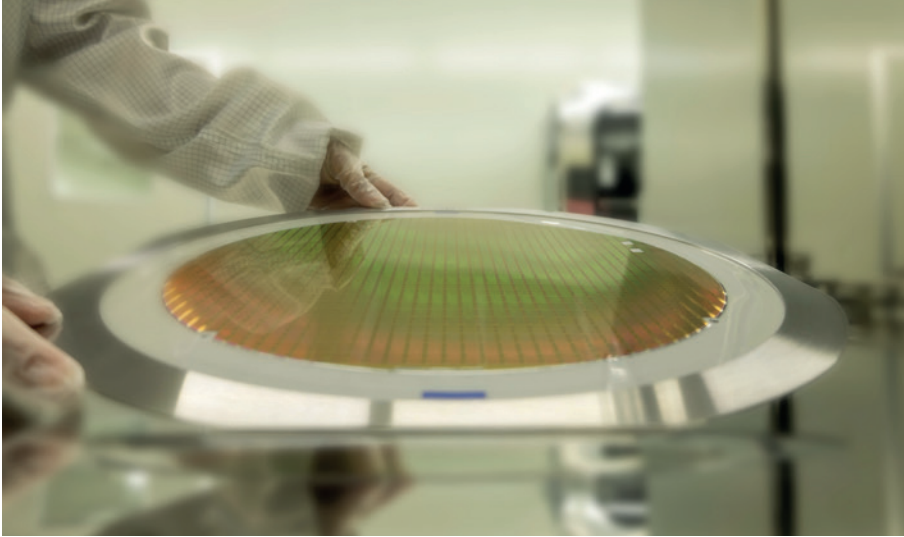


## High speed SEM-based defect review system



### Benefits of using Reflex Photonics optical transceivers

- On-board approach with embedded optics.
- BER under  $E^{-15}$ .
- Low jitter contribution.
- Pluggable, SMT, and LGA versions available.
- Integrated microcontroller.
- Industrial temperature range reliability.
- Up to 150 Gbps per module.
- Strong track record with SEM-based wafer defect review system OEM.

The chipmakers defect review challenges are growing as processes move to smaller and smaller node technology like 10 nm and 7 nm. The ability to discriminate killer defect from viable defect rely more and more on high-end imaging techniques. The sensor resolution and capture speed must increase at the same time to improve the machine throughput and keep capturing the smallest defect efficiently.

### Description of the application

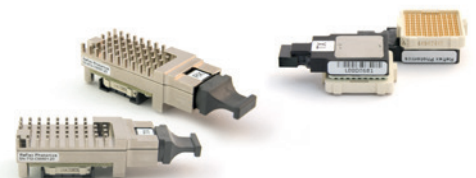
SEM based semiconductor defect review system integrators are faced with the challenge of integrating sensors that have high resolution and high frame rates.



Moreover, new intelligent machines with real-time adaptive process that enable more accurate defect classification also rely on faster and better data transfer.

This means that these advanced systems have to transfer more data from the sensor to their computer. They also need a really reliable data link that will not introduce noise.

For data integrity, link reliability, and error-free data transfer at rates superior to 10 Gbps, optical link becomes the only viable solution.



SNAP12 and *Light*ABLE embedded parallel optics can operate at up to 150 Gbps.

# Why choose Reflex Photonics' optical transceivers

Reflex Photonics transceivers enable large amount of critical data to be moved from point A to point B in any industrial data intensive process. Our *Light*ABLE and SNAP12 embedded parallel optics can be operated at up

to 150 Gbps and are tested to give BER under  $E^{-15}$  over the industrial operating temperature range. These components ensure that data transfer will never be the bottle neck for complex real-time defect classification procedures.

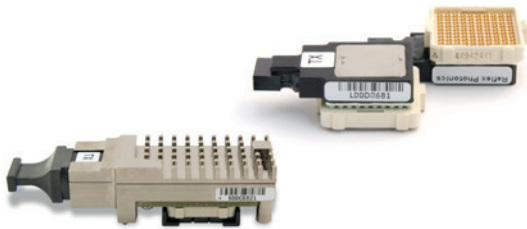


The *Light*ABLE SR12 and the SNAP12 embedded transceivers are used to transfer up to 150 Gbps from SEM defect review system sensor to the system microcontroller or computer. In addition, these embedded transceivers offer maximum flexibility in terms of board mounting options and facilitate board design.

## Closing the loop

All lot of reliable data is good, but more significant data is better. Intelligent machine in the industry 4.0 ERA also tend to introduce feedback loop to integrate adaptive process to increase the quality of the defect capture in real time.

Our optical transceivers can also be used on the control path where they can enable sending tons of control data to help complex process being adapted in real time.



### Transceivers used in this application

*Light*ABLE rugged embedded transceivers  
SNAP12 embedded transceivers

THE *Light* on Board® Company

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