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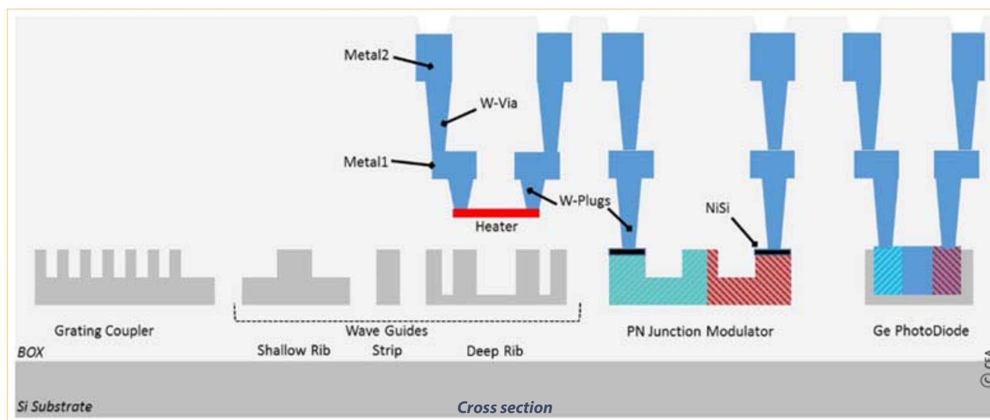
Silicon Photonic ICs

Prototyping & Low Volume Production

In addition to ICs and MEMS, **Circuits Multi Projets®/Multi-Project Circuits® (CMP)** is offering the Si310-PHMP2M technology from CEA-LETI in the frame of IRT Nanoelec for MPW prototyping and low volume production of Silicon Photonic ICs.

New technology and New prices for larger areas

Si310–PHMP2M



Advanced structure

- ⇒ 200mm **SOI substrate** with HR BOX 800nm and Si 310nm
- ⇒ **Multilevel patterning**
- ⇒ **Silicided** modulator contacts
- ⇒ **2** metal layers (MET1 and Alucap)

Integration of more functions

- ⇒ Passive components
  - * Shallow, deep rib and strip WG
  - * **1 & 2D** grating couplers
- ⇒ Active components
  - * High speed **Photodetector**
  - * High speed **Modulators**

High performance building blocks

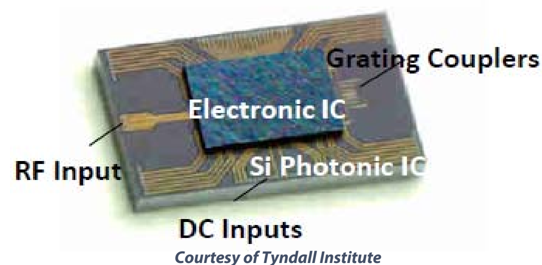
- ⇒ PCells and Black boxes
- ⇒ Devices operating in the O-Band

PDKs for Cadence, Mentor Graphics & Phoenix Software design platforms.

Platform Compatible with Open 3D Post-processes

Available options

- ⇒ Optical edge coupler
- ⇒ Under Bump Metallization
- ⇒ Bumps & µ-Bumps deposition



Courtesy of Tyndall Institute

Multi-Project Circuits®

CMP is a service organization in ICs, Photonics & MEMS for prototyping and low volume production. Circuits are fabricated for Universities, Research Laboratories and Industrial companies.

CAD, design kits and support

CMP distributes design kits for the MEMS technologies and for most of the CAD tools. Some specific support is given to CMP customers for MEMS design.

Packaging

Standard packaging
Ceramic: CQFP, DIL, LCC, JLCC, PGA, SOIC, QFN...
Plastic: BGA, QFN, QFP, PLCC, SOIC, TSSOP

MEMS packaging
Optical resin/Chip On Board (COB)/Thermal solutions/Metallic package/Hermetic package.

Advanced packaging
OPEN 3D post-process, Si Interposer, Wafer-level bumping, Flip Chip and stacked chip.

Prices depending on process options and die area.
Prices on Web site.

Contact us

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CNRS · Grenoble INP · Université Grenoble Alpes

Apr-18

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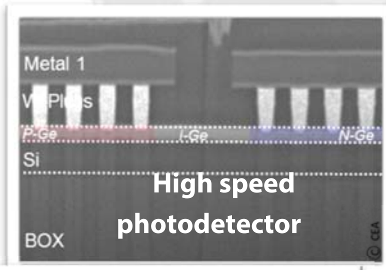
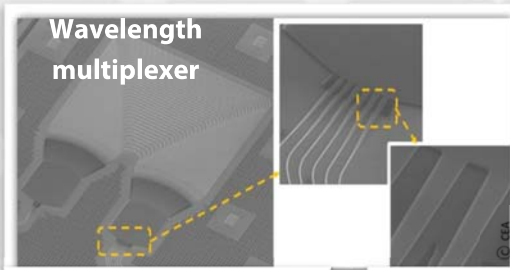
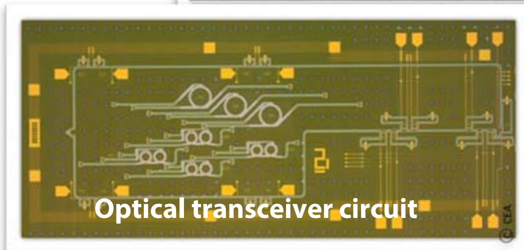
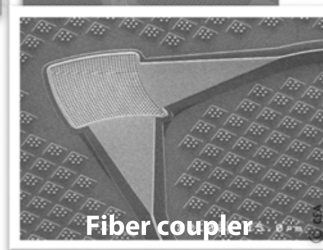
Silicon Photonic ICs

Si310-PHMP2M library contents & indicative performances









Devices	Types of cell	Specifications		Values
MMI 1x2, 1x4, 2x2	Black Box	Loss Output balance		<0.5 dB +/- 5%
Transitions	Black Box	Loss		<0.03 dB
Fiber grating coupler 1D	Black Box	Insertion loss Central wavelength 1dB bandwidth		<3 dB 1310nm 27nm
Fiber grating coupler 2D	Black Box	Insertion loss Peak wavelength 1dB bandwidth		<5 dB 1310nm 25nm
Waveguide	Parametric	Strip Rib Single mode Rib Multi mode DeepRib	Loss	<4 dB/cm <2 dB/cm <0.2 dB/cm <4 dB/cm
90° Bend Waveguide	Parametric	Loss		<0.015 dB/90° (R≥5µm)
Directional Coupler	Parametric	Loss		<0.05 dB
Racetrack Resonator	Parametric	Loss Extinction Rate Quality Factor		< 0.5 dB >15 dB >10000
Ge Photodiode PiN longitudinal	Parametric	OE bandwidth @ -1V Responsivity @1310nm, 1V Dark current @ -1V, 20°C		> 35 GHz > 0.75 A/W < 50 nA
Mach Zehnder Modulator (3mm long)	Parametric	OE bandwidth @ -2V Loss Junction Vpi Lpi @ -2V		> 40 GHz < 0.8 dB/mm < 2 V.cm
Ring Racetrack Modulator	Parametric	OE bandwidth @ -2V Insertion loss Vpi Lpi @ -2V		> 15 GHz < 0.5dB < 2.5 V.cm

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