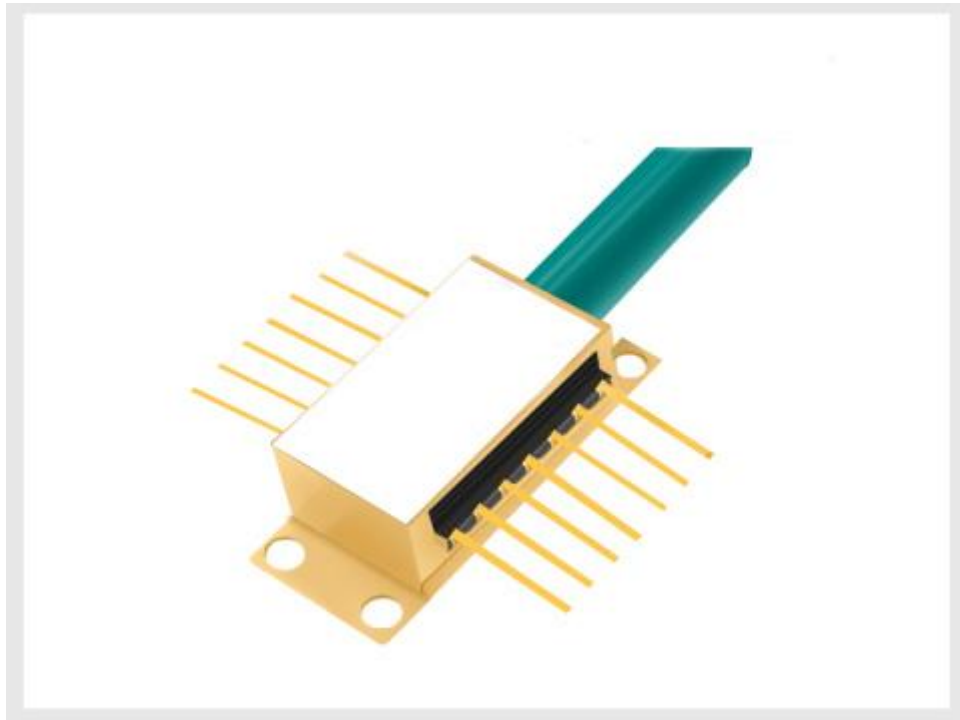


940nm 20mW SM Narrow Linewidth Laser Diodes



● 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: 80mW; Narrow linewidth ($\Delta\nu < 1\text{MHz}$); Wavelength: 940nm
@ 25 °C ; SMor PMFiber ($\varnothing 0.9\text{mm}$) ; FC-APC connector ; 14-pin butterfly
package; Internal monitor PD and TEC; Low power consumption

● Part Number

MP-NL-940-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
940nm	80mW	SM

● General Parameters

Optical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
-----------	--------	-----------	------	---------	------	------

Center Wavelength	λ_c	TL=15~35°C CW	939	940	941	nm
Peak Optical Output Power	PO	-	-	50	85	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/HZ
Wavelength drift with case temperature (-10 to 70 °C)	$\Delta\lambda$	TL=15~35°C	-	-	±30	pm

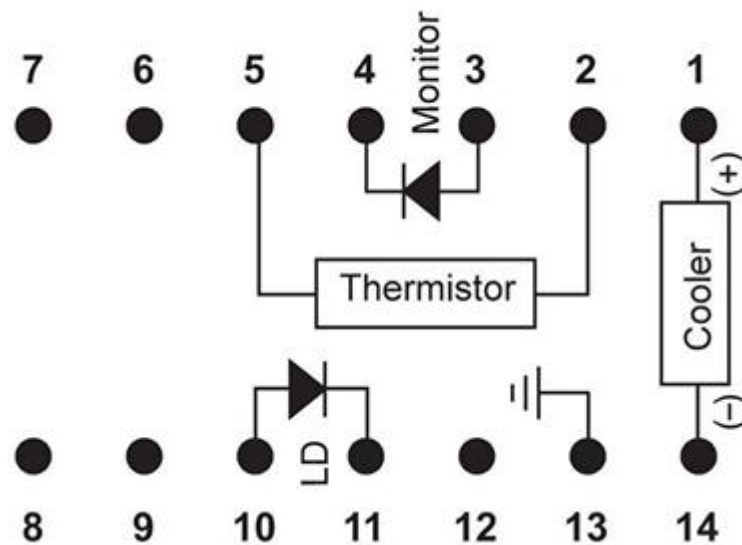
Electrical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	25	40	mA
Operating current	Iop	CW	-	120	180	mA
TEC set temperature	Ts	-	15	-	35	°C
Laser Forward Voltage	VF	CW output power 30 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

