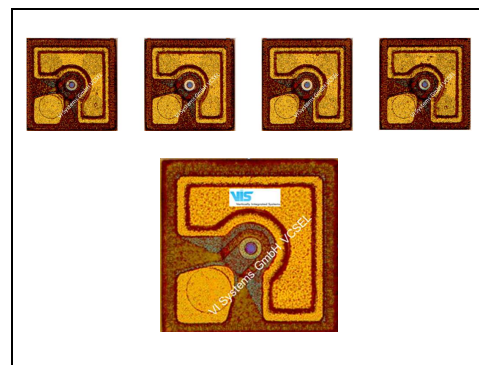


## Up to 28 Gbit/s VCSEL (850nm)

Product Code:	V25-850C1	1x1 chip
	V25-850C4	1x4 array
	V25-850C12	1x12 array



Actual product may vary in appearance.

### Product Description

These compact and very high modulation rate top-emitting GaAs-based vertical cavity surface emitting laser (VCSEL) chips and 1xN (N=4,12) arrays are available as engineering samples for use in the development and evaluation of optical interconnections, optical backplanes and integrated waveguides, and next-generation optical data communications systems. The VCSELs are contacted on the top-surface individually using ground-source (GS) microprobes, wire bonds, or flip-chip bonds.

### Features

- Up to 12 parallel channels
- Up to 28 Gbit/s per channel
- High temperature stability
- Device-to-device pitch of 250  $\mu\text{m}$

### Applications

- Active optical cables (AOCs)
- High-speed optical interconnections
- Infiniband EDR
- Short-reach 100G Ethernet
- Short-reach 400G Ethernet

Parameter	Typical	Notes
Emission wavelength	850 nm (available 835 – 865 nm)	
Data rate	Up to 28 Gbit/s	
Threshold current	< 1 mA	
Peak output power	4 mW	

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

Please contact our sales department for additional information and to receive a quotation: [sales@v-i-systems.com](mailto:sales@v-i-systems.com)

