

LEDs & LDs

FROM THE MARKET LEADER
FOR SPECIALTY LIGHTING

USHIO OPTO SEMICONDUCTORS, INC.

Dec., 2018

USHIO

USHIO is the Leader of Industry Light Source Manufacturer in the World

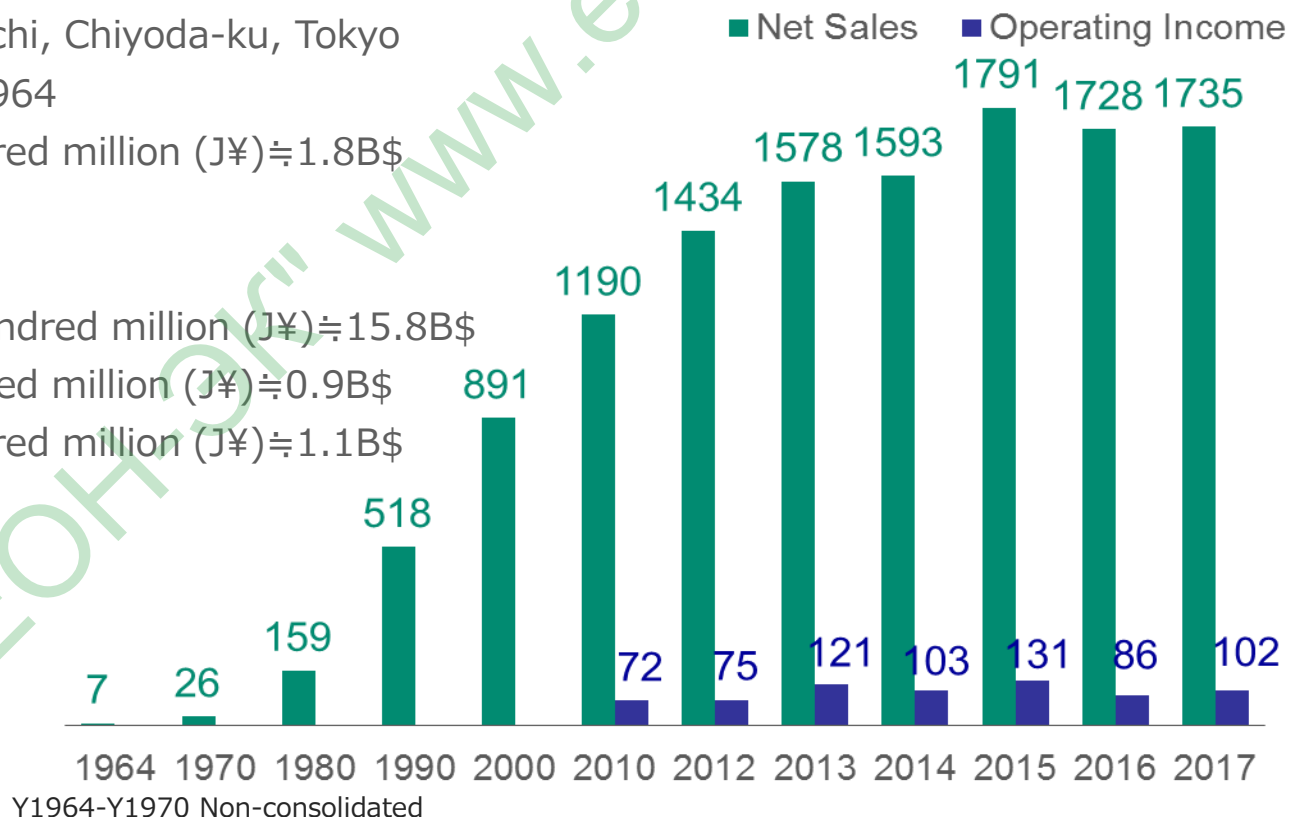


Listed on the 1st Section of the Tokyo Stock Exchange

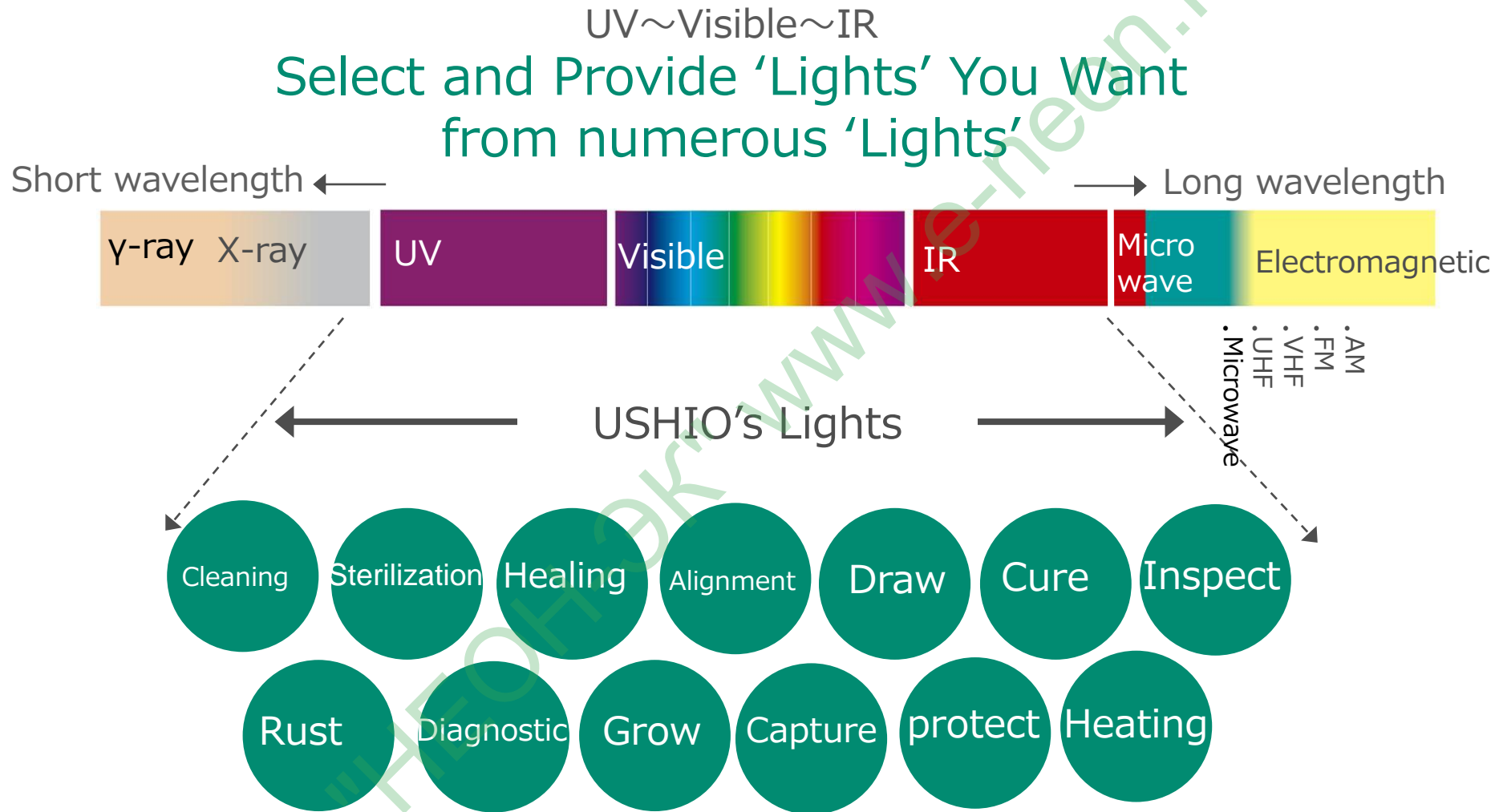
Head Office : Marunouchi, Chiyoda-ku, Tokyo
Establishment : March, 1964
Paid In Capital : 195 hundred million (J¥)≒1.8B\$
Group Companies : 59
Employees : 5,847
Net Sales * : 1,728 hundred million (J¥)≒15.8B\$
Operating Income* : 86 hundred million (J¥)≒0.9B\$
Ordinary Income* : 121 hundred million (J¥)≒1.1B\$

