# 1512nm high power single mode DFB laser 20mW (TO39 package NH3 detection)

## Product Description

With optimized optical properties, the 1512nm single-mode DFB is ideal for demanding sensing system applications. The innovative chip design has suppressed high-order longitudinal and transverse modes while providing linear polarization stability. The laser has high output power, narrow linewidth and good consistency and is currently favored by domestic scientific research customers. We currently have in stock wavelength 1512nm DFB for TDLAS oxygen detection, 795nm VCSEL for Rb atomic clock experiments, and 852nm VCSEL for CS atomic cooling.

## Part Number

PL-DFB-1512-B-A81-TO39

## Product features

WUltra-high output power、 Narrow linewidth、 Internal TEC and thermistor 、

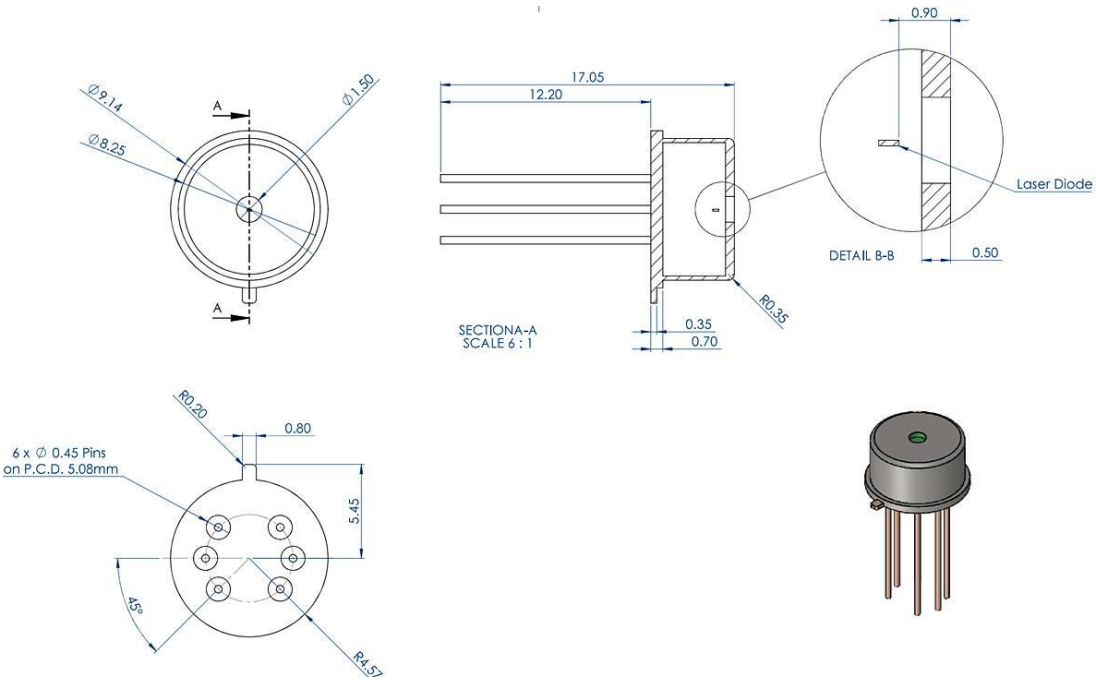
2 nm TEC tunability

## ● Application area

TDLAS oxygen analysis detection、 Optical coherence experiment

## Parameters

**Dimensional Drawing**




**Parameter**

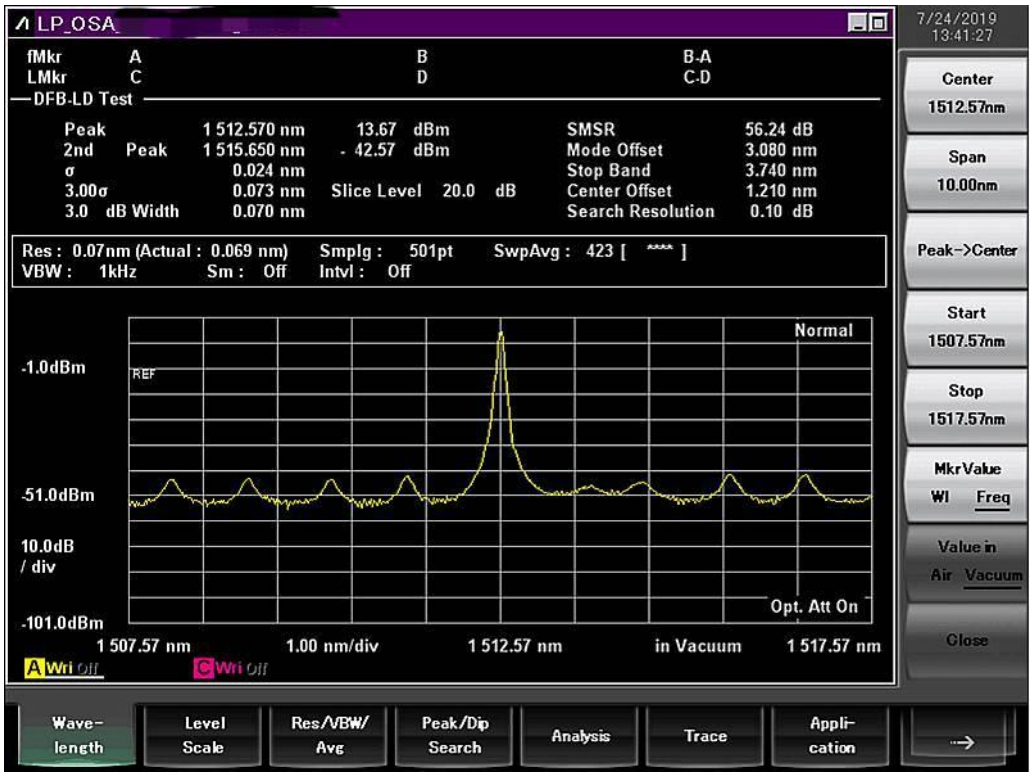
| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|---|---|---|---|---|---|---|
| Incident wavelength | λ R | 1512 | 1512.5 | 1513 | nm | T = 20° C, ITEC = 0, POP= 35mw |
