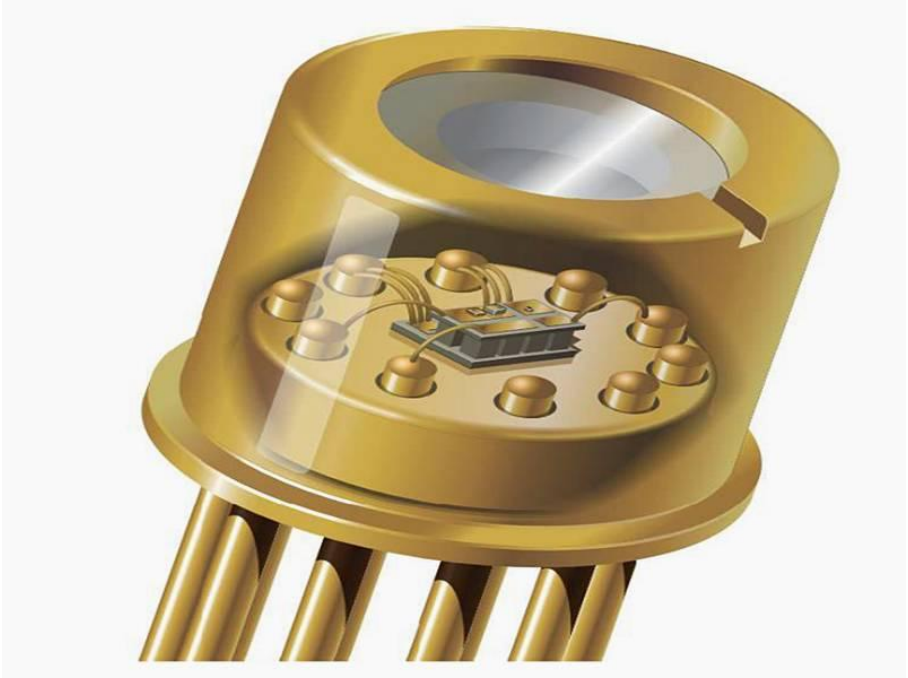
760nm High Power Single Mode DFB Laser (20mW, TO39 Package, Oxygen Detection)



Product Description

With optimized optical characteristics, the 760nm single-mode DFB laser is an ideal choice for high-demand sensor system applications. The innovative chip design suppresses higher-order longitudinal and transverse modes, while maintaining stable linear polarization. The laser offers high output power, narrow linewidth, and excellent consistency, making it highly favored by domestic research customers. Currently, we have stock of the 760nm DFB laser for TDLAS oxygen detection, the 795nm VCSEL for

Rubidium atomic clock experiments, and the 852nm VCSEL for Cesium atomic cooling.

