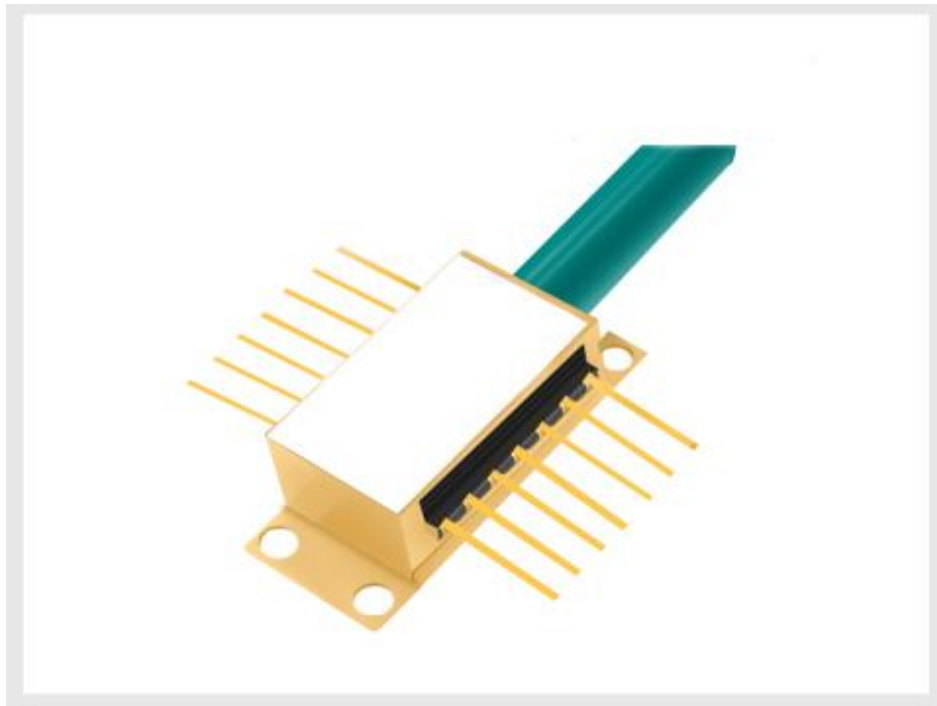


820nm 15mW SM Narrow Linewidth Laser Diodes



● 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: 15mW; Narrow linewidth ($\Delta\nu < 1\text{MHz}$); Wavelength: 820nm @ 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-820-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
820nm	15mW	SM

● General Parameters

Optical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λ_c	TL=15~35°C CW	819	820	821	nm

Peak Optical Output Power	PO	-		15	30	mW
Spectral linewidth	LW	-	-	1	10	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	-	-	-135	dB
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	40	mA

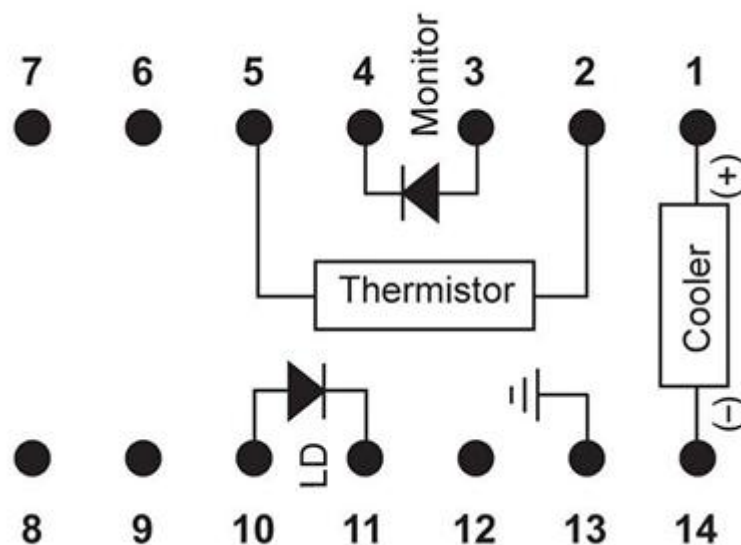
Slope Efficiency	η	CW output power 15 mW	0.064	0.1	-	mW/mA
Operating current	I _{op}	CW	-	130	200	mA
TEC set temperature	T _s	-	15	-	35	°C
Laser Forward Voltage	V _F	CW output power 15 mW	-	1.5	2.5	V
Monitor Dark Current	I _D	-	-	-	0.1	μA
Input Impedance	Z _{IN}	-	22	25	28	Ω
Thermistor Current	I _{TC}	-	10	-	100	μA
Thermistor Resistance	R _{TH}	T _L = 25 °C	9.5	10	10.5	KΩ
TEC Current	I _{TEC}	T _L = 25 °C, T _C = 70 °C	-	-	1.8	A
TEC Voltage	V _{TEC}	T _L = 25 °C, T _C = 70 °C	-	-	3.5	V
TEC capacity	ΔT	T _c = 70°C	-	-	50	°C
Thermistor	-	-	-	-	100	°C

temperature						
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Absolute maximum ratings:

