



High-Volume Automatic Visual Inspection and Trench Thickness Measurement on Si, SiC, and GaN wafers

November 17, 2022

SCREEN Semiconductor Solutions Co., Ltd.



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Product line up for 150 mm / 200 mm wafers

Coat/Develop Track



SK-80EX
Coat/Develop Track



SS-80EX
Spin Scrubber



SU-2000
Single Wafer Cleaner



CW-2000
Compact Wet Station



WS-620C/WS-820L
Wet Station

Wet Cleaning System

Inspection and Measurement System



ZI-3600
Wafer Pattern
Inspection System



ZI-2000
Wafer Pattern
Inspection System



RE-3500
Ellipsometric Film Thickness
Measurement System



VM-2500/3500
Spectroscopic Film
Thickness Measurement
System



VM-1200/1300
Spectroscopic Film
Thickness Measurement
System

NEW

High-Speed and High-Resolution Wafer Pattern Inspection System ZI-3600

NEW
As of Nov. 2022



High-speed inspection

Approx. double the throughput compared to ZI-2000 / 3500

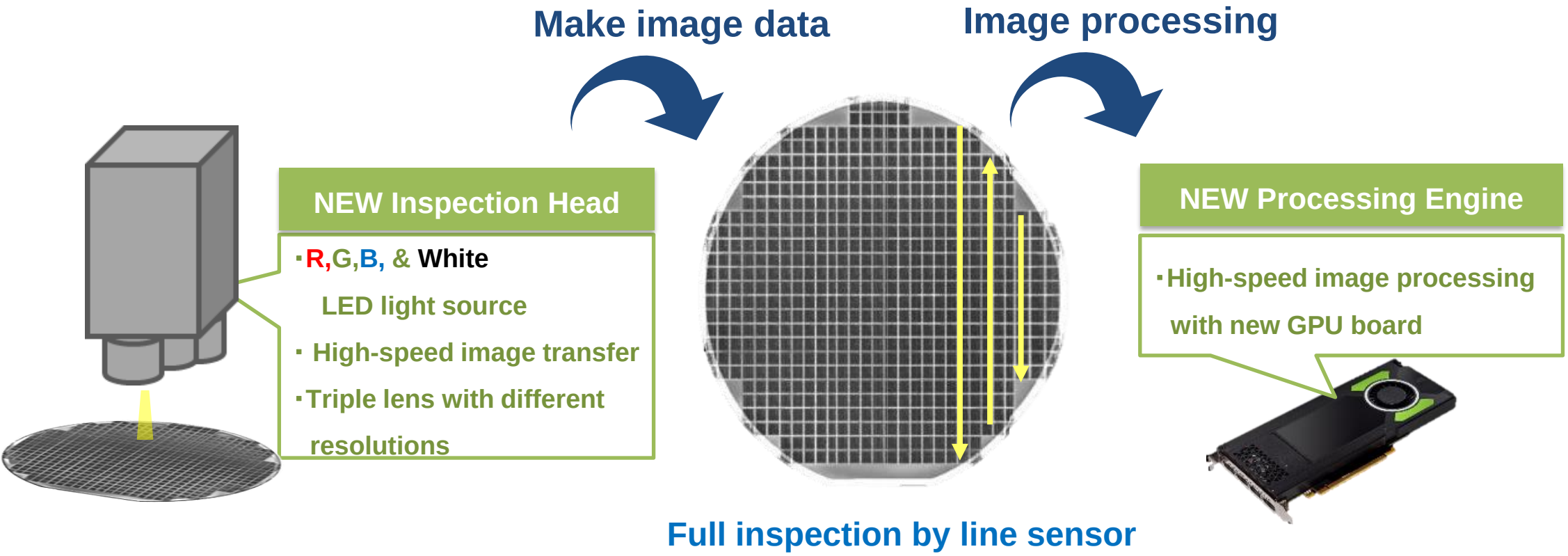
High-resolution inspection

Enable to detect and analysis micro-defects smaller than 1 μ m

Simple operation

Flexibly meeting customer needs

ZI-3600 Features

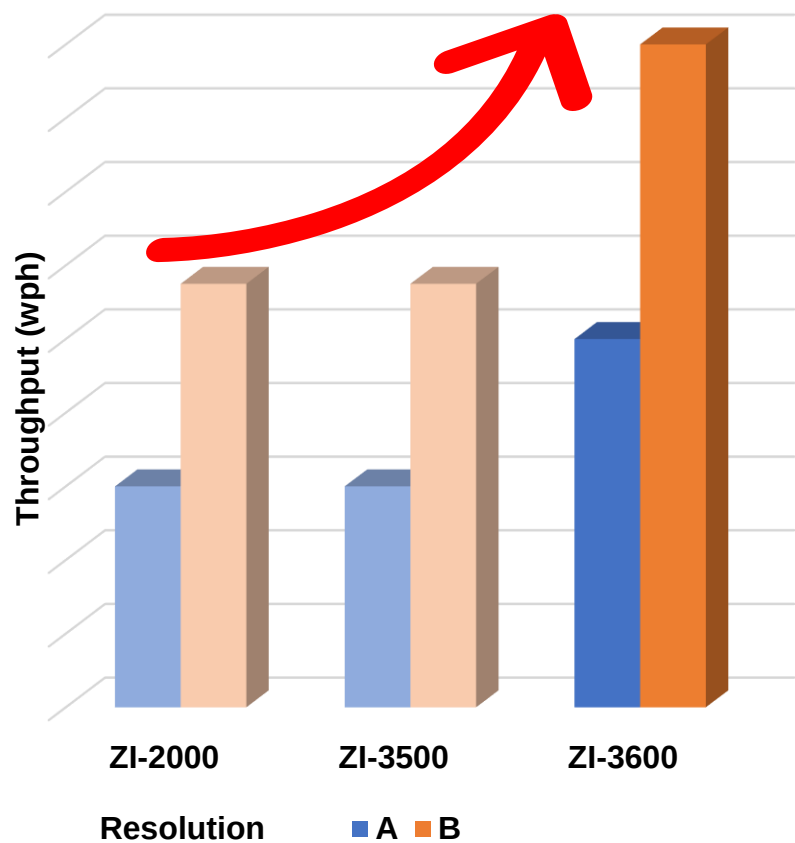


Achieves high-speed processing regardless of chip size or quantity!

