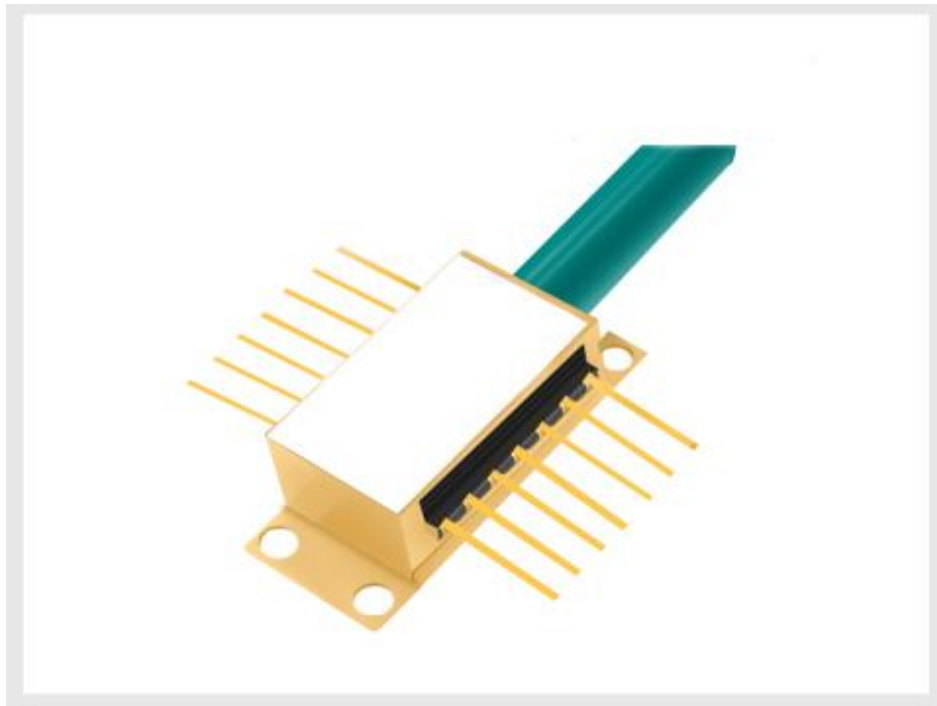


## 852nm 10mW SM Narrow Linewidth Laser Diodes



### ● 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: 10mW; Narrow linewidth ( $\Delta\nu < 1\text{MHz}$ ); Wavelength: 852nm @ 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-852-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
852nm	10mW	SM

## ● General Parameters

Optical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	$\lambda_c$	TL=15~35°C CW	851	852	853	nm



Peak Optical Output Power	PO	-	10	-	30	mW
Spectral linewidth	LW	-	-	1	10	MHz
Side-mode Suppression Ratio	SMSR	CW	40	45	-	dB
Optical Isolation	-	-10 < TC < +70 °C	30	-	-	dB
Polarization Extinction Ratio	ER	-	20	-	-	dB
Relative Intensity Noise	RIN	CW, output power 10mW	-	-	-145	dB/HZ
Wavelength drift with case (-10 to 70 °C) temperature	$\Delta\lambda$	TL=15~35°C	-	-	$\pm 30$	pm

## Electrical Characteristics

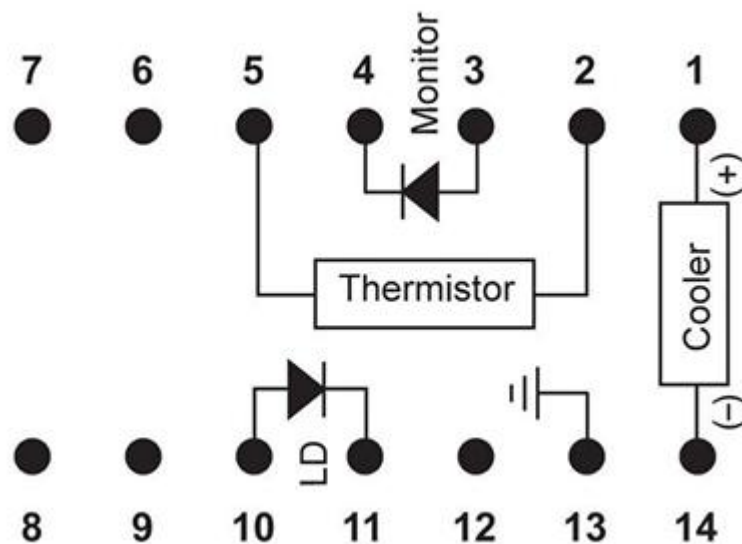
Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	45	65	mA

