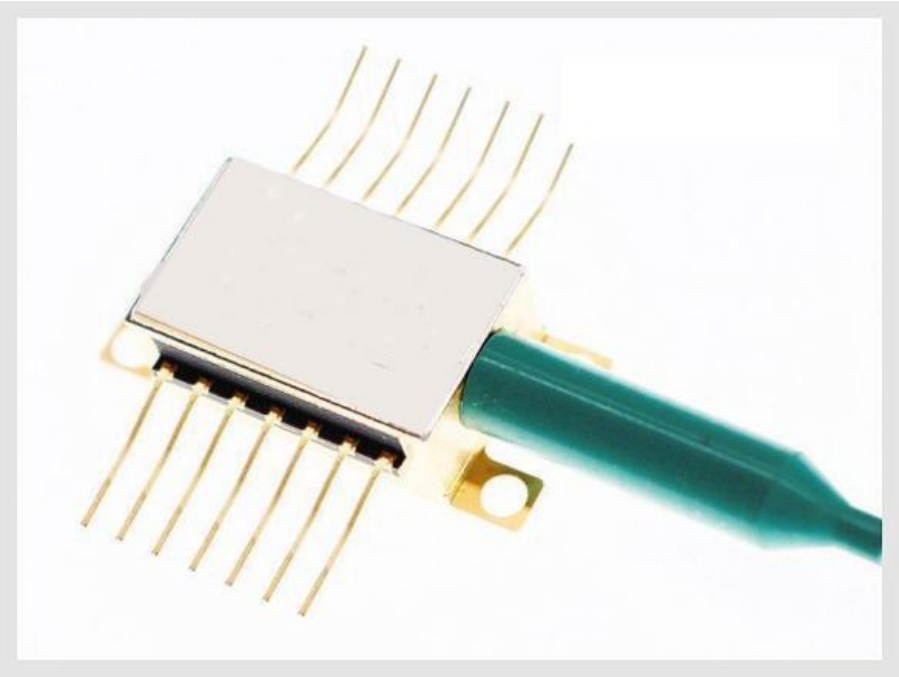
1540-1560nm 30mW SM 8nm Tunable DBR Laser Diode



Product Description

This single-frequency DBR laser diode is designed for applications including low-noise pumping, second harmonic generation, time-resolved fluorescence spectroscopy, and fiber-optic sensing.It is integrated with an optical isolator, thermoelectric cooler (TEC), thermistor, and monitoring photodiode, housed in a 14-pin butterfly package with an SMF-28E single-mode fiber and FC/APC connector.

Product features

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

Part Number

MP-DBR-1560-30-1-SA-14BF

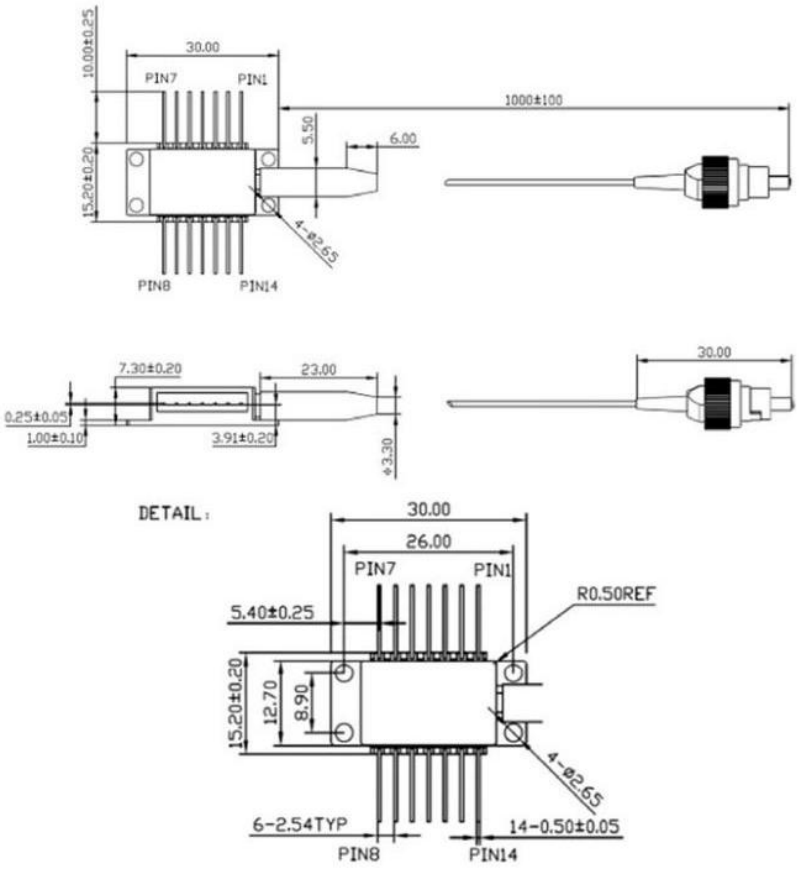
Application area

Dense Wavelength Division Multiplexing (DWDM) | Fiber-optic Sensing | Quantum Key Distribution (QKD) | LiDAR | Scientific Spectroscopy Experiments

Core parameters

Center Wavelength	Spectral Linewidth
1550nm	3MHz

Dimension Drawing



General Parameters

Detailed parameters

Parameters

Laser characteristics (continuous wave mode, temperature = 25°C)

