

SMARTECH - LEAFLET

110+ GHz modulator for your 3.2T application

Our new 110+ GHz Indium Phosphide Mach-Zehnder Modulator delivers industry-leading performance for ultra-high-speed optical transmission. Supporting digital bandwidth above 110 GHz, it is ideally suited for 400G/lane PAM4 and enables the next generation of 3.2T data-center interconnect solutions. Our roadmap extends performance beyond 135 GHz, ensuring continued scalability for future AI-driven networks.

SMART Photonics Supports 3.2T DR/FR

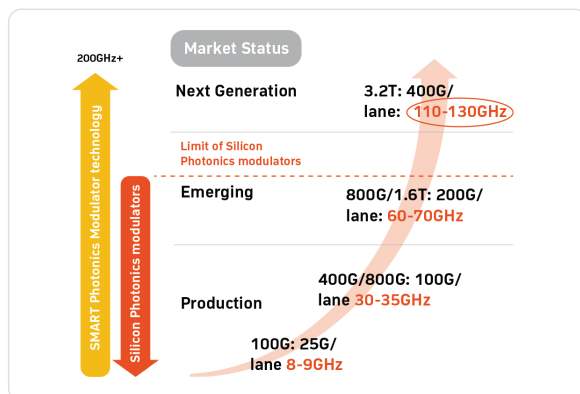


FIGURE: PAM4 MODULATOR BW REQUIREMENTS BY GENERATION.

Proven modulator design, scalable to 110GHz+

- Beyond 110+ GHz Optical Bandwidth
- 400G Modulators and EMLs
- 3.2T DR/FR Photonics
- Analysis indicates InP supports 200 GHz modulator bandwidth.

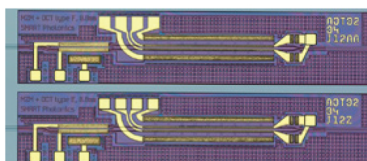
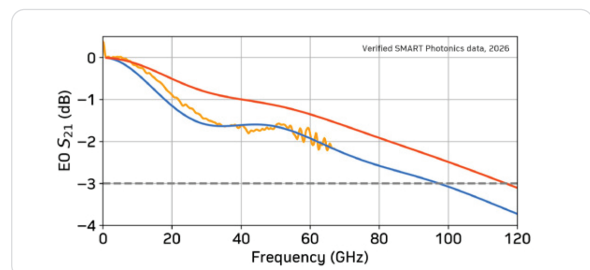


FIGURE: PICTURE OF SMART PHOTONICS MODULATOR

Key advantages

- Monolithic InP integrates lasers, SOAs, modulators and passives. Eliminates coupling losses, interfaces, and assembly complexity.
- Native 110+ GHz bandwidth in a sub-1 mm device. Enables compact 400G/ lane PAM4 and 1.6-3.2T coherent
- High-volume InP wafer manufacturing. Combines top-tier linearity and optical performance with wafer-scale cost efficiency.

ELECTRICAL-OPTICAL BANDWIDTH OF SMART PHOTONICS MODULATOR MEASURED (UP TO TEST EQUIPMENT PERFORMANCE LIMITATION) AND VIA SIMULATION. MEASURED DATA AVAILABLE UPON REQUEST & NDA.



- MODULATOR CONFIGURATION 1: SIMULATION RESULTS ~120GHZ.
- MODULATOR CONFIGURATION 2: SIMULATION RESULTS ~100GHZ
- MODULATOR CONFIGURATION 2: MEASURED DATA ~100GHZ

SMART Photonics is an Integrated InP Photonics foundry that offers state-of-the-art technology and high volume manufacturing of Indium Phosphide based Photonic Integrated Circuits. SMART Photonics has proven modulator, laser, and integration technology that enables power-efficient and low cost 3.2T photonic chips to power the next generation data center products.

110+ GHz modulator

- 400G/lane PAM4 modulators for 3.2T
- Small size: <1mm in length
- Monolithic or heterogeneous integration

InP modulators naturally connect well with 110GHz+ InP drivers

- Advantage in Impedance matching
- Advantage in RF (RDL) connections

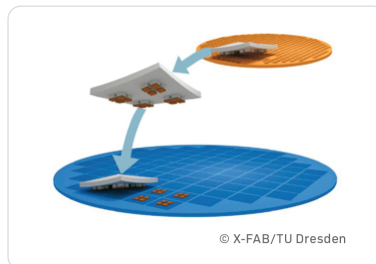
Wafer scale economics and performance

- Mature, high volume manufacturing
- More integration lowers cost and eliminates wasteful coupling losses
- Linear, high extinction ratio modulator and integration delivers exceptional performance



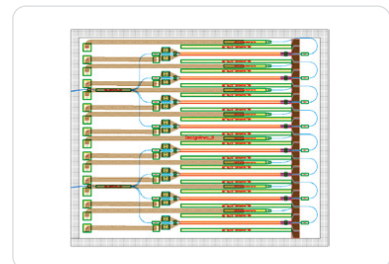
InP devices

- DFB LASERS
- DFB ARRAYS
- 400G EMLs



InP chipllets for SiPh PICs

- WAFER SCALE ECONOMICS FOR LASERS, SOA, MODULATOR
- LOW LOSS, TOLERANT, EVANESCENT COUPLING
- 110+GHz MOD; <1MM
- MICRO-TRANSFER PRINTING



Single integrated PIC for Tx

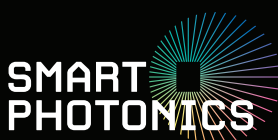
- ACTIVES AND PASSIVES
- HIGHEST INTEGRATION LEVEL
- WAFER SCALE ECONOMICS FOR LOWEST COST
- SIMPLEST SYSTEM DESIGN
- LOWEST ASSEMBLY COST

CONTACT OUR EXPERTS:

info.smartphotonics.nl/modulator

Integrity is key in the services SMART Photonics offers. As an independent Pure Play InP Foundry, we work at the sole discretion of our customers and their businesses. Teams of highly experienced experts support all of our clients' requests. Our production services range

from epitaxial growth and regrowth to coating and testing of the individual chips. We accommodate both proof-of-concept and volume manufacturing. We are a European based manufacturer with production and research facilities located in Eindhoven.



Light
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progress

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