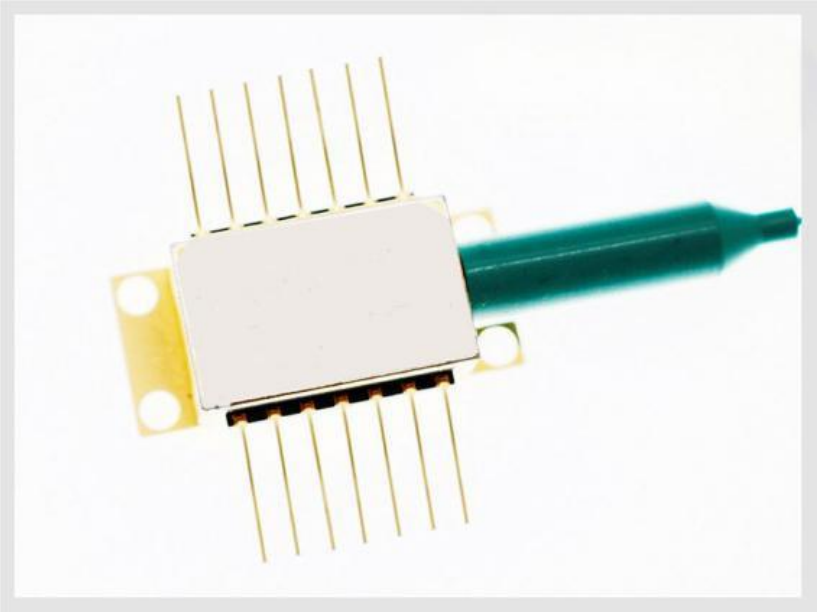
1530-1540nm SM 8nm Tunable DBR Laser Diode



Product Description

Idealphotonics' Distributed Bragg Reflector (DBR) laser is a single-frequency laser diode, ideal for low-noise pump applications, second harmonic generation, time-resolved fluorescence spectroscopy, and fiber optic sensing. The laser integrates an optical isolator, thermoelectric cooler (TEC), thermistor, and monitor photodiode. It comes in a 14-pin butterfly package with SMF-28E single-mode fiber and an FC/APC connector.

Product features

8nm tunable bandwidth; High side-mode suppression ratio; Low power consumption; High wavelength stability; Fast wavelength switching

Part Number

MP-DBR-1530-40-14BF-SA

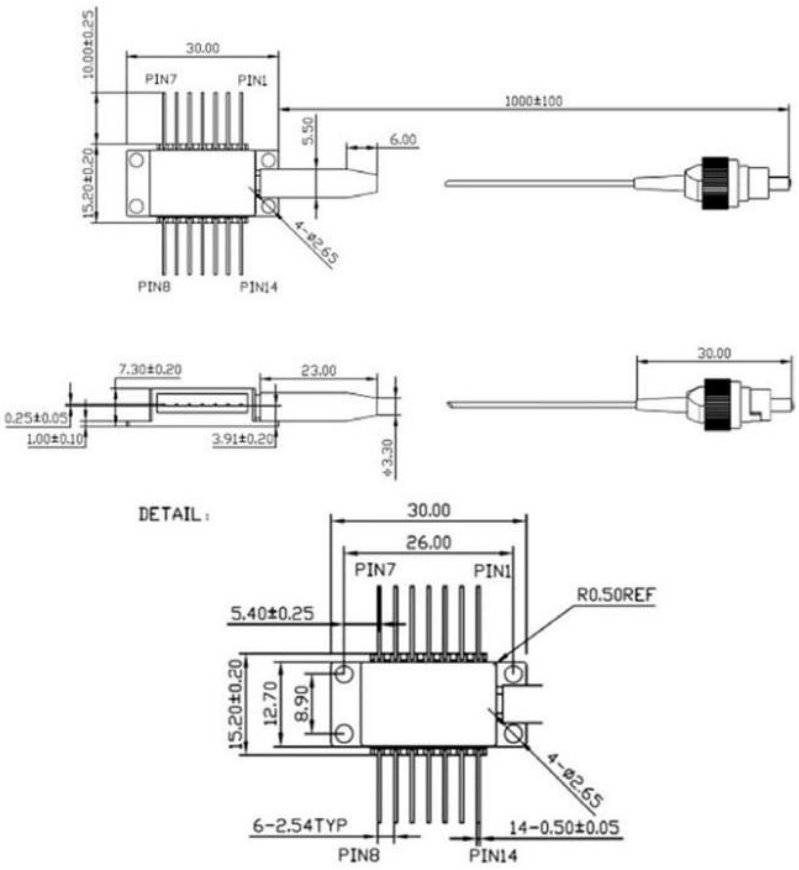
Application area

Dense Wavelength Division Multiplexing (DWDM) | Fiber Optic Sensing | Quantum Communication (QKD) | LiDAR | Scientific Research Grade Spectroscopy Experiments

