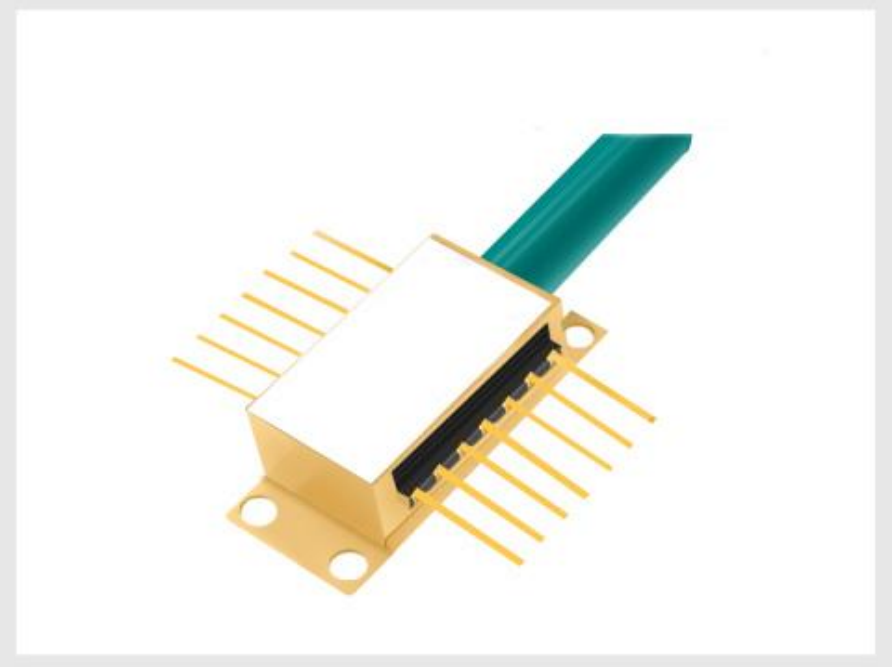
852nm 10mW SM FBG stabilized Tunable laser diode



Product Description

This 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.

Product features

Optical output: 10mW；Narrow linewidth (Δv ＜1MHz)；Wavelength: 852nm @ 25 ℃； SMor PMFiber (ø0.9mm)； FC-APC connector； 14-pin butterfly package；Internal monitor PD and TEC；Low power consumption

Part Number

MP-NL-852-A-A81-SA-PZT

Application area

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

Core parameters

Wavelength	Output Power	Fiber Type
852nm	10mW	SM

General Parameters

Optical Characteristics (at 25 °C laser temperature)

