

1381nm 50mW DFB Laser Diode



● Product Description

The 1381 nm DFB laser diode module is a cost-effective, highly coherent laser source. The DFB laser chip is packaged in an industry-standard hermetically sealed 14-pin butterfly package with integrated TEC (thermoelectric cooler) and PD (photodetector).

● 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-1381-50-A81-14BF-PA

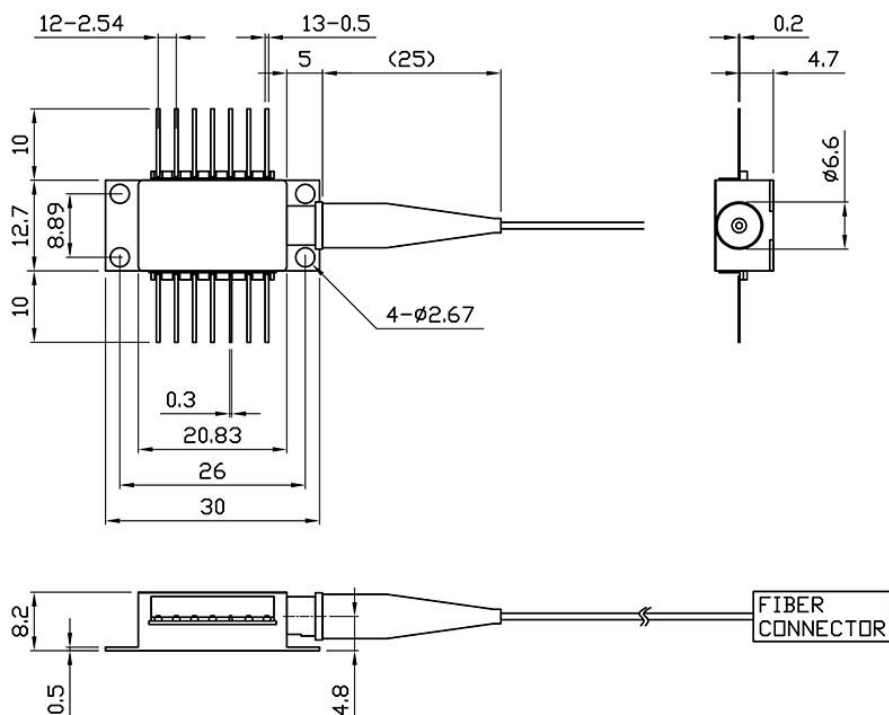
● Application area

Tunable Diode Laser Absorption Spectroscopy | H₂O (gas) monitoring

● Core parameters

Central Wavelength	Output Power
1381nm	50mW

● Dimension Drawing





● General Parameters

Detailed Parameters

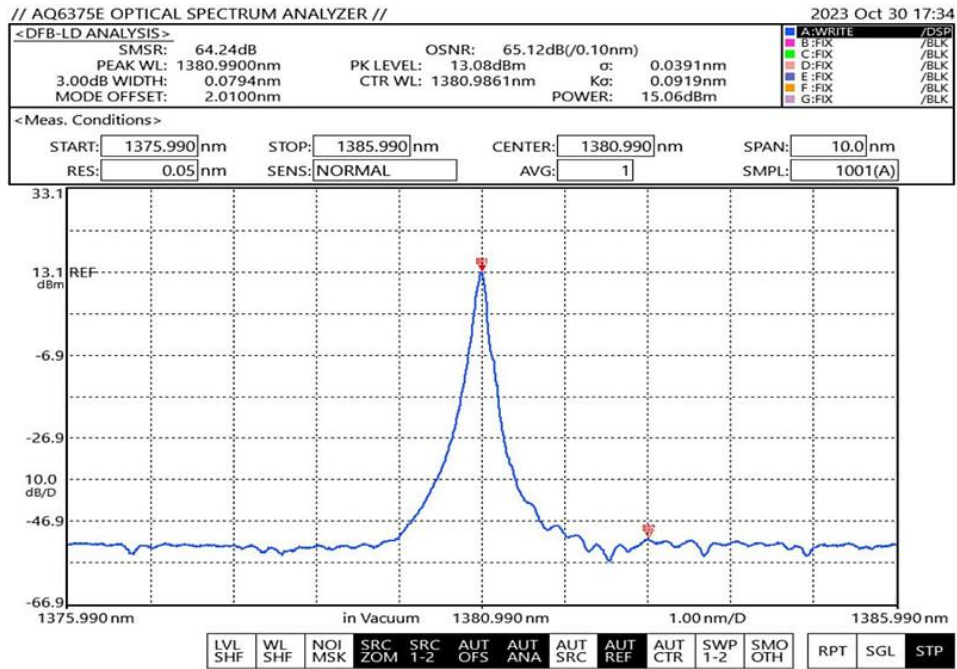