| Threshold current | ITH | | 40 | | mA | T = 20° C |
| Output power | Popt | 10 | 20 | 30 | mW | T = 0 ··· 50° C |
| Threshold voltage | UTH | | 1.80 | | V | |
| Laser current | IOP | | | 130 | mA | Popt = 35mw |
| Laser voltage | UOP | | 2.0 | | V | Popt = 35mw |
| Electro-optical conversion ratio | η WP | | 12 | | % | Popt = 20mw |
| Slope efficiency | η S | | 0.74 | | W/A | T = 20° C |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3dB modulation bandwidth | ν 3dB | | 3 | | MHz | Popt = 20mw(For ESD protection diodes) |
| Relative noise intensity | RIN | | -130 | -120 | dB/Hz | Popt = 0.3 mW @ 1 GHz |
| Wavelength tuning current | | | 0.01 | | nm/mA | |
| Wavelength tuning temperature | | | 0.1 | | nm/deg | |
| Thermistor | Rthermal | 3 | | 5 | K/mW | |
| Side mode suppression | | 30 | | | dB | |
| Beam divergence | θ | 10 | | 25 | ° | Popt = 35mwFull 1/e2 bandwidth |
| Spectral bandwidth | Δ ν | | 3 | | MHz | Popt = 35mw |
| TEC current | ITEC | | | 1000 | mA | Proper heat sink required |
| NTC thermistor | | 9.5 | 10.0 | 10.5 | kΩ | T= 25° C |
| NTC temperature dependence | | 10/exp[3892 • (1/298K-1/TOP)] | | | kΩ | |

