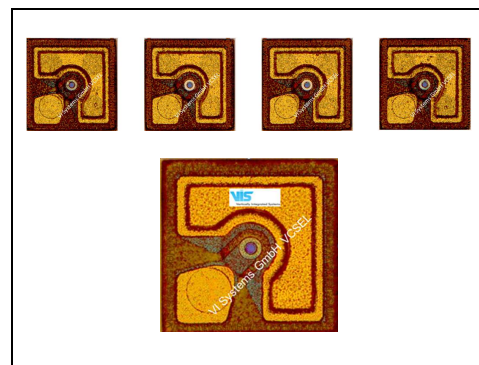


## Up to 28 Gbit/s VCSEL (850nm)

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  $\mu\text{m}$
- Suitable for wire or flip-chip bonding

### 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)

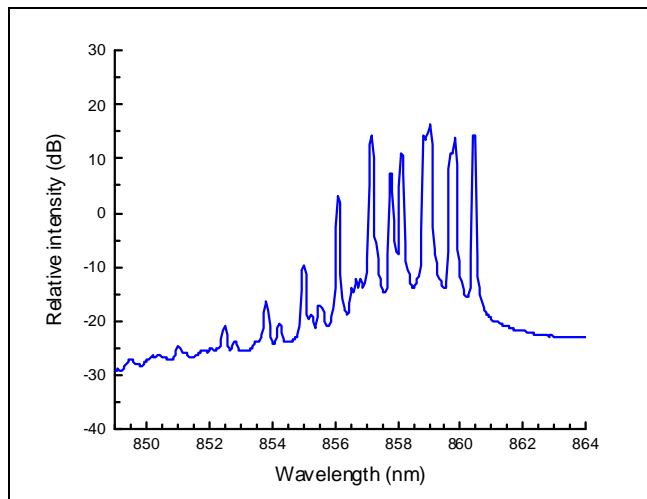
# Datasheet

## V25-850C

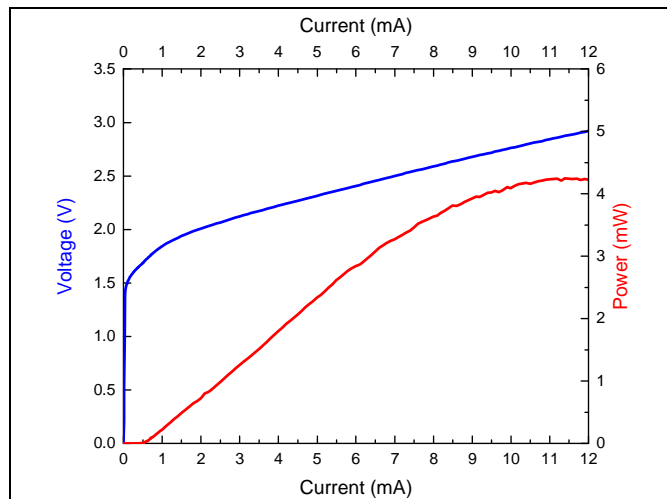


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### Optical spectrum



### L-I-V Diagram



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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Emission wavelength	$\lambda$		835		865	nm
Maximum data rate	BR	NRZ		25	28	Gbit/s
Bandwidth	BW ( $f_{3dB}$ )			18		GHz
Rise / Fall time	$\tau_R / \tau_F$	20%-80%		15 / 15		ps
Slope efficiency	$\eta$	5-10 mA	0.3		0.45	W/A
Threshold current	$I_{th}$				1	mA
Differential resistance	$R_d$	5-10 mA		80	120	$\Omega$
Capacitance	C			300		fF
Beam divergence	$\theta$	FWHM		20		°
Peak output power	$P_{max}$				4	mW
Threshold uniformity	$\Delta I_{th}$			0.1		mA
Slope efficiency uniformity	$\Delta \eta$			0.1		W/A
Slope efficiency variation	$\Delta \eta_T$			$\leq -0.5$		%/K
Thermal resistance	$R_{thermal}$			2		°C/mW
Optical spectrum				Multi mode		
Spectral bandwidth (RMS)	$\Delta \lambda_{RMS}$		0.2	0.4	0.6	nm

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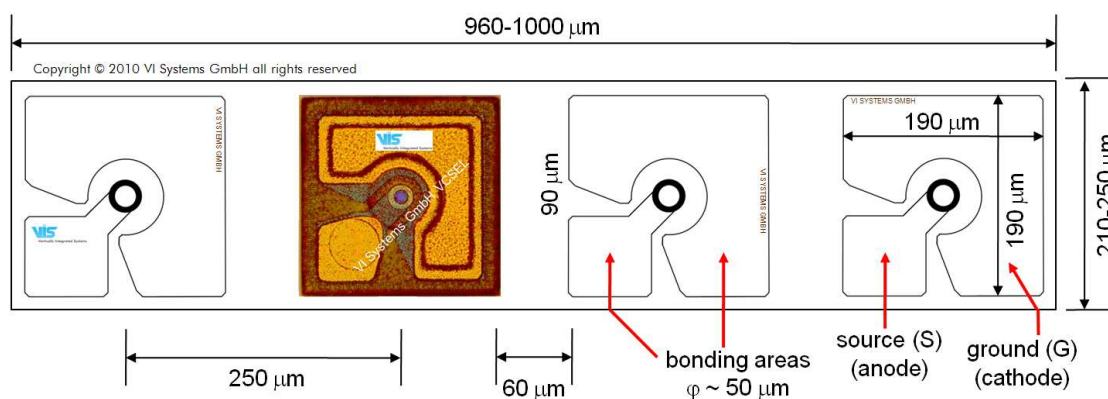
### Absolute Maximum Ratings

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	140	150	160	$\mu\text{m}$
Width	All		210	250	$\mu\text{m}$

### Dimensions



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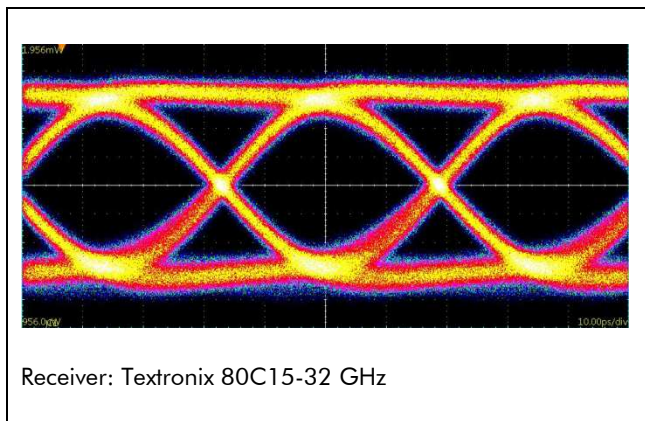
# Datasheet

## V25-850C



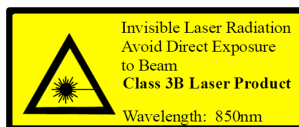
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### Eye diagram at 28 Gbit/s



### Qualification Notification

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



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