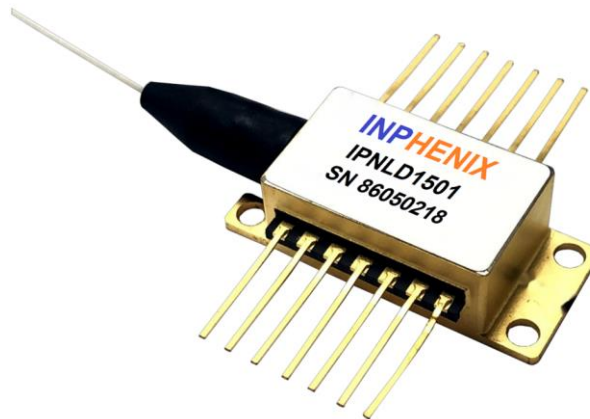


1550nm Ultra Narrow Linewidth Single Frequency Laser Device

Part Number: IPNLD1501

This product is a high performance semiconductor laser module integrating silicon photonic chip technology, ECL external cavity laser technology, advanced packaging technology, low noise, and high-precision circuit design. This device has characteristics such as ultra-narrow linewidth, high optical power output, stable wavelength, low noise, low power consumption and easy to use. This device can be used in LiDAR, coherent detection, fiber optic sensing, medical photonics, and scientific research equipment, 3D surveying and so on. It can also be customized according to customer application needs.

1. Device Outlook



2. Optical and electric characteristics

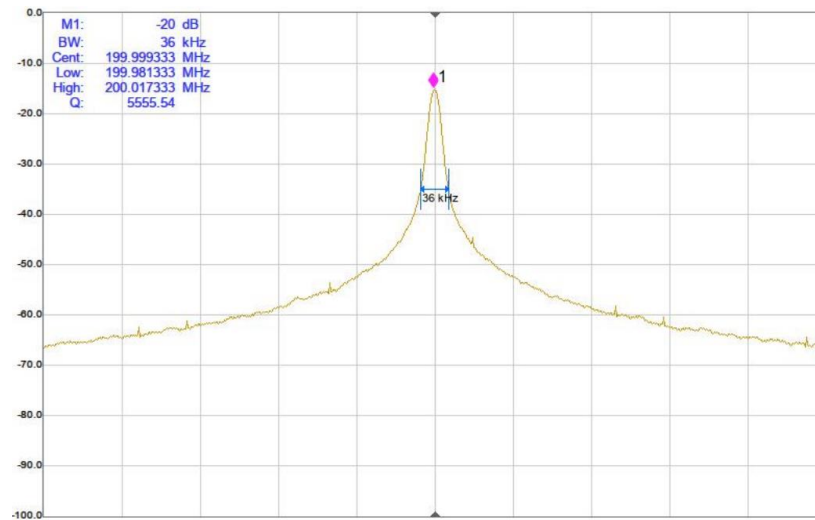
Items	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold Current	I_{th}	CW		35		mA
Central Wavelength	λ_c		1530	1550.12	1565	nm
Output Power	P_{op}	CW		20		mW
Lorentz Linewidth*	FWHM	CW			3	kHz
Relative Intensity Noise	RIN	$\geq 1\text{kHz}$			-145	dB/Hz
Side Mode Suppression Ratio	SMSR	CW		55		dB
Polarization Extinction Ratio	PER	CW	20			dB
Optical Isolation	ISO			50		dB
TEC Setting Temperature	T_{TEC}	CW	15		45	$^{\circ}\text{C}$
Operating Temperature	T_o		-20		70	$^{\circ}\text{C}$
Operating Humidity	%		5		85	%