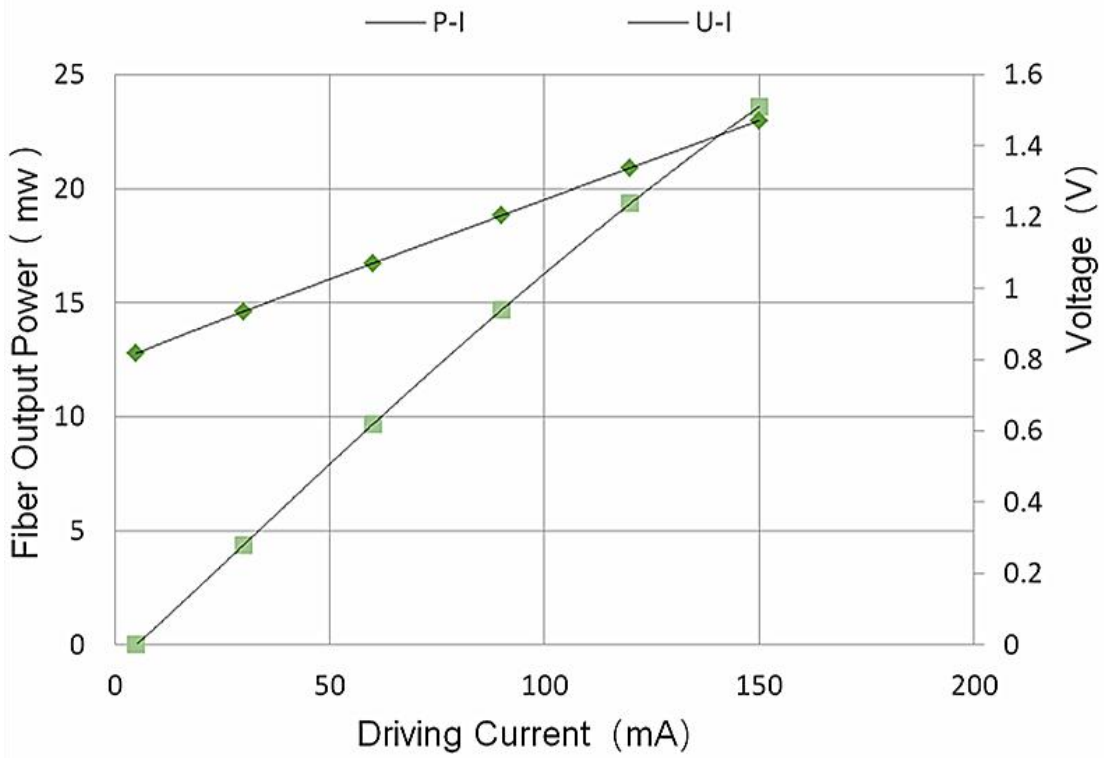

**Absolute Maximum**

| | |
|---|---|
| storage temperature | -40 ··· 125° C |
| Operating temperature | -20 ··· 80° C |
| Electric power loss | 500mW |
| Forward laser current | 130mA |
| Backward current | 10mA |
| Soldering temperature* | 270C° |
| (*TEC temperature must be below 70° C) | |