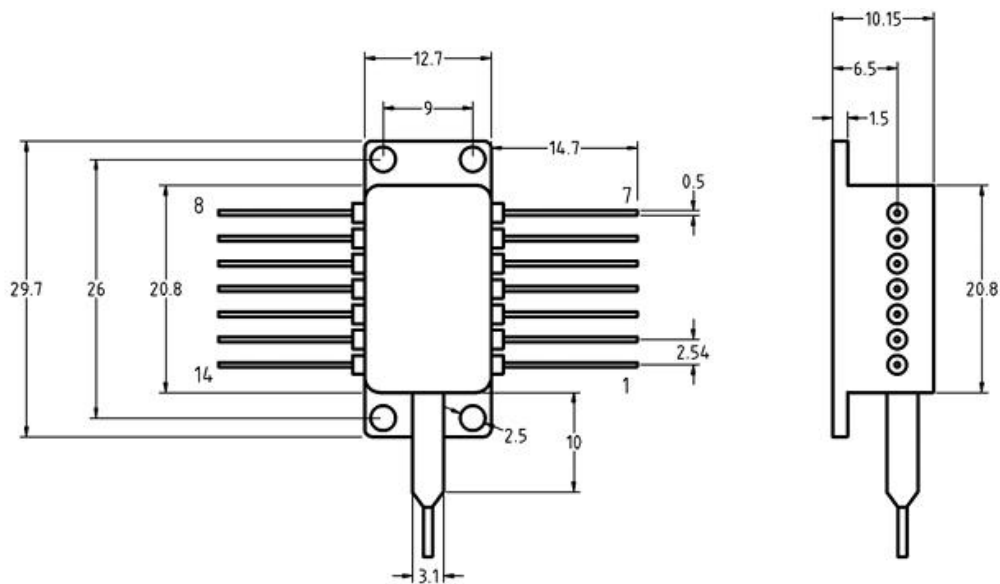
Absolute maximum ratings:

Item	Unit	Min	Typ	Max
Case Temperature	°C	-5	25	70
Chip Temperature	°C	+10	25	40
Operating Current	mA	0	120	180
Forward Voltage	V	0.8	1.8	2.5
TEC Current	A	-	1.2	1.4
Reverse Voltage(LD)	V	-	-	1.8

