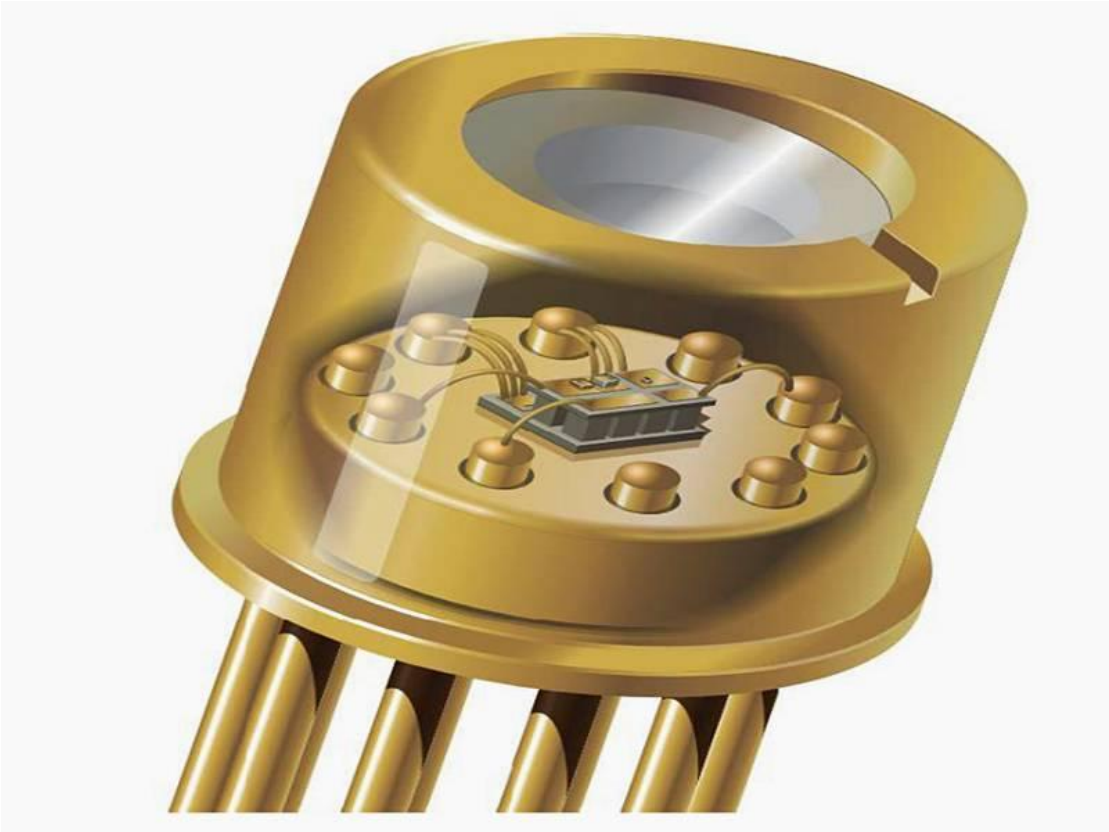
760nm High Power Single Mode DFB Laser (20mW, TO39 Package, Oxygen Detection)



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.

