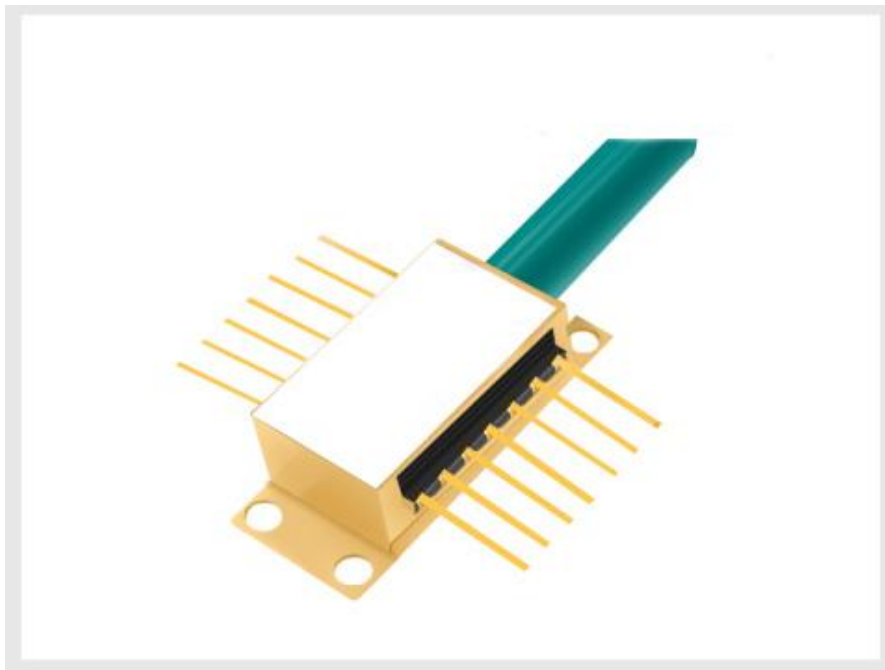


864nm 20mW SM Narrow Linewidth Laser

Diodes



- **Product Description**

Single frequency FBG-stabilized laser diode module designed for optical measurement and communication. The laser is packaged in Butterfly package with monitor photodiode and thermo-electric cooler (TEC). Module is pigtailed with 0.5-0.9 m of single mode or polarization maintaining (optional) fiber and connectorized by FC/APC connector.



● Product features

Optical output: 20mW; Narrow linewidth ($\Delta\nu < 1\text{MHz}$); Wavelength: 864nm
@ 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

● Part Number

MP-NL-864-A-A81-SA

● Application area

Coherent Optical Communication | High-Precision Fiber Optic Sensing |
LiDAR | Optical Metrology & Spectroscopy | Microwave Photonics

● Core parameters

Wavelength	Output Power	Fiber Type
864nm	20mW	SM

● General Parameters

Optical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λ_c	TL=15~35°C CW	863	864	865	nm
Peak Optical Output Power	PO	-	-	15	20	mW
Spectral linewidth	LW	-	-	1	10	MHz
Side-mode Suppression Ratio	SMSR	CW	40	50	-	dB
Optical Isolation	-	-10 < TC < +70 °C	30	-	-	dB
Polarization Extinction Ratio	ER	-	20	-	-	dB
Relative Intensity Noise	RIN	CW, output power 10mW	-	-	-135	dB/H Z
Wavelength drift with case (-10 to 70 °C) temperature	$\Delta\lambda$	TL=15~35°C	-	-	±30	pm



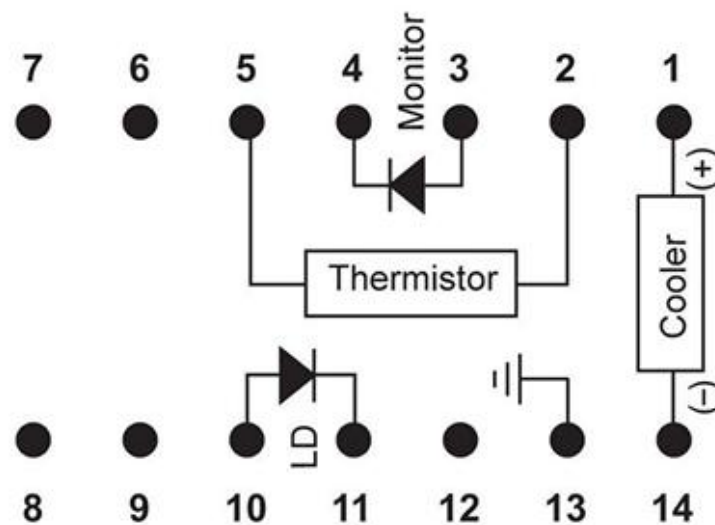
Electrical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	25	50	mA
Operating current	Iop	CW	-	40	60	mA
TEC set temperature	Ts	-	15	-	35	°C
Laser Forward Voltage	VF	CW output power 5 mW	-	1.3	2.5	V
Monitor Dark Current	ID	-	-	-	0.1	μA
Input Impedance	Zin	-	22	25	28	Ω
Thermistor Resistance	RTH	TL = 25 °C	9.5	10	10.5	KΩ
Thermistor Current	ITC	-	10	-	100	μA
TEC Current	ITEC	TL = 25 °C, TC = 70 °C	-	-	1.4	A
TEC Voltage	VTEC	TL = 25 °C, TC = 70 °C	-	-	2.8	V