Slope Efficiency	$\eta$	CW , 10 mW	0.064	0.1	-	mW/mA
Operating current	I <sub>op</sub>	CW	-	150	200	mA
TEC set temperature	T <sub>s</sub>	-	15	-	35	°C
Laser Forward Voltage	V <sub>F</sub>	CW output power 5 mW	-	1.3	1.8	V
Monitor Dark Current	I <sub>D</sub>	-	-	-	0.1	μA
Thermistor Resistance	R <sub>TH</sub>	T <sub>L</sub> = 25 °C	9.5	10	10.5	KΩ
Thermistor Current	I <sub>TC</sub>	-	10	-	100	μA
TEC Current	I <sub>TEC</sub>	T <sub>L</sub> = 25 °C, T <sub>C</sub> = 70 °C	-	-	1.8	A
TEC Voltage	V <sub>TEC</sub>	T <sub>L</sub> = 25 °C, T <sub>C</sub> = 70 °C	-	-	3.5	V
TEC capacity	ΔT	T <sub>c</sub> = 70°C	-	-	50	°C
Thermistor temperature	-	-	-	-	100	°C

## Absolute maximum ratings:

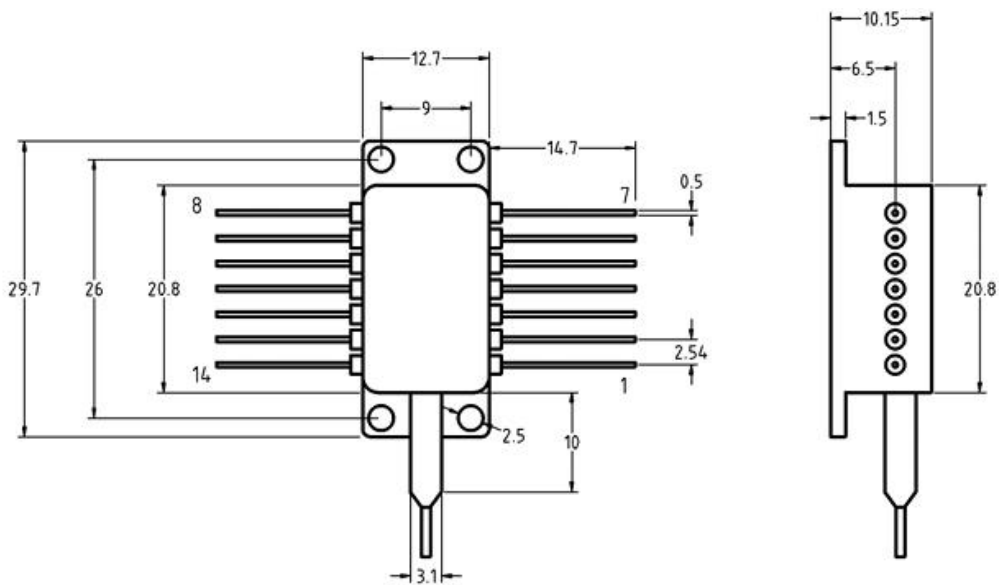
Parameter	Symbol	Rating	Unit
Forward Current	$I_f$	200	mA
Reverse Voltage	$V_r$	1.8	V
PD Reserve Voltage	$V_{rd}$	7	V
Minimum Operation Case Temperature	$T_{ol}$	-40	°C
Maximum Operation Case Temperature	$T_{oh}$	70	°C
Minimum Storage Temperature	$T_{sl}$	-40	°C
Maximum Storage Temperature	$T_{sh}$	70	°C
TEC Current	$I_t$	1.5	A

