



## 12.15um high power benchtop DFB-QCL mid-infrared quantum cascade laser 20mW (TDLAS integrated control module)



- **Product Description**

The high power benchtop DFB-QCL mid-infrared quantum cascade laser is an ultra-low power QCL DFB laser developed by Idealphotonics in the first half of 2018. The tunable range exceeds 100nm and the output power is greater than 20mw, which meets the industrial needs of customers testing gas sensors. Our laser collimated output has stable output power and high



temperature and wavelength stability, which is several orders of magnitude higher than the stability of traditional high power quantum cascade lasers. It provides an excellent test light source for our mid-infrared test customers.

- **Product features**

High power、 Compact structure、 Intelligent software control、 Built-in FPGA

- **Part Number**

MP-QCL-12150-DFB-20-T

- **Application area**

Mid-infrared test light source、 Mid-infrared device analysis

- **Core parameters**

Wavelength	Output Power	Spectral Width
12.15um	20mW	3MHz

## ● General Parameters

### Electrical Specifications at 12K

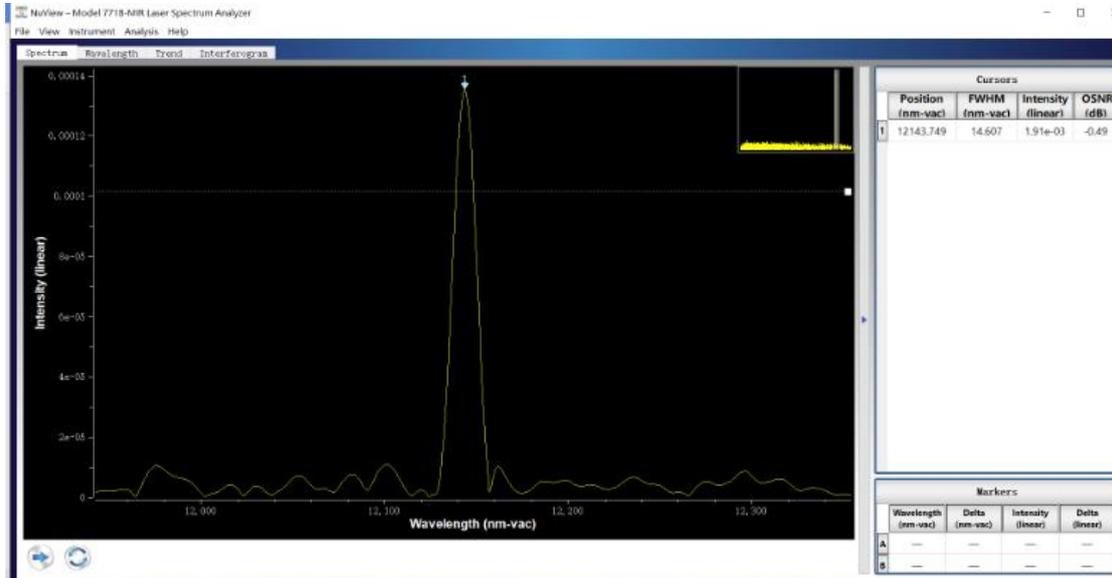
Parameter	Unit	Indicators		
		Min.	Typical value	Max.
Output power <sup>1</sup>	mW	-	20	-
Peak operating wavelength <sup>2</sup>	um	-	12.15	-
Spectral width (FWHM)	MHZ	-	3	-
Output side mode suppression ratio (SMSR)	dB	30	-	-
M2 factor			<1.2	
Output light divergence angle	Mrad		<2	
Full optical beam waist diameter <sup>5</sup>	mm		<4	
Output isolation <sup>3</sup>	dB	-	30	-
Wavelength temperature coefficient	nm/K		1.00	
Wavelength current coefficient	nm/A		57.1	
Output power stability (15min) <sup>4</sup>	%	-	±0.5	±1.0
Output power stability (8h) <sup>4</sup>	%	-	±1.0	±2.0
Output power adjustable range	%	0	-	100

Output power adjustment mode		Soft control		
TEC stability	°C	-	±0.1	±0.2
TEC operating range	°C	0	30	50
Operating voltage	VAC	100	220	240
Electric power consumption <sup>5</sup>	W	-	-	5
Operating temperature	°C	0	-	55
Storage temperature	°C	-20	-	65
Diameter	mm	343(L)×193(W)×180(H) benchtop		