Product features

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

Part Number

MP-DFB-760-20-A81-TO39

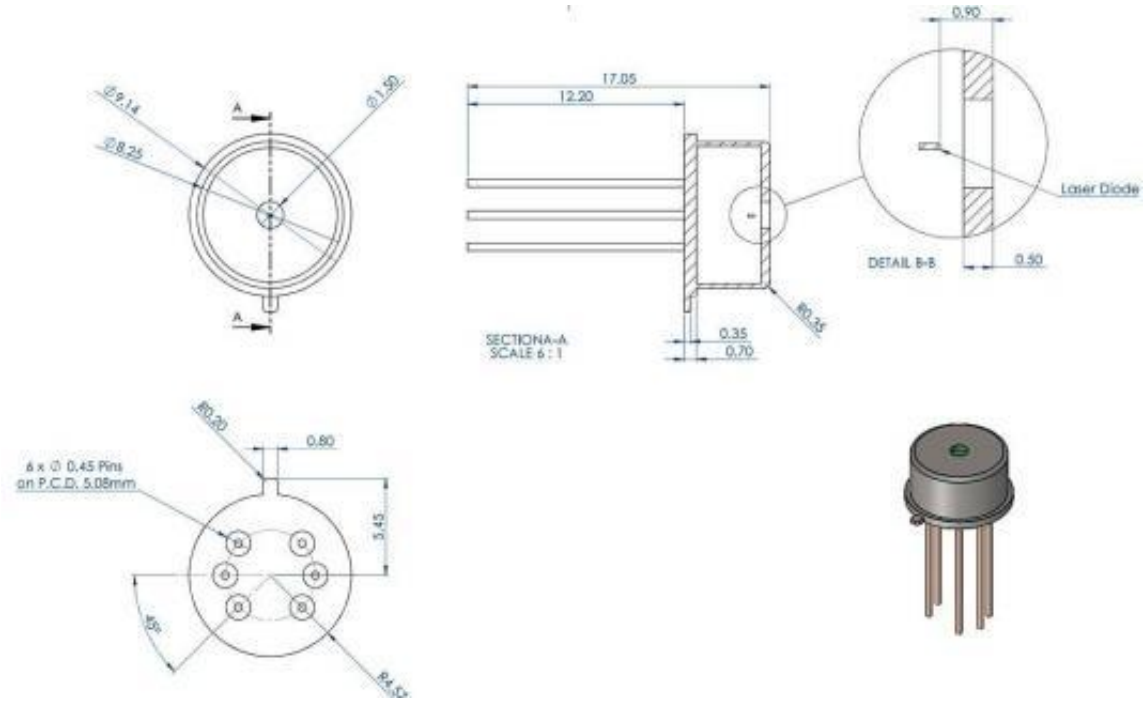
Application area

TDLAS oxygen analysis detection、 Optical coherence experiments

Core parameters

Wavelength	Power	Package
760nm	20mW	TO39

Dimension Drawing



General Parameters

Technical Parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
Incident Wavelength	λ_R	760	760.5	761	nm	T = 20°C, I_{TEC} = 0, P_{OP}= 35mw
Threshold Current	I_{TH}		40		mA	T = 20°C
Output Power	P_{opt}	10	20	30	mW	T = 0 ⋯ 50° C
Threshold	U_{TH}		1.80		V	

Voltage						
Laser Current	I_{OP}			130	mA	P_{opt} = 35mw
Laser Voltage	U_{OP}		2.0		V	P_{opt} = 35mw
Electro-optical Conversion Efficiency	η_{WP}		12		%	P_{opt} = 20mw
Slope Efficiency	η_S		0.74		W/A	T = 20°C
3dB Modulation Bandwidth	v3dB		3		MHz	P_{opt} = 20 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	$R_{thermal}$	3		5	K/mW	

