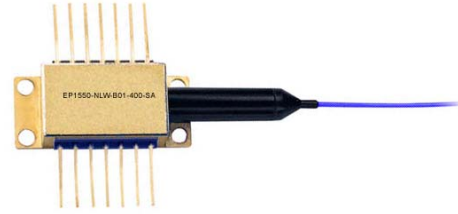


EP1550-NLW-B Series

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°C, CW bias unless stated otherwise):

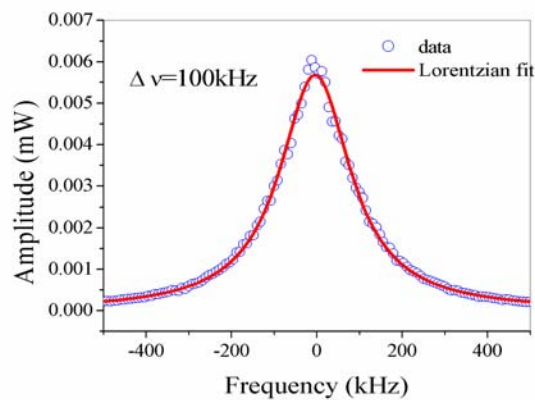
| PARAMETER | VERSION | SYMBOL | MIN | TYP | MAX | UNIT | TEST CONDITIONS |
|------------------------------------|-------------|-----------------|------|------|------|-------|--|
| Spectral Line Width | Δv = 400kHz | Δv | | | 400 | kHz | 100 ≤ I ≤ 150 mA |
| Wavelength Tuning Range | | Δλ | 3 | | | nm | 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/°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 | μA/mW | |
| Optical Isolation | | | | 55 | | dB | λ = 1550nm |
| Thermistor Resistance | | R _T | 9.5 | 10 | 10.5 | kΩ | |
| Thermistor Temp. Coefficient | | | | -4.4 | | %/°C | |

ABSOLUTE MAXIMUM RATINGS:

| PARAMETER | VERSION | MIN | MAX | UNIT | |
|---|--------------|-----|-----|-------|----|
| Forward Current (LD) | Δv = 100kHz | | 350 | mA | |
| | Δv = 200kHz | | 250 | mA | |
| | Δv = 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°C * | | | -20 | 65 | °C |
| Chip Submount Temperature (T _{sub}) | | | 0 | 30 | °C |
| Storage Temperature | | -40 | 85 | °C | |

* For T_{sub} < 25°C, Max Case Temperature should be derated to T_{case MAX} = T_{sub} +40°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.

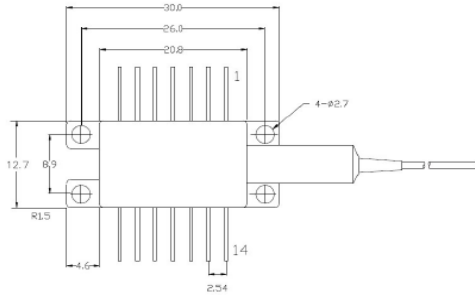


Fig. 1 - Package Outline

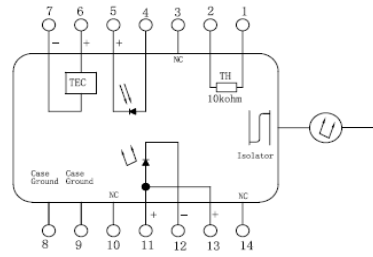
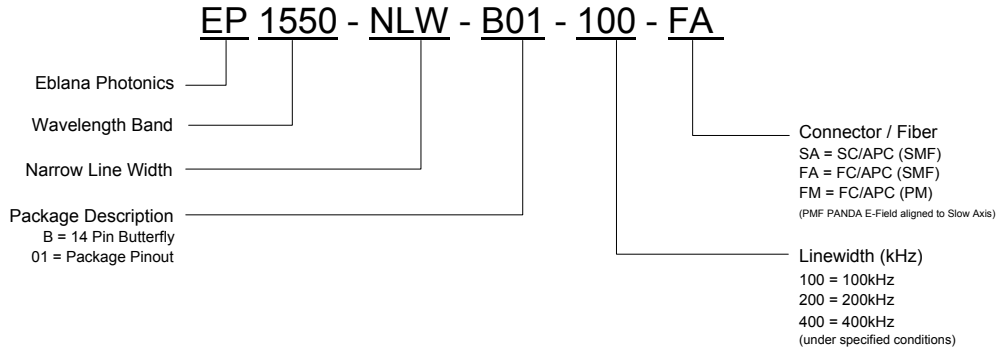


Fig. 2 - Pinout "01"

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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SALES:

Details on Eblana Photonics Sales locations may be found on Eblana Photonics website : www.eblanaphotonics.com

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