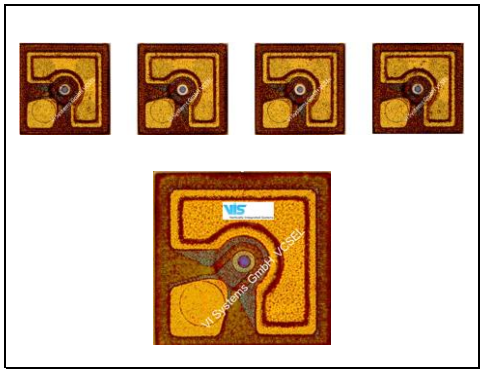
Datasheet

V25-850C

Vertically Integrated Systems

Up to 28 Gbit/s VCSEL (850nm)



Actual product may vary in appearance.

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

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 µm
· 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

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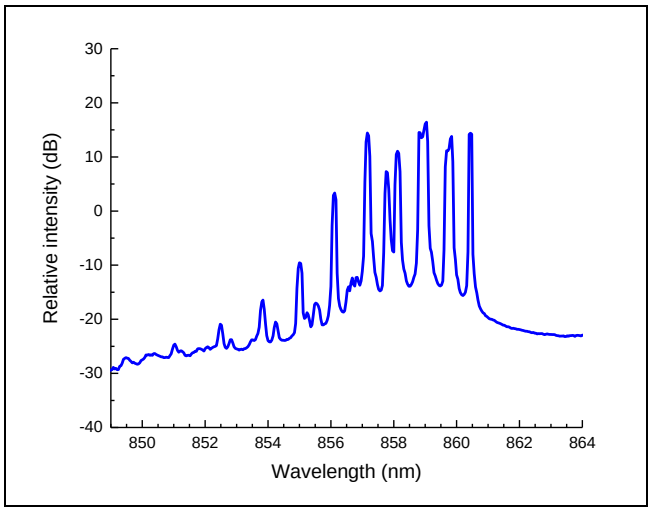
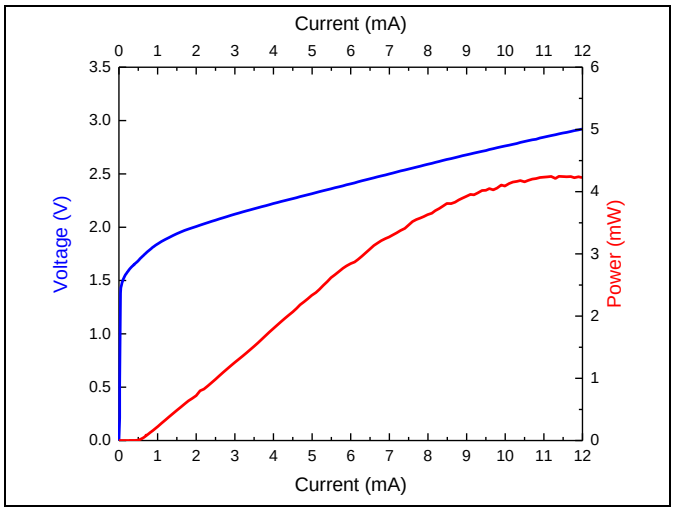
Optical spectrum



L–I–V Diagram



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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Emission wavelength	λ		835		865	nm
Maximum data rate	BR	NRZ		25	28	Gbit/s
Bandwidth	BW (f_{3dB})			18		GHz
Rise / Fall time	τ_R / τ_F	20%-80%		15 / 15		ps
Slope efficiency	η	5-10 mA	0.3		0.45	W/A
Threshold current	I_{th}				1	mA
Differential resistance	R_d	5-10 mA		80	120	Ω
Capacitance	C			300		fF
Beam divergence	θ	FWHM		20		°
Peak output power	P_{max}				4	mW
Threshold uniformity	ΔI_{th}			0.1		mA
Slope efficiency uniformity	Δη			0.1		W/A
Slope efficiency variation	$\Delta\eta_T$			≤-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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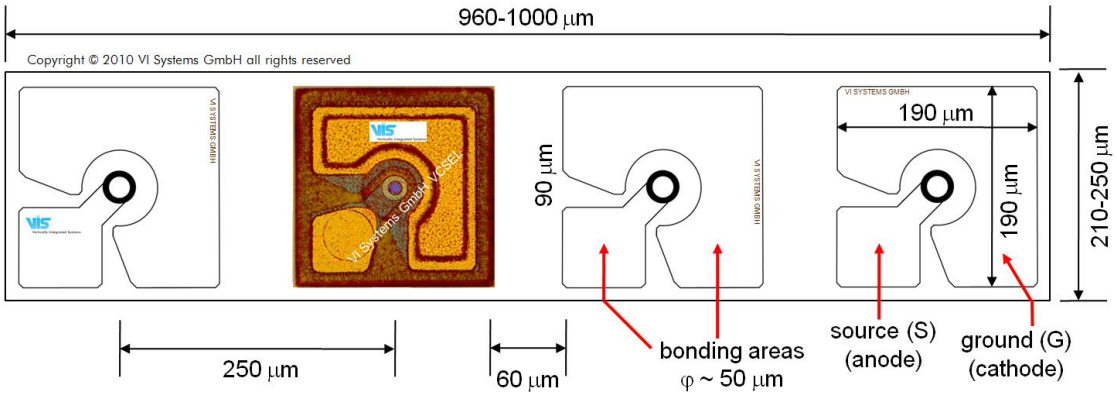
Absolute Maximum Ratings

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		µm
Length 1x1 VCSEL chip	V25-850C1		210	250	µm
Length 1x4 VCSEL array	V25-850C4		960	1000	µm
Length 1x12 VCSEL array	V25-850C12		2960	3000	µm
Height	All	140	150	160	µm
Width	All		210	250	µm

Dimensions



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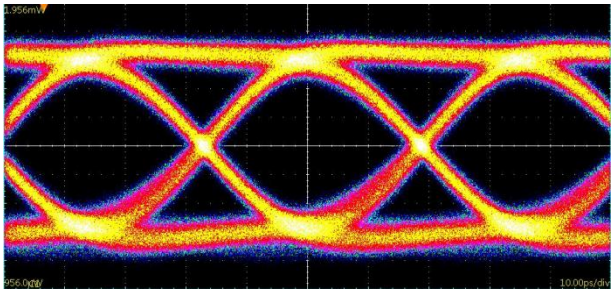
Eye diagram at 28 Gbit/s

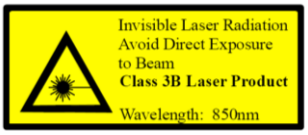


Receiver: Textronix 80C15-32 GHz

Qualification Notification

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

RoHS Compliant



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