



# UNIQUE AND INNOVATIVE PHOTONIC SOLUTIONS

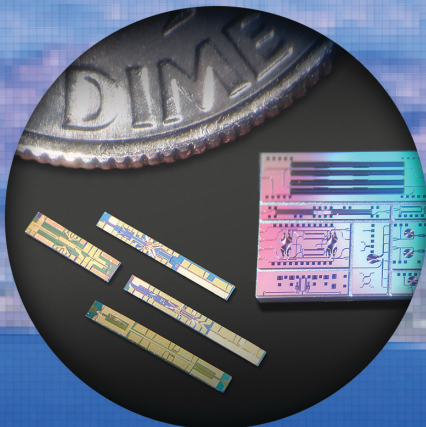
**FREEDOM PHOTONICS** is a manufacturer of unique and innovative photonic components, modules and subsystems. Our advanced semiconductor and dielectric photonic integration technology platforms are enabling new, high-performance fiber and free-space optical communication and sensing systems aimed at applications in diverse markets. If one of our standard solutions do not work for you, and you have a need that can be met through customizing our core photonic technology in the 750nm to 1900nm wavelength range, we will be happy to provide private label design, development and production services to support your needs.

## Product Families

- Monolithic Tunable Lasers (1300nm, 1550nm, 1650nm)
- High Power Photodetectors for RF Optical Communications
- High Power Lasers: DFB and Fabry-Perot (760nm to 1910nm)
- 1550 nm Free-Space-Optical (FSO) Transmitters/Receivers
- Silicon CMOS Avalanche Photodiodes (APDs)

## Private Label Photonic Integrated Circuits (InP, GaAs, Silicon, Dielectric)

- Active and passive planar waveguide components
- Widely tunable lasers
- DFB/DBR lasers
- High-Power lasers
- High speed modulators (lumped and traveling-wave)
- Semiconductor Optical Amplifiers (high gain and/or high power)
- Photodetectors (III-V and Si CMOS based)
- Delays

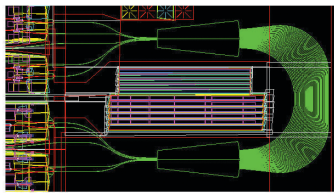




# UNIQUE AND INNOVATIVE PHOTONIC SOLUTIONS

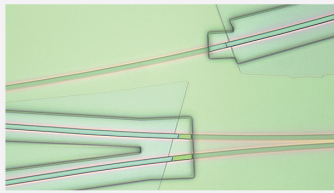
## Private-Label Photonic Device and/or Module Design and Production Services

Our team's expertise in photonic device design, module and subsystem design and production has helped a number of customers prove feasibility, develop, and deploy new products based on our unique and innovative solutions. We will be happy to help your organization in any of the areas described on this page.



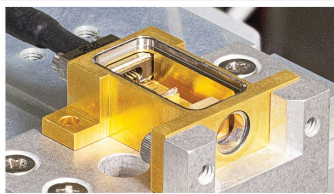
### Photonic Device Design

- Epitaxial structure design
- Passive component design
- Active component design
- Custom semiconductor laser design



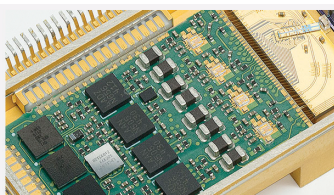
### Photonic Chip Fabrication

- Epitaxial structure specification and procurement
- Fabrication process design and development
- Fast turn-around low-volume fabrication
- Implementation and management of volume production fabrication



### Module Design and Photonic Packaging

- Mechanical, electrical and optical design
- Packaging process development
- In-house packaging using laser welding and/or UV curing
- Implementation and management of volume production



### Subsystem Design

- Mixed signal control circuit design
- Multilayer mixed signal printed circuit board layout
- PCB fabrication, assembly, test and integration
- Implementation and management of volume production



### Testing

- Optical performance testing
- Electrical performance testing
- Burn-in and environmental testing
- Qualification testing



### Manufacturing

- Complete photonic chip design and fabrication
- Chip-on-submount assembly
- Photonic module assembly
- Implementation and management of low to high volume production