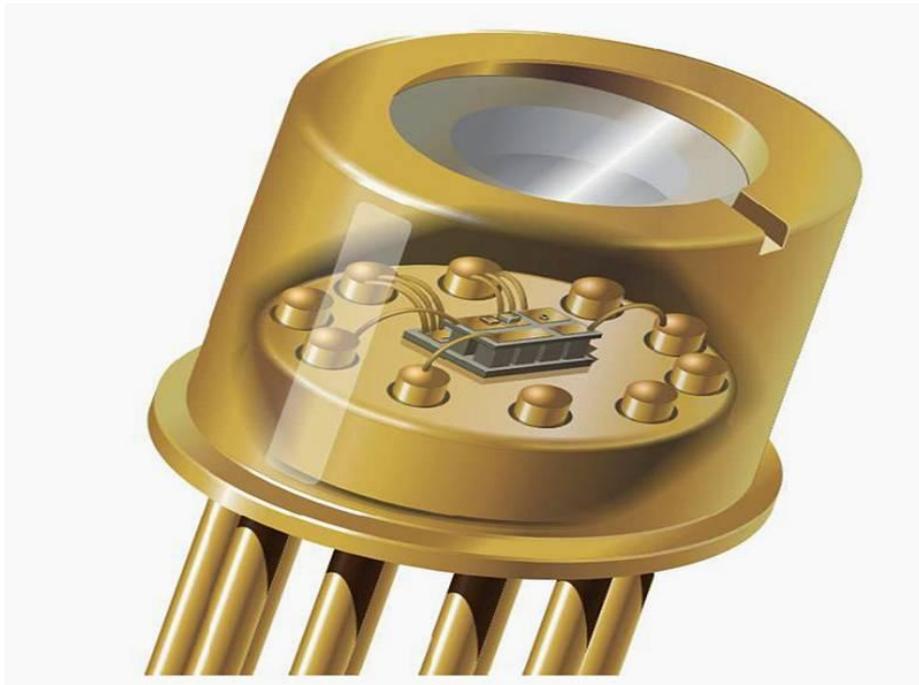


## 760nm high power single mode DFB laser 20mW (TO5 package oxygen detection)



### ● Product Description

With optimized optical properties, the 760nm single-mode DFB is ideal for demanding sensing system applications. The innovative chip design has suppressed high-order longitudinal and transverse modes while providing linear polarization stability. The laser has high output power, narrow linewidth and good consistency and is currently favored by domestic



scientific research customers. We currently have in stock wavelength 760nm DFB for TDLAS oxygen detection, 795nm VCSEL for Rb atomic clock experiments, and 852nm VCSEL for CS atomic cooling.

- **Product features**

Ultra-high output power 、 Narrow linewidth 、 Internal TEC and thermistor 、 2 nm TEC tunability