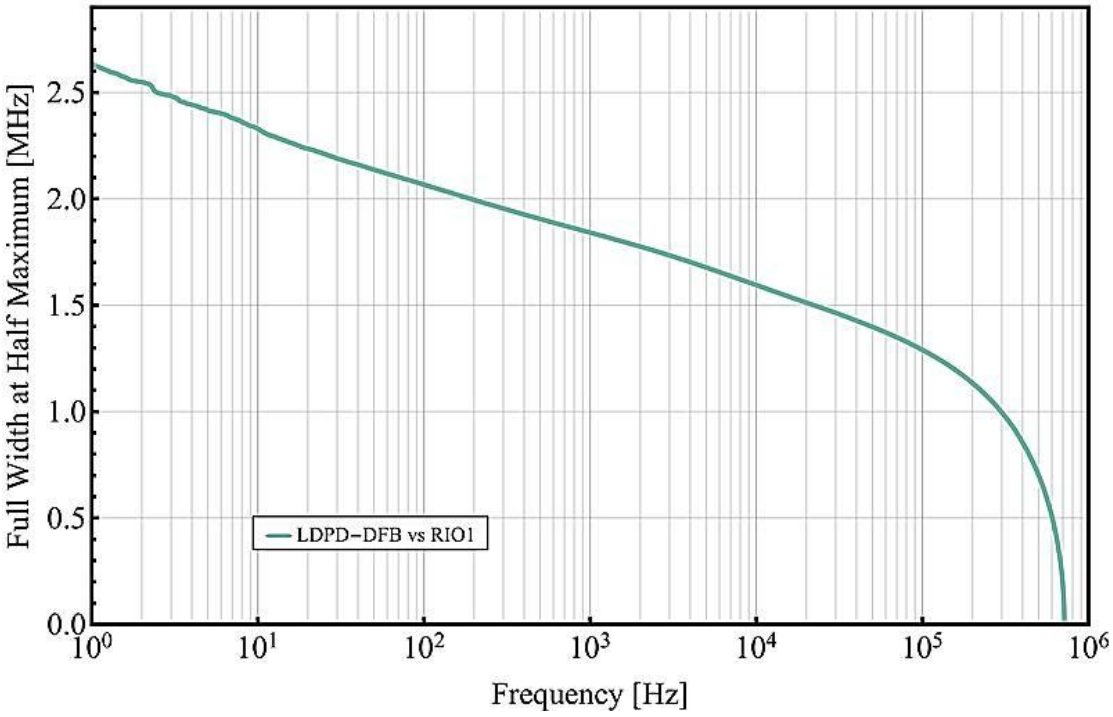
## Spectrum



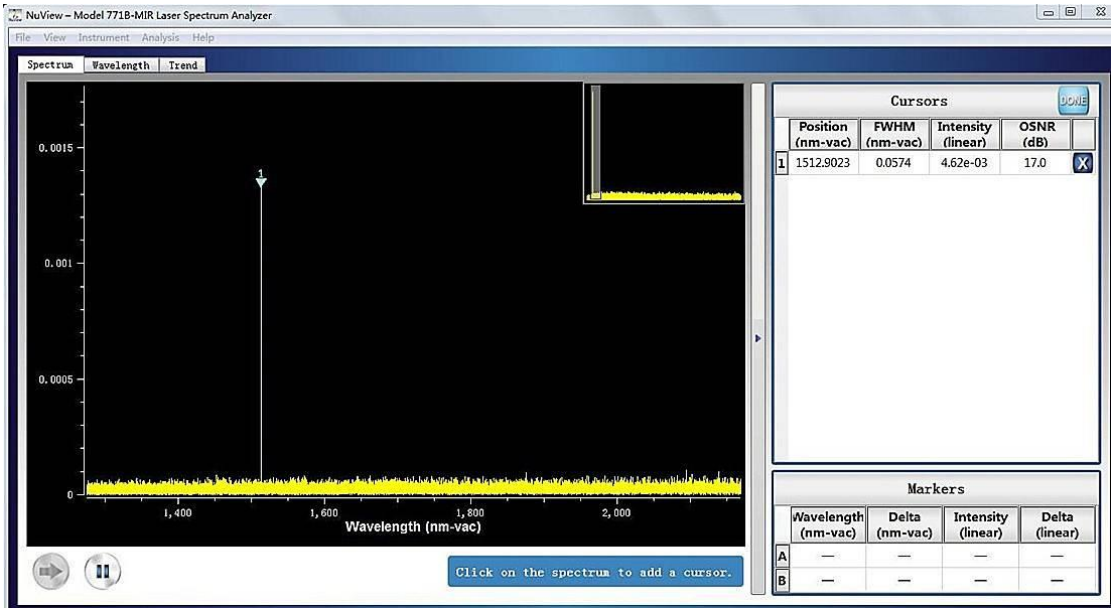

## L-I-V curve



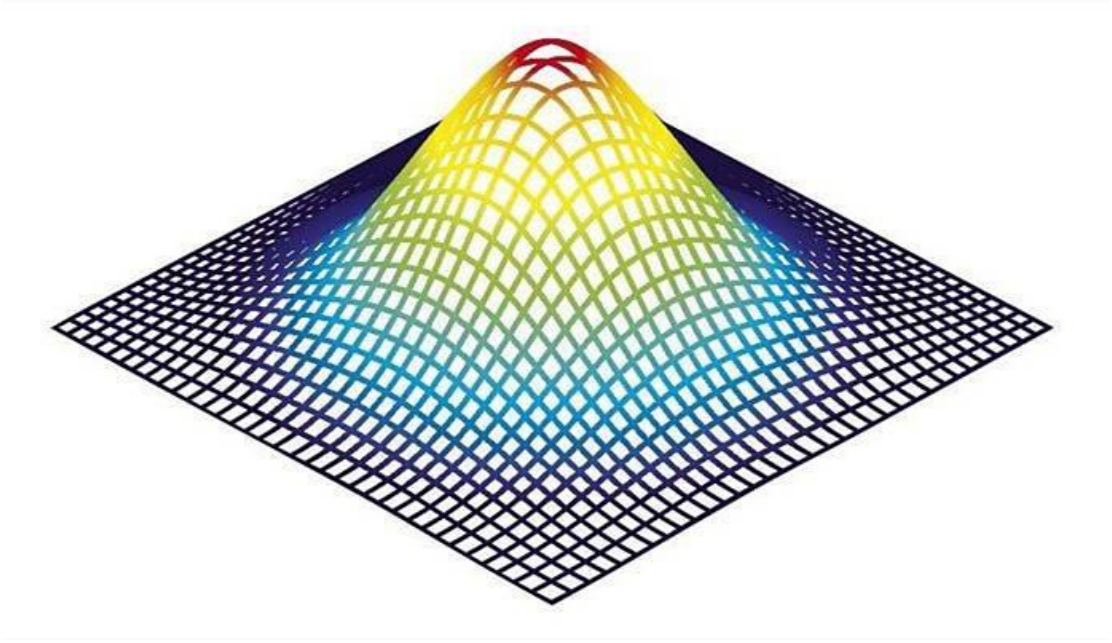
## DFB Linewidth Testing Result



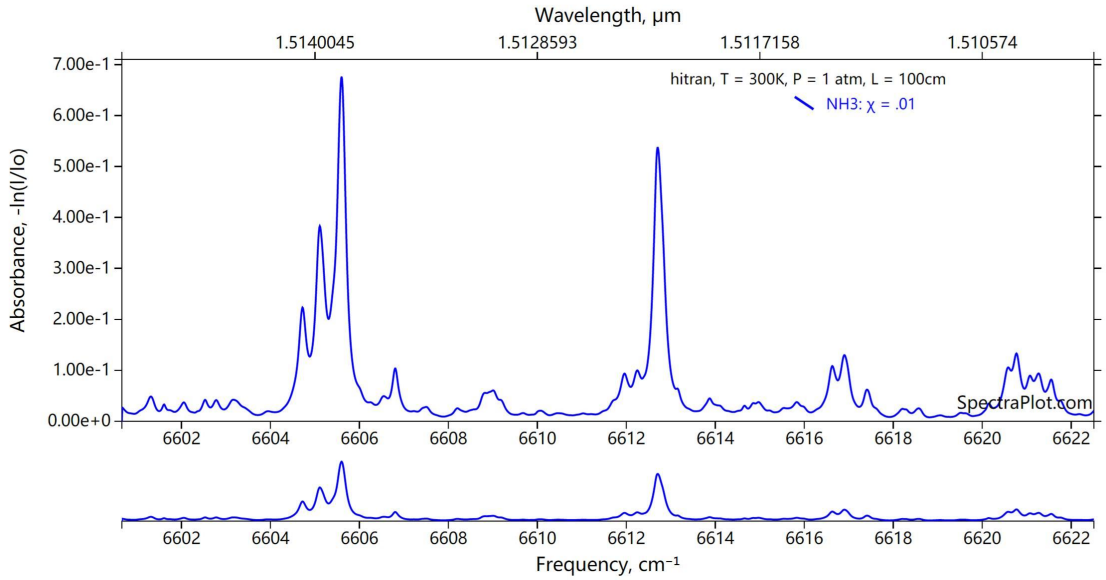

## Central Wavelength



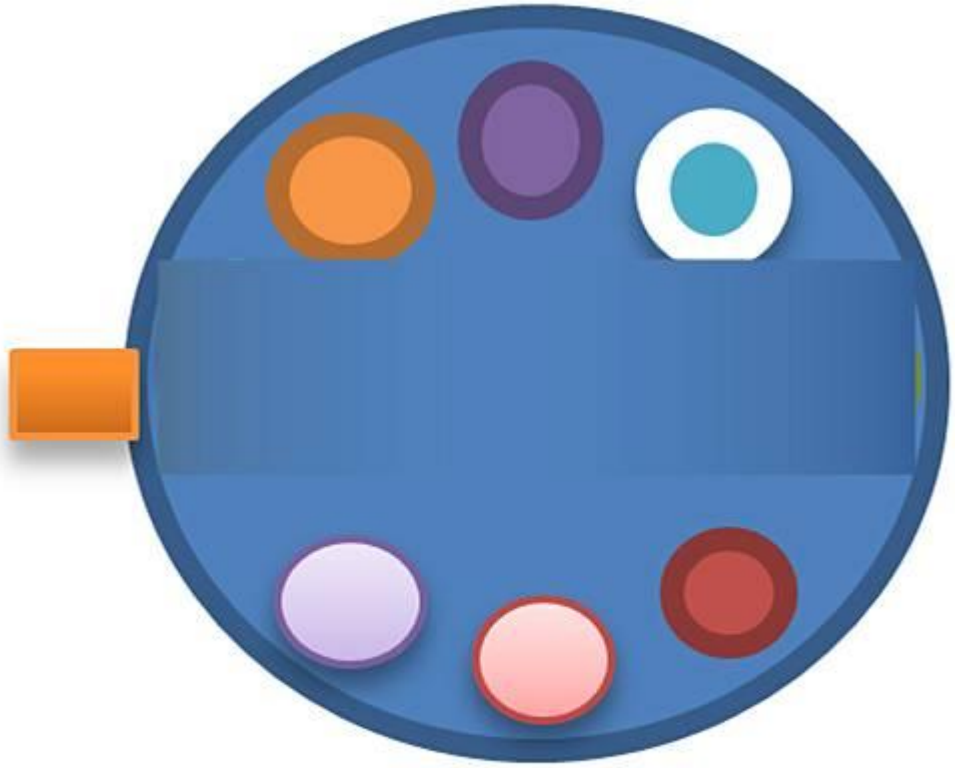
## Beam quality analysis



## Ammonia absorption spectral lines



**Pin definition**
**With TEC pin configuration**



Bottom View

| ico | SN# | pin definition | ico | SN# | pin definition |
|---|---|---|---|---|---|
| | 1 | Cooler+ | | 4 | Thermistor |
| | 2 | LD+ | | 5 | LD- |
| | 3 | Thermistor | | 6 | Cooler- |

**Ordering Information**

**PL-DFB-□□□□-☆-A8▽-TO5**

□□□□：**wavelength**

0760：760nm

1270：1270nm

1532：1532nm

1392：1392nm

1512：1512nm

1567: 1567nm

*****

1653.7: 1653.7nm

☆：**output power**

A：10mW

B：20mW

▽：**wavelength tolerance**

1：±1nm

2：±2nm