Core parameters

Center Wavelength	Spectral Width
1535-1545nm	3MHz

Dimension Drawing



General Parameters

Detailed Parameters

Electrical / Optical Characteristics (Substrate temperature = 25°C, CW bias unless otherwise stated)

Parameter	Min.	Typ.	Max.	Unit
Optical Output Power *a	30	40	-	mW

Center Wavelength (customizable)	1535	1540	1545	nm
Wavelength Tuning Range	6	8	-	nm
Wavelength Tuning Speed	-	-	10	ms
Spectral Width	-	3	-	MHz
RF Direct Modulation Speed	-	10	-	Gb/s
Threshold Current	-	40	-	mA
Polarization Extinction Ratio	20	-	-	dB
Side Mode Suppression Ratio	40	50	-	dB
Relative Intensity Noise	-	-	-135	dB/Hz
Chip Temperature	10	25	40	°C
Operating Temperature	-5	-	+75	°C
Storage Temperature	-40	-	+85	°C

A. Test drive current @250mA

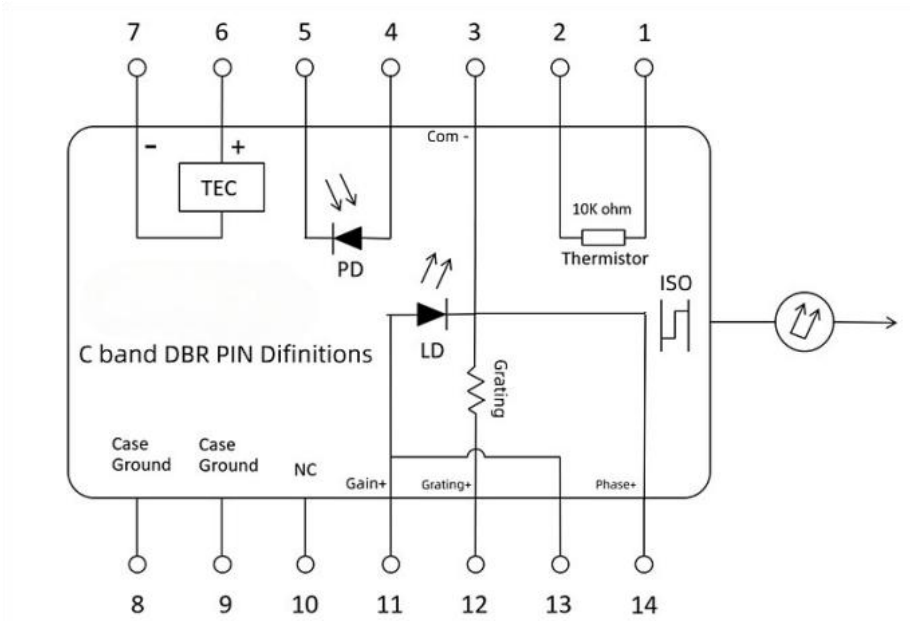
B. Test drive current @150mA, self-heterodyne delay fiber @25km

Absolute Maximum Ratings

Laser Section

Laser	Operating Range (CW,mA)	Absolute Maximum Rating	
		Current (mA)	Voltage (V)
Gain	100-250	350	2.0
Rear Grating	0-90	120	2.0
Phase Tuning	0-5	10	2.0

