

Focuslight Corporate Overview

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Focuslight Overview



- Founded in 2007 by Dr. Victor X. Liu, headquartered in Xi'an, China.
- A fast-growing company that develops and manufactures:
 - High-power diode laser components and materials (Photon Generation)
 - Laser optics components (Photon Control)
 - Photonics module and system solutions (Application Solutions) focusing on optical communication, automotive, pan-semiconductor, and medical and health applications.
- A **global photonics foundry** offering process development and manufacturing services to the global photonics community.
- Publicly listed in the Shanghai Stock Exchange (Ticker Symbol: 688167).











Milestones







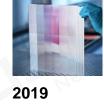
Line Beam LiDAR Transmitter Module awarded nomination from **European Tier 1**



2024

Acquisition of ams OSRAM's optical component assets;

Adopt Heptagon brand for global photonics foundry services



Production of microoptics on world's largest glass wafer (300 x 300 mm²)





Successful IPO

at Shanghai

Stock Market

2021

Acquisition of SUSS MicroOptics

SUSS MicroOptics

2024



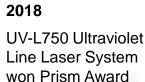
2013

World's first monograph on packaging of **HPDL** published



2017

Technology breakthrough of goldtin film deposition



FOCUSLIGHT

Global branding

2019

identity upgrade



2007

Founding of Focuslight



2017

Acquisition of LIMO;

Started providing photon control and photonics application solutions



2019

Automotive LiDAR

transmitter project

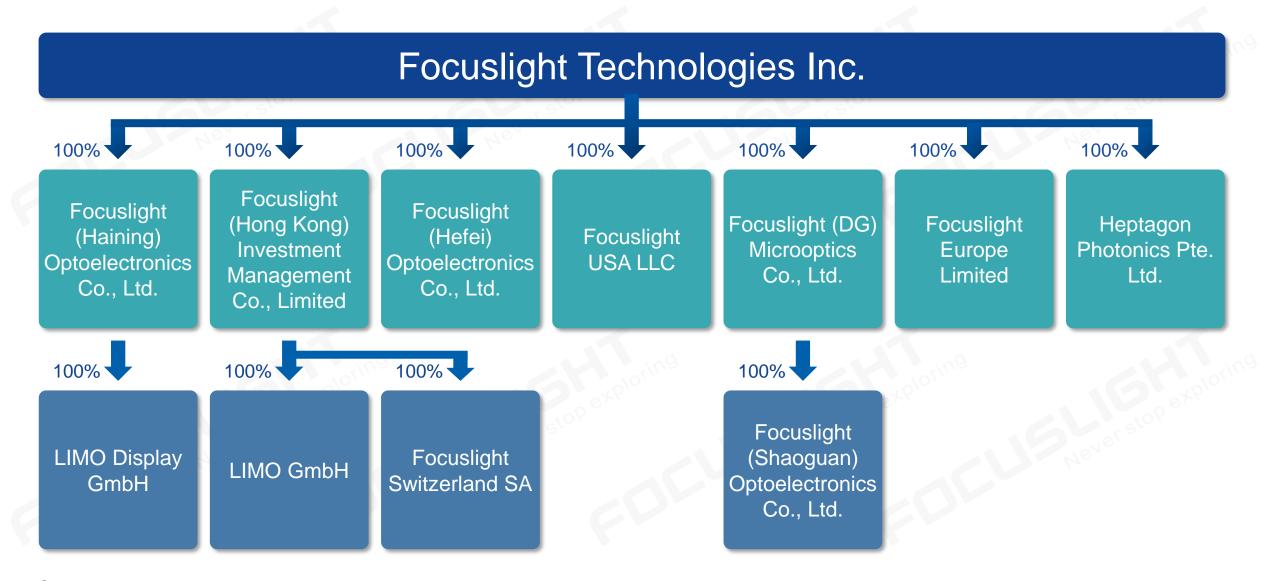
international Tier 1

awarded from

Dongguan delivery and high-volume manufacturing center officially in operation

Focuslight Corporate and Subsidiaries





Focuslight Global Operations System



Leverage the strengths and capabilities of each location to cater to specific customer demands and optimize operational efficiency.

Through centralized decision-making, integrated operations, and lean management, a high-efficiency, low-cost global operations system is established.



