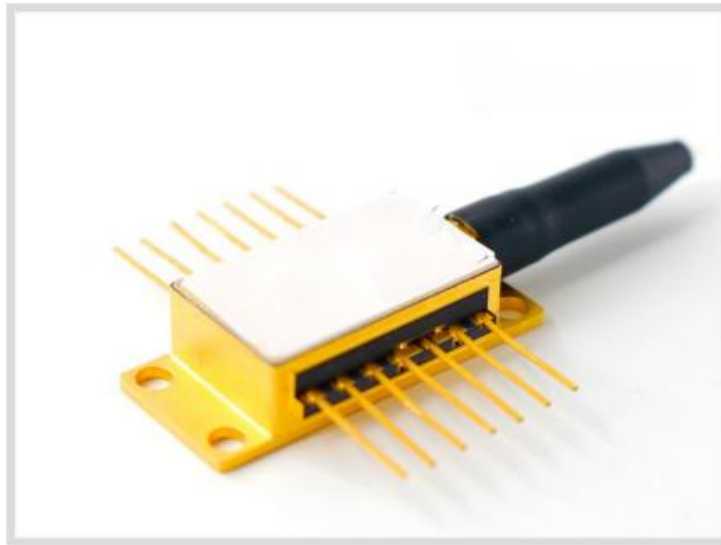


## 1576nm 15mW PM DFB Laser Diode for CO<sub>2</sub>

### Detection



- **Product Description**

1576 nm distributed feedback (DFB) laser diode module produced by idealphotonics is a cost-effective laser source with high coherence. The DFB laser diode chip adopts an industry-standard 14-pin butterfly package, integrated with a thermoelectric cooler (TEC) and a photodetector (PD), and features a hermetically sealed package.



- **Product features**

Narrow linewidth: < 2 MHz; industry-standard 14-pin butterfly package; excellent wavelength control and stability; mode-hop-free tuning; high reliability; customer-specific wavelengths available

