Resistivity & Sheet Resistance Measuring System

Model **CMT-SR2000N**

Specifications

Advanced Instrument Technology

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1. Introduction

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The CMT-SR2000N is a full automatic system to measure and map Sheet Resistance and Resistivity of Silicon wafer.

This system can be operated by itself and furthermore, perfect remote control is available using a PC and exclusive software, and it gives various data analyses.

2. Features

- X-Y-Z axis full automatic system.
- Auto & Manual range selection.
- Systems for 8” wafer.
- Perfect remote control by operating software.
- Data analysis. (2D, 3D map, Data map, etc)
- ASTM & SEMI quick measurement mode.

3. Configuration

The system consists of following components.

- 4point probe head unit.
- Z-axis Robot arm.
- Revolution sample stage chuck. (X-Y Axis)
- Membrane keyboard panel.
- LCD display window.
- Remote control communication port.
- Vacuum hose connector. (200mmHg)
- Software (Windows™)
- Standard accessories
  - Power connection cable.
  - Remote control communication cable.
  - Operating & service guide.

4. Specifications

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Sheet resistance measurement
- Measuring method: Contacted by 4-point probe
- Measuring range: 1 mohm/sq ~ 2 Mohm/sq

Resistivity measurement
- Measuring method: Contacted by 4-point probe
  (Input thickness)
- Measuring range: 10.0 μohm·cm ~ 200.0 Kohm·cm

Current Source
- 10nA to 100mA
- DVM 0V to 2,000mV
- Accuracy: 0.2 % (KRISS Circuits)

Measurement Accuracy
- ± 0.5 % (VLSI Standard Wafer, When 23°C)

4-point probe (JANDEL ENG.)
- Pin spacing: 25 ~ 50 mils by 5mil increments.
- Pin Load: 10 ~ 250 gram/pin
- Pin radius: 12.5 ~ 500 microns (polished 2μ diamond)
- Tolerance: ± 0.01 mm
- Needles: Solid tungsten carbide φ 0.40 mm

Operating software
- Measurement condition creation.
  : Wafer type, measure point interval, etc.
- Save & load: data, wafer type, measure point, etc.
- Data analysis: 2D, 3D mapping, Data map, etc.
- On/Off: Remote, Vacuum.
- Data & mapping printout.

Measurement mode (S/W)
- Auto measurement: Point interval designation by user.
- Quick measurement: ASTM & SEMI Mode.
- Point measurement: Appointment on wafer by mouse.
- Manual measurement: Appointment on wafer by arrow key.

5. Specimen

Wafer: up to 8" (Size) & 6mm (Thickness)

6. Measuring time
Approx. 3 ± 1 sec/point

7. Measuring flow

Power ON

Standby mode is displayed on the LCD panel

Set specimen on stage

Push start button

The Z axis robot arm down

Mode key / Operating S/W

Creation measurement condition

Measurement
(Data is displayed on the LCD panel)

Start button / Operating S/W

The Z axis robot arm up

Around stage chuck & Z axis robot arm down

Measurement finish

Power OFF

8. Software [Windows™]

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Operating personal computer:
- IBM PC/AT compatible PENTIUM ~

Connect com port(RS232C) of PC and operating com port of CMT-SR2000N.

9. Utility Requirements

- Power requirements (1 Line)
  - Line voltage : AC 220V ± 10%
  - Electric power : 55 W, 250 mA
  - Line frequency : 50 ~ 60 Hz

- Stage Chuck Vacuum requirements (1 Line)
  - Vacuum : About 200mmHg (1 Line)
  - Vacuum Hose : Urethane 4mm

10. Weight and Dimension

- Net Weight : 13.4 KG
- Dimension
  - Net : 562mm(W) × 254mm(L) × 250mm(H)
  - Carton Packed : 710mm(W) × 410mm(L) × 400mm(H)

11. Operating Environment

- Temperature range : 23° ± 1°C
- Relative humidity : 30 ~ 70 %
- Avoid placing the system near a source of RFI, vibration and sources of gas.
- Avoid large changes in temperature.

12. System Construction Map
13. Measurement Construction Map

14. Mapping Sample
Contour Map Analysis [ohm / sq]

1. Sample ID: test000001
2. Sample Type: sample001  [ Size (mm) - Sample: 203.2, Flat: 6, Exclusion: 5 ]
3. Measure Mode: None
4. Thickness: 0.01
5. Date/Time: 월 1:04:26

3D Map Analysis [ohm]

1. Sample ID: test000006
2. Sample Type: None  [ Size (mm) - X: 101.6, Y: 4, Exclusion: 4 ]
3. Measure Mode: None
4. Thickness: 0.0
5. Date/Time: 1996년 11월 16일 금요일 오전 7:38:04
7. Analysis [ohm]
   1) Max: 19.7015  2) Min: 9.91111
   3) Ave: 5.4226  4) SD: 3.2562
   5) SD: 1.39856  6) SD: 2.19868
   7) SD: 1.16232

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