1050nm 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)

Features

- Optical output: 30mW
- Narrow linewidth (Δv<1MHz)
- Wavelength: 1050nm @ 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	1049	1050	1051	nm
Peak Optical Output Power	PO	-	10	-	25	mW
Spectral linewidth	LW	-	-	1	10	MHz
Side-mode Suppression Ratio	SMSR	CW	30	40	-	dB
Optical Isolation	-	-10 < TC < +70 ºC	30	-	-	dB
Polarization Extinction Ratio	ER	-	20	-	-	dB
Relative Intensity Noise	RIN	CW, output power 5mW	-	-	-135	dB

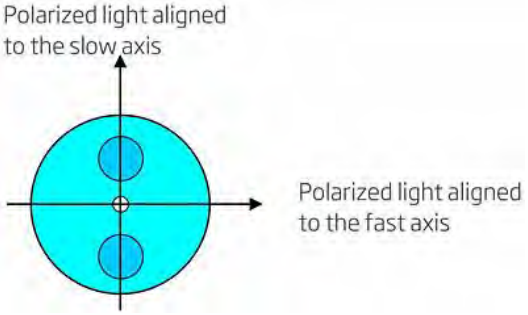
Wavelength drift with case (-10 to 70 ºC) temperature	△λ	TL=15～35℃	-	-	±30	pm

Electrical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	25	40	mA
Slope Efficiency	η	CW output power 15 mW	0.064	0.1	-	mW/mA
Operating current	Iop	CW	-	60	90	mA
TEC set temperature	Ts	-	15	-	35	℃
Laser Forward Voltage	VF	CW output power 15 mW	-	1.3	2.5	V
Monitor Dark Current	ID	-	-	-	0.1	μA
Input Impedance	ZIN	-	22	25	28	Ω
Thermistor Current	ITC	-	10	-	100	μA
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
TEC capacity	ΔT	Tc = 70℃	-	-	50	°C
Thermistor temperature	-	-	-	-	100	°C

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

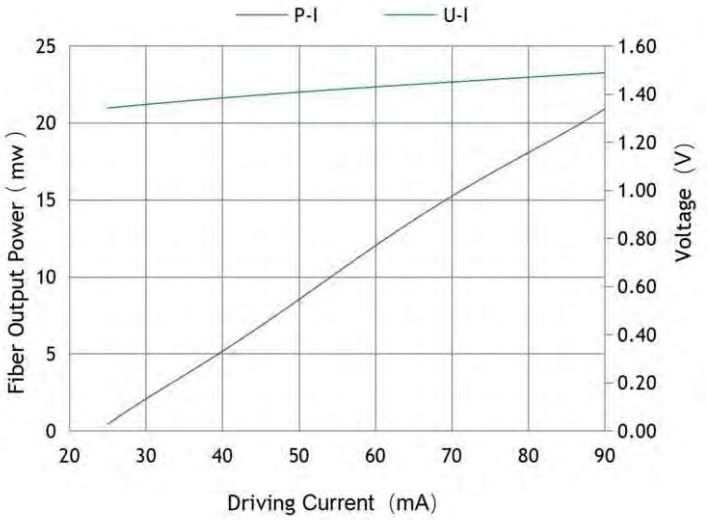


Note: The PM fiber and the connector key are aligned to the slow axis,fast axis is blocked.

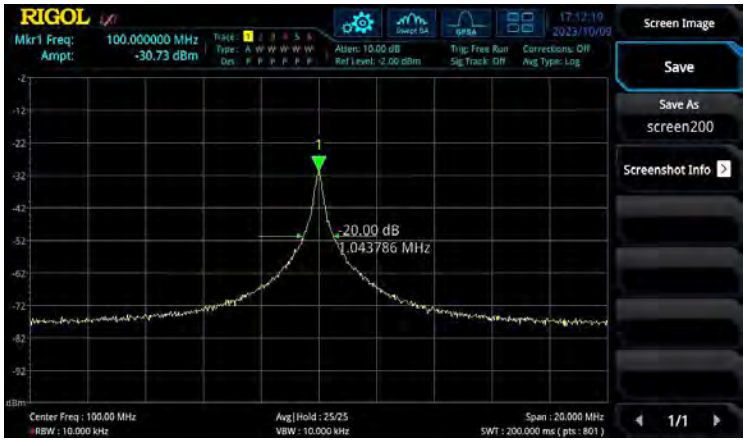
Spectrum



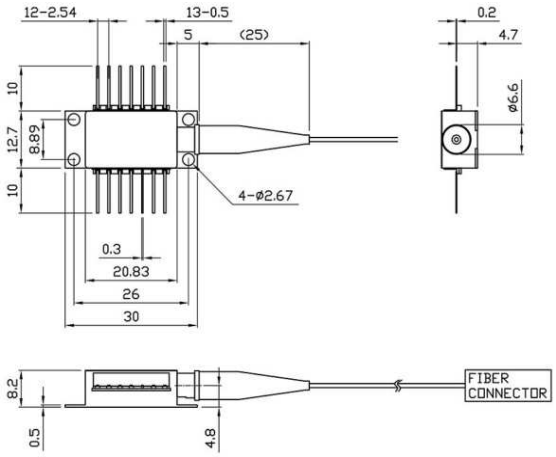
L-I Curve



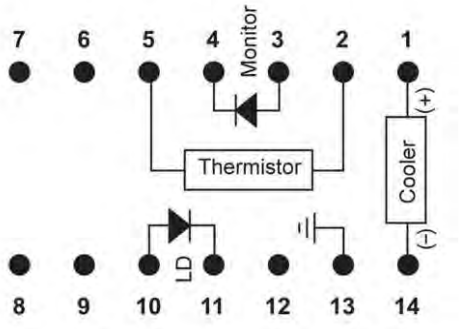
Linewidth test (50km Time delay and 1064nm Dual stage fiber Optcial Isolator Built)



Package Size



Pin definition



1	Thermoelectric Cooler (+)	8	N/C
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	N/C	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	60	90
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

□□□□：Wavelength

0633:633nm

1050:1050nm

1550:1550nm

1555:1555nm

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1560：1560nm

☆ ：Output Power

A：20mW

B：30mW

▽：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