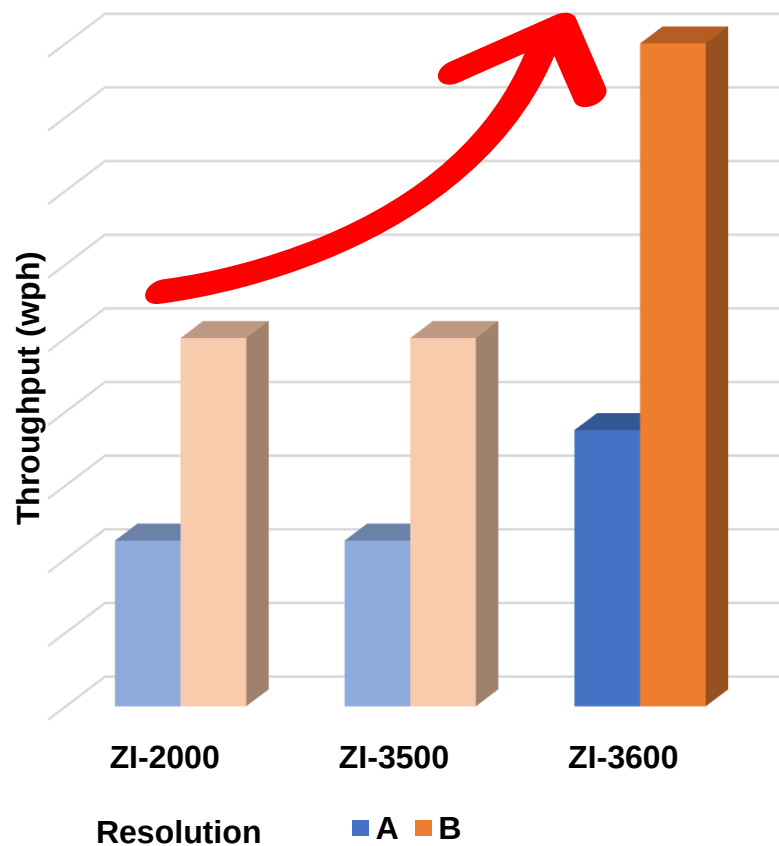
ZI-3600 Features

- ◆ Approx. double the throughput of ZI-2000 / ZI-3500

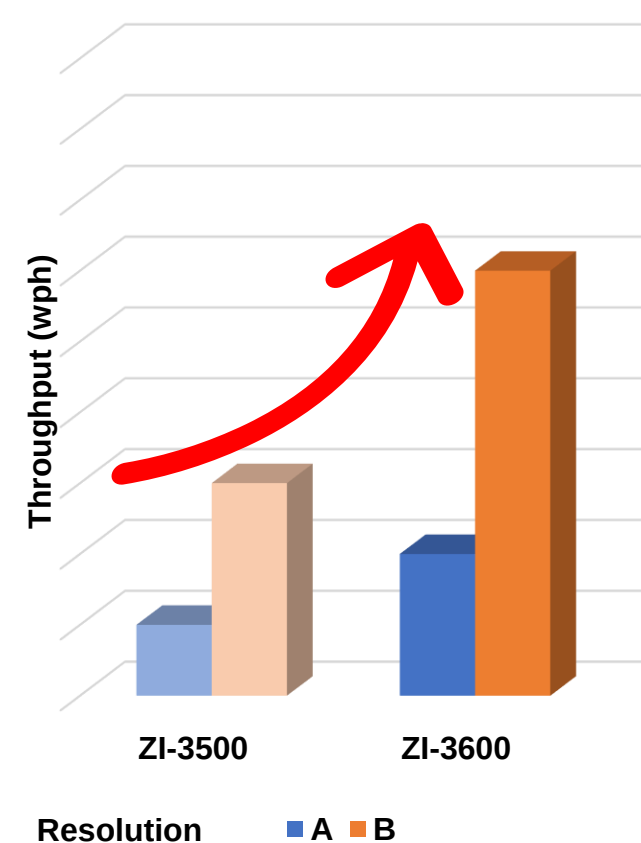
150 mm



200 mm



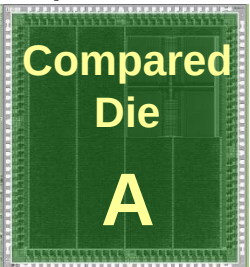
300mm



