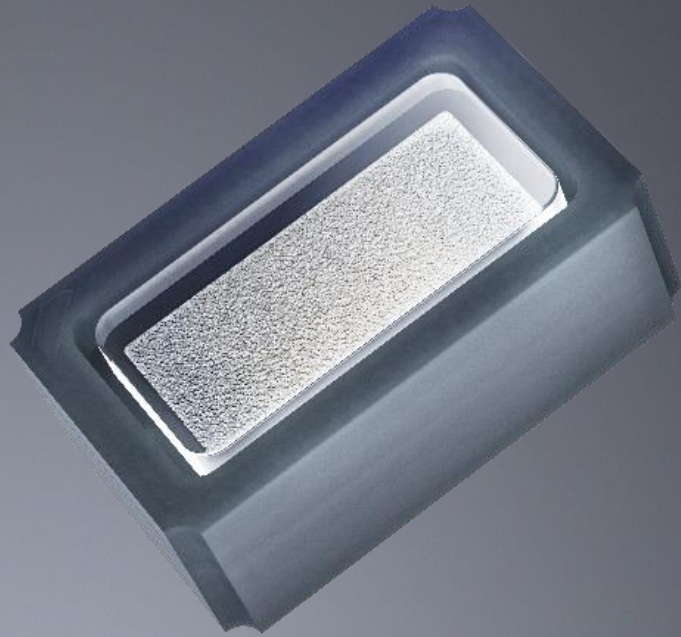


3D sensing

Single- and  
multi-mode  
VCSEL solutions



## Innovative VCSEL light sources for 3D sensing application

3D sensing is opening a new domain with demanding requirements for the illuminator such as ultra-short pulse operation, homogeneous illumination, configurable random light source array, narrow spectrum to reduce noise of sun light, high reliability, high volume capability, low cost.

### Which application fields?

In the field of automotive, consumer electronics or industrial sensing there are various applications. Some examples for the VCSEL solutions are identification, security and entrance control, mobile payment, gesture recognition or LiDAR.

### Why TRUMPF?

TRUMPF Photonic Components is a family-owned global leader in VCSEL technology. We design, manufacture and sell VCSEL-based light sources. Our solutions support the growing demand of 3D sensing application. With over 20 years of VCSEL technology development and offering VCSEL products to the market, being the leading VCSEL supplier to smartphone customers, TRUMPF has proven to be your VCSEL partner for 3D sensing application.

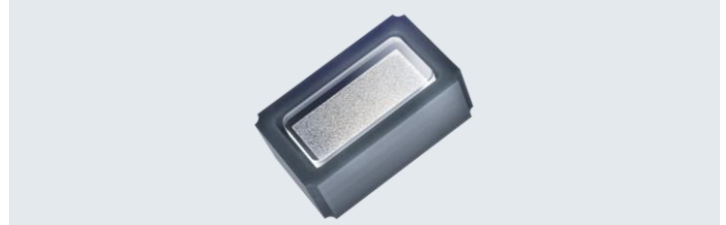
# VCSEL light sources from TRUMPF Photonic Components offer excellent and reliable performance over a wide range of conditions

## Features:

- TRUMPF proprietary VCSEL technology
- High conversion efficiency
- High reliability
- Narrow 2 nm spectral width
- High frequency modulation up to 100 MHz
- Sub ns single pulses
- Wide range of duty cycles
- Low inductance package
- Low thermal resistance package
- Integrated optics to support customized field-of-view
- Easy application to system, SMT-mountable packages
- Wavelengths of 850 nm and 940 nm
- Small footprint
- Integrated monitoring photodiode (optional)

## Application domains:

Some of the main application domains are gesture recognition, smartphones, 3D cameras, autonomous drive or machine vision



Product picture of PLA5506-940

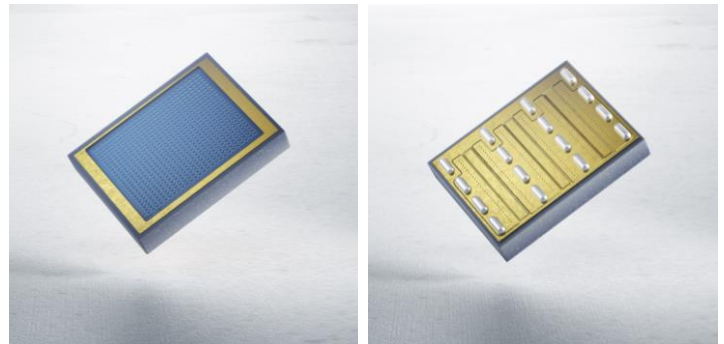
Product Specifications				
Product	Dimensions (l x h x w)	CW optical output power	Emission wavelength	Field of view**
PLA5506-940	3.2 x 1.95 x 1.15 mm <sup>3</sup>	300 mW	940 nm	65° x 85°

Product specification items in this overview are typical values under defined operating conditions

\*\* Defined at full-width half maximum

## New product platform ViBO

**ViBO** stands for **VCSEL integrated Backside Optics**. The new VCSEL array technology is based on TRUMPF high-performance VCSELs but comes with unique, patented lens forms that are directly etched into the GaAs-substrate. 3D sensing solution providers get unprecedented benefits in creating tailored illumination profiles needed in advanced 3D sensing applications, as micro-optical elements are monolithically integrated in ViBO. Furthermore, the new design of ViBO reduces the form factor over present hybrid VCSEL package solutions and supports for instance easier integration under smartphone displays.



Left: ViBO product with uniform lens array to support flood illumination. | Right: ViBO products can be SMD mounted to the board or driver IC using preformed contacts

For more information visit  
[www.trumpf.com/s/VCSEL-solutions](http://www.trumpf.com/s/VCSEL-solutions)



## Safety information:

- ⚠ Invisible laser radiation / avoid beam exposure / class 4 laser product
- ⚠ Electrostatic sensitive devices / observe precautions for handling