

A close-up, profile view of a woman's face, looking towards the left. Her face is partially obscured by a glowing blue digital grid overlay, particularly around the eye and nose area. The background is dark with soft blue light effects and bokeh. The overall mood is futuristic and technological.

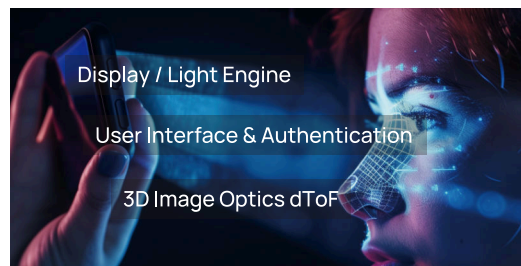
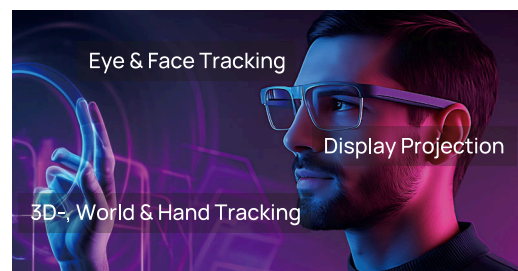
FOCUSLIGHT
Never stop exploring

Photonics Solutions for

CONSUMER ELECTRONICS

XR / AI Glasses

Laser and micro-optics technologies are empowering AI and AR/VR vision as core components in smart devices. Wafer-level multi-aperture lenses and micro-optics modules in AR light engines are already used for tracking and display projection, enabling enhanced visual experiences in more compact and energy-efficient devices.



3D Sensing

Beyond capturing flat images, 3D sensing technologies enable devices to perceive depth. From dot and flood illuminators to direct ToF (dToF) modules, our technologies meet the demands of high-volume consumer applications, enabling compact, reliable, and high-performance 3D sensing systems.

Smartphones / Smartwatches

With over 30 years of expertise in wafer-level optical components and modules and high-volume manufacturing, Heptagon provides ultra-compact, reflow-compatible optical solutions for standard SMD processes, supporting imaging and sensing applications while simplifying the integration and manufacturing of next-generation intelligent, sensor-rich smart devices.



Smart Home

Heptagon's wafer-level optical solutions combine compact form factors with high imaging and depth-sensing performance, delivering reliable operation, fast response, and stable imaging for next-generation smart home robotics.

Automotive Applications

With MLA-based optical components and light source modules, we support emerging automotive applications including exterior/interior projection lighting, ultra-thin headlamps, and intelligent in-cabin monitoring, backed up by our comprehensive capabilities spanning optical design to high-volume manufacturing.

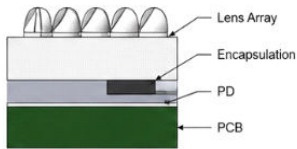


Disposable Endoscopes

Our high-quality wafer-level optics (WLO) and wafer-level lens stacking (WLS) technologies enable micro-optical modules that can be easily integrated into disposable endoscopes. These precise elements improve the image quality and enhance the overall system performance.

Typical Photonics Solutions for Consumer Electronics Scenarios

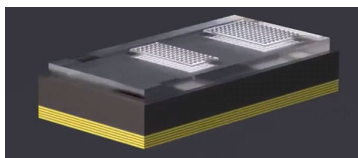
Ambient Light Sensor Module: For under-display and compact consumer electronics



Key Benefits

- Enhanced light collection under OLED
- Compact & thin for slim device
- Compatible with standard SMT assembly
- High accuracy across various light conditions
- Light-tight architecture for stable and reliable performance

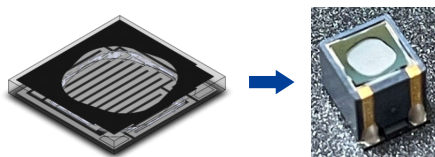
ToF (Time of Flight) Sensor Module: Integrated VCSELs + PD for advancing sensing



Key Benefits

- Integrated VCSELs and PD reduce crosstalk and enable reliable and accurate sensing
- High level of integration reduces system complexity and total cost
- Advanced packaging ensures stable performance in various environment
- Reflowable and SMT-compatible