Neuchâtel, Switzerland Operations Center



Dortmund, Germany
Operations Center



Xi'an, China Focuslight HQ, Operations Center



Silicon Valley, USA Innovation Lab



Zurich, Switzerland R&D Office



Ang Mo Kio (AMK), Singapore
Operations Center
Business Center

Other Southeast Asian regions (to be decided)
Photonics Foundry



Shaoguan, China Operations Center



Haining, China
Hefei, China
Operations Center
(being constructed)



Dongguan, China Operations Center

Key Facts & Figures





Employees

>900



Yearly Revenue Proportion Invested into R&D

~16%



Yearly Revenue (2023*)

561M RMB



Patents Valid Worldwide

>610



Facility Worldwide

>48,000m²

Clean Room Worldwide

>14,000m²



Corporate Management Team





Dr. Xingsheng Liu (Victor) Chairman, CEO

Research and management experience in the US, with 100+ publications, 300+ patents, 30+ invited papers internationally

Committee Member of SPIE and IEEE



Dr. Chung-En Zah CTO

30+ years of research experience in the US. with 300+ publications, 50+ patents in optoelectronics and telecommunication

IEEE Fellow, OSA Fellow, 2x R&D 100 award winner



Dr. Reinhard Voelkel

Chief Strategy Officer

unine

35+ years of professional experience in the field of micro-optics, with expertise in strategic leadership, business development, and innovation



















Mr. Sinclair Vass

Corporate SVP of International Sales & **Business Development**

CORNING *COHERENT n LIGHT

35+ years experience in international photonics markets, having held technical, commercial and general management leadership roles at major multinational companies













Mr. Guowei Zhu (Gavin)

Corporate VP of Quality, President of Automotive BU

20+ years in international automotive companies, rich experience in IATF QMS and plant operations management by World Class Manufacturing (WCM) & Lean manufacturing









Corporate SVP of Business Process and

25+ years in IT leadership, specializes in digital business transformation, global project management, multicultural team leadership in fast-paced international industries, and strategic decision-making



Thermofisher Tupperware EWIDENT



Mr. Ye Dai (Robert)

Corporate VP of Global Sales

Excellent track record in worldwide sales and product line leadership roles, as well as in previous position as President of Pan-Semiconductor BU

20+ patents granted



Mr. Lucas Zhang **Global Operations Vice President**

20 years of global supply chain management experience at multiple Fortune 500 companies, with strong expertise in in supply chain planning and management within the consumer electronics industry









Chief Product/Process Officer

Over 25 years of experience in wafer-level optics, optical sensor and camera packaging, SAW/BAW filter R&D, and NPD execution, with a strong focus on mastering, tooling, and wafer-level processes















Corporate Management Team





Ms. Xuefeng Zhang (Jennifer)

Board Secretary, Marketing Director

14 years photonics industry international business experience

In-depth understanding and rich experience in sales, marketing and business development







Ms. Yiping Ye (Alison)

Board Director, CFO

Over 15 years management experience and multi-field business practices

In-depth understanding in LTC, IPD, intercultural cooperation and rich operational experience in market development, project operation and business management







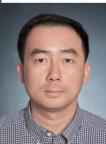
Mr. Hong Wang Corporate R&D Director

PhD in physics and Master in computer science. 20+ years in quantitative analytics, capital market risk modeling and architecting. Expert in building analytic infrastructure and system. Rich experience in multinational team management.









Mr. Jinchao Qu President of Diode Laser BU. President of Medical & Health BU

Extensive years of product marketing and sales management experience

Outstanding track record in previous roles as Asia Sales Director and Head of the Application Systems Special Task Force







Mr. Dirk Walter Bogs

President of Laser Optics BU

Over 25 years' experience in ultra-precision tooling, optic manufacturing, engineering & project management, and operational management

Very deep knowledge of technology development and optimization





Mr. Yong Tian (York) VP of Laser Optics BU

20+ years of operation & R&D management, very deep knowledge with organic optical materials and optical coating technology, published SCI articles and owns patented technologies. Experienced in Lean





Mr. Weiyi Gu President of Pan-Semiconductor Solutions BU

12 years experience in photonics R&D and product management, with rich track records of leaderships in developing and delivering system solutions for pan-semiconductor and industrial applications





Dr. Tobias Senn

President of Strategic Growth Division

15+ years of experience in micro-optical component development for the consumer market. Expert in design for manufacturing and process development, with a strong focus on high-volume production and yield improvement











Mr. Tom Liu

Manufacturing & Industry 4.0

President of Global Photonics Foundry BU

20+ years in R&D and operations management, specializing in optical imaging and non-imaging system design, WLO process & integration, and optical component manufacturing. Proven track record in new product development and scaling high-volume production





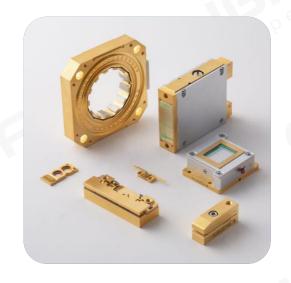




BU: Business Unit

Products and Businesses











Photon Generation



Photon Control



Photonics
Application
Solutions



Global Photonics Foundry

Markets





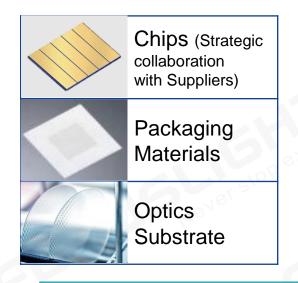
^{*} Based on accumulated revenue data from 2024 Q1 – Q3