* As of March, 2018, Consolidated

USHIO's Performance History



World-Proud USHIO's Industry Lights



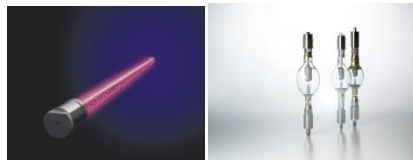
Versatile Function of Light as Photochemical Energy and Heat Energy

World-Proud USHIO's Industry Lights

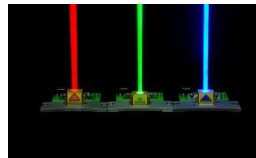
UV~Visible~IR

Select and Provide 'Lights' You Want
from numerous 'Lights'

UV



Visible

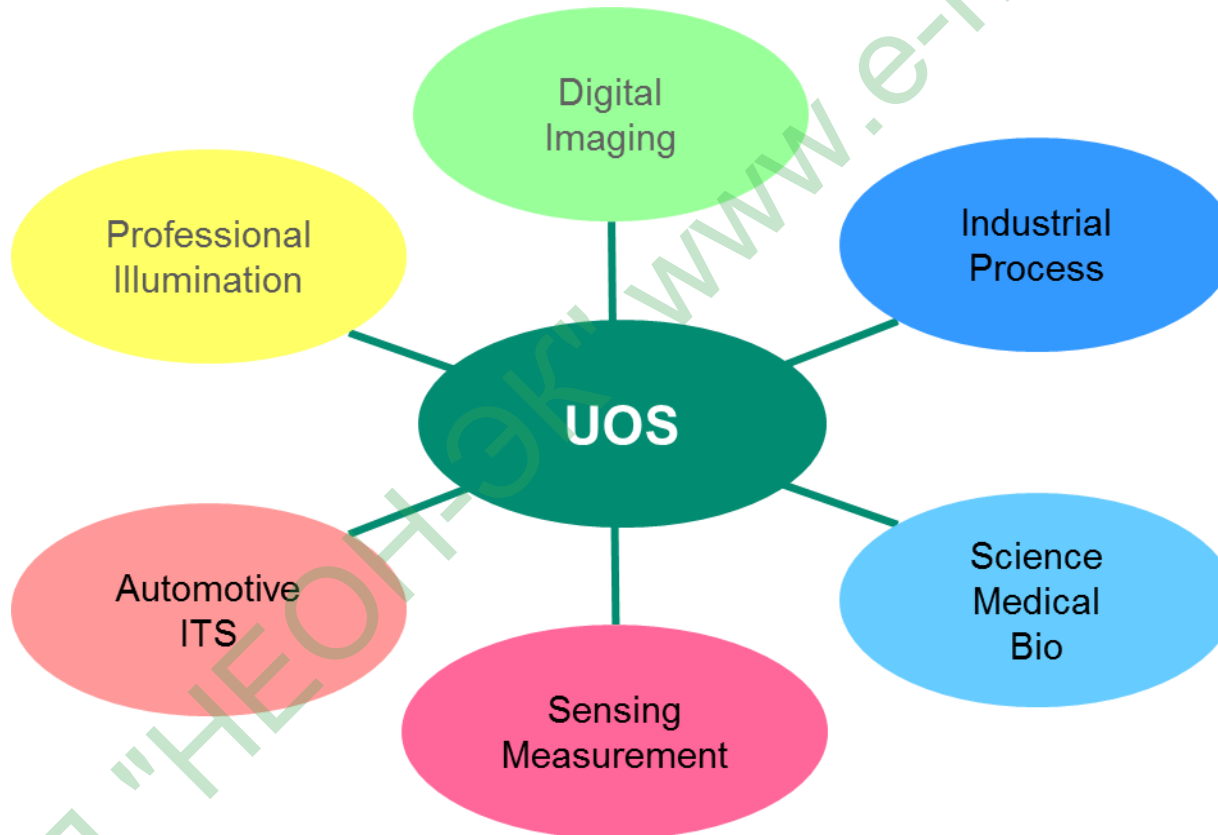


IR



Introduction of USHIO OPTO SEMICONDUCTORS, Inc.

