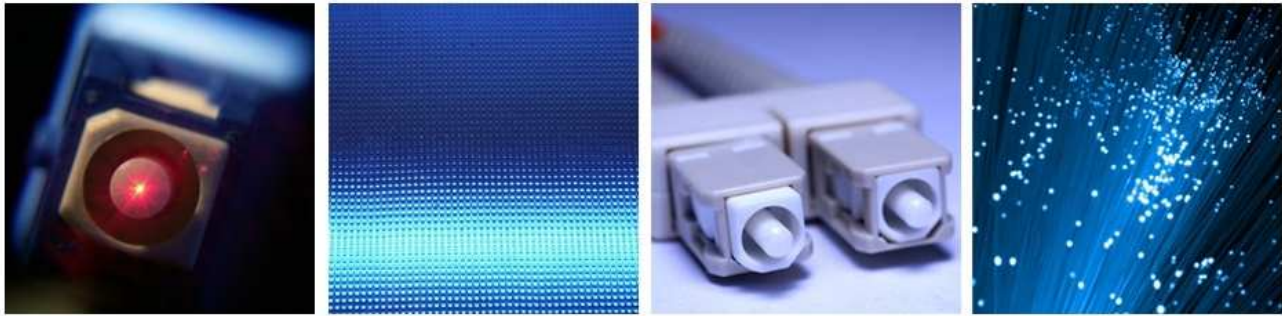




Vertically Integrated Systems

# Product Catalog



Fiber Optics Components

# 2015



Issue 141202-01

[www.v-i-systems.com](http://www.v-i-systems.com)

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## Company Introduction

**VI Systems GmbH (VIS)**, is a fabless developer and producer of ultrafast cost-effective optoelectronic devices, that will replace the present generation of devices in short and medium-distance optical communication interconnects.

VI Systems GmbH offers optical subassemblies and fiber coupled modules for applications in optical data communications and related consumer markets. In contrast to current optical- and electrical-based technologies, the optical solutions based on VIS components and systems will overcome the rising technological barriers created by the market driven continual increase in optical data transmission rates. With VIS proprietary solutions, telecom and computer equipment manufacturers will be able to meet the continuously growing performance requirements of the future.

Based on the Company's advanced proprietary technology, innovative design concepts, and technical expertise, VIS devices offer a unique combination of high speed, low power consumption, reliability, and low cost.

VI Systems' uniqueness is based on its revolutionary concept of vertically-integrated modulator systems a new concept in ultrahigh-speed optical signal transmission and the integration into a low cost fiber optics components.

The company offers a range a optical components, integrated circuits and highly optimized packaging solutions.

## Fabless Factory

VI Systems designs and manufactures their products with the leading foundries in the world. Therefore the reliability of the process and the scalability is ensured from the very early stage of the development.



*Photo: 850nm VCSEL wafer in the processing fab*

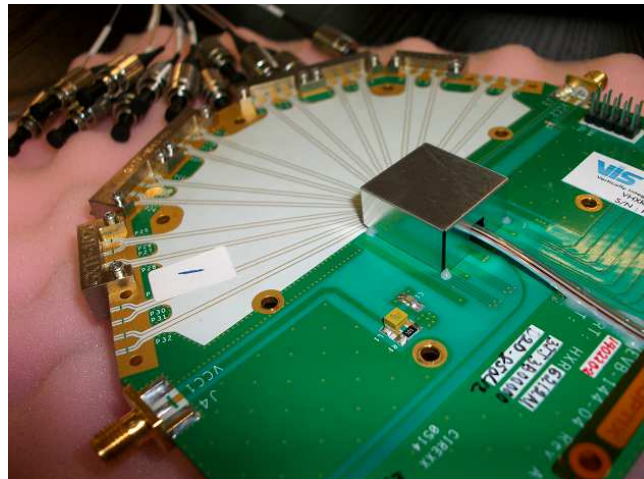
VI Systems concentrates on the design and qualification of ultrahigh-speed components. The manufacturing of optical components, integrated circuits and optical packaging is outsourced to foundries and electronics manufacturing service companies.

Our optical components and integrated products are sold to major manufacturing companies, who then use these components to produce high speed optical modules which are the basis of virtually all optical data transmitting systems.

VI Systems leads a trend in the fiber optic communications industry where manufacturers increasingly seek to outsource production to specialist foundries in order to reduce overall costs and accelerate time to market.