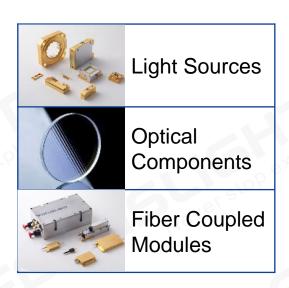
Value Proposition

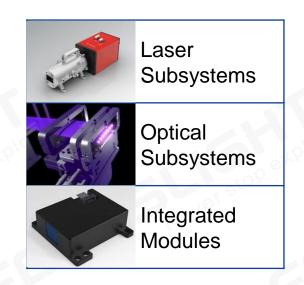


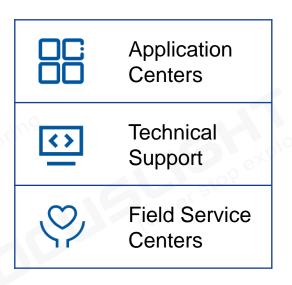
Total Solution and Service in Full Value Chain











Industry Leader + Strong Financial Backing + Healthy Stable Company + Invest in the Future

Value Proposition





Do what we do best

Offer the best value

Optimize to the extreme

Achieve the best performance / quality-to-price ratio

Commitment to Customers

- Lowest cost manufacturing for high volume products
- Willing to take technical risk, but request customer commit market share in return
- Willing to take investment risk in R&D and capital including M&A for customer but request customer commit market share in return
- Collaboration transparency, fast response, IP protection and long-term partnership



What we don't do

Take high market risk

Be greedy

Be too aggressive

Compete against our customers



Mission





Be the global trusted photonics solution provider through innovation, manufacturing excellence and fast response

Branding





The corporate/parent brand that offers innovation-driving photonics solutions, covering all available businesses except WLO, WLS, WLI, and related fields.



A brand focused on business around the technologies of WLO, WLS, WLI, and related fields, ultimately aiming for volume production.

Company Organization



Focuslight Technologies

Diode Laser Business Unit

Laser Optics Business Unit

Automotive Business Unit

Pan-Semiconductor Solutions Business Unit

Medical & Health Business Unit

Strategic Growth Division

Global Photonics Foundry Business Unit

Centralized Corporate Functions + Shared Service Center

Products - Diode Laser Components

FOCUSLIGHT

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Under Focuslight Brand



Advanced Materials

- AuSn Pre-Deposited AIN Ceramic Submounts
- AuSn Pre-Deposited CuW Submounts
- Thin Film Metallization Service



Active Devices

- Single Emitter Components
- Single Bar Components
- Micro-Channel Cooled Stacks
- Conduction Cooled Stacks
- Pumped Modules



Fiber Coupled Modules

- Emitter-Based FCM
- Bar-Based FCM



Professional Medical Application Components

Laser Hair Removal Engines

Products - Laser Optics Components

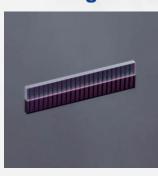


Under Focuslight Brand

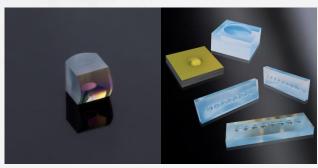
Single Lenses and Linear Lens Arrays

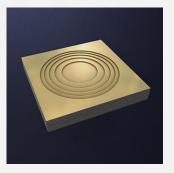












FAC

SAC

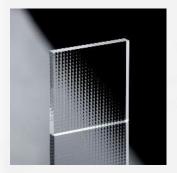
SAC array

BTS

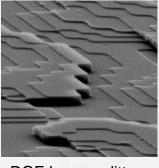
Fiber coupler and collimator

Collimating DOE

Area Lens Arrays



Homogenizer and diffuser



DOE beam splitter, dot or line generator



Shack-Hartmann array

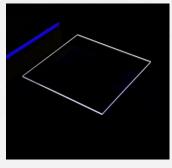


Pinhole array

Plano Optics and Coatings







Window

Products - Automotive Application Solutions



Under Focuslight Brand



VCSEL Flash Transmitter 700W

Line Beam LiDAR Transmitter Modules LE02 Pro (Engineering Sample) LX02 (Engineering Sample)



905nm 700W EEL Line Beam Transmitter



VCSEL Line Transmitter 1000W

Optical Components and Assemblies for Automotive

EEL FAC Collimators



Auto-grade Diffusers and Homogenizers



Optics for Automotive Projected Lighting and Headlight



Customized Optical Assemblies



Products - Pan-Semiconductor Application Solutions



Under Focuslight Brand



Solid-State Laser Lift-Off (LLO) System

Advanced Display Manufacturing Solutions



Solid-State Laser Annealing (SLA) System



Variable Beam Laser System (Mini and Micro LED Processing)

IC Manufacturing Processing



IC Wafer Annealing System



Variable Beam Laser System (Advanced Chip Packaging)

Industrial Solutions



IR Line System



Industrial Laser Module

Products - Medical and Health Application Solutions



Under Focuslight Brand









Global Photonics Foundry Services



Under Heptagon Brand



DFM* Stage

Outcome: Fullfleshed Design for WLO-Technology, Manufacturability and Risk Analysis

*DFM: Design For Manufacturing

Product Validation & Qualification

Outcome: 2nd or xth Gen working samples, Creation of Product Documentation (e.g. delivery req. specifications, drawings, technical datasheets etc.), cost analysis

Mass Production

WLO Components fully compliant according to Product Requirements and Test Specs.

