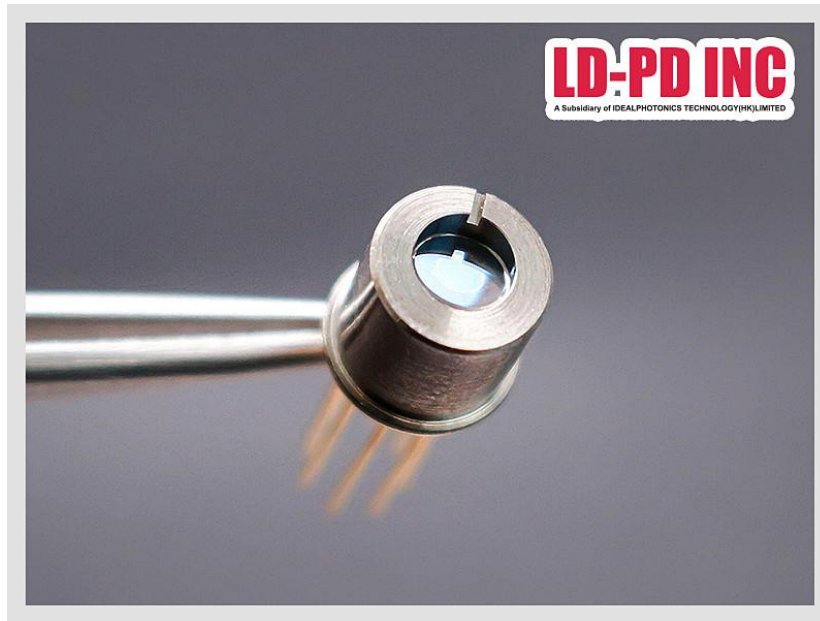


1653.7nm DFB Laser diode for CH₄ Sensing (TO39 Package)



Description

The PL-DFB-1653.7-A1 1653.7nm DFB laser diode module made by LD-PD is a cost effective, highly coherent laser source. The DFB laser diode chip is packaged in an industry standard hermetically sealed TO39 package with TEC and PD Built in.

Features

- Narrow Linewidth < 2MHz
- Excellent wavelength control and stability
- Industry Standard 14 pin Butterfly package
- Mode-Hop free tuning
- Excellent reliability
- Customer specific wavelengths available

Application

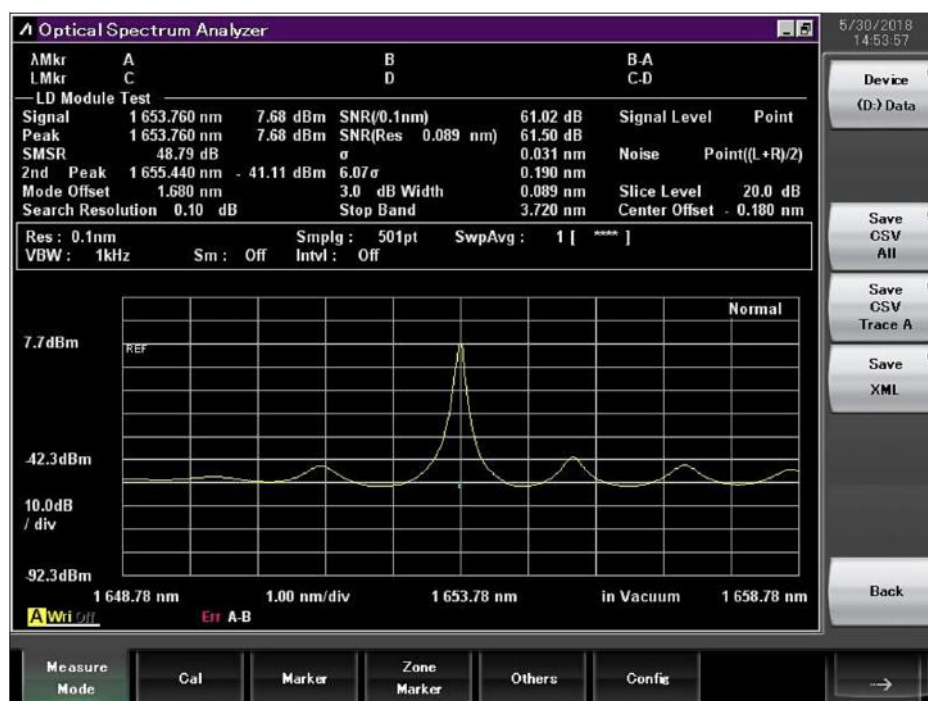
- Tunable diode laser absorption spectroscopy
- CH₄ Monitoring

