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SIRD

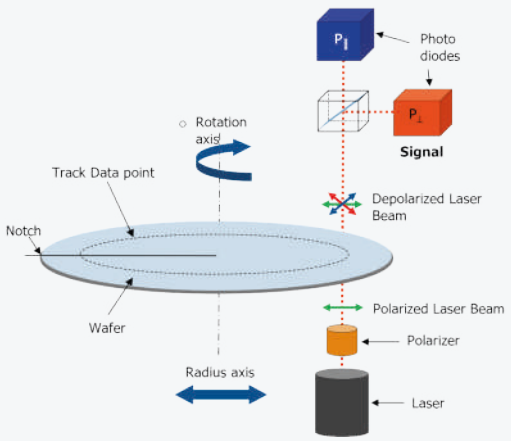
SCANNING INFRARED DEPOLARIZATION

Transmission dark-field plane polariscope

SIRD (Scanning Infrared Depolarization) is a system for the fast, contactless and non-destructive recognition and visualization of stress fields, defects and buried structures in semiconductor wafers. It utilizes the photoelastic effect, which causes a change in the polarization state of the probing laser if there is stress inside the material.

FEATURES AT A GLANCE

- **Stress Measurement**
  Quantitative stress measurement on wafer level
- **Wide doping ranges**
  Doping levels with resistivities down to 5.1 mOhm·cm are possible
- **Automation**
  Fully automated with recipe-based measurement and analysis, and SECS / GEM and OHT ready
- **Various semiconductor materials**
  Si, GaN, GaAs, InP, AlN, etc.



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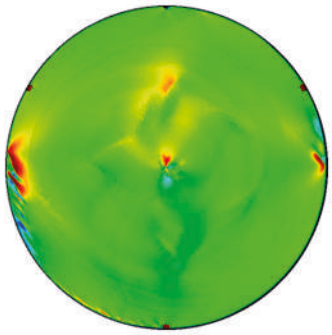
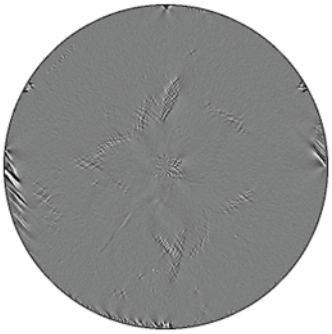
APPLICATION EXAMPLES





SIRD enables users to detect and quantify the smallest stress fields at the wafer level. A typical application is the measurement of stresses in substrates and epitaxial layers. Besides general stress fields resulting from ingot growth, SIRD can also detect stress signatures caused by defects, making it a reliable tool for identifying defects. SIRD is a dependable solution for monitoring process steps and provides fast, informed feedback on process deviations.

SYSTEM PARAMETERS

Type	Transmission dark-field plane polariscope
Principle	Stress-induced optical birefringence
Stress Sensitivity	≥ 0.1 kPa in-plane shear stress
Lateral Resolution	~100 µm
Throughput	up to 12 wph
Wafer Diameters	2” to 8”
Wafer Materials	Si, Al_2O_3, GaAs, InP, AlN, etc.
Wafer Handling	Manual or singular or dual loadport robot automation
In-Line Qualification	OHT available (compliant with SEMI E300, E84, and E87)
Software for Measuring and Analysis	Carrier processing, customized recipes, automated defect detection and quantification

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