1550nm ultra-narrow linewidth laser diode



Description

1550nm ultra-narrow linewidth laser diode is a high-performance semiconductor laser product integrating silicon photonic chip technology, ECL external cavity laser technology, and advanced packaging technology.This product has the characteristics of narrow line width, high optical power, stable wavelength, low noise, low power consumption, and high reliability. It is a semiconductor laser product with superior performance.This product can be used in Lidar, coherent detection, optical fiber sensing, medical photonics, scientific research equipment, 3D measurement and other fields, and can also be customized according to customer application requirements.

Features

- Ultra-narrow linewidth (≤5 kHz)
- Single-frequency central wavelength 1550nm, support C-band arbitrary wavelength customization
- Stable output power and wavelength
- High output optical power
- Low RIN noise
- low power consumption
- 14Pin BF Package

Technical Advantage

- Silicon photonic integrated chip technology
- ECL External Cavity Lasers
- Tunable photonic technology
- Ultra-narrow line width

Laser Specifications

Limit parameter

During use, the environmental conditions and parameter settings should not exceed the following limit values; otherwise, it may lead to poor performance of the device, shorten the product life, or cause damage to the device. Any product problems caused by this are not covered by the warranty.

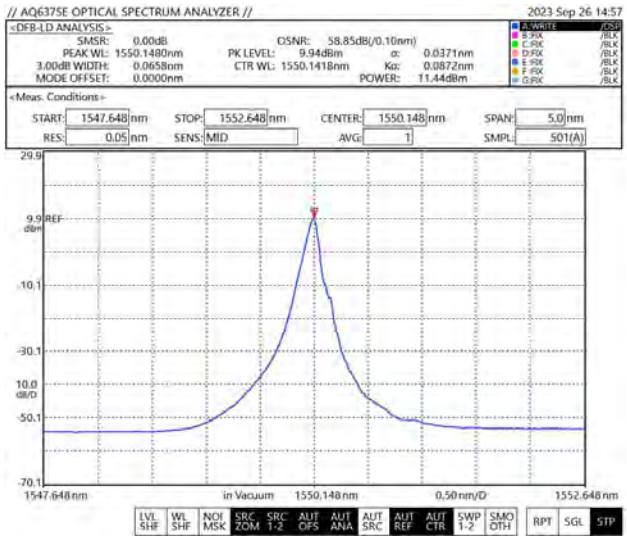
Specification	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage Temperature	TS		-40		85	℃
LD forward voltage	VLD			1.6	1.8	V
LD forward current	ILD				500	mA
TEC current	ITEC				1.5	A
TEC voltage	VTEC				3	V

Optical and electrical parameters (TLD=25℃)

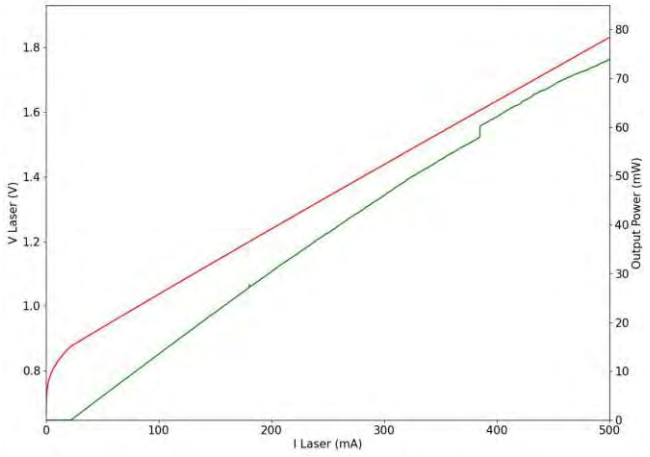
Specification	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold Current	Ith	CW		35		mA
Central Wavelength	λC		1530	1550.12	1565	nm
Fiber optical power	Pf	CW		10		mW
Lorentz line width *	FWHM	CW			5	kHz
Light Noise	PhN	light noise@10Hz		7E+05		Hz rms^2/Hz
		light noise@200Hz		6E+03		Hz rms^2/Hz
Relative Intensity Noise	RIN	≥ 1kHz			-140	dB/Hz
Side Mode Suppression Ratio	SMSR	CW		50		dB
Polarization extinction ratio	PER	CW	20			dB
Optical isolation ratio	ISO			50		dB
TEC set temperature	TTEC	CW	15		45	℃
Operating Temperature	To		-20		70	℃
Operating Humidity	%		5		85	%

*Determination of Lorentz line width by self-heterodyne method with time delay

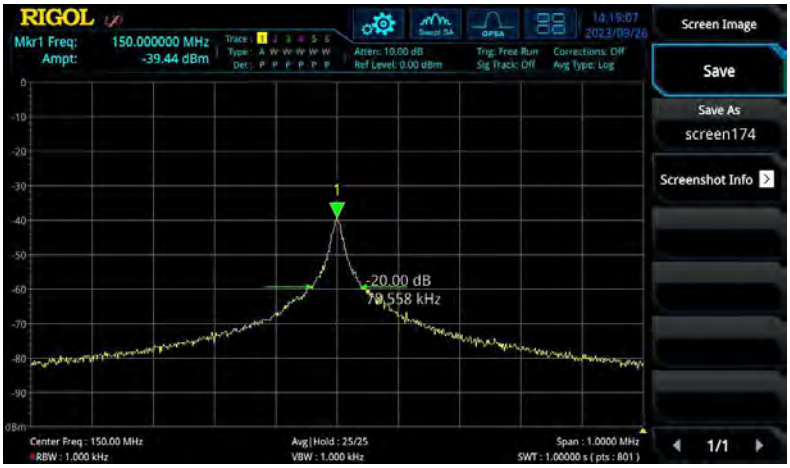
Spectrum



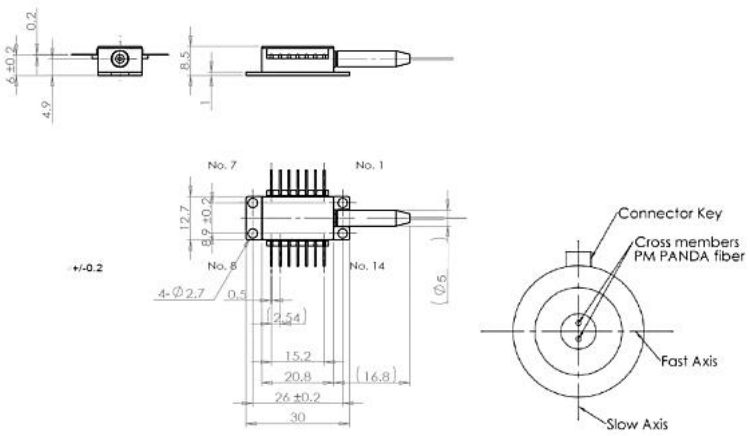
L-I Curve



Typical Lorentz line width (≤5kHz)



Outline Diagram and Die Dimensions



Pin Definition (N type pin)

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 -

Pigtail and Connector Definition

No.	Part Description	Parameter	Unit	Note
1	Pigtail type	PANDA PMF φ0.9mm red		SMF/PMF Optional
2	Pigtail Length	1200 ±10	mm	
3	Connector	FC/APC		

Application

- Lidar
- Coherent Detection
- Fiber Optic Sensing
- Medical Photonics
- Scientific research equipment
- 3D surveying and mapping