

# 1270nm DFB Laser diode for HF Sensing (TO39 Package)



## Description:

The PL-DFB-1270-A-A81 1270nm 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 TO39 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

## Optional:

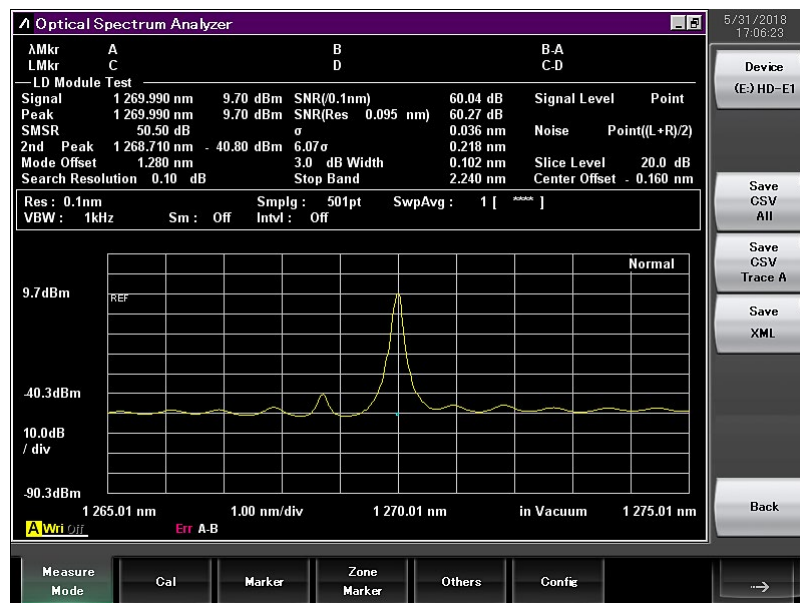
- Tunable diode laser absorption spectroscopy
- HF Monitoring

## Laser Specifications:

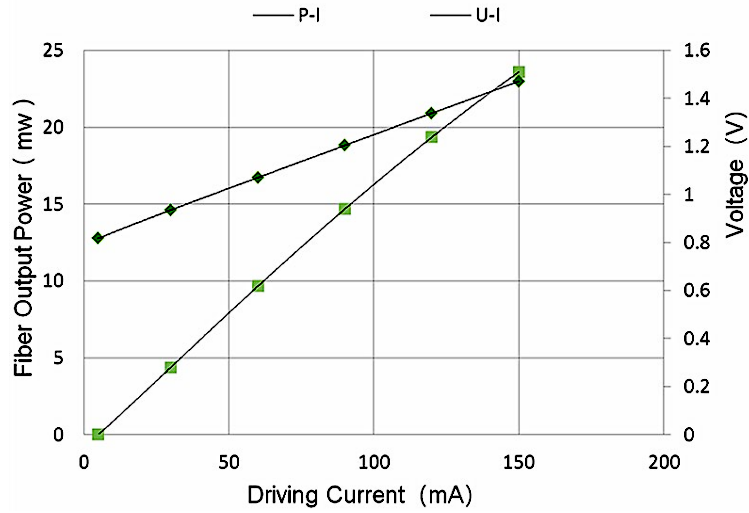
Electrical/Optical Characteristics(Tsub=25°C, CW bias unless stated otherwise)

| Parameter                      | Symbol                   | Min    | Typ    | Max    | Unit       |
|--------------------------------|--------------------------|--------|--------|--------|------------|
| Centre Wavelength              | $\lambda$                | 1269.5 | 1270.0 | 1270.5 | 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          | RT                       | 9.5    | 10     | 10.5   | K $\Omega$ |
| Thermistor Temp. Coefficient   |                          |        | -4.4   |        | %/°C       |

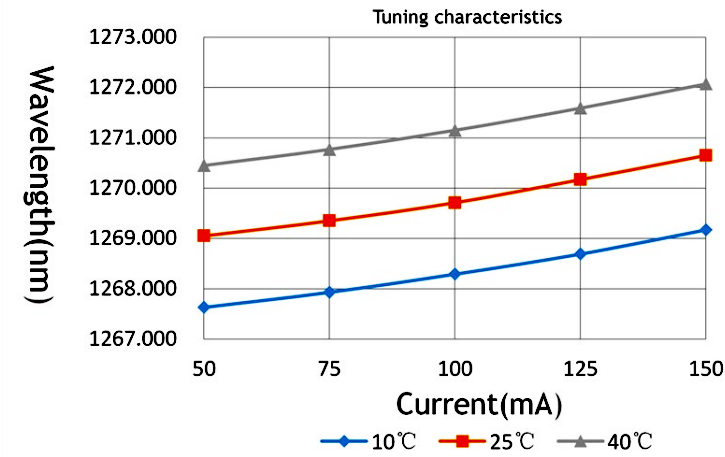
## Spectrum:



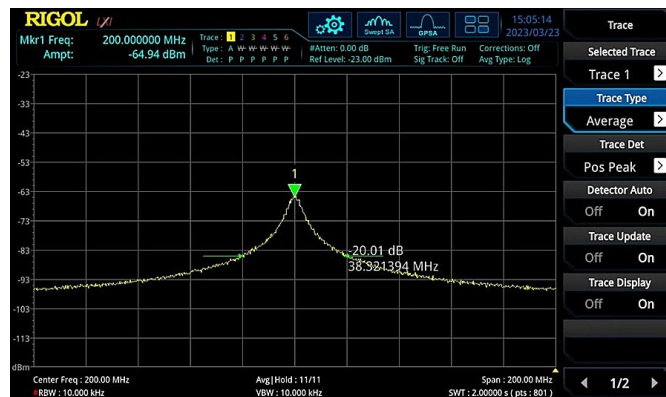
**L-I Curve:**



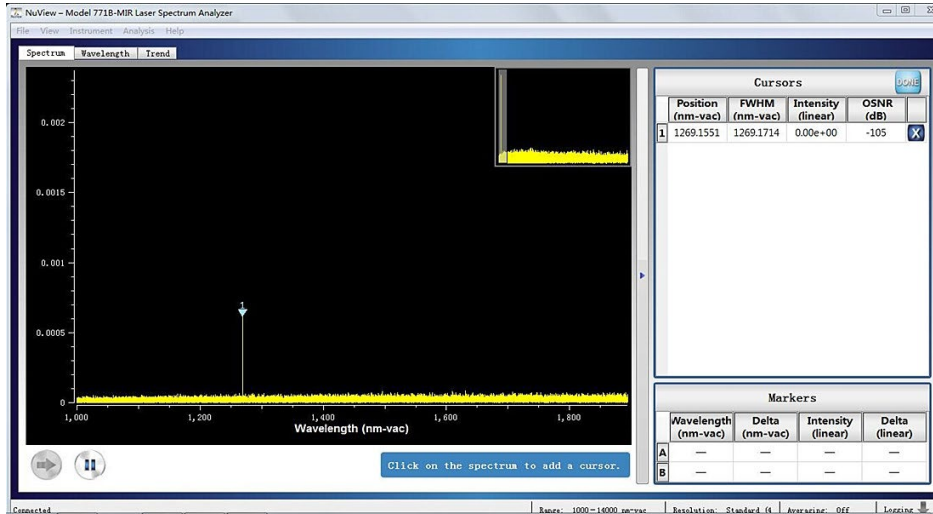
**Tuning Characteristics:**



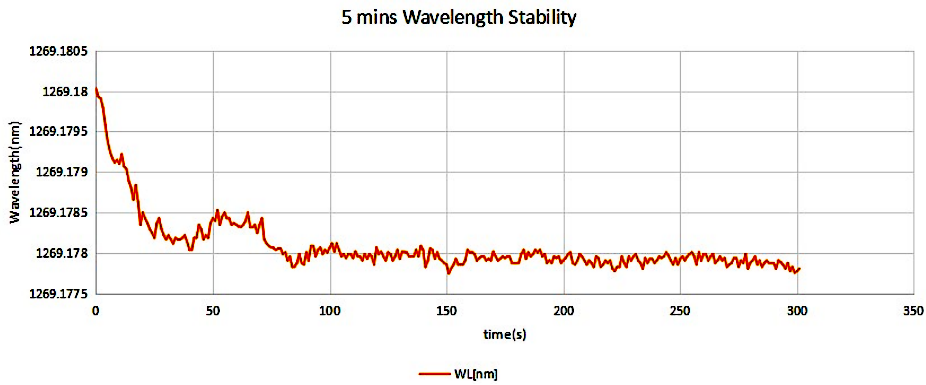
**DFB Linewidth Testing Result:**



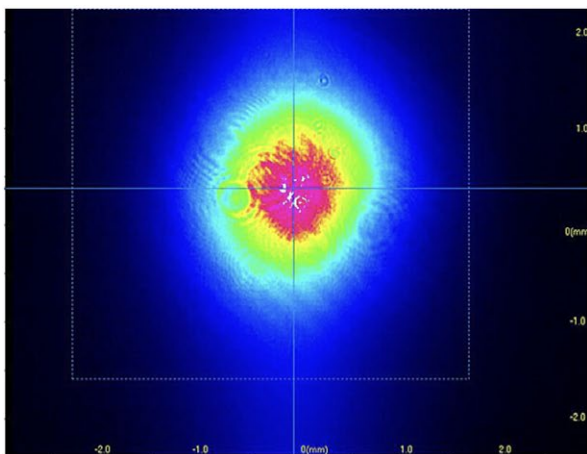
**Central Wavelength:**



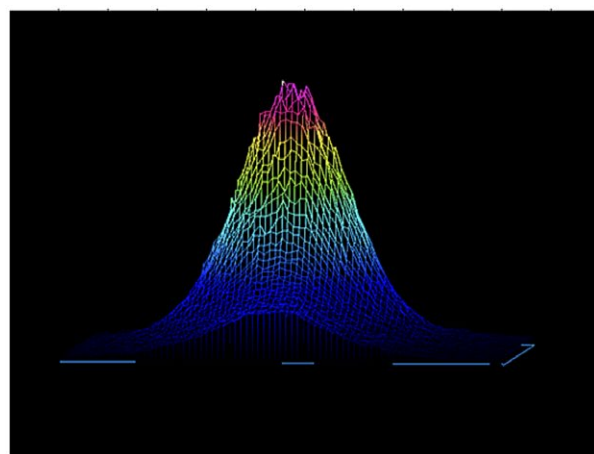
**Wavelength Stability:**



**Beam Quality:**

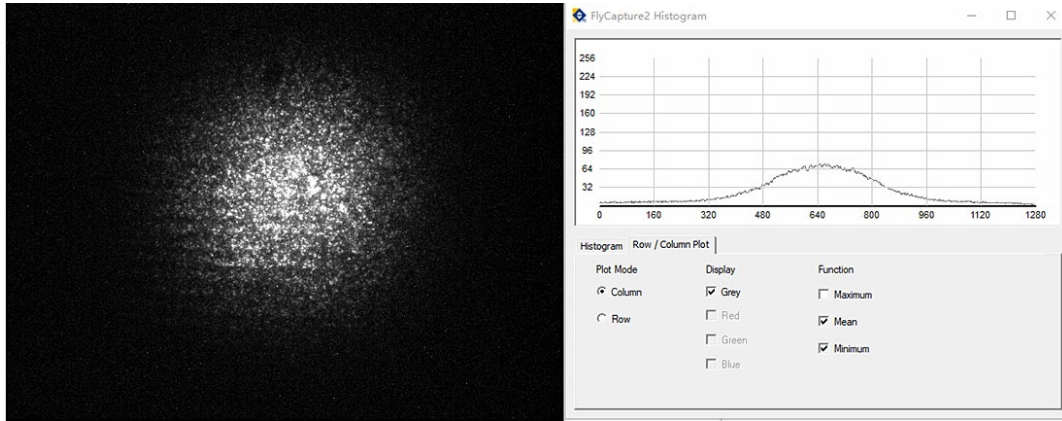


2D