Laser Specifications

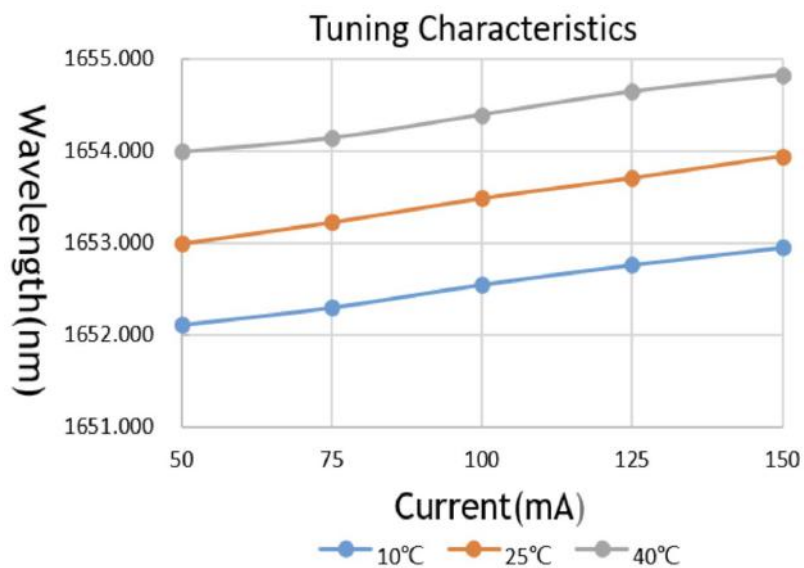
Electrical/Optical Characteristics(Tsub=25°C, CW bias unless stated otherwise)

Parameter	Symbol	Min	Typ	Max	Unit
Centre Wavelength	λ	1653.2	1653.7	1654.2	nm
Side Mode Suppression Ratio	SMSR	30	40		dB
Threshold Current	I _{th}		20	30	mA
Operating Current	I _{op}		80	120	mA
Chip output Power	P _f	3	5	10	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 Temp. Coefficient			-4.4		%/°C
Collimation Lense	Yes				

