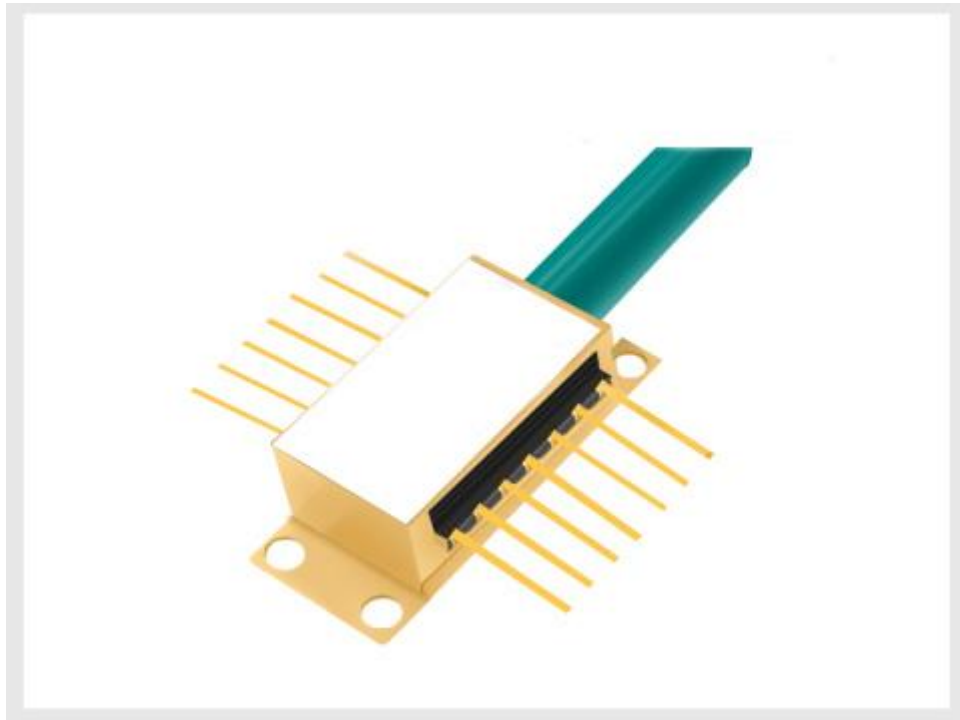


1064nm Ultra-Narrow Linewidth Single-Frequency Laser Diode



● Product Description

The 1064 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

Narrow linewidth(10~20 kHz); Single-frequency center wavelength~1064nm;

Stable output power and wavelength; Low optical noise; Low RIN value; Low power consumption

● Part Number

MP-UNL-1064-20-SA

● Application area

LiDAR | Coherent detection | Fiber optic sensing | Biomedical photonics |

Scientific research equipment | 3D mapping

● Core parameters

Center Wavelength	Output Power	Linewidth
1064nm	20mW	20kHz

● General Parameters

Optical and electrical parameters (TLD=25°C)

Specifications	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold Current	I _{th}	CW		35		mA
Center Wavelength	λ _C			1064		nm
Output Optical Power	P _f	CW		20		mW
Lorentz Linewidth*	FWHM	CW			20	kHz
Relative Intensity Noise	RIN	≥1kHz		-135		dB/Hz
Side Mode Suppression Ratio	SMSR	CW		60		dB
Polarization Extinction Ratio	PER	CW	20			dB
Optical Isolation	ISO			50		dB
TEC Setpoint Temperature	T _{TEC}	CW	15		45	°C
Operating Temperature	T _o		-20		60	°C
Operating Humidity	%		5		85	%

