

## 1527nm DFB Tunable Laser Diode



### Description:

The PL-DFB-1527-A-1-SA-14BF 1527nm 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:

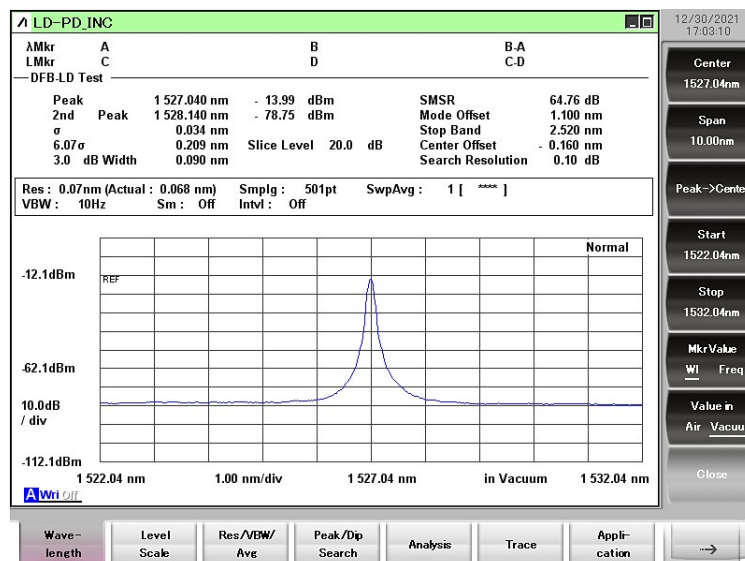
- Tunable diode laser absorption spectroscopy
- C<sub>2</sub>H<sub>2</sub> Monitoring

## Laser Specifications:

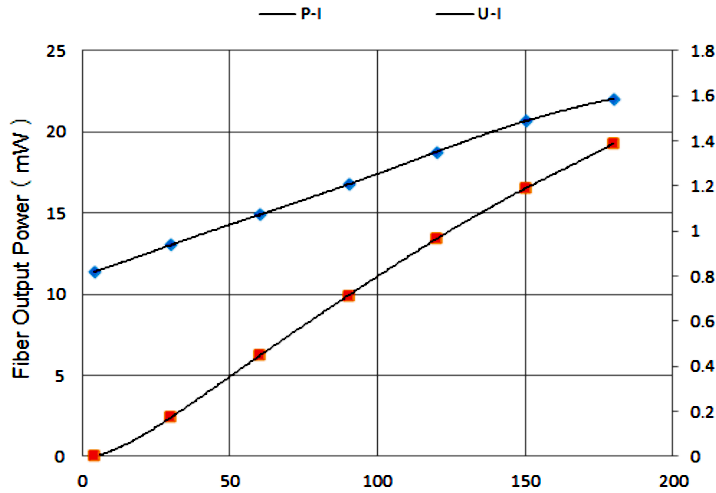
Electrical/Optical Characteristics (Tsub=25° C, CW bias unless stated otherwise)

| Parameter                      | Symbol                      | Min  | Typ   | Max  | Unit       |
|--------------------------------|-----------------------------|------|-------|------|------------|
| Centre Wavelength              | $\lambda_c$                 | 1526 | 1527  | 1528 | nm         |
| Side Mode Suppression Ratio    | SMSR                        | 30   | 40    |      | dB         |
| Threshold Current              | I <sub>th</sub>             |      | 20    | 30   | mA         |
| Operating Current              | I <sub>op</sub>             |      | 80    | 120  | mA         |
| Chip output Power              | P <sub>f</sub>              | 10   | 15    | 30   | 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                      |      |       |      |            |

