

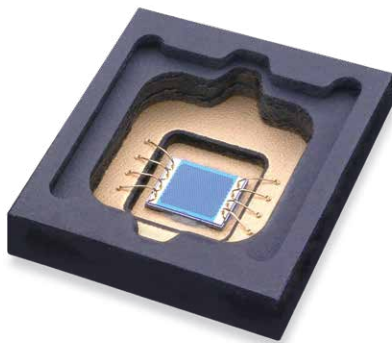


# FINISAR®



## Infrared Light for Measuring, Sensing and Controlling our Environment

VCSEL technology is extending the possibilities of consumer and scientific applications including 3D facial recognition, augmented reality, automotive in-cabin sensing and automotive LIDAR. Finisar's rich history and expertise in this technology expands to more than two decades of engineering research, development, design and manufacturing experience.



*High Power Sensor in VCSEL Package*



# What is VCSEL Technology?

Finisar's Vertical Cavity Surface Emitting Laser (VCSEL) technology brings together the advantages of low cost and optical efficiency within a small footprint. VCSELs have the advantage of wavelength stability over temperature and are directionally focused to maximize output efficiency. With its focused, coherent light, a VCSEL is 10 times more efficient than an LED in similar packaging.

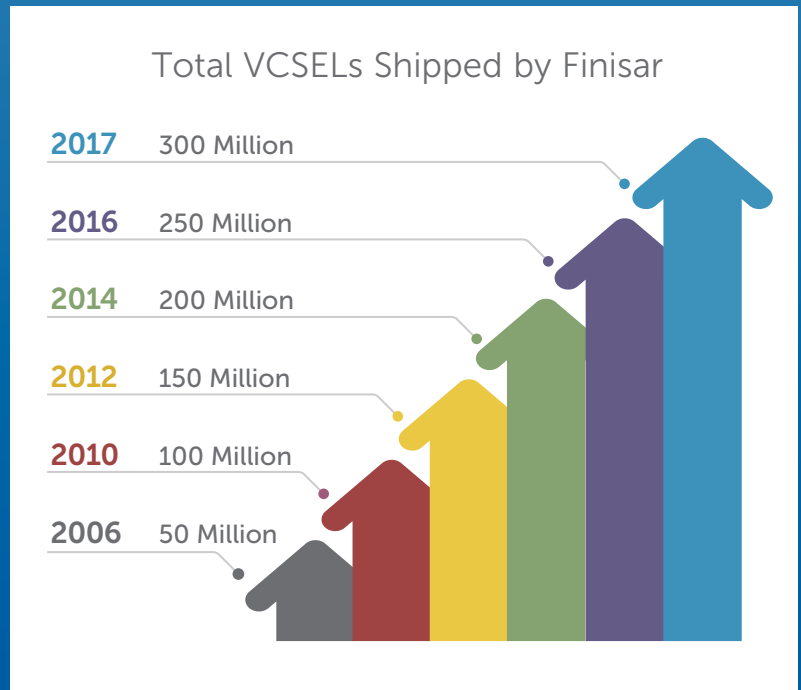
## Benefits of VCSEL Technology

- Scalable output power
- High quality optical beam
- Two available modes of operation:
  - Continuous Wavelength (CW) or Quasi-CW mode
  - Pulsed mode
- Higher wall-plug efficiency versus LED
- Stable wavelength over temperature and low spectral width
- Easy to package
- No single emitter failure point
- Multi-emitter increases ESD robustness and lifetime

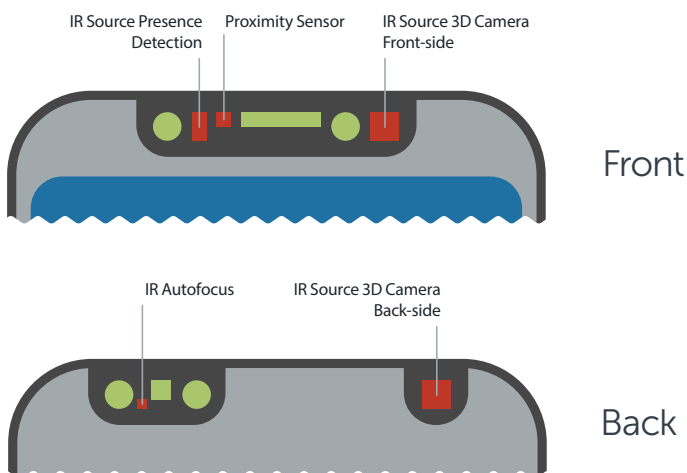
## Finisar is the Industry Leader

Finisar is recognized as the worldwide leader in VCSEL technology and manufacturing and continues to lead the commercial application of VCSELs with more than 300 million shipped. Known to have the best reliability over temperature in the industry, Finisar's VCSEL technology is both flexible and scalable, enabling OEMs to customize VCSEL arrays to meet application requirements, such as those found in Gesture Recognition and Optical Sensing.

Finisar is a global manufacturer with locations in the USA, Malaysia, China, Israel, Australia, Sweden and Germany and serves as a one-stop optical supplier.



## VCSELs in a Smartphone



## How Does It Work?

By passing unseen, infrared light through an optical element (which spreads the light into a structured pattern or a sheet of light), systems are able to capture depth information across an entire room. This enables a person to control games or their entire entertainment center with physical gestures.

In mobile devices, 3D sensing will augment camera capabilities to enable object recognition, capture depth data in an image or augment reality as seen through the device's camera.

## About Finisar

Finisar is a global technology leader in optical communications components and subsystems. These products enable high-speed voice, video and data communications for networking, storage, wireless, and cable TV applications. For more than 25 years, Finisar has provided critical breakthroughs in optics technologies and has supplied system manufacturers with the production volumes needed to meet the expanding demand for network bandwidth. Finisar's industry-leading products include optical transceivers, optical engines, active optical cables, optical components, optical instrumentation, ROADM & wavelength management, optical amplifiers, and RF-over-Fiber.

Technology Innovator.  
Broad Product Portfolio.  
Trusted Partner.



**FINISAR**<sup>®</sup>

1389 Moffett Park Drive  
Sunnyvale, CA 94089-1133  
[www.finisar.com](http://www.finisar.com)

Telephone: +1 408-548-1000  
Sales: +1 408-541-5690  
Email: [sales@finisar.com](mailto:sales@finisar.com)



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