Design Feasibility Study

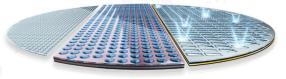
Outcome: Concept & prelim. Design (fulfilling requirements, dimensions, est. cost),

Design Verification / POC Stage

Outcome: 1st Gen Working Samples manufactured, testing data results for e.g. yield analysis

Ramp-Up

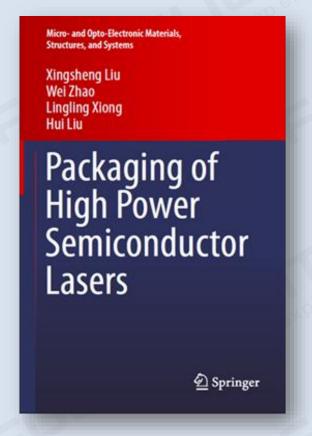
Wafer Level Optics (WLO)



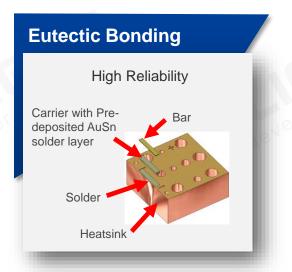
Work with Us - From Concept to Mass Production

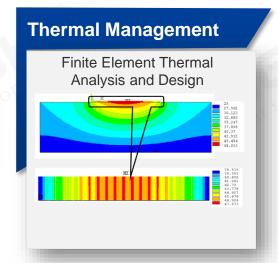


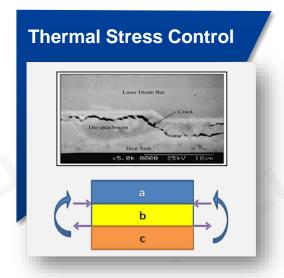
Diode Laser

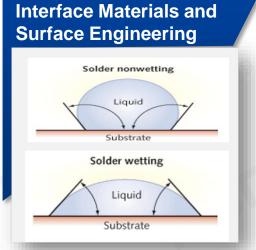


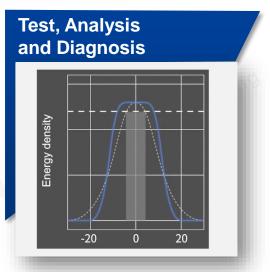






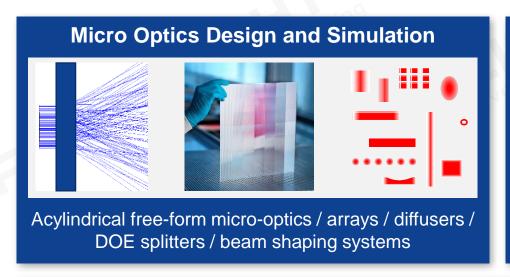


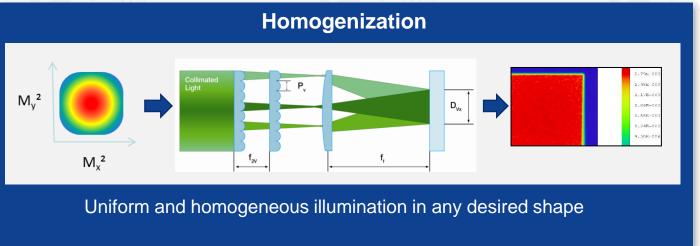


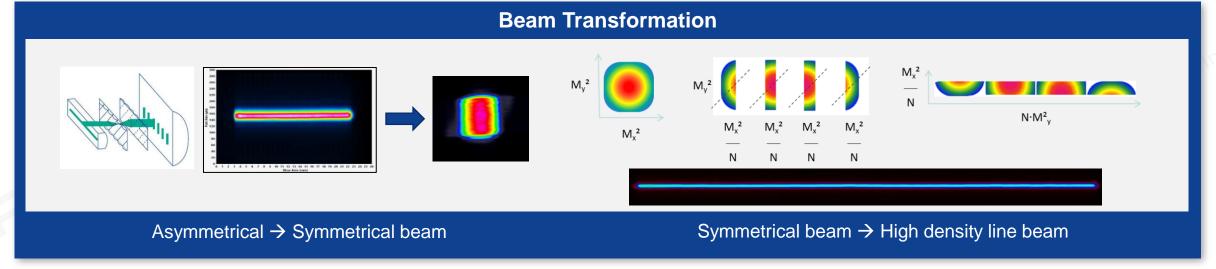




Beam Shaping – The Right Photon at the Right Place and Time!

