



# VCCAx-85A56G

## 56Gb/s PAM4 (28GBd) 850nm Multimode Dual Top Contact VCSEL Array

Data Sheet



### Description

The Lasermate VCCAx-85A56G is an 850nm wavelength, Vertical Cavity Surface Emitting Laser (VCSEL) array available with up to 12 channels. The VCSEL is designed for use in 56Gbps PAM4 application.

### Features

- 850nm multimode emission
- 1x4, 1x8, 1x12 array bar with 250um pitch
- High data rate up to 56 Gbps PAM4
- P and N bonding pads on top surface
- Low threshold and operation current

### Applications

- High speed Data communications
- Gigabit ethernet
- Fiber channel

### Ordering Information

Part Number	Description
VCCA4-85A56G	56Gb/s PAM4 (28GBd) 850nm multimode dual top contact VCSEL 1x4 array
VCCA8-85A56G	56Gb/s PAM4 (28GBd) 850nm multimode dual top contact VCSEL 1x8 array
VCCA12-85A56G	56Gb/s PAM4 (28GBd) 850nm multimode dual top contact VCSEL 1x12 array

### Specifications

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

Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	$I_{th}$		0.55		mA	
Slope Efficiency	$\eta$		0.6		mW/mA	$I_F=7mA$
Output Power	$P_o$		3.8		mW	$I_F=7mA$
Wavelength	$\lambda_P$	840		860	nm	$I_F=7mA$
Forward Voltage	$V_F$		1.9	2.3	V	$I_F=7mA$
Series Resistance	$R_s$		60	85	$\Omega$	$I_F=7mA$
Spectral Width (RMS)	$\Delta\lambda$		0.3		nm	$I_F=7mA$
Beam Divergence	$\Theta$		28	33	degree	$I_F=7mA (1/e^2)$
3dB Bandwidth	BW		20		GHz	$I_F=7mA$
Relative Intensity Noise	RIN		-140	-135	dB/Hz	$I_F=7mA, T=25^\circ C$

Note: All parameters except mentioned are measured at  $I_F=7mA, 25^\circ C, CW$  operation.

### Typical Characteristics

Fig. 1 Typical Optical Characteristics

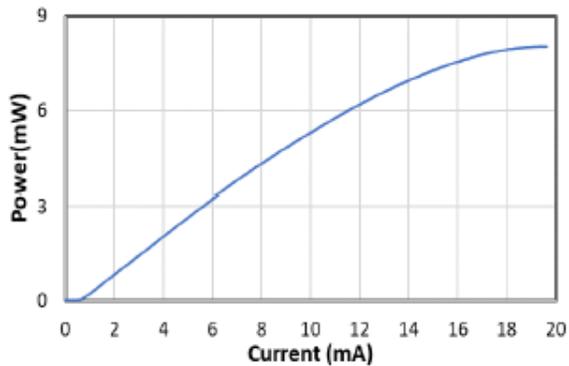
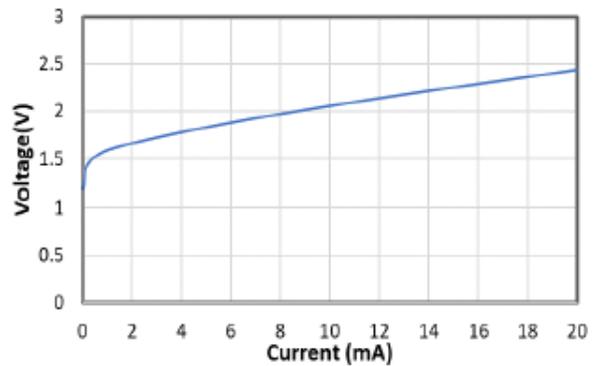
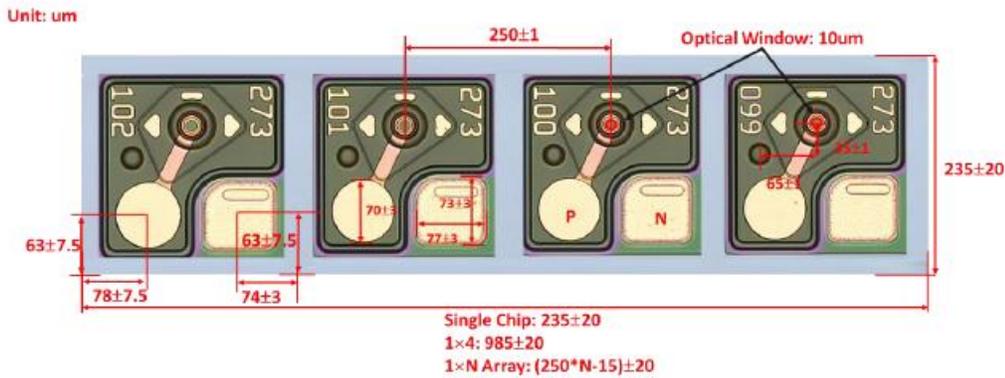


Fig. 2 Typical Electrical Characteristics



### Outline Dimensions



- Chip length:  $235\pm 20\mu\text{m}$
- Chip width:  $235\pm 20\mu\text{m}$
- Pitch:  $250\mu\text{m}$
- Chip thickness:  $150\pm 12.5\mu\text{m}$

### Additional Notes

- 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.