- **Part Number**

MP-DFB-1576-15-A81-14BF-PA

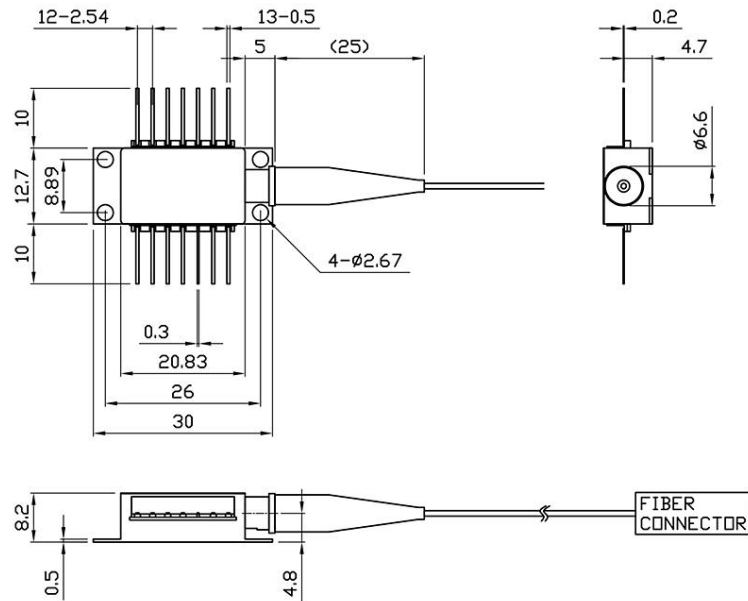
- **Application area**

Tunable Diode Laser Absorption Spectroscopy | CO<sub>2</sub>(gas) monitoring

- **Core parameters**

Central Wavelength	Output Power
1576nm	15mW

## ● Dimension Drawing



## ● General Parameters

### Detailed Parameters

### Specification Table

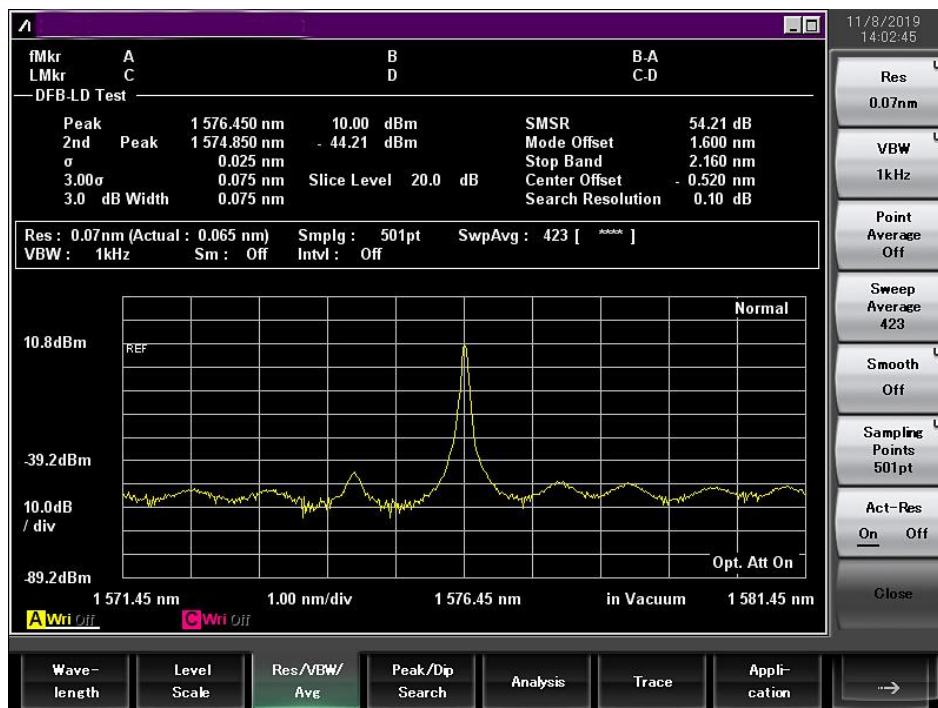
Electrical / Optical Characteristics (Tsub = 25 °C, CW bias, unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength	$\lambda$	1575.5	1576	1576.5	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

