

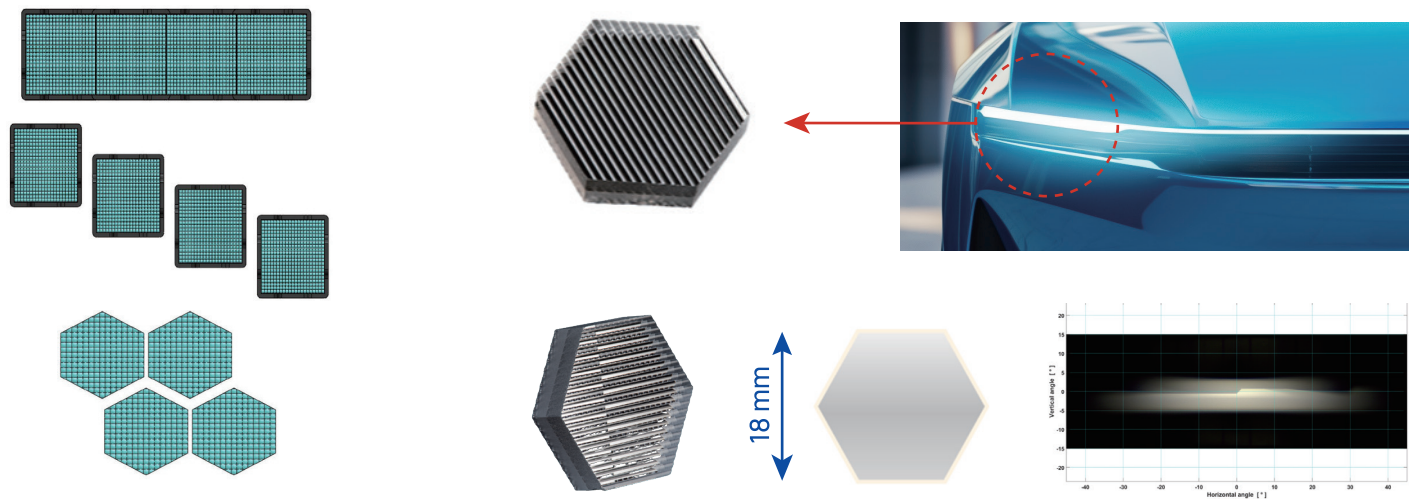
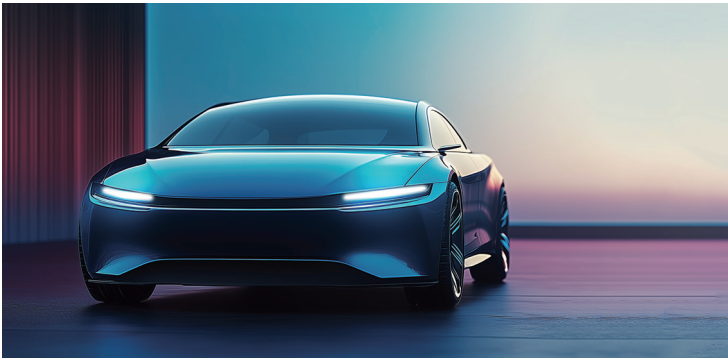
FOCUSLIGHT
Never stop exploring



Photonics Solutions for
AUTOMOTIVE

Smart Headlights

Embracing the trend of ultra-slim headlights, Focuslight offers a solution with microlens array (MLA) based headlights. Miniaturized component for a miniaturized system, while illuminating a wide and homogeneous area. MIRALUZ MLA is a building block for any unique design. Modularity and customization in both shape and size respond to any next-generation car designs where headlight trends quickly change from linear to vertical, slim to ultra-slim or freeform.

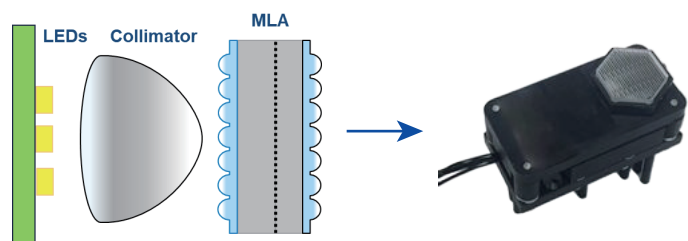


Example of different shapes and lens configurations

MLA for smart headlights, MIRALUZ. Lens array diameter 18 mm or smaller.

