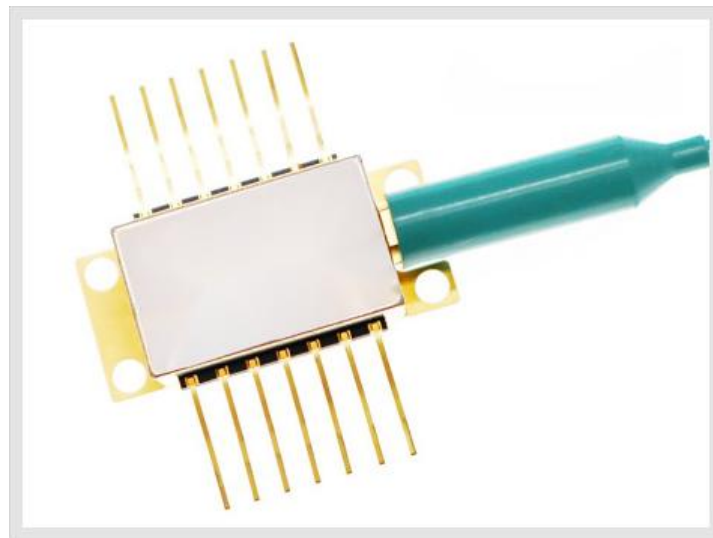


1683nm 15mW DFB Laser Diode for C₂H₆

Sensing



- **Product Description**

1683nm DFB laser diode module is a cost-effective, high-coherence laser source. The DFB laser diode chip adopts industry-standard 14-pin hermetic butterfly package, with built-in TEC and PD.

- **Product features**

Narrow linewidth (< 2MHz); excellent wavelength control and stability; industry-standard 14-pin butterfly package; mode-hop-free tuning; outstanding reliability; customizable wavelength available on request