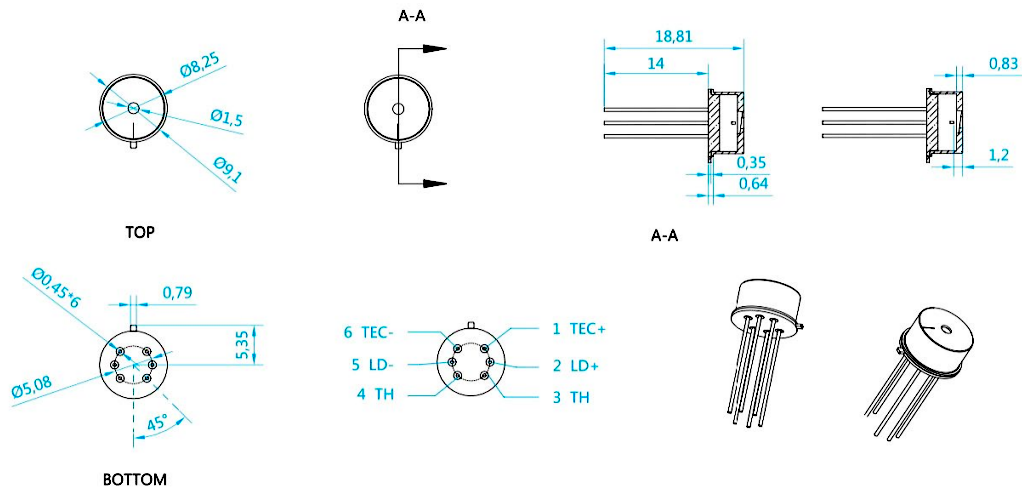


3D

**Camera Analysis:**



**Dimensions and Pin definitions:**



**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 | 120 |
| 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-□□□□-☆-A8▽-TO39

□□□□: Wavelength

1270: 1270nm

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1653.7: 1653.7nm

☆: Output Power

A: 10mW

B: 20mW

▽: Wavelength Tolerance

1: ±1nm

2: ±2nm