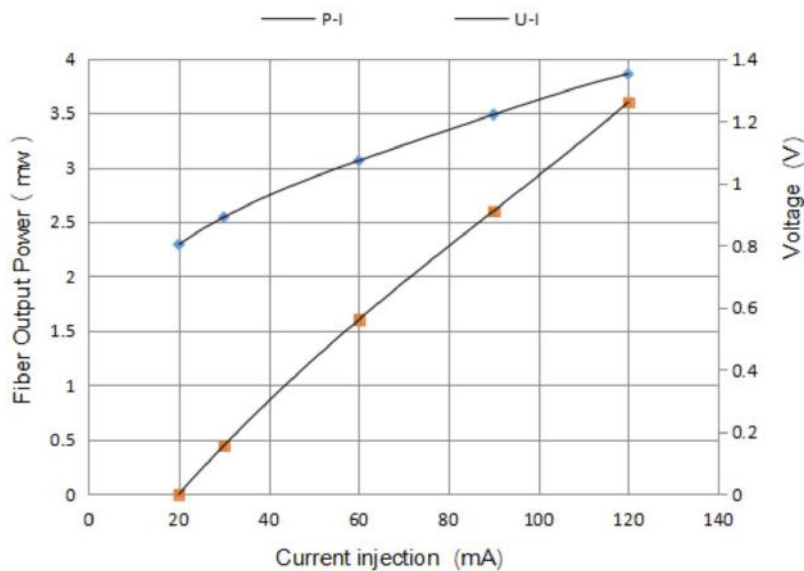
Spectrum



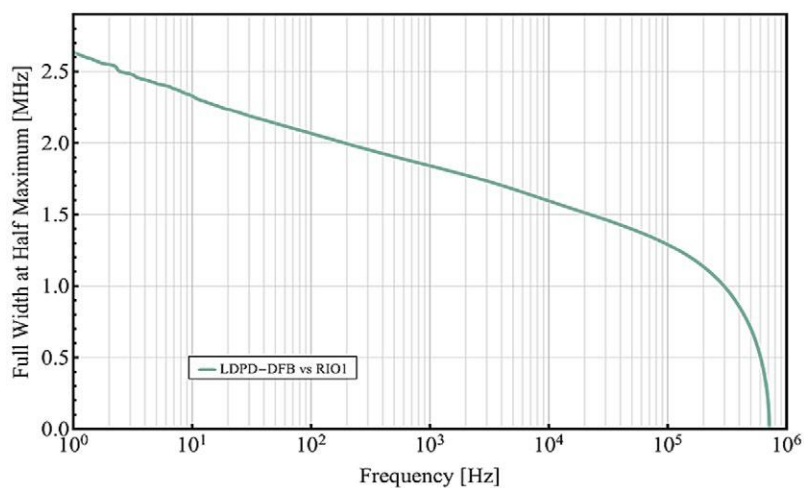
Tuning Characteristics



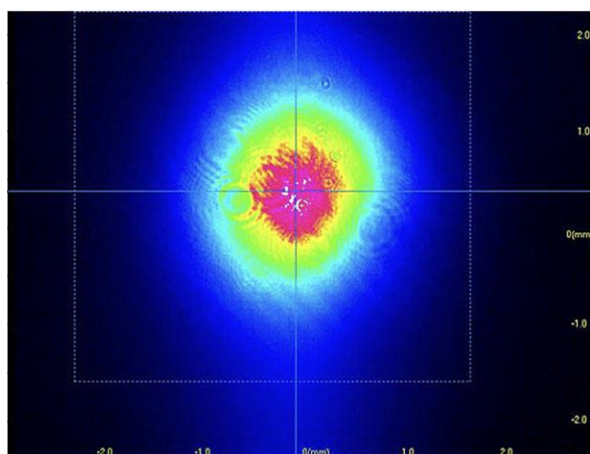
L-I Curve



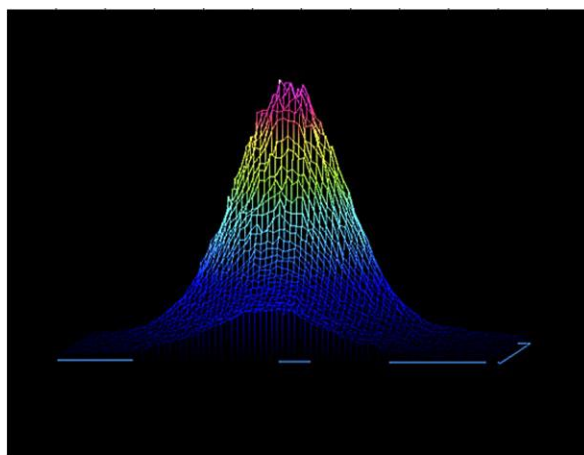
DFB Linewidth Testing Result



Beam Quality

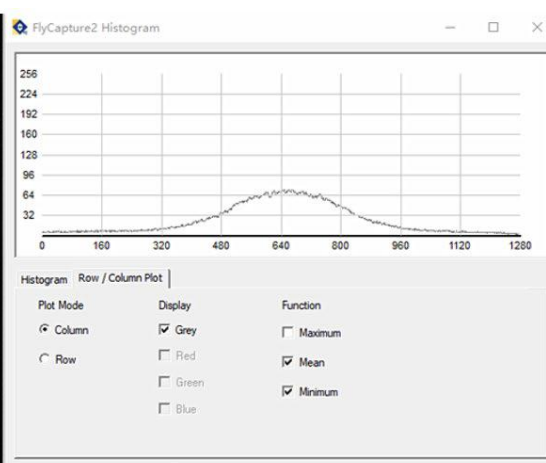
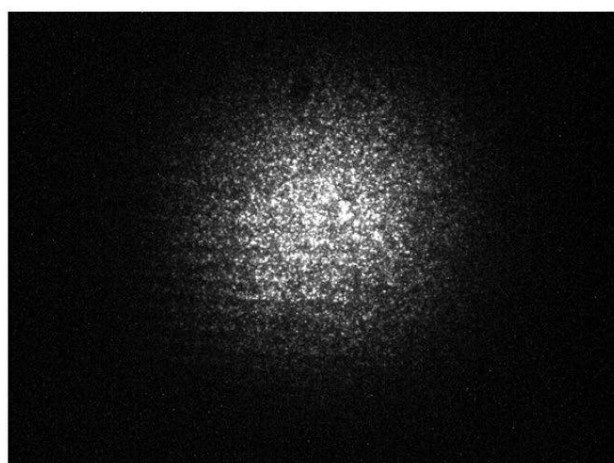