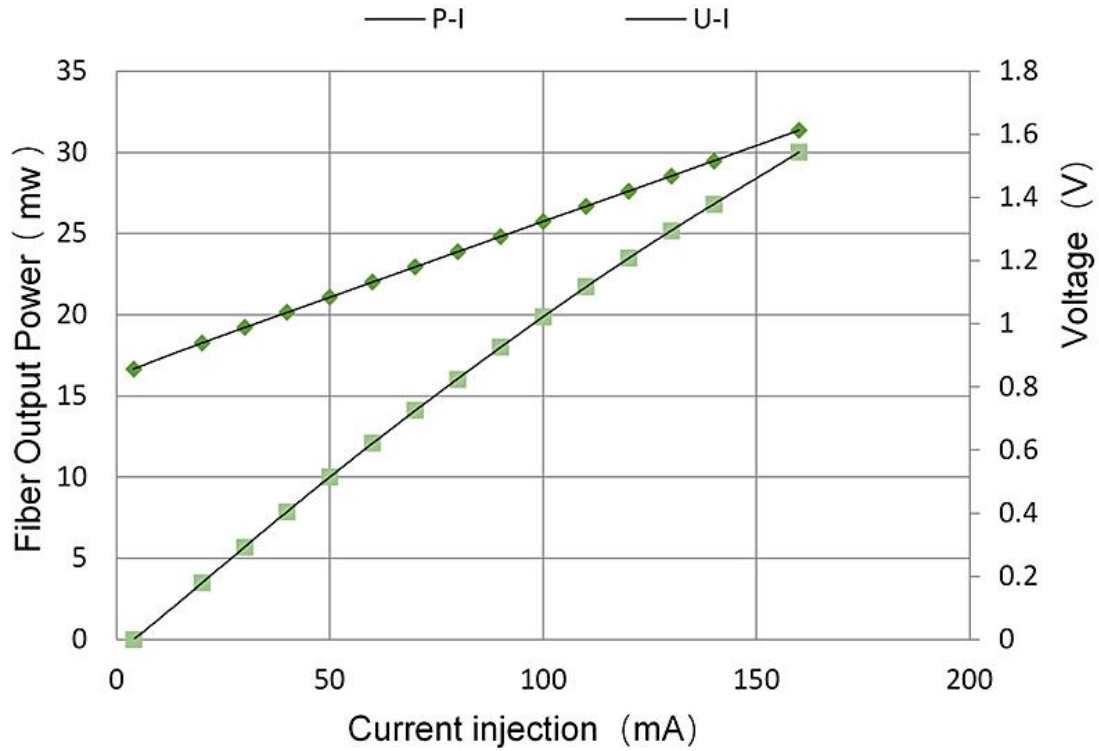


Chip Output Power	Pf	10	15	30	mW
Quantum Efficiency	$\eta$	0.08	0.12	—	mW/mA
Current Tuning Coefficient	$\Delta\lambda/\Delta I$	—	0.015	—	nm/mA
Temperature Tuning Coefficient	$\Delta\lambda/\Delta T$	—	0.12	—	nm/K
Forward Voltage	Vf	—	1.3	2	V
Thermistor Resistance	RT	9.5	10	10.5	k $\Omega$
Thermistor Temperature Coefficient	—	—	-4.4	—	%/°C