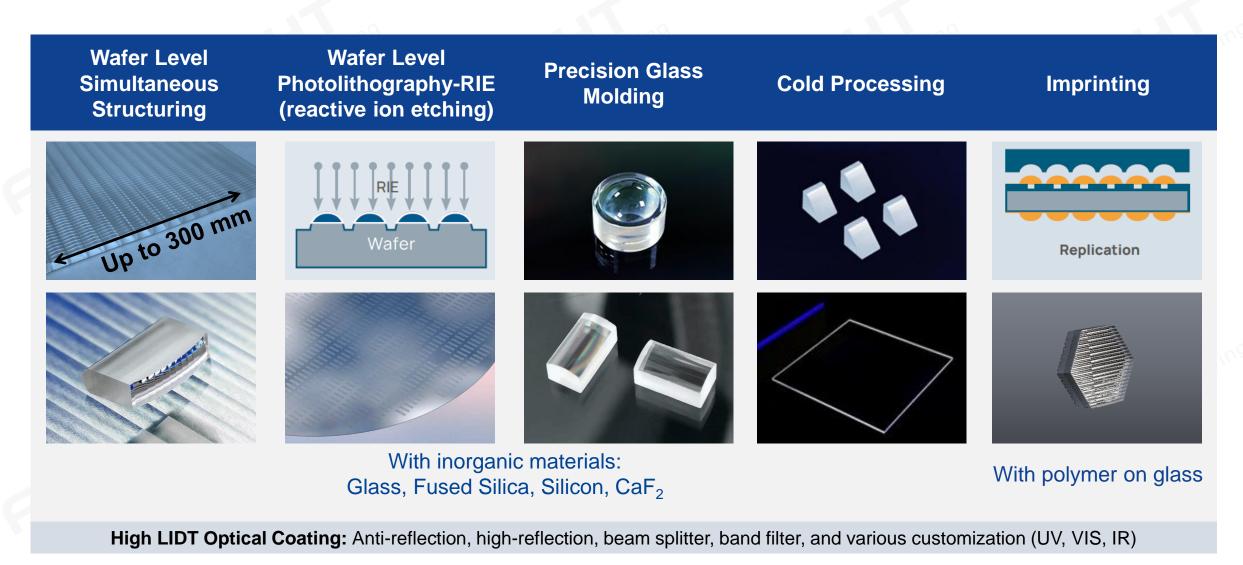








Optics Manufacturing

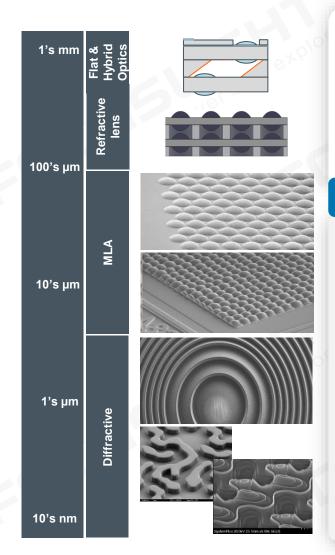


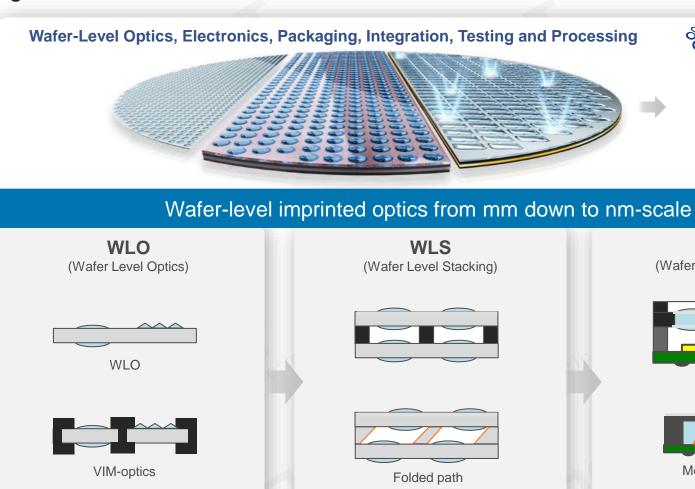
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% HEPTAGON

