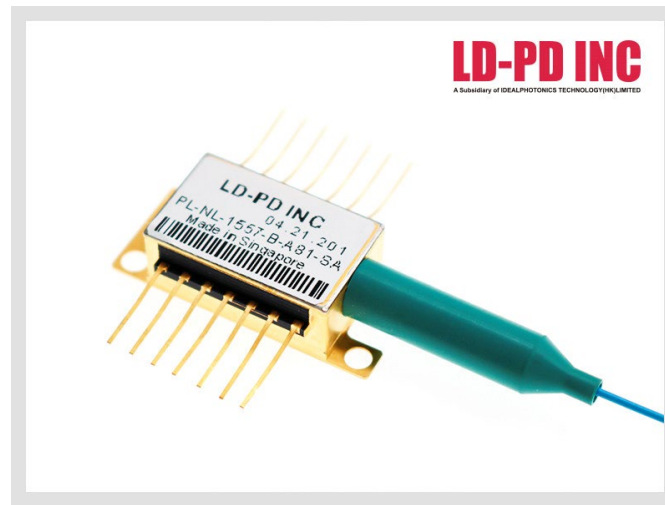


1557nm Single frequency FBG stabilized Tunable Narrow Linewidth Laser Diodes



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: 30mW
- Narrow linewidth ($\Delta\nu < 1\text{MHz}$)
- Wavelength: 1557 @ 25°C
- SM or PM Fiber ($\varnothing 0.9\text{mm}$)
- FC-APC connector
- 14-pin butterfly package
- Internal monitor PD and TEC
- Low power consumption

Application:

- Laser interference experiment
- Drop-side of DWDM long-haul transport equipment
- Optical Test and Instrumentation
- Microwave Photonics
- CATV networks
- Sensors

Laser Specifications:

Optical Characteristics (at 25 °C laser temperature)

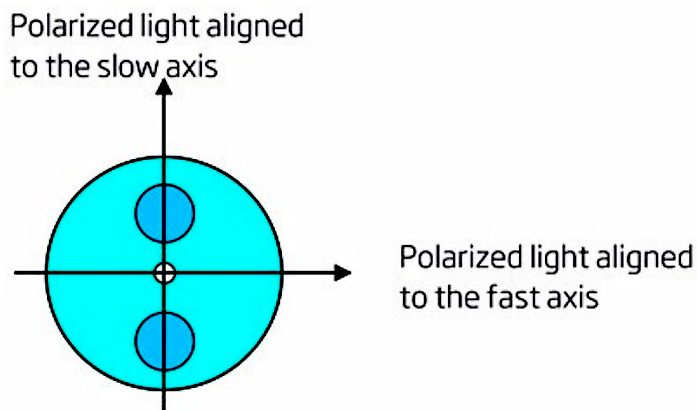
Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λ_c	TL=15~35 °C CW	1556.5	1557.0	1558.5	nm
Peak Optical Output Power	PO	-	10	-	30	mW
Spectral linewidth	LW	-	-	1	1	MHz
Side-mode Suppression Ratio	SMSR	CW	30	40	-	dB
Optical Isolation	-	-10 < TC < +70 °C	30	-	-	dB
Polarization Extinction Ratio	ER	-	20	-	-	dB
Relative Intensity Noise	RIN	CW, output power 5mW	-	-	-150	dB/Hz
Wavelength drift with case (-10 to 70 °C) temperature	$\Delta\lambda$	TL=15~35 °C	-	-	±30	pm
Wavelength Temperature coefficient	$\Delta\lambda/\Delta T$	TL=15~35 °C	-	15	30	pm/°C
Wavelength Current coefficient	$\Delta\lambda/\Delta I$	-	-	1.5	2	pm/mA
Mode Hop Free Range	ΔI			30		mA
Single-Frequency Continuous Tuning Range	Δf			3		GHz