## Integrated Optical Solutions

A novel concept of integrated ultrahigh-speed components is introduced by VI Systems. State-of-the-art SiGe BICMOS integrated circuits are customized to match the performance of ultrahigh-speed optical VCSEL transmitter and PIN receiver components. Both key elements are assembled in a proprietary high frequency design to delivery outstanding performance over a wide temperature range .



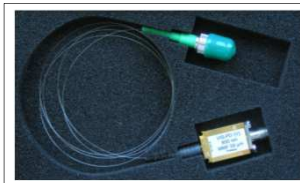
*Photo: 12 x 25 Gbit/s parallel optics microassembly*

VI Systems offers a range of subcomponents for the use in short reach optical interconnects. The optical engines offer a unique combination of high speed, low power consumption, small footprint (TO can), high reliability and low cost.

VI Systems' unique selling point is based on a combination of its revolutionary concept of ultra-high frequency small footprint micro-assembly integration of advanced electro-optic components, development of advanced high speed ICs and development of modulation approaches.

## 850nm VCSEL transmitter modules

### V25-850M Multi Mode Fiber Coupled VCSEL Transmitter Module (up to 28 Gbit/s)



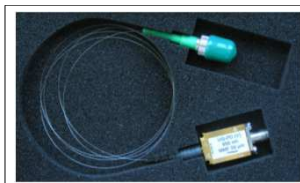
Parameter	Typical
Emission Wavelength	850 nm
Data rate	28 Gbit/s
Fiber Type	50/125 $\mu\text{m}$

### CM-850M01 Singel Mode Fiber Coupled VCSEL Transmitter Module (up to 30 Gbit/s)



Parameter	Typical
Emission Wavelength	850 nm
Data rate	30 Gbit/s
Fiber Type	5/125 $\mu\text{m}$

### V40-850 M Multi Mode Fiber Coupled VCSEL Transmitter Module (up to 40 Gbit/s)



Parameter	Typical
Emission Wavelength	850 nm
Data rate	40 Gbit/s
Fiber Type	50/125 $\mu\text{m}$

### T25-850 Ultrahigh-Speed TOSA Transmitter subassembly (up to 28 Gbit/s)



Parameter	Typical
Emittng Wavelength	850 nm
Data rate	28 Gbit/s
Fiber Type	50/125 $\mu\text{m}$

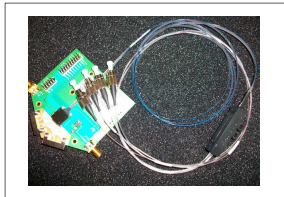
## 850nm VCSEL transmitter modules

**T40-850 Ultrahigh-Speed TOSA**  
Transmitter subassembly (up to 40 Gbit/s)



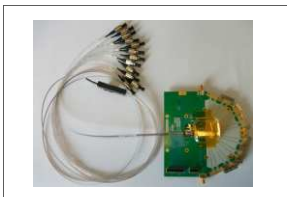
Parameter	Typical
Emitting Wavelength	850 nm
Data rate	40 Gbit/s
Fiber Type	50/125 $\mu$ m

**VHXT6204A-840 ( 4 x 25 Gbit/s)**  
Transmitter for up to 100 Gbit/s



Parameter	Typical
Emitting Wavelength	850 nm
Data rate	100 Gbit/s
Fiber type	50/125 ribbon

**VHXT62012A-840 ( 12 x 25 Gbit/s)**  
Transmitter for up to 300 Gbit/s



Parameter	Typical
Emitting Wavelength	850 nm
Data rate	300 Gbit/s
Fiber type	50/125 ribbon



## 1300nm VCSEL transmitter modules

### V10-1300M Multi Mode Fiber Coupled VCSEL Transmitter Module (up to 12.5Gbit/s)



Parameter	Typical
Emission Wavelength	1270 nm
Data rate	12.5 Gbit/s
Fiber Type	50/125 $\mu\text{m}$

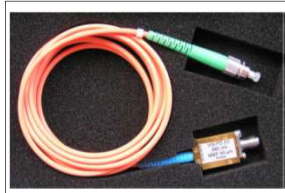
## Optical receiver modules for 700-890nm

### D30-850M Multi Mode Fiber Coupled PIN Photodetector Module (up to 40 Gbit/s)



Parameter	Typical
Input wavelength	700-870 nm
3dB Bandwidth	> 30 GHz
Fiber Type	50/125 $\mu\text{m}$

