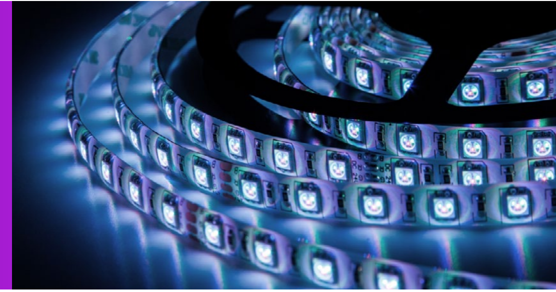
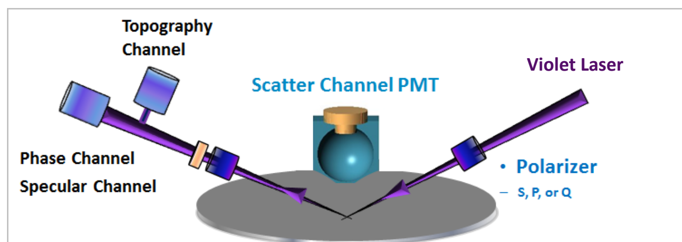


Candela® 8420

ADVANCED INSPECTION FOR COMPOUND SEMICONDUCTOR AND OPTOELECTRONIC MATERIALS

The Candela® 8420 system serves the photonics, LED, communications and other compound semiconductor markets. Candela 8420 uses classic Candela technology of multi-channel detection and rule-based defect binning to perform advanced inspection for determination of yield impacting defects on blanket wafers across multiple material systems.

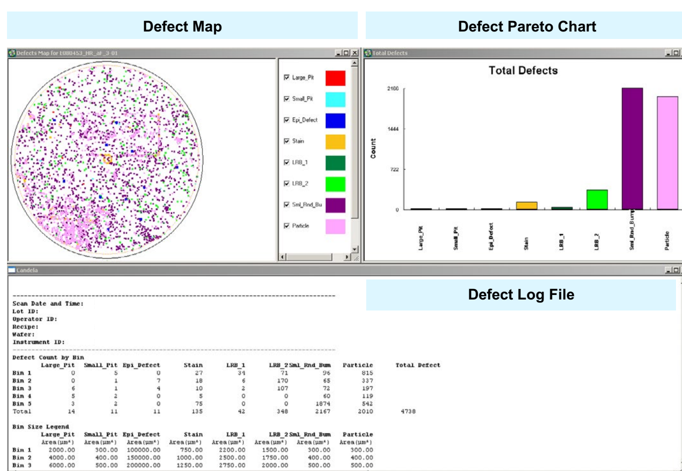
Standard Candela technology employs proprietary OSA (optical surface analyzer) architecture to simultaneously measure scatter intensity, topographic variations, surface reflectivity and phase shift for automatic detection and classification of a broad range of defects of interest (DOI).



Candela 8420 Optics Overview

The inspection method achieves full-surface coverage in minutes to produce high-resolution imaging, wafer maps, and automated defect classification.

Typical Candela 8420 Inspection Output



The defect map highlights each defect location on the wafer by color code.

The defect pareto chart plots the number of defects by type.

The defect inspection summary (default view) displays defect statistics across the entire wafer.

The defect log file displays details such as location, pixel size, area, and defect type. It also displays a summary of defect counts by size bin along with total defect count. Both the report and the defect log file can be saved for production review.

The Candela 8420 system can be operated in three modes to meet the needs of various applications: high-throughput, standard resolution, and high resolution.

In the high throughput mode, Candela 8420 can be used as a simple particle counter for process tool monitoring and qualification applications.

In the advanced classification/high-sensitivity mode, multiple detection channels enable accurate detection and classification of various defect types to characterize process-related issues and identify yield-impacting defects.

Candela 8420 software can also be used on an offline computer to create different types of analysis recipes.

Other engineering tools include pseudo die grid overlay (to determine the percent wafer area impacted by defect type), defect binning by size, surface uniformity, pre-post inspection comparison (for defect source / propagation analysis), wafer sorting based on pass/fail criteria, KLARF output, scribe (to mark defects for review) and factory automation setup.

The Candela 8420 system's high sensitivity, throughput and versatility offer a cost-effective solution suitable for both process development and high-volume manufacturing process control.

KLA SUPPORT

Maintaining system productivity is an integral part of KLA's yield optimization solution. Efforts in this area include system maintenance, global supply chain management, cost reduction and obsolescence mitigation, system relocation, performance and productivity enhancements, and certified tool resale.

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