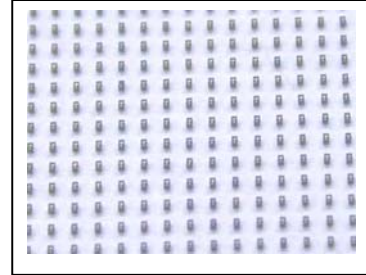


YL-VC850-008

High Performance Oxide-Confined VCSEL

FEATURES:

- Capable to run 4.25 Gbps and above data rate.
- Low device capacitance to operate at high speed.
- Low divergence angle to ensure high optical coupling efficiency.
- Wide operation temperature range -40°C ~ 85°C



ELECTRO-OPTICAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Threshold Current	I_{th}		1.8	3.0	mA	
Output Power	P_o		1.5		mW	$I_F=6$ mA
Slope Efficiency	η	0.23	0.35	0.6	mW/mA	$I_F=6$ mA
Wavelength	λ_p	830	850	860	nm	$I_F=6$ mA
Forward Voltage	V_F		1.8	2.2	V	$I_F=6$ mA
Breakdown voltage	V_{BD}	5	14		V	$I_R=10$ μ A
Series Resistance	R_S		45	60	Ω	$I_F=6$ mA
Capacitance	C		0.65		pF	1MHz 0V
Beam Divergence	θ		16		degree	$I_F=6$ mA (FWHM)
Spectral width (RMS)	$\Delta \lambda$			0.85	nm	$I_F=6$ mA
Rise Times (20%~80%)	T_r		45		ps	$I_F=6$ mA
Fall Times (20%~80%)	T_f		80		Ps	$I_F=6$ mA
3dB Bandwidth	BW	5	7		GHz	$I_F=6$ 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 ⁽¹⁾
I_{th} Temperature Variation	ΔI_{th}	0	1.0	1.5	mA	$T_A=0\sim 70^\circ\text{C}$
	ΔI_{th}		0.6	1.0	mA	$T_A=-40\sim 25^\circ\text{C}$
	ΔI_{th}		1.2	2.0	mA	$T_A=25\sim 85^\circ\text{C}$
V_F Temperature Coefficient	$\Delta V_F/\Delta T$		-2		mV/°C	$T_A=0\sim 70^\circ\text{C}$, $I_F=6$ mA
η Temperature Coefficient	$\Delta \eta/\Delta T$		-0.35		%/°C	$T_A=0\sim 70^\circ\text{C}$, $I_F=6$ mA
λ_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	-40	85	°C	
Continuous Forward Current		12	mA	
Continuous Reverse Voltage		5	V	10μA

Fig. 1 Typical Optical Characteristics

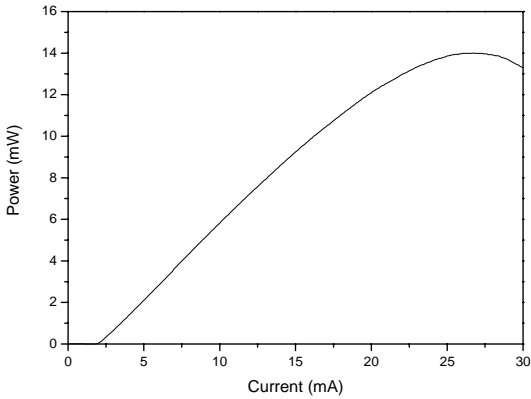
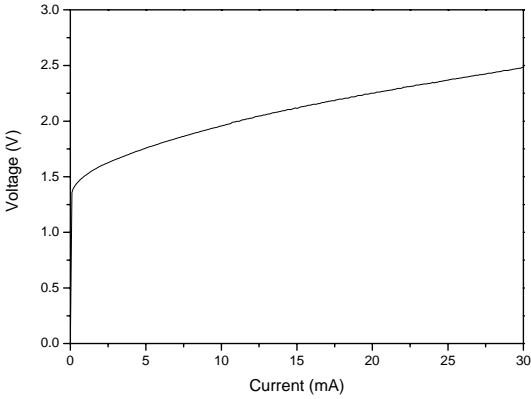
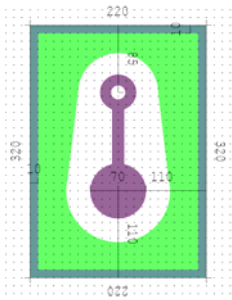


Fig. 2 Typical Electrical Characteristics



OUTLINE DIAGRAM:

- 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.