### D20-980M Multi Mode Fiber Coupled PIN Photodetector Module (up to 40 Gbit/s)



Parameter	Typical
Input wavelength	900-1350 nm
3dB Bandwidth	> 20 GHz
Fiber Type	50/125 $\mu\text{m}$

### R25-850 Ultrahigh-Speed ROSA Receiver subassembly (up to 28 Gbit/s)



Parameter	Typical
Input wavelength	700-870 nm
Data rate	28 Gbit/s
Fiber Type	50/125 $\mu\text{m}$

### R40-850 Ultrahigh-Speed ROSA Receiver subassembly (up to 40 Gbit/s)

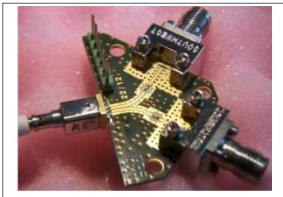


Parameter	Typical
Input wavelength	700-870 nm
Data rate	40 Gbit/s
Fiber Type	50/125 $\mu\text{m}$

## Optical receiver modules for 800-890nm

### R50-850

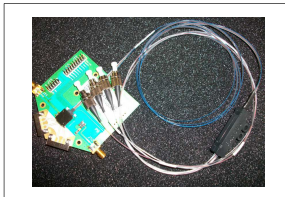
Receiver subassembly for up to 50 Gbit/s



Parameter	Typical
Input wavelength	700-870 nm
Data rate	50 Gbit/s
Fiber Type	50/125 $\mu$ m

### VHXR6204A-840 ( 4 x 25 Gbit/s)

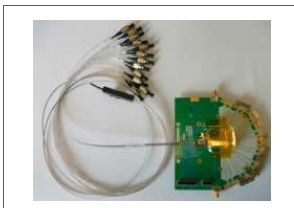
Receiver for up to 100 Gbit/s



Parameter	Typical
Input wavelength	700-870 nm
Data rate	100 Gbit/s
Fiber type	50/125 ribbon

### VHXR6204A-840 ( 12 x 25 Gbit/s)

Receiver for up to 300 Gbit/s

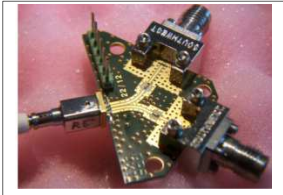


Parameter	Typical
Input wavelength	700-870 nm
Data rate	300 Gbit/s
Fiber type	50/125 ribbon

## Optical receiver modules for 900-1350nm

### R25-1300

Receiver subassembly for up to 28 Gbit/s



Parameter	Typical
Input wavelength	900-1350 nm
Data rate	28 Gbit/s
Fiber Type	50/125 $\mu$ m

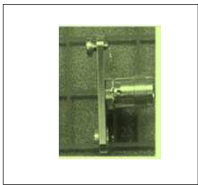
## 850nm VCSEL chip on RF-Mount

VCSEL chip on holder (up to 40 Gbit/s)  
V40-850H



Parameter	Typical
Differential electrical gain	3.0 k $\Omega$
Bandwidth	35 GHz
Power dissipation	145 mW

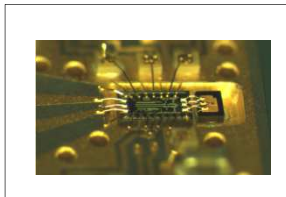
Photo detector chip on holder (35GHz)  
D30-850H



Parameter	Typical
Differential electrical gain	3.0 k $\Omega$
Bandwidth	35 GHz
Power dissipation	145 mW

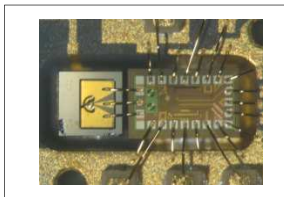
## 850nm VCSEL Testboards

**T40-850TB-WB 40Gbit/s transmitter  
Testboard subassembly**



Parameter	Typical
Emitting Wavelength	850 nm
Rise/Fall Time	< 10 ps
Power dissipation	< 300 mW

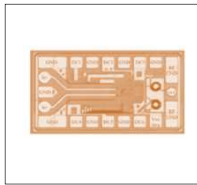
**R40-850TB-WB 40 Gbit/s receiver  
Testboard subassembly**