Wafer Level Optics and Stacking

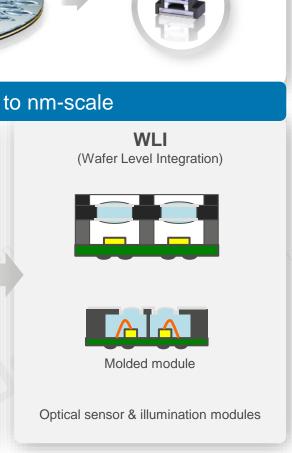




Imaging lenses, projector lenses

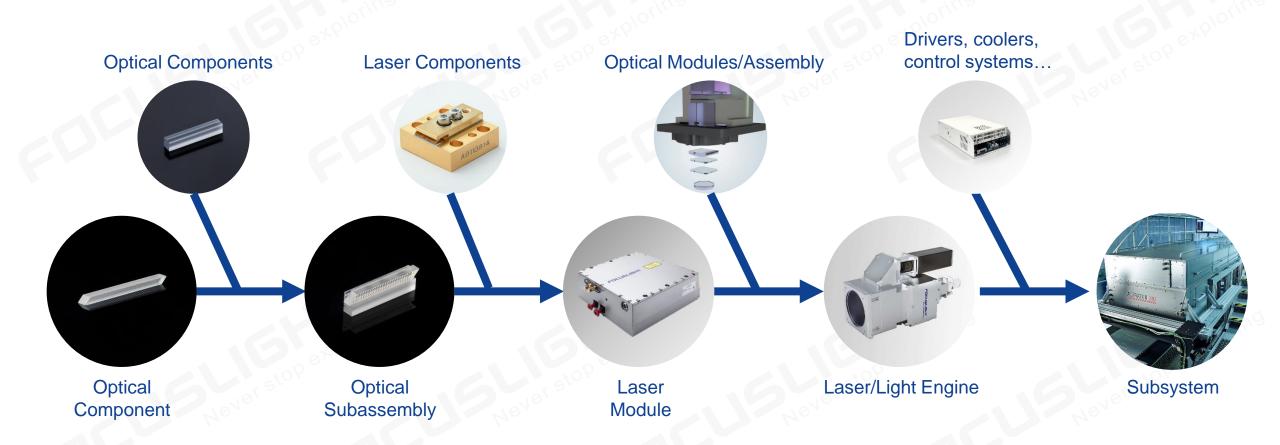
Diffractive & refractive optics, MLAs,

diffusers





High Precision Optical Assembling Process and in-house Equipment: From Components to Subsystems



A Unified QM System in the Corporate Ensures Reliable and Premium Products



ISO9001 Certified Quality Management System (QMS)

ISO14001 Certified Environmental Management System (EMS)

IATF16949 Certified Automotive Quality Management System

ISO45001 Certified Occupational Health and Safety Management System

Failure Mode and Effect Analysis (FMEA)

Statistical Process Control (SPC)

Production Traceability Database

Control Plan (CP)



Quality Assurance System



Assurance of Design Quality	Design of the Optimal Design Quality to Meet Customer Needs	Assurance of Manufacturing Quality		Built-in (Design (•	Assurance of Service Qualit
NPI / APQP		Mass Production		RMA / Warranty		
Planning	Research & Development Production Eng	gineering				
			Manufacture			
					After Se	rvice

Promotion of Consistent Quality Assurance Activities							
Quality Control System of Design	Quality Control System of Manufacture		Quality Control Evaluation System				
 QFD Critical Characteristic, Special Characteristics Tolerance Chain Design FMEA, FTA Design Validation Design Review 	 Parameter design Process FMEA Process Capability Study Automatic Inspection, Poka Yoke / Error Proof Measurement System Analysis 	 QA Network Supplier Quality Management Production Validation Control Plan QC Circles Production Part Approval Process 	 QC diagnosis Quality assurance Meeting Quality Auditing Improvement Meeting 				

Focuslight Manufacturing System (FLMS)



FLMS

Continually exceed customer's increasing expectations

Manufacting Excellence in Safety, Quality, Cost and Delivery

Just-in-Time Production Adaptable to High Safety, Morale & Productivity Zero Defects Produced Demand Lean Material Flow Six Sigma Product Quality People **Human Error Andon Real Time Error Proofing** Pull Systems **Balanced Line** Visual Control One Piece Flow "Poke-yoke" "Kanban" Management Control **Production Levelling** Flexible Workforce **Build in Quality** Flow Flexible Recognition Process Capability **Total Productive** Standardized Multi Skill Systems 6 Sigma Methods Maintenance Work Layout Minimize Material Handling Manufacturing Training System **Automation**

Gemba, Challenge, Continuous Improvement

Leadership Driving, Teamwork, Respect

Philosophy Absolute Customer Focus, Quality First, Zero Tolerance for Waste

Manufacturing Excellence



- Apply the lean manufacturing practices to all production lines, including automotive, diode laser and laser optics business
- Absolute customer focus, zero tolerance of waste, and continuous improvement philosophy
- Significantly reduced cycle time, improved manufacturing efficiency, and lowered RMA yield and manufacturing cost.
- Adopting automation and advanced production management system
- SOP of the first LiDAR transmitter project with an international automotive tier 1 customer
- IATF 16949 certified and VDA 6.3 audited





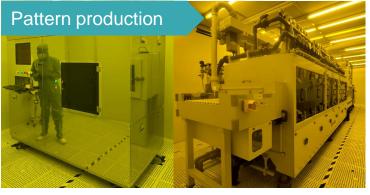
Advanced Materials

10+ years high-volume manufacturing experiences + self-owned core technologies



















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Diode Laser Components









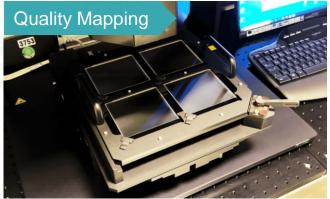


Diode Laser Manufacturing Capacity > 500K pcs / year Burn-in Capacity 600K pcs / year

