633nm Single frequency FBG stabilized Tunable Laser Diodes



Description

The PL-NL series Fiber Bragg Grating laser is single frequency laser diode module designed for optical measurement and communication. The laser is packaged in 14-pin standard butterfly package with monitor photodiode and thermo-electric cooler (TEC).The Single-Frequency Continuous Tuning Range: > 1.2 nm by adjust the Mini PZT Built in the laser diode.

Features

- Optical output: 20mW
- Narrow linewidth (Δv < 1MHz)
- Wavelength: 633nm @ 25℃
- SM or PM Fiber (ø0.9mm)
- FC-APC connector
- 14-pin butterfly package
- Internal monitor PD and TEC
- Low power consumption

E/O Characteristics

Optical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λc	TL=15 ~ 35℃ CW	631.5	632.5	633	nm
Peak Optical Output Power	PO	-	10	-	20	mW
Spectral linewidth	LW	-	-	1	10	MHZ
Relative Intensity Noise	RIN			-145		db/HZ
SMSR	SMSR	CW	40	50	-	dB
PER	ER	-	20	-	-	dB

Wavelength drift with case (-10 to 70 ºC) temperature	△λ	TL=15 ~ 35℃	-	-	±1	pm
Tuning Range(For PZT Version)	Δf		0.5		1	nm
PZT Driving Voltage(PZT Version)	VT		0		150	V
Mode Hope free Range	ΔI			3		mA

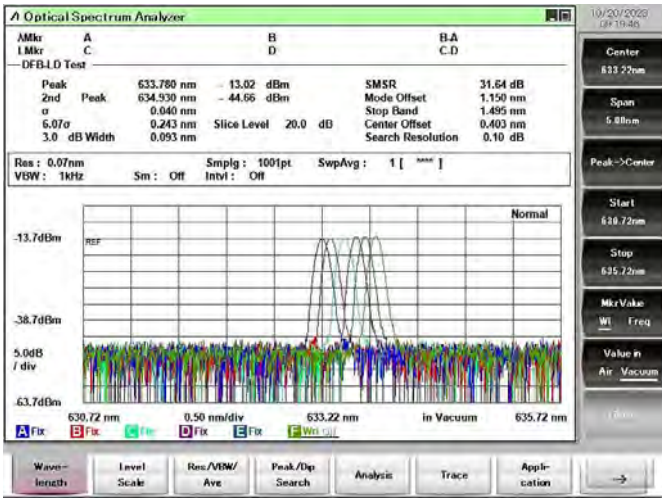
Electrical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	45	65	mA
Slope Efficiency	η	CW , 10 mW	0.064	0.1	-	mW/mA
Operating current	Iop	CW	-	150	200	mA
TEC set temperature	Ts	-	15	-	35	℃
Laser Forward Voltage	VF	CW output power 5 mW	-	1.3	1.8	V
Monitor Dark Current	ID	-	-	-	0.1	μA
Cooler Voltage	Vc	IF=EOL, TC=70°C			2.7	V
Cooler Current	Ic	IF=EOL, TC=70°C	-	-	1.4	A
Thermistor Resistance	RTH	TL = 25 °C	9.5	10	10.5	KΩ
TEC Current	ITEC	TL = 25 °C, TC = 70 °C	-	-	1.8	A
TEC Voltage	VTEC	TL = 25 °C, TC = 70 °C	-	-	3.5	V
Tuning Range	Δf				1	nm
PZT Tuning Voltage	VT		0		150	V
Mode Hop Free Range	ΔI			30		mA
Extinction Ratio	XP	CW 10 mW	17			dB
TEC capacity	ΔT	Tc = 70℃	-	-	50	°C
Thermistor temperature	-	-	-	-	100	°C

