

## 4.6um FP Quantum cascade lasers (QCLs) Testing Source



### Description:

4.6um High power FP Quantum cascade lasers (QCLs) is developed by LD-PD INC in 2019. Our Quantum cascade lasers (QCLs) are intersubband semiconductor lasers emitting around a center wavelength ranging from the mid-infrared (4 – 12  $\mu\text{m}$ ) up to the terahertz domain. The QCLs proposed by LD-PD Inc are mid-infrared devices operating in pulsed or continuous-wave regime at room temperature. They can be either High power multimode (Fabry-Perot) or Narrow linewidth single-mode (Distributed FeedBack, or DFB) laser sources. We build ZnSe lens into the system to collimate the Laser beam.

High performance QCLs

LD-PD Inc product line offers single mode Quantum Cascade Lasers (single mode DFB QCL) or broadband lasers (Fabry Perot) between 4 $\mu\text{m}$ -12 $\mu\text{m}$  (2500  $\text{cm}^{-1}$  -900  $\text{cm}^{-1}$ ). Our lasers operate at room temperature, without a cryogenic system, in pulsed or continuous wave emission. And our DFB-QCL have two types for customer's Choice : Low power Consumption and high power Consumption.

### Features:

- Different Central wavelength for choice
- High power and goods wavelength stability
- Good beam quality
- With ZnSe lens Collimator

### Applications:

- MIR Testing Light source
- Analysis of MID infrared devices

## Specifications:

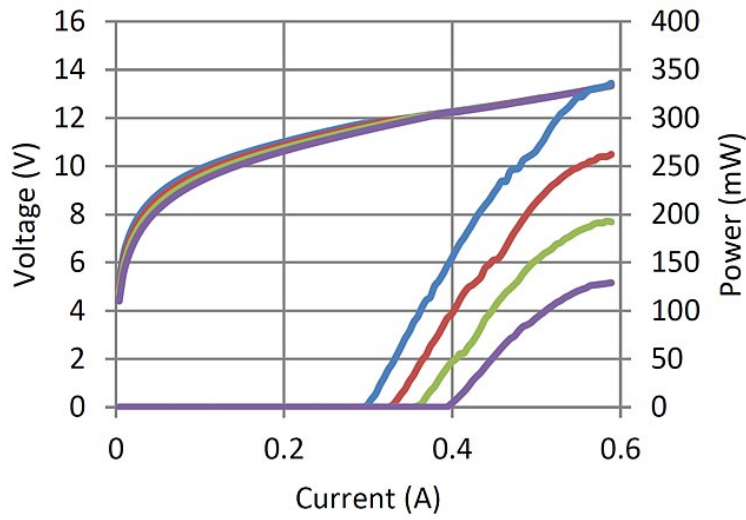
Parameters	Unit	Value		
		Min	TYP	Max
Part Number		QCL4500FP		
Output Power <sup>1</sup>	mW	150	-	500
Operation Wavelength <sup>2</sup>	um	4.47	4.6	4.63
Spectrum Width (FWHM)	nm	-	3	-
M2 Factor			< 1.2	
Output Divergence angle	Mrad		< 2	
Output Isolation	dB	-	30	-
Output power stability (15 minutes) <sup>3</sup>	%	-	±0.5	±1.0
Output power stability (8 hours) <sup>3</sup>	%	-	±1.0	±2.0
Output Power Tunable Range	%	0	-	100
Output Power Tunable Mode		Software Control		
TEC Stability	°C	-	±0.1	±0.2
TEC Temp Range	°C	0	30	50
Operation Voltage	VAC	100	220	240
Electric Power Consumption <sup>4</sup>	W	-	-	2
Operation Temperature	°C	0	-	90
Store Temperature	°C	-40	-	85
Size	mm	340(L)×240(W)×100(H) Benchtop		

