

# Specifications



## Characterization of

- **GaAs wafers** (epi, annealed ion-implants on semi-insulating and some doped\* substrates)
- **Silicon wafers** (bulk Si, epi, annealed ion-implants, and POCl<sub>3</sub> doping uniformity on high resistivity substrates)
- **Thin film metallizations**

\* Contact factory for details.

## Performance

(Conforms to ASTM F673)

- Based on the average of five 150 center-point tests (contact LEI for complete details). Where available, the data below is derived using NIST-traceable, uniformly-doped silicon standards. These tests are conducted with samples manually placed on handler rails and a .035" gap setting. NIST and VLSI standard wafers are available for calibration.

	Sheet Resistance*	Standard Deviation*	Bulk Resistivity†*
<b>HI</b>	3000 ohm/□	1.0 %	200 ohm-cm
	400 ohm/□	0.1%	25 ohm-cm
	15 ohm/□	0.1%	1 ohm-cm
<b>LO</b>	15 ohm/□	1.0%	1 ohm-cm
	2 ohm/□	0.20%	0.1 ohm-cm
	0.2 ohm/□	0.25%	0.01 ohm-cm
<b>XL</b>	1.5 ohm/□	0.7%	0.1 ohm-cm
	0.2 ohm/□	0.55%	0.01 ohm-cm
	0.1 ohm/□	0.55%	0.005 ohm-cm

† Based on keyboard entry of known thickness

\* Sheet Resistance values ≠ Bulk Resistivity values

## Linearity

- .035 to 3,000 Ohms/□ < ± 3%

## Thin-film thickness

- Thickness =  $\frac{\text{Bulk resistivity (known)}}{\text{Sheet resistance (measured)}}$

## Measurement Capabilities

- Nominal doped substrate thickness range of 450 to 800 microns
- Normal .035" (.889mm) gapping preset at factory
- Adjustable gap to accommodate thicker substrates
- Robotic measurement of 2", 3", 4"(100mm), 6"(150mm), and 8"(200mm) wafers(optional)

## Wafer Thickness

- Capable of calculating resistivity with keyboard-entered thickness
- Optional capacitance thickness probes

## Sensor Transducer Sizes

- **HI Range** 14 mm diameter
- **LO Range** 14 mm diameter
- **XL Range** 14 mm diameter

## Sample Handling and Sensing

- Up to 300 measurement points
- Automatic drift compensation
- Software-selectable resistivity ranges

## Operating Characteristics

- High spatial resolution
- Precise voltage regulation for tight linearity and consistently repeatable results

## Calibration

- Performed via easy-entry computer screen
- Software-controlled (no manual adjustments)
- 16 bit system for data acquisition

## Computerization

- System is network- and Windows NT compatible
- Setup information may be saved under operator-designated file names
- Ability to create custom test point plans
- Measurements and associated test plans can be graphically displayed
- Computer, FPD and printer included
- 10 BASE-T ethernet network connection

*"We estimate we save a minimum of \$250K per year by having the Leighton systems."\**

-Dr. Martin J. Brophy  
Senior Process Engineer for Wafers/Implant/Anneal  
TriQuint Semiconductor

\* Please visit us on the web at [www.leighton.com/fabtech1/index.html](http://www.leighton.com/fabtech1/index.html) to view this and other testimonials.