Multimode 850nm 1x4 VCSEL Array
VCCA4-85M2G

Data Sheet

Features

- 850nm VCSEL array (1x4)
- High uniformity
- Data rates >2.5Gbps per channel

Applications

- High speed Data communications
- Gigabit ethernet
- Fiber channel

Specifications

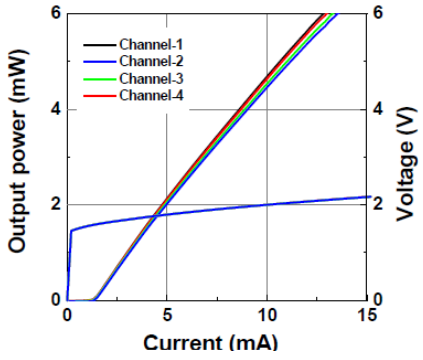
Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	100	°C	
Operating Temperature	0	85	°C	
Continuous Forward Current		12	mA	
Continuous Reverse Voltage		5	V	10uA

Electro-Optical Characteristics (T_a=25ºC unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		1.5	2.5	mA	CW
Slope Efficiency	η	0.3	0.5	0.7	W/A	I_f=5mA
Optical Output Power	P_o		2.0		mW	I_f=5mA
P_o Uniformity within Array	ΔP_o			0.4	mW	I_f=5mA
Peak Wavelength	λ_P	840	850	860	nm	I_f=5mA
Spectral Bandwidth (RMS)	$\Delta\lambda$			0.85	nm	I_f=5mA
λ Uniformity within Array	$\Delta\lambda_p$			1	nm	I_f=5mA
Beam Divergence	Θ	14		30	°	P_0=2.0mW, (Full Width, $1/e^2$)
Forward Voltage	V_f		1.8	2.2	V	I_f=5mA
Breakdown Voltage	V_b		-10		V	
Dynamic Resistance	R_d	20	35	55	Ohm	I_f=5mA
Rise and Fall Times	t_r/t_f			110	ps	20% to 80%

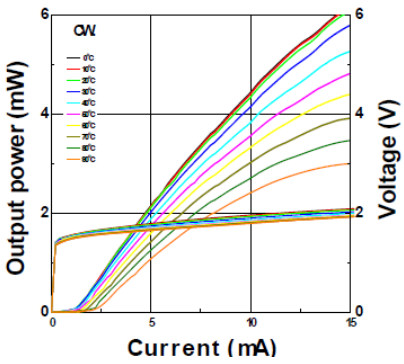
Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I_{th} Temperature Variation	ΔI_{th}		1.5		mA	T_a=0 to 85°C
I_{th} Uniformity within Array	$\Delta I_{th}{}^a$			0.5	mA	CW
η Temperature Coefficient	$\Delta\eta/\Delta T$		-0.5		%/°C	T_a=0 to 85°C, I_f=5mA
λ Temperature Coefficient	$\Delta\lambda/\Delta T$		0.06		nm/°C	T_a=0 to 85°C, I_f=5mA

Typical Characteristic Curves

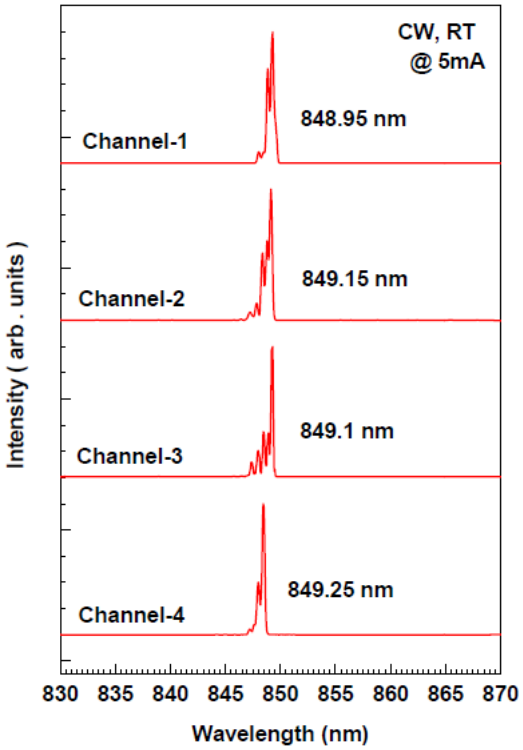
LIV CURVE



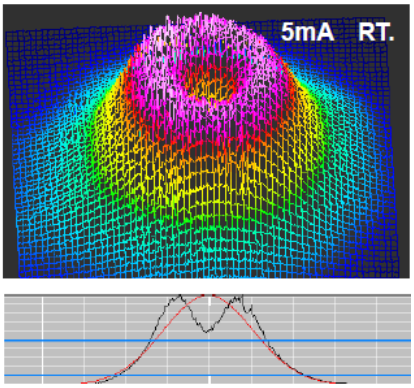
LIV VS. TEMPERATURE



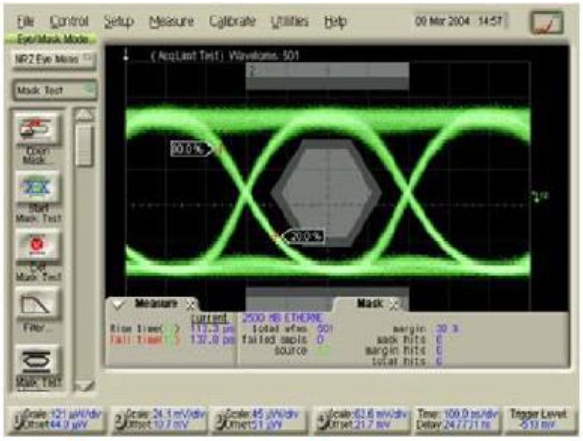
EL SPECTRA



FFP



EYE DIAGRAM

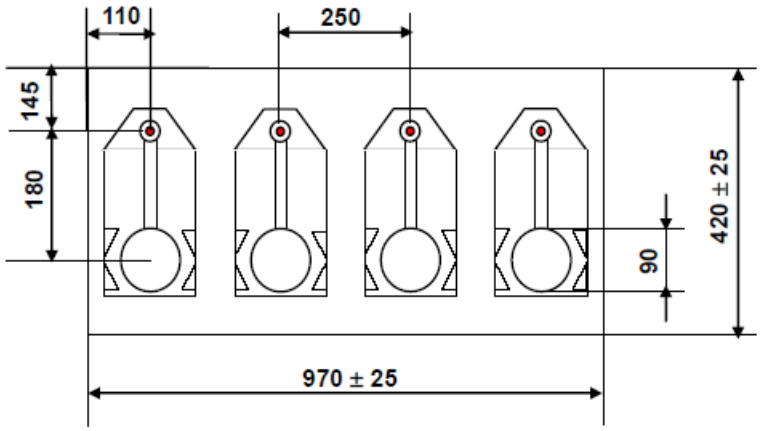


Eye diagrams at 7mA Data rate : 2.5Gbps
Extinction ratio : 10dB PRBS : 2^31-1
Filtered 1.87G Low pass filter Back to Back

Outline Dimensions

Unit: um

Die Height: 200±15 um



Additional Notes

- High power or sub-milliampere threshold current may be provided on request.
- Tighter wavelength specifications may be available upon request.
- The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.
- Specifications are subject to change without notice.