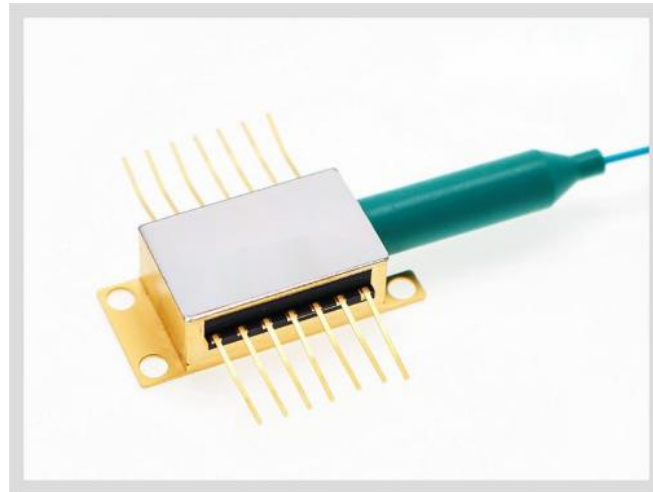


## 1593nm 15mW PM DFB Laser Diode



- **Product Description**

1593 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 with hermetic sealing, integrating a thermoelectric cooler (TEC) and a photodetector (PD).

- **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-1593-15-A81-14BF-PA

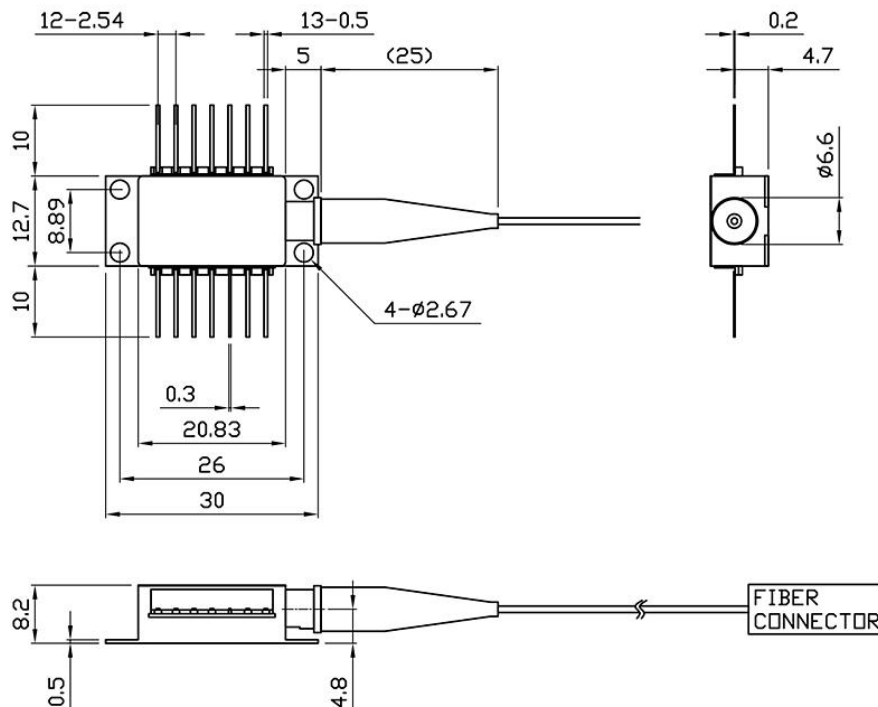
## ● Application area

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

## ● Core parameters

Central Wavelength	Output Power
1593nm	15mW

## ● Dimension Drawing





## ● General Parameters

### Detailed Parameters

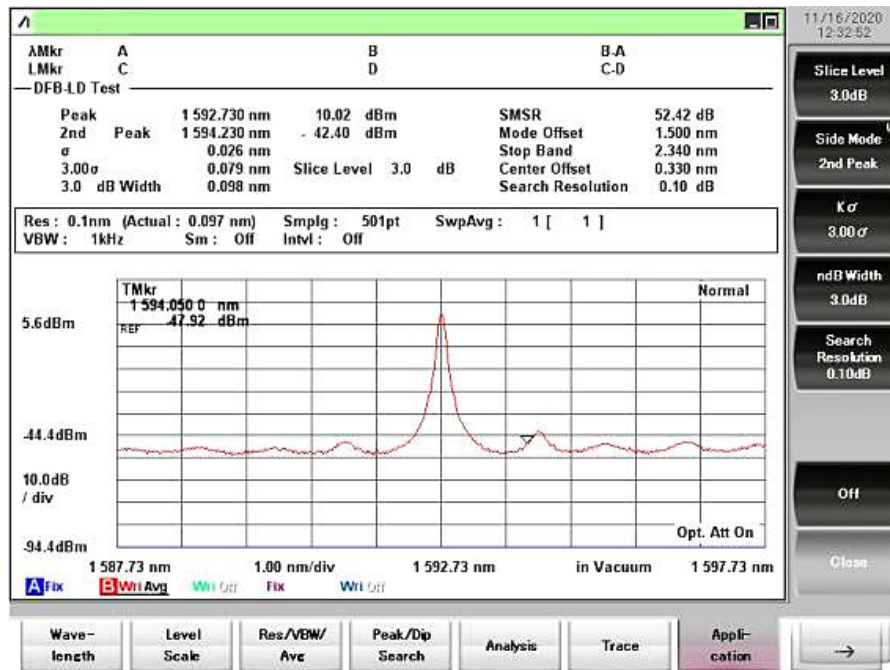