*Determination of Lorentz Linewidth by Time-Delay Self-Heterodyne Method

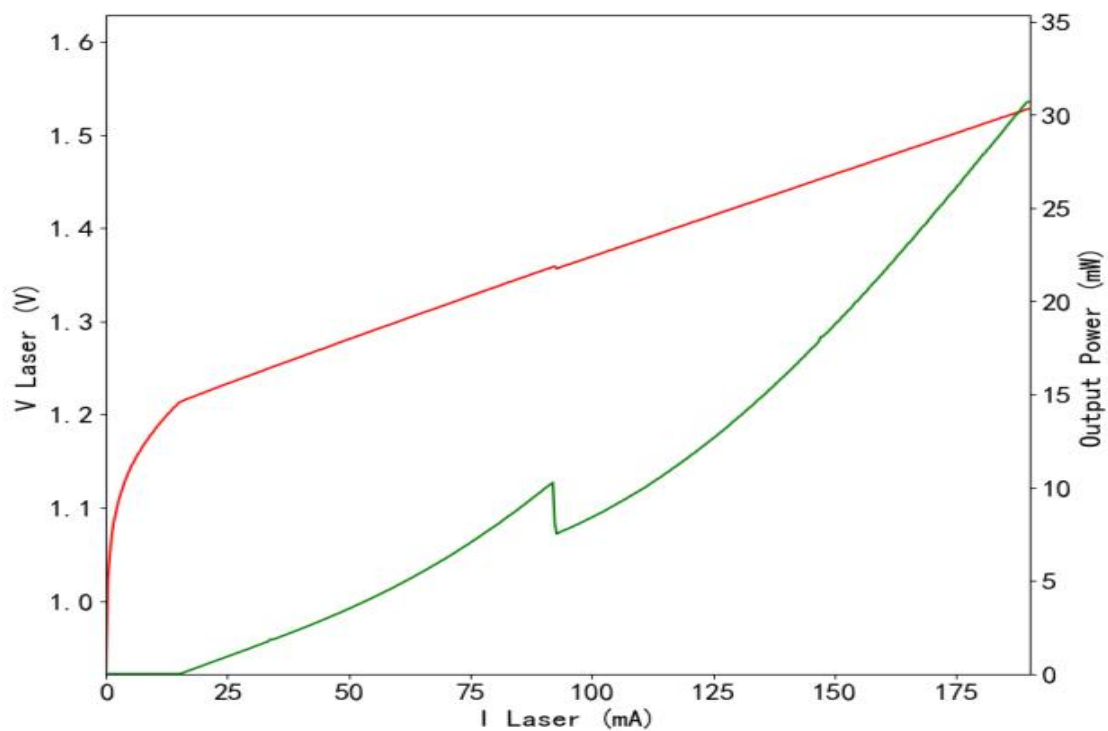
Absolute Maximum Ratings

During operation, the environmental conditions and parameter settings must not exceed the following absolute maximum values; otherwise, it may result in degraded performance, reduced product lifetime, or permanent device damage.

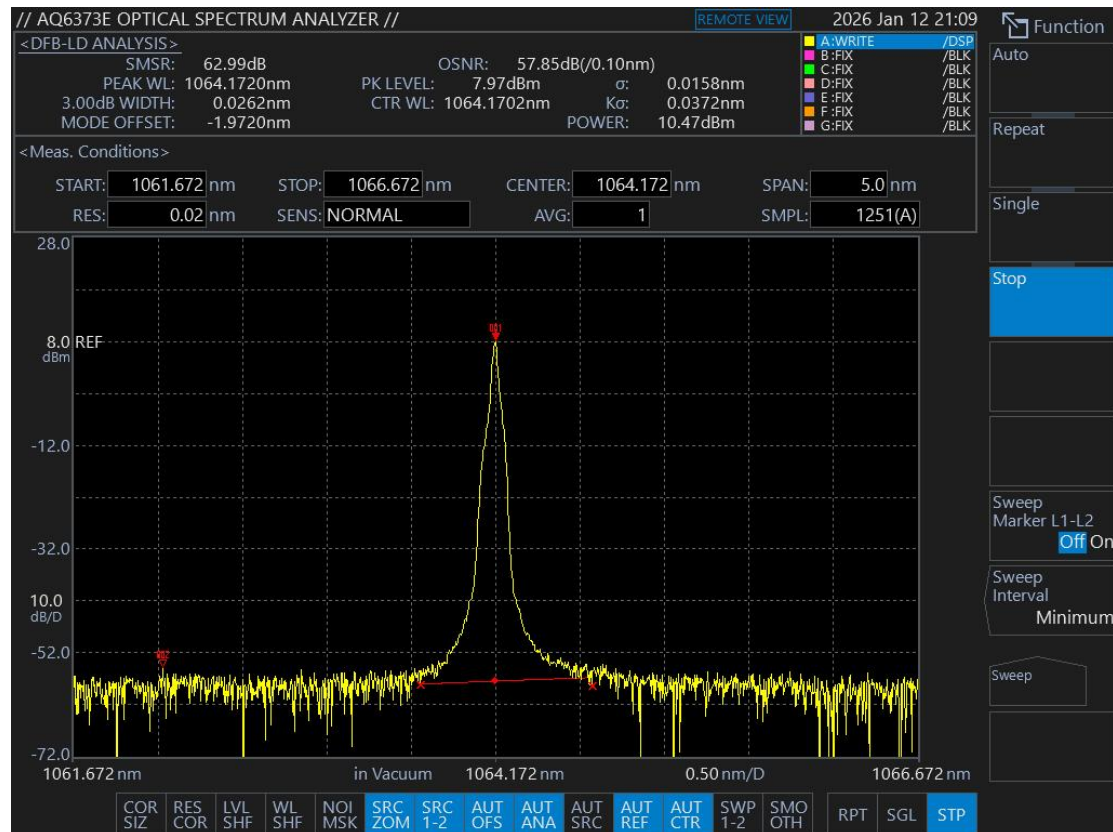
Any product issues arising from such conditions are not covered under warranty.