USHIO OPTO SEMICONDUCTORS is the only company for specializing in Industry Lights in the world.



All the products are used in Six Industry Categories.

Products – Applications –

Focus on Six Applications

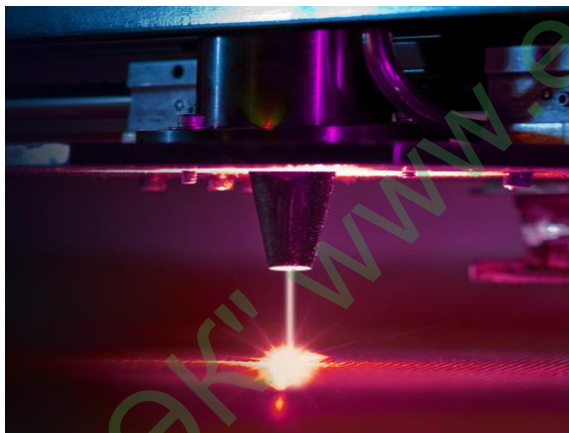
Digital Imaging

Projector / 3D Printer



Industrial Process

Direct Imaging / Curing



Science / Medical / Bio

Medical Vein Detection



Sensing / Measurement

Optical Sensing / Security



Automotive / ITS

Head Up Display / ETC



Professional Illumination

Black Light



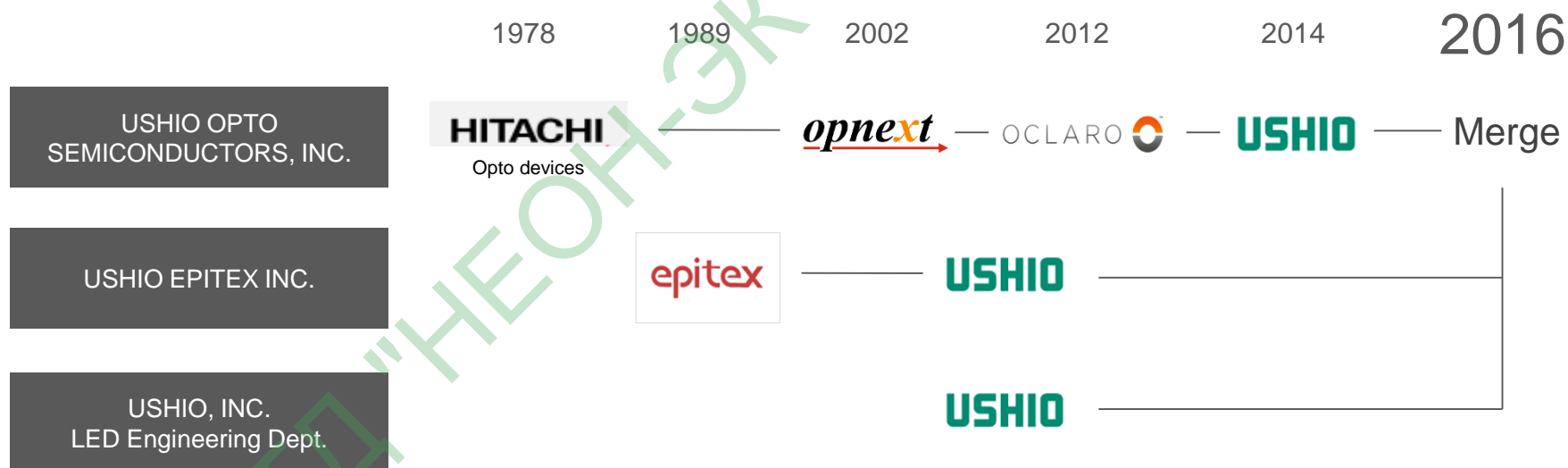
Outline

- ▶ Company name USHIO OPTO SEMICONDUCTORS, Inc.
- ▶ Establishment July 2014
- ▶ Head office Marunouchi Kitaguchi Bldg. 1-6-5 Marunouchi Chiyoda-ku, Tokyo 100-8150, Japan
- ▶ Scope of business Industrial and /Consumer Semiconductor Laser Diode and LED Business
- ▶ Board of directors Hiroaki Banno: Director, President and CEO, COO
Masaki Yoshioka: Director
Hiroshige Hata: Director
Keiichi Miyao: Director
Koji Naito: Director
Akihiko Tomaru: Director
Uichiro Kobayashi: Director and Senior Advisor
- ▶ Employees 160
- ▶ Paid-in capital 490 Millions of Yen≐45K\$
- ▶ Shareholder USHIO INC. (100%)
- ▶ Settlement term March 31

History

Optical Semiconductor technologies founded over 38 years,
are now put together...

Optical semiconductor business in USHIO group,
integrated with USHIO OPTO SEMICONDUCTOR , Inc. July 1st, 2016
It aims to accelerate the solid-state light source business