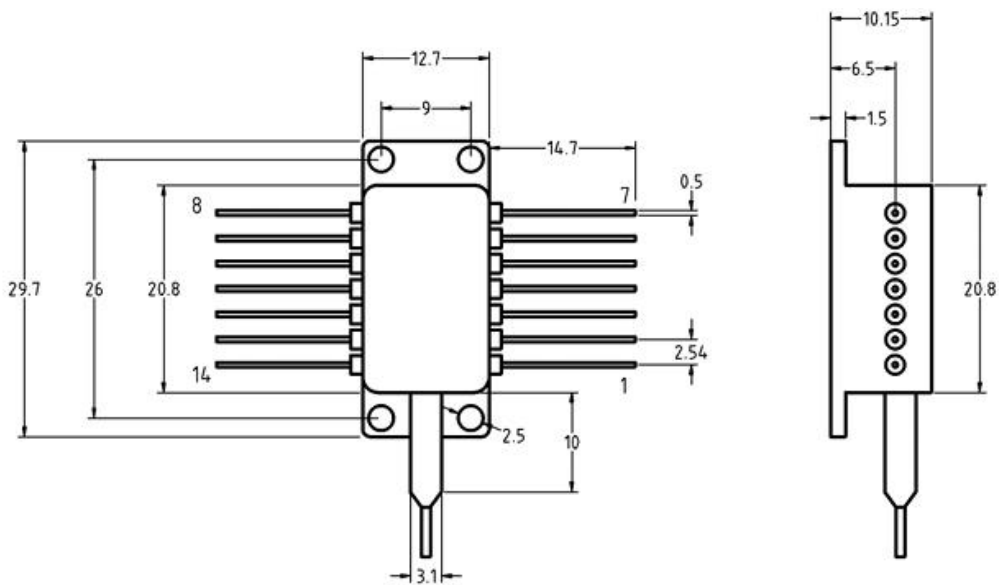
Parameter	Symbol	Rating	Unit
Forward Current	I_f	170	mA
Reverse Voltage	V_r	1.8	V
PD Reserve Voltage	V_{rd}	7	V
Minimum Operation Case Temperature	T_{ol}	-40	°C
Maximum Operation Case Temperature	T_{oh}	70	°C
Minimum Storage Temperature	T_{sl}	-40	°C
Maximum Storage Temperature	T_{sh}	70	°C
TEC Current	I_t	1.5	A