Electrical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	45	65	mA
Slope Efficiency	η	CW output power 30 mW	0.064	0.1	-	mW/mA
Operating current	I _{op}	CW	-	250	300	mA
TEC set temperature	T _s	-	15	-	35	°C
Laser Forward Voltage	V _F	CW output power 5 mW	-	1.3	1.8	V
Monitor Dark Current	I _D	-	-	-	0.1	μA
Input Impedance	Z _{IN}	-	22	25	28	Ω
Thermistor Current	I _{TC}	-	10	-	100	μA
Thermistor Resistance	R _{TH}	TL = 25°C	9.5	10	10.5	KΩ
TEC Current	I _{TEC}	TL = 25°C, TC = 70°C	-	-	1.8	A
TEC Voltage	V _{TEC}	TL = 25°C, TC = 70°C	-	-	3.5	V
TEC capacity	ΔT	T _c = 70°C	-	-	50	°C
Tuning Range	Δf		1		1.5	nm
PZT Tuning Voltage	V _T		0		150	V
Mode Hop Free Range	ΔI			30		mA

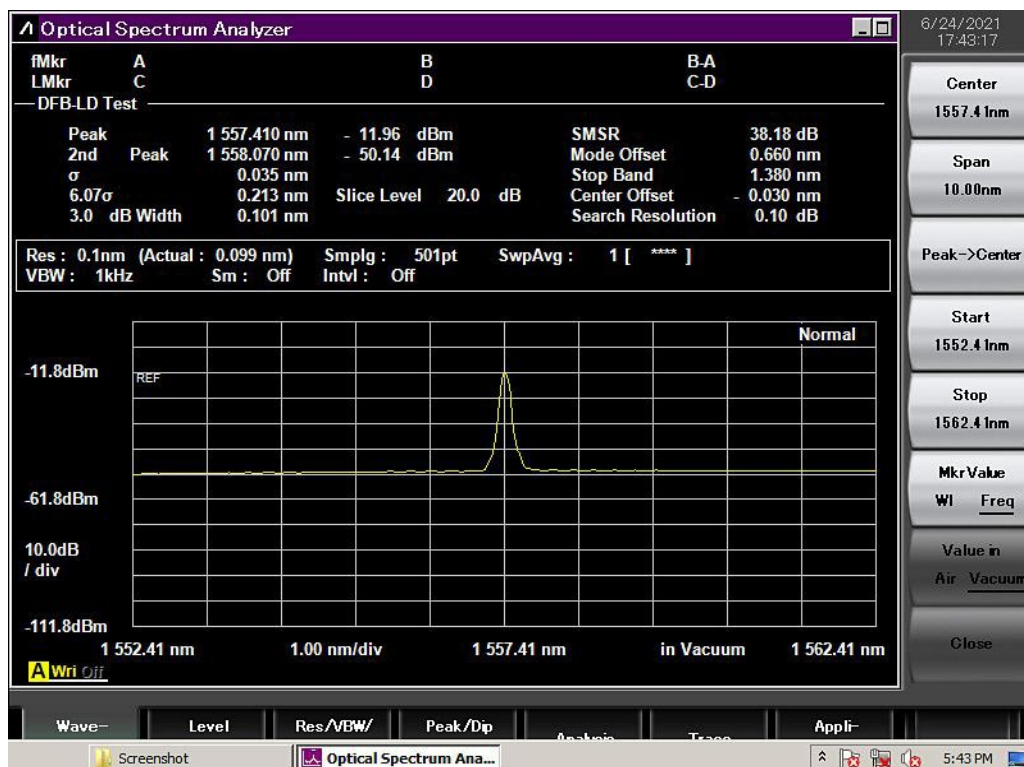
Fiber Pigtail Specifications:

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

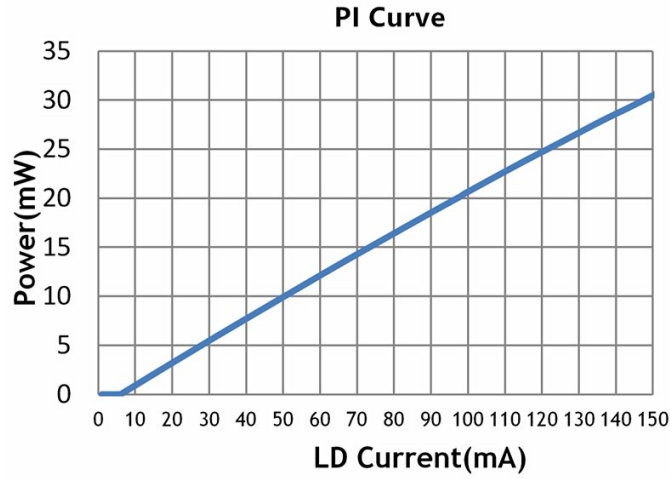


Note: The PM fiber and the connector key are aligned to the slow axis,fast axis is blocked.

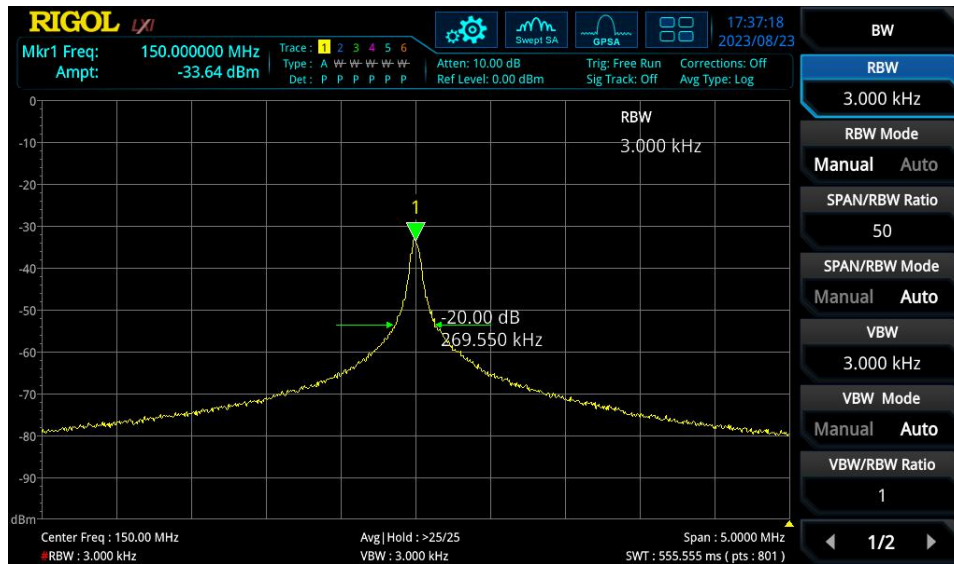
Spectrum:



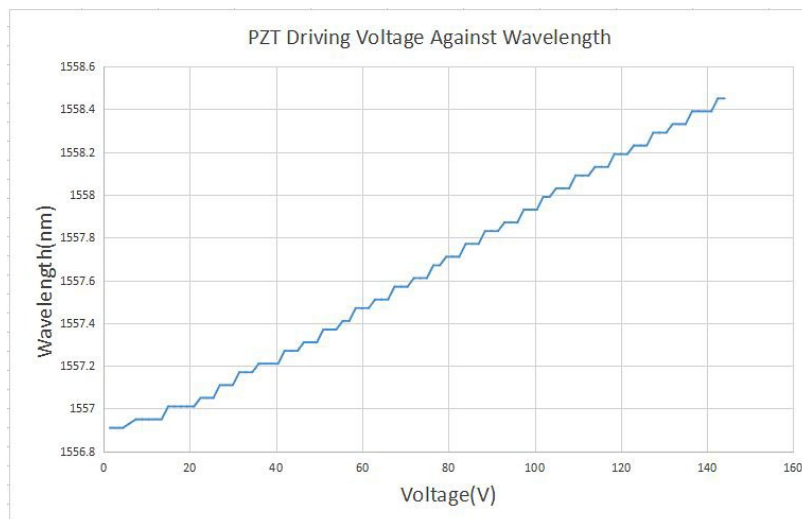
L-I Curve:



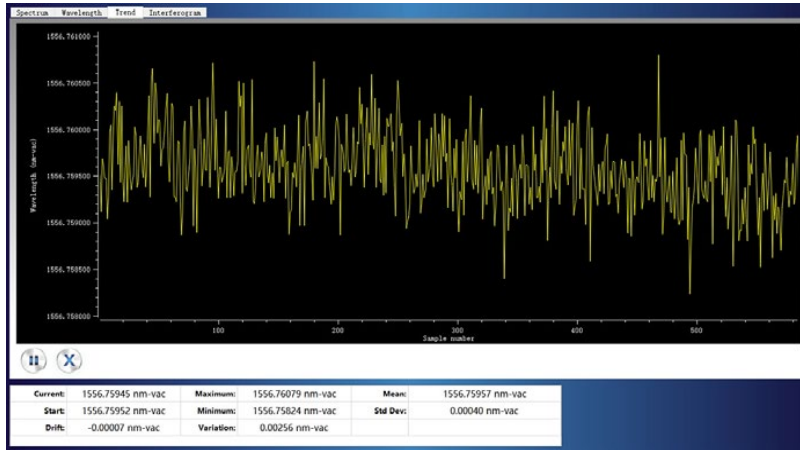
Linewidth Testing Result:



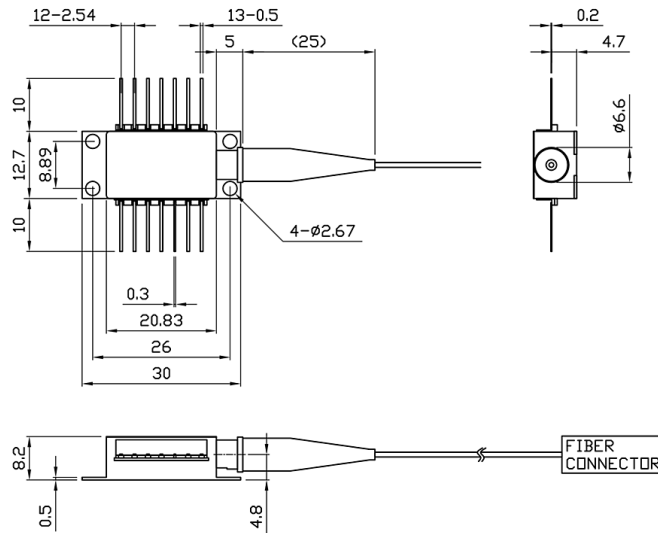
Wavelength VS PZT Voltage:



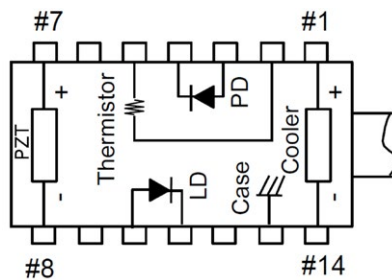
Wavelength Stability Test Result:



Package Size:



Pin definition:



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	°C	-5	25	70
Chip Temperature	°C	+10	25	40
Operating Current	mA	0	250	200
Forward Voltage	V	0.8	1.2	1.8
TEC Current	A	-	1.2	1.4
Reverse Voltage(LD)	V	-	-	1.8

OEM Info:

PL-NL-□□□□-☆-A8▽-XX-PZT

□□□□:Wavelength

0633: 633nm

1550: 1550nm

1555: 1555nm

1560:1560nm

1557: 1557nm

☆: Output Power

A:10mW

B:30mW

▽:Linewidth

1: <1MHz

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