | ¥10 Billion Declaration (“10 by 10 to 100” Vision)

“10 by 10 to 100” Vision: Aiming to Achieve ¥10 Billion in Sales by FY2035

¥10 Billion Declaration

Aiming for ¥10 billion in sales by FY2035 through the following. (LD Baseline: LD Quantum Dot: VID = 4:4:2)

Building a Stable Business Foundation

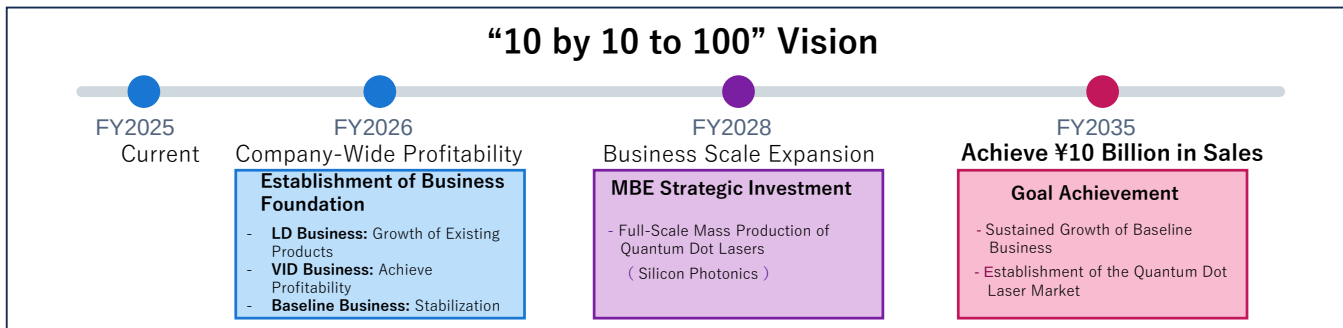
Achieve an average annual sales growth of 11% through LD Baseline Business and VID Business.

- ✓ Sales growth through strengthening the production operation for laser products and launching new products.
- ✓ Stable sales growth of VID products through establishing B2B/B2B2C business models.

Pursuit of Growth Potential

Start of mass-production orders for Quantum Dot Lasers from 1–2 major global customers.

- ✓ Accelerate the development of Quantum Dot Lasers and begin mass-production orders from major global customers
- ✓ Quantum Dot Lasers establish a strong position in the market.



01

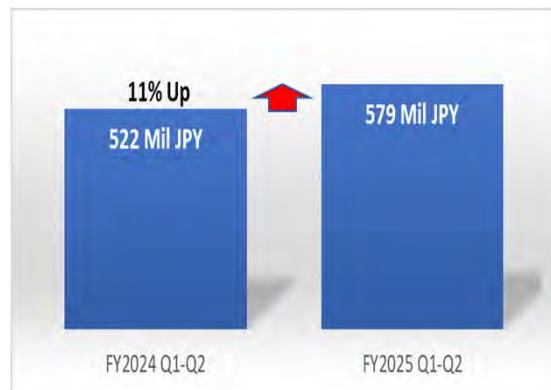
Financial Results for FY2025-Q2

Financial Results Highlights for FY2025-Q2 vs FY2024-Q2

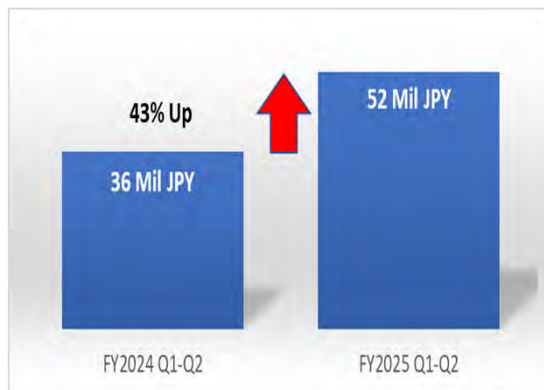
- 01 Sales of the Laser Device (LD) business **increased by 11%** year-on-year to 579 million yen, while sales of the Visual Information Device (VID) business **increased by 43%** year-on-year to 52 million yen. As a result, total company sales **increased by 13%** year-on-year to 631 million yen.

Sales in the LD business increased by 11% overall, driven by growth in DFB lasers, high-power lasers, and quantum dot lasers, despite a decline in compact visible lasers. Sales in the VID business rose by 43% due to an increase in contract development projects.

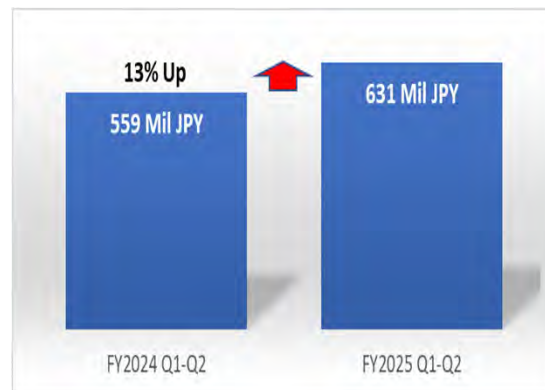
LD sales



VID sales



Company-wide sales



Financial Results Highlights for FY2025-Q2 vs FY2024-Q2

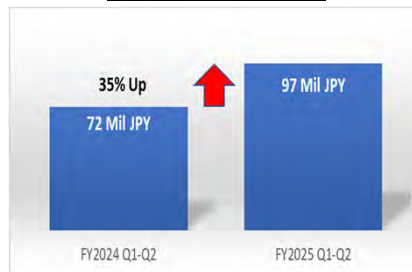
- 02 The company-wide operating loss **improved by 125 million yen (43%)** year-on-year. The operating profit of the LD business **increased 35%** year-on-year to 97 million yen.