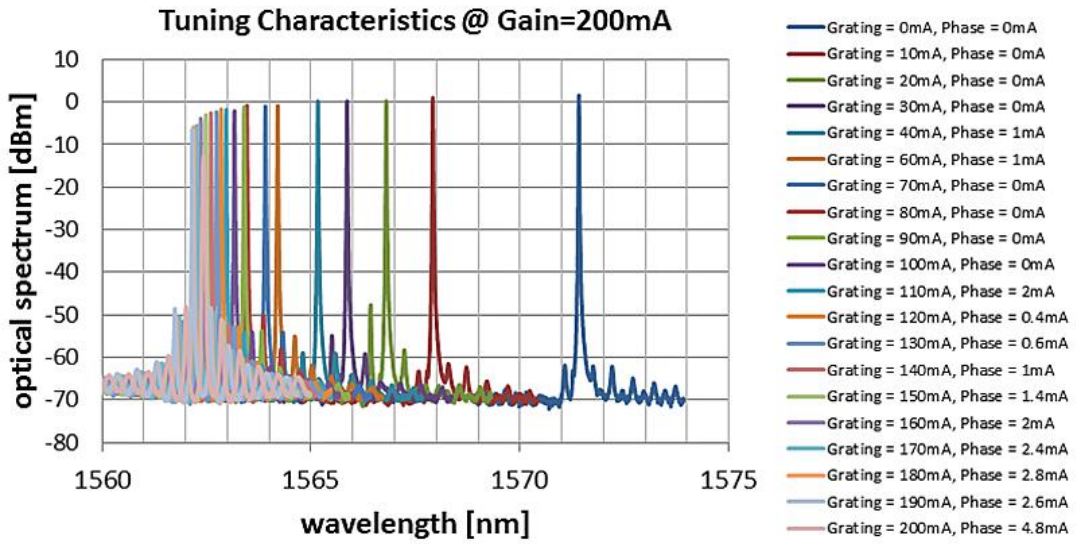
Pin Definition

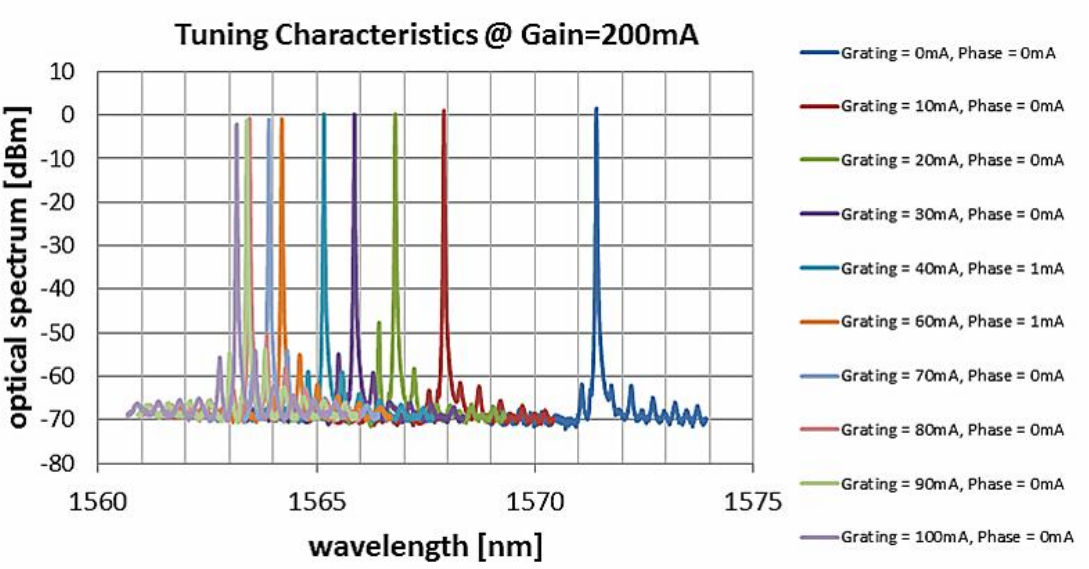


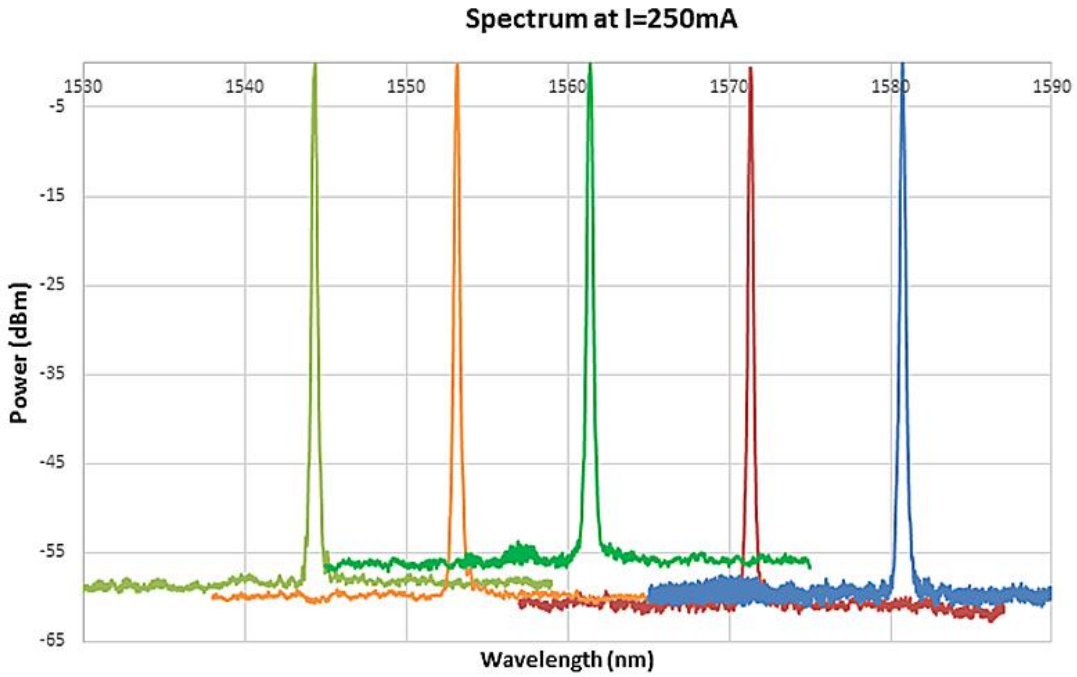
Pin	Function	Pin	Function
1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground
3	Laser Diode Cathode (-)	10	No Connection (NC)
4	Monitor PD Anode	11	Gain
5	Monitor PD Cathode	12	Grating
6	TEC (+)	13	Gain
7	TEC (-)	14	Phase