## Pin definition



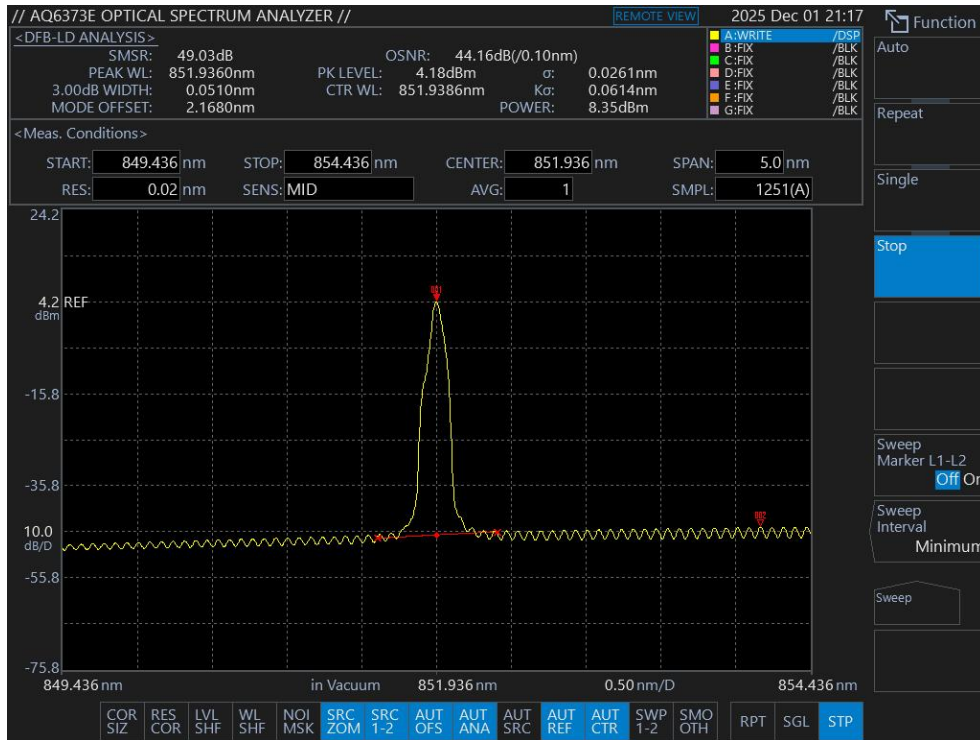


None PZT Built inside			
NO	Parameter	NO	Parameter
1	Cooler anode+	8	NC
2	Thermistor	9	NC
3	PD anode-	10	LD anode+
4	PD cathode+	11	LD cathode-
5	Thermistor	12	NC
6	NC	13	Case
7	NC	14	Cooler cathode-