• Parameters	Minimum	Standard	Max	unit
Optical output power * a	30	40	-	mW
Center wavelength (customizable)		1550		nm
Wavelength tuning range	6	8		nm

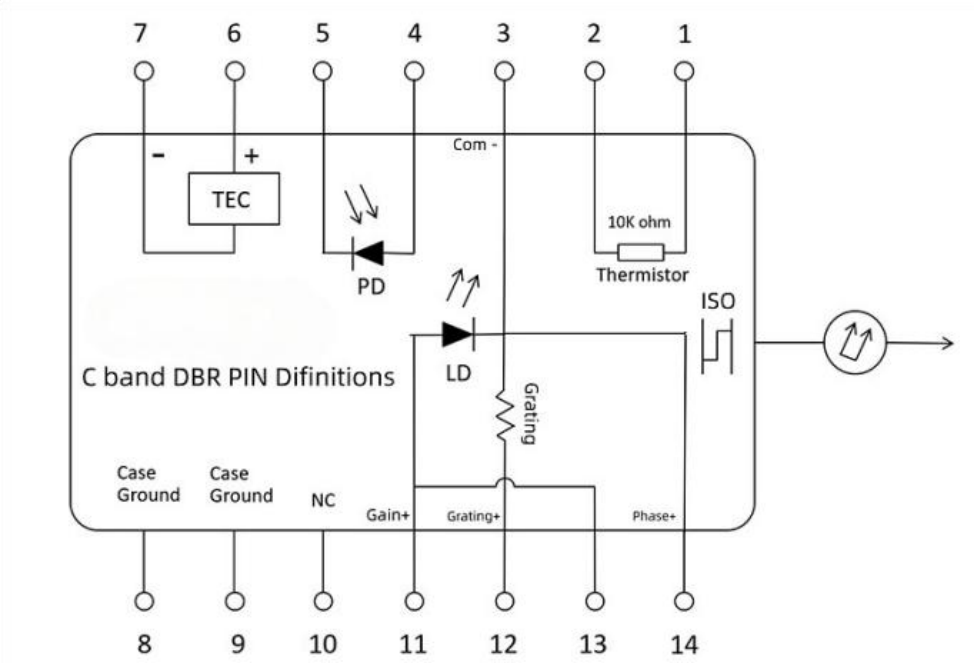
Wavelength tuning rate	-	-	10	ms
Spectral width	-	3	--	MHz
RF direct modulation rate	-	10	-	Gb/s
Threshold current	-	40	-	mA
Polarization extinction ratio	20	-	-	dB
Edge mode suppression ratio	40	50	-	dB
Relative intensity noise	-	-	-135	dB/Hz
Chip temperature	10	25	40	℃
Operating temperature	-5	-	+75	℃
Storage temperature	-40	-	+85	℃

A. Test the drive current @250mA

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

Absolute maximum rating

Laser section	Current operating range	Absolute maximum rating	
	Continuous wave (C.W.) range (mA)	Current (mA)	Voltage (V)
gain	100-250	350	2.0
Rear grating	0-90	120	2.0
Phase tuning	0-5	10	2.0

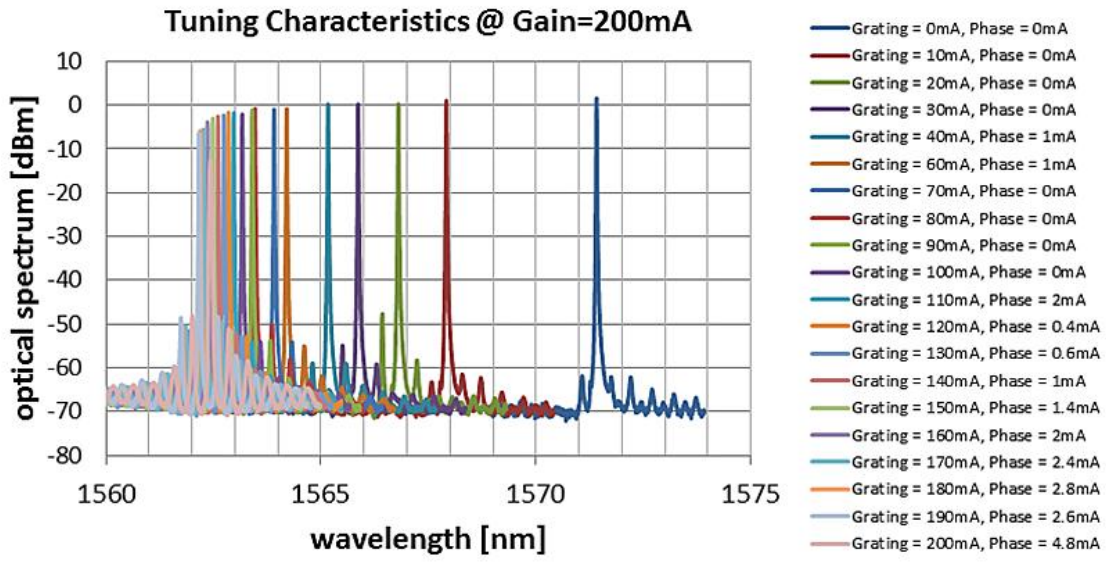