ZI-3600 Features : Inspecting methods

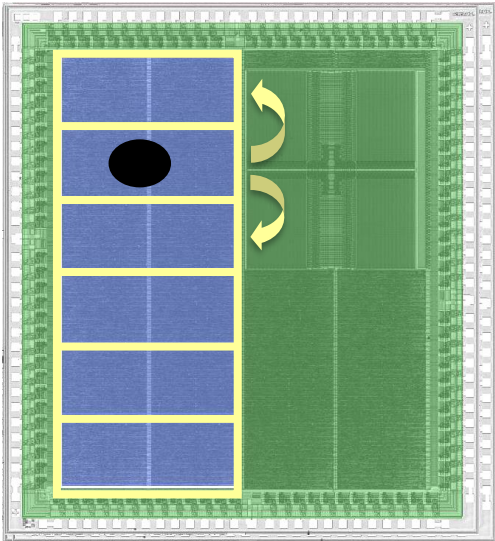
Die to Die

In case B is inspected,
B is compared with A and C



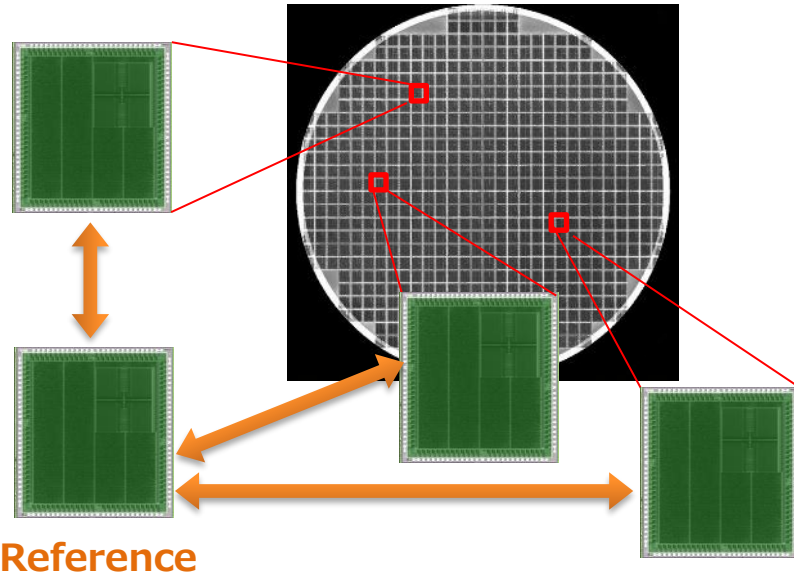
Cell to Cell

Select cell area and
compare each cell
(like Die to Die)