Pin definition



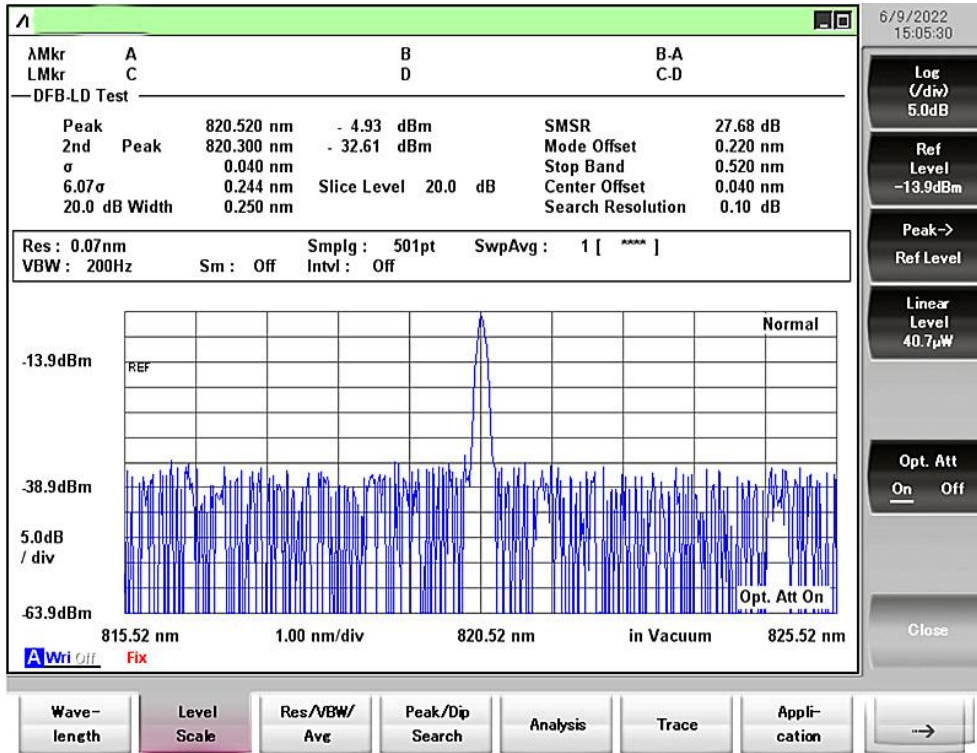


None PZT Built inside			
NO	Parameter	NO	Parameter
1	Cooler anode+	8	NC
2	Thermistor	9	NC
3	PD anode-	10	LD anode+
4	PD cathode+	11	LD cathode-
5	Thermistor	12	NC
6	NC	13	Case
7	NC	14	Cooler cathode-

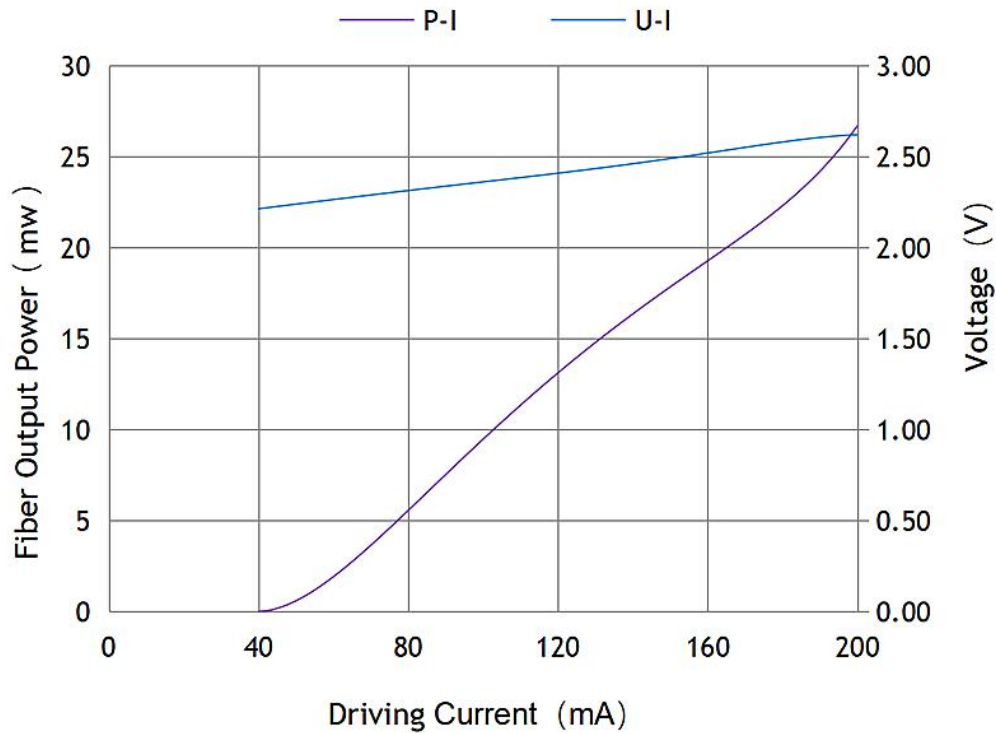




Spectrum

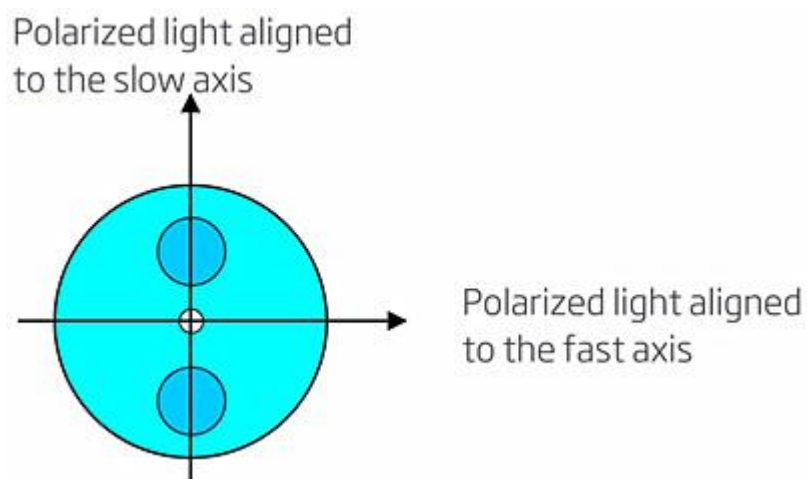


L-I-V Curve



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