Specifications	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage Temperature	TS		-40		85	°C
LD Forward Voltage	VLD			1.6	1.8	V
LD Forward Current	ILD				300	mA
TEC Current	ITEC				1.5	A
TEC Voltage	VTEC				3	V

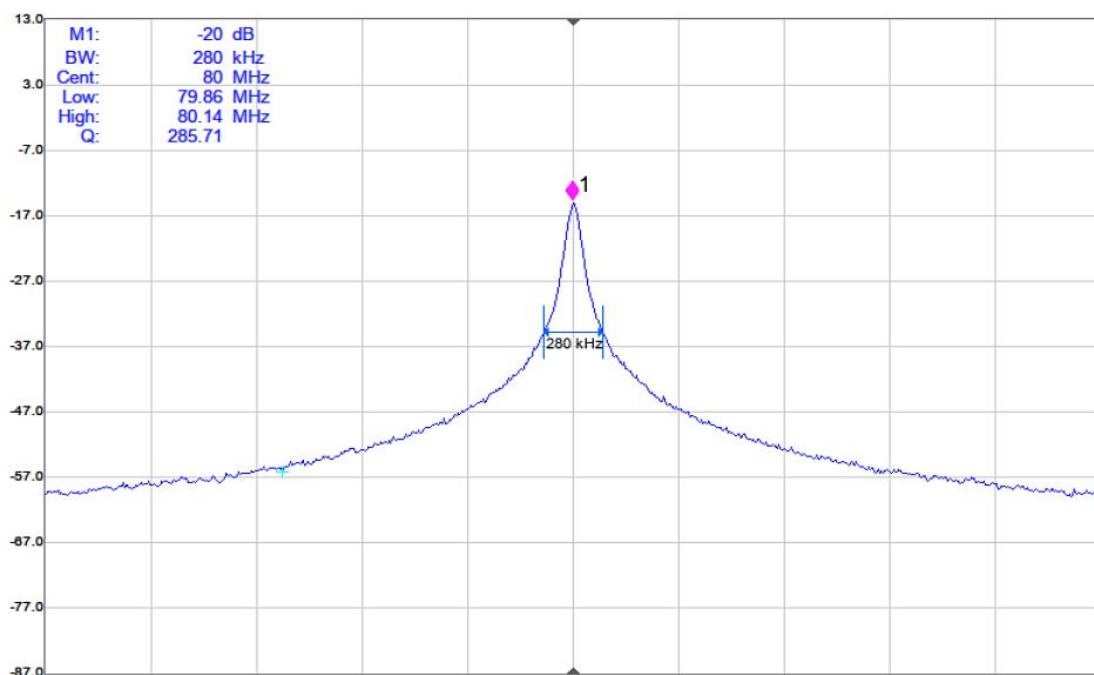
L-I-V Curve



Optical Spectrum data

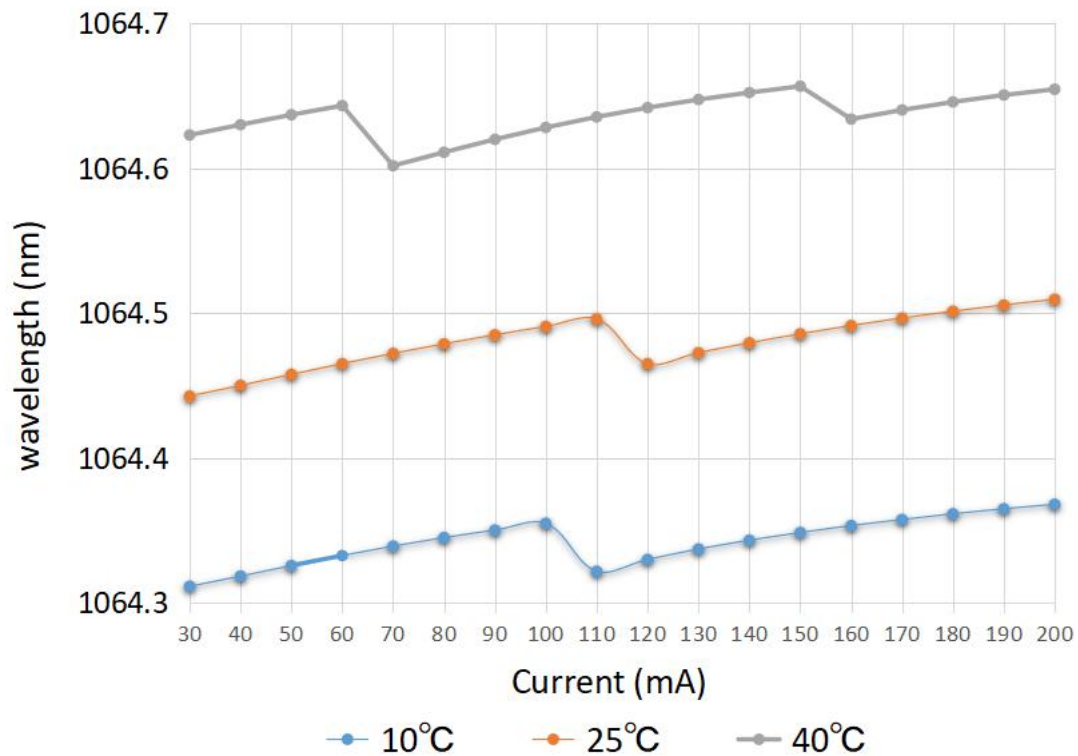


Typical Lorentz linewidth (14 kHz)

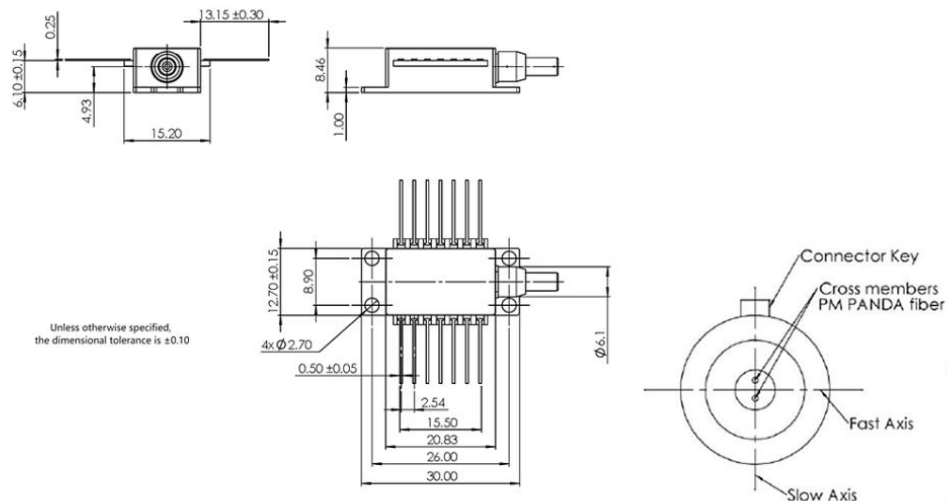


