

## 980nm DFB Laser diode for Seed Laser



### Description

The PL-DFB-980-B-A81 980nm DFB laser diode module made by LD-PD is a cost effective, highly coherent laser source. The DFB laser diode chip is packaged in an industry standard hermetically sealed 14 pin butterfly package with TEC and PD Built in.

### Features

- Narrow Linewidth < 2MHz
- Excellent wavelength control and stability
- Industry Standard 14 pin Butterfly package
- Mode-Hop free tuning
- Excellent reliability
- Customer specific wavelengths available

### Application

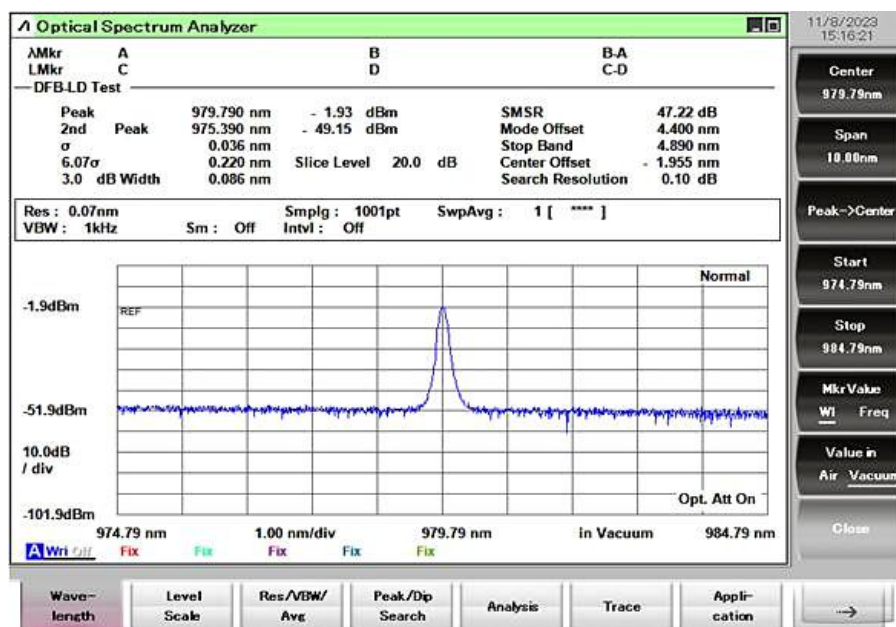
- Tunable diode laser absorption spectroscopy
- Seed laser
- Fiber laser

## Laser Specifications

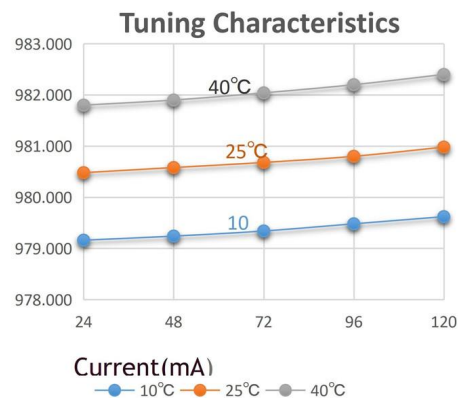
Electrical/Optical Characteristics(Tsub=25°C, CW bias unless stated otherwise)

| Parameter                      | Symbol                   | Min  | Typ   | Max  | Unit       |
|--------------------------------|--------------------------|------|-------|------|------------|
| Centre Wavelength              | $\lambda$                | 979  | 980   | 981  | nm         |
| Side Mode Suppression Ratio    | SMSR                     | 30   | 40    |      | dB         |
| Threshold Current              | I <sub>th</sub>          |      | 20    | 30   | mA         |
| Operating Current              | I <sub>op</sub>          |      | 120   | 150  | mA         |
| Chip output Power              | P <sub>f</sub>           | 40   | 50    | 60   | mW         |
| Quantum Efficiency             | $\eta$                   | 0.08 | 0.12  |      | mW/mA      |
| Current Tuning Coefficient     | $\Delta\lambda/\Delta I$ |      | 0.015 |      | nm/mA      |
| Temperature Tuning Coefficient | $\Delta\lambda/\Delta T$ |      | 0.12  |      | nm/K       |
| Forward Voltage                | V <sub>f</sub>           |      | 1.3   | 2    | V          |
| Thermistor Resistance          | R <sub>T</sub>           | 9.5  | 10    | 10.5 | K $\Omega$ |
| Thermistor Temp. Coefficient   |                          |      | -4.4  |      | %/°C       |
| Connector                      | FC/APC                   |      |       |      |            |

