



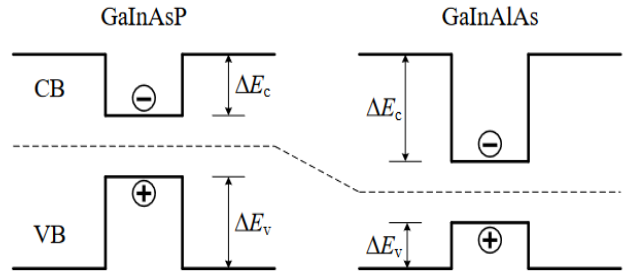
The III-V Lab O-band SIBH-OPIC-1.0 InP Photonic Integrated Circuit technology is now available as a flexible Multi-Project-Wafers offer.

► **SIBH-OPIC-1.0 is a High-Performance O-Band Technology suitable for demanding Photonics Applications in terms of:**

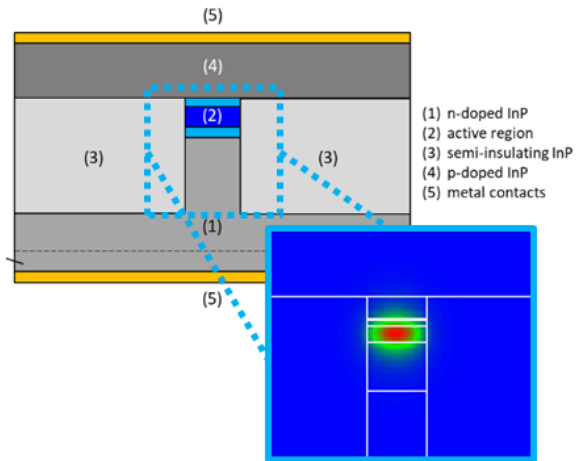
- Thermal Efficiency
- Optical Power
- Active and Passive Building Blocks Integration

► **Strong competitive advantage thanks to Semi Insulating Buried Heterostructure (SIBH) associated to Aluminium Quantum Wells:**

- High energy efficiency for lasers and gain sections
- Fully compatible with very high-speed modulators
- Compatible with spot size converters
- Good thermal dissipation
- Suitable for high temperature operation



**Aluminium Quantum Wells**



**SIBH**

BB	Parameters	Performance Indicators	
	Length	• Threshold Current @ 45°C: <10mA	
	Phase shift	• Slope Efficiency @ 45°C: 0.15W/A	
	Emission wavelength	• Emission Wavelength Range: 1260nm-1320nm • SMSR: >45dB	
EAM		• SER @-2V: 9dB	
Length		• E/O BW: >30GHz	
SOA		Length	• Gain: 47.8cm <sup>-1</sup> @ 4.17kA/cm <sup>2</sup> Current Density and -25dBm Pin

BB	Parameters	Performance Indicators
	Length	• Loss: <3dB/cm
		Bending radius
	Length: 301µm	• Excess loss: <1dB
	Width: 15µm	
	Length: 915µm	• Excess loss: <1dB
	Width: 23µm	
	Length	• Reflectivity up to 95%
	Wavelength	• Thermal tuning range: <= 5nm
	Sampling	
	Maximum output mode diameter	• Mode diameter : H: 3µm x V: 3µm

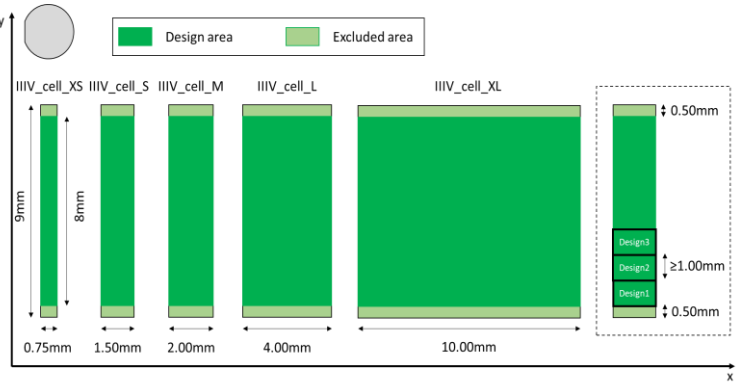
\*2x1MMI and 2x2MMI have only fixed geometries. All other building blocks offer a larger range of geometries. Please refer to the Design Manual for more details.

