1560nm Single frequency FBG stabilized Tunable Narrow Linewidth Laser Diodes



Description

The PL-NL series is Fiber Bragg Grating laser is a stable narrow band light source with a wavelength tuning possibility in 1-2 nm range. Thelaser is packaged in 14-pin standard butterfly package with monitor photodiode and thermo-electric cooler (TEC).

Features

- Optical output: 10mW
- Narrow linewidth (Δv<1MHz)
- Wavelength: 1560.48nm @ 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)

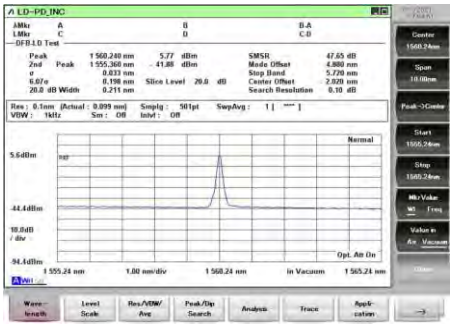
Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λc	TL=15～35℃ CW	1559.48	1560.48	1561.48	nm
Peak Optical Output Power	PO	-	10	-	20	mW
Spectral linewidth	LW	-	-	1	10	MHz
Side-mode Suppression Ratio	SMSR	CW	40	45	-	dB
Optical Isolation	-	-10 < TC < +70 °C	30	-	-	dB

Polarization Extinction Ratio	ER	-	20	-	-	dB
Relative Intensity Noise	RIN	CW, output power 10mW	-	-	-145	dB/HZ

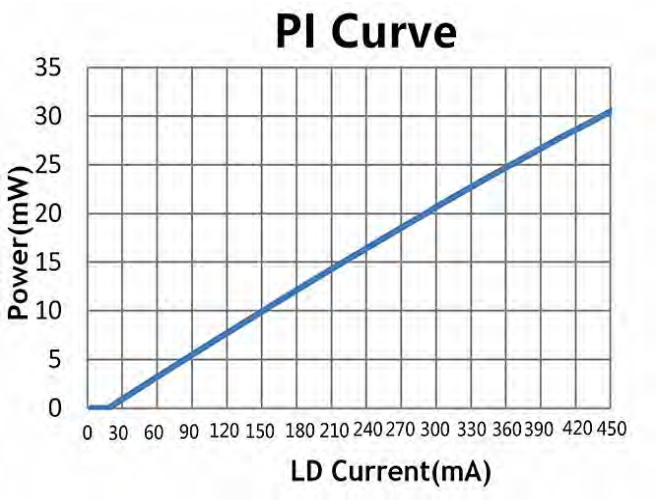
Electrical Characteristics (at 25 °C laser temperature)

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	-	200	300	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		1.5	nm
PZT Tuning Voltage	VT		0		150	V
Mode Hop Free Range	ΔI			3		mA
Extinction Ratio	XP	CW 10 mW	17			dB