Absolute maximum ratings:

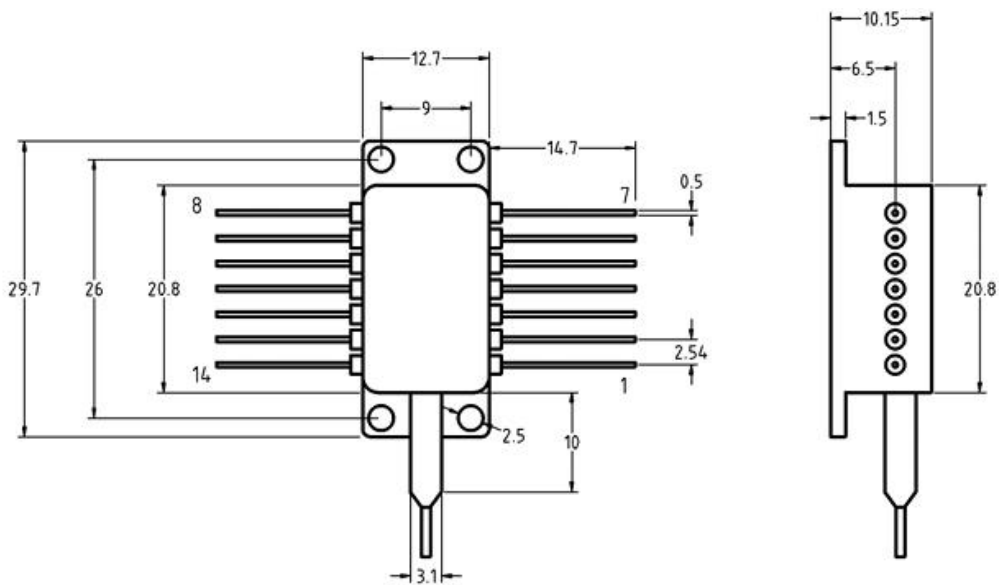
Parameter	Symbol	Rating	Unit
Forward Current	I_f	60	mA
Reverse Voltage	V_r	1.8	V
PD Reserve Voltage	V_{rd}	7	V
Minimum Operation Case Temperature	T_{ol}	-40	°C
Maximum Operation Case Temperature	T_{oh}	70	°C
Minimum Storage Temperature	T_{sl}	-40	°C
Maximum Storage Temperature	T_{sh}	70	°C
TEC Current	I_t	1.5	A