Specification Table

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

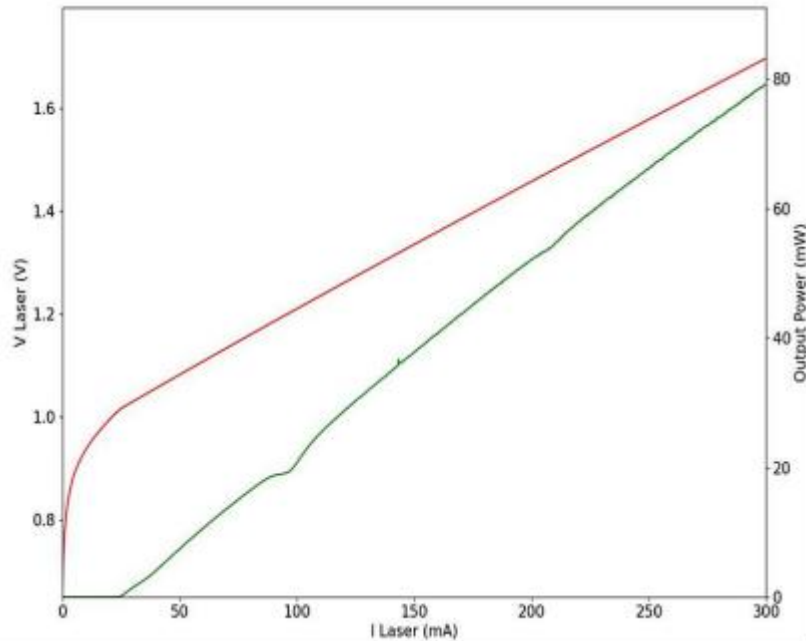
Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength	λ	1380.5	1380.5	1380.5	nm
Side-Mode Suppression Ratio	SMSR	30	40	—	dB
Threshold Current	I _{th}	—	20	30	mA
Operating Current	I _{op}	—	200	300	mA
Chip Output Power	P _f	—	50	80	mW
Quantum Efficiency	η	0.08	0.12	—	mW/mA
Current Tuning Coefficient	$\Delta\lambda/\Delta I$	—	0.015	—	nm/mA
Temperature Tuning Coefficient	$\Delta\lambda/\Delta T$	—	0.12	—	nm/K
Forward Voltage	V _f	—	1.3	2	V
Thermistor Resistance	R _T	9.5	10	10.5	k Ω
Thermistor Temperature Coefficient	—	—	-4.4	—	%/°C



