

SBS-150 — Bulk Silicon Lifetime Mapping



Repeatable, accurate lifetime scans of silicon blocks at the press of a button.

Simple, flexible scanning tool offers a 2D profile of silicon growth quality. Built for simplicity and safety in production environments, with a sophisticated data analysis package enabling research and development.

Product Overview

Measuring as-grown blocks provides the best indication of final wafer lifetime. The SBS-150 bulk silicon lifetime analyzer is especially sensitive to lifetime variations in the growth direction of silicon ingots, giving an accurate preview of wafer quality and propagation of defects. In addition, the SBS-150 offers the only lifetime scan with a lifetime measurement range of several orders of magnitude—a feature that is typical of Sinton Instruments true bulk lifetime characterization.

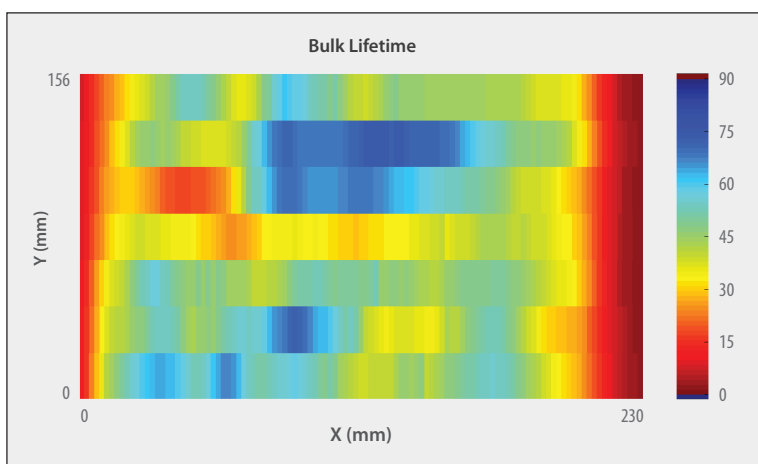
Product features

- Proximity sensor scan in the X-Y plane
- True bulk characterization using broadband IR excitation
- Ergonomic loading and unloading tray
- Easy-to-use, intuitive operator controls
- Industry-compliant interlocks and enclosure ensure operator safety
- Configurable for top-loading

SBS-150 System Capabilities

Primary applications:

- Qualifying high-purity silicon with lifetimes in the 1–5 millisecond range
- Qualifying B–Cz silicon as grown, without special surface preparation
- Characterizing lifetime, trap density, and defect zones in multicrystalline blocks



Example of lifetime map, taken at a medium resolution. Similar maps of resistivity and trap density are also standard.

SBS-150 Specifications

Instrument Specifications

Mechanical

- Positional repeatability: ± 50 microns
- Throughput: 3–50 blocks per hour (resolution-dependent)
- Block height / length: 156 mm or 210 mm / up to 250 mm

Available measurements

- Lifetime
- Resistivity
- Trap density

Spatial resolution

- 2 mm (growth direction) x 10 mm (lateral direction) @ 3-mm sensitivity depth

Lifetime measurement range

- 100 ns to greater than 10 ms

Resistivity measurement range

- 0.5–300 Ohm-cm

Measurement (analysis) modes

- QSSPC, transient, and generalized lifetime analysis

Typical calibrated injection range

- 10^{13} – 10^{16} cm⁻³

Sensor size, standard configuration

- 45 x 15 mm @ 3-mm depth

Warranty

- One-year limited warranty on all parts and software
- Service agreement also available



Facility Requirements

Ambient operating temperature

- 20°C–25°C

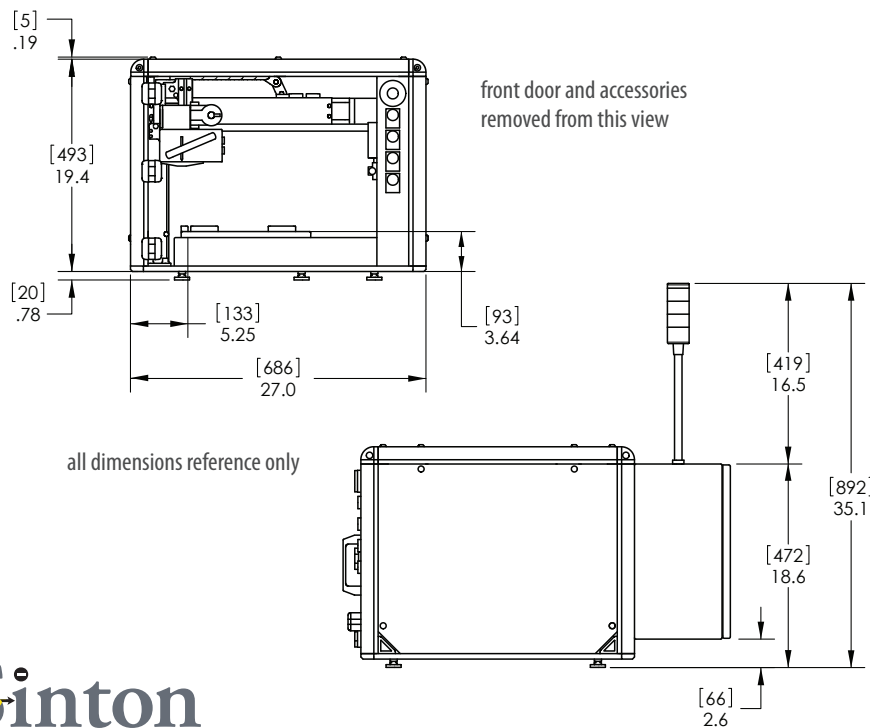
Benchtop footprint / weight

- 68 cm W x 53 cm H x 85 cm D / 90 kg

Additional space requirements

- CPU: 17 cm x 46 cm x 50 cm
- Flash power supply: 9 cm x 21.5 cm x 47.5 cm

No air or vacuum requirements



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. Please allow 10 weeks for delivery from date of purchase order.

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