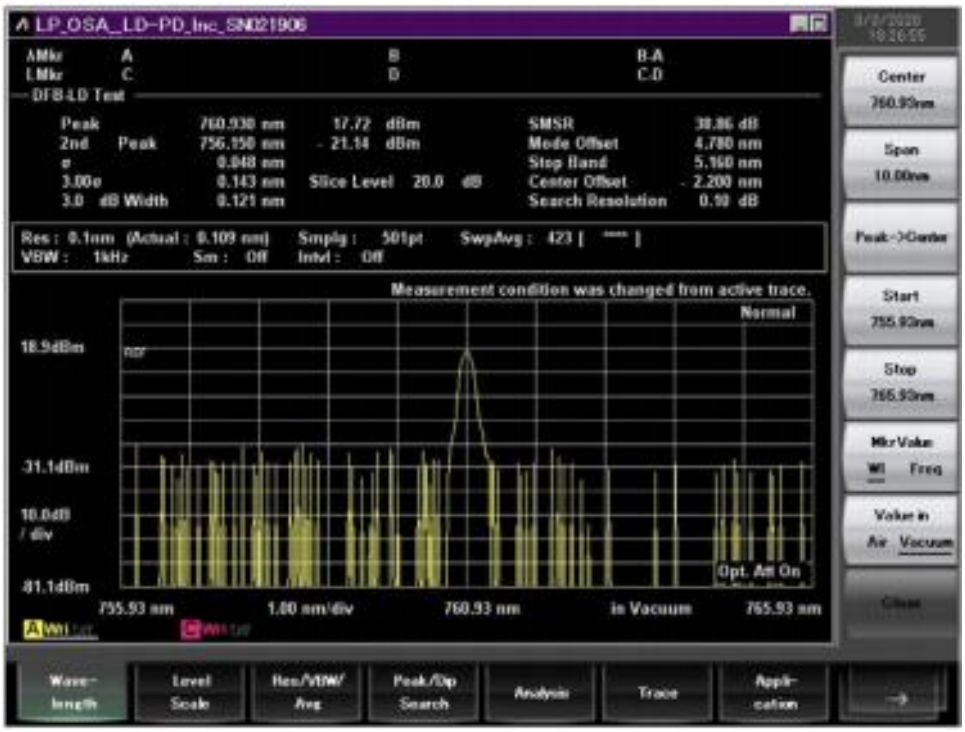
Side Mode Suppression		30			dB	
Beam Divergence	θ	10		25	°	P_{opt} = 35 mW full $1/e^2$ bandwidth
Spectral Bandwidth	Δv		3		MHz	P_{opt} = 35mw
TEC Current	I_{TEC}			1000	mA	Requires proper heatsink
NTC Thermistor Resistance		9.5	10.0	10.5	kΩ	T= 25°C
NTC Temperature Dependence		$10/\exp[3892 \cdot (1/298K-1/T_{OP})]$			kΩ	

Absolute Maximum Values

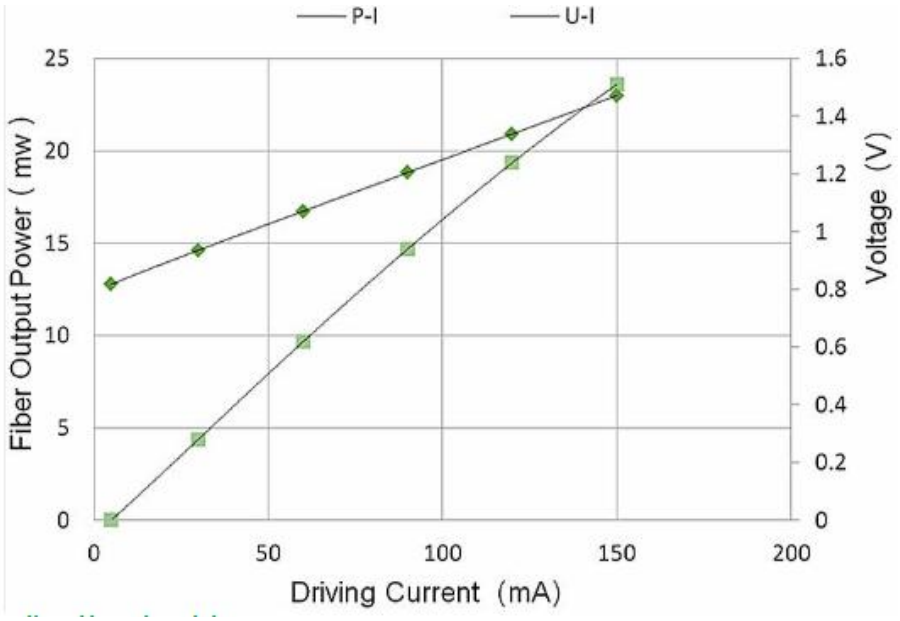
Storage Temperature	-40…125℃
Operating Temperature	-20…80℃
Electrical Power Loss	500mW
Forward Laser Current	130mA
Reverse Current	10mA
Soldering Temperature	270C°