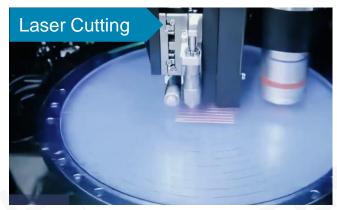


Laser Optics Components: Wafer-Level Simultaneous Structuring Processing









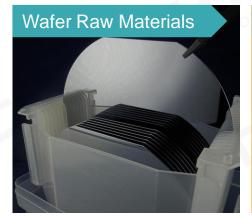




Wafer-Level Simultaneous Structuring Processing:
Manufacturing Capacity > 2K wafers / month or > 3.5M pcs lenses / month



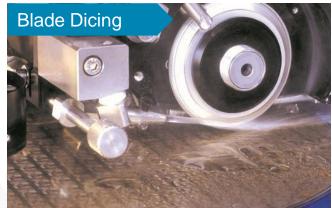
Laser Optics Components: Photolithography-Reactive-Ion-Etching Processing













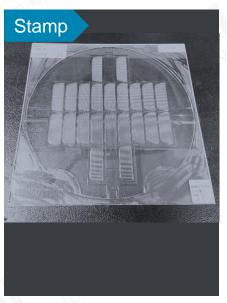
Photolithography-Reactive-Ion-Etching Processing: Manufacturing Capacity > 300 wafers / month

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Laser Optics Components: Imprinting Processing











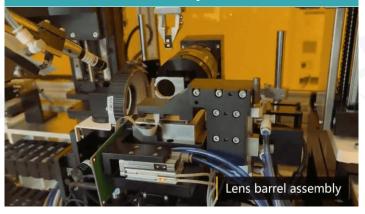
Automation Powered Manufacturing Excellence



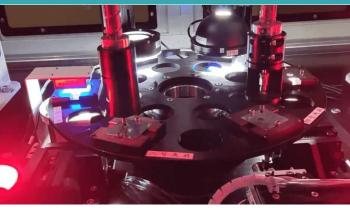
Automatic Optical Alignment



Automatic Assembly



Automated Optical Inspection



Laser Optics Production Line



LiDAR Transmitter Production Line

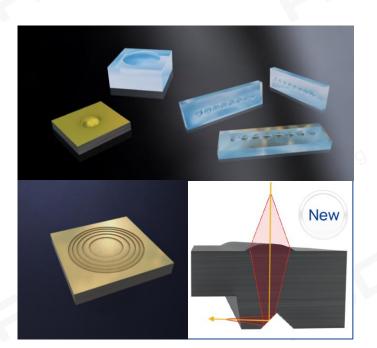


Video Link: https://www.focuslight.com/news-events/newslist/focuslight-autonomation-powered-manufacturing-excellence/

Optical Communication

Diffractive and Refractive Optics

- Focusing / collimating microlens
- Prism integrated microlens arrays
- Microlens arrays
- Silicon refractive microlens arrays



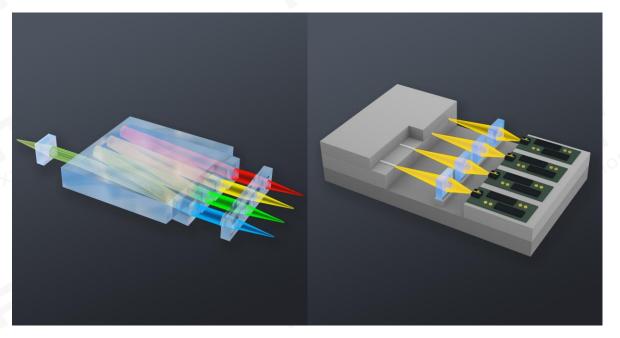


Optical transceivers (TROSA, ROSA, TOSA *)

Optical Switches

Photonic Integrated Circuits (PICs)

Fiber Connectors



^{*} TROSA = Transmit & Receive Optical Sub Assembly, ROSA = Receiver Optical Sub Assembly, TOSA = Transmitter Optical Sub Assembly

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Consumer Electronics



Optical Sensing, Empowering AR/VR and AI to See

Multi-aperture wafer-level optical lens for AR-Light Engine

Micro-optics Modules for Vis & NiR solutions with multiple FoV options

Wafer level stacking that is fully reflowable and thus mass manufacturable

Leading thermal performance, ensuring simple thermal design

Face ID, Under-Display Face ID

Complex Micro Dot Projectors Optics

Multi-Zone 3D sensor solutions, including dToF, Proximity sensor optics

Leading thermal performance, ensuring simple thermal design



Microscopy

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Medical and Health





Optical Components; Laser Components



Scanning

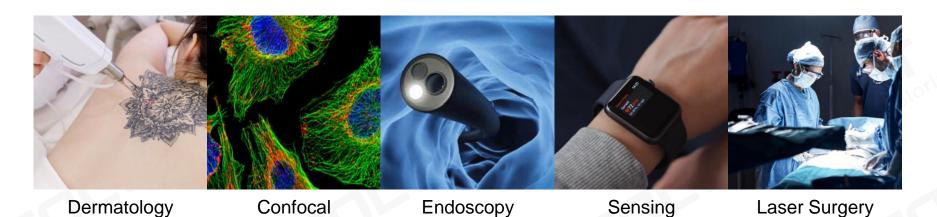
Optical Solutions; Laser+Optics Assembly; Application Handpiece