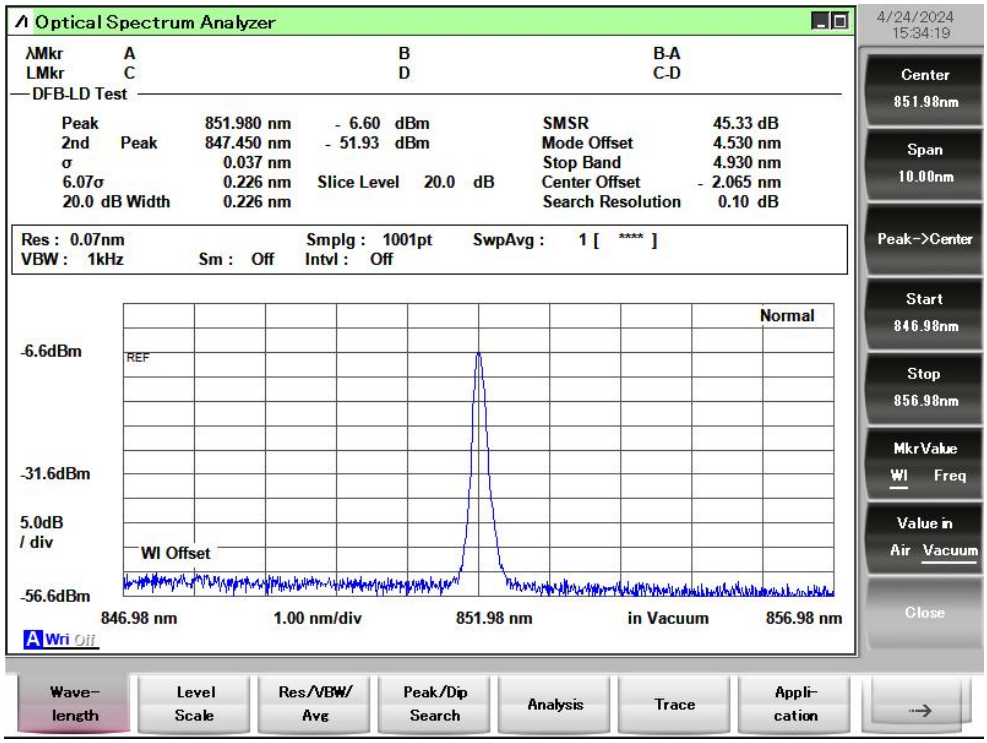
Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λc	TL=15～35°C CW	851	852	853	nm
Peak Optical Output Power	PO	-	10	-	30	mW
Spectral linewidth	LW	-	-	100	-	kHZ
SMSR	SMSR	CW	40	45	-	dB
Optical Isolation	-	-10<TC<+70°C	30	-	-	dB
PER	ER	-	20	-	-	dB
Relative Intensity Ratio	RIN	CW, output power 10mW	-	-	-145	dB/Hz
Wavelengrh drift with case(-10 to 70°C) temperature	△λ	TL=15~35°C	-	-	±30	pm

Electrical Characteristics (at 25 °C laser temperature)

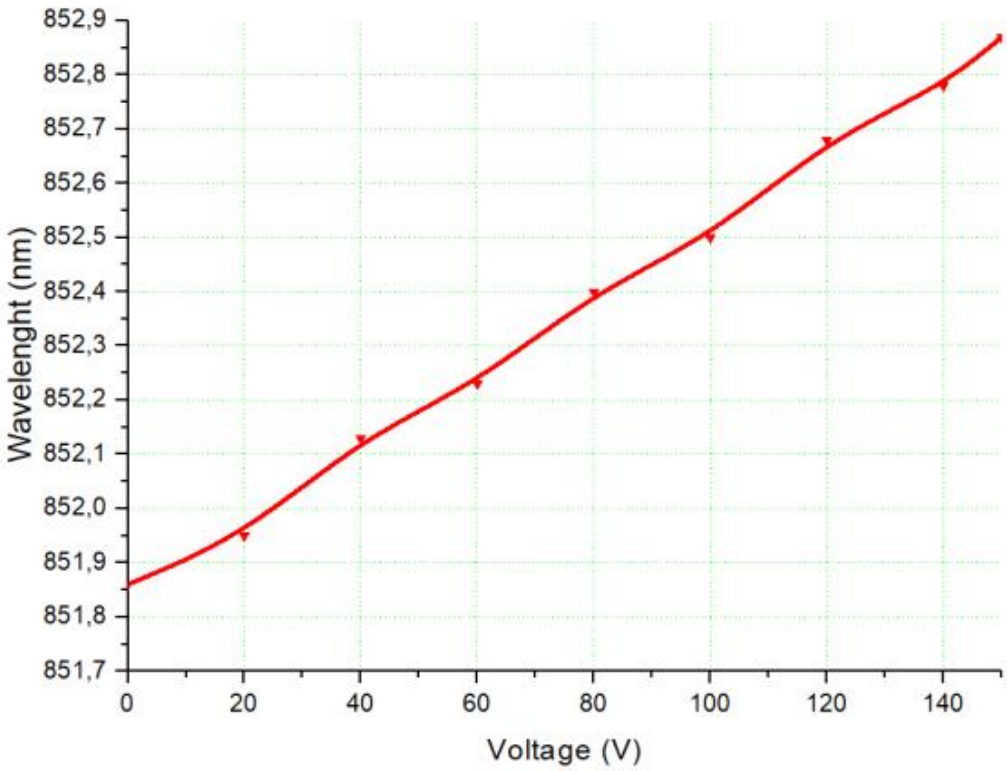
Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	45	65	mA
Slope Efficiency	η	CW , 10 mW	0.064	0.1	-	mW/ mA