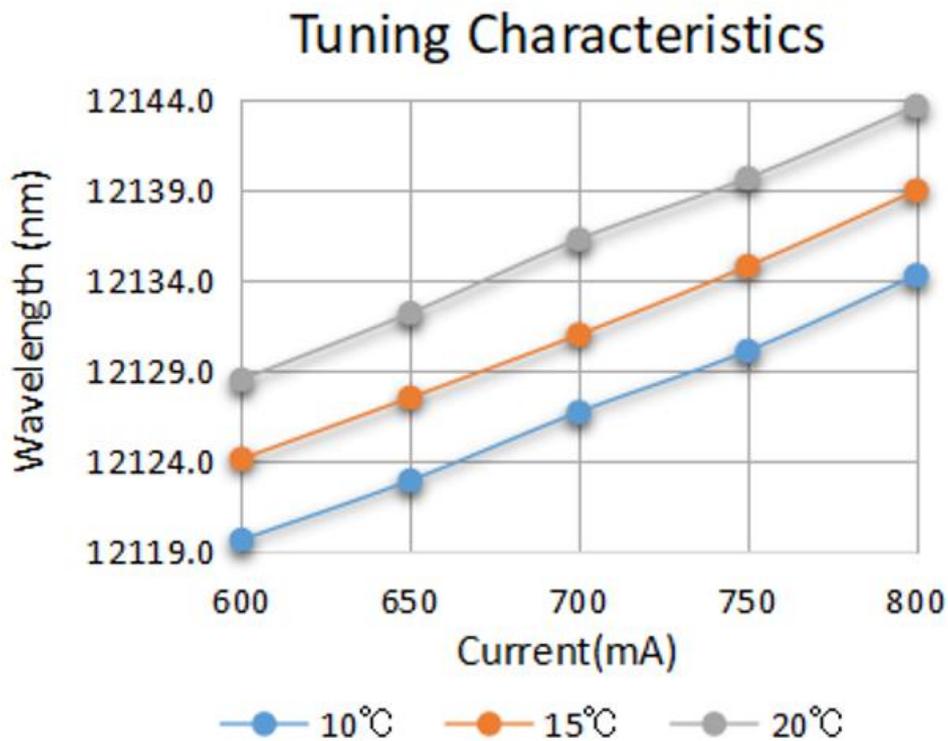
### Technical Specifications

1. Output power is optional;
2. Peak operating wavelength can be specified;
3. Output power stability test condition is 25 degrees, after 30 minutes of preheating;
4. Maximum power consumption refers to the overall power consumption under extreme working conditions;
5.  $I = 0.80 \text{ A}$ ,  $V = 8.7 \text{ V}$ ,  $T = 15 \text{ }^\circ\text{C}$ , measured at  $1/e^2$ .

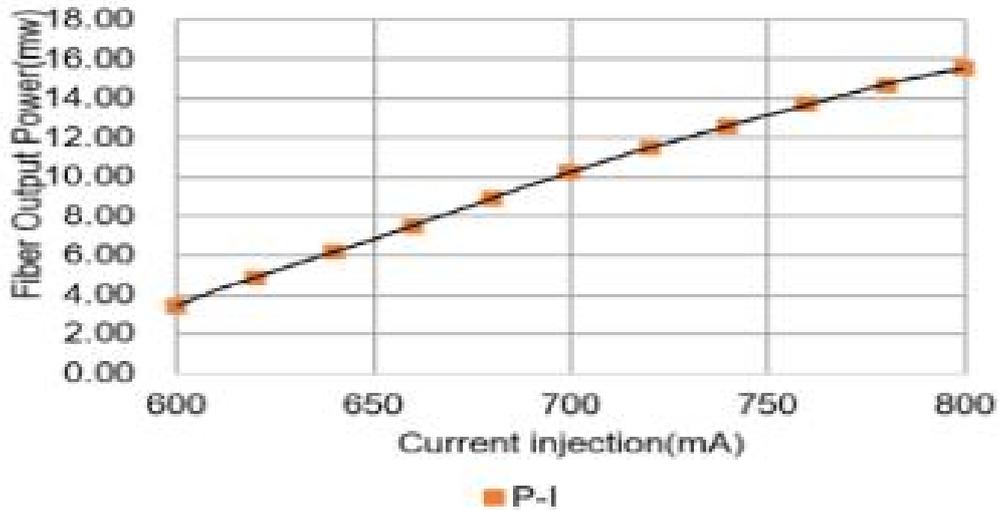
## Spectrum (20deg,800mA)



## Wavelength tuning diagram



## Average power vs current (at 20 °C)



## Power Stability