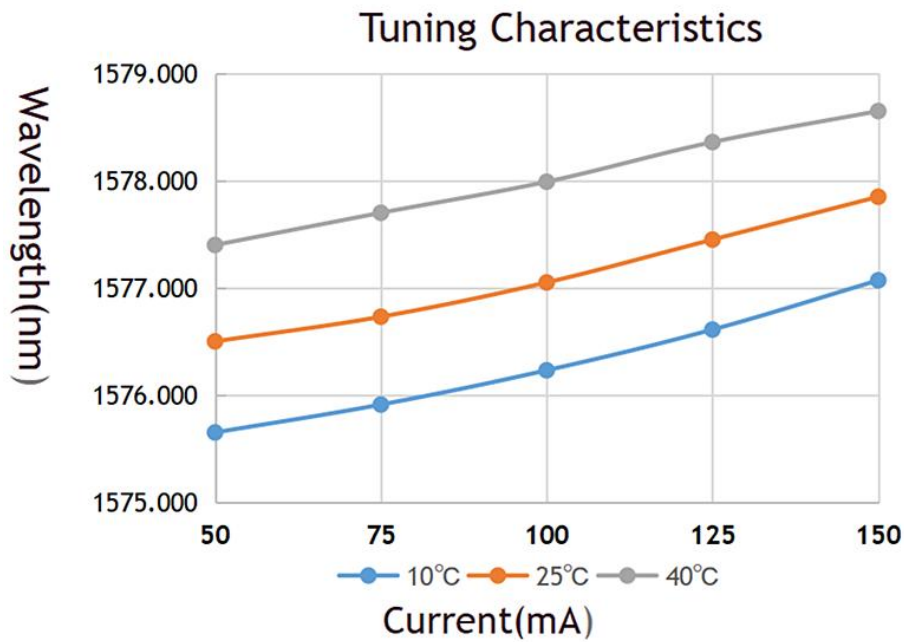
## Spectrum Diagram



## L-I Curve

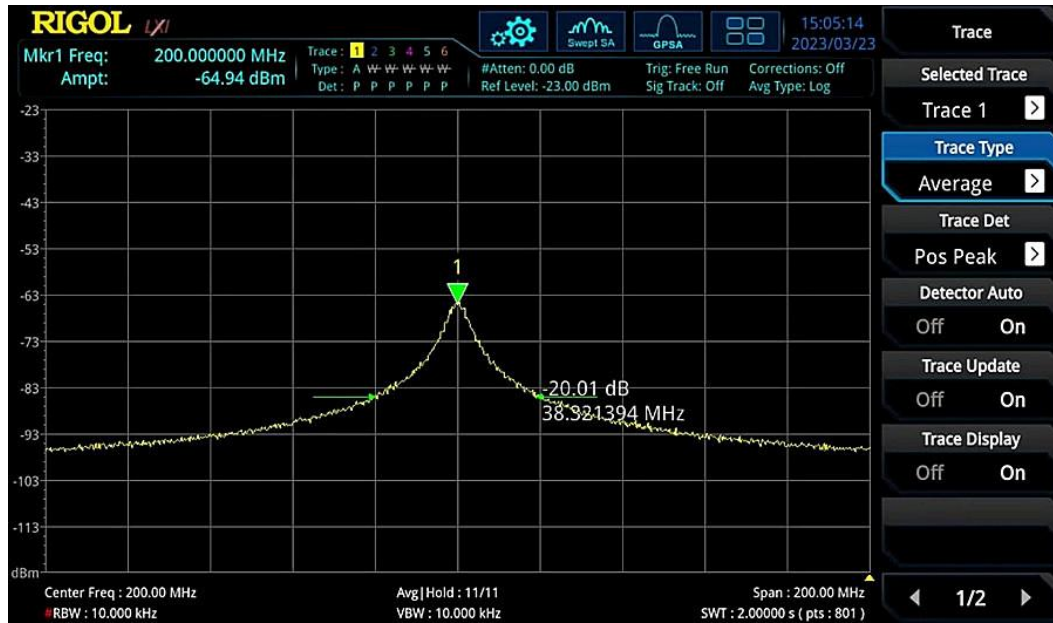


## Tuning Characteristic

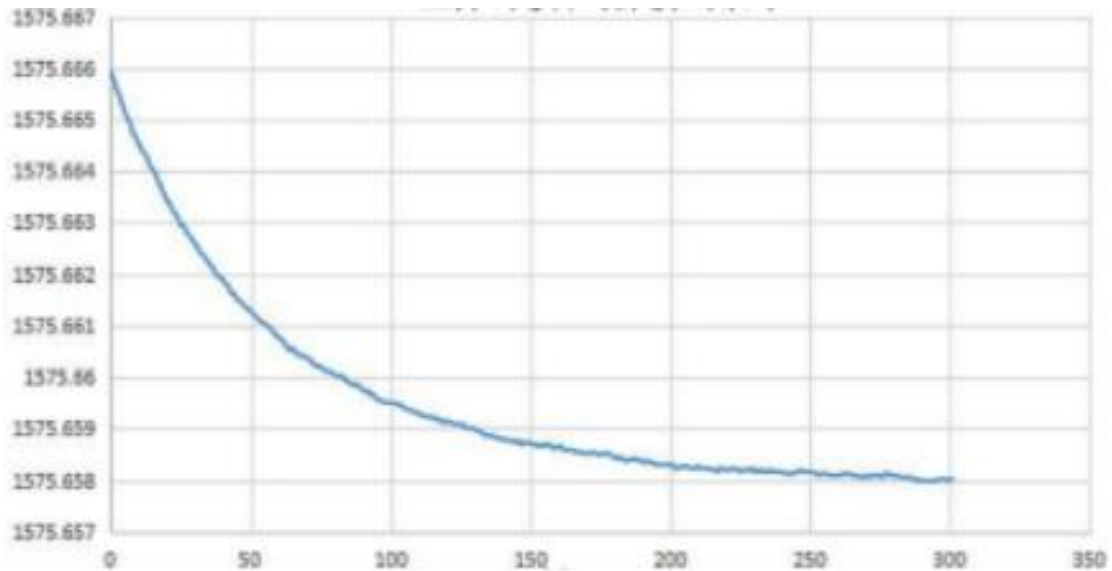




## Linewidth Test Result

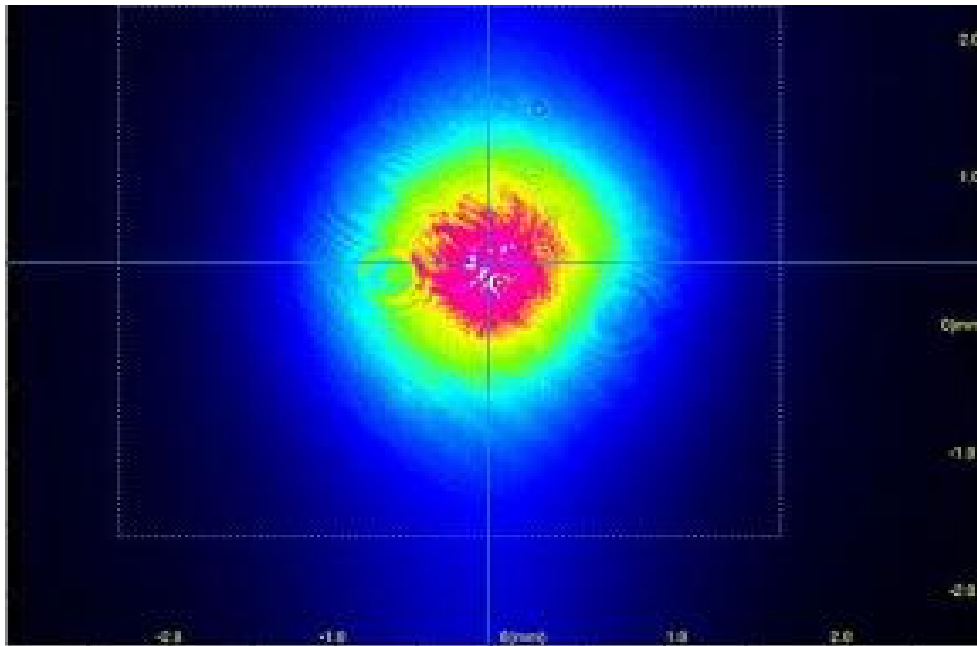


## Wavelength Stability

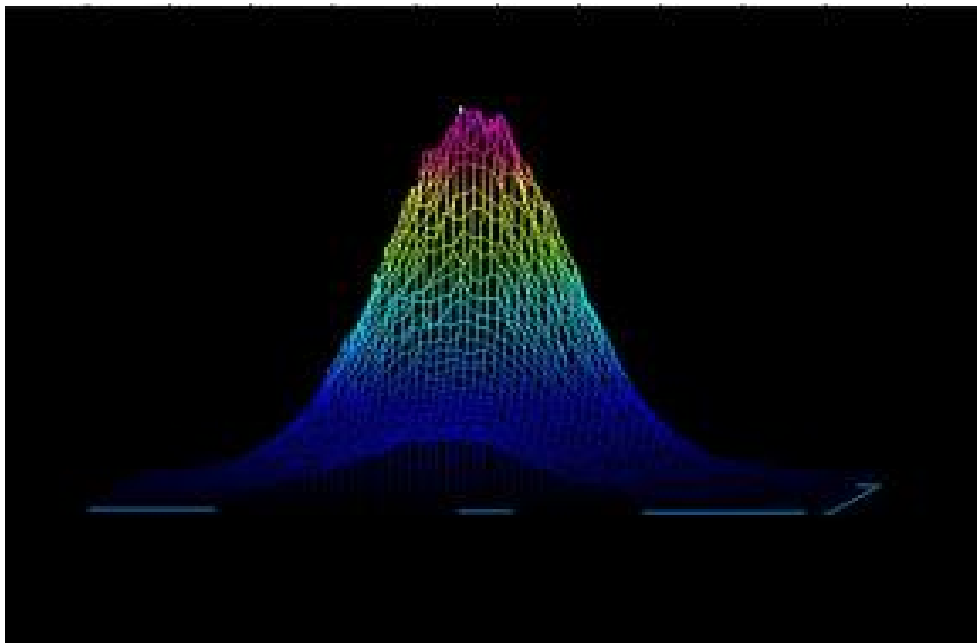




## Beam Quality Analysis

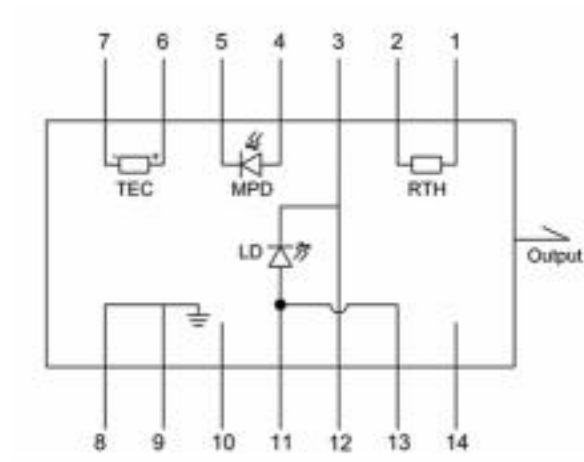


2D



3D

## Pin Definition:



Pin #	Definition	Pin #	Definition
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:

Parameter	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
Reverse Voltage (PD)	V	—	—	20

## Ordering Information:

MP-DFB-□□□□-☆-A8▽-14BF-XX

\*\*□□□□: Wavelength

1392: 1392nm

1512: 1512nm

1567: 1567nm

1576: 1576nm



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1653.7: 1653.7nm

☆ : Output Power

A: 10mW

B: 20mW

▽: Wavelength Tolerance

1:  $\pm 1\text{nm}$

2:  $\pm 2\text{nm}$

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