Part Number

PL-DFB-0760-B-A81-TO39

Product features

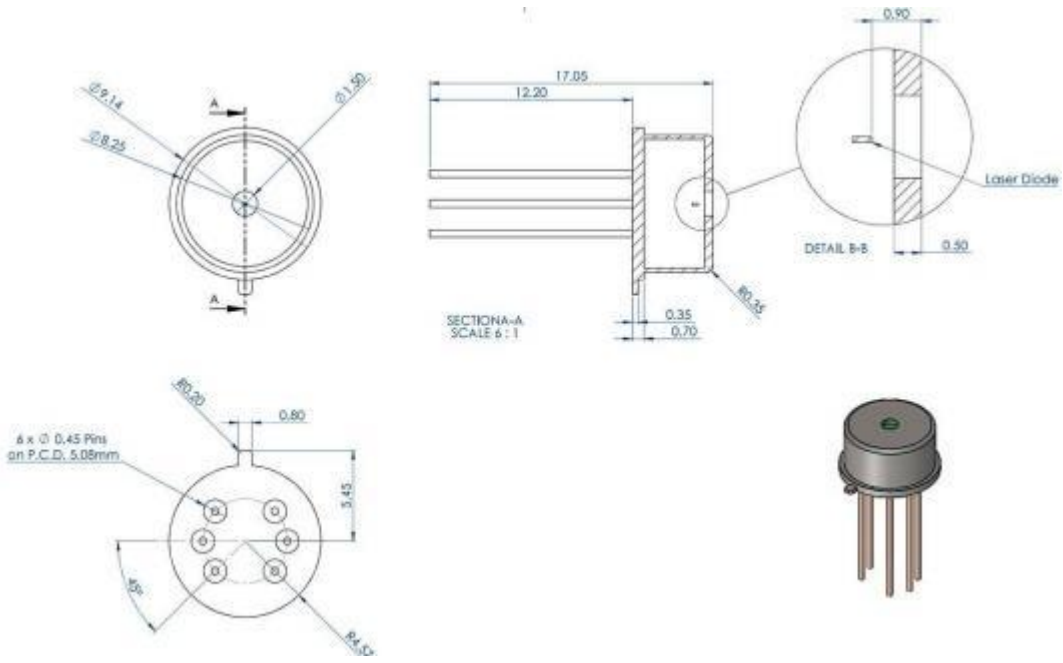
Ultra-high output power、 Narrow linewidth、 Internal TEC and thermistor、 2 nm adjustable TEC

Application area

TDLAS oxygen analysis detection、 Optical coherence experiments

Parameters

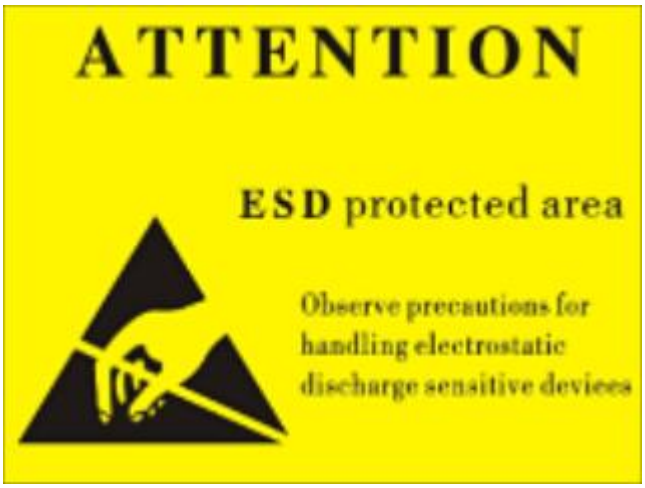
Dimensional Drawing



Technical Parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
Incident Wavelength	λ R	760	760.5	761	nm	T = 20° C, ITEC = 0, POP= 35mw
Threshold Current	ITH		40		mA	T = 20° C
Output Power	Popt	10	20	30	mW	T = 0 … 50° C

Threshold Voltage	UTH		1.80		V	
Laser Current	IOP			130	mA	Popt = 35mw
Laser Voltage	UOP		2.0		V	Popt = 35mw
Electro-optical Conversion Efficiency	η WP		12		%	Popt = 20mw
Slope Efficiency	η S		0.74		W/A	T = 20° C
3dB Modulation Bandwidth	ν 3dB		3		MHz	Popt = 20 mW (due to ESD protection diode)
Relative Intensity Noise	RIN		-130	-120	dB/Hz	Popt = 0.3 mW @ 1 GHz
Wavelength Tuning Current			0.01		nm/mA	
Wavelength Tuning Temperature			0.1		nm/deg	
Thermal Resistance	Rthermal	3		5	K/mW	
Side Mode Suppression		30			dB	
Beam Divergence	θ	10		25	°	Popt = 35 mW full $1/e^2$ bandwidth
Spectral Bandwidth	Δ ν		3		MHz	Popt = 35mw
TEC Current	ITEC			1000	mA	Requires proper heatsink
NTC Thermistor Resistance		9.5	10.0	10.5	kΩ	T= 25° C
NTC Temperature Dependence		10/exp[3892 • (1/298K-1/TOP)]			kΩ	

