

Suns-Voc MX: Post-Diffusion Process Control



The Suns-Voc MX stage is available as an accessory to the WCT-120 lifetime testing instrument or as a stand-alone measurement system.

Perfect for paste-firing optimization and process control. Open-circuit method indicates the upper bound for any solar cell precursors after junction formation.

Product Overview

The Suns-Voc MX stage is ideal for measuring wafers after Al firing, and then again after front-grid firing. This allows the optimization and monitoring of these steps to maintain voltage, obtain good ohmic contacts, and avoid shunting.

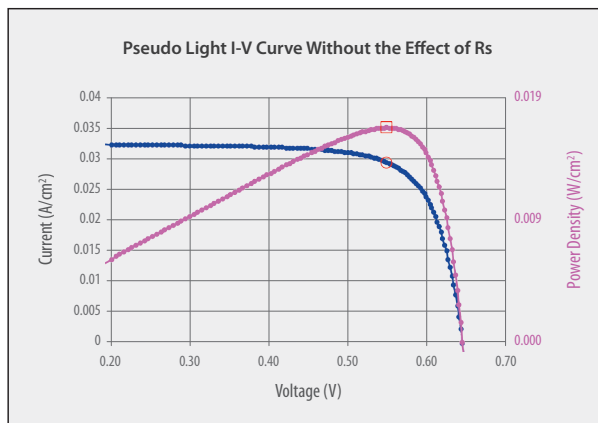
Suns-Voc MX Applications

By either probing the p+ and n+ regions directly or probing the metallization layer (if present), the illumination-Voc curve can be measured. This curve can be displayed as our well-known Suns-Voc plot or in the form of a standard photovoltaic curve which can be used to characterize shunting. The entire curve is measured at open circuit, so it is free from the effects of series resistance.

Comparing this curve to the final I-V curve gives a precise measure of the series resistance in the cell.

Suns-Voc MX System Features

- Wafer chuck controlled at 25°C
- Fine-point voltage probe
- Upgraded 3-configuration magnetic probe bar included
- Xenon flashlamp with set of neutral-density filters
- Height-adjustable flash for fine-tuning intensity range
- Displays standard I-V curve format as well as the Suns-Voc curve
- Measures ideal wafer characteristics without the effects of series resistance
- Measures effective lifetime characteristic curve
- Measures substrate doping



Suns-Voc data displayed in the form of an illuminated I-V curve.

Suns-Voc MX Specifications

Instrument Specifications

Parameters reported for each measurement

- Implied I-V curve at open circuit: materials limit to efficiency
- Pseudo-efficiency
- Pseudo-fill-factor
- Double-diode analysis
- Shunt value
- Effective lifetime vs. carrier density
- Inverse lifetime vs. carrier density and J_{0e}
- Substrate doping

Typical calibrated illumination range

- 0.006–6 suns

Wafer size, standard configuration

- Maximum 240-mm diameter/side

Warranty

- One-year limited warranty on all parts and software



Facility Requirements

Chuck temperature control

- 25°C

Ambient operating temperature

- 18°C–25°C

Power requirements

- Computer with monitor: 200 W
- Light source: 60 W

Dimensions

- 32 cm W x 28.5 cm D x 75 cm H

Universal mains voltage

- 100–240 VAC 50/60 Hz

Special facilities requirements

None

Purchasing Information

For a quote, please contact
quotes@sintoninstruments.com.

We are happy to accommodate custom requirements. Please inquire about a quote for your specific needs.

Quotes are valid for 60 days.

For our full product line, visit our website at:
www.sintoninstruments.com

