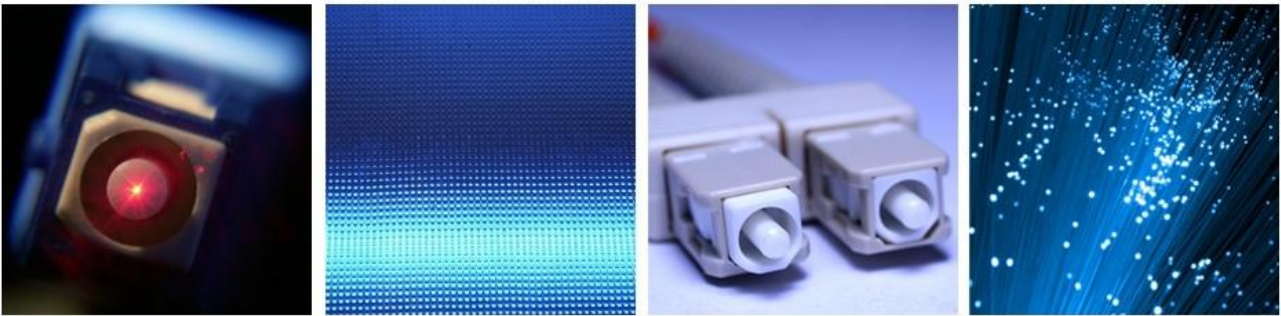




Vertically Integrated Systems

Product Catalog



2010

Ultrahigh-Speed Components

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www.v-i-systems.com

VI Systems GmbH Hardenbergstrasse 7 D-10623 Berlin



Table of Content

Introduction	4
Fabless Company Concept	5
Optical Subassemblies for 25 Gbit/s and 40 Gbit/s	
25 Gbit/s Transmitter Optical Subassembly (TOSA)	7
40 Gbit/s Transmitter Optical Subassembly (TOSA)	7
40 Gbit/s Receiver Optical Subassembly (ROSA)	7
Ceramic Testboards for up to 40 Gbit/s	
Transmitter test boards (VCSEL /driver)	8
Receiver test boards (PIN PD / TIA)	8
Fiber Coupled Test Modules for up to 40 Gbit/s	
Transmitter module	9
Photodetector module	9
VCSELs and Photodetectors for 25 Gbit/s and 40 Gbit/s	
850nm single VCSEL	10
850nm VCSEL arrays	10
700-890nm single PIN PD	11
700-890nm PIN PD arrays	11
High Speed ICs for 25 Gbit/s and 40 Gbit/s	
25/40 Gbit/s Transimpedance Amplifier (TIA)	12
25/40 Gbit/s VCSEL driver	13



Vertically Integrated Systems

Company Introduction

Systems GmbH (VIS), founded in 2006, 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 networks for distances.

Originally spun-out of the Technical University of Berlin, Germany and the A. F. Ioffe Physics-Technical Institute in St. Petersburg, Russia, VI Systems GmbH offers laser and photo detector semiconductor chips and 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 as well as telecom service providers will be able to meet the continuously growing performance requirements of the foreseeable 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.