where future growth is expected.



Base

HQ, Sales

1-6-5 Marunouchi, Chiyouda-ku, Tokyo 100-8150, Japan
TEL : +81-3-5657-1040 FAX : +81-3-5657-1044



Gotenba

1-90 Komakado, Gotemba-shi, Shizuoka 412-0038, Japan
TEL : +81-550-86-0571 FAX : +81-550-86-0576



Kyoto

66-3, Minamikawabe-cho, Higashi-Kujyo, Minami-Ku,
Kyoto 601-8034, Japan
TEL : +81-75-682-2338 FAX : +81-75-682-2267



Saku

970-1 Nagatoro, Saku-shi, Nagano 385-0021, Japan



"Site Location of USHIO OPTO SEMICONDUCTOR, Inc."

HQ,
Sales

HQ/Sales/Marketing

Chiyoda-Ku, Tokyo



Gotemba

LD R&D

LD/LED Epi

LD Process

Gotemba City, Shizuoka



Kyoto

LED R&D

LED Process

LED Packaging

Kyoto City, Kyoto



Saku

LD Packaging

Saku City, Nagano



USHIO

One Stop Solution with LED / LD

In-house integrated production of LED / LD devices for industrial area.
Reliable products are provided.

LED

Wavelength: UV 365nm ~ IR 1,750nm

Power: High 1,400mW class ~ Low 1mW class

LD

Wavelength: UV 400nm ~ IR 850nm

Power: High 2,000mW class ~ Low 5mW

Products – Line Ups –

epitex Series

iRED Series

LED



High Power TOP LED



Surface Mount LED



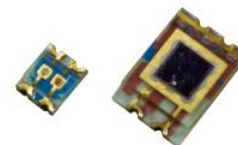
Multi-Chips



Metal-Stem Type LED



Photo sensor



Transfer Molding(Epoxy & Silicon)



FL Type



SG Type

LD

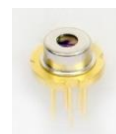
Multi
beam LD



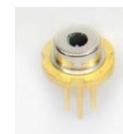
(F16mm)



(F9mm)



(F5.6mm)



(F5.6mm)

Standard
LD
(single beam)



(F9mm)



(F5.6mm)



(F5.6mm)