Spectrum Diagram

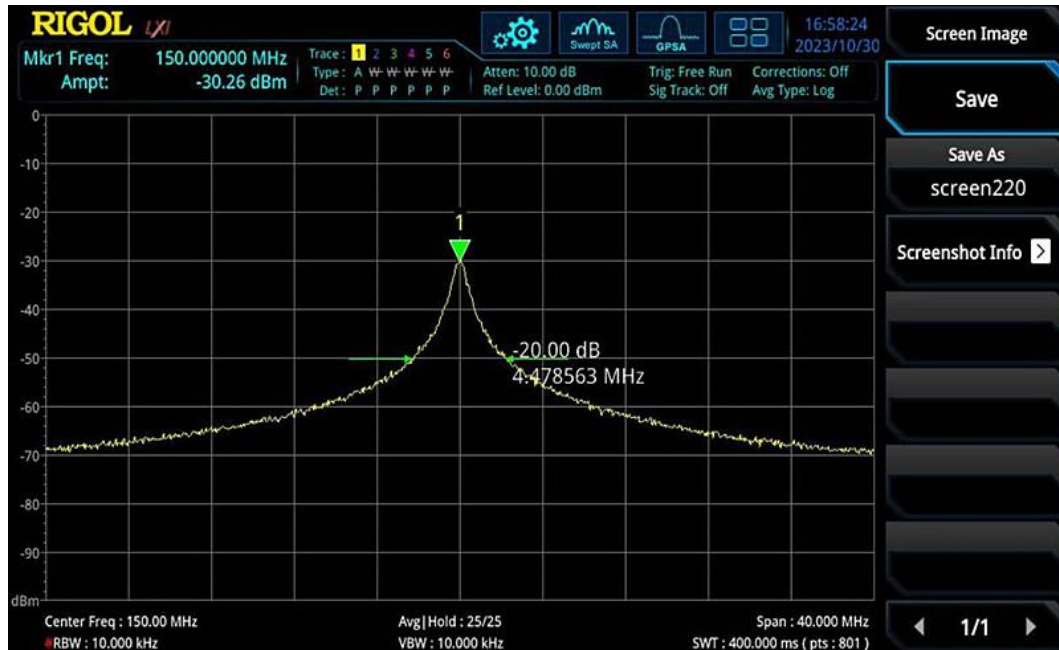


L-I Curve

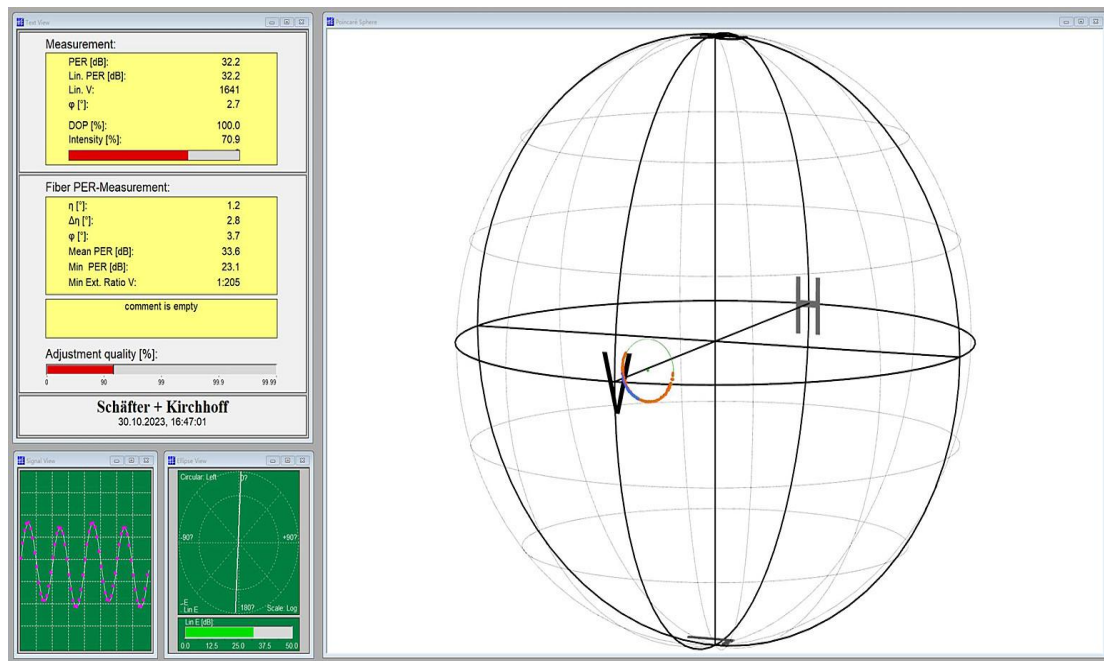