Key features of imprinted MLA headlights

- Suitable for unique and slim design
- Design freedom, freeform shape
- Modularity and customization
- Homogenous illumination
- Suitable for ADB

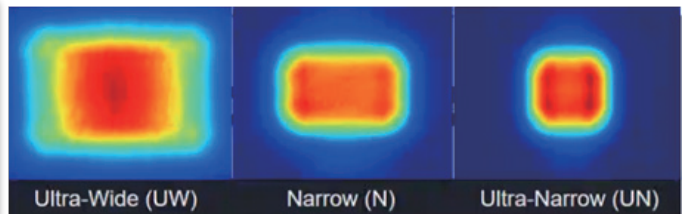
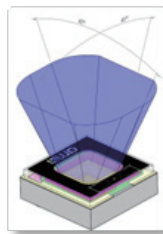
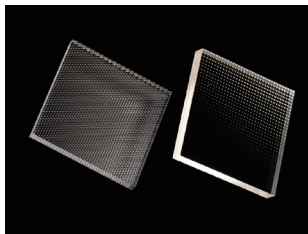


System example consisting of MLA, LED, and collimator

Configuration	Pattern Design	Lighting Pattern
Low Beam Spot (SPOT LB)		
Low Beam Spread R		
Low Beam Spread L		
High Beam Spot (SPOT HB)		

Driver Monitoring System

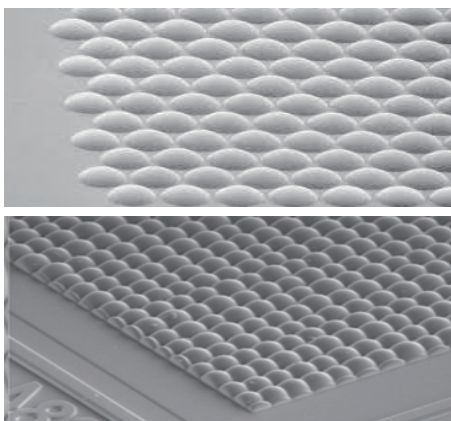
Micro-optics play a vital role in the Driver Monitoring Systems (DMS) for vehicle safety. Utilizing 2D and ToF 3D cameras, active DMS relies on VCSEL illumination for efficient and uniform lighting. Focuslight's diffusers, made from automotive-grade materials, shape VCSEL light into the required field of view (FOV) for accurate monitoring of driver behavior. As DMS expands into Occupancy Monitoring Systems (OMS), our customized diffusers offer broader coverage and higher performance, ensuring safety across the entire vehicle interior.



Irregular Micro Lens Arrays (diffusers) for flood illuminators with various FOIs

AR HUD

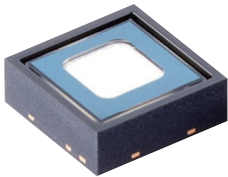
Augmented Reality (AR) powered Head-Up Display (HUD) systems are revolutionizing driving by projecting essential information directly onto the windshield. This technology allows drivers to access critical data without taking their eyes off the road. The performance of AR HUD relies heavily on precise optical systems that include microlens arrays. Focuslight offers customized MLA solutions that provide superior light efficiency and clarity, offering a distinct advantage over other methods.



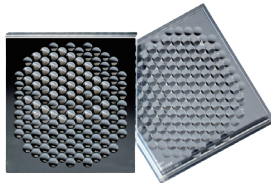
Homogenizers/Diffusers

Projected Lighting

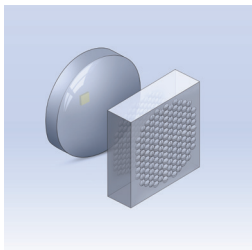
Automotive projected lighting is a custom-designed pattern projected either in the car cabin or on the road. These sharp images function as a safety feature or design enhancement. Focuslight manufactures microlens arrays (MLA) for lightweight and miniaturized systems. In combination with LED and collimator, these elements create a static or semi-dynamic projected light.