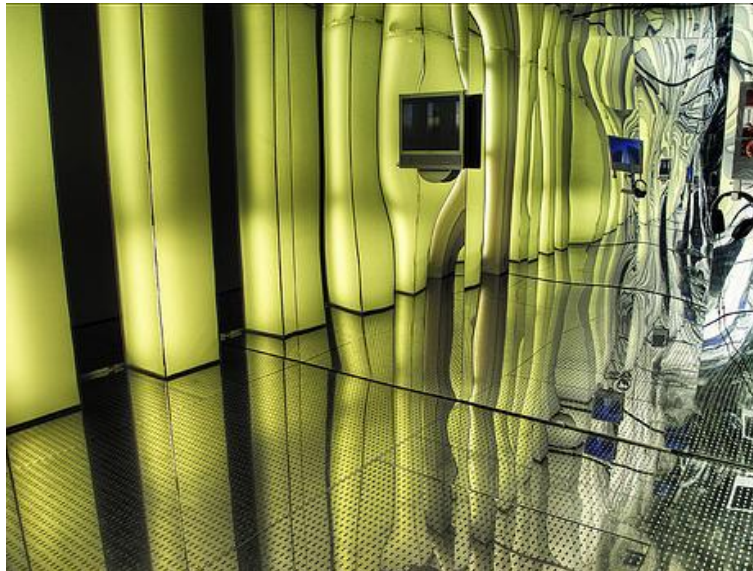


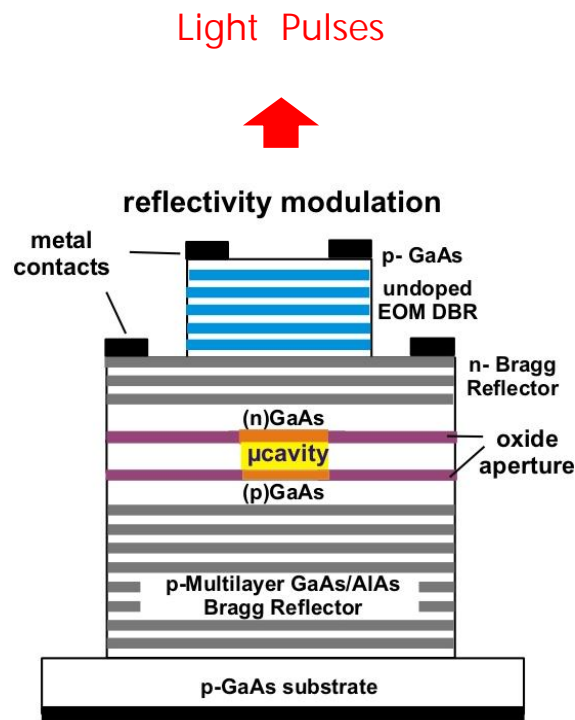
Image by: JeffreySG

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 ultra high speed 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.

New VCSEL Technology

A novel concept VCSEL design is introduced by VI Systems. In the EOM (electro-optical modulated) VCSEL light pulses are generated by the electro-optic effect in the top reflector with the speed of light while the capacitance is negligible. The below scheme of the OEM structure shows how light pulses are generated while there is a continuous flow of electric current into the micro cavity:



VI Systems offers direct modulated VCSEL and EOM VCSEL which feature a patented novel concept of voltage pulses which are applied to the modulator medium. While in directly modulated VCSEL the drive current is applied to the gain medium.

Optical Subassemblies (OSA)

T25-850 Ultrahigh-Speed TOSA
Transmitter subassembly (up to 25 Gbit/s)



Parameter	Typical
Emitting Wavelength	850 nm
Data rate	25 Gbit/s
Power dissipation	< 300 mW

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



Parameter	Typical
Emitting Wavelength	850 nm
Data rate	40 Gbit/s
Power dissipation	< 300 mW

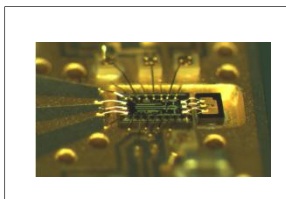
D40-850 Ultrahigh-Speed ROSA
Receiver subassembly (up to 40 Gbit/s)



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

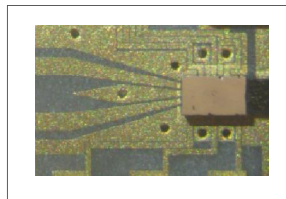
UltrahighSpeed Testboards

T40-850TB-WB 40Gbit/s transmitter
Testboard subassembly (wire bond)



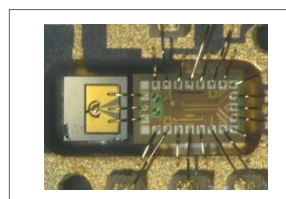
Parameter	Typical
Emitting Wavelength	850 nm
Rise/Fall Time	< 10 ps
Power dissipation	< 300 mW

T40-850TB-FC 40 Gbit/s transmitter
Testboard subassembly (flip-chip)