In the LD business, operating profit increased 35% year-on-year to 97 million yen, due to an increase in gross profit accompanying increased sales.

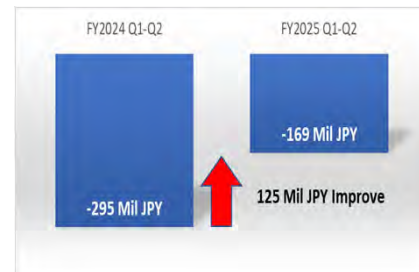
In the VID business, operating loss improved 122 million yen year-on-year to 100 million yen, due to higher sales and almost no inventory valuation loss, as well as reduced marketing and dispatch costs.

As a result, the company-wide operating loss improved 125 million yen year-on-year to 169 million yen.

LD operating income



Company-wide operating loss



- 03 Ordinary loss **improved by 140 million yen (46%)** year-on-year. Quarterly net loss **improved by 140 million yen (46%)** year-on-year.

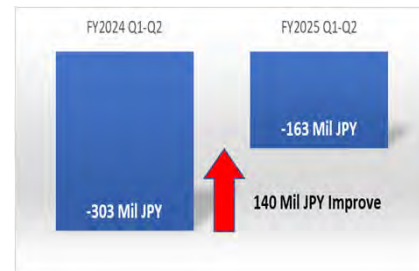
The ordinary loss improved by 140 million yen year-on-year to 162 million yen, which was larger than the improvement in the operating loss, due to an increase in interest income.

The quarterly net loss was equivalent to the ordinary loss, improving by 140 million yen year-on-year to 163 million yen.

Ordinary loss



Quarterly net loss



Financial Results Highlights for FY2025-Q2 vs FY2024-Q2

Sales increased and losses improved year-on-year

Sales **increased 11%** year-on-year in the LD business, **increased 43%** year-on-year in the VID business, and **increased 13%** year-on-year for the entire company. Operating profit **increased 35%** year-on-year to 97 million yen in the LD business, and the operating loss **improved 122 million yen** year-on-year in the VID business, resulting in an overall operating loss **improvement of 125 million yen (43%)** year-on-year.

Performance Summary

(Million JPY)	FY2025 Q1-Q2	FY2024 Q1-Q2	YOY	FY2025 Forecast ^{*1}	Full-Year Progress
Sales	631	559	+13% (+72)	1,387	46%
(LD)	579	522	+11%	1,247	46%
(VID)	52	36	+43%	140	37%
Operating Profit or Loss (△)	△169	△295	+125	△445	-
(LD)	97	72	+25	66	-
(VID)	△100	△223	+122	△197	-
Ordinary Loss (△)	△162	△302	+140	△435	-
Net Loss (△)	△163	△303	+140	△445	-



Sales by Product Group

(Million JPY)	FY2025 Q1-Q2	FY2024 Q1-Q2	YOY
DFB Laser	245	239	+3%
Compact Visible Laser	111	142	△22%
High-Power Laser	135	104	+30%
Quantum Dot Laser	86	36	+136%
LD Total	579	522	+11%
Products	0	23	△98%
NRE	52	10	+386%
Self Check Service	0	2	△100%
VID Total	52	36	+43%
Grand Total	631	559	+13%

Balance Sheet

Total assets decreased by 234 million yen due to a decrease in cash and deposits, etc. Total liabilities decreased by 74 million yen due to a decrease in accounts payable and the transfer of asset retirement obligations from fixed to current, etc. The equity ratio was 95.9%^{*1} (94.8% at the end of March 2025).

Balance Sheet

(Million JPY)	End of September 2025	End of March 2025	YOY
Current Assets	4,371	4,554	△183
Fixed Assets	900	950	△50
Total of Assets	5,271	5,505	△234
Current Liabilities	210	256	△45
Fixed Liabilities	2	30	△28
Total of Liabilities	212	286	△74
Net Assets	5,058	5,219	△160
Total Liabilities and Net Assets	5,271	5,505	△234

Cash Flow

Cash and cash equivalents decreased by 544 million JPY year on year.