Contract Manufacturing Services



Focuslight does not produce medical or health equipment

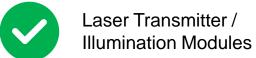


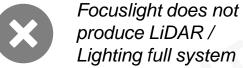
Automotive











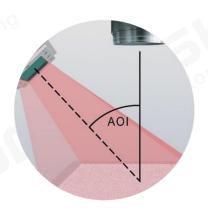
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Semiconductor









- Beam homogenization technology powers the illumination system – key optical component in pansemiconductor systems
- > 15 years supply to the major manufacturer of semiconductor lithography tools
- Laser system solutions with high power density and different beam profiles, designed for various laserbased wafer annealing processes including IGBT backside annealing and SiC annealing
- Based on 976nm diode laser with adjustable beam output and >95% homogenization in energy distribution
- Ideal for advanced chip packaging processes, e.g. laser-assisted bonding
- Off-axis beam shaping technology powers laser surface treatment as well as surface inspection
- Typically used in solar cell industry

Display





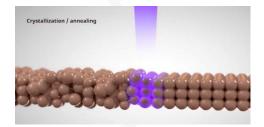




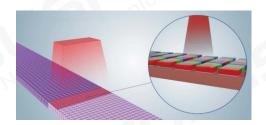


Solid-State Laser Lift-Off (LLO) for Flexible Displays

- Several tens of beam shapers (plasma display pixel structuring)
- Several green 100 mm line beam systems (laser lift-off)
- > 600 mm UV line beam production system (laser lift-off)



Next-gen LTPS Solid-state Laser Annealing Process

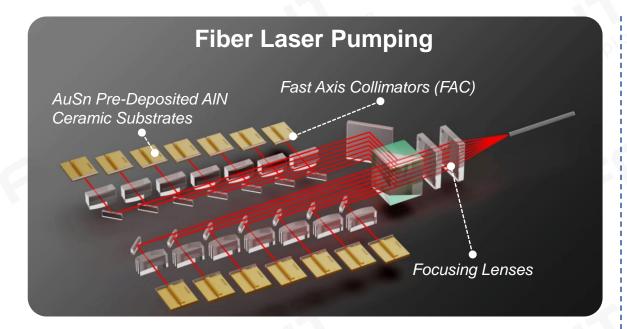




Mini and Micro LED Processing

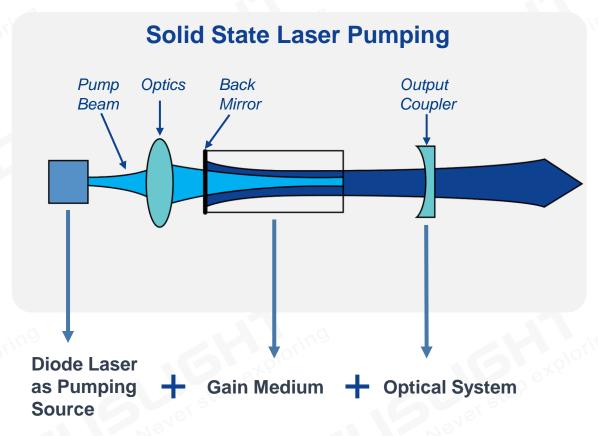
- Laser Mass Transfer and Laser Mass Soldering
- Laser Chip Repair

Industrial



- AuSn pre-deposited ceramic substrates stable and reliable thanks to the high thermal conductivity and suitable thermal expansion coefficient;
- Fast axis collimators (FAC) fundamental and efficient solutions for shaping the beam emitted by the pumping sources;
- Focusing lenses coupling the collimated laser beam precisely into the output fiber;







Sales Network





- Worldwide established distributors
- Direct sales offices in China, Switzerland and US
- Manufacturing site in Xi'an, Dortmund, Dongguan, Haining, Shaoguan, Neuchâtel, and Singapore

Summary



Your committed and reliable long-term partner in photonics components and solutions



Diode laser light source leader and beam shaping expert with strong IP position



One-stop-shop provider of micro-optics choosing from five process technologies best matching customer needs



Global photonics foundry that convert customers' ideas and designs into their own products and solutions



Total solution, versatile customization service and field service provider



Strong RDE capability, high volume production capacity and low-cost manufacturing



Financially healthy and strong financial backing from investors for long term growth

THANK YOU