● Part Number

MP-DFB-1683-15-A81-14BF-SA

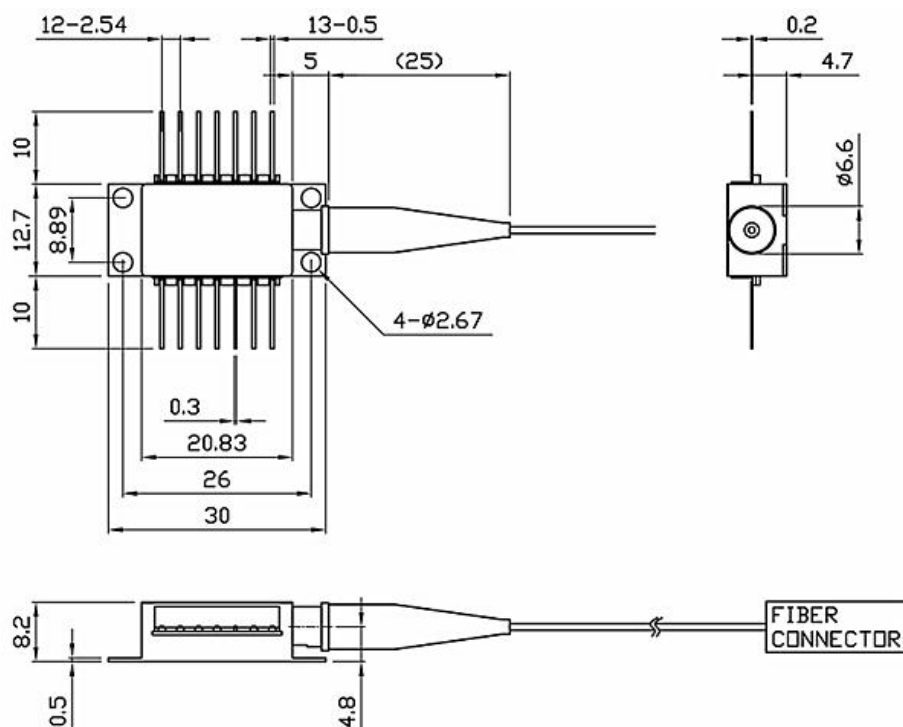
● Application area

Tunable Diode Laser Absorption Spectroscopy (TDLAS); C₂H₆ monitoring

● Core parameters

Central Wavelength	Output Power
1683nm	15mW

● Dimension Drawing



● General Parameters

Detailed Parameters

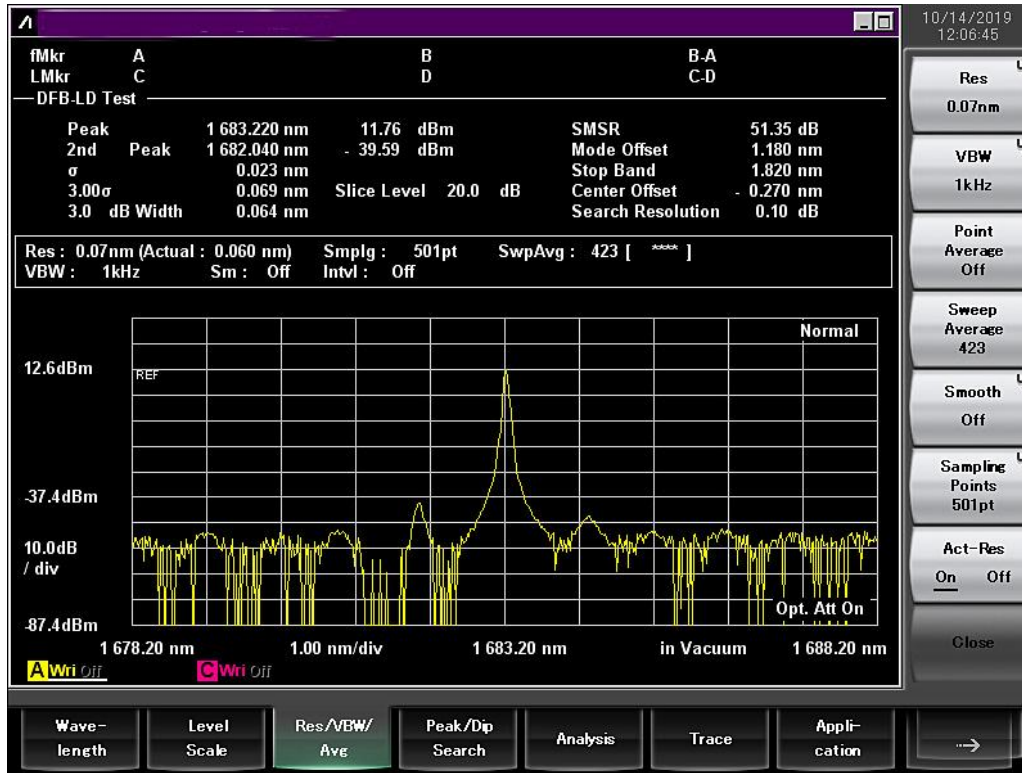
Laser Specifications

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

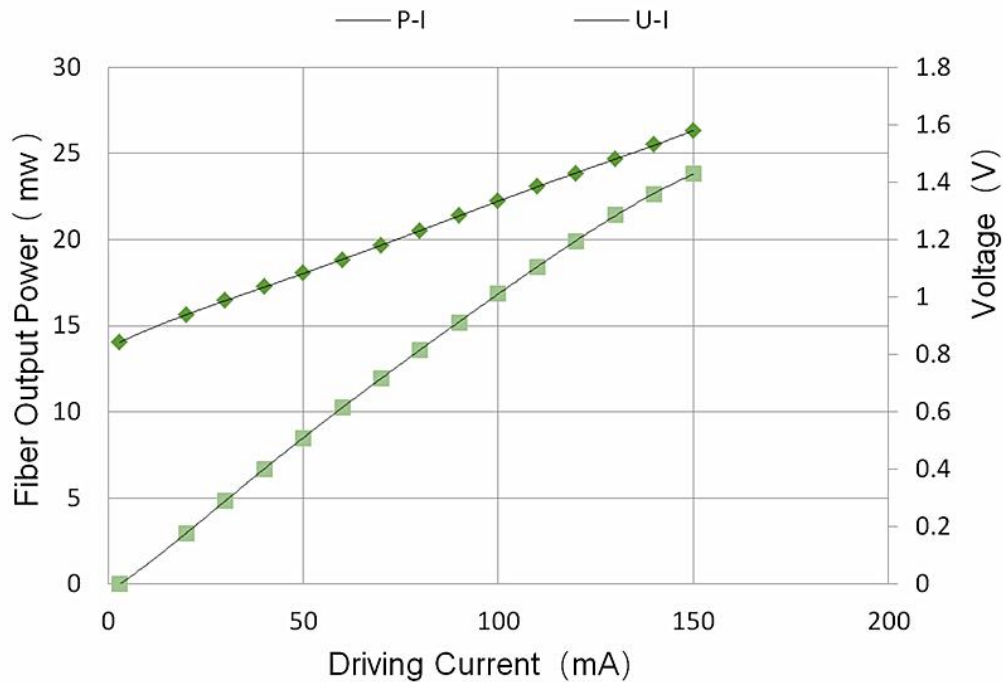
Parameter	Symbol	Min.	Typical	Max.	Unit
Central Wavelength	λ	1682	1683	1684	nm
Side Mode Suppression Ratio (SMSR)	SMSR	30	40	-	dB
Threshold Current	I _{th}	-	20	30	mA
Operating Current	I _{op}	-	80	150	mA
Chip Output Power	P _f	10	15	30	mW
Quantum Efficiency	η	0.08	0.12	-	mW/mA
Current Tuning Coefficient	$\Delta\lambda/\Delta I$	-	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
Fiber Connector	FC/APC				