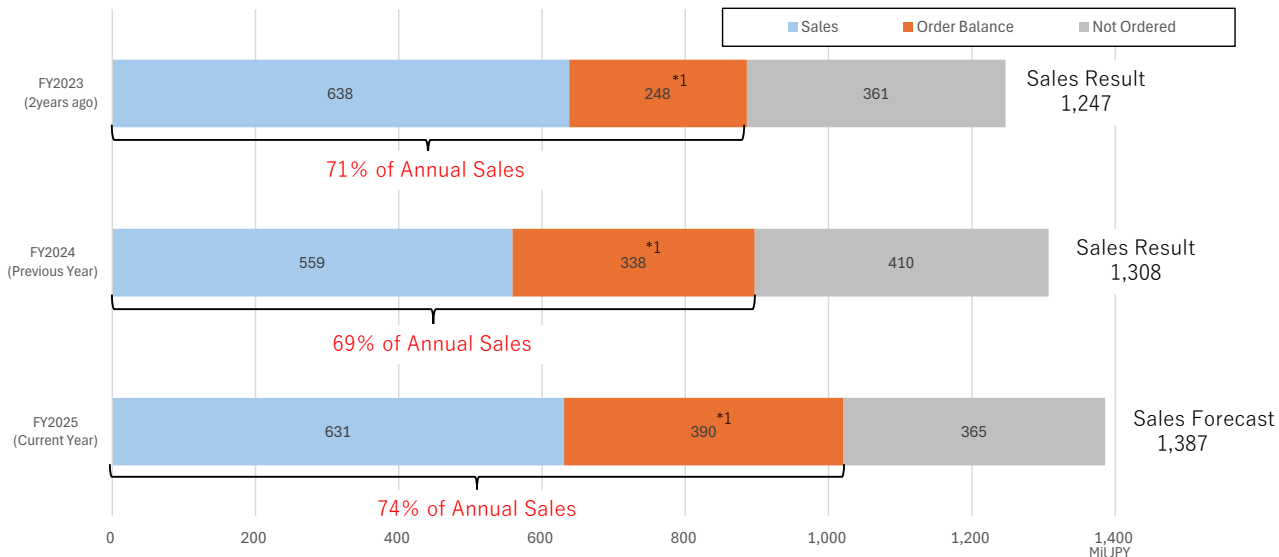
Cash Flow

(Million JPY)	FY2025 Q1-Q2	FY2024 Q1-Q2	YOY
CF from Operating Activities	△166	△325	+ 158
CF from Investing Activities	△20	△394	+ 374
CF from Financing Activities	△0	△5	+ 4
Effect of Exchange Rate Change on Cash and Cash Equivalents	△0	△0	△0
Cash and Cash Equivalents Year-end Balance	3,566	4,111	△544

Order Status

As of the end of the first quarter, sales and backlog (scheduled sales within the fiscal year) were 74% of the annual sales forecast, a higher progress rate than in the past two years.

Net sales for FY2025-Q2 and order backlog as of the end of the FY2025-Q2



DFB Lasers^{*1} : Sales in FY2025-Q2

245 million JPY sales, increased by 3% year-on-year.

Orders for light sources for measurement (sensor systems) are booming, despite a decline in demand for precision machining.

- **Micromachining: 77 million JPY sales (32%^{*2})**

Sales for EV battery processing equipment in China were sluggish, resulting in sales decreased by 34% YOY.

- **Measurement(Sensor system): 84 million JPY sales (35%^{*2})**

Sales increased by 26% YOY due to strong orders for light sources for sensors in the U.S.

- **Medical equipment: 33 million JPY sales (14%^{*2})**

Sales decreased by 12% YOY due to weak order intake, as customers awaited progress in product development.

- **Measurement(Semiconductor manufacturing):**

31 million JPY sales (13%^{*2})

Sales increased due to start of mass production of light sources in Japan for inspection equipment related to semiconductor wafer processes.

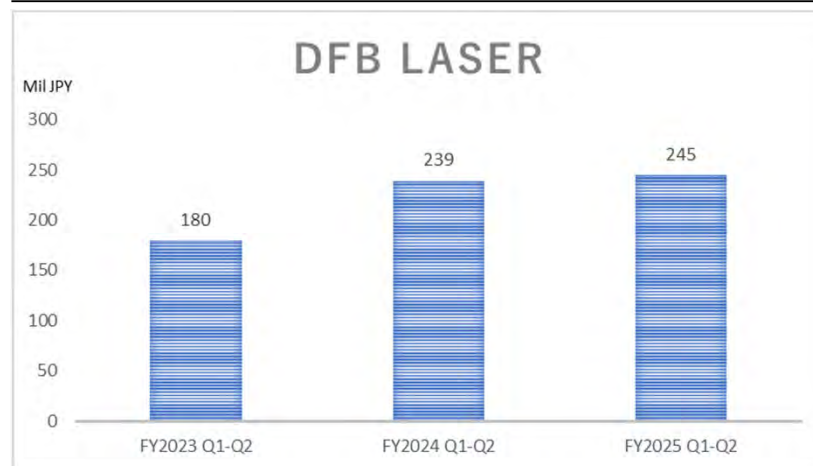
DFB lasers

Left : for 15 ps pulsed operation

Right : for 50 ps pulsed,
ns pulsed, and CW operations



Sales of Q2 in FY2023, 2024 and 2025



Compact Visible Lasers : Sales in FY2025-Q2

111 million JPY sales, decreased by 22% year-on-year.

Demand from Chinese customer (headquartered in the U.S.) decreased. The European market for microscope applications was sluggish.

- **Blood/cell analysis(Flow cytometer/cell sorter^{*1}): 78 million JPY Sales (72%^{*2})**

Sales decreased by 25% YOY. Orders from North American customers were strong, but orders from Chinese customer (headquartered in the U.S.) for light sources for bio-testing equipment was down.

- **Microscope: 27 million JPY sales (25%^{*2})**

Sales decreased by 19% YOY. Orders from Japanese customer and European biomedical STED^{*3} microscope manufacturers are strong, but orders from other European microscope manufacturers are sluggish.