Die to Reference

All of dies are compared with
same reference picture



Able to customize three types of methods in single recipe

Summary

- **High-speed** inspection

Approx. double the throughput compared to ZI-2000 / 3500 (Independent of chip number and chip size)

- **High-resolution** inspection

Suitable for fine defect detection and analysis of 1 μm or less

- **Simple** operation

Easy to operate, uses real images like the functions of ZI-2000 / 3500



SCREEN

High-Speed/High-Resolution
Wafer Inspection System

ZI-3600

NEW

As of Nov. 2022

SCREEN Semiconductor Solutions Co., Ltd.

Film/Trench Thickness Measurement System for Si, SiC, GaN

SCREEN

Measurement System



More than
38 years
experience

Same long history
as Wet Cleaning

More than
1400
sets
install base

Japan, Korea,
Taiwan, US, EU

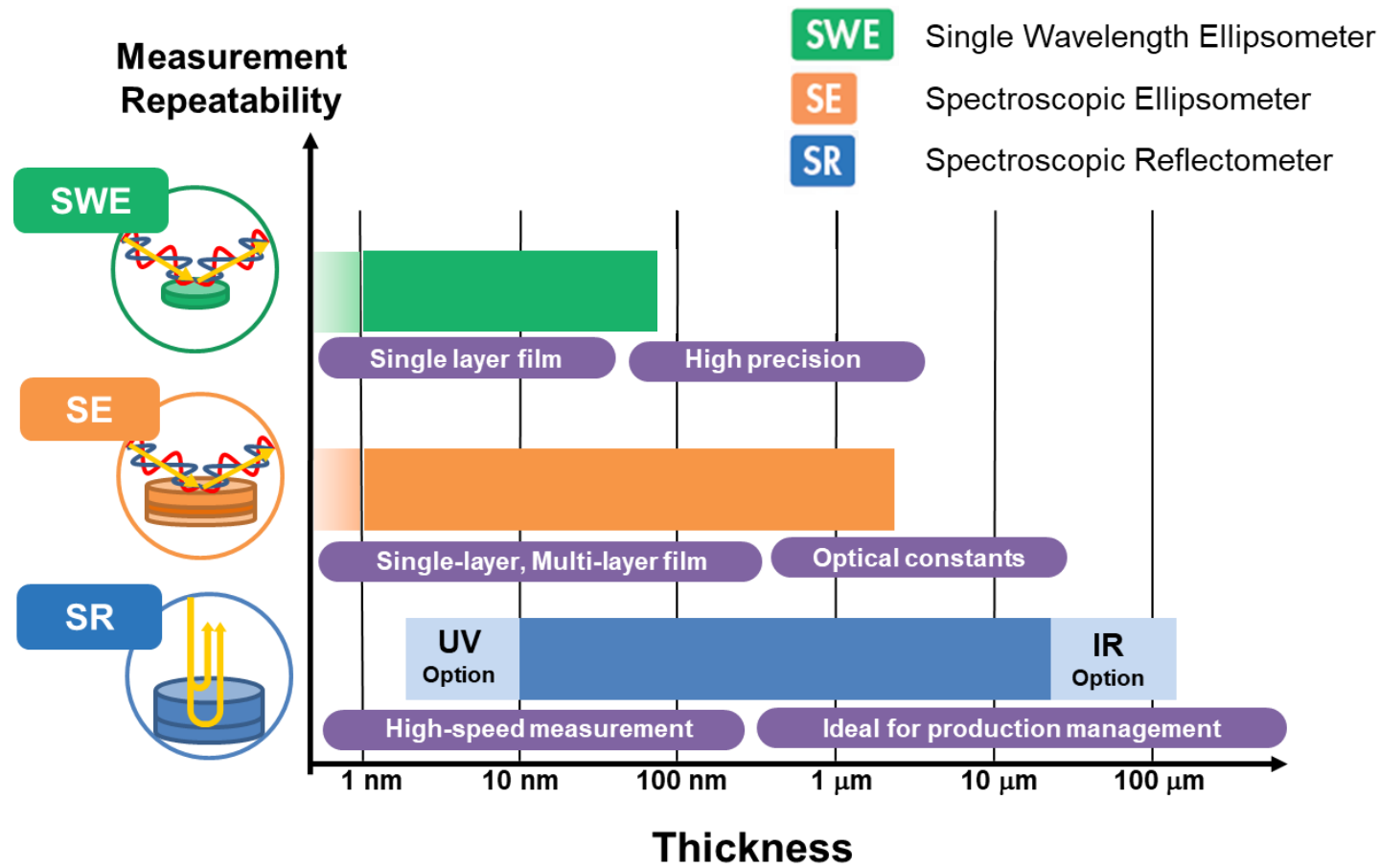
10 min
for recipe
creation

Available training

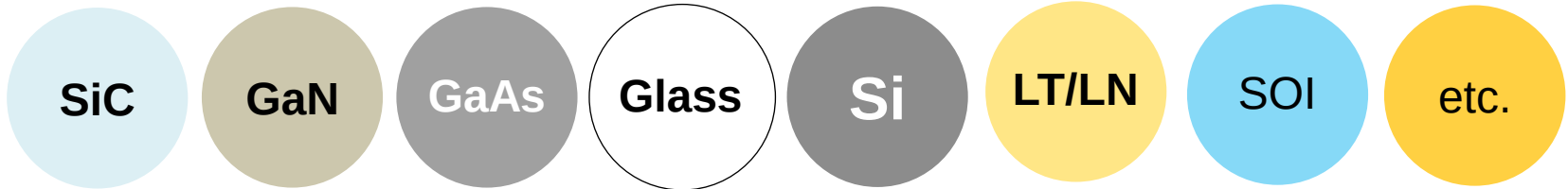
45%
less foot print

From Competitor

Various Measurement for Various Wafers



Experience



Line up



SE SWE SR

RE-3500

Spectroscopic Ellipsometer
Dual head with Reflectometer
Bridge tool concept



SR

VM-2500/3500 series

Spectroscopic Reflectometer
Auto handling type
> 500 points measurement
with HTP



SR

VM-1200/1300 series

Spectroscopic Reflectometer
Table-top type

SE

Spectroscopic Ellipsometer

SWE

Single Wavelength Ellipsometer

SR

Spectroscopic Reflectometer

RE-3500 specification



New Ellipsometry

Wavelength 230 nm - 800 nm with MSE, 40 μm sq.