Characteristic Curves

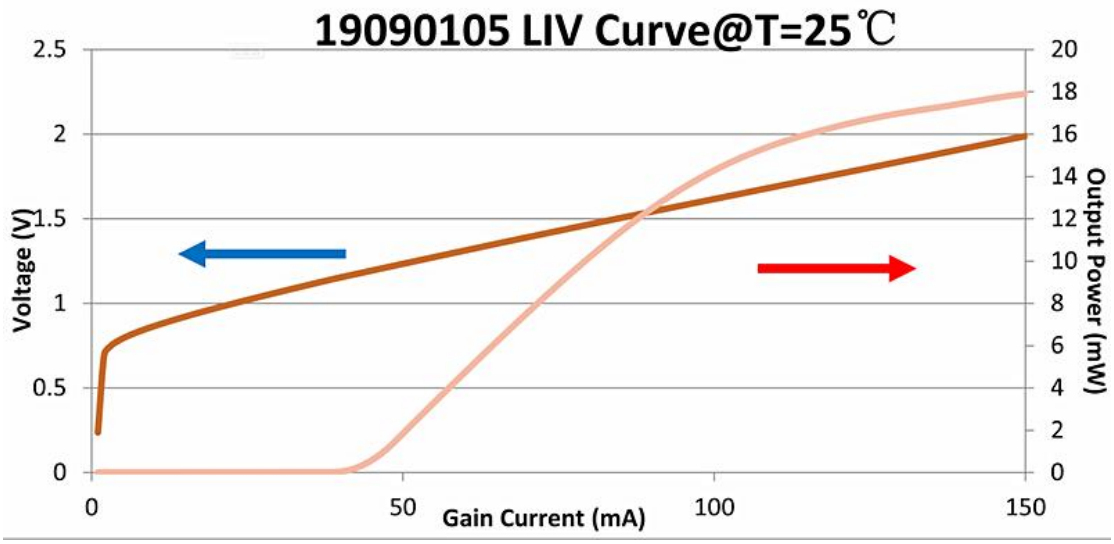
Tuning characteristic curve (tuning range 8.5-10nm)