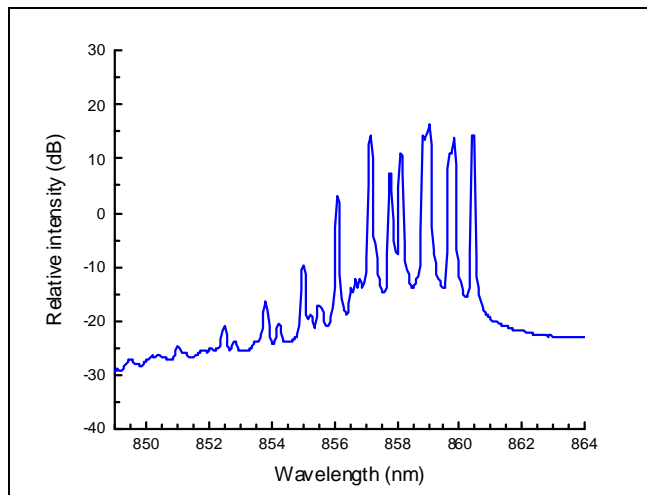
# Datasheet

## V25-850C

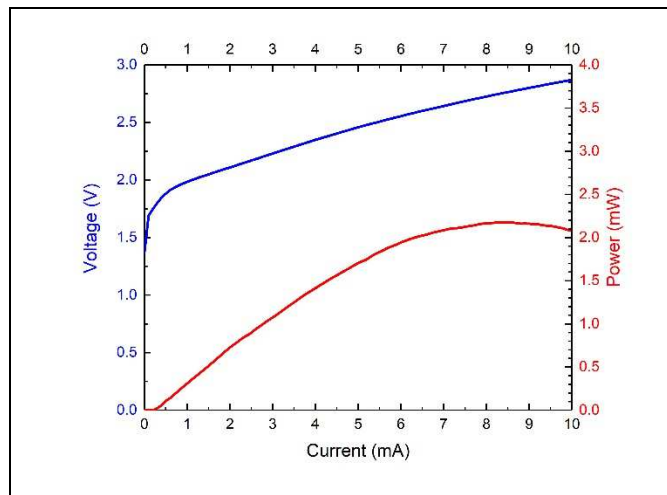


Vertically Integrated Systems

### Optical spectrum



### L-I-V Diagram



### Electro-optical characteristics (T = 0 to 85 °C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Emission wavelength	$\lambda$		835	850	865	nm
Maximum data rate	Gbps	NRZ		25	28	Gbit/s
Bandwidth	BW	$f_{3dB}$	15 GHz at 85° C	18		GHz
Threshold current	$I_{th}$	$I_{op} = 5 \text{ mA}$	0.4	0.5	1	mA
Operating voltage	$V_{op}$	$I_{op} = 5 \text{ mA}$	2.3	2.5	2.7	V
Slope efficiency	$\eta$	$I_{op} = 5 \text{ mA}$	0.3		0.45	W/A
Differential resistance	$R_d$	$I_{op} = 5 \text{ mA}$	65	75	85	$\Omega$
Optical output power	$P_{op}$		1.5	2.5	4	mW
Beam divergence	$\theta$	FWHM	18	20	25	deg
Spectral bandwidth (RMS)	$\Delta\lambda_{RMS}$	$I_{op} = 5 \text{ mA}$		0.4	0.6	nm
Rise / Fall time	$\tau_R / \tau_F$	20%-80%		16	20	ps
Relative intensity noise	RIN			-128		dB/Hz
Wavelength tuning over current				0.3		nm/mA
Wavelength tuning over temp.				0.07		nm/K
Thermal impedance	$Z_{Thermal}$			2		°C/mW

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

Please contact our sales department for additional information and to receive a quotation: [sales@v-i-systems.com](mailto:sales@v-i-systems.com)

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

VI Systems GmbH Hardenbergstrasse 7 D-10623 Berlin

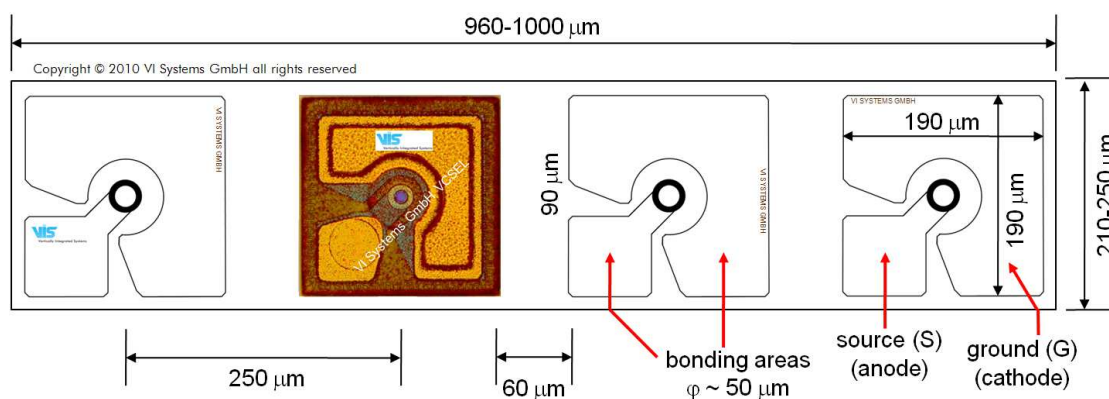
### Absolute Maximum Ratings

Parameter	Symbol	Test Condition	Min	Max	Unit
Peak forward current	$I_f$			9	mA
Maximum reverse voltage	$V_{rv}$			5	V
Operating temperature	$T_{op}$			100	°C
Storage temperature	$T_{st}$		-40	100	°C
Soldering temperature	$T_{sl}$	max 260 sec		150	°C

### Mechanical Dimensions

Parameter	Type	Min	Typ	Max	Unit
VCSEL pitch	All		250		$\mu\text{m}$
Length 1x1 VCSEL chip	V25-850C1		210	250	$\mu\text{m}$
Length 1x4 VCSEL array	V25-850C4		960	1000	$\mu\text{m}$
Length 1x12 VCSEL array	V25-850C12		2960	3000	$\mu\text{m}$
Height	All	135	150	165	$\mu\text{m}$
Width	All		210	250	$\mu\text{m}$

