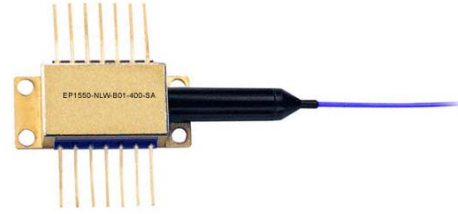


EP1550-NLW-B Series

1550nm Narrow Linewidth Laser - Butterfly



DESCRIPTION

The Eblana Photonics EP1550-NLW-B laser diode module is a cost effective, highly coherent laser source. A strained multi-quantum well Discrete Mode laser diode chip is integrated with optical isolator, thermo-electric cooler (TEC), thermistor and power monitor photodiode* in an industry standard hermetically sealed 14 pin butterfly package.

* 200kHz and 400kHz versions only

FEATURES

- Narrow Linewidth (100kHz, 200 kHz & 400kHz versions)
- Excellent wavelength control and stability
- Industry Standard 14 pin Butterfly package
- High SMSR performance

APPLICATIONS

- Optical Sensing
- Lidar
- Coherent communications
- Interferometry
- Test and Measurement

ELECTRO-OPTICAL CHARACTERISTICS (T_{sub} = 25°C, CW bias unless stated otherwise):

PARAMETER	VERSION	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS	
Spectral Line Width	Δv = 100kHz	Δv			100	kHz	250 ≤ I ≤ 300 mA	
Wavelength Tuning Range		Δλ	2			nm	T _{subMIN} < T _{sub} < T _{subMAX} , I=250mA	
Peak Wavelength		λ	1540		1570	nm	P _f = 5 mW	
Side Mode Suppression Ratio		SMSR	30	40		dB	P _f = 5 mW	
Wavelength Current Coefficient				3		pm/mA	P _f = 5 mW	
Wavelength Temperature Coefficient				0.09		nm/°C	P _f = 5 mW	
Threshold Current		I _{th}		45	50	mA		
Operating Current		I _{op}		250	300	mA	P _f = 5 mW	
Output Power in Fibre		P _f	3	5		mW	I = 250 mA	
Quantum Efficiency		η	0.03	0.04		mW/mA		
Forward Voltage		V _f		1.3	1.6	V	I = 250 mA	
Monitor Photodiode Response				n/a				no monitor photodiode
Optical Isolation				55			dB	λ = 1550nm
Thermistor Resistance		R _T	9.5	10	10.5		kΩ	
Thermistor Temp. Coefficient				-4.4		%/°C		
Spectral Line Width	Δv = 200kHz	Δv			200	kHz	150 ≤ I ≤ 200 mA	
Wavelength Tuning Range		Δλ	3			nm	T _{subMIN} < T _{sub} < T _{subMAX} , I=160mA	
Peak Wavelength		λ	1530		1560	nm	P _f = 5 mW	
Side Mode Suppression Ratio		SMSR	30	40		dB	P _f = 5 mW	
Wavelength Current Coefficient				5		pm/mA	P _f = 5 mW	
Wavelength Temperature Coefficient				0.09		nm/°C	P _f = 5 mW	
Threshold Current		I _{th}		32	37	mA		
Operating Current		I _{op}		160	200	mA	P _f = 5 mW	
Output Power in Fibre		P _f	3	5		mW	I = 160 mA	
Quantum Efficiency		η	0.03	0.04		mW/mA		
Forward Voltage		V _f		1.3	1.6	V	I = 100 mA	
Monitor Photodiode Response		R _m	10	-	100		μA/mW	
Optical Isolation				55			dB	λ = 1550nm
Thermistor Resistance		R _T	9.5	10	10.5		kΩ	
Thermistor Temp. Coefficient				-4.4		%/°C		



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ELECTRO-OPTICAL CHARACTERISTICS ($T_{sub} = 25^{\circ}C$, CW bias unless stated otherwise):