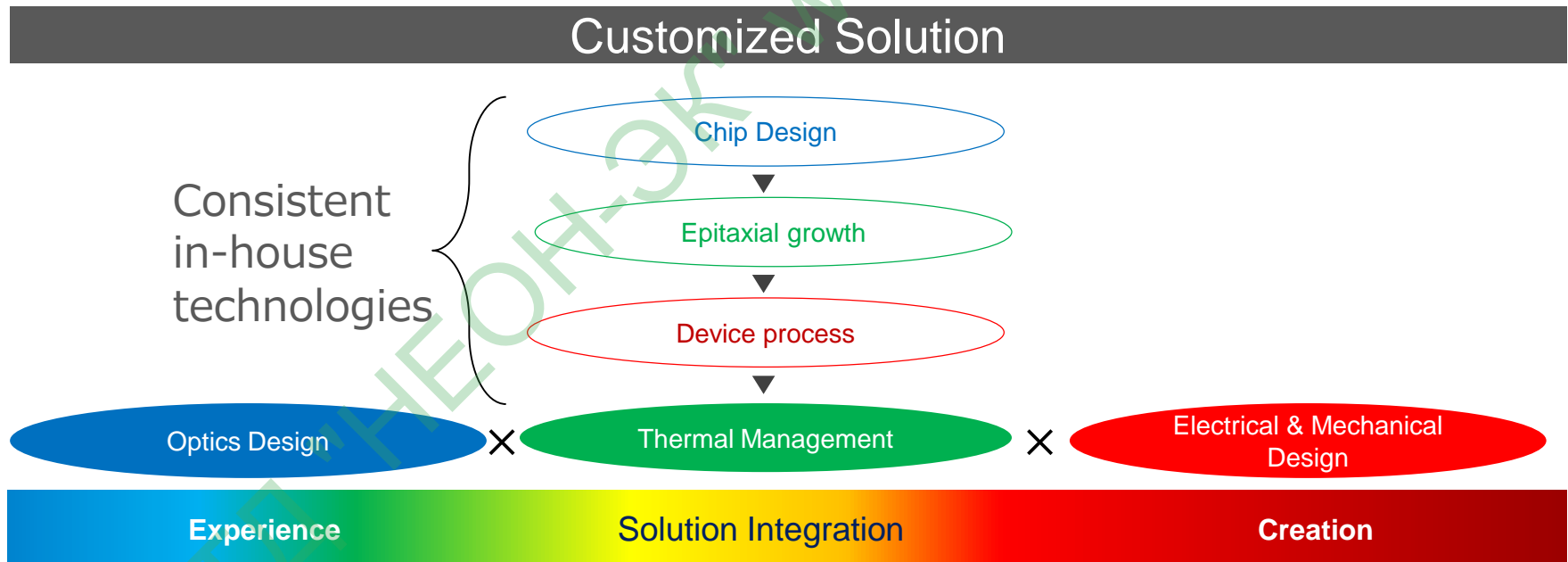


(F3.8mm)

Customized Solutions

We will realize the optimum LD/LED device.
It can be proposed in accordance with the wavelength
for customers' applications with our characteristics of devices.

We can make proposed and customized products from abundant package. Also,
we will proactively propose packages
including composite wavelength package and optical system.



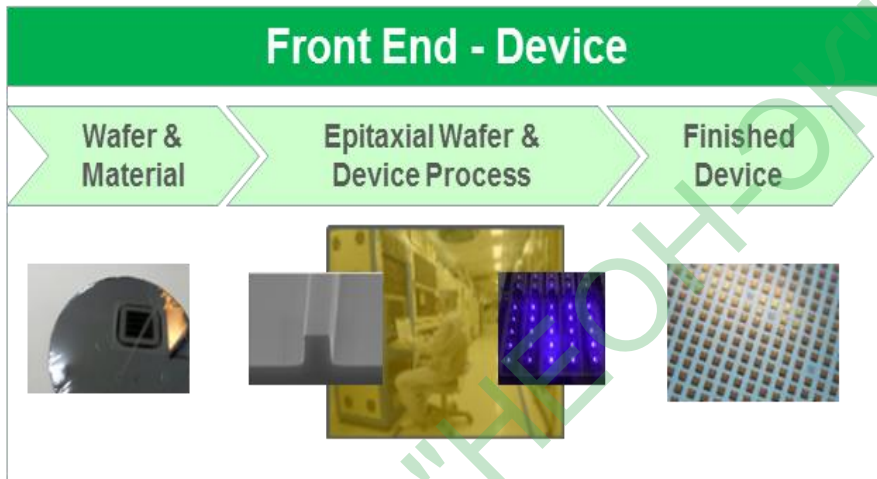
Know-How in USHIO

USHIO

Consistent Business System

We are Vertically Integrated from R&D to Epitaxial process until package process.

We also actively promote innovation creation by collaborating with advanced research institutes, universities.



Lighting- Edge Technologies

USHIO