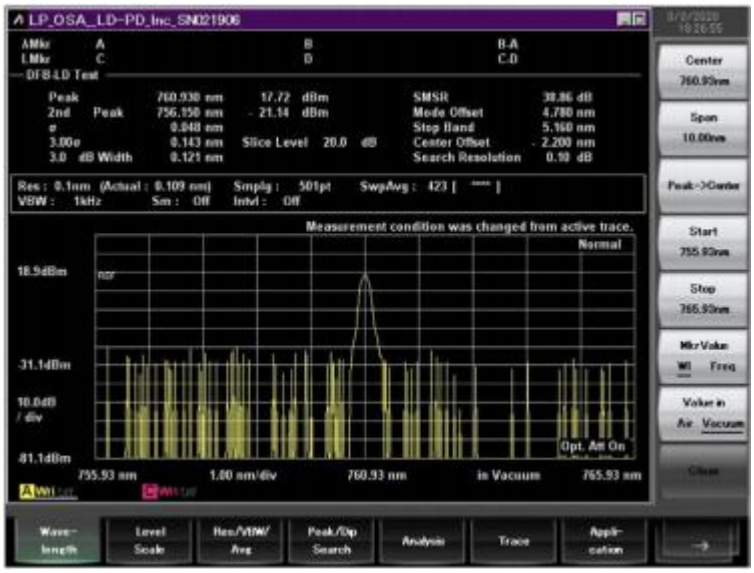


Absolute Maximum Values

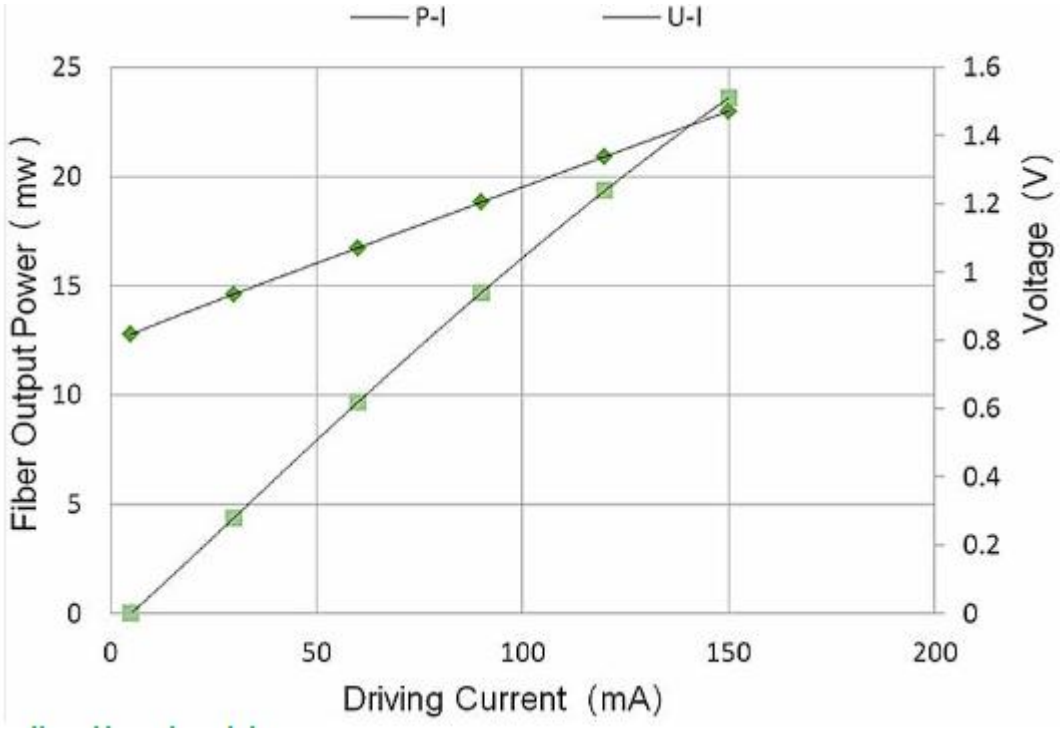
Storage Temperature	-40 ⋯ 125° C
Operating Temperature	-20 ⋯ 80° C
Electrical Power Loss	500mW
Forward Laser Current	130mA
Reverse Current	10mA
Soldering Temperature	270C°