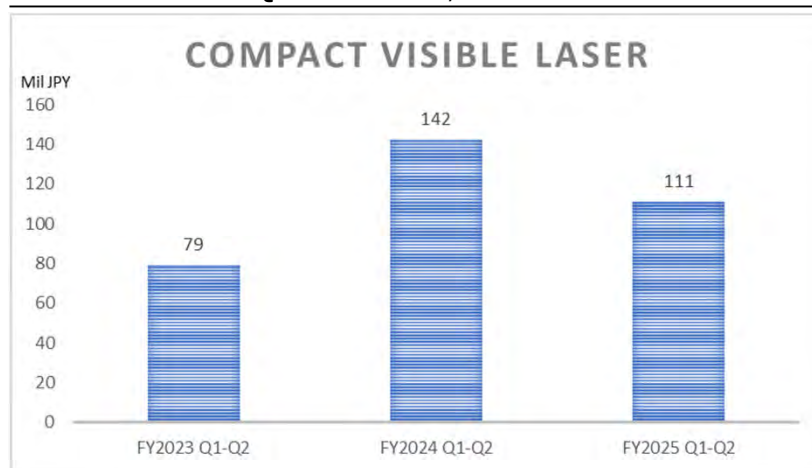
- **LantanaTM^{*4}**

Products released in July.

Compact visible lasers
Left: green
Middle: yellow-green
Right: orange



Sales of Q2 in FY2023, 2024 and 2025



High-Power Lasers : Sales in FY2024

135 million JPY sales, increased by 30% year-on-year.

Significant sales increase in all categories.

- **Leveler for construction/DIY and sensor: 32 million JPY sales (24%^{*1})**

Sales increased by 132% YOY. Sales of lighting sources in China increased significantly.

- **Sensor in semiconductor factories: 31 million JPY sales (23%^{*1})**

Sales increased by 151% YOY. Strong orders of sensor light sources for wafer transfer machines in Japan.

- **Machine vision and data communication in factories:**

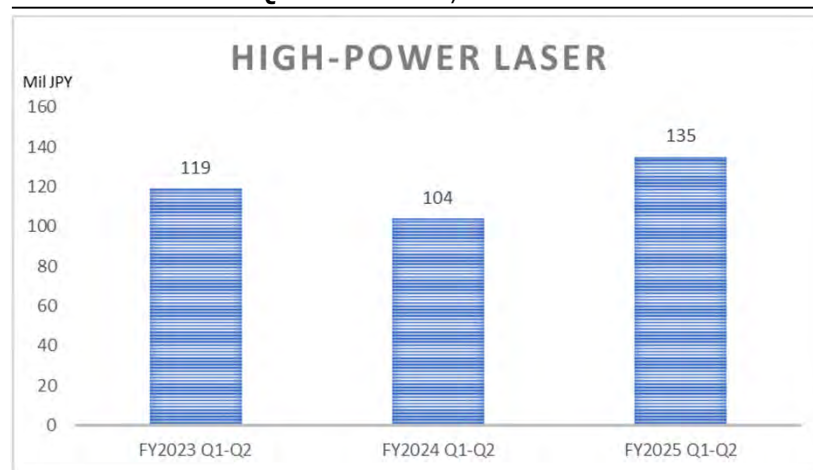
34 million JPY (25%^{*1})

Sales increased by 30% YOY. The start of mass production of light sources for factories in Japan contributed greatly. Demand of light sources for machine vision in North America was stable.



High-power lasers
TO package

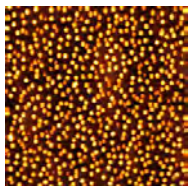
Sales of Q2 in FY2023, 2024 and 2025



Quantum Dot Lasers^{*1} : Sales in FY2025-Q2

86 million JPY sales, increased by 136% year-on-year.

- Various progress in research and development aimed at mass production of quantum dot lasers for incorporation into our customers' final products.
- Working on quantum-dot lasers for silicon photonics with nine customers in Japan, the US, and Europe for applications including optical connector, chip-to-chip communications, LiDAR, and electronics.
- The demand for quantum dot lasers for research and development among our customers is expected to generally remain in line with the previous trend, although some fluctuations are anticipated.
- Shipped quantum dot wafers for optical connector and chip-to-chip communications to industries in the U.S. and Europe.
- Shipped quantum dot wafers for electronics to industry in Europe.
- Shipment of the remaining 3,200 quantum dot laser chips ordered as mass production projects has been complete after specification changes were made



Quantum dot

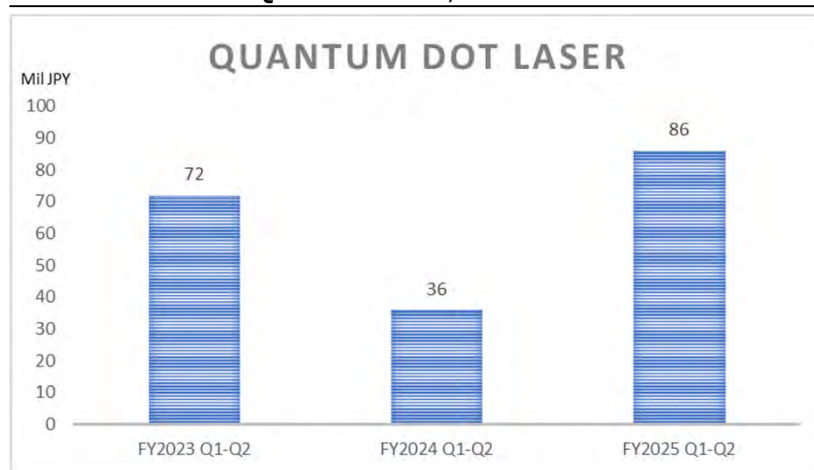


Quantum dot wafer



Quantum dot laser chip

Sales of Q2 in FY2023, 2024 and 2025



Visual Information Device (VID) : Sales and Progress of the Mid-term Business Plan

52 million JPY sales, increased by 43% year-on-year.