2D

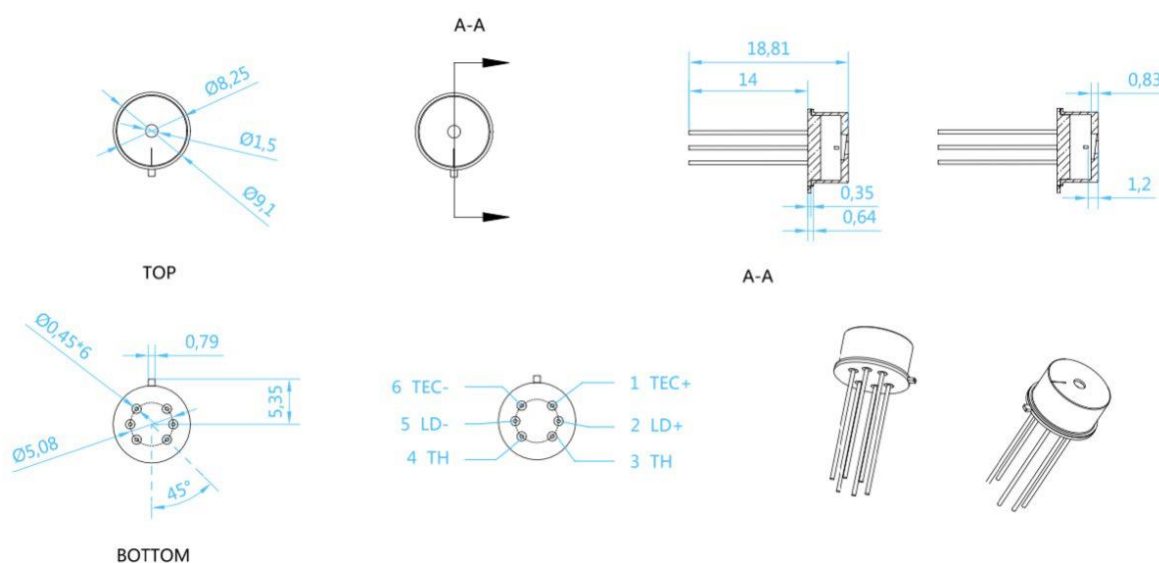


3D

Camera Analysis

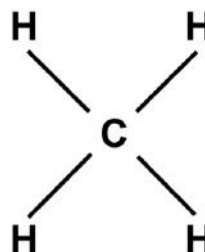
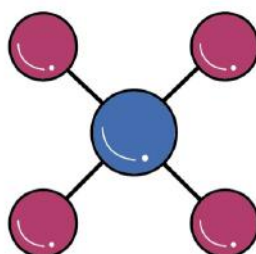
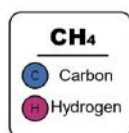


Dimensions and Pin definitions

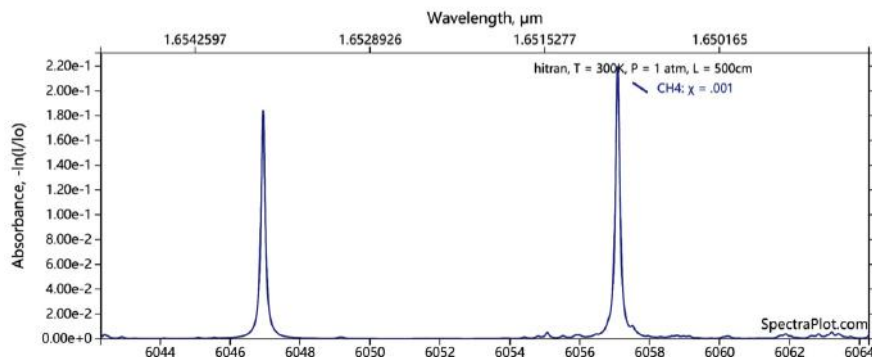


Absolute Maximum Ratings

Item	Unit	Min	Typ	Max
Case Temperature	°C	-5	25	70
Chip Temperature	°C	+10	25	40
Operating Current	mA	0	100	120
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

CH₄

TDLAS: 1650.9nm 1653.7nm



OEM Info

PL-DFB-□□□□-☆-A8▽-TO39

□□□□:Wavelength

1512:1512nm

1653.7:1653.7nm

☆:Output Power

A:5mW ; B:10mW

▽:Wavelength Tolerance

1:±1nm ; 2:±2nm