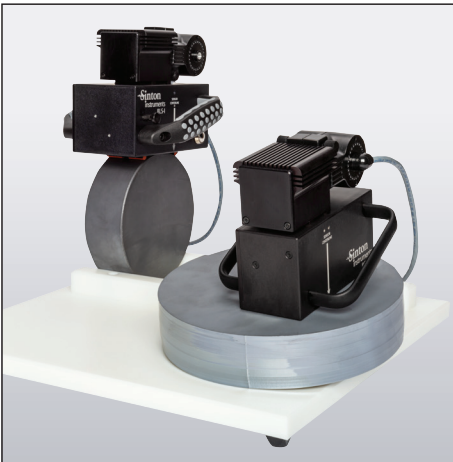


BLS-I/BCT-400: Superior Bulk Silicon Characterization



Shock absorbing, retracting pads that conform to ingot curvature enable the BLS-I (left) to measure any surface of as-grown or shaped ingots. The BCT-400 (right) measures flat surfaces.

Simple and accurate contactless measurement of true bulk lifetimes on as-grown or shaped silicon. Complies with SEMI Standard PV-13.

Product Overview

The BLS-I and BCT-400 measurement systems perform lifetime measurement on monocrystalline or multicrystalline silicon (ingots or bricks) without requiring surface passivation.

Since lifetime measurements are among the most sensitive techniques for characterizing growth and contamination defects, these tools allow you to assess silicon quality directly after growth.

For the flexibility to measure all surface types (from 150-mm diameter to flat) choose the BLS-I. For a compact tool designed to measure only flat surfaces, choose the BCT-400.

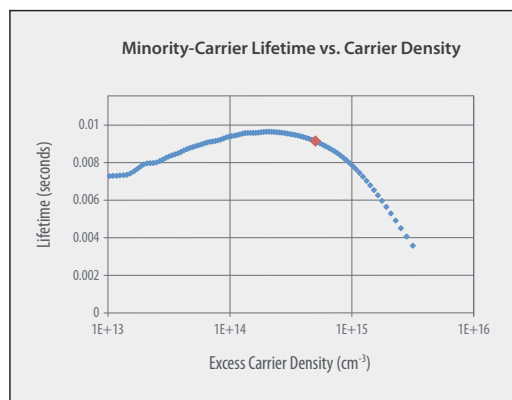
System Capabilities

Primary applications:

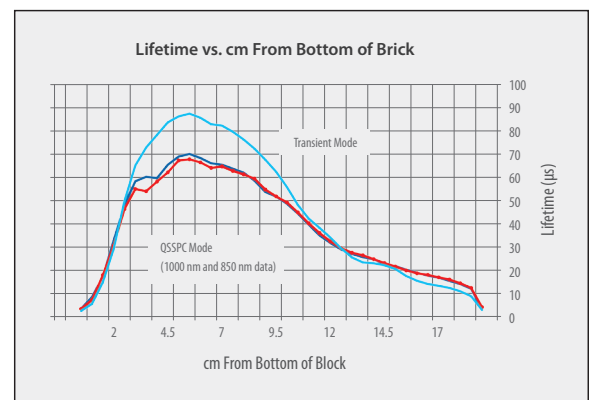
- Qualifying high-purity silicon with lifetimes in the 1–10 millisecond range
- Qualifying B-Cz silicon as-grown, without special surface preparation
- Characterizing lifetime and trap density in multicrystalline bricks

Other applications:

- Detecting B-0 defects, Fe contamination, and surface damage
- Monitoring initial material quality in Cz, FZ, multicrystalline, or UMG silicon



Example 1. A transient measurement of an n-type ingot with a lifetime of 8 ms.



Example 2. P-type multicrystalline silicon line scan showing the characteristic variation of lifetime from the bottom to the top of the brick. Trapping and resistivity profiles are also compiled for each measurement (not shown here).

BLS-I/BCT-400 Specifications

Instrument Specifications

Available measurements

- Bulk lifetime
- Resistivity
- Trap density

Lifetime measurement range

- 100 ns to greater than 10 ms

Resistivity measurement range

- 0.1–300 Ohm-cm

Measurement (analysis) modes

- QSSPC, transient, and generalized lifetime analysis

Available light bias range

- 0–50 suns

Surface types

- Flat or curved to 150-mm diameter (BLS-I)
- Flat (BCT-400)

Typical calibrated injection range

- 10^{13} – 10^{16} cm⁻³

Available spectrum

- White-light and IR illumination

Sensor area

- 45 x 15 mm

Measurement depth

- 3 mm

Warranty

- One-year limited warranty on all parts and software

Standards

- Complies with SEMI Standard PV-13



Facility Requirements

Ambient operating temperature

- 20°C–25°C

Power requirements

- BLS-I/BCT-400: 40 W
- Computer with monitor: 200 W
- Light source: 60 W

Dimensions (without handles)

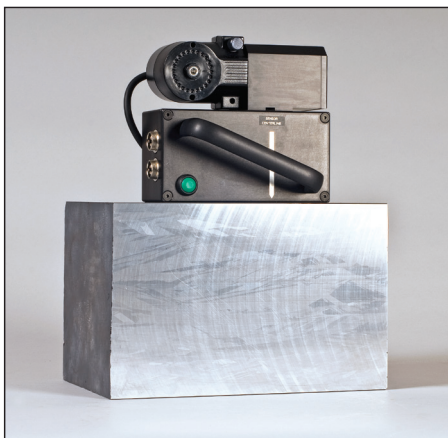
- BLS-I: 7.9 cm W x 16.3 cm D x 12.7 cm H
- BCT-400: 6.1 cm W x 15.0 cm D x 12.7 cm H

Universal mains voltage

- 100–240 VAC 50/60 Hz

Special facilities requirements

None



BCT-400 instrument.

BLS-I/BCT-400 System Components

- BLS-I/BCT-400 instrument, signal processing unit, signal cables
- Programmable flashlamp with bandpass filter
- Windows PC with installed, configured software and monitor
- Sinton Instruments data acquisition and analysis software package
- High-resolution, high-speed data acquisition with simultaneous sampling and common-mode rejection
- 850-nm & 1000-nm IR-pass Schott glass filters

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