Pin definition



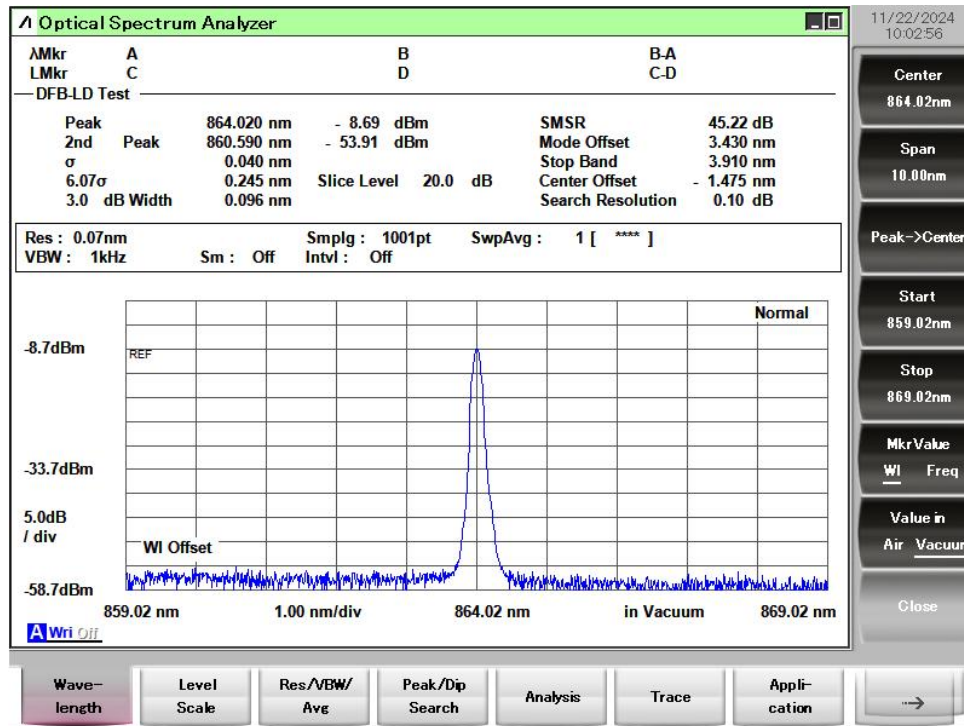


None PZT Built inside			
NO	Parameter	NO	Parameter
1	Cooler anode+	8	NC
2	Thermistor	9	NC
3	PD anode-	10	LD anode+
4	PD cathode+	11	LD cathode-
5	Thermistor	12	NC
6	NC	13	Case
7	NC	14	Cooler cathode-

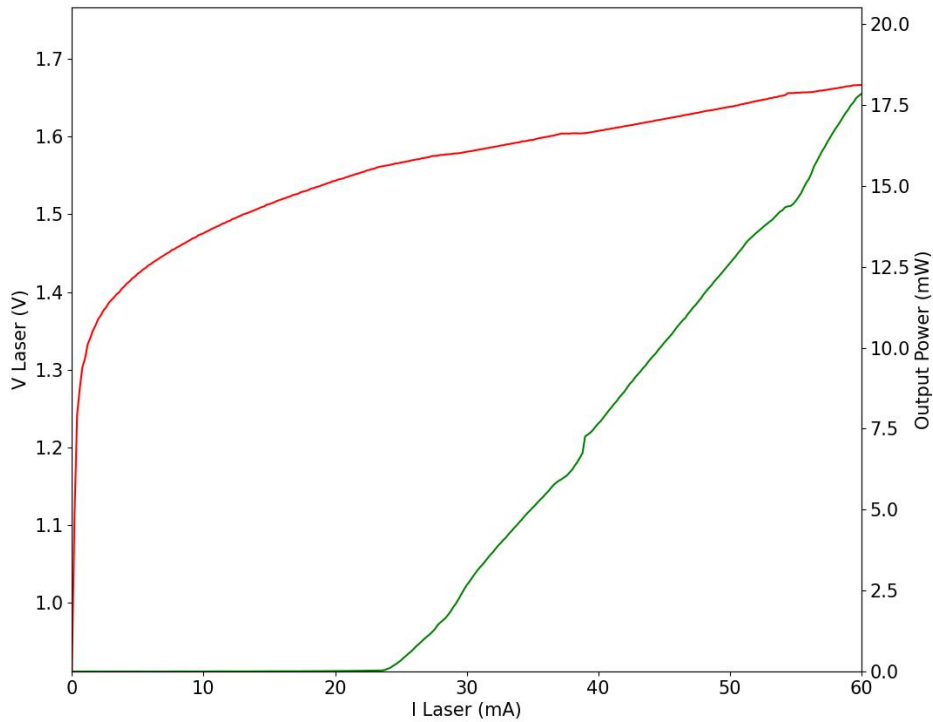




Spectrum

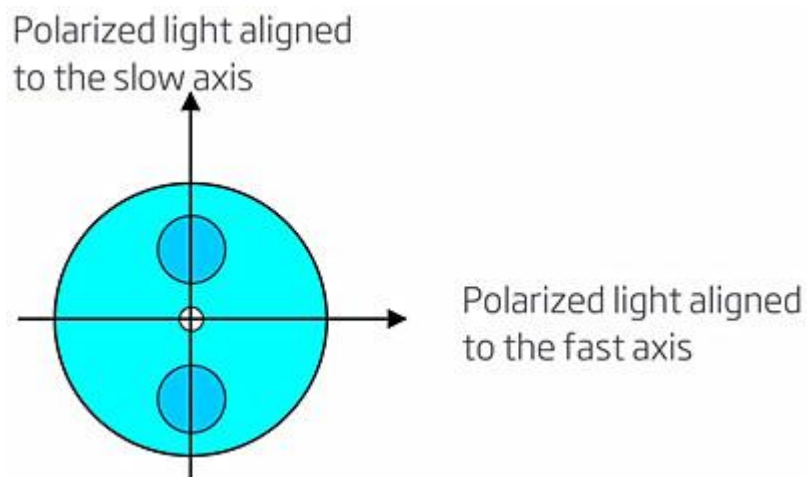


L-I-V Curve



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