●Product and Service Sales

Based on the Mid-term Business Plan policy, the business has been consolidated into the following four key areas ①Expansion of sales for the handheld visual support device RETISSA ONHAND, ②Development, production, and sales support for newly developed laser retinal projection products in collaboration with our partner, ③Provision of core components and technology, ④Business of optical unit.

- MEOCHECK underwent a software modification related to medical consultation recommendation, and the voluntary recall was completed in October 2025.

- ①RETISSA ONHAND – Promoting adoption in public facilities, such as museums and sports venues.
- ②Continued discussions with our partner regarding the sales scheme for their laser retinal projection products.
- ③Supplying RGB lasers and lens units to customers.
- ④Proposing sales of optical units using lasers and MEMS to customers and distributors.

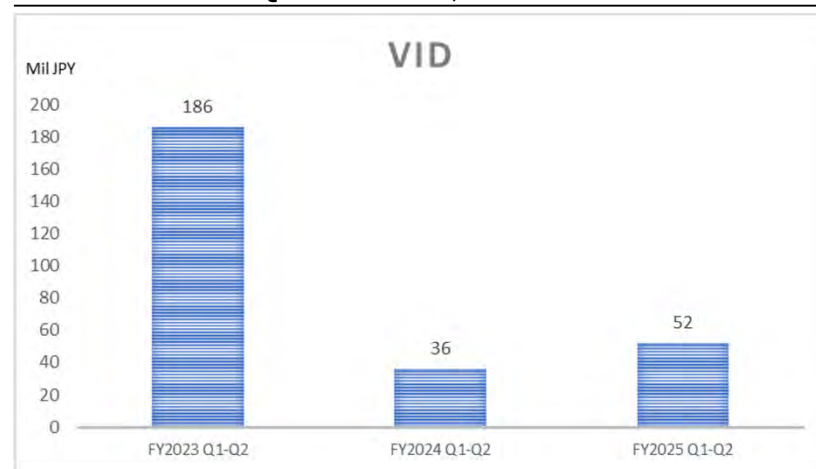
●Contract Development (NRE)

- NRE orders from existing customer continue to be accepted and shipped in 2025 for the development of next-generation laser retinal projection eyewear(smart glasses).
- Received a development request from a new customer for a new application, and the evaluation has begun.

●Joint business development in the fields of smart glasses and vision support applications

- Discussions are ongoing with multiple candidates

Sales of Q2 in FY2023, 2024 and 2025



Forecast for the FY2025

Steady growth of the LD business and efforts to restructure the VID business to achieve the mid-term business plan

Laser Device business

Operating profit

consecutive **11** years

Operating profit: 98 million yen*¹
Sales: 1.24 billion yen (11% increase YOY)
Increased costs for new product development and depreciation *²

Expansion of certified mass production

107⇒**116** products

Expanding customer base for compact visible lasers
Expanding DFB laser applications
New product development and commercialization

Solution product launch *³

The world's smallest
Compact Visible Laser Unit
Lantana™ Mass production begins

Visual Information business *³

Sales 140 million yen
(-25% YOY)
Operating loss
-195 million yen*¹
(116 million yen improve YOY)

**Optical unit and
component business
launch**

Expanding the "laser + optical system" developed through retinal projection equipment products to industrial applications and launching a component business

Reorganization of business for the next fiscal year and beyond *⁴

**Strengthening
corporate collaboration**

Consideration of joint ventures through collaboration with other companies
Technology licensing, sales of other companies' retinal projection devices

Goals for the FY2026

Laser Device business

Operating profit

consecutive **12** years

Operating profit: 340 million yen (Improve gross profit margin to 45%)
Increase in number of certified products and new customers
Price optimization, reduction in outsourcing costs, and improved yield

Global niche new products:

Sales over **200** million yen

New products in FY2025 will contribute*1
• Compact visible laser "Lantana™"/New wavelength
• DFB laser for semiconductor inspection/precision processing/sensing

Relocation of production base

Establishing a production expansion system

Spring 2026: Relocating to new base in Yokohama.
Increase production capacity by purchasing new equipment and expanding clean rooms and product inspection areas.