High accuracy and Repeatability

Film thickness Range: up to 1 μm

Spectroscopic Reflectometer

Wavelength 400 nm - 800 nm: spot size : $\phi 10 \mu\text{m}$

Film thickness Range : 10 nm - 20 μm



High Flexibility

Transfer the various Wafer size and Thin wafer without any modification

New Recipe creation support

VM-2500/3500 specification

SR



Spectroscopic Reflectometer

Standard Wavelength type: 400 nm – 800 nm

UV Wavelength type : 220 nm - 800 nm

IR Wavelength type : 400 nm - 1000 nm

Thickness Range

Standard Wavelength type: 10 nm - 20 μ m

UV Wavelength type : 2 nm - 20 μ m

IR Wavelength type : 10 nm - 120 μ m



High Throughput and Flexibility

160 wph 200mm

Transfer the Small Wafer size and Thin wafer without any modification

New Recipe creation support

VM-3500-Trench specification

SR
Trench

SR



Spectroscopic Reflectometer

Standard Wavelength type: 400 nm - 800 nm

UV Wavelength type : 220 nm - 800 nm

IR Wavelength type : 400 nm - 1000 nm

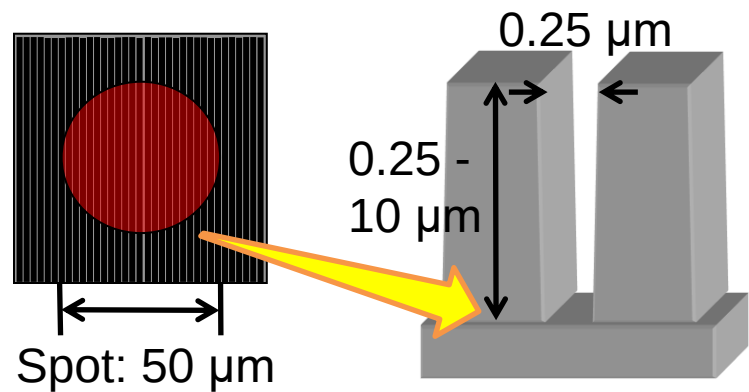
Trench depth measurement

Wavelength : 200 nm - 400 nm

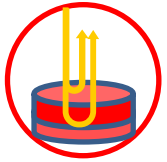
Trench depth : 0.25 - 10 μm

Line and space : 0.25 μm over size

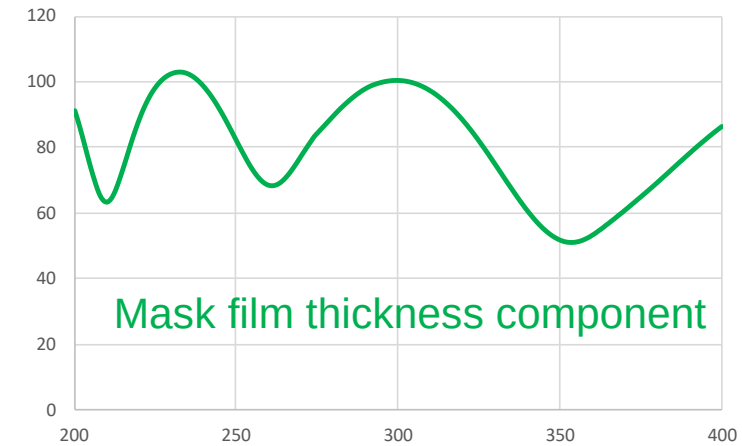
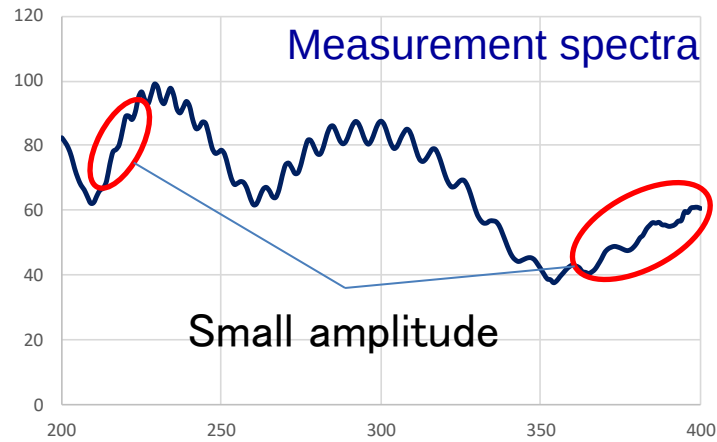
Measurement time: within 2 sec.



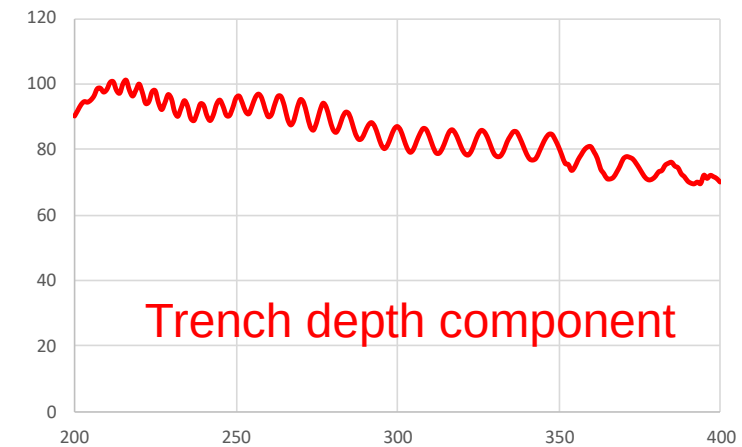
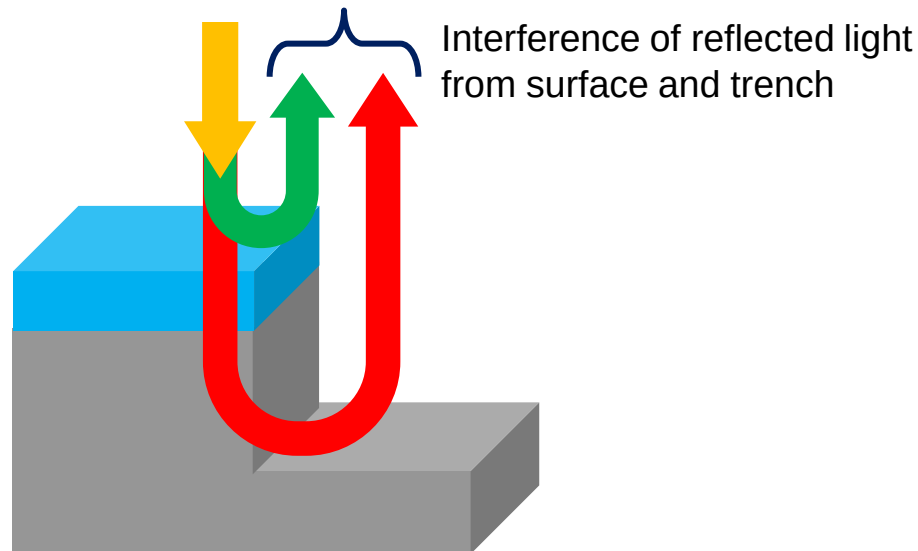
Trench depth measurement : Mask film thickness separation