*TEC Temperature must be below 70℃

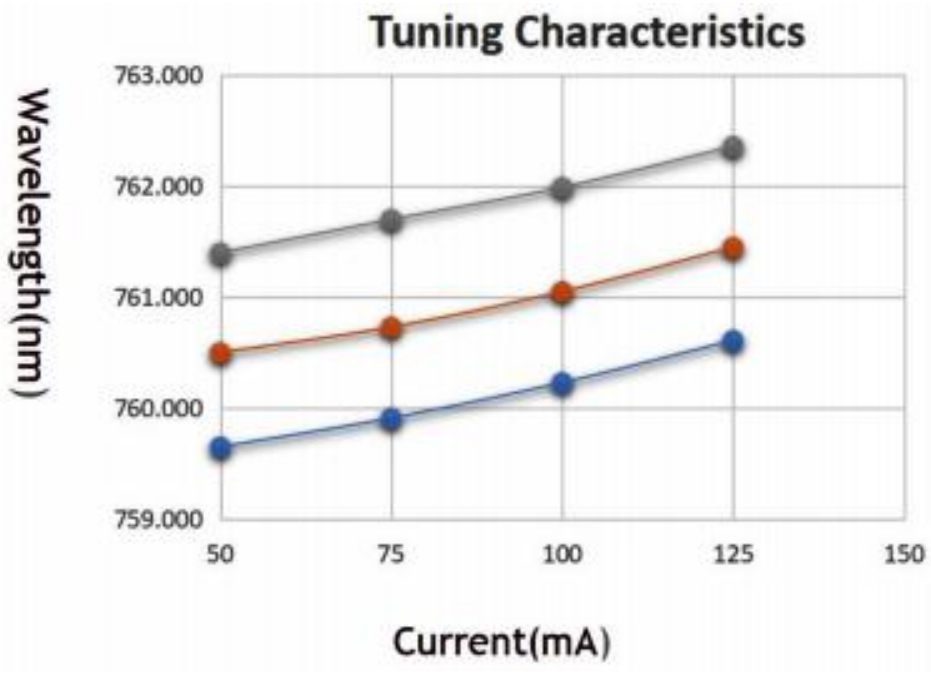
Spectral graph



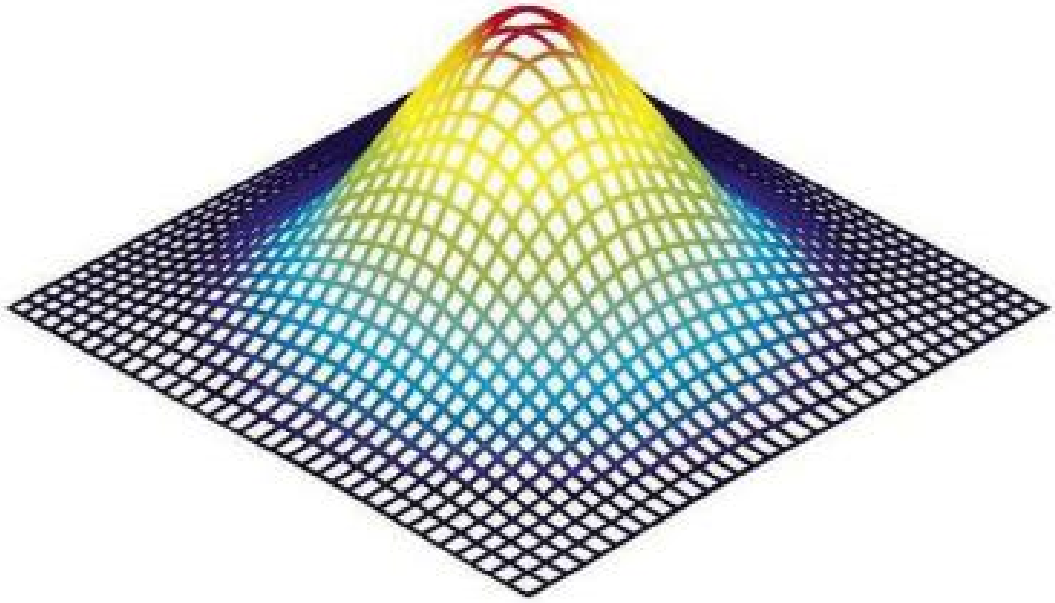
L-I-V curve



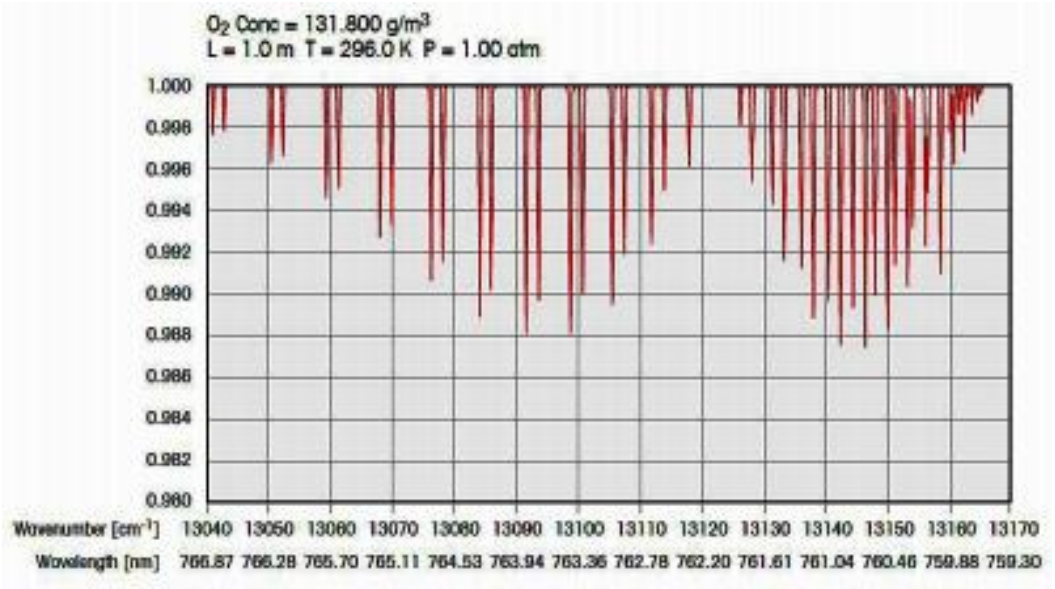
Temperature/Wavelength under TEC Current Tuning



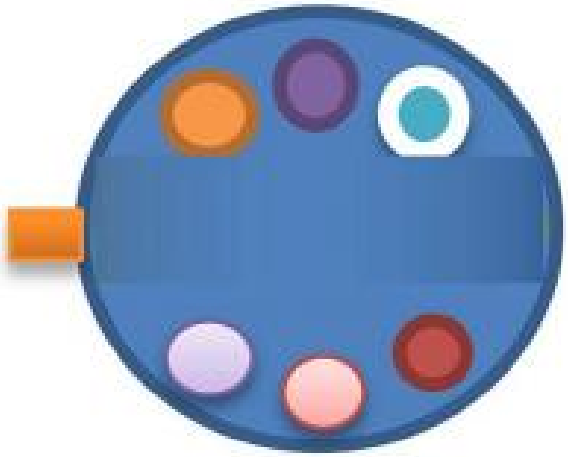
Beam Quality Analysis



Oxygen Absorption Line



Pin Definition



Bottom View

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

Ordering info

MP-DFB-□□□□-☆-A8▽-TO5

□□□□: Wavelength

0760: 760nm

1270: 1270nm

1532: 1532nm

1392: 1392nm

1512: 1512nm

1567: 1567nm

1653.7: 1653.7nm

☆: Output Power

A: 10mW

B: 20mW

▽: Wavelength Tolerance

1: ±1nm

2: ±2nm