Visual Information business

Profitability in FY2026:

Operating profit **0.2** million yen

Aims to achieve profitability in FY2026 by meeting user needs through its low vision aid business, sales of other companies' products, and optical unit and parts business

Expanding optical unit and component business

Aims to expand the component business by applying the "laser + optical system" technology the company has developed for retinal projection device products to industrial applications

Utilizing our own technology and sales know-how

Strengthening corporate collaboration

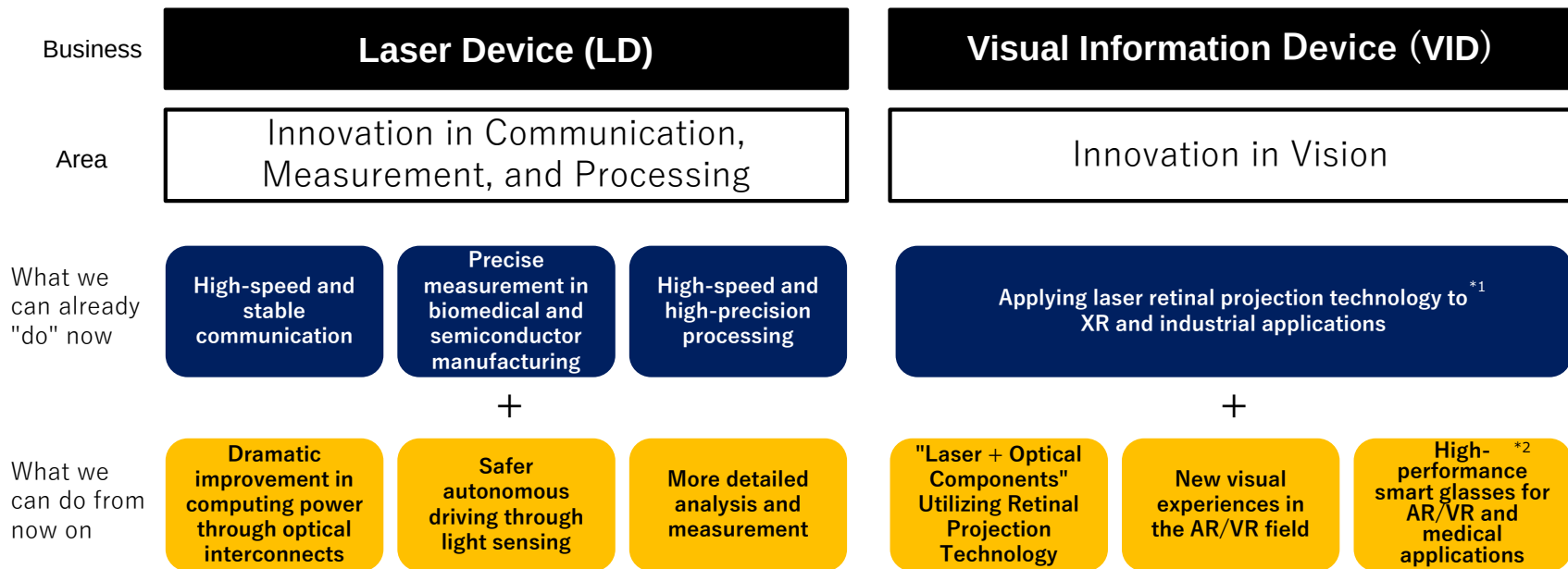
Expand optical licenses and sales of other companies' retinal projection devices

02

Business Summary

Two Businesses to Expand Human Capabilities

Increasing "abilities" with the power of semiconductor lasers, contributing to the improvement of overall human happiness.



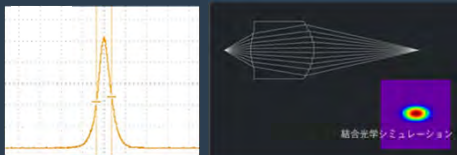
Our Core Technologies and Competitive Advantages

Material Creation, Design, and Control

Cutting Edge Semiconductor Laser Technology with Several Unique Features

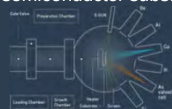
Laser Design

A technology to design lasers suitable for each use.
World's fastest (15ps)^{*3} semiconductor laser
 for precision material processing
 utilizing optical communication technology,



Semiconductor Crystal Growth

Technology to grow
 each atomic layer of semiconductor crystals
 on a semiconductor substrate



Quantum Dot

Succeeded in the mass production of
 quantum dot lasers with **world's highest operating temperature**^{*1} and
 developed **world's smallest silicon-based optical transceiver**^{*2}



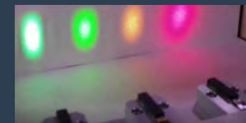
Small Module

A technology to make DFB lasers ultra compact.
 Our yellow/orange laser modules led us
 to become one of the finalists at the Prism Awards 2014.



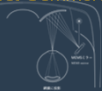
Diffraction Grating

Technology to form periodic refractive index change inside the laser
 enabling arbitrary wavelength control.
World's first^{*5} commercialization of yellow/orange semiconductor laser



VISIRIUM Technology

A technology to project
 images directly on the retina
 through ultra small laser projectors.
World's First Commercialization^{*4}