*TEC Temperature must be below 70° C

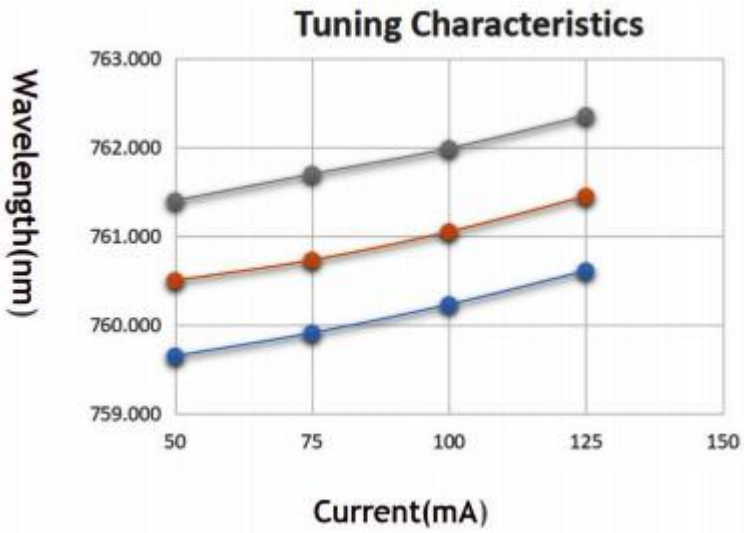
Spectral graph



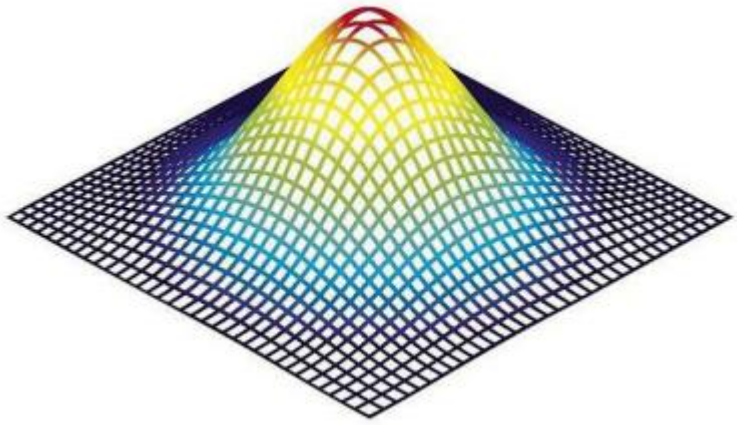
L-I-V curve



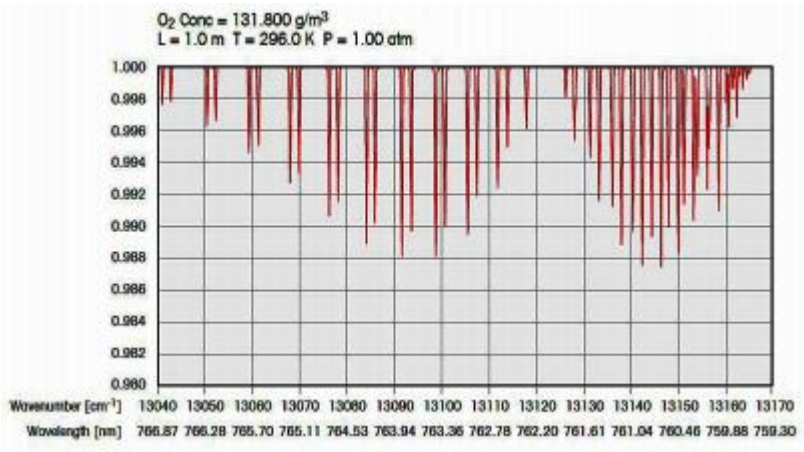
Temperature/Wavelength under TEC Current Tuning



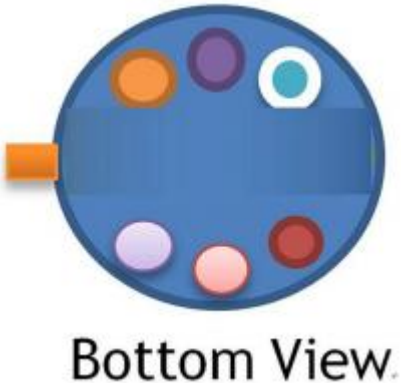
Beam Quality Analysis



Oxygen Absorption Line



Pin Definition



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

Ordering info

PL-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