Dot Projectors: DOE-Based High-Performance Structured Light Solutions



Key Benefits

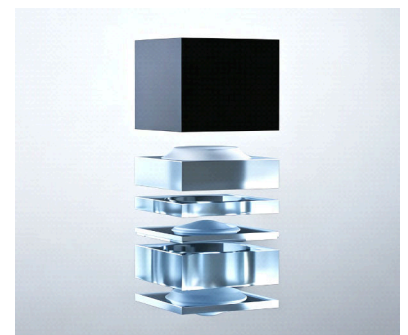
- 15,000 random dot patterns for high-density projection
- Uniform, bright dot patterns for enhanced sensing performance
- High-density VCSEL arrays for stable light source
- Integrated optics and illumination for a smaller footprint

Micro-Camera for Multi-Vision Applications

Especially fit for AR/VR/MR devices, supporting essential micro-camera functions including eye tracking, gesture tracking, world tracking and AI assistance.

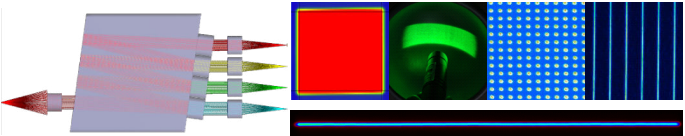
Key Benefits

- Extremely compact NIR-Camera module with integrated bandpass filter or additional colour filters
- Flexible in application use case for infinite or finite / close-up working distance
- Easier system development thanks to highly integrated packaging
- Reflowable and SMT-compatible



Precision Optics Design and Simulation: For a Hassle-free Product Development

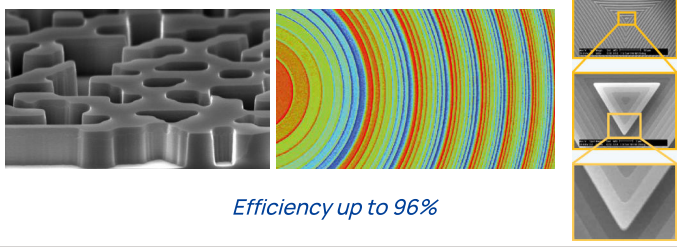
Free-Form Micro-Optics



Collimation, focusing, homogenization, diffusion, dot/line generation

(A)cylindrical, (a)spherical free-form micro-optics and lens arrays

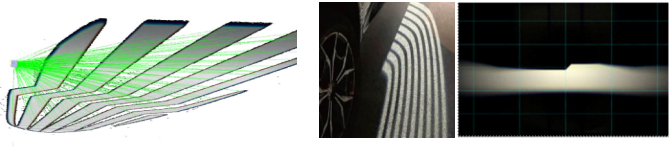
Diffractive Optical Element (DOE)