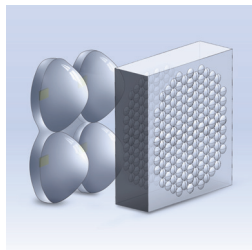
MLA-based dot projectors



MLA for static projection



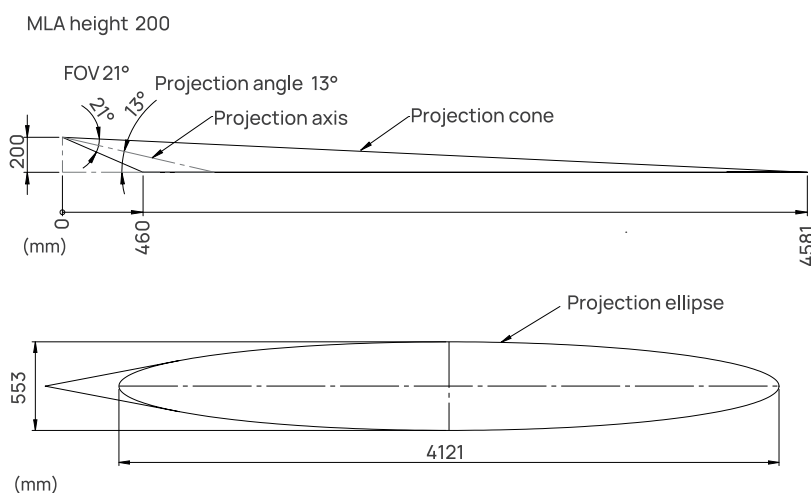
Static system
example: MLA, LED,
and one collimator



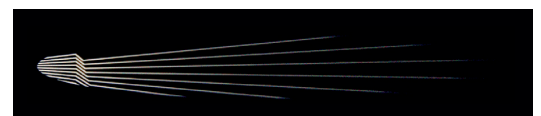
Semi-dynamic system
example: MLA with 4
channels, LED, 4 collimators

Static vs. Semi-dynamic Projection

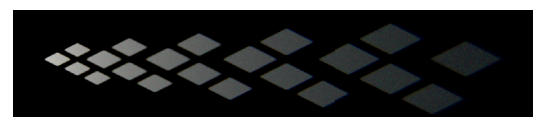
Pattern projected on the surface can be fixed or moving, depending on the number of channels in our MLA. Static projections are typically used for sharp and long images, while MLA with two and four individual channels create multiple patterns which switch, travel or overlap. Focuslight offers services from the initial optical design up to high-volume production.



TS-00030 Open



TS-00032 Comet



TS-00027 Confetti



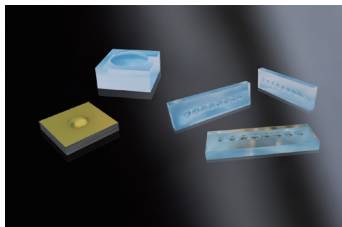
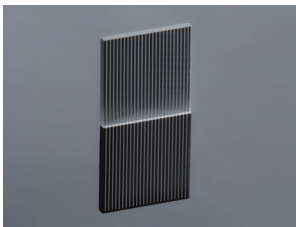
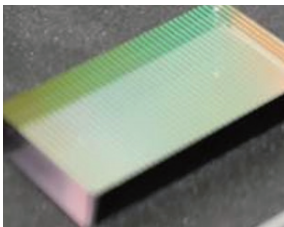
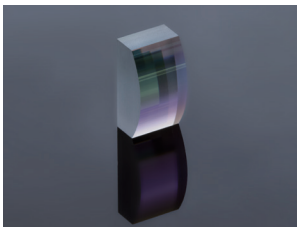
LiDAR

The demand for maximum safety of cars and their ability to navigate in the ever-changing environment, made Light Detection and Ranging (LiDAR) an essential application for autonomous driving. The system consists of laser transmitter module, laser receiving module, signal processing module, and an assembly of lenses. Focuslight manufactures LiDAR transmitters, and wide range of customized optics, to enhance the sixth sense of today's vehicles.

