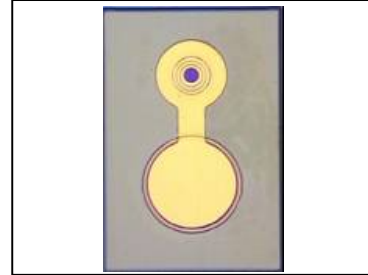


## YL-VC850-000

### High Performance Oxide-Confining VCSEL

#### FEATURES:

- Capable to run 2.5 Gbps and above data rate.
- Low device capacitance to operate at high speed.
- Low divergence angle to ensure high optical coupling efficiency.



#### ELECTRO-OPTICAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Threshold Current	$I_{th}$		1.5	3.0	mA	
Output Power	$P_o$		1.5		mW	$I_F=6$ mA
Slope Efficiency	$\eta$	0.23	0.4	0.6	mW/mA	$I_F=6$ mA
Wavelength	$\lambda_p$	830	850	860	nm	$I_F=6$ mA
Forward Voltage	$V_F$		1.8	2.2	V	$I_F=6$ mA
Series Resistance	$R_S$	30	45	60	$\Omega$	$I_F=6$ mA
Beam Divergence	$\theta$		16	25	degree	$I_F=6$ mA (FWHM)
Spectral width (RMS)	$\Delta \lambda$			0.85	nm	$I_F=6$ mA
Rise and Fall Times (20%~80%)	$T_r, T_f$			150	ps	$I_F=6$ mA

Notes:

All parameters except mentioned are measured at  $I_F=6$  mA, 25°C, CW operation.

#### THERMAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
$I_{th}$ Temperature Variation	$\Delta I_{th}$	-1.0		2.0	mA	$T_A=0\sim 70^\circ\text{C}$
$V_F$ Temperature Coefficient	$\Delta V_F/\Delta T$	-3.5	-1.5	0	mV/°C	$T_A=0\sim 70^\circ\text{C}, I_F=6$ mA
$\eta$ Temperature Coefficient	$\Delta \eta/\Delta T$	-0.6	-0.35		%/°C	$T_A=0\sim 70^\circ\text{C}, I_F=6$ mA
$\lambda_p$ Temperature Coefficient	$\Delta \lambda_p/\Delta T$		0.06		nm/°C	$T_A=0\sim 70^\circ\text{C}, I_F=6$ mA

#### ABSOLUTE MAXIMUM RATINGS:

PARAMETERS	MIN	MAX	UNIT	CONDITIONS
Storage Temperature	-40	125	°C	
Operating Temperature	-20	85	°C	
Continuous Forward Current		12	mA	
Continuous Reverse Voltage		5	V	10 $\mu$ A
Process Temperature		260	°C	10 sec

YL-VC850-000

**TYPICAL CHARACTERISTICS:**

Fig. 1 Typical Optical Characteristics

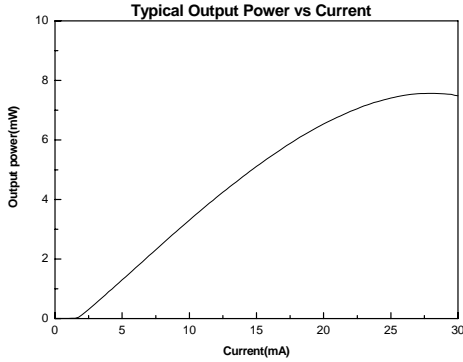
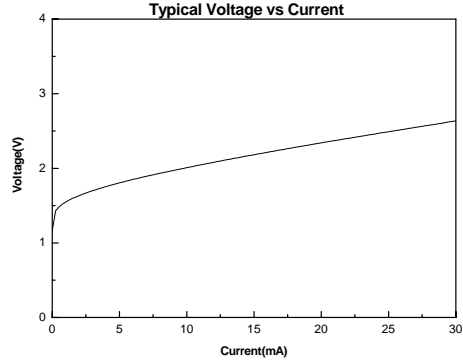
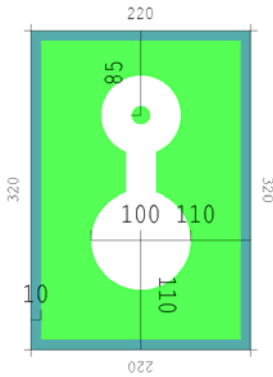


Fig. 2 Typical Electrical Characteristics



**OUTLINE DIMENSIONS**

Chip size is typical 220 μm x 320 μm.



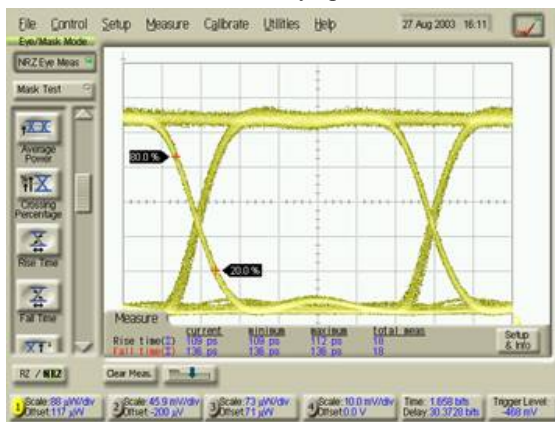
**WARNING:**

The VCSEL is a class IIIb laser in the safety standard ANSI Z136.1 and should be treated as a potential eye hazard.



**ILLUSTRATION OF EYE PERFORMANCE:**

1.25G eye pattern



2.5G eye pattern