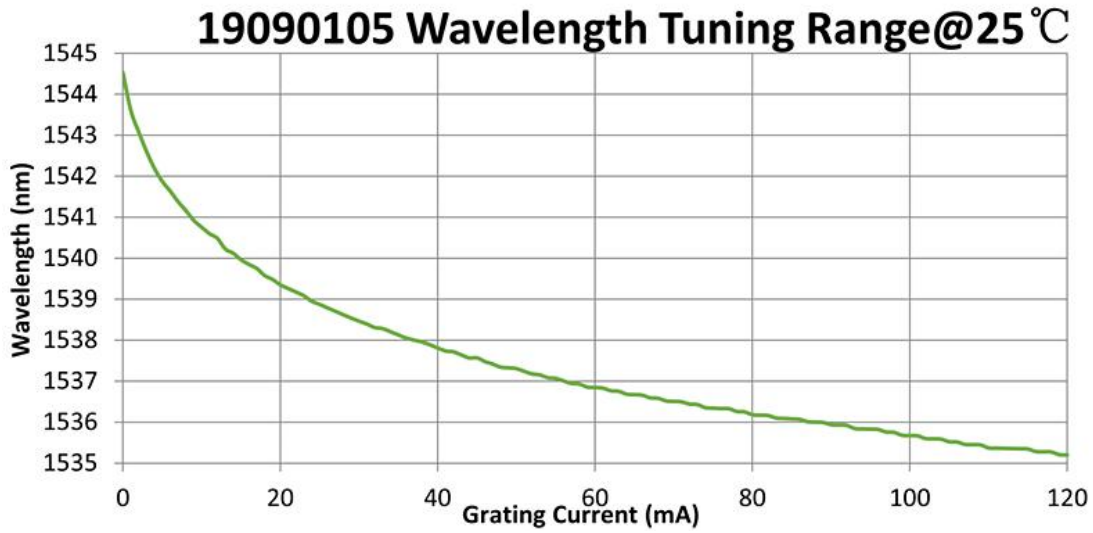

Tuning Characteristics @ Gain=200mA
optical spectrum [dBm]
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1560
1565
1570
1575
wavelength [nm]
Grating = 0mA, Phase = 0mA
Grating = 10mA, Phase = 0mA
Grating = 20mA, Phase = 0mA
Grating = 30mA, Phase = 0mA
Grating = 40mA, Phase = 1mA
Grating = 60mA, Phase = 1mA
Grating = 70mA, Phase = 0mA
Grating = 80mA, Phase = 0mA
Grating = 90mA, Phase = 0mA
Grating = 100mA, Phase = 0mA


Spectrum at I=250mA
1530
1540
1550
1560
1570
1580
1590
-5
-15
-25
-35
-45
-55
-65
Power (dBm)
Wavelength (nm)

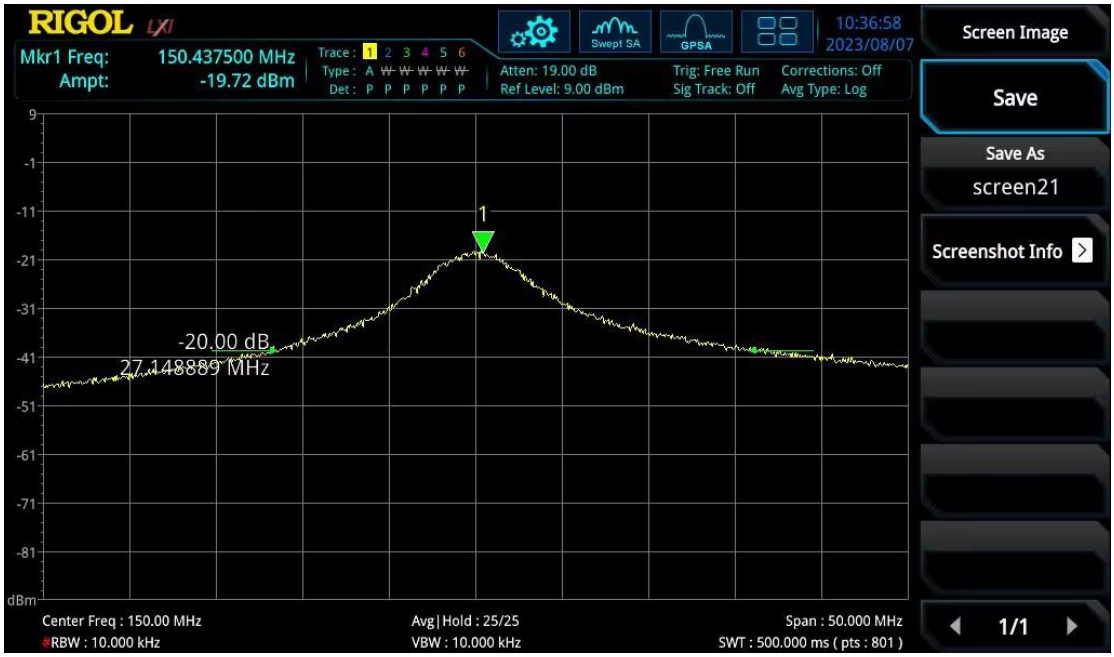
Optical power - Current - Voltage



Grating tuning current (wavelength direction)



DBR laser linewidth test results



Ordering Information

MP-DBR-□□□□-☆-▽-XX

□□□□:Wavelength

1530:1530nm

*****

1580:1580nm

☆:Output Power

30:30mW

50:40mW

▽:Wavelength Tolerance

1:±1nm

2:±2nm

XX:Fiber and Connector Type

SA=SMF-28E+ FC/APC

SP=SMF-28E+ FC/PC

PP=PM Fiber+ FC/PC

PA=PM Fiber+ FC/APC