*Testing Lorentz linewidth using delayed self-heterodyne method

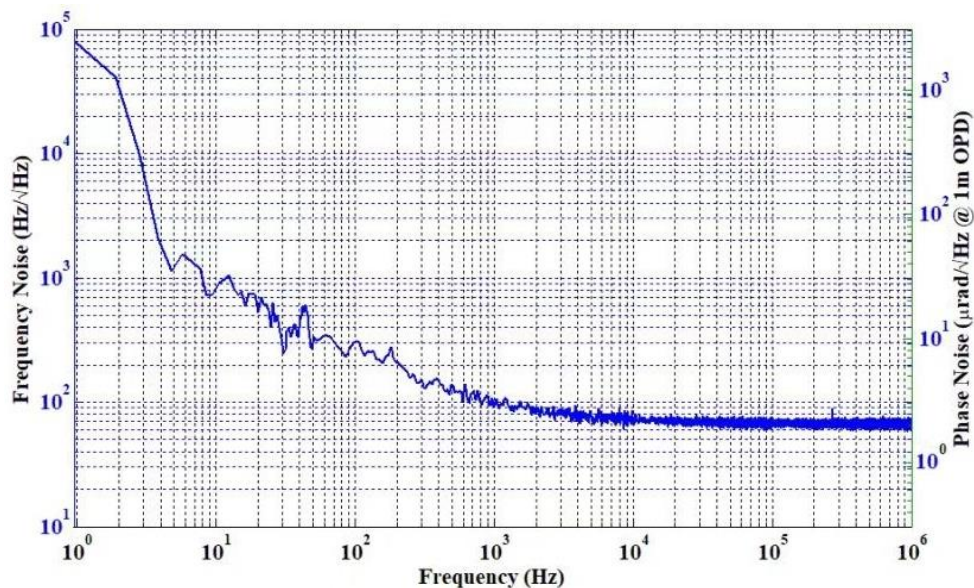
3. Absolute Maximum Ratings

Items	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage Temperature	T_s		-40		85	°C
Forward Voltage of LD	V_{LD}			1.6	1.8	V
Forward Current of LD	I_{LD}				300	mA
TEC Current	I_{TEC}				1.5	A
TEC Voltage	V_{TEC}				3	V

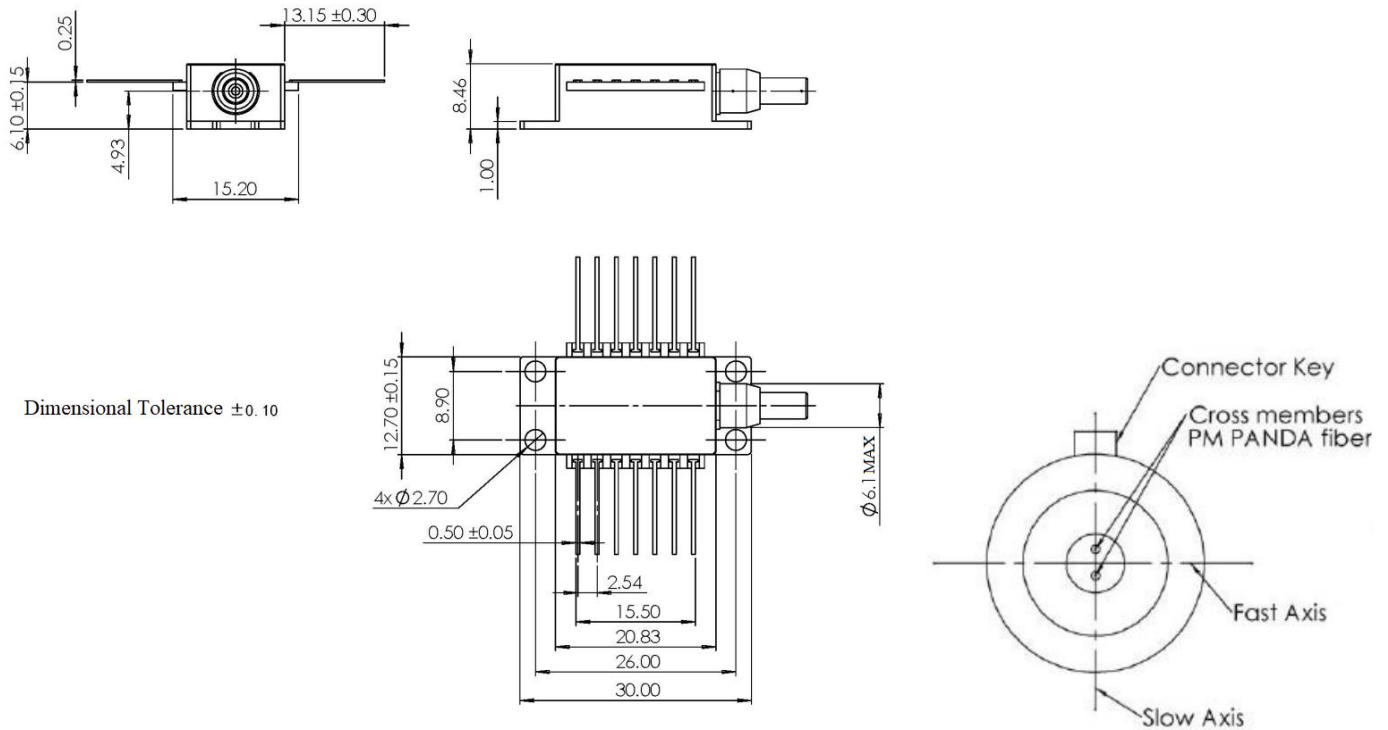
4. Typical Lorentz Linewidth (1.8kHz)