Tuning Characteristics

Tuning Characteristics



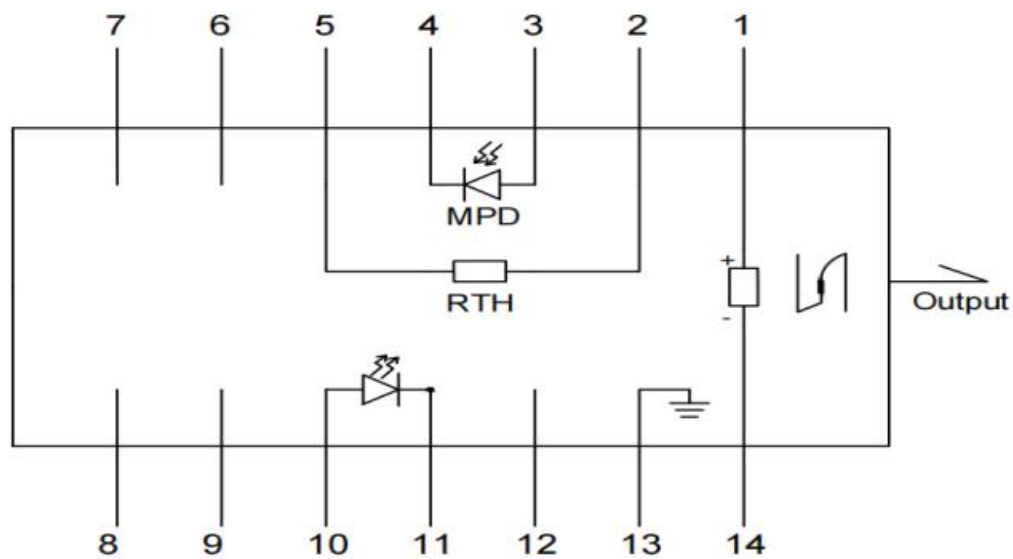
Dimensions and Pin definitions



Pigtail and connector definition

No.	Item	Parameter	Unit	Note
1	Pigtail Type	Panda type PMF $\phi 0.9\text{mm}$ red (HI1060)		SMF/PMF Optional
2	Pigtail Length	1000 ± 10	mm	
3	Connector Type	FC/APC		

Device pin definition



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 -

Optional Configurations