Parameter	Typical
Operating Wavelength	700-890 nm
Bandwidth	> 35 GHz
Fiber Type	50/125 $\mu$ m

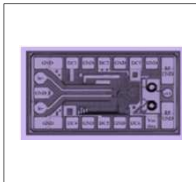
## VCSEL Driver ICs

### High Speed VCSEL driver IC (up to 28Gbit/s) A25-120C80



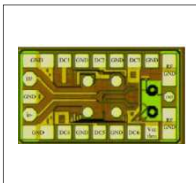
Parameter	Typical
Data rate	up to 28 Gbit/s
Supply voltage	3.3 V
Power dissipation	120mW

### High Speed DM VCSEL driver chip (up to 40Gbit/s) A40-150C80



Parameter	Typical
Data rate	up to 40 Gbit/s
Supply voltage	3.3 V
Power dissipation	150 mW

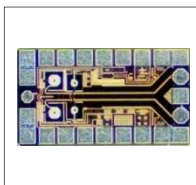
### High Speed modulator driver chip (up to 40Gbit/s) A40-300C90



Parameter	Typical
Data rate	up to 40 Gbit/s
Supply voltage	5 V
Power dissipation	370mW

## Transimpedance Amplifier (TIA)

High Speed TIA chip (up to 40 Gbit/s)  
A40-150C80



Parameter	Typical
Differential electrical gain	3.0 k $\Omega$
Bandwidth	35 GHz
Power dissipation	150 mW



## 850nm VCSELs - Vertical Cavity Surface Emitting Lasers

### Ultrahigh-Speed VCSEL Chip (28 Gbit/s) V25-850C



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
Rise Time (20% to 80%)	<15ps

### High Speed VCSEL Chip (40 Gbit/s) V40-850C



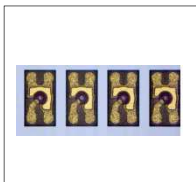
Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
No. of single chips	4 or 12

### Ultrahigh-Speed VCSEL Array (28 Gbit/s) V25-850C4 / V25-850C12



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
No. of single chips	4 or 12

### Ultrahigh-Speed VCSEL Array (28 Gbit/s) V25C-850C4 / V25C-850C12



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
No. of single chips	4 or 12

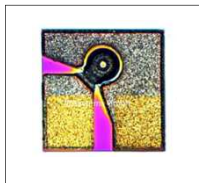
## 850nm VCSELs - Vertical Cavity Surface Emitting Lasers

### Ultrahigh-Speed VCSEL Chip (28 Gbit/s) V25B-850C



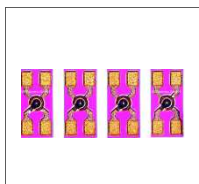
Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
Rise Time (20% to 80%)	<15ps

### High Speed VCSEL Chip (40 Gbit/s) V40B-850C



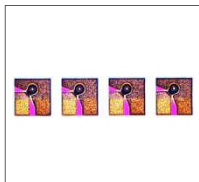
Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
Rise Time (20% to 80%)	<15ps

### Ultrahigh-Speed VCSEL Array (28 Gbit/s) V25A-850C12



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
No. of single chips	12

### Ultrahigh-Speed VCSEL Array (28 Gbit/s) V25B-850C12



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	4 mW
No. of single chips	4 or 12

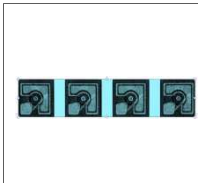
## 850nm Photodetector PIN Diode

### High Speed Photodetector (up to 40 Gbit/s) D30-850C



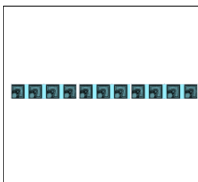
Parameter	Typical
Operating Wavelength	700-890 nm
3 dB Bandwidth	~ 30 GHz
Rise Time (20% to 80%)	6 ps

### High Speed Photodetector (up to 40 Gbit/s) D30-850C4



Parameter	Typical
Operating Wavelength	850 nm
3 dB Bandwidth	> 30 GHz
No. of single PDs	4

### High Speed Photodetector (up to 40 Gbit/s) D30-850C12



Parameter	Typical
Operating Wavelength	850 nm
3 dB Bandwidth	> 30 GHz
No. of single PDs	12



Vertically Integrated Systems

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