

The History of VCSEL Technology

2018 VCSEL Technology for 3D Depth-Sensing Applications Demonstrated at Photonics West

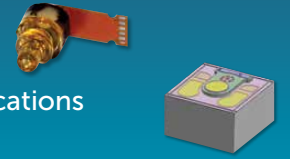
2017 Finisar Announces New Plant in Sherman, Texas to Expand VCSEL Manufacturing Capacity



2016 High Power 2D VCSEL Arrays for 3D Sensing General Availability
10G and 25G SWDM VCSELs General Availability
Single Mode VCSELs for Consumer and Scientific Applications Introduced



2015 56G+ NRZ Demonstration with IBM
940nm High Power 2D VCSEL Arrays Introduced for Consumer Applications
10G and 25G SWDM VCSELs Introduced



2014 Next Generation 10G VCSEL Demonstrated with 95°C Temperature Operation
16G VCSEL Released to Mass Production
25G 850nm VCSEL Introduced

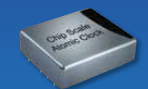


2013 850nm High Power 2D VCSEL Arrays Introduced for Consumer Applications

2012 High Powered VCSELs; 980nm VCSELs; Chip on Flex TOSA
Finisar introduced high powered VCSELs targeting Gesture Recognition and 3D imaging and also packaging capabilities like Chip on Flex, Chip on Board, and Chip on lead-frame.



2011 Atomic Clock VCSELs; 910, 825, 800, 780nm VCSELs
Finisar introduced several new VCSELs for diversifying into many different markets. Finisar now has single mode and multi-mode VCSELs that cover 780nm to 1050nm wavelength range and speeds up to 25 Gbps.



2010 16 Gbps Fiber Channel
Finisar introduced the 14-16 Gbps VCSEL based on Oxide Isolated VCSEL technology.



2007 8 Gbps Fiber Channel
Finisar introduced an 8 Gbps VCSEL based on Oxide Isolated VCSEL technology.

2006 Finisar Opens New Manufacturing Plant
Finisar Opens New Manufacturing Plant in Allen, Texas to support increasing VCSEL demand.



Reflective Sensor

Continuing with the endeavor to look for additional VCSEL-based businesses, Finisar marketed TO-46 can based sensor components using laser chips. These components were enablers in many applications like label printers, coin detectors in slot machines, and textile mills.



2005 10 Gbps
Finisar introduced the 10 Gbps VCSEL based on Oxide Isolated VCSEL technology

2004 Finisar Acquires Honeywell VCSEL Group
The Honeywell VCSEL group was acquired by Finisar in March of 2004 as part of its vertical integration strategy.



2003 4 Gbps
Finisar introduced a 4 Gbps VCSEL based on Oxide Isolated VCSEL technology.

STABILAZE™

Finisar established the trade name Stabilaze for the world's first VCSEL devices that were burned-in for performance stabilization in wafer form. Finisar holds a patent for this technology and is still the only company in the world to successfully burn-in VCSELs in wafer form. This has also contributed to setting the Finisar VCSEL apart from the competition.



2001 Single Mode VCSEL
Finisar introduced its first single mode VCSEL in 2001. This was an 850nm VCSEL and marked the initial effort to look for applications outside of the traditional datacom market. This product was designed into a high-end encoder application and still ships in volume today. Again, Finisar reliability was key to the success of this product.

2000 Oxide VCSEL; Reliability Paper; 1x4 and 1x12 Arrays
Finisar introduced its first oxide VCSEL capable of 2.5 Gbps. In conjunction, Finisar published the data in a world-class reliability paper reinforcing the company's reputation for reliable VCSELs. Finisar also introduced the world's first 1x4 and 1x12 VCSEL arrays demonstrating robustness in non-hermetic environments.

1998 VCSEL TOSA
Finisar introduced TOSA and ROSA components designed specifically for easier integration into optical transceivers.



1996 First Commercial Product; Industry First Reliability Paper
Honeywell VCSELs became synonymous with the industry's 'most reliable VCSEL' and to this date, our VCSELs are held as the gold standard in the industry for reliability. This first paper by Honeywell was the foundation for that reputation.

1995 VCSEL Production Transferred to Texas
The VCSEL technology was moved to the Semiconductor Fab in Richardson, Texas to enable production support of the VCSELs. This initial VCSEL device capable of modulation up to 1 Gbps was based on Proton Implanted technology.



1993 Research Begins at Honeywell Technology Center
VCSEL research starts at Honeywell and a new group is established in Minneapolis, MN. In 1996, this group was the first to commercialize VCSELs and the development continued here until the early 2000's when R&D was moved to Richardson, Texas.



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