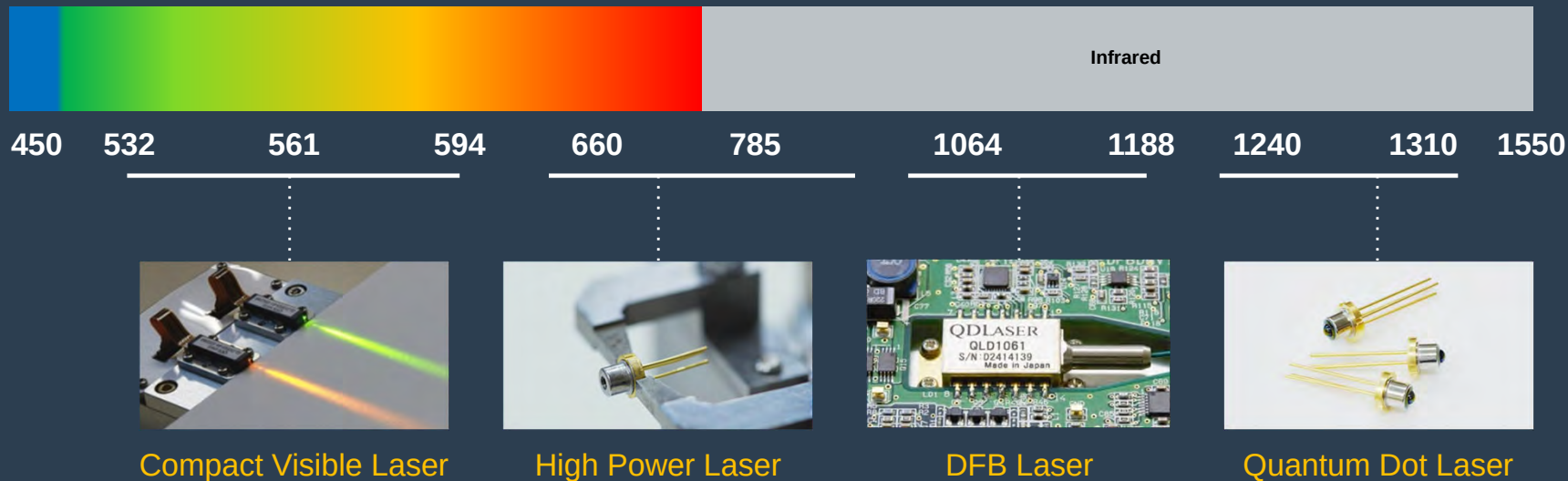


^{*3}:
^{*4}:
^{*5}:

2017 PRISM Award in Industrial Lasers - QD Laser (2nd Feb 2017)
 Prism Awards honour photonic innovations at Photonics West 2019
 Japan/U.S. PATENT JPS362301/US896911

Variations on semiconductor lasers developed and sold by QD Laser

QD Laser provides a wide range of semiconductor lasers with wavelengths suitable for each application



Our Major Laser Device Products, Wavelengths, Features, and Uses

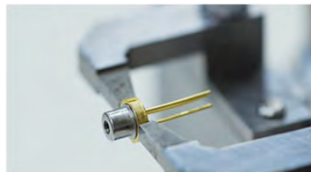
Compact visible lasers

High power laser

DFB laser

Quantum dot laser

Products



Wavelength

532, 561, 594 nm

640-940nm

1030, 1053, 1064, 1080, 1120, 1180nm

1100-1330nm

1020-1120nm provided with 1nm step

Features

- Miniature size, low power consumption, stability, short pulse generation, and high-speed modulation, etc.
- World's first current injection yellow-green and orange lasers

- High power Fabry Perot laser
- Providing products and solutions according to applications.
- Supports various wavelengths, small quantities, and custom production.

- Precise control of wavelength with stable operation under continuous, nanosecond, and picosecond modes.
- High beam quality, small size, lightweight, high electricity-light conversion efficiency, and long life compared to existing solid-state lasers.
- Extensive product lineup that meets the various needs of customers.

- Quantum dots are used for the active layer (light-emitting part) of semiconductor lasers.
- Excellent temperature stability, high-temperature resistance, and low noise performance compared to existing semiconductor lasers.

Use

Measurement

Bio.

Processing

Communication

Silicon photonics

Laser Device (LD) Division: Cases of QD laser product adoption

QD Laser products are integrated into devices that support various industries, contributing to economic activity and the development of various manufacturing industries and businesses that society focuses on.

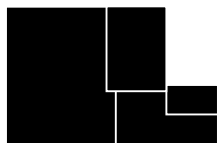
Biomedical

As a light source for inspection and analysis equipment, Contributing to drug discovery and other medical research



Flow cytometer

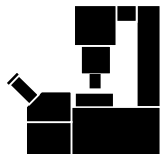
An analytical device for counting cells. Adopted as its light source.



Light source size

1

3



STED Microscope

A microscope capable of observing much smaller objects than conventional microscopes. Adopted as its light source.

Spatial resolution

50nm

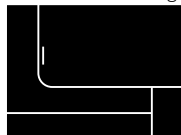
Light source size

1

3

Micromachining

Used in the processing of bodies, electronic board, and substrates of precision electronic devices, contributing to miniaturization and higher functionality of the micromachining apparatus.