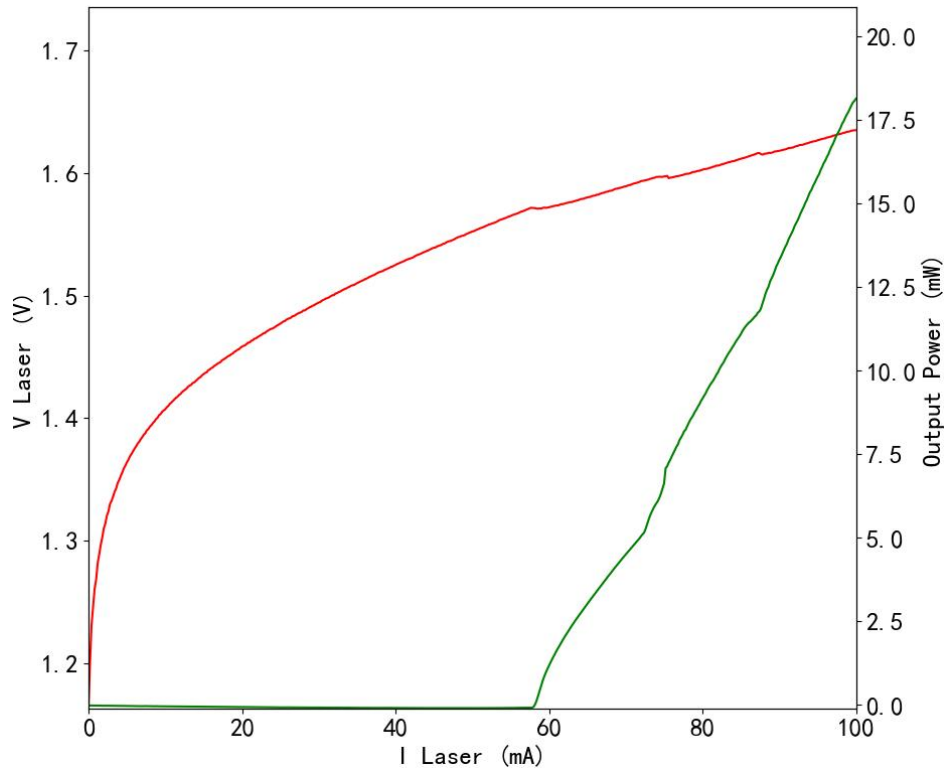




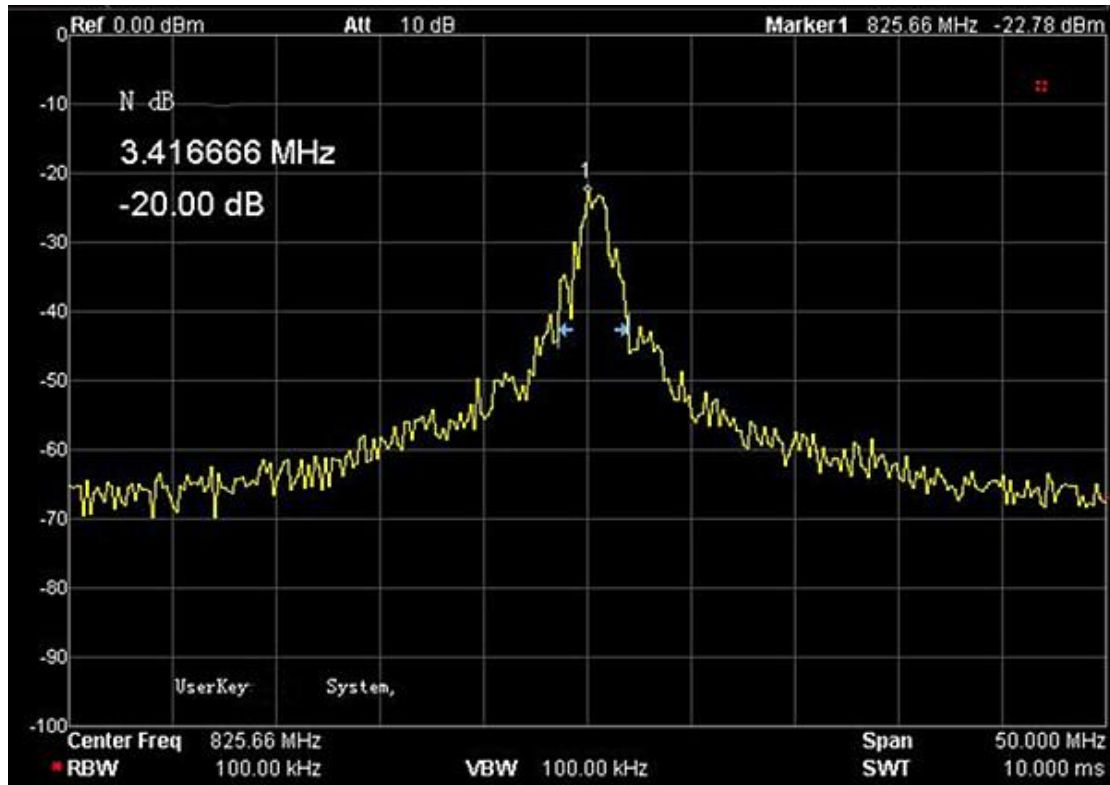
## Spectrum



## L-I-V Curve



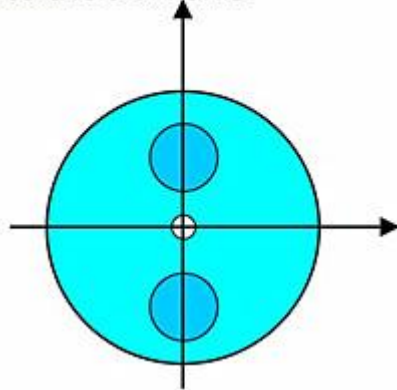
## Linewidth Test Result



## 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

Polarized light aligned  
to the slow axis



Polarized light aligned  
to the fast axis

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