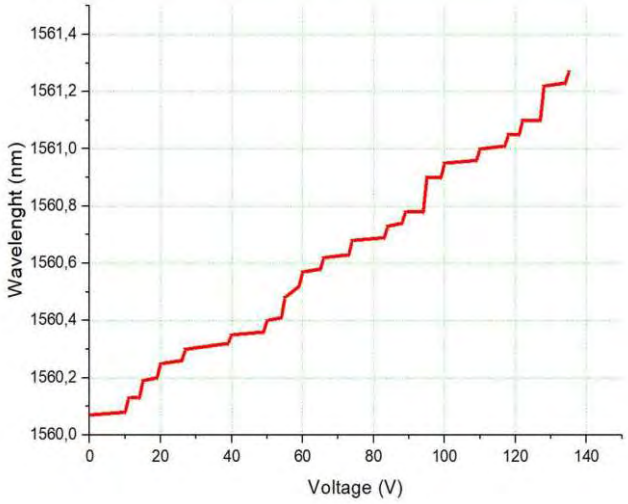
Spectrum



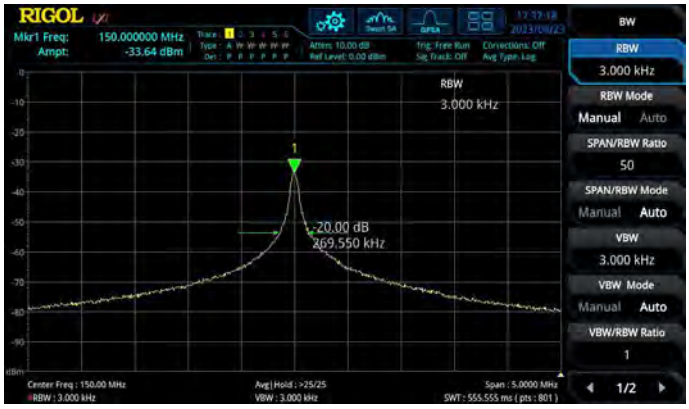
L-I Curve



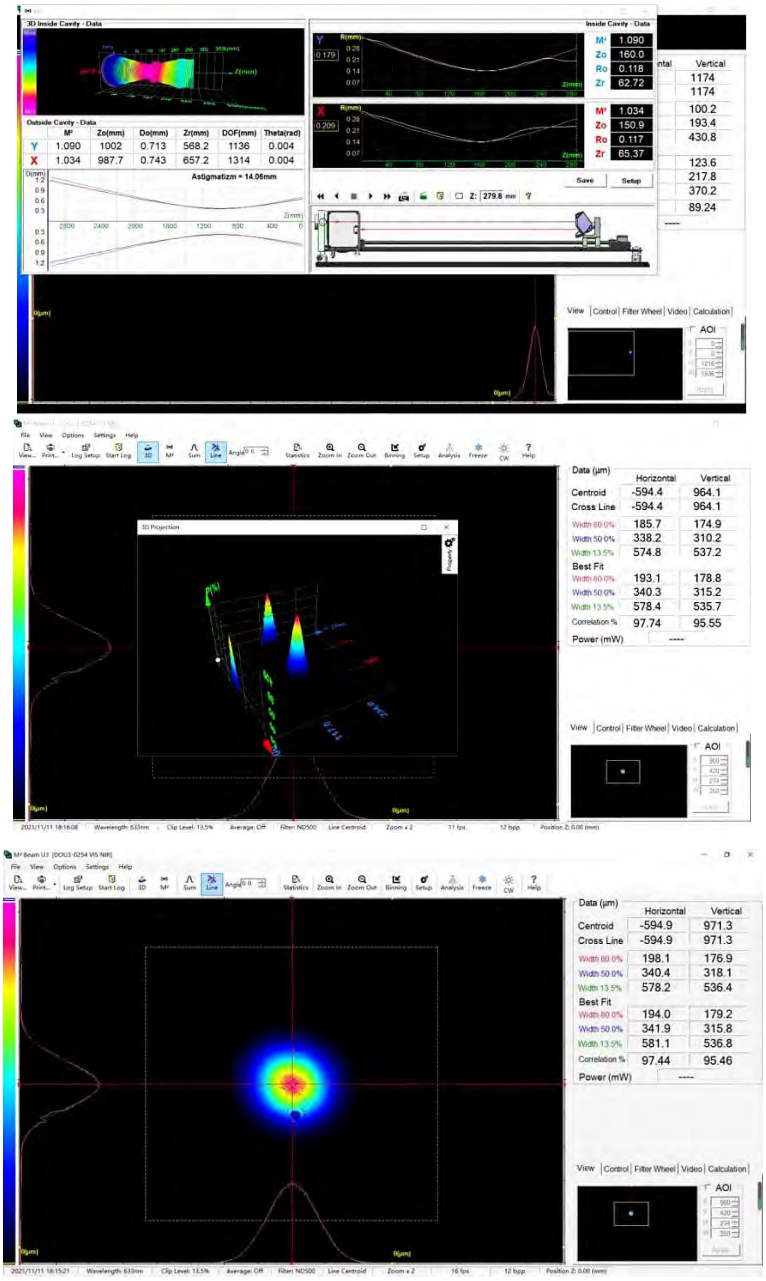
Wavelength VS PZT Voltage



Linewidth Testing Result



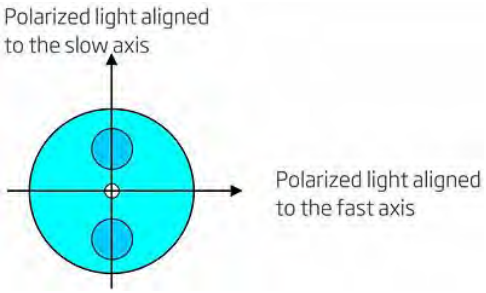
Beam Quality(M2,2D/3D Beam）



Fiber Pigtail Specifications

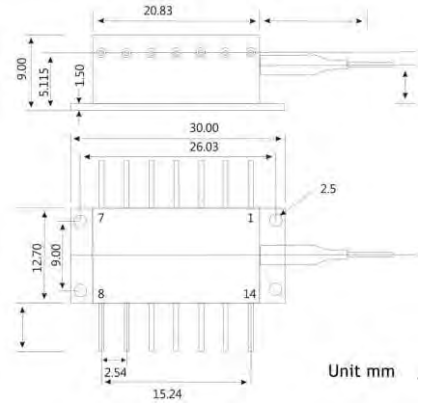
Parameters	Description
Fiber Type	PM fiber
Jacket Type	900μm loose tube
Pigtail Length	1.0±0.1m
Connector Type	FC/APC

PM fiber Connector Orientation	Please see the right figure

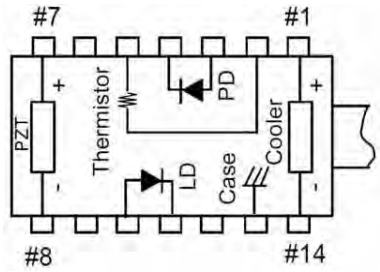


Note: The PM fiber and the connector key are aligned to the slow axis,fast axis is blocked.

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	℃	-5	25	70
Chip Temperature	℃	+10	25	40
Operating Current	mA	0	120	150
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
- Drop-side of DWDM long-haul transport equipment
- Optical Test and Instrumentation
- Microwave Photonics
- CATV networks
- Sensors

Ordering Info

PL-NL-□□□□-☆-A8▽-XX-PZT

□□□□：Wavelength

0633:633nm

1550:1550nm

1555:1555nm

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1560：1560nm

☆ ：Output Power

A：10mW

B：20mW

▽：Linewidth

1：＜10MHz

XX: Fiber and Connector Type

SA=SMF-28E+ FC/APC

SP=SMF-28E+ FC/PC

PP=PM Fiber+ FC/PC

PA=PM Fiber+ FC/APC