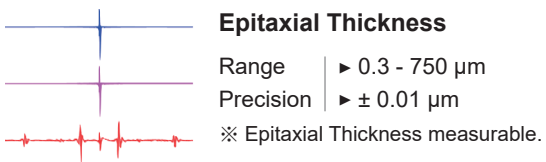


SE50A-ECO 200DS FT-IR Metrology Tool

For Material Characterization

Systems Engineering combines the Thermo Fisher Scientific's FT-IR measurement technology and JEL's sorter system to introduce a next generation "FT-IR SE50-ECO series" as semiconductor material characterization tools.

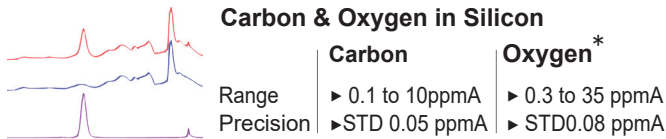
Application Specifications



Epitaxial Thickness

Range ▶ 0.3 - 750 μm
Precision ▶ $\pm 0.01 \mu\text{m}$

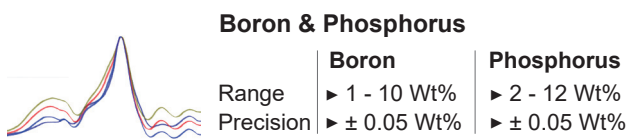
※ Epitaxial Thickness measurable.



Carbon & Oxygen in Silicon

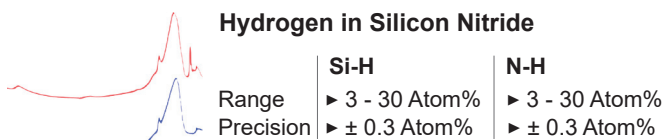
	Carbon	Oxygen*
Range	▶ 0.1 to 10ppmA	▶ 0.3 to 35 ppmA
Precision	▶ STD 0.05 ppmA	▶ STD 0.08 ppmA

*All carbon and oxygen values reported using ASTM 1979 calculations.



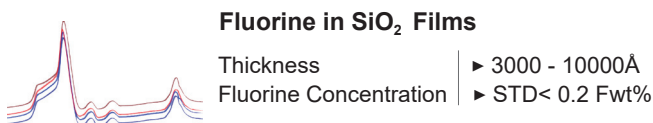
Boron & Phosphorus

	Boron	Phosphorus
Range	▶ 1 - 10 Wt%	▶ 2 - 12 Wt%
Precision	▶ $\pm 0.05 \text{ Wt}\%$	▶ $\pm 0.05 \text{ Wt}\%$



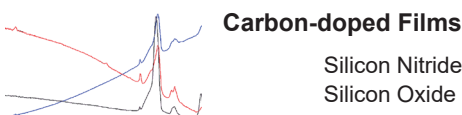
Hydrogen in Silicon Nitride

	Si-H	N-H
Range	▶ 3 - 30 Atom%	▶ 3 - 30 Atom%
Precision	▶ $\pm 0.3 \text{ Atom}\%$	▶ $\pm 0.3 \text{ Atom}\%$



Fluorine in SiO₂ Films

Thickness	▶ 3000 - 10000Å
Fluorine Concentration	▶ STD < 0.2 Fwt%

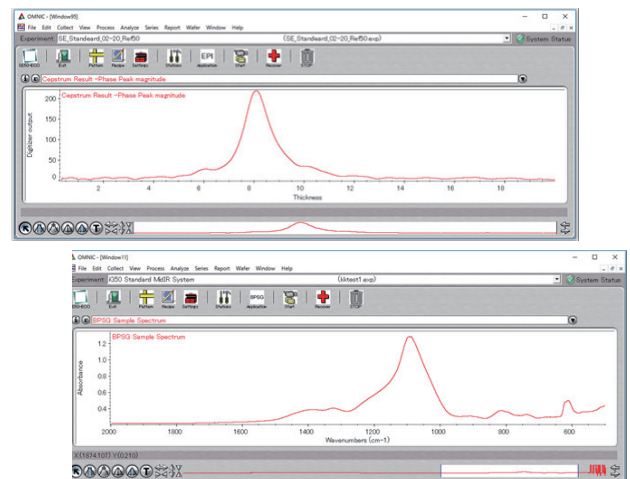


Carbon-doped Films

Silicon Nitride
Silicon Oxide



Operation Software



- Intuitive Graphical User Interface
- Easy-to-Use operator and Authorized engineer user levels
- Easy to learn and use, giving optimum efficiency
- Measurement result, display and data logging.