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		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
TEC capacity	ΔT	Tc = 70℃	-	-	50	℃
Thermistor temperature	-	-	-	-	100	℃

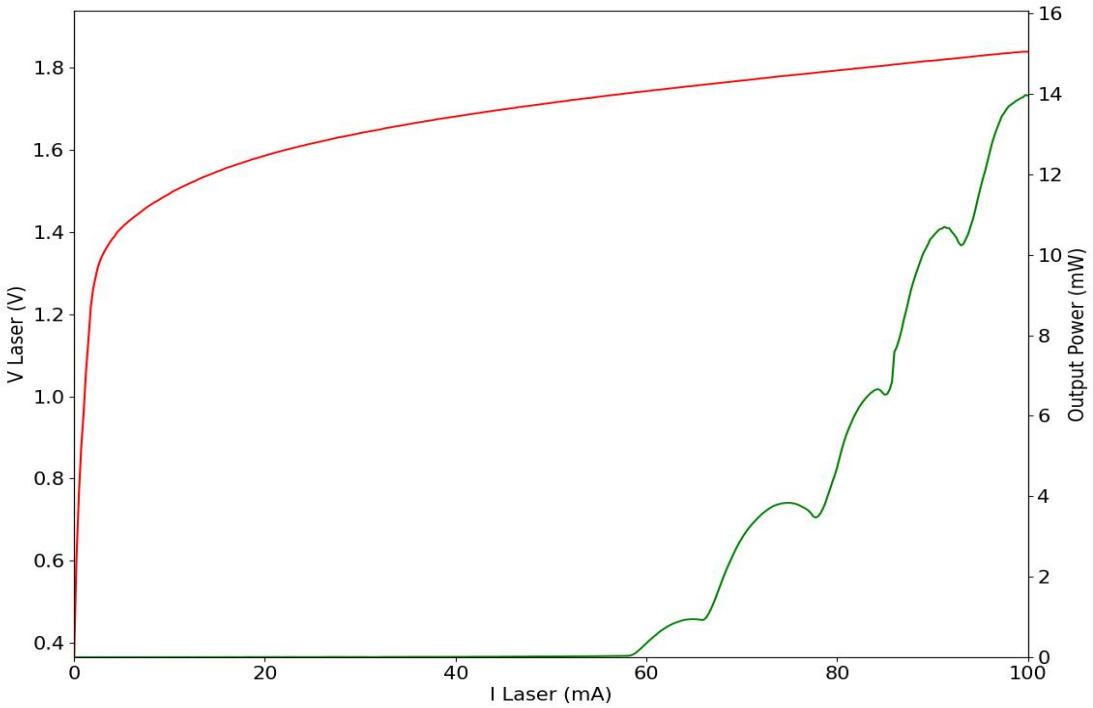
Spectrum



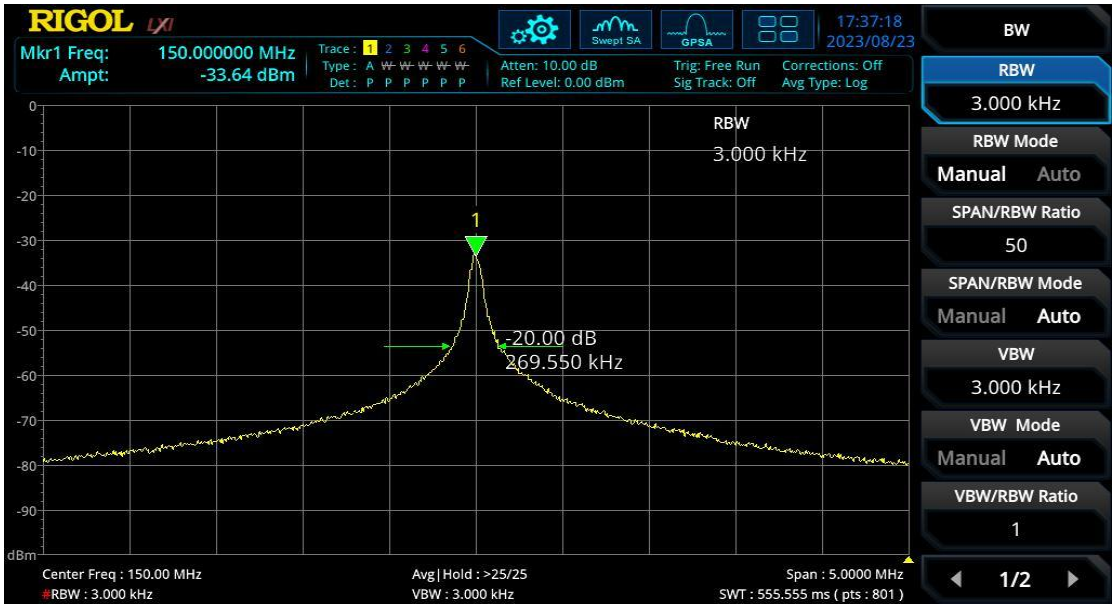
Voltage Vs Wavelength(PZT Version)