Spectrum

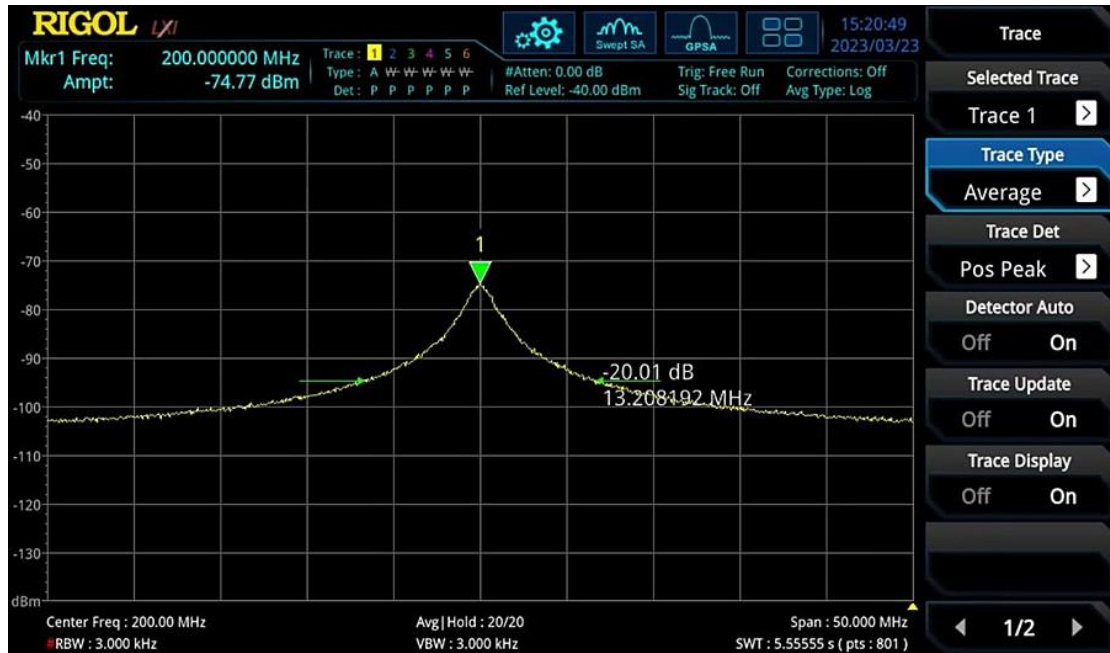


L-I Curve



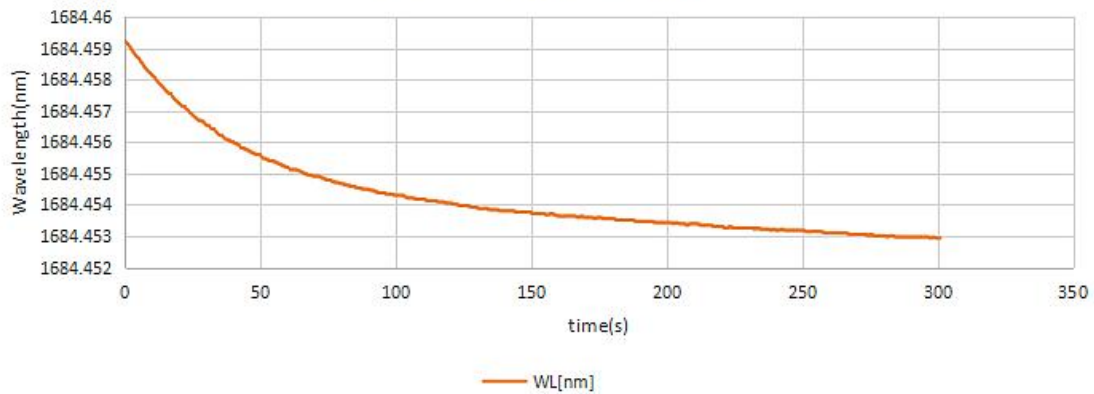


DFB Linewidth Test Results

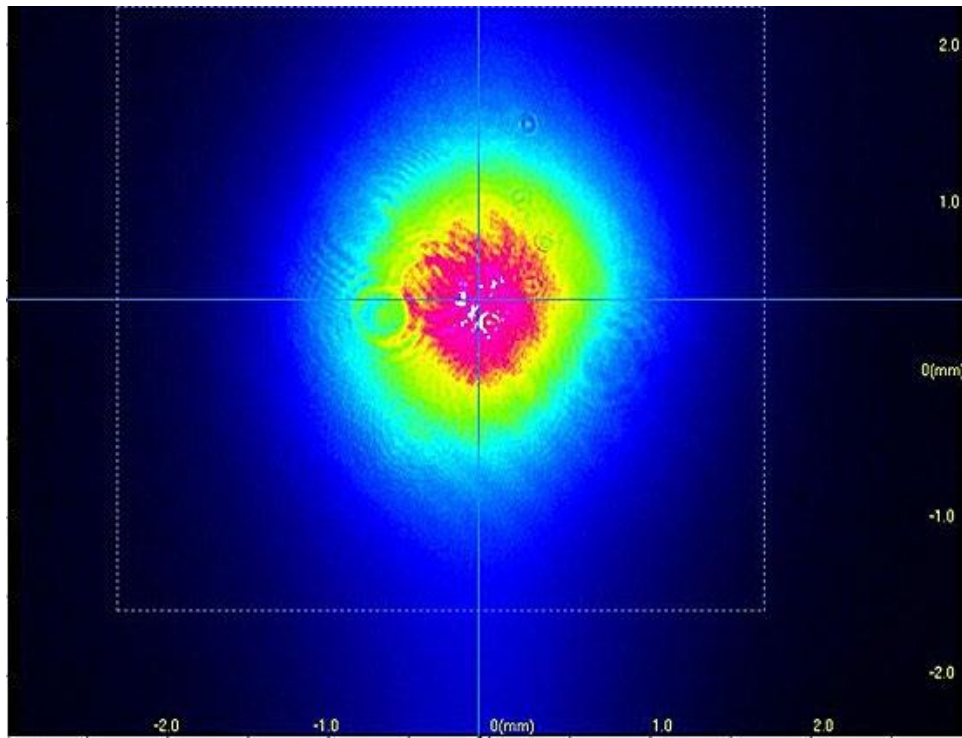


Wavelength Stability

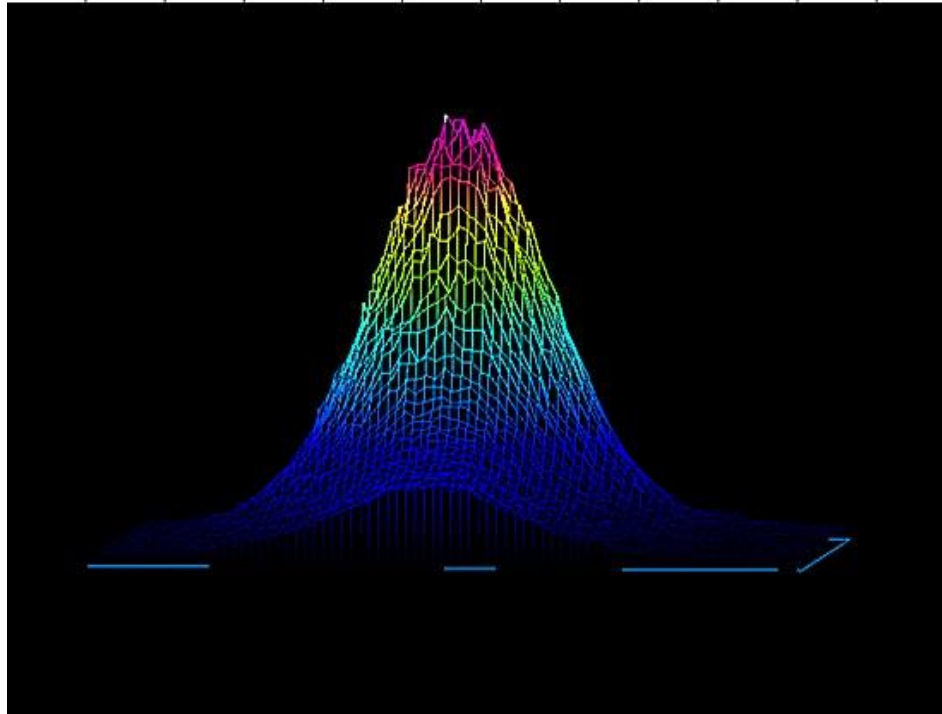
5 mins Wavelength Stability



Beam Quality Analysis

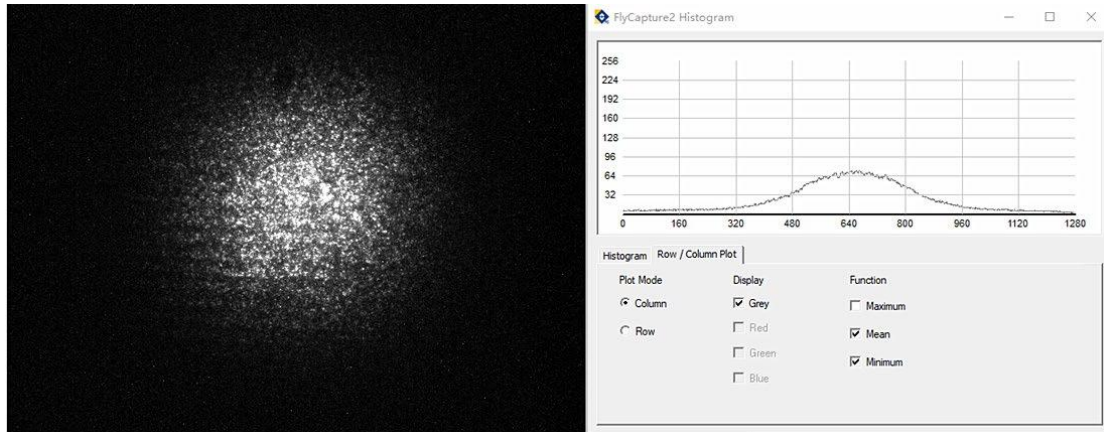


2D