DFB Laser Linewidth Test Results

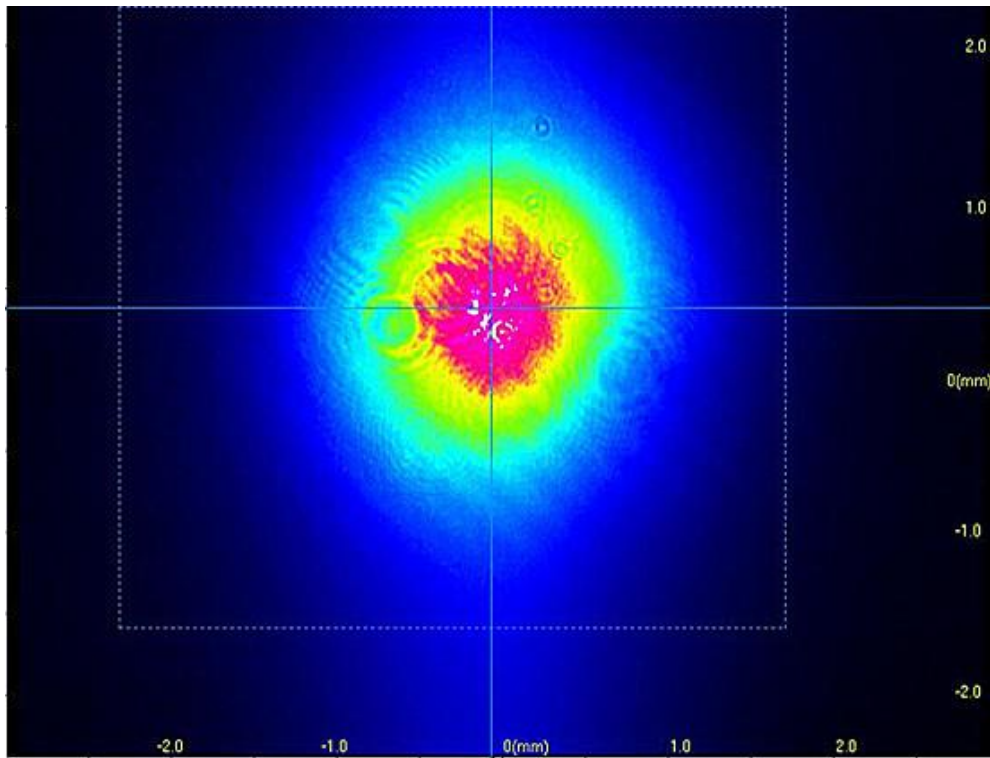


Polarization Extinction Ratio Test (PM Version)