## Spectrum



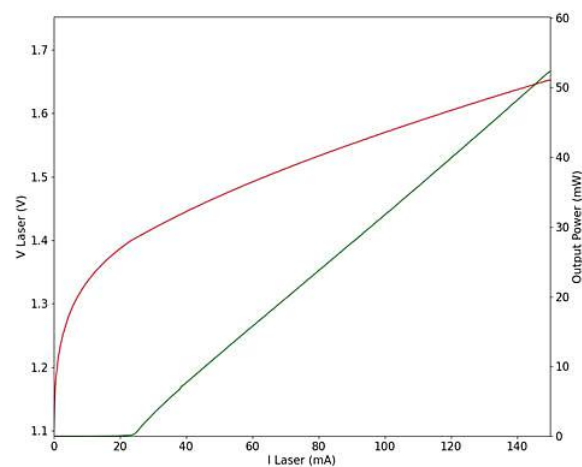
## Tuning Characteristics



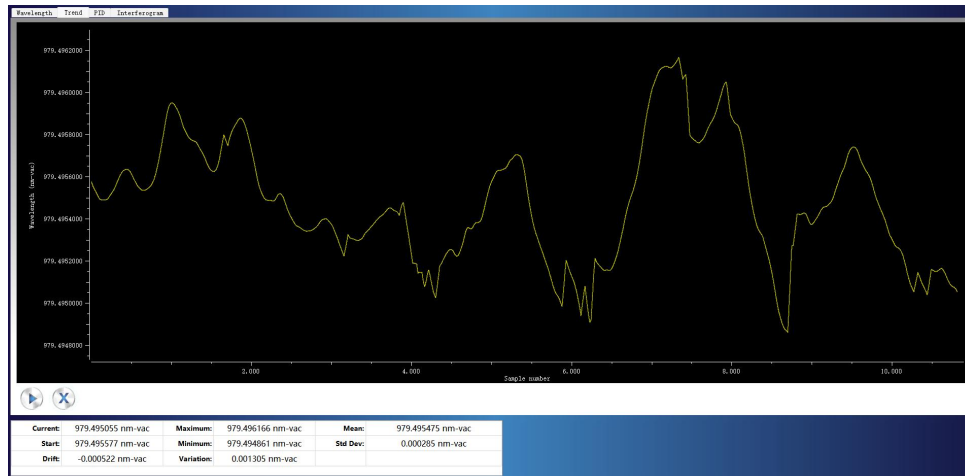
## DFB Linewidth Testing Result



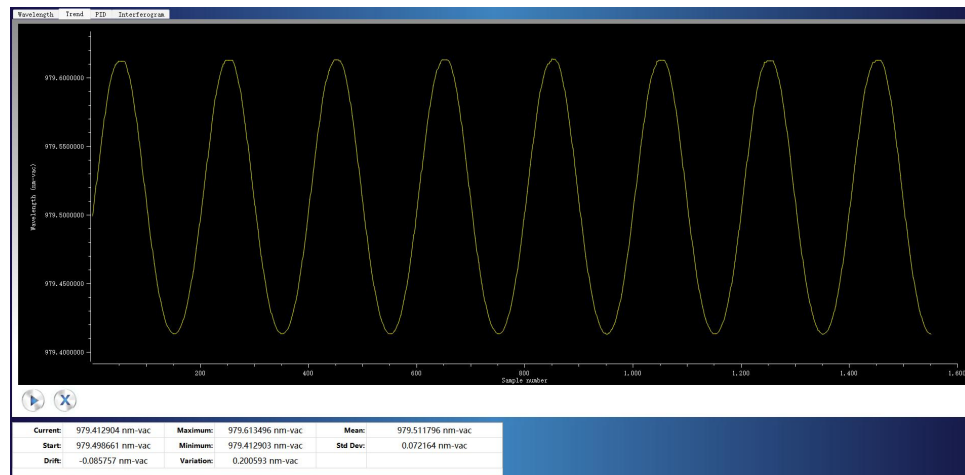
## L-I Curve



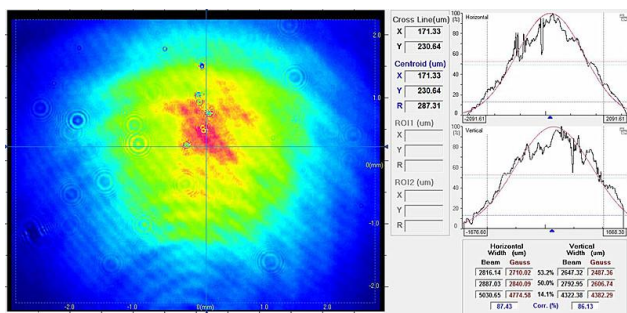
## Wavelength Stability Test Result



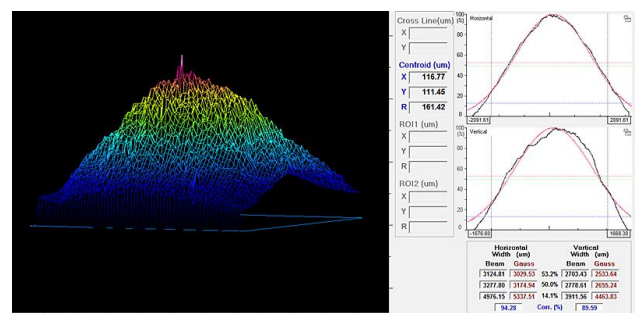
## Mode Hop Free Tuning Range



## Beam Quality

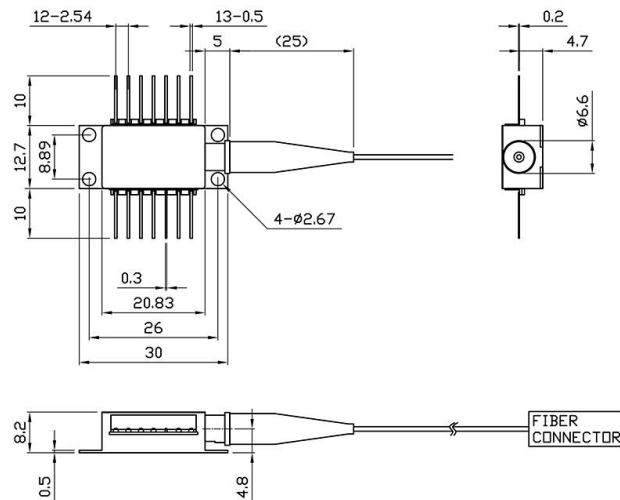


2D

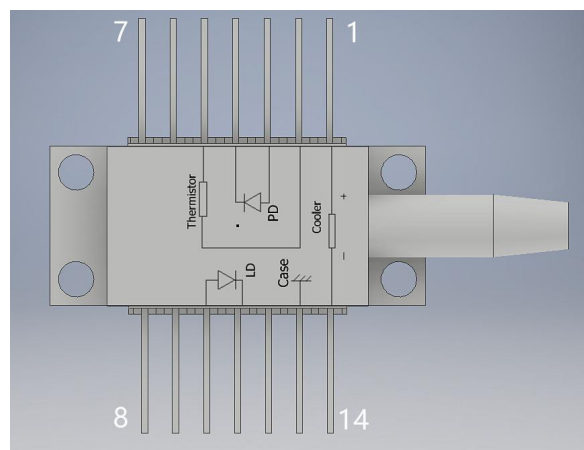


3D

## Package Size



## Pin definition



|   |                           |    |                           |
|---|---------------------------|----|---------------------------|
| 1 | Thermoelectric Cooler (+) | 8  | N/C                       |
| 2 | Thermistor                | 9  | N/C                       |
| 3 | PD Monitor Anode (-)      | 10 | Laser Anode (+)           |
| 4 | PD Monitor Cathode (+)    | 11 | Laser Cathode (-)         |
| 5 | Thermistor                | 12 | N/C                       |