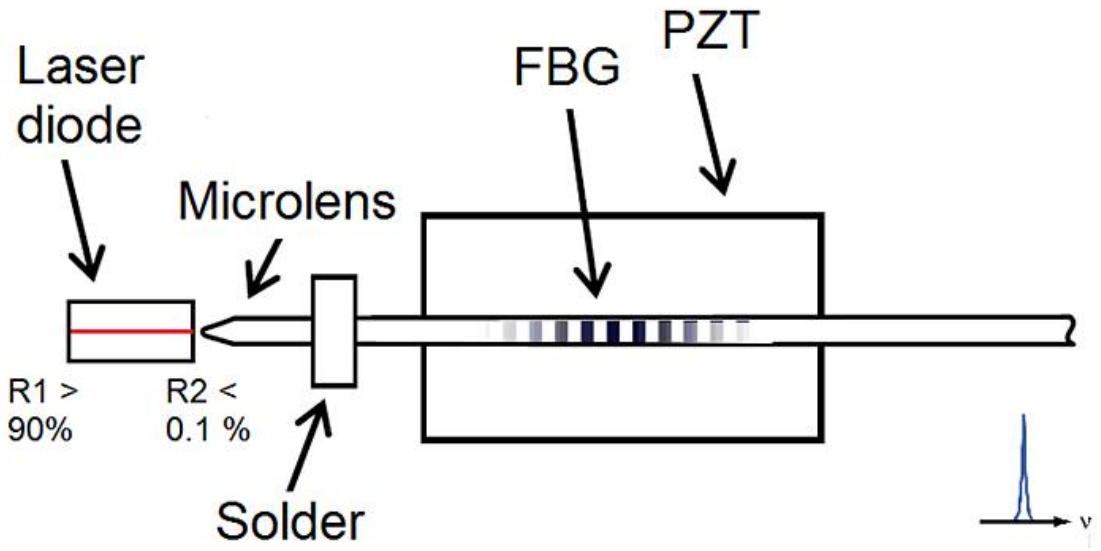
L-I Curve



Linewidth Testing Result



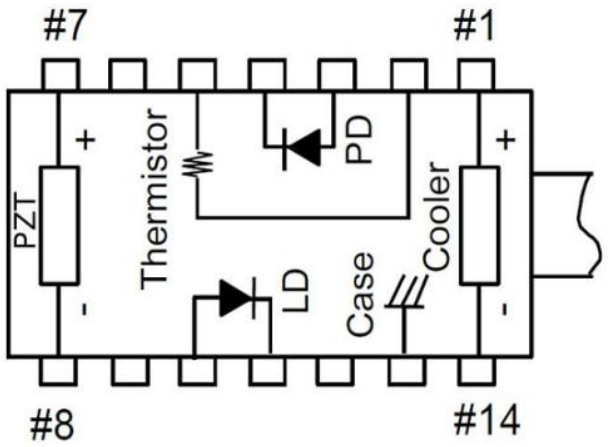
Working Structure



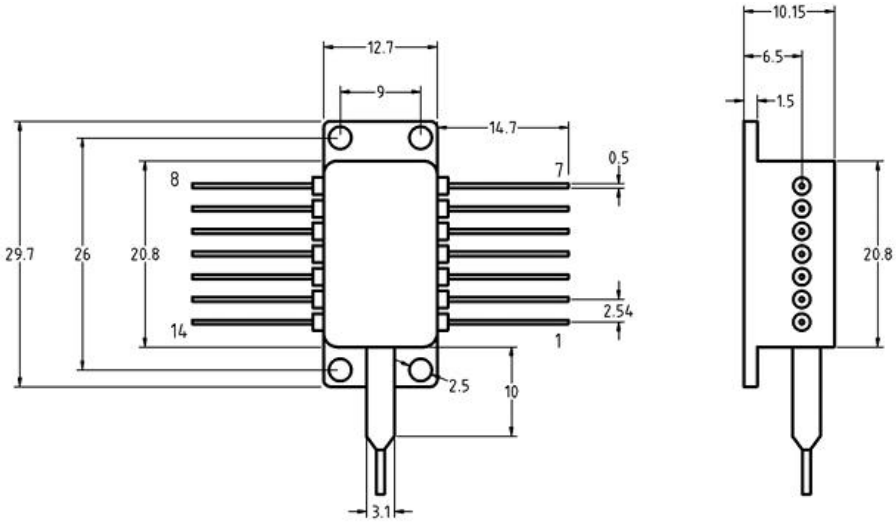
Absolute maximum ratings:

Parameter	Unit	Min	Typ	Max
Case Temperature	°C	-40	25	70
Chip Temperature	°C	+10	25	40
Operating Current	mA	0	150	200
Forward Voltage	V	0.8	1.2	1.8
TEC Current	A	-	1.2	1.4
Reverse Voltage(LD)	V	-	-	1.8

