



# 4Gbps 850nm Oxide-Confined VCSEL Chip VCC-85A4G

## Features

- 850nm oxide-confined VCSEL chip
- High data rate 4Gbps
- High slope efficiency
- High light output power with low bias

## Applications

- High speed Data communications
- Gigabit ethernet
- Fiber channel

## Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	125	°C	
Operating Temperature	0	85	°C	
Process Temperature		260	°C	10 seconds
Continuous Forward Current		12	mA	
Continuous Reverse Voltage		5	V	10uA

Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	$I_{th}$		2	3	mA	
Slope Efficiency	$\eta$	0.35	0.50		W/A	$I_f=6mA$
Optical Output Power	$P_o$		2.0		mW	$I_f=6mA$
Peak Wavelength	$\lambda_P$	830	850	860	nm	$I_f=6mA$
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	$I_f=6mA$
Beam Divergence	$\Theta$		16	25	°	$I_f=6mA$ (FWHM)
Forward Voltage	$V_f$		1.8	2.2	V	$I_f=6mA$
Series Resistance	$R_s$		45	60	Ohm	$I_f=6mA$

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
$I_{th}$ Temperature Variation	$\Delta I_{th}$	-1.5		2	mA	$T_a=0$ to $70^\circ C$
$V_f$ Temperature Coefficient	$\Delta V_f/\Delta T$		-2		mV/°C	$T_a=0$ to $70^\circ C$ , $I_f=6mA$
$\eta$ Temperature Coefficient	$\Delta\eta/\Delta T$		-0.5		%/°C	$T_a=0$ to $70^\circ C$ , $I_f=6mA$
$\lambda$ Temperature Coefficient	$\Delta\lambda/\Delta T$		0.06		nm/°C	$T_a=0$ to $70^\circ C$ , $I_f=6mA$

## Typical Characteristics

Fig .1 Typical Optical Characteristics

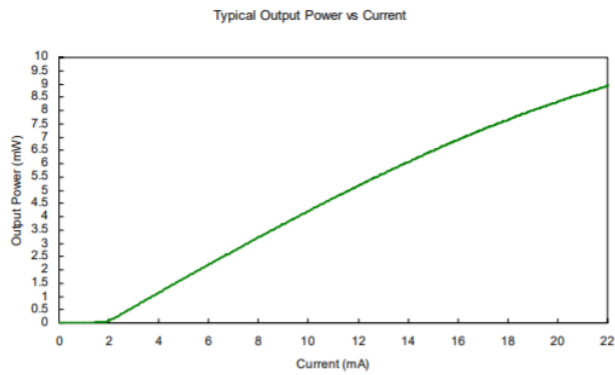
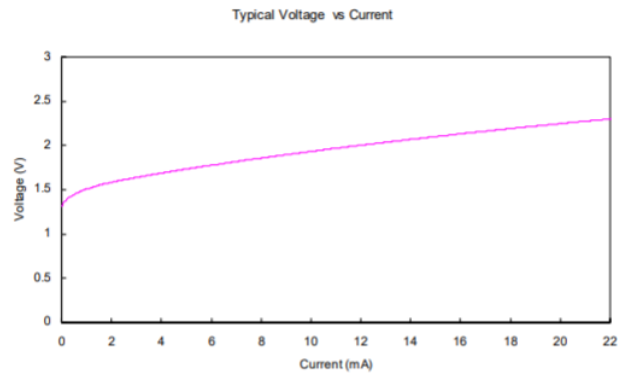
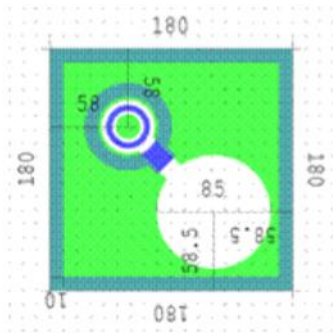


Fig .2 Typical Electrical Characteristics



## Outline Dimensions



- Chip Length: 180  $\mu\text{m}$
- Chip Width: 180  $\mu\text{m}$
- Chip Thickness: 200  $\pm$  15  $\mu\text{m}$

## 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.