### Specification Table

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

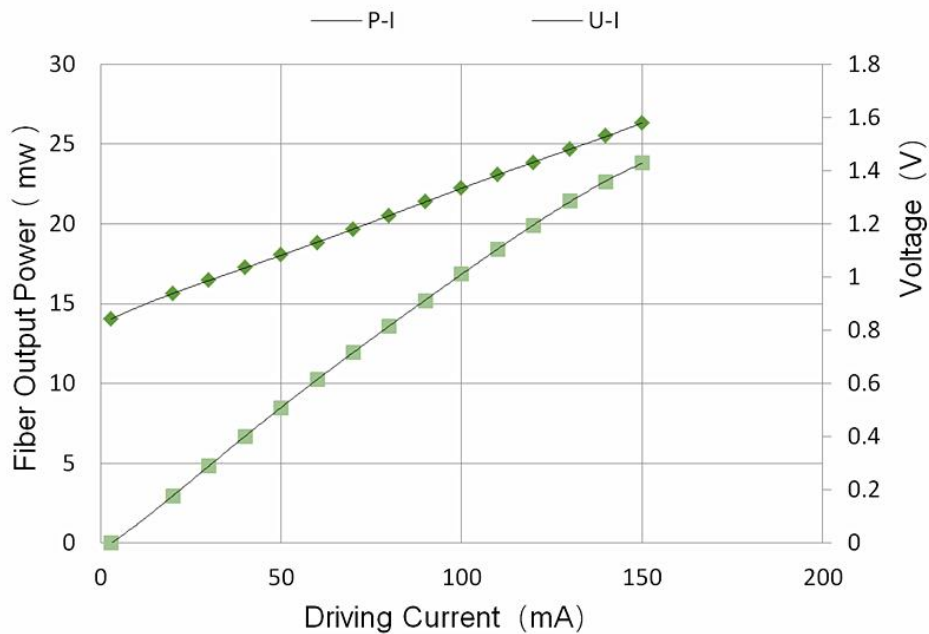
Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength	$\lambda$	1592.5	1593	1593.5	nm
Side-Mode Suppression Ratio	SMSR	30	40	—	dB
Threshold Current	I <sub>th</sub>	—	20	30	mA
Operating Current	I <sub>op</sub>	—	80	—	mA
Chip Output Power	P <sub>f</sub>	10	15	30	mW
Quantum Efficiency	$\eta$	0.08	0.12	—	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 Temperature Coefficient	—	—	-4.4	—	%/°C