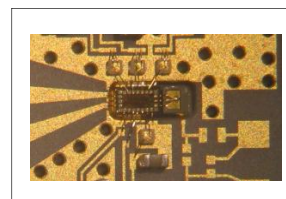
Parameter	Typical
Emitting Wavelength	850 nm
Rise/Fall Time	< 10 ps
Power dissipation	< 300 mW

R40-850TB-WB 40 Gbit/s receiver
Testboard subassembly (wire bond)



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

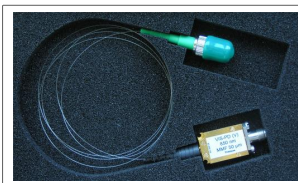
R40-850TB-FC 40 Gbit/s receiver
Testboard subassembly (flip-chip)



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

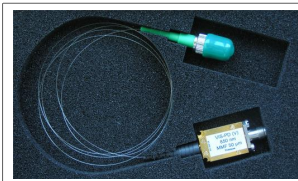
Fiber Coupled Modules for High Speed Tests

V25-850 Multi Mode Fiber Coupled VCSEL Transmitter Module (up to 25 Gbit/s)



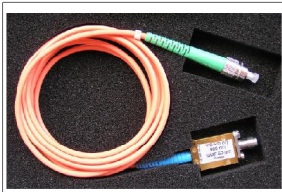
Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	3 mW
Fiber Type	50/125 μm

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



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	3 mW
Fiber Type	50/125 μm

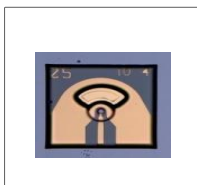
D30-850M Multi Mode Fiber Coupled PIN Photodetector Module (up to 40 Gbit/s)



Parameter	Typical
Operating Wavelength	700-890 nm
3dB Bandwidth	> 30 GHz
Fiber Type	50/125 μm

850nm VCSELs - Vertical Cavity Surface Emitting Lasers

High Speed VCSEL Chip (25 Gbit/s)
V25-850C



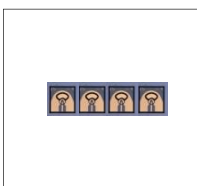
Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	8 mW
Rise Time (20% to 80%)	< 15 ps

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



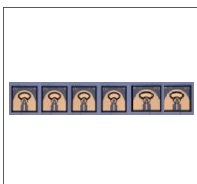
Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	8 mW
Rise Time (20% to 80%)	< 15ps

High Speed VCSEL Array (25 Gbit/s)
V25-850C4



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	8 mW
No. of single chips	4

Ultrahigh-Speed VCSEL Array (25 Gbit/s)
V25-850C12



Parameter	Typical
Emission Wavelength	850 nm
Peak Output Power	8 mW
No. of single chips	12

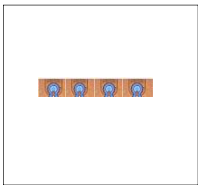
850nm Photodetector PIN Diode

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



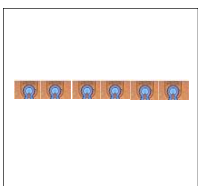
Parameter	Typical
Operating Wavelength	700-890 nm
3 dB Bandwidth	~ 30 GHz
Rise Time (20% to 80%)	6 ps

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

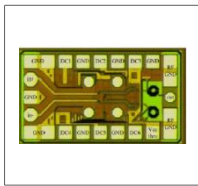
High Speed Photodetector (up to 40 Gbit/s)
D30-850C12



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

VCSEL Driver

High Speed EOM VCSEL driver chip (up to 40Gbit/s)
A40-300C-EOM



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

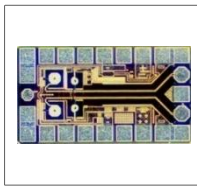
High Speed DM VCSEL driver chip (up to 40Gbit/s)
A40-300C-DM



Parameter	Typical
Data rate	up to 40 Gbit/s
Supply voltage	3.3 V
Power dissipation	370mW

Transimpedance Amplifier (TIA)

High Speed TIA chip (up to 40 Gbit/s)
T40-150C



Parameter	Typical
Differential electrical gain	3.0 k Ω
Bandwidth	35 GHz
Power dissipation	145 mW



Vertically Integrated Systems

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All product specifications and descriptions are subject to change without notice.
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