



48400 Fremont Blvd.
Fremont, CA 94538 USA
Tel: (510) 445-3068 x244
Fax: (510) 445-3060

50, Lung-Yuan 7th Road, Lung-Tan
Tao-Yuan Hsien, TAIWAN
Tel: (03) 409-1335 x230/235
Fax: (03) 409-1339

10 Gbps 850 nm VCSEL 1x4 Array Data Sheet

Part Number: VG2A-7400

Applications: 10 Gbps aggregate speed

Absolute Maximum Ratings (T = 25°C):

Parameter	Symbol	Unit	Min.		Max.	Test Condition	Note
Forward Current	$I_{\max}$	mA			15		
Reverse Voltage	V_r	V			5		
Operating Temperature	T_{op}	°C	0		85		
Storage Temperature	T_{stg}	°C	-40		100		
Maximum Die Exposure	$T_{\max}$	°C			260	For 10 seconds	

Electro-optical Characteristics (T = 25°C, unless noted otherwise):

Parameter	Symbol	Unit	Min.	Typ.	Max.	Test Condition	Note
Threshold Current	I_{th}	mA		1.5	3.5		
Ith Temperature Variation	ΔI_{th}	mA	-1.5		1.5	25°C to 90°C	
Ith Uniformity	δI_{th}	mA			0.5		
Forward Voltage	V_f	V		2.0	2.2	@ 10 mA	
Differential Resistance	R_s	Ω		35	50	@ 10 mA	
Reverse Voltage	V_r	V	5			@ -10 μ A	
Slope Efficiency	η	mW/mA	0.25	0.35	0.6	@ 10 mA	
Slope Efficiency Uniformity	$\eta_{\max}/\eta_{\min}$	%			120	@ 10 mA	
Optical Power	P_o	mW	1.5	3		@ 10 mA	
Slope Efficiency temp-coeff.	$\Delta\eta/\Delta T$	%/°C	-0.6			25-90°C @ 10 mA	
Peak Wavelength	λ	nm	830	845	860	@ 2 mW	
Beam Divergence	θ	deg			30	Full width, $1/e^2$	
Rise Time	τ_r	ps		90		20-80%	
Fall Time	τ_f	ps		100		20-80%	

Chip configuration:

1. Top contact: Anode; Bottom contact: Cathode.
2. Dimension: 975 μ m (Length) x 425 μ m (Width) x 165 μ m (Height)

* Specifications are subject to change without notice.

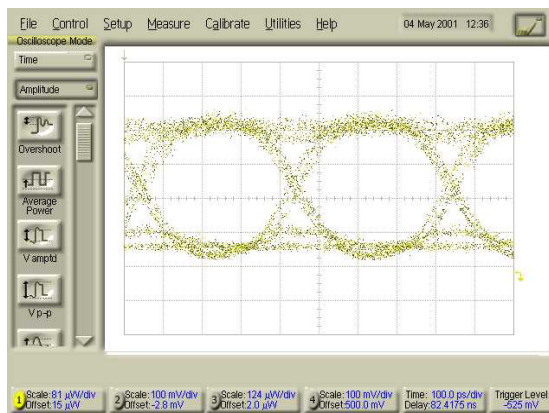
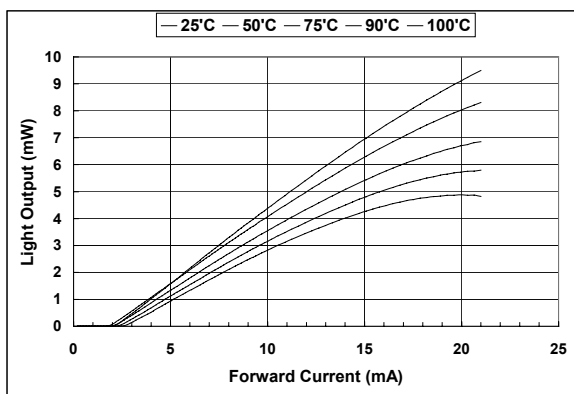
* Screening per customer-specified reject limits is available.

November, 2001



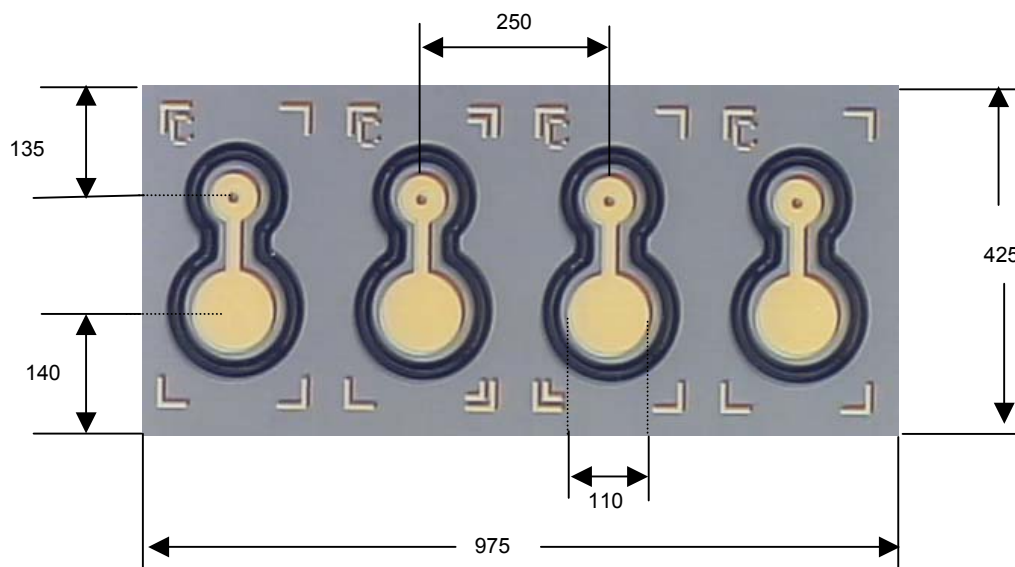
48400 Fremont Blvd.
Fremont, CA 94538 USA
Tel: (510) 445-3068 x244
Fax: (510) 445-3060

50, Lung-Yuan 7th Road, Lung-Tan
Tao-Yuan Hsien, TAIWAN
Tel: (03) 409-1335 x230/235
Fax: (03) 409-1339



Light Output vs. Temperature (25 - 100C)

Eye Diagram at 2.5 Gbps



Unit: μm

Array Thickness: 165 $\pm$ 10

Top View of 1 x 4 VCSEL Array

* Specifications are subject to change without notice.
* Screening per customer-specified reject limits is available.