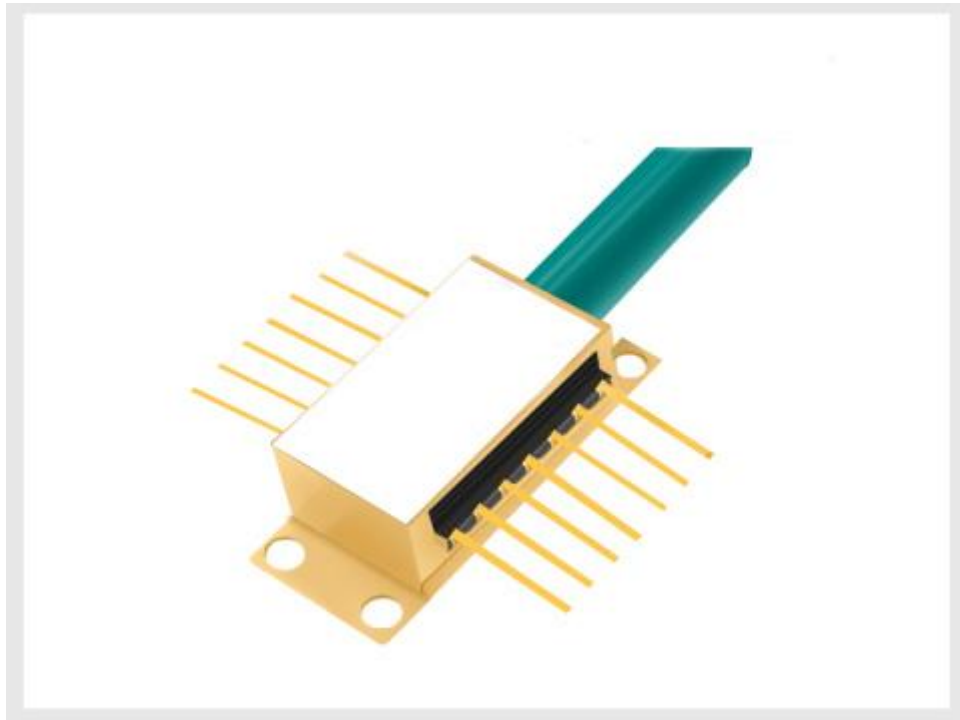


1550nm SM Ultra High power Narrow Linewidth Laser Diodes



● Product Description

The 1550 nm ultra-narrow linewidth single-frequency laser is a high-performance semiconductor laser that integrates silicon photonic chip technology, precise optical path design, and advanced packaging processes.

● Product features

Optical output 100mW; Narrow linewidth < 1MHz; with TEC; Optical Isolation 30dB; Pigtail Length 1.0 ± 0.1 m; SM Fiber; FC/APC

● Part Number

MP-HP-NL-1550-B-A81-SA

● Application area

LiDAR | Coherent detection | Fiber optics sensing | Biomedical photonics |
 Scientific research equipment | 3D mapping

● Core parameters

Wavelength	Output Power	Linewidth
1550nm	100mW	500kHz

● General Parameters

Optical and electrical parameters (TLD=25°C)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λ_c	TL=15~ 35°C CW	1549.6 2	1550.1 2	1550.6 2	nm
Peak Optical Output Power	PO	-		100	-	mW
Spectral linewidth	LW	-	-	0.5	1	MH

						z
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 (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	ITH	-	-	40	50	mA
Slope Efficiency	η	CW output power 100 mW	0.064	0.1	-	mW/mA

Operating current	I _{op}	CW	-	500	700	mA
TEC set temperature	T _s	-	15	-	35	°C
Laser Forward Voltage	V _F	CW output power 100 mW	-	1.3	1.8	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 temperature	-	-	-	-	100	°C

The diagram shows a 14-pin connector with pins 1 through 7 on the top row and pins 8 through 14 on the bottom row. The circuit components are connected as follows:

- Pin 1:** Connected to the positive terminal of a battery.
- Pin 2:** Connected to one terminal of the RTH (Resistor Temperature Head).
- Pin 3:** Connected to the other terminal of the RTH.
- Pin 4:** Connected to the anode of the MPD (Micro Pressure Detector).
- Pin 5:** Connected to the cathode of the MPD and one terminal of the RTH.
- Pin 6:** Unconnected.
- Pin 7:** Unconnected.
- Pin 8:** Unconnected.
- Pin 9:** Unconnected.
- Pin 10:** Connected to the anode of a diode.
- Pin 11:** Connected to the cathode of the diode.
- Pin 12:** Unconnected.
- Pin 13:** Connected to ground.
- Pin 14:** Connected to the negative terminal of the battery.

An output terminal is shown on the right, connected to the positive terminal of the battery.

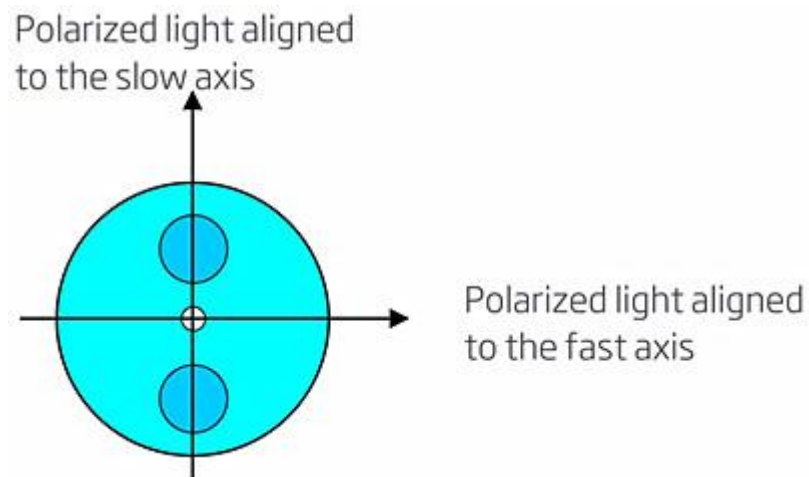
Pin	Function	Pin	Function
1	TEC +	8	NC
2	Thermistors	9	NC
3	PD -	10	LD+
4	PD +	11	LD-
5	Thermistors	12	NC
6	NC	13	Case
7	NC	14	TEC -

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage temperature	Ts	-40	-	85	°C
Operating case temperature	Top	-15	-	75	°C
Forward Current	If	-	-	900	mA
Reverse Voltage	VR	-	-	2	V
Photodiode Forward Current	IFPD	-	-	2	mA
Photodiode Reverse Voltage	VRPD	-	-	10	V
TEC current	ITEC	-	0.8	1.4	A
TEC voltage	VTEC	-	1.5	3.5	V

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



Optional Configurations