TP-50B

table-top plasma etching instrument

Local plasma processing is possible using our original spot plasma techonlogy (A typical etching rate of silicon wafer is 10 μm/min). This novel plasma instrument can be applied to a variety of plasma processing including the delayering of LSIs for the failure analysis.

Applications

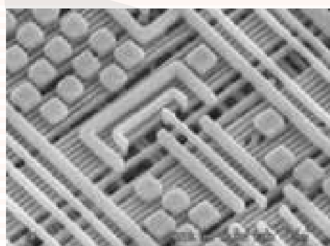
- Surface treatment
- Deprocessing LSI
- Backside access to LSIs for the failure analysis etc.
- Cleaning
- Etching various materials

Features

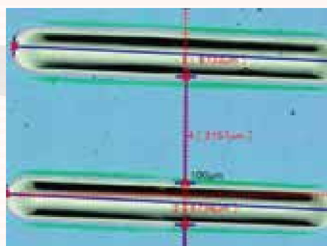
- Table top size
- Local processing possible (φ 0.5mm~)
- Clean and fast (10 μm/min) ※1
- Power efficient (RF power no larger than 50 W)
- Scanning stage (optional)

Plasma spot generation (diameter 1mm)

Various plasma processes

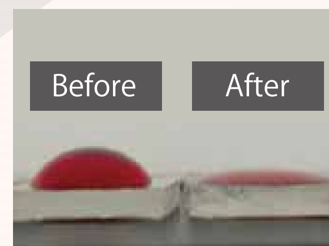


LSI deprocessing



Direct patterning

Polymer etching

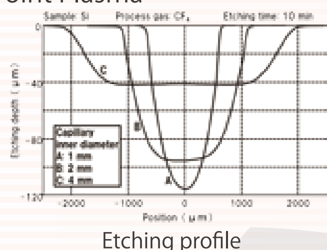


Hydrophilic treatment

※1 SI wafer etched CF_4 as a process gas

Advantages of the instrument

▶ Pin-Point Plasma

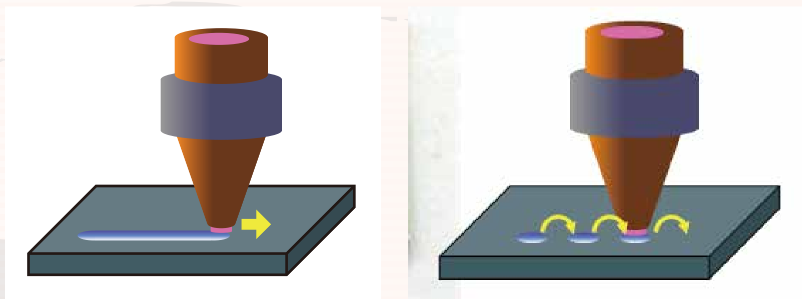


Etching profile

▶ Less debris

Conventional TP-50B

▶ Direct patterning ※



Scan processing Hole drilling

By scanning the sample to be processed under the plasma spot, areas larger than the spot size or maskless plasma processing is possible

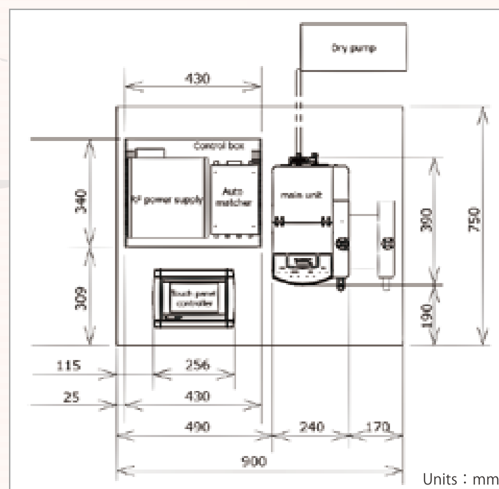
※A motorized XY stage (optional) is required.

Specifications

Model		TP-50B
Dimensions		Main unit 240 mm (W) × 390 mm (D) × 350 mm (H) (Protrusions not included)
Weight		20kg
Components	Standard	Vacuum chamber, RF power supply, Auto matcher
		Vacuum gauge, Vacuum pump, Compressor
	Optional	Three axial motorized stage plus its controller
Stage specifications	Standard	One axis (Z)
	Optional	Three axes (additional motorized XY stage or motorized XYZ stage)
	Travels	± 10 mm (Z), ± 14 mm (X,Y,Optional)
	Resolutions	≦ 2 μm (Z), ≦ 10 μm (X,Y,Optional)
	Sample size	100 mm × 100 mm × t 10 mm
Gas flow rate control	Standard	Needle valve
	Optional	Mass flow controller
Vacuum pump		Dry pump (15 L)
Vacuum gauge	Standard	Pirani gauge
	Optional	Capacitance manometer
Electric requirements		Single phase, 50 Hz AC 100 V, 400 W

Plasma specifications	Maximum RF power supplied: less than 50 W
	Plasma spot diameter (process diameter) φ0.5~4mm
Maximum process area	28 mm × 28 mm (with an XY stage (optional))
Process gas	CF_4, N_2, Dry air, Ar, O_2 etc.
Materials to be etched	Si, SiO_2, SiN, PIQ etc.

▶ Typical layout
(table size: 900×750)



※Option included

SUNYOU
Sanyu Co., Ltd.
http://www.sunyou-ss.co.jp

▌Technology Center
2-43-4 Ishinazaka-cho, Hitachi City,
Ibaraki Prefecture 319-1225 Japan
TEL : +81-294-33-9931 FAX : +81-294-33-9932
E-mail : info-sales@sunyou-ss.co.jp

▌Head Office and Main Factory
457 Baba-cho, Hitachi Ota City,
Ibaraki Prefecture 313-0004 Japan
TEL. +81-294-72-2245
FAX. +81-294-73-0459

▌Branch Factory
2-43-10 Ishinazaka-cho, Hitachi City,
Ibaraki Prefecture 319-1225 Japan
TEL. +81-294-53-2727
FAX. +81-294-53-2729

Contact us

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