- **Part Number**

MP-DFB-760-20-A81-T05

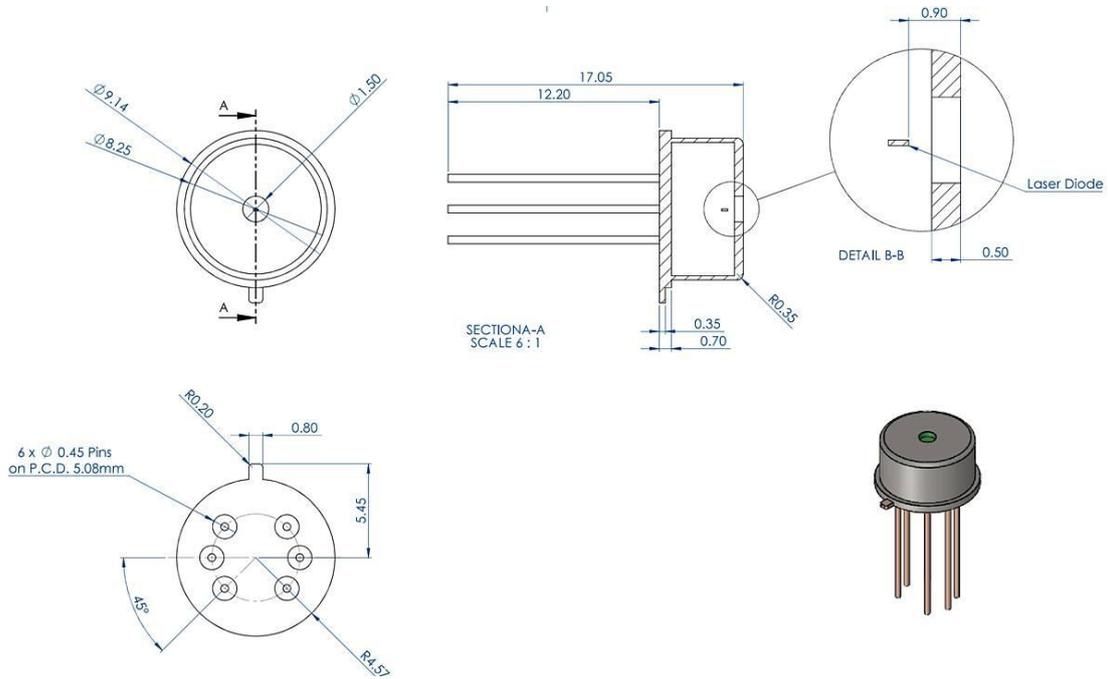
- **Application area**

TDLAS oxygen analysis detection、 Optical coherence experiment

- **Core parameters**

Wavelength	Power	Package
760nm	20mW	T05

## ● Dimension Drawing



## ● General Parameters

### Technical Parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
Incident Wavelength	$\lambda_R$	760	760.5	761	nm	T = 20°C, I <sub>TEC</sub> = 0, P <sub>OP</sub> = 35mw
Threshold Current	I <sub>TH</sub>		40		mA	T = 20°C



Output Power	$P_{opt}$	10	20	30	mW	$T = 0 \dots 50^\circ$ C
Threshold Voltage	$U_{TH}$		1.80		V	
Laser Current	$I_{OP}$			130	mA	$P_{opt} = 35\text{mw}$
Laser Voltage	$U_{OP}$		2.0		V	$P_{opt} = 35\text{mw}$
Electro-optical Conversion Efficiency	$\eta_{WP}$		12		%	$P_{opt} = 20\text{mw}$
Slope Efficiency	$\eta_s$		0.74		W/A	$T = 20^\circ\text{C}$
3dB Modulation Bandwidth	v3dB		3		MHz	$P_{opt} = 20\text{ mW}$ (due to ESD protection diode)
Relative Intensity Noise	RIN		-130	-120	dB/Hz	$P_{opt} = 0.3$ mW @ 1 GHz
Wavelength Tuning Current			0.01		nm/mA	



Wavelength Tuning Temperature			0.1		nm/deg	
Thermal Resistance	$R_{\text{thermal}}$	3		5	K/mW	
Side Mode Suppression		30			dB	
Beam Divergence	$\theta$	10		25	$^{\circ}$	$P_{\text{opt}} = 35 \text{ mW}$ full $1/e^2$ bandwidth
Spectral Bandwidth	$\Delta\nu$		3		MHz	$P_{\text{opt}} = 35 \text{ mW}$
TEC Current	$I_{\text{TEC}}$			1000	mA	Requires proper heatsink
NTC Thermistor Resistance		9.5	10.0	10.5	k $\Omega$	T= 25 $^{\circ}$ C