DFB : Distributed Feedback Laser      SOA : Semiconductor Optical Amplifier  
EAM : Electro Absorption Modulator      WG : Waveguide

You can easily design your own high performance functions by using a comprehensive Process Design Kit compatible with the main photonic design and simulation tools available on the market. The main available building blocks are illustrated above. More are available in our Design Manual available on demand at [foundry@3-5lab.fr](mailto:foundry@3-5lab.fr).



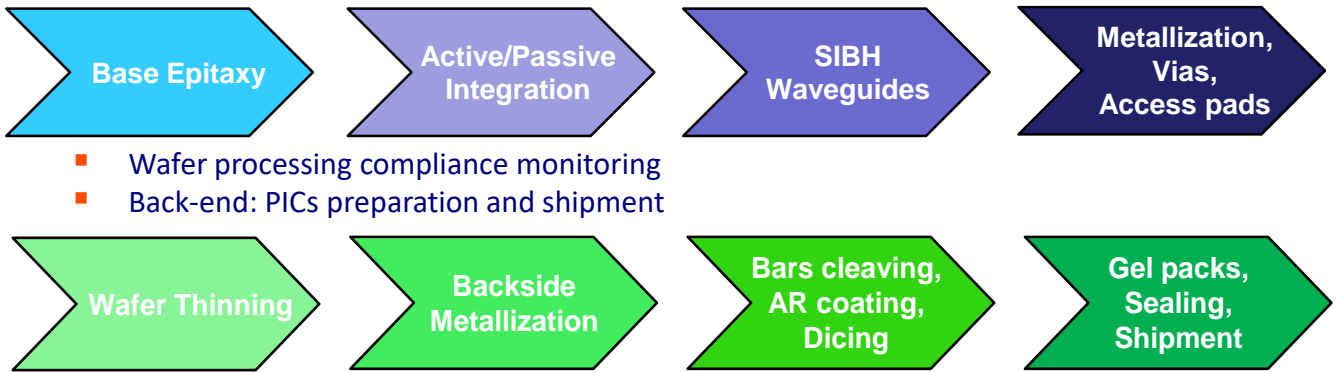
- ▶ The design cell area can be selected to perfectly match with your project from 0.75x8.00 mm<sup>2</sup> to 10.00x8.00 mm<sup>2</sup>.
- ▶ Several cells can be ordered depending on the required amount of different PIC designs.



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▶ **A full turn-key MPW offer from Process Design Kit to diced PICs:**

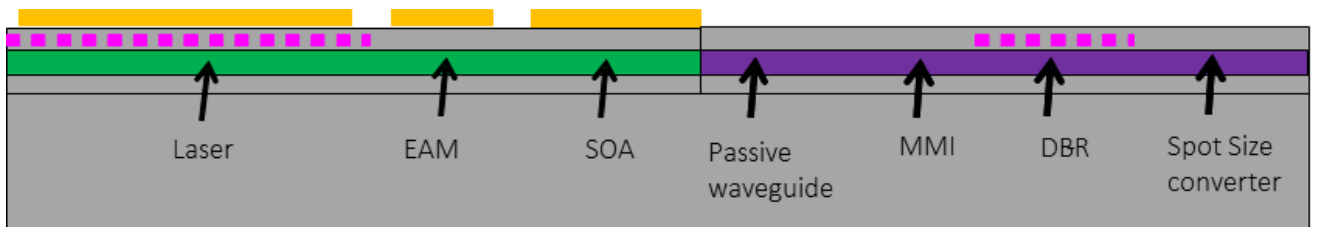
- 2 Multi-Project-Wafer runs per year / Dedicated runs on demand
- Process Design Kit and PIC design support
- Front-end: wafer manufacturing



▶ **At least one MPW run every 6 months taking advantage of the latest building blocks of the yearly PDK release.**

▶ **Future PDK releases will include:**

- Selective area growth for active/active integration
- Semi-Insulating substrates for increased modulation speed
- Deep waveguides for better optical confinement and smaller waveguide bending radius
- Electro-optical phase modulators for increased modulation speed
- Photodiodes with telecom-grade bandwidth and responsivity



**Cross-section view of a PIC**