## Spectrum Diagram



## L-I Curve

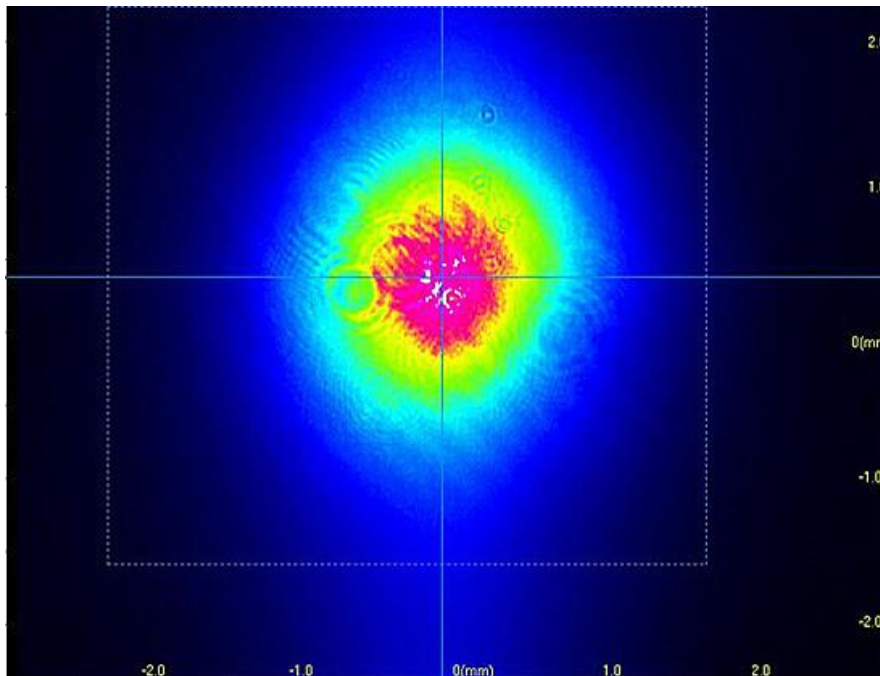




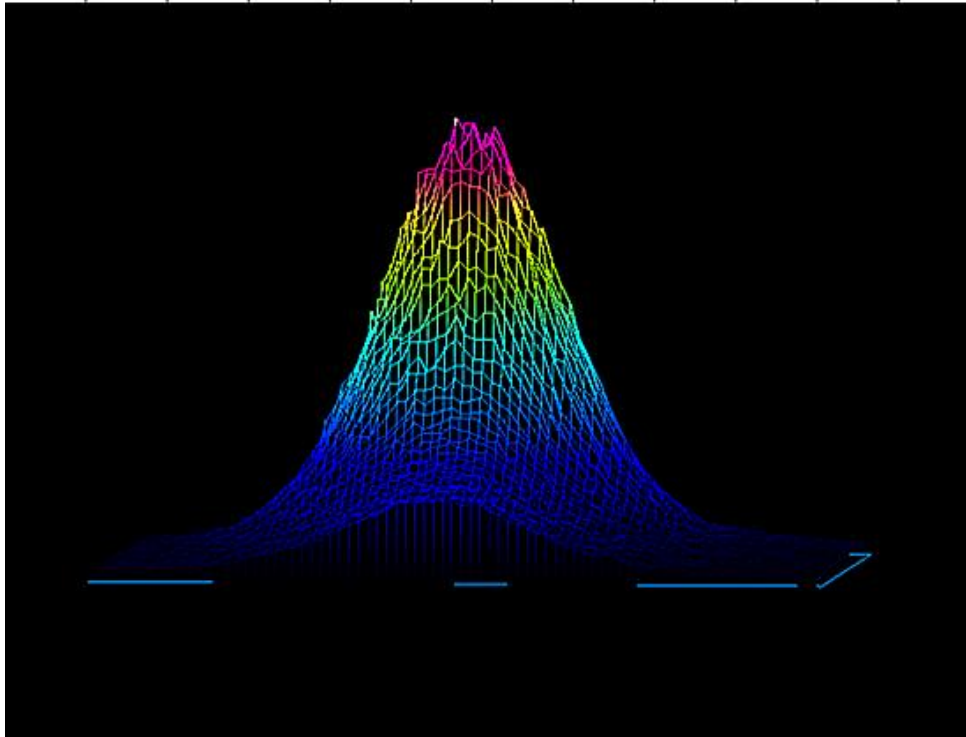
## Linewidth Test Result



## Beam Quality Analysis

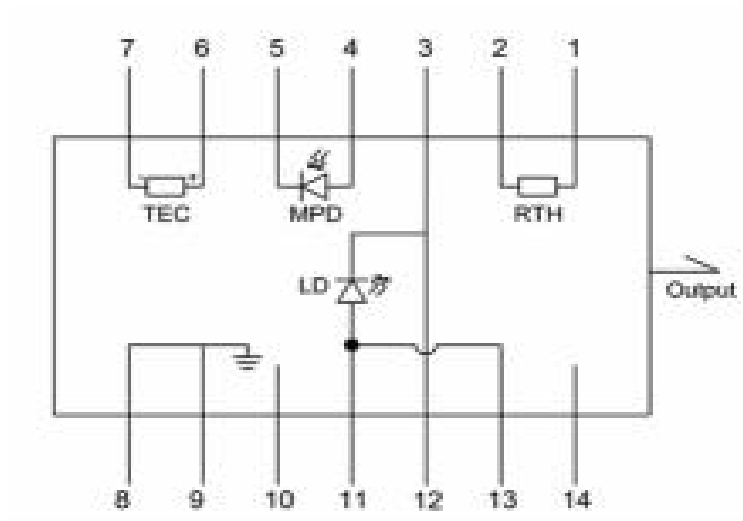


2D



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

1270: 1270nm

1532: 1532nm

1392: 1392nm

1512: 1512nm

1567: 1567nm

\*\*\*\*\*

1593: 1593nm

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**