NTC			
Temperature Dependence		$10/\exp[3892 \cdot (1/298K-1/T_{OP})]$	kΩ

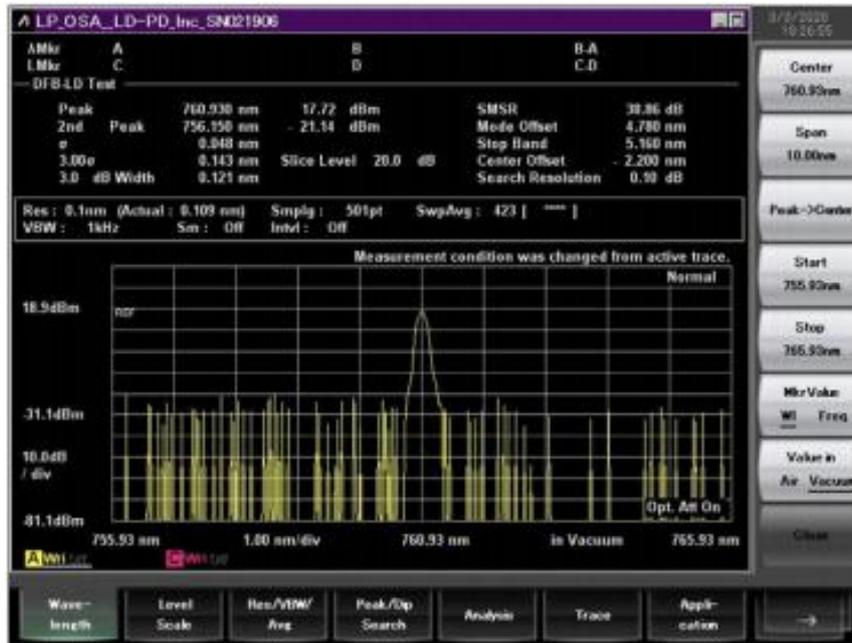


## Absolute Maximum Values

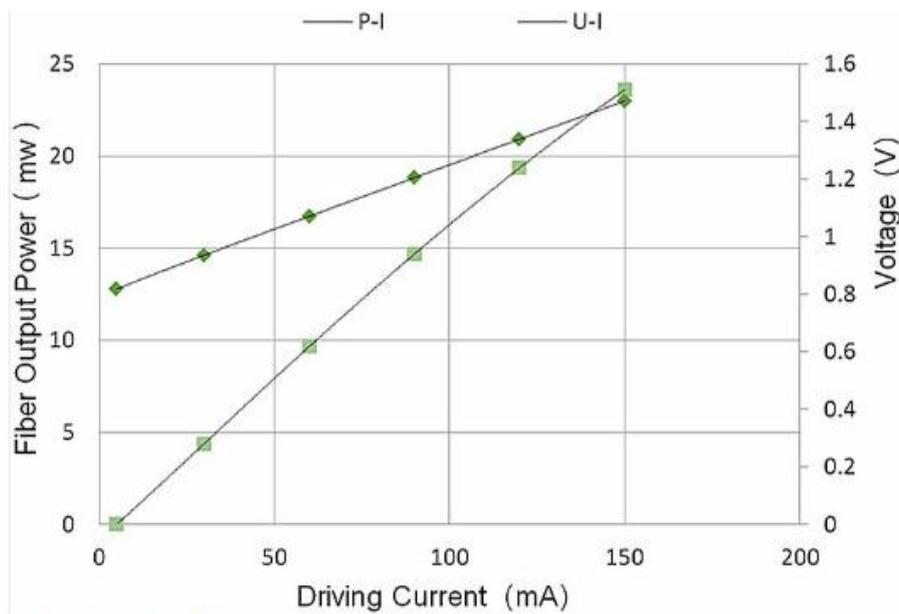
Storage Temperature	-40...125°C
Operating Temperature	-20...80°C
Electrical Power Loss	500 mW
Forward Laser Current	130mA
Reverse Current	10 mA
Soldering Temperature	270C°