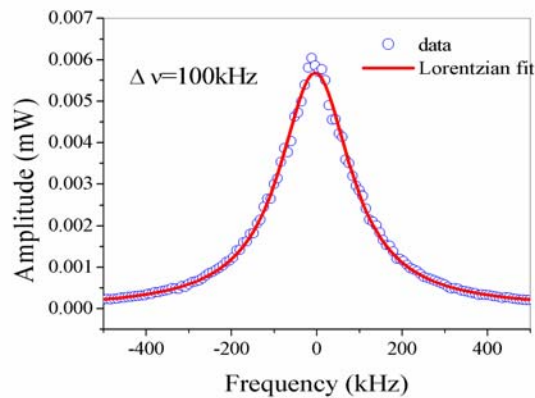
PARAMETER	VERSION	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Spectral Line Width	$\Delta v = 400kHz$	Δv			400	kHz	$100 \leq I \leq 150 mA$
Wavelength Tuning Range		$\Delta \lambda$	3			nm	$T_{subMIN} < T_{sub} < T_{subMAX}$, $I=100mA$
Peak Wavelength		λ	1530		1560	nm	$P_f = 6 mW$
Side Mode Suppression Ratio		SMSR	30	40		dB	$P_f = 6 mW$
Wavelength Current Coefficient				5		pm/mA	$P_f = 6 mW$
Wavelength Temperature Coefficient				0.09		nm/ $^{\circ}C$	$P_f = 6 mW$
Threshold Current		I_{th}		25	30	mA	
Operating Current		I_{op}		100	150	mA	$P_f = 6 mW$
Output Power in Fibre		P_f	4	6		mW	$I = 100 mA$
Quantum Efficiency		η	0.05	0.08		mW/mA	
Forward Voltage		V_f		1.3	1.6	V	$I = 100 mA$
Monitor Photodiode Response		R_m	10	-	100	$\mu A/mW$	
Optical Isolation				55		dB	$\lambda = 1550nm$
Thermistor Resistance		R_T	9.5	10	10.5	k Ω	
Thermistor Temp. Coefficient				-4.4		%/ $^{\circ}C$	

ABSOLUTE MAXIMUM RATINGS:

PARAMETER	VERSION	MIN	MAX	UNIT	
Forward Current (LD)	$\Delta v = 100kHz$		350	mA	
	$\Delta v = 200kHz$		250	mA	
	$\Delta v = 400kHz$		180	mA	
TE Cooler Current (I_c)	All Versions		1.5	A	
Reverse Voltage (LD)			2	Volts	
Reverse Voltage (PD)			20	Volts	
Case Temperature (T_{case}) $T_{sub} = 25^{\circ}C$ *			-20	65	$^{\circ}C$
Chip Submount Temperature (T_{sub})			0	30	$^{\circ}C$
Storage Temperature		-40	85	$^{\circ}C$	

* For $T_{sub} < 25^{\circ}C$, Max Case Temperature should be derated to $T_{case MAX} = T_{sub} + 40^{\circ}C$

TYPICAL SPECTRUM (100kHz version):



Delayed self heterodyne spectrum at 250mA



PACKAGE:

The EP1550-NLW-B product series is offered in a 14 Pin Butterfly package - see package outline drawing below (Fig 1). The package pinout is specified in Fig 2.

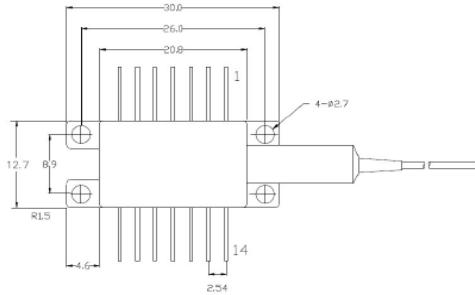


Fig. 1 - Package Outline

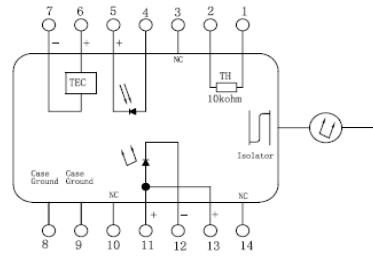
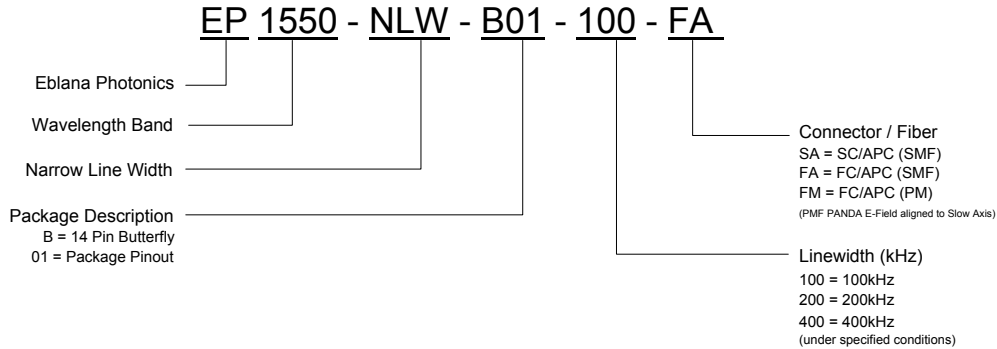


Fig. 2 - Pinout "01"

HOW TO ORDER (example):

Please construct the part number you require using the following information.



LASER SAFETY:

Class 3R Laser Product

This is a Class 3R Laser Product as defined by International Standard IEC 60825-1, Edition 2. Invisible Laser radiation is emitted from the end of the fiber or connector. Avoid direct eye exposure to the beam. Laser safety labels are not attached to the module due to space limitations but instead are affixed to the outside of the shipping carton.

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