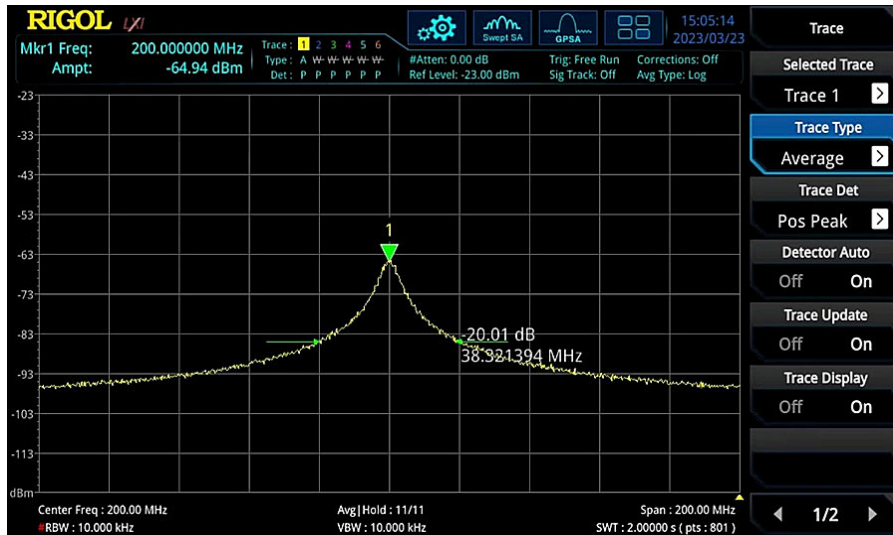
## Spectrum:



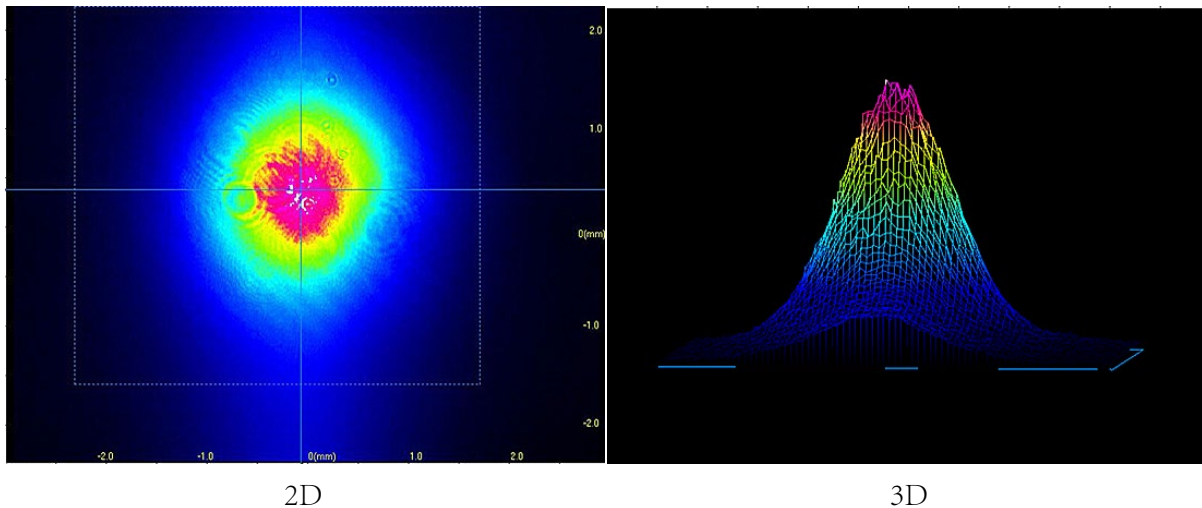
**L-I Curve:**



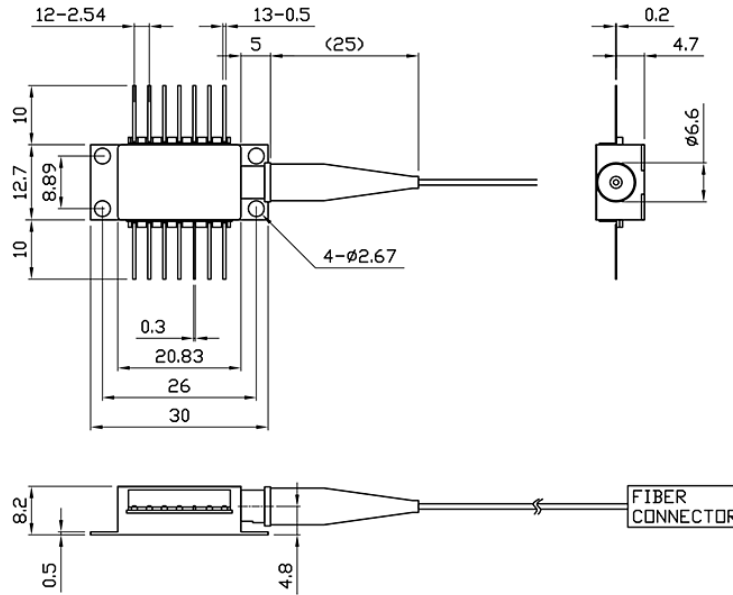
**DFB Linewidth Testing Result:**



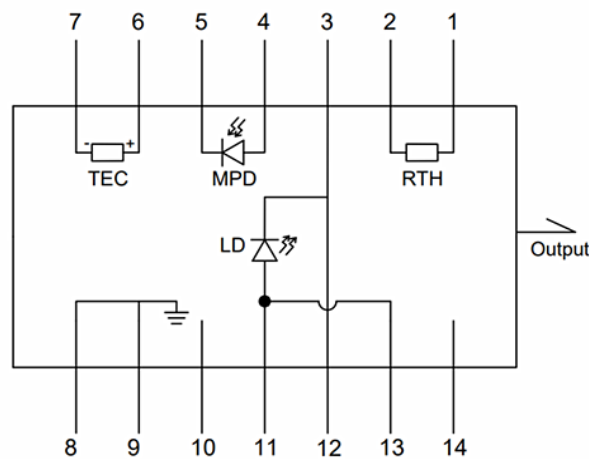
**Beam Quality:**



**Package Size:**



**Schematic Diagram (Top View):**



**Pin Connection:**

| PIN# | Function     | PIN# | Function    |
|------|--------------|------|-------------|
| 1    | Thermistor   | 8    | Case Ground |
| 2    | Thermistor   | 9    | Case Ground |
| 3    | LD(-)        | 10   | NC          |
| 4    | Detector (+) | 11   | LD(+)       |
| 5    | Detector (-) | 12   | LD (-), RF  |
| 6    | TEC (+)      | 13   | LD(+)       |
| 7    | TEC (-)      | 14   | NC          |

### Absolute Maximum Ratings:

| Item                | Unit | Min | Typ | Max |
|---------------------|------|-----|-----|-----|
| Case Temperature    | °C   | -5  | 25  | 70  |
| Chip Temperature    | °C   | +10 | 25  | 40  |
| Operating Current   | mA   | 0   | 100 | 150 |
| Forward Voltage     | V    | 0.8 | 1.2 | 1.8 |
| TEC Current         | A    | -   | -   | 1.2 |
| Reverse Voltage(LD) | V    | -   | -   | 2.0 |
| Reverse Voltage(PD) | V    | -   | -   | 20  |

### OEM Info:

PL-DFB-□□□□-☆-▽-xx-14BF

□□□□: Wavelength

1270: 1270nm

1392: 1392nm

1527: 1527nm

1530: 1530nm

1567: 1567nm

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1653.7: 1653.7nm

☆ : Output Power

A: 10mW

B: 20mW

▽ : Wavelength Tolerance

1: ±1nm

2: ±2nm

XX: Fiber and Connector Type

SA=SMF-28E+ FC/APC

SP=SMF-28E+ FC/PC

PP=PM Fiber+ FC/PC

PA=PM Fiber+ FC/APC