\*TEC Temperature must be below 70°C

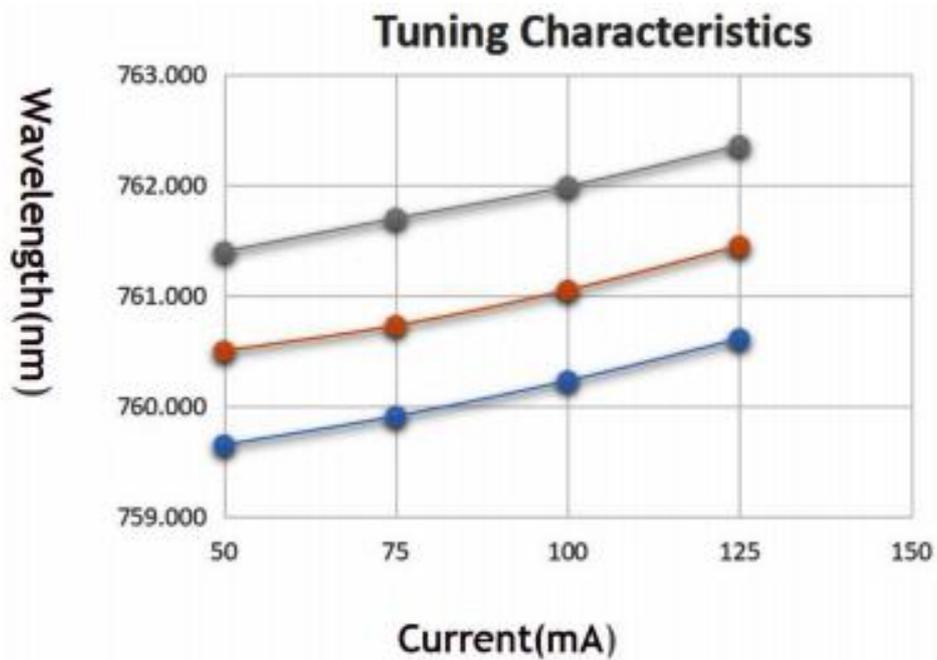
## Spectral graph



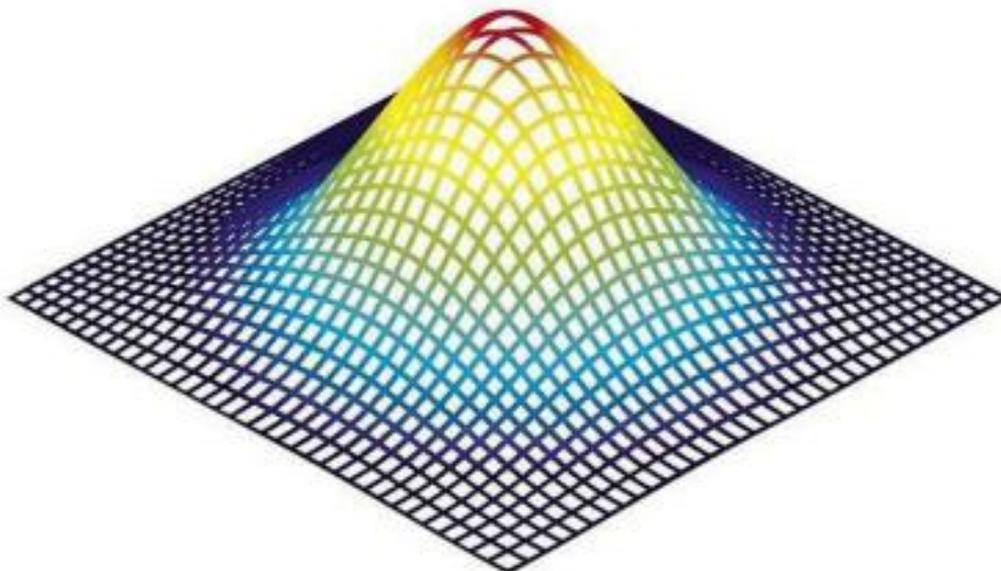
## L-I-V curve



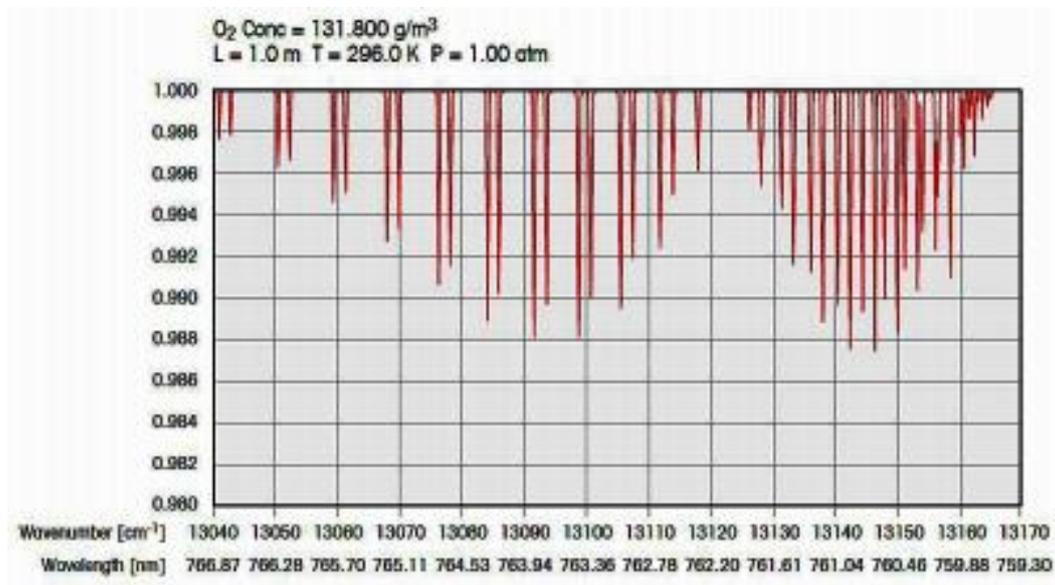
## Temperature/Wavelength under TEC Current Tuning



## Beam Quality Analysis

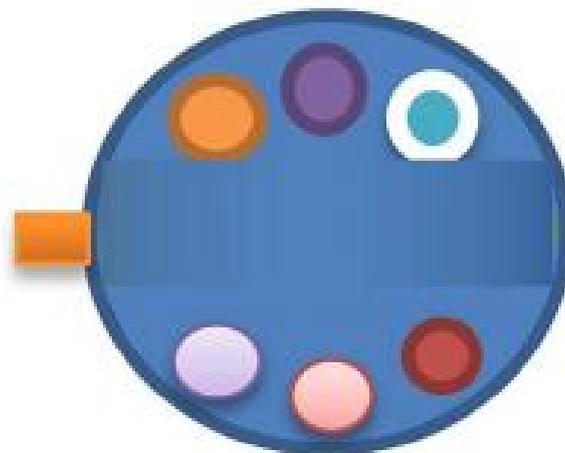


## Oxygen Absorption Line



## Pin Definition

### With TEC pin configuration



## Bottom View



Icon	Pin#	Definition	Icon	Pin#	Definition
	1	Cooler+		4	Thermistor
	2	LD+		5	LD-
	3	Thermistor		6	Cooler-