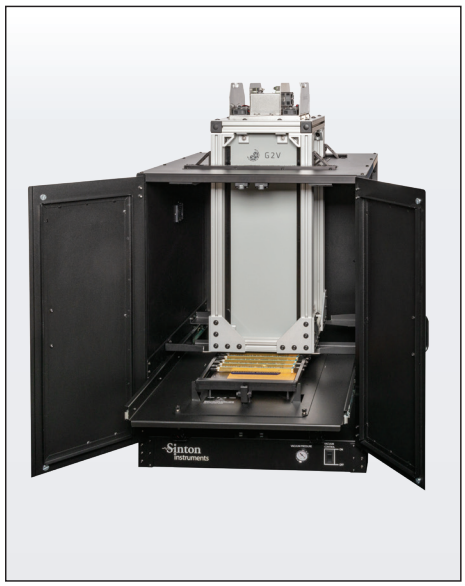
FCT-650SE: Light I-V and Suns-Voc on Alternative Material Devices



The removable chuck plate allows the tester to be rapidly reconfigured for different sample types.

Light I-V and Suns-Voc measurements for perovskite, silicon, and tandem devices. Sinton Instruments' advanced characterization techniques in combination with a fully programmable steady-state LED light source.

Product Overview

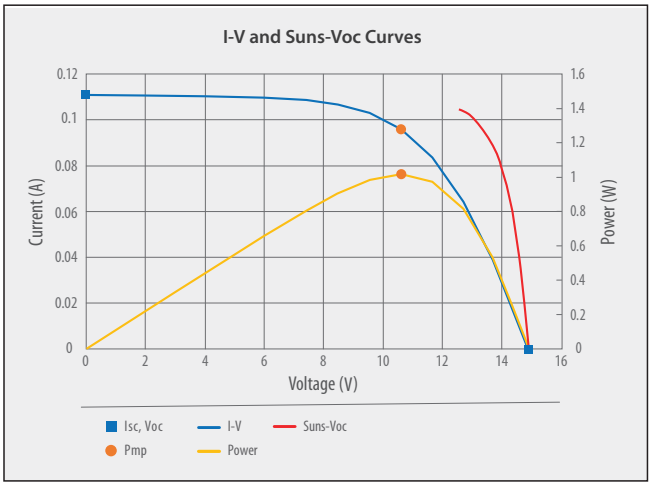
The FCT-650SE measurement system is a versatile, steady-state LED I-V tester designed for perovskite on silicon tandem devices. Combining Sinton Instruments' advanced cell characterization techniques with the Sunbrick® Class AAA LED solar simulator by G2V Optics, it reports I-V and Suns-Voc parameters for silicon, perovskite, and tandem devices, as well as substrate doping and lifetime for silicon. Light soaking, maximum power point tracking, and automated measurement sequences are also supported.

System Capabilities

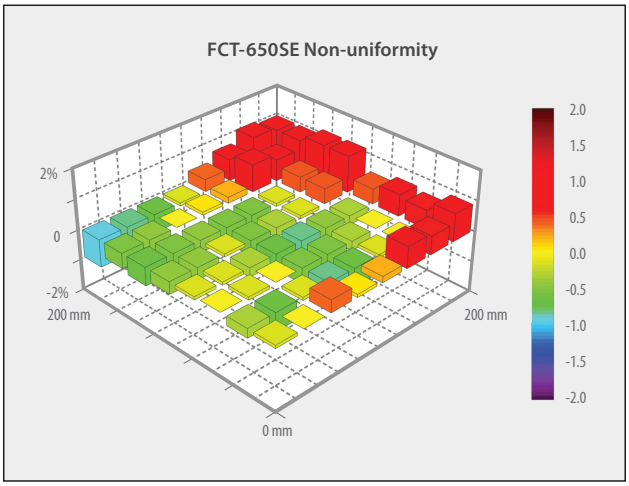
Measure I-V and Suns-Voc for perovskite on silicon tandem cells, silicon cells, or encapsulated mini-modules.

System capabilities:

- All materials: Isc, Voc, power, Vmp, Imp, FF, efficiency, Rs, Rsh, and Suns-Voc
- Advanced results, silicon only: bulk lifetime, lifetime at max power, J_{0S}, substrate doping and thickness, power loss analysis
- EL imaging (optional)
- I-V sweep with adjustable speed and direction
- Customizable automated measurement sequences
- Light soaking and maximum power point tracking



Example Suns-Voc and I-V data for an encapsulated perovskite device, measured on the FCT-650SE I-V cell tester.



The non-uniformity of the FCT-650SE is Class A (±1%) over 200 mm x 200 mm.

FCT-650SE Specifications

Instrument Specifications

Available measurements
- Voc, Isc, power, Vmp, Imp, FF, efficiency, Rs, and Rsh
- Suns-Voc
- Forward and reverse dark I-V
- Maximum power point tracking

Silicon-only measurements
- J_{0s}, bulk lifetime, lifetime at max power
- Substrate doping and thickness
- Power loss analysis

Current and voltage range
- 40 V
- 20 A (silicon)
- 2.4 A (perovskite/tandem)

Available temperature range
- 25 –>50°C @ 25°C ambient

Illumination
- 0.04 – 1.12 suns
- Class AAA
- Fully programmable spectrum
- Light soaking

Available chuck designs
- Silicon:
  - Standard 6-busbar, front-contact chuck
  - Up to 18 busbars available
  - Custom back-contact chucks available
- Thin-film or tandem: contact Sinton Instruments
- Chuck accommodates sample sizes 2– 210 mm^2

Warranty
- 1-year limited warranty on all parts and software

CE

Facility Requirements

Ambient operating temperature
- 20°C–25°C

Power requirements
- Instrument: 80 W
- Computer with monitor: 200 W
- Light source: 625 W
- Vacuum: 370 W

Dimensions (L x W x H)
- Base: 70 x 66 x 91 cm
- Light Source: 34 x 44 x 87 cm
- Fully assembled: 70 x 66 x 119 cm

Universal mains voltage
- 100–240 VAC 50/60 Hz

Special facilities requirements
- Vacuum: 4.8 cfm, 29.5 in-Hg

System Components

- FCT-650SE I-V tester, electronic load and current, voltage interconnections
- Sunbrick® Class AAA steady-state LED light source with programmable spectrum and intensity
- EL imaging camera (optional)
- Vacuum pump (optional)
- Windows PC with installed, configured software and monitor
- Sinton Instruments data acquisition and analysis software package
- Temperature-controlled chuck for cells or encapsulated minimodules
- High-resolution, high-speed data acquisition with simultaneous signal sampling and common-mode rejection

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**

Sinton instruments

contact us

G2V

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