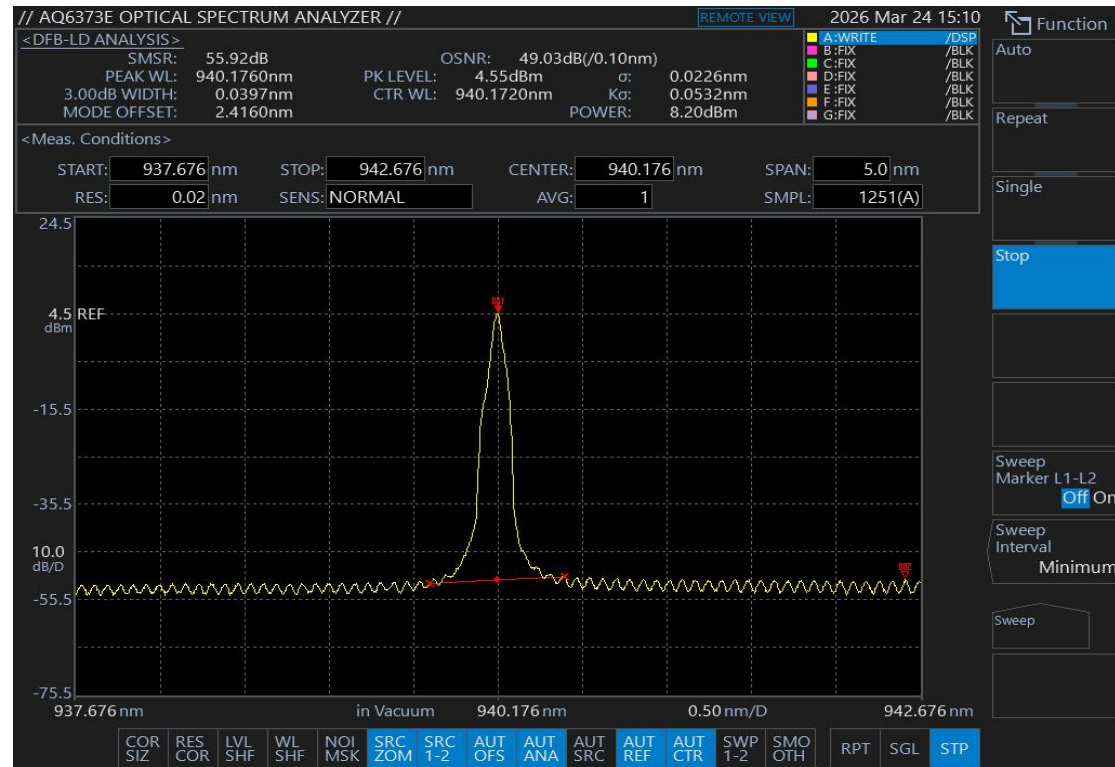
Pin definition



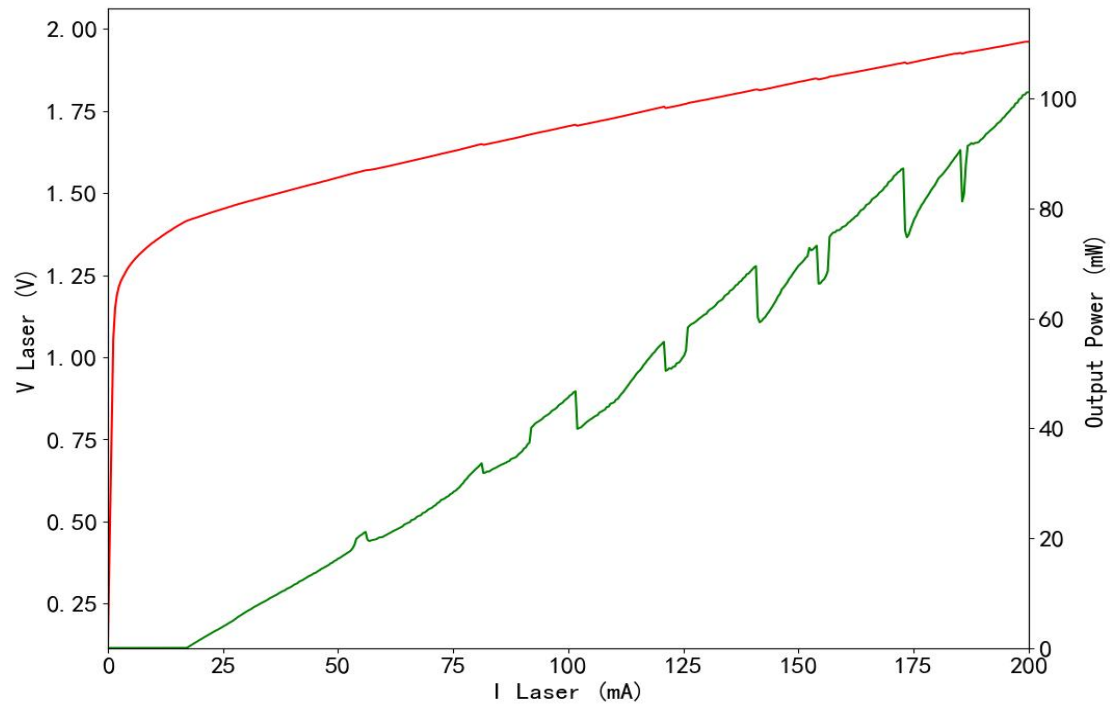
None PZT Bulit inside			
NO	Parameter	NO	Parameter
1	Cooler anode+	8	NC
2	Thermistor	9	NC
3	PD anode-	10	LD anode+
4	PD cathode+	11	LD cathode-
5	Thermistor	12	NC
6	NC	13	Case
7	NC	14	Cooler cathode-



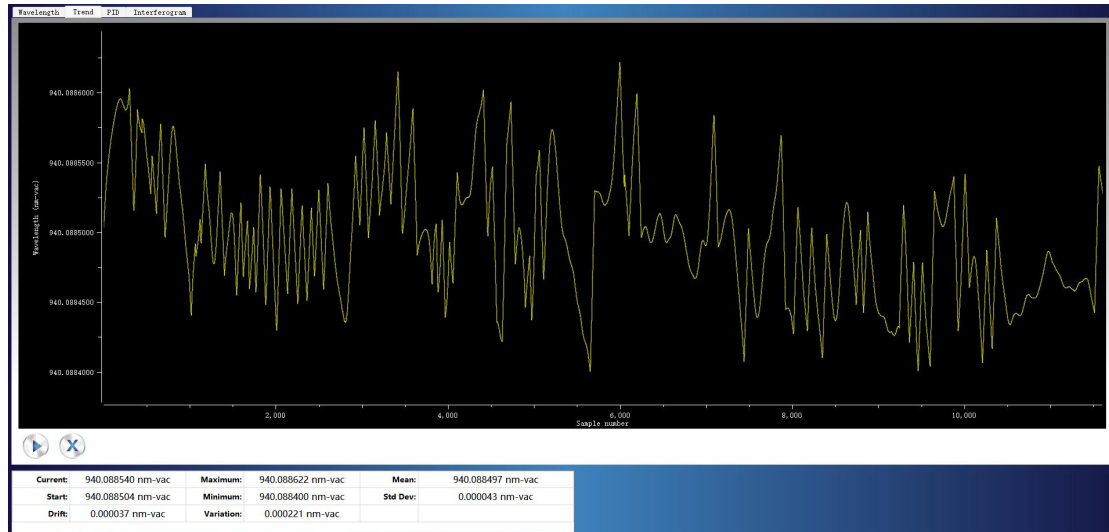
Spectrum



L-I-V Curve



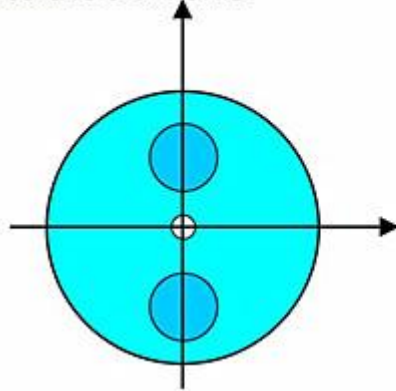
Wavelength Stability



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