Pin definition

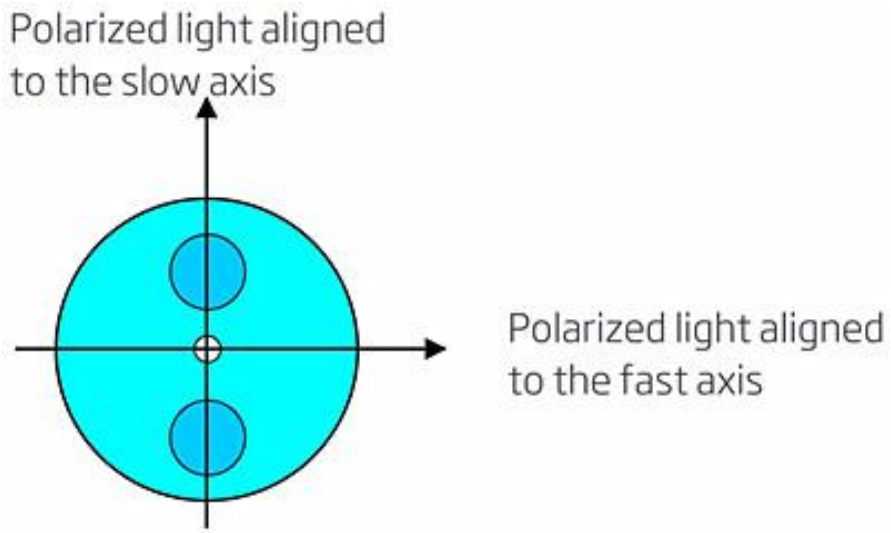


None PZT Bulit inside			
NO	Parameter	NO	Parameter
1	Cooler anode+	8	PZT tuning -
2	Thermistor	9	NC
3	PD anode-	10	LD anode+
4	PD cathode+	11	LD cathode-
5	Thermistor	12	NC
6	NC	13	Case
7	PZT tuning +	14	Cooler cathode-



Fiber Pigtail Specifications

Parameters	Description
Fiber Type	SM 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