Focuslight Solutions for LiDAR

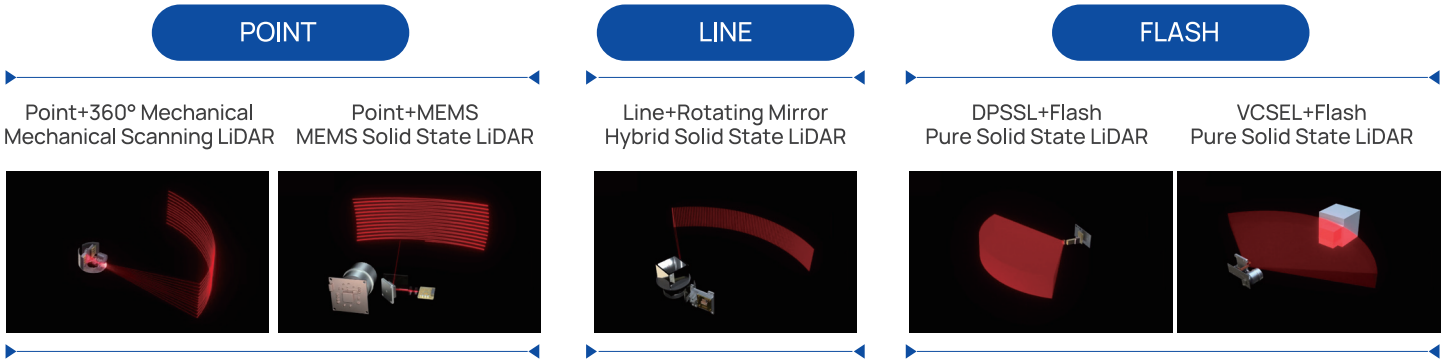


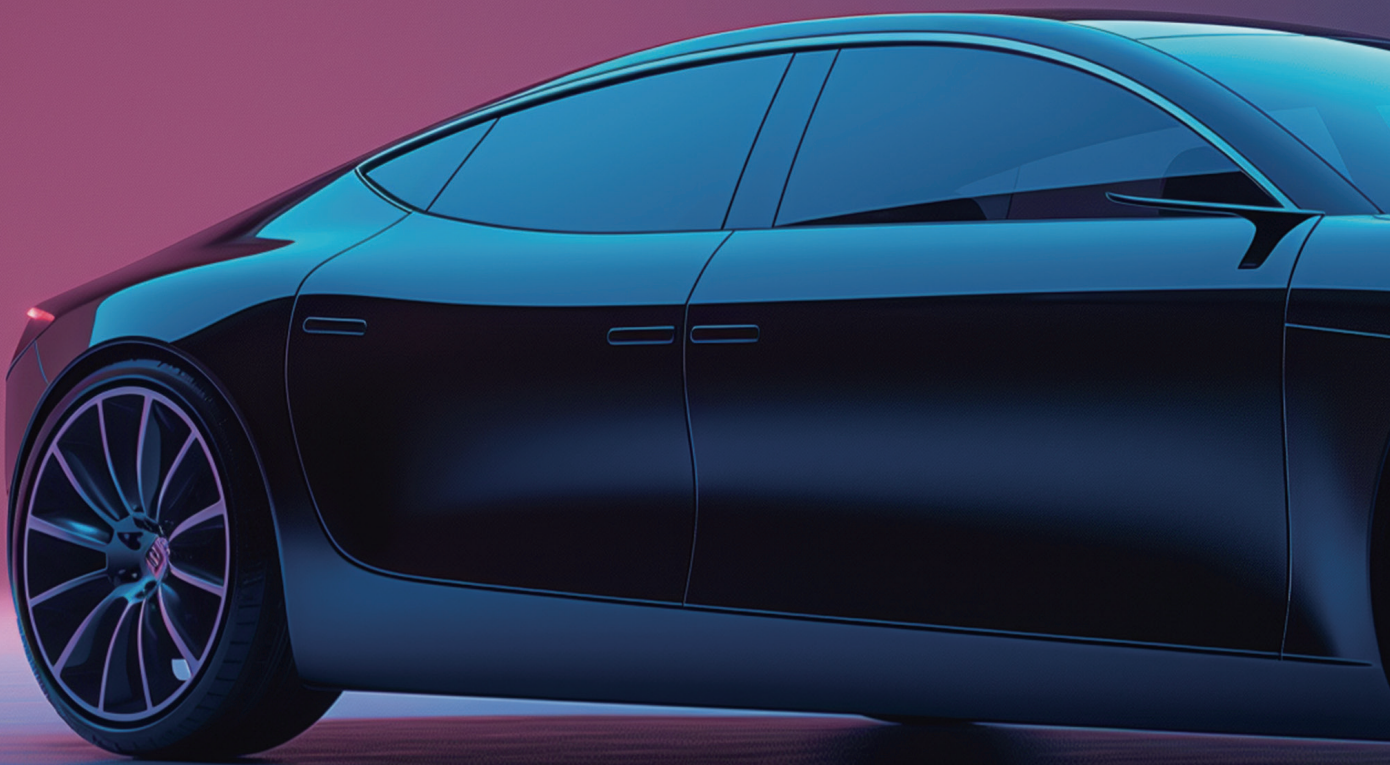
EEL / VCSEL based LiDAR transmitter modules



Beam shaping optics: Fast axis collimators, diffusers, homogenizers, collimators and arrays in glass, polymer and silicon

We offer advanced optical components and transmitter modules for various LiDAR technology approaches





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 high-power diode laser components and materials, laser optics, as well as photonics module and system solutions focusing on optical communication, automotive, pan-semiconductor, and medical and health applications. Focuslight has expanded its global footprint through strategic acquisitions including LIMO GmbH in 2017 and SUSS MicroOptics SA in 2024 (now as Focuslight Switzerland SA). With the acquisition of assets from ams OSRAM in 2024, Focuslight extends its business to be a global photonics foundry by providing global photonics industry process development and manufacturing service under the brand of Heptagon.

Focuslight Technologies Inc.

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