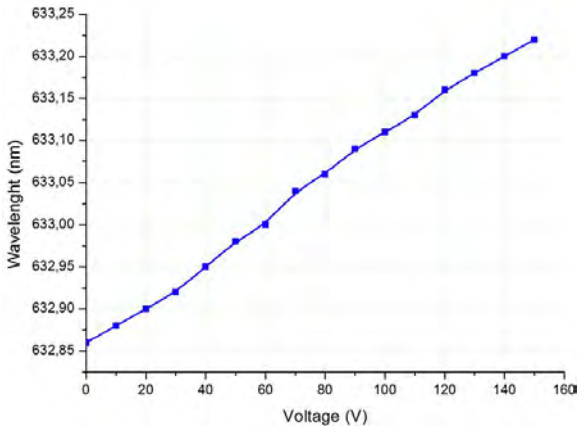
Spectrum



633nm PZT ECL Spectrum

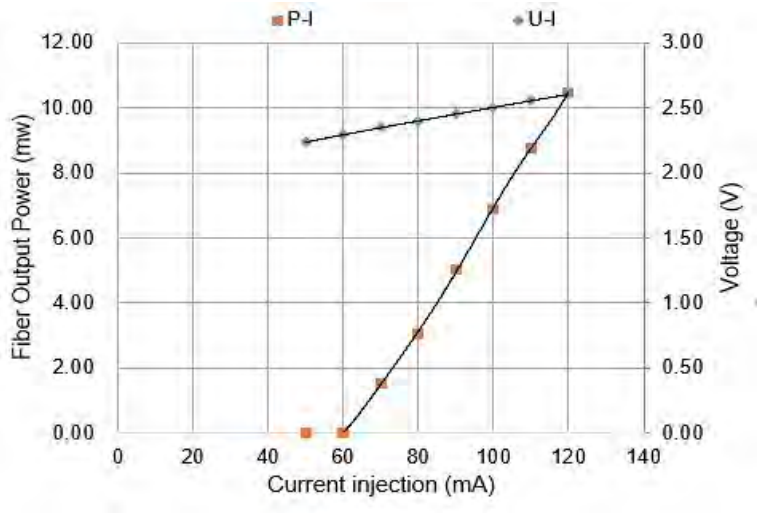


Voltage Vs Wavelength(PZT Version)

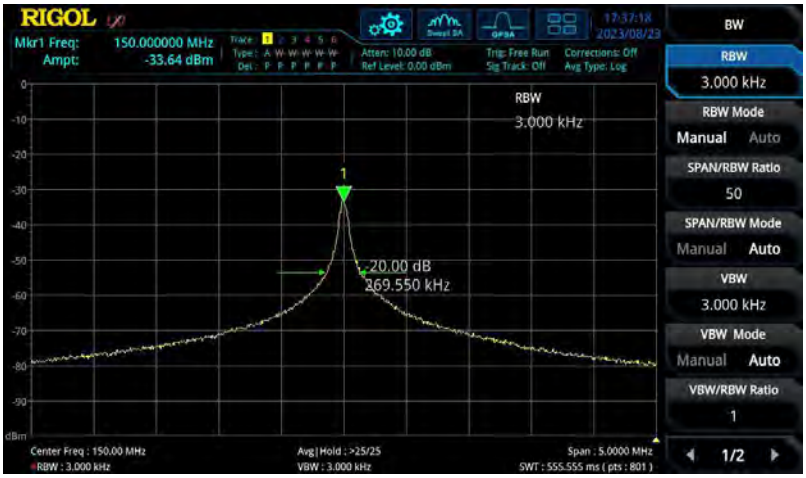


62 Highland Ave., Bethlehem, PA 18017, USA
Sales: contact@cybel-llc.com | Web: www.cybel-llc.com | Tel: +1 (610) 691-7012

