Systems Engineering

ThermoFisher SCIENTIFIC

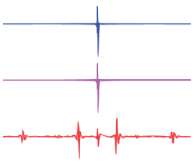
Datasheet

SE50A-ECO 300SS 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.

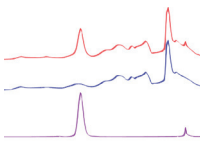
Application Specifications



Epitaxial Thickness

Range	▸ 0.3 - 750 μm
Precision	▸ ± 0.01 μm

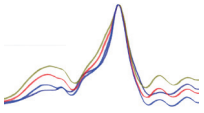
※ Epitaxial Thickness measurable.



Carbon & Oxygen in Silicon

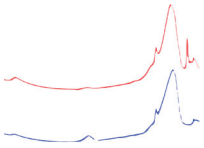
	Carbon	Oxygen*
Range	▸ 0.1 to 10ppmA	▸ 0.3 to 35 ppmA
Precision	▸STD 0.05 ppmA	▸ STD0.08 ppmA

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



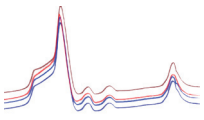
Boron & Phosphorus

	Boron	Phosphorus
Range	▸ 1 - 10 Wt%	▸ 2 - 12 Wt%
Precision	▸ ± 0.05 Wt%	▸ ± 0.05 Wt%



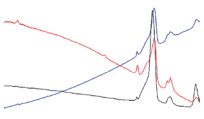
Hydrogen in Silicon Nitride

	Si-H	N-H
Range	▸ 3 - 30 Atom%	▸ 3 - 30 Atom%
Precision	▸ ± 0.3 Atom%	▸ ± 0.3 Atom%



Fluorine in SiO_2 Films

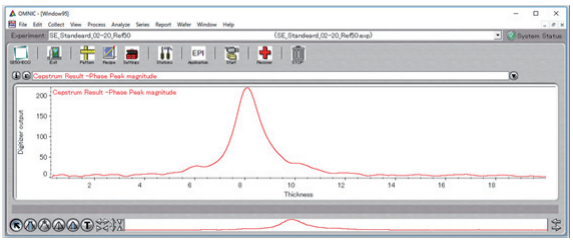
Thickness	▸ 3000 - 10000Å
Fluorine Concentration	▸ STD< 0.2 Fwt%

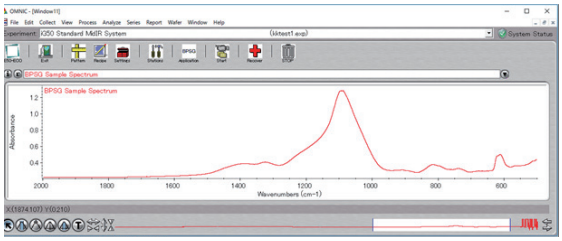


Carbon-doped Films

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.

Systems Engineering

JEL JEL CORPORATION

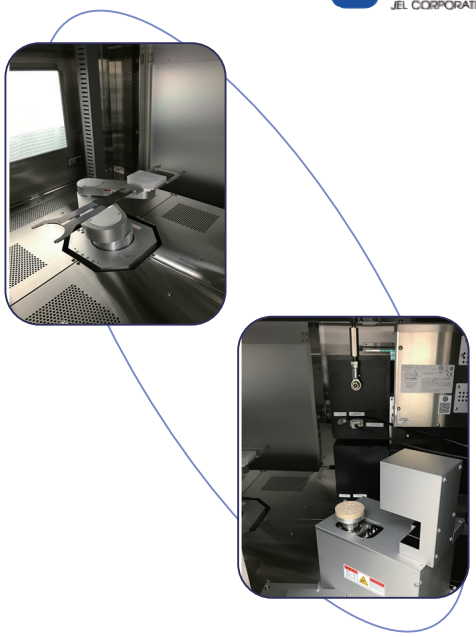
Specifications

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 REQUREMENTS		
Power		100 - 240V (50/60Hz)
House Vacuum		-61±10kPa (G) 30L/min (ANG)
Pressurized Gas	CDA	0.52 - 0.6Mpa (G) 30L/min (ANR)
	N_2	0.2MPa (G) 15L/min (ANR)



SE50 Product Line

Hardware

Product#	Model	Wafer size	Station	Handring
ECO-02S	SE50S-ECO	2-12 inch	Stage	Edge Grip
ECO-031	SE50A-ECO_150SS	2-6 inch	Single	Vacuum
ECO-032	SE50A-ECO_150DS	2-6 inch	Double	Vacuum
ECO-041	SE50A-ECO_200SS	4-8 inch	Single	Vacuum
ECO-042	SE50A-ECO_200DS	4-8 inch	Double	Vacuum
ECO-043D	SE50A-ECO_200DSMIF	8 inch	Double SMIF	Vacuum
ECO-044	SE50A-ECO_200FS	4-8 inch	Four	Vacuum
ECO-051	SE50A-ECO_300SS	8-12 inch	Single	Vacuum
ECO-052	SE50A-ECO_300DS	8-12 inch	Double	Vacuum
ECO-051F	SE50A-ECO_300SF	8-12 inch	Single Foup	Vacuum
ECO-052F	SE50A-ECO_300DF	8-12 inch	Double Foup	Vacuum
ECO-051E	SE50A-ECO_300SSE	12 inch	Single	Edge Grip
ECO-052E	SE50A-ECO_300DSE	12 inch	Double	Edge Grip
ECO-051FE	SE50A-ECO_300SFE	12 inch	Single Foup	Edge Grip
ECO-052FE	SE50A-ECO_300DFE	12 inch	Double Foup	Edge Grip
THZ-02	SE50A-THz_150DS	4-6 inch	Double	Vacuum
THZ-04	SE50A-THz_150FS	4-6 inch	Four	Vacuum
THZ-06	SE50A-THz_150SiS	4-6 inch	Six	Vacuum

Software

Product#	Model
ECO-1EP	Epitaxial Thickness
ECO-1CO	Carbon & Oxygen in Silicon
ECO-1BP	Boron & Phosphorus in BPSG or PSG Films
ECO-1SN	Hydrogen in Silicon Nitride
ECO-1SF	Fluorine in Silicon Oxside Films
ECO-1MB	Multi Background Option
ECO-1GM	GEM/SECS Host Communication
ECO-1SH	Share File Host Communication
ECO-1DS	Double Station Sorting Support
ECO-1FS	Four Station Sorting Support
ECO-1SS	Six Station Sorting Support
ECO-1OH	Hydrogen in Silicon Software
ECO-1SC	SiC Epitaxial Thickness Support
ECO-1SU	Shuttle Background Software
ECO-1CH	Carbon-doped Films
ECO-1SO	Silicon Oxiside Film Analysis (SiXx)

Option

Product#	Model
ECO-FA1	200mm wafer adapter for FOUP system
ECO-FA2	Tag Reader for FOUP & 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

Systems Engineering

Head Office : 1-4-12 Koishikawa Bunkyo-ku, Tokyo 112-0002 Japan TEL +81-3-3868-2634 FAX +81-3-3868-2633
Factory : 3-5-8 Funado Itabashi-ku, Tokyo 174-0041 Japan TEL +81-3-6279-8908 FAX +81-3-6279-8907
West Branch : Miyahara Yodogawa-ku Oosaka-shi, Oosaka 532-0003 Japan TEL +81-6-6868-9790 FAX +81-6-6868-9796

Made in Japan

 20240807