| 6 | N/C                       | 13 | Case Ground               |
| 7 | N/C                       | 14 | Thermoelectric Cooler (-) |

## Absolute Maximum Ratings

| Item              | Unit | Min | Typ | Max |
|-------------------|------|-----|-----|-----|
| Case Temperature  | °C   | -5  | 25  | 70  |
| Chip Temperature  | °C   | +10 | 25  | 40  |
| Operating Current | mA   | 0   | 180 | 250 |

|                      |   |     |     |     |
|----------------------|---|-----|-----|-----|
| Forward Voltage      | V | 0.8 | 1.2 | 2.1 |
| TEC Current          | A | -   | 1.2 | 1.2 |
| Reverse Voltage (LD) | V | -   | -   | 2.0 |
| Reverse Voltage(PD)  | V | -   | -   | 20  |

## Ordering Info

PL-DFB- □□□□-☆-A8▽-XX

□□□□: Wavelength

972.4: 972.4nm

1030: 1030nm

1532: 1532nm

1392: 1392nm

1512: 1512nm

1567: 1567nm

\*\*\*\*\*

1653.7: 1653.7nm

☆ : Output Power

A: 20-40mW

B: 40-60mW

▽: Wavelength Tolerance

1: ±1nm

2: ±2nm

XX: Fiber and Connector Type

SA=HI1060+ FC/APC

SP=HI1060+ FC/PC

PA=PM980 Fiber+ FC/APC

PP=PM980 Fiber+ FC/PC