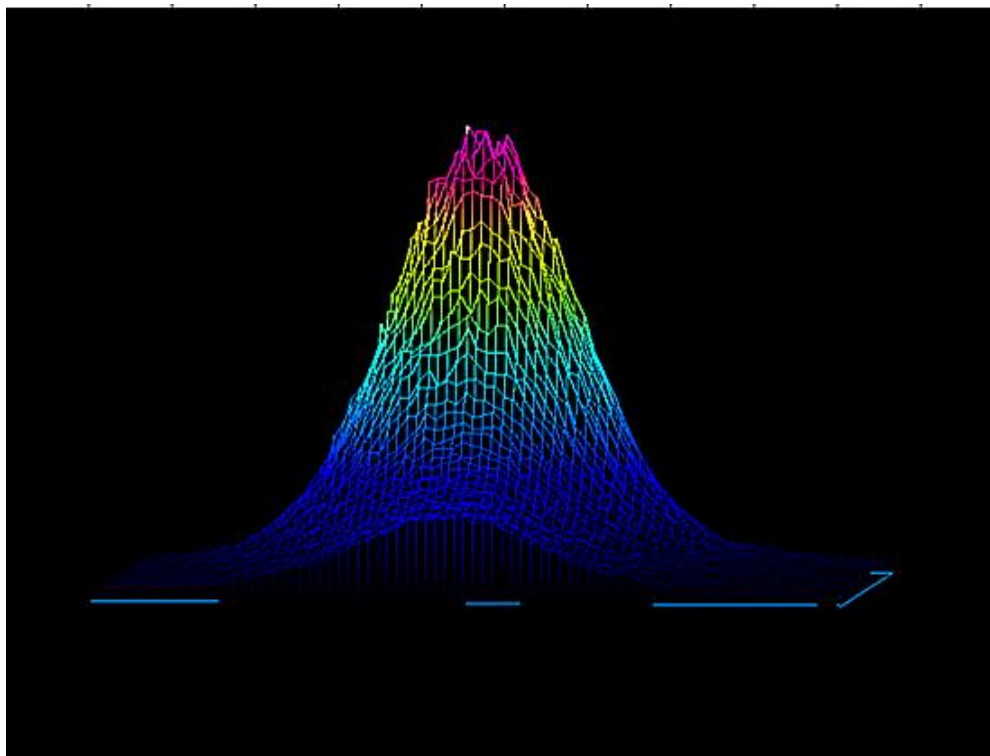




Beam Quality

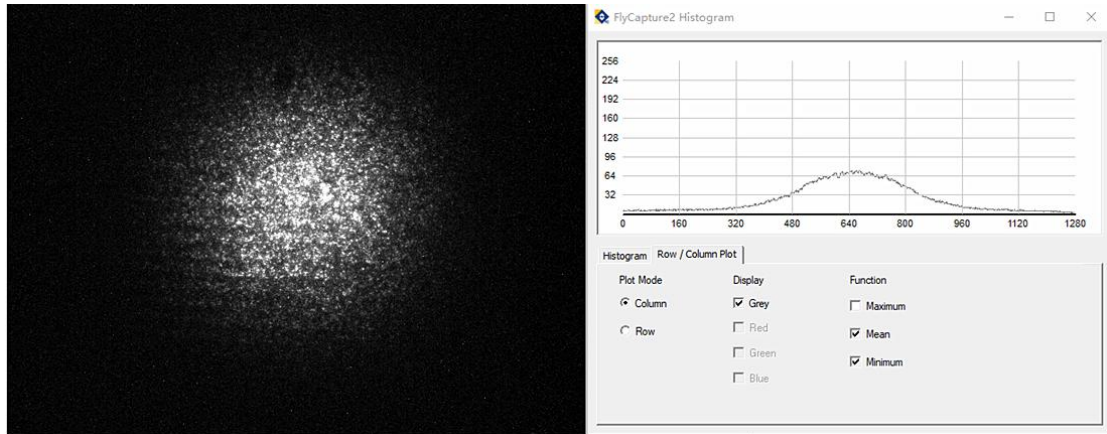


2D

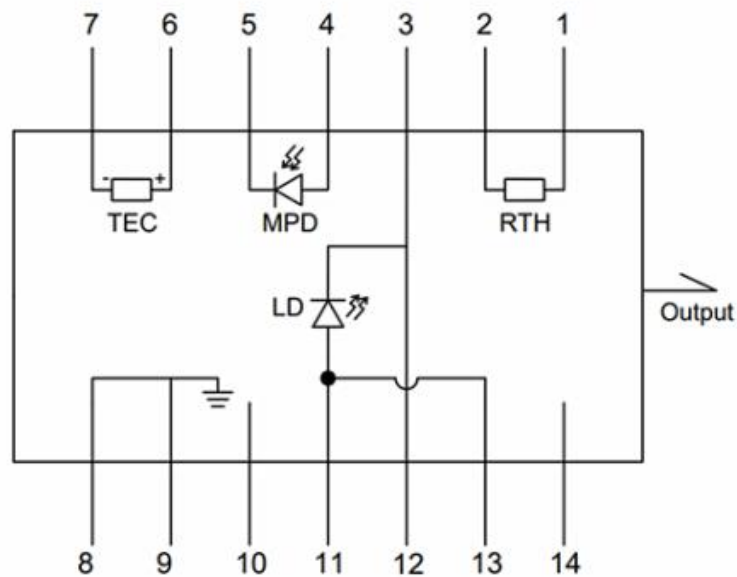


3D

Image Analysis



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▽-XX

**□□□□: Wavelength

1341: 1341nm

1381: 1381nm

1392: 1392nm

1512: 1512nm

1567: 1567nm

1653.7: 1653.7nm

☆ : Output Power

A: 50mW

B: 80mW

▽: 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