5. Phase Noise



6. Package Dimensions



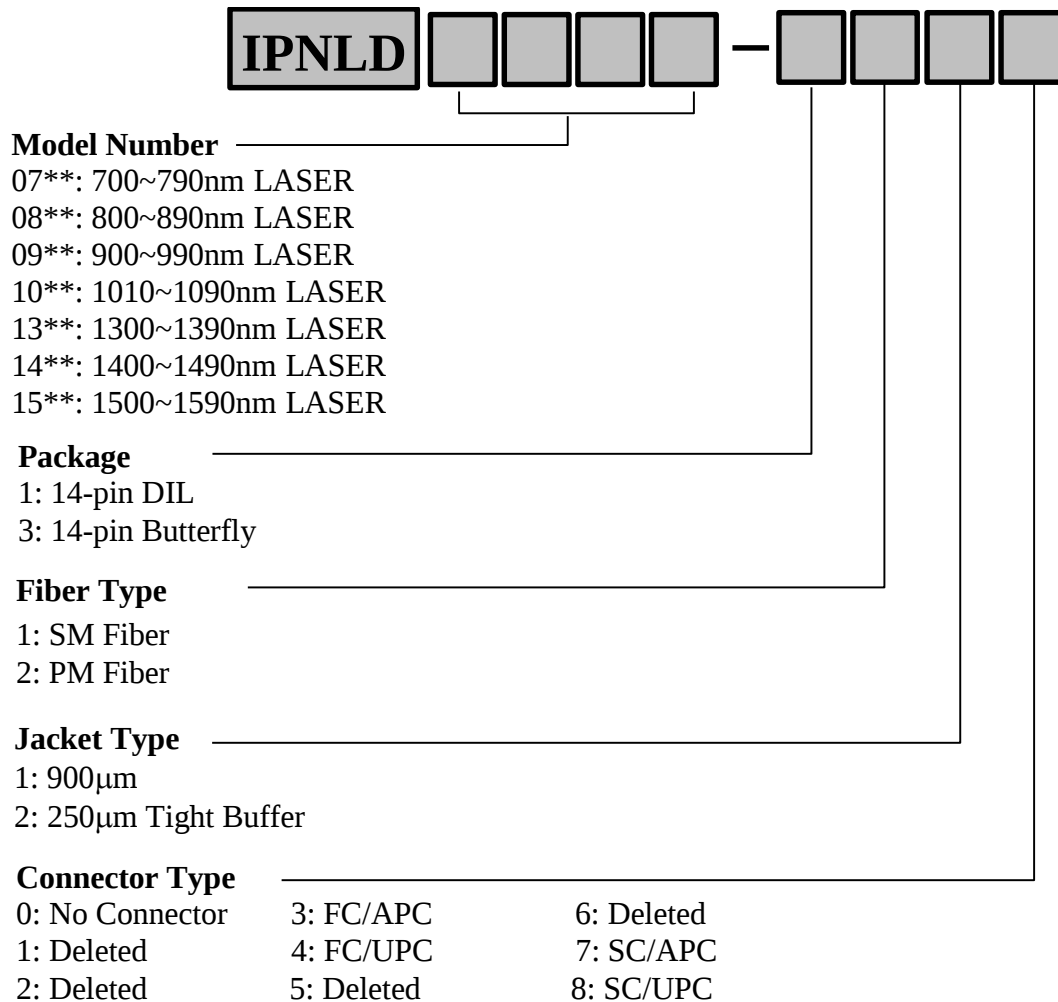
7. Pin Definitions

PIN	Note	PIN	Note
1	TEC +	8	NC
2	Thermistor	9	NC
3	PD-	10	LD+
4	PD+	11	LD-
5	Thermistor	12	NC
6	NC	13	Case
7	NC	14	TEC-

8. Fiber and Connector

Items	Parameter configuration	Unit
Built-in Tail Fiber Type	PMF Output in Panda Style, φ0.9mm, Red	
Built-in Tail Fiber Length	1200±10	mm
Connector	FC/APC	

9. Part Numbering Structure of Narrow Linewidth Laser Device



Example: IPNLD1501-3213: 1550nm Ultra Narrow Linewidth Single Frequency Laser in 14-pin Butterfly with 900μm PM fiber and FC/APC Connector

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