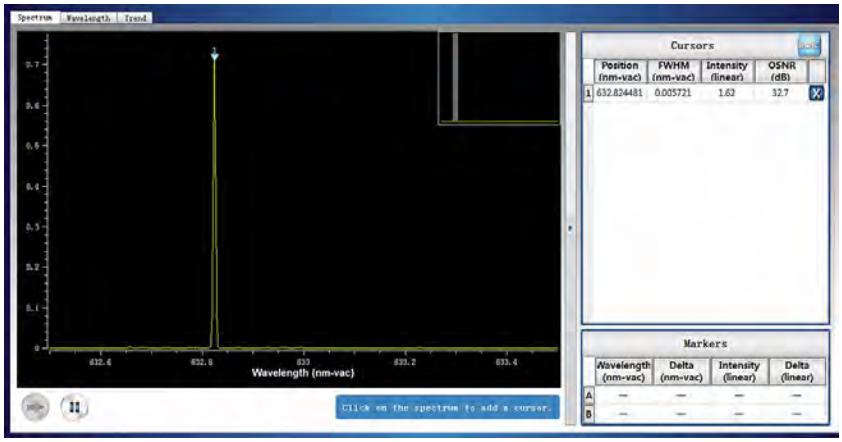
L-I Curve



Linewidth Testing Result

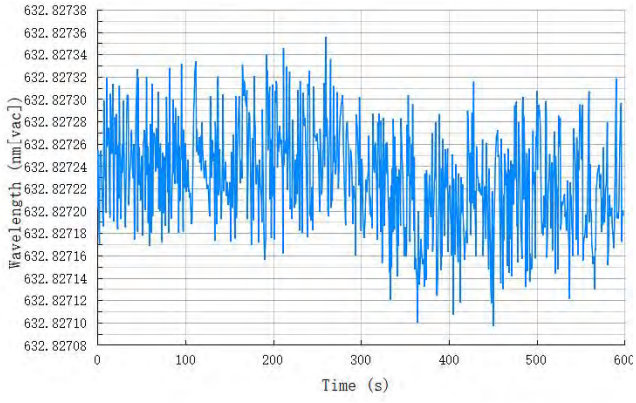


Central Wavelength

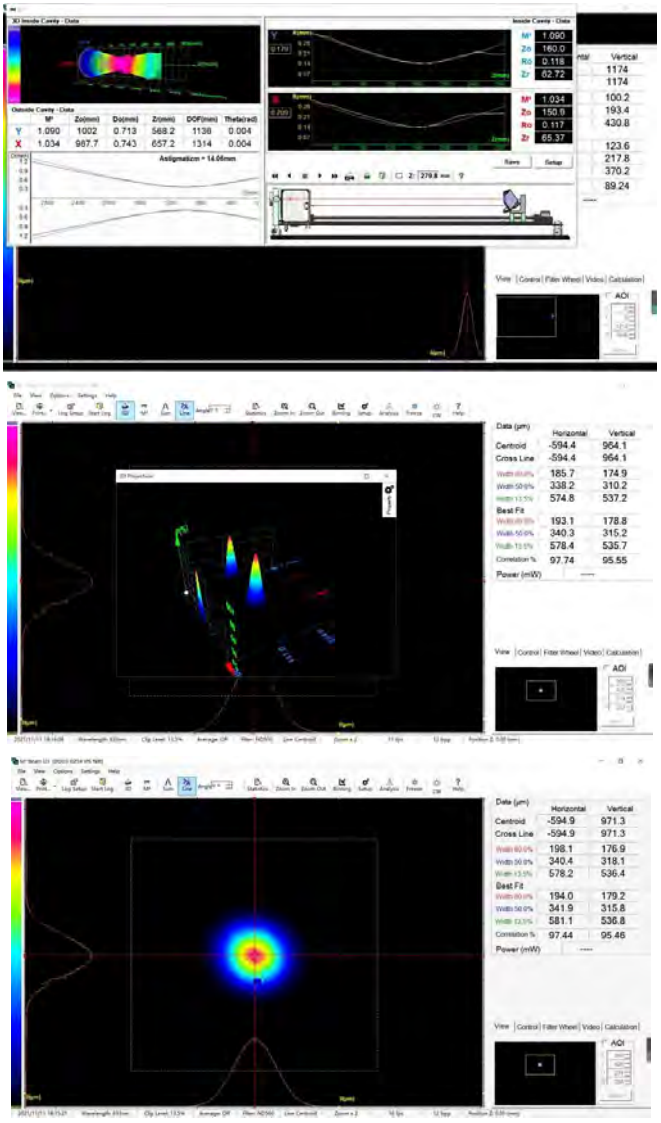


62 Highland Ave., Bethlehem, PA 18017, USA
Sales: contact@cybel-llc.com | Web: www.cybel-llc.com | Tel: +1 (610) 691-7012

wavelength Stability

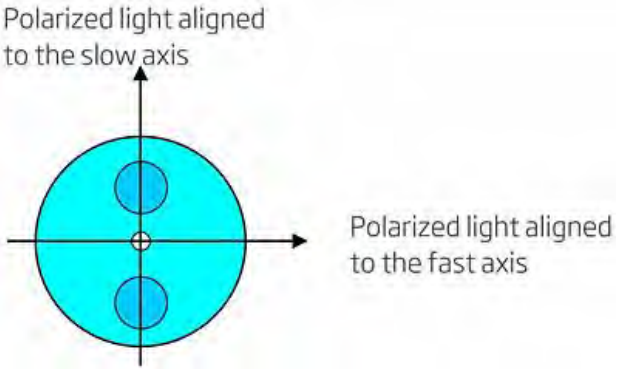


Beam Quality(M2,2D/3D Beam)