Efficiency up to 96%

High-precision and highly efficient 2-16 level DOE

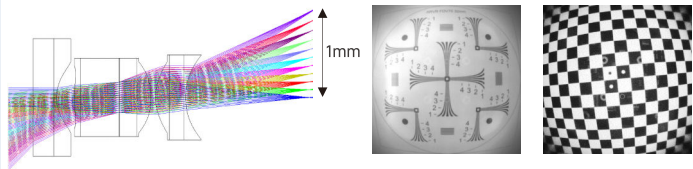
Pattern Generation



Sharp pattern projection with miniaturized modules

Front and Backside Optics and MLAs with Embedded Apertures

Imaging



Extremely compact, flexible, integration-easy

Imaging Optics and Modules Optimized for Cameras

Wafer Level Optics Manufacturing, Stacking and Integration

1's mm

100's μm

10's μm

1's μm

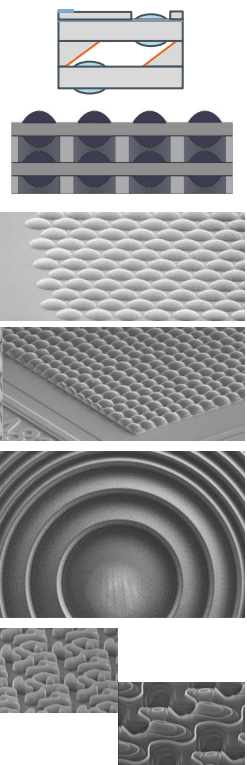
10's nm

Flat & Hybrid Optics

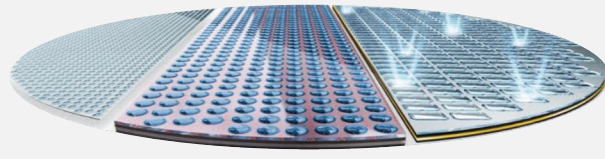
Refractive lens

MLA

Diffractive



Wafer-Level Optics, Electronics, Packaging, Integration, Testing and Processing

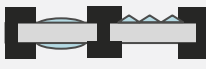


Wafer-Level Optics from mm down to nm-scale

WLO
(Wafer Level Optics)



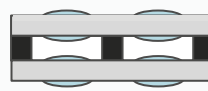
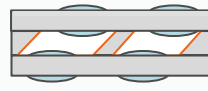
WLO



Encapsulated optics

Diffractive & refractive optics, MLAs, diffusers

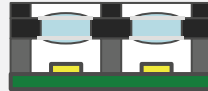
WLS
(Wafer Level Stacking)

Folded path

Imaging lenses, projector lenses

WLI
(Wafer Level Integration)

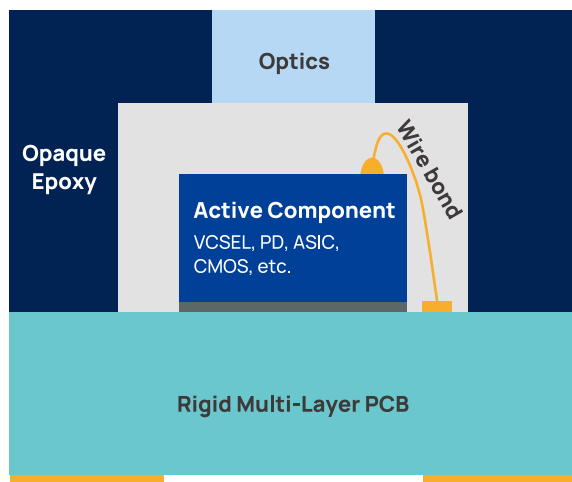



Molded module

Optical sensor & illumination modules

Advanced Sensor Module Packaging Technologies

Our sensor module platform combines latest advancements from optical components, packaging and manufacturing technologies, offering unmatched integration and performance.



Basic Structure

Features and Advantages

Integrated optical functions – optics like refractive lens, MLA, Fresnel, DOE with functions like chrome aperture, bandpass filter, and anti-reflection can be integrated seamlessly.

Light-tight architecture – black sidewall eliminates stray light and optical cross-talk for superior signal integrity.

Ultra-compact form factor – enabling next-generation miniaturized device designs.

Reflowable package – compatible with standard SMT processes for simplified assembly.

Wafer-level manufacturing – ensuring high precision, cost efficiency, and seamless scalability for mass production.

Enabling the design flexibility, exceptional performance and manufacturing efficiency of the customer products

Work with Us: From Early Concept to Mass Production



01 Design & Simulation Expertise

- Direct collaboration with experienced PLM and R&D teams.
- Simulation-driven optical design for accurate performance prediction.
- Selection of optimal production technology to meet performance and cost targets.

02 Engineering Samples & Qualification

- Design for manufacturing. (DFM)
- Delivery of engineering samples.
- On-site Outgoing Quality Control (OQC) with mutually defined quality and performance tests.
- Optional: Individual test procedures and data analyses.

03 High-volume Manufacturing

- Manufacturing at scale with rigorous quality control.
- Designed to meet the standards of demanding industries, including medical.



www.focuslight.com

COMPANY INTRODUCTION

Founded in 2007 and headquartered in Xi'an, China, Focuslight Technologies Inc. is a fast-growing public company (Shanghai: 688167) that specializes in developing and manufacturing laser sources and materials, optical components, as well as photonics module and system solutions focusing on optical communication, consumer electronics, and pan-semiconductor applications. Focuslight has expanded its global footprint with manufacturing facilities and expert teams in China, Germany, Switzerland, Singapore, and Malaysia. With the relaunch of the Heptagon brand, the company extends its business to be a global photonics foundry by providing global photonics industry process development and manufacturing service.

Focuslight Technologies Inc.

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