SR
Trench



Separate of spectra components



Summary

More than
38 years
experience

Same long history
as Wet Cleaning

More than
1400
sets
install base

Japan, Korea,
Taiwan, US, EU

10 min
for recipe
creation

Available training

45%
less foot print

From Competitor

Experience for
**Compound
Wafer**

SiC, GaN, GaAs
and also LT/LN

5 min
for
500 points

By VM-2500 HTP

**Trench
depth
and
thickness**
measurement tool

Si and SiC wafer

DEMO
is available
In Japan

Any time
WELCOME

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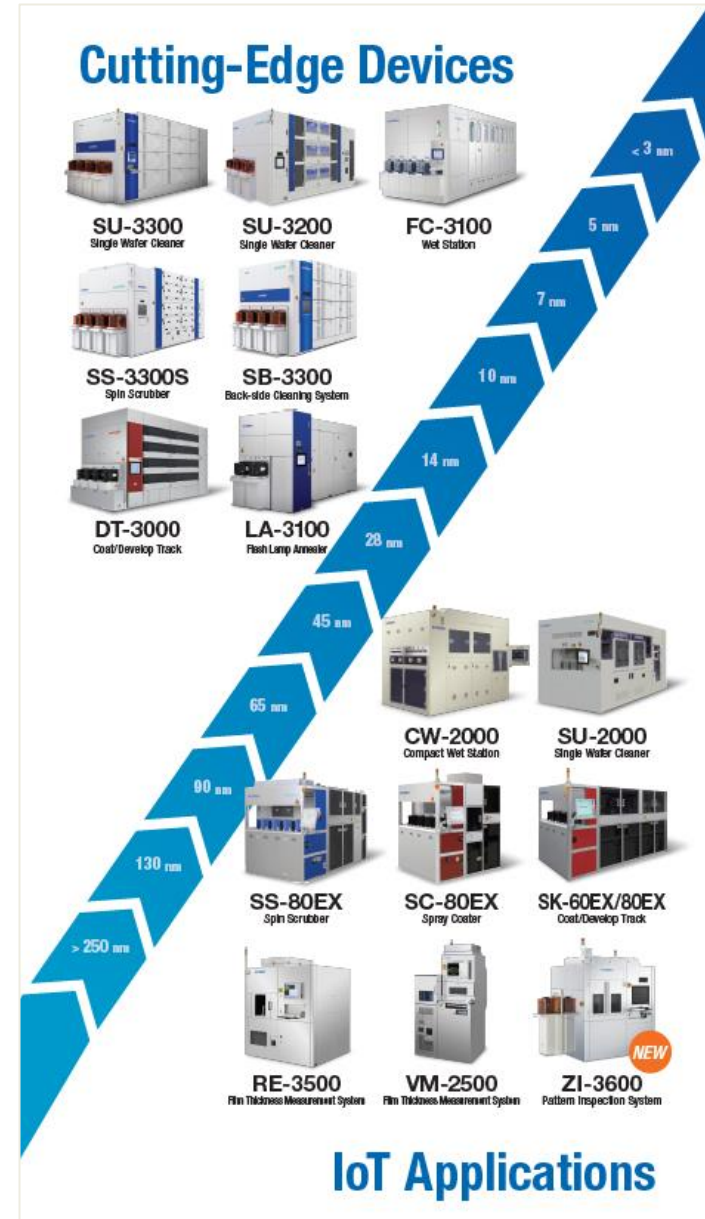
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