Ultrashort-pulse laser processing machine

Capable of fine processing with minimal thermal effects. Adopted as its light source

Maintenance frequency

1

3

Surface roughness

1

4

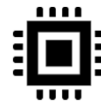
Throughput

X 2^{*1}

By adopting QD laser products, it becomes possible to create small, high-precision, and high-performance devices

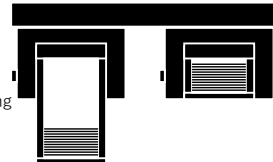
Semiconductor Processing

Incorporated into various manufacturing process equipment, contributing to the entire semiconductor industry



Semiconductor wafer transfer machine

A device for transporting plate-shaped semiconductors. Adopted as a collision prevention sensor



Semiconductor inspection equipment

Inspection equipment to ensure semiconductor quality. Adopted as a sensor to detect abnormalities



Time resolution

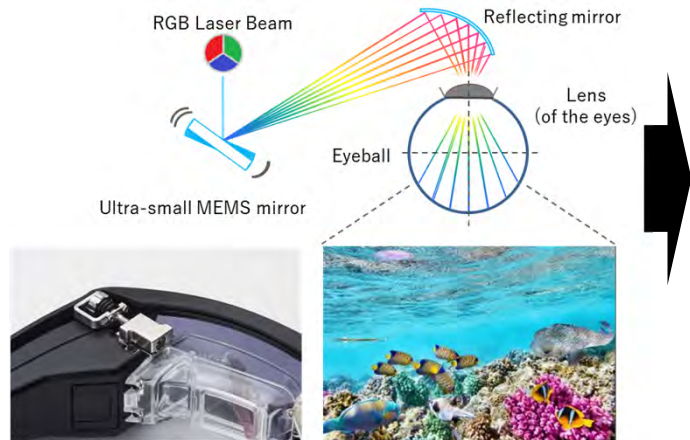
15ps

Visual Information Device (VID) Division: Business Overview

Technology and products that project images directly onto the retina using lasers, bringing innovation to human vision.

World-leading laser retinal projection technology

VISIRIUM TECHNOLOGY®



Three business areas expanding possibilities:

3. Expanding the visible world Augmented Vision	
High-performance smart glasses for AR/VR and medical applications enable an expanded view of the world ^{*1}	
2. Self-check of what you can see Vision Health Care	
Self-check service that allows users to understand the condition of their eyes	
1. Change it to 'see clearly' ^{*2} Vision Support	
See clearly and do what you want to do	
	

03

ESG Initiatives

Business Development Directly Linked to Sustainability

Using the power of semiconductor lasers to increase what's possible, contributing to the improvement of well-being for all humanity.

[Laser Device Division]

Advanced Sensing Using Laser Light Sources

New inspection methods using laser light sources

Contribution to innovation through data utilization

Accident reduction in advanced autonomous driving



2024 ————— to —————> 2030

[Visual Information Device Division]

Laser Retinal Projection Technology

Self-check with MEOCHECK NEO

Providing clear vision^{*1} through RETTISA ON HAND

Resolving various inconveniences related to vision



2024 ————— to —————> 2030

Contributing to medical examinations and research, extending healthy life expectancy through the development of preventive medicine, and realizing an inclusive society.

The expansion of QD LASER's technology and business directly leads to the realization of a happier society.

04

Terminology

Terminology

Semiconductor laser	A compact device with an approximate length of 1mm that causes laser oscillation by passing an electric current to a semiconductor. In comparison with a solid-state laser or gas laser, more micro-miniature in size; higher speed modulation characteristics up to 10GHz; higher photoelectric conversion efficiency achieving several tens of percent and better controllability of wavelength, among other things. Became widely used in the 1980s as a light source for communication systems and optical recording media, such as CDs and DVDs, etc.
Quantum dot laser (QDL)	A semiconductor laser using a quantum-dot structure comprising nanocrystalline semiconductors in its active layer. QD Laser is the only firm in the world to mass-produce QDLs for optical communications and silicon photonics. In comparison to existing semiconductor lasers, it is superior in temperature stability, high-temperature endurance and low-noise properties.
DFB laser	Distributed Feedback Laser: QD Laser's DFB laser is equipped with a diffraction grating which enables laser oscillation at a single wavelength. It is suitable for applications where the light output needs to be concentrated into a narrow wavelength range, such as the seed light of a fiber laser.
Silicon photonics	A technology which integrates an optical circuit with a silicon electronic circuit that has signal processing and memory functions, thus enabling a breakthrough in the processing capacity limitation of the conventional electronic circuit system (achieving 100 times faster processing speed and lower power consumption) and high-capacity data transmission between LSI chips (10Tb/s).
VISIRIUM technology	A technology that projects images onto the retina using precise optical systems, creating different colors flexibly from the three primary laser light colors - red, green and blue.
Diffraction grating	A technology that freely and precisely controls the wavelength of semiconductor lasers to fit into various applications by forming periodic irregularities inside the laser.
Ultrashort pulse	A laser with a very short pulse width (duration). It is used for microfabrication and other processes as it can prevent shape distortion due to thermal effects.
Compact visible laser	A small module that generates visible light (green, yellow-green, and orange) by combining our unique semiconductor laser and wavelength conversion element.
Retinal projection	To project images onto the retina
Flow cytometer	A device capable of measuring certain properties of cells. By irradiating a cell suspension in a tube with a laser beam, it can measure the number and size of a large volume of cells over a short period of time using fluorescence and scattered light parameters. It is used in various fields including molecular biology, pathology, immunology, plant biology and marine biology.
LiDAR	LiDAR (Light Detection and Ranging) is a technology which irradiates an object and uses a light sensor to detect the reflection to measure the distance. It is expected to be used in autonomous driving systems in the future.

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- These statements are based on expectations, forecasts and risk assumptions as of this presentation's publishing, and contain uncertainties that could lead to results that are substantially different from these statements.
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