Automatic

Four-Point Probe

Model 280I Series

Model 280SI
Many Models to Meet Your Budget and Measurement Needs

280PI
This is the most basic model in this series. It can automatically measure 1, 5, and 9 sites and then print the measured data, mean, and range on a 2 1/4 inch tape. The measurement range is 1mΩ/sq. to 800 kΩ/sq.

280PCI
It has the function of 280PI plus ability to display in V/I, ohm-cm, and standard deviation. It stores up to 15 user-defined measurement programs and comes with a small external computer with keypad and LCD display.

280SI
This model is PC controlled with Windows based powerful software which includes operation administration, recipe set-up, Librarian data storage, increased storage capacity, contour and 3D mapping, trend charts, P-N type detection, SECS-II diagnostics, and many other convenient features.

280TSI
It has the same function as 280SI plus temperature compensation.

280TCI
It has the same function as 280TSI, in addition, it has Statistical Process Control (SPC)

280DI
It has the same function as 280SI, but with an extended measurement range up to 8E9 Ω/sq., or 8E11 Ω/sq..

280HCI
It has the same function as 280TCI plus an easily controllable hot chuck and high temperature chamber.

Other Four-Point Probe Series:

120 Series……….Manual Four-Point Probe for Wafers, Ingots and Slugs
233AC…………..Four-Point Probe System for up to 200mm Wafers with C2C Handling Capability
300 Series……….Including Models 300, 333A, 333AC and 333AF for Mapping and/or C2C Handling of 300mm Wafers
680I Series……..Sheet Resistivity Mapping System for Compound Semiconductors such as GaAs and SiC
1100I Series…….Sheet Resistivity Mapping for Flat Panels
Options to Fulfill Various Measurement Requirements

• Tests High-Resistivity thick Si Substrate
• Tests Wafer Within 0.3°C of Room Temperature (Temperature compensation option available for the case of unstable room temperatures.)
• Measure Resistivity in wide Temperature range, Features Room Temperature to 100 °C within 0.5°C Temperature Uniformity
• SECS II Communication
• Statistical Process Control
• Adopting Solar Cell Sized Wafers

Windows Based Powerful Software

• Convenience of Windows
• Friendly User-Interface
• Data Storage for Millions of Data Sets
• Librarian Data Searching Program for Quick and Easy Retrieval
• LAN, Excel & Many Other Great Features!
• Individual Site Multiplier
• Measurement Unit Conversion from the stored data
• Site Dependent Geometric Correction
• Detecting P-N Type
• Cartesian-Arrayed Mapping
• Polar Coordinated Mapping
• Diameter Scan
• Custom Test Sites
• Automatic Thickness Compensation
• Thin Metal Film Corrections
• Personalized Recipe Options

Reliable and Easy to Maintain

• Capable of Making Measurements without Computer
• Standard Resistor Network and Firmware Allowing Easy and Quick Electronic Calibration
• Assembled with Easily Replaceable Modules
• Optional Trouble Shooting Kits Available for Quick and Easy On-Site Trouble Shooting
• Diagnostic Program Available for Hardware and Software
• Low Price Precision Durable Probe Head

Systems installed worldwide exceeding MTBF of 5,000 hours
## Specifications

### Measurement

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wafer Sizes Accommodated</td>
<td>50, 75, 100, 125, 200 (mm)</td>
</tr>
<tr>
<td>Test Diameter</td>
<td>Up to 3mm from wafer edge</td>
</tr>
<tr>
<td>Quick-Checks</td>
<td>1, 5, 9 sites, 5, 6, 9, 10, 13 site ASTM/SEMI X-patterns or custom sites</td>
</tr>
<tr>
<td>Cartesian Maps</td>
<td>Any site-interval ≥0.1 mm, up to 6000 sites</td>
</tr>
<tr>
<td>Polar Map Site Number</td>
<td>9, 25, 45, 49, 65, 81, 121, 169, 225, 289, 361, 441, 529, 625</td>
</tr>
<tr>
<td>Diameter Scans</td>
<td>Any site interval to nearest mm</td>
</tr>
<tr>
<td>Measurement Range</td>
<td>1mΩ/sq. to 800kΩ/sq. or 8E9 Ω/sq.</td>
</tr>
<tr>
<td>Measurement Units</td>
<td>Ω/sq., Ω-cm, V/I, μ[T], Å[T]</td>
</tr>
<tr>
<td>Measurement Repeatability</td>
<td>&lt;0.2% (typical)</td>
</tr>
<tr>
<td>Electronic Accuracy</td>
<td>&lt;0.1% (precision resistor)</td>
</tr>
<tr>
<td>Current Resolution</td>
<td>16 Bit A/D</td>
</tr>
<tr>
<td>Compliance Voltage for Measurement</td>
<td>125V</td>
</tr>
</tbody>
</table>

### Computer System

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Type</td>
<td>Windows Based PC</td>
</tr>
<tr>
<td>Monitor Type</td>
<td>LCD-FPD</td>
</tr>
<tr>
<td>Printer Type</td>
<td>HP Color Deskjet</td>
</tr>
<tr>
<td>Data Transfer</td>
<td>RS232, SECS I, II</td>
</tr>
</tbody>
</table>

### Analysis Capabilities: Automap Model 280I Software under Windows

- Color Contour Map
- 3D Surface Map
- P/N Type Testing
- Bulk Resistivity Measurement
- Diameter Scan
- Partial Wafer
- Numerical Data Printout
- Data Transfer to Spread Sheet
- Statistical Process Control (SPC)
- Measurement Data Comparison
- Thickness, Temperature and Edge Correction
- Trend Chart, by Wafer/Day/Month

### Facility Requirements

- Power 100/115/230VAC, 50/60Hz, 200W
- Vacuum 20 in. Hg
- Tabletop Footprint 21.5” depth x 20” width x 25” height

### Probes

- Probe Spacing 1mm (Standard)
- Probe Force Range 90g –180g (Standard) other ranges available

<table>
<thead>
<tr>
<th>Type</th>
<th>Tip Radius (μ)</th>
<th>Material</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25</td>
<td>WC</td>
<td>Bulk, Thick Epi, Metals</td>
</tr>
<tr>
<td>B</td>
<td>100</td>
<td>WC</td>
<td>General</td>
</tr>
<tr>
<td>M</td>
<td>300</td>
<td>WC</td>
<td>Implant, Diffusion,</td>
</tr>
<tr>
<td>N</td>
<td>500</td>
<td>WC</td>
<td>Shallow Implant, Thin Epi</td>
</tr>
</tbody>
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