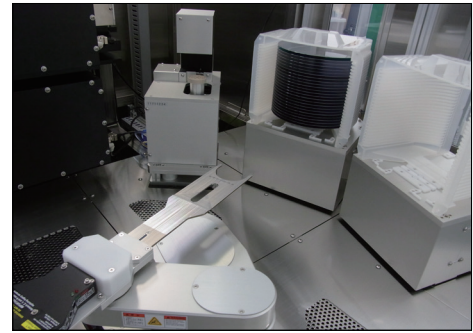
Specifications

RELIABILITY	
MTBF	> 6 months
MTTR	48 hours
MTTS	4 hours
Uptime	> 97%

Computer Specifications	
Operation System	Windows 10 64bit Memory 32GB Hard Disk SSD RAID1

OPTICAL	
Spectral Range	7800 - 350cm ⁻¹
Spectral Resolution	0.5cm ⁻¹
Beam Diameter	Standard 8mm (Variable)
Analysis Angle	15°

FACILITY REQUIREMENTS	
Power	100 - 240V (50/60Hz)
House Vacuum	-61±10kPa (G) 30L/min (ANG)
Pressurized Gas	CDA none N ₂ 0.2MPa (G) 15L/min (ANR)



SE50 Product Line

Hardware					Software	
Product#	Model	Wafer size	Station	Handring	Product#	Model
ECO-02S	SE50S-ECO	2-12 inch	Stage	Edge Grip	ECO-1EP	Epitaxial Thickness
ECO-031	SE50A-ECO_150SS	2-6 inch	Single	Vacuum	ECO-1CO	Carbon & Oxygen in Silicon
ECO-032	SE50A-ECO_150DS	2-6 inch	Double	Vacuum	ECO-1BP	Boron & Phosphorus in BPSG or PSG Films
ECO-041	SE50A-ECO_200SS	4-8 inch	Single	Vacuum	ECO-1SN	Hydrogen in Silicon Nitride
ECO-042	SE50A-ECO_200DS	4-8 inch	Double	Vacuum	ECO-1SF	Fluorine in Silicon Oxide Films
ECO-043D	SE50A-ECO_200DSMIF	8 inch	Double SMIF	Vacuum	ECO-1MB	Multi Background Option
ECO-044	SE50A-ECO_200FS	4-8 inch	Four	Vacuum	ECO-1GM	GEM/SECS Host Communication
ECO-051	SE50A-ECO_300SS	8-12 inch	Single	Vacuum	ECO-1SH	Share File Host Communication
ECO-052	SE50A-ECO_300DS	8-12 inch	Double	Vacuum	ECO-1DS	Double Station Sorting Support
ECO-051F	SE50A-ECO_300SF	8-12 inch	Single Foup	Vacuum	ECO-1FS	Four Station Sorting Support
ECO-052F	SE50A-ECO_300DF	8-12 inch	Double Foup	Vacuum	ECO-1SS	Six Station Sorting Support
ECO-051E	SE50A-ECO_300SSE	12 inch	Single	Edge Grip	ECO-1OH	Hydrogen in Silicon Software
ECO-052E	SE50A-ECO_300DSE	12 inch	Double	Edge Grip	ECO-1SC	SiC Epitaxial Thickness Support
ECO-051FE	SE50A-ECO_300SFE	12 inch	Single Foup	Edge Grip	ECO-1SU	Shuttle Background Software
ECO-052FE	SE50A-ECO_300DFE	12 inch	Double Foup	Edge Grip	ECO-1CH	Carbon-doped Films
THZ-02	SE50A-THz_150DS	4-6 inch	Double	Vacuum	ECO-1SO	Silicon Oxide Film Analysis (SiXx)
THZ-04	SE50A-THz_150FS	4-6 inch	Four	Vacuum		
THZ-06	SE50A-THz_150SIS	4-6 inch	Six	Vacuum		

Option	
Product#	Model
ECO-FA1	200mm wafer adapter for FOUF system
ECO-FA2	Tag Reader for FOUF & SMIF system • Keyence : BL600 • Omron : V640
ECO-FA3	E84 OHT Support for OHT COM module
ECO-FA4	Safety Light Curtain for OHT
ECO-FA5	Sensing Ionizer System
ECO-FA6	Water ID Reader Module
ECO-FA7	Optical FFU (Fan Filter Unit)
ECO-FA8	Share File Host Communication