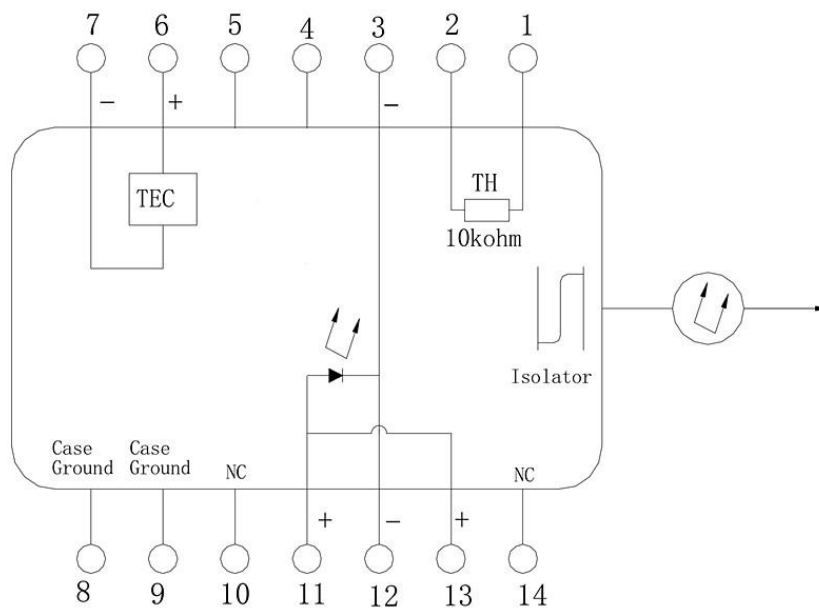


3D

Camera Analysis



Pin Definition



PIN#	Definition	PIN#	Definition
1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground



3	Laser Cathode (-)	10	N/C
4	N/C	11	Laser Anode (+)
5	N/C	12	Laser Cathode (-)
6	TEC (+)	13	Laser Anode (+)
7	TEC (-)	14	N/C

Absolute Maximum Ratings

Item	Unit	Min.	Typical	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	-	-	2.0
Reverse Voltage (PD)	V	-	-	20



Order information

MP-DFB-□□□□-☆-A8▽-14BF-XX

□□□□: Wavelength

1270: 1270nm

1532: 1532nm

1392: 1392nm

1512: 1512nm

1567: 1567nm

1600.3: 1600.3nm

1653.7: 1653.7nm

1683: 1683nm

☆ : Output Power

A: 10mW

B: 20mW

C: 50mW

▽: 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