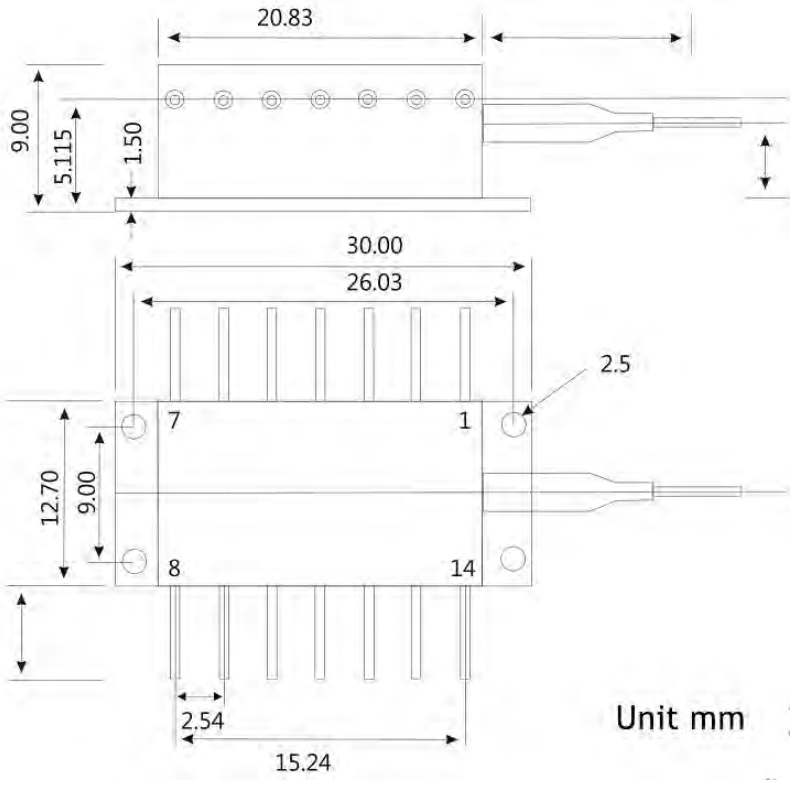
Fiber Pigtail Specifications

Parameters	Description
Fiber Type	SM600/PM630 fiber
Jacket Type	900μm loose tube
Pigtail Length	1.0±0.1m
Connector Type	FC/APC
PM fiber Connector Orientation	Please see the right figure

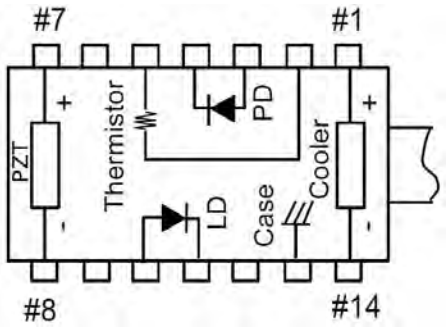


Note: The PM fiber and the connector key are aligned to the slow axis,fast axis is blocked

Package Size



Pin definition



PZT Built Inside

1	Thermoelectric Cooler (+)	8	PZT tuning -
2	Thermistor	9	N/C
3	PD Monitor Anode (-)	10	laser Anode (+)
4	PD Monitor Cathode (+)	11	Laser Cathode (–)
5	Thermistor	12	N/C
6	N/C	13	Case Ground
7	PZT tuning +	14	Thermoelectric Cooler (–)

Absolute Maximum Ratings

Item	Unit	Min	Typ	Max
Case Temperature	℃	-40	25	70
Chip Temperature	℃	+10	25	40
Operating Current	mA	0	150	170
Forward Voltage	V	0.8	1.2	1.8
TEC Current	A	-	1.2	1.4
Reverse Voltage（LD）	V	-	-	1.8

Application

- Laser interference experiment
- Optical Test and Instrumentation
- Sensors

Ordering Info

PL-NL-□□□□-☆-A8▽-XX-☆

□□□□: Wavelength

0633: 633nm

1550: 1550nm

1555: 1555nm

*****

1560: 1560nm

☆: Output Power

A: 10mW

B: 20mW

▽: Linewidth

1: ＜10MHZ

XX: Fiber and Connector Type

SA=SM600+ FC/APC

SP=SM600+ FC/PC

PP=PM630 Fiber+ FC/PC

PA=PM 630 Fiber+ FC/APC

☆

No PZT: Leave it Blank

PZT: Version please use PZT to replace