## Specs Notes:

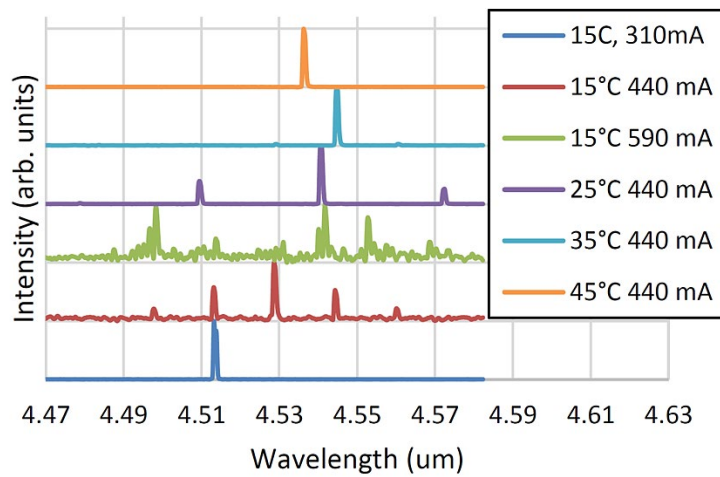
1. Output Power optional;
2. Central wavelength Optional;
3. Output power stability's Testing Condition is 25 degrees, and device need to be preheated for 30 minutes;
4. The maximum power consumption refers to the overall power consumption under the limit working conditions.



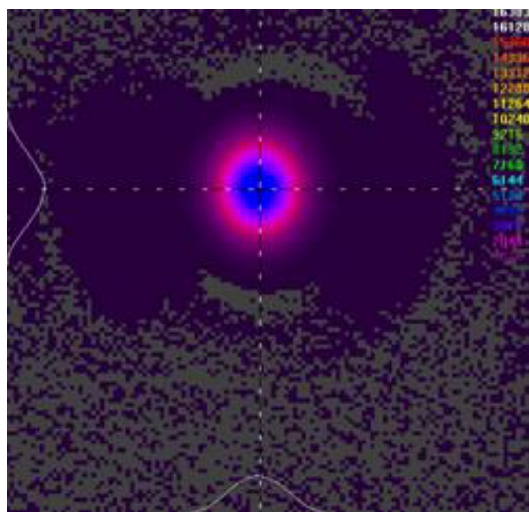
**QCL Laser characteristic curve(Typical wavelength:4.5um)  
Output Power characteristic curve:**



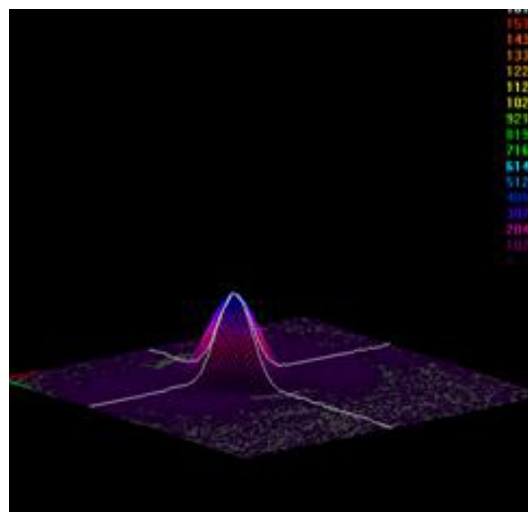
**Optical Spectrum(CW):**



**Beam Analyse:**



2-D Beam Profile at 1778 mm (70.0 in)



3-D Beam Profile at 1778 mm (70.0 in)

**Pin definition:**

MIR-QCL-W□□□□- - -XX

W□□□□: Wavelength

5260: 5260nm

7400: 7400nm

10530: 10530nm

□ : Collimation Output

1: With

0: Without

□ : QCL Type

FP: QCL-FP

DFB: QCL-DFB

XX: Output Power

001=1mw

010=10mw

400=400mw

1000=10000mw