### Dimensions



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

Please contact our sales department for additional information and to receive a quotation: [sales@v-i-systems.com](mailto:sales@v-i-systems.com)

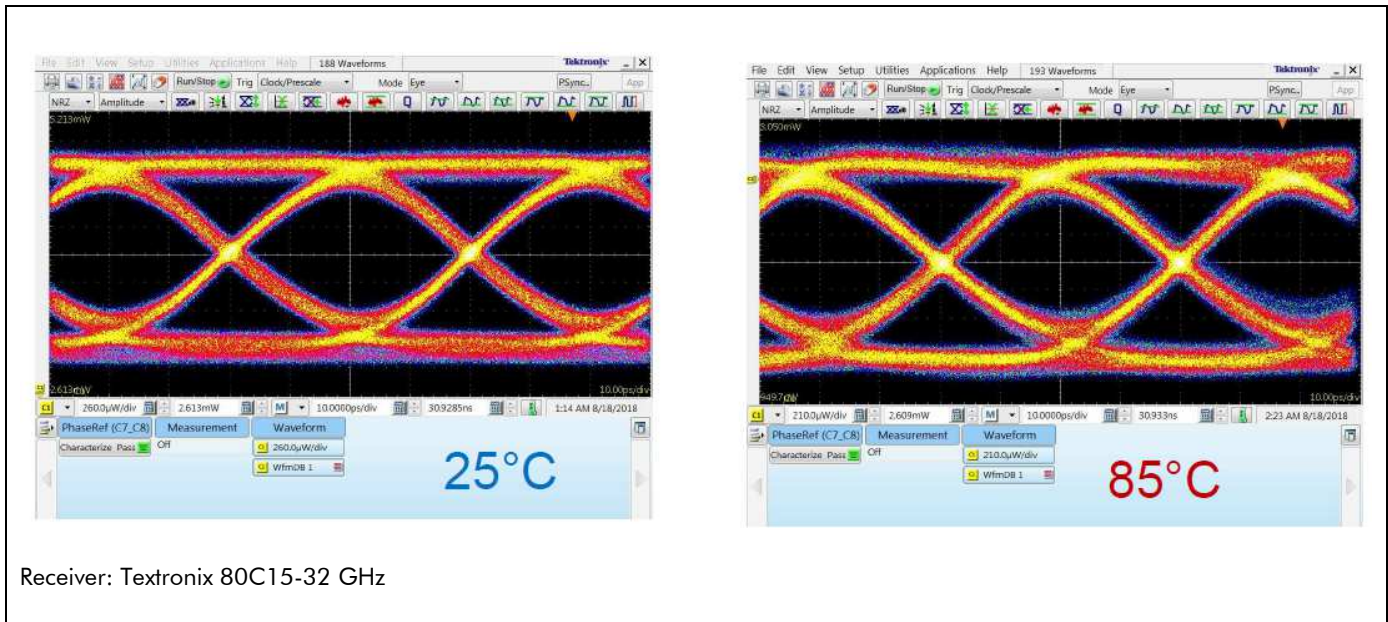
# Datasheet

## V25-850C



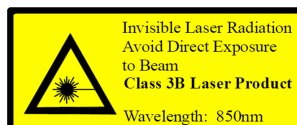
Vertically Integrated Systems

### Eye diagram at 28 Gbit/s



### Qualification Notification

The V25-850Cx has undergone qualification testing and characterization. A separate application note document is available.



**VI Systems GmbH**  
Hardenbergstrasse 7  
10623 Berlin  
Tel.: +49 30 3083143 30  
Fax: +49 30 3083143 59  
sales@v-i-systems.com  
www.v-i-systems.com  
www.facebook.com/VISystems



All product specifications and descriptions are subject to change without notice.  
Please contact our sales department for additional information and to receive a quotation: sales@v-i-systems.com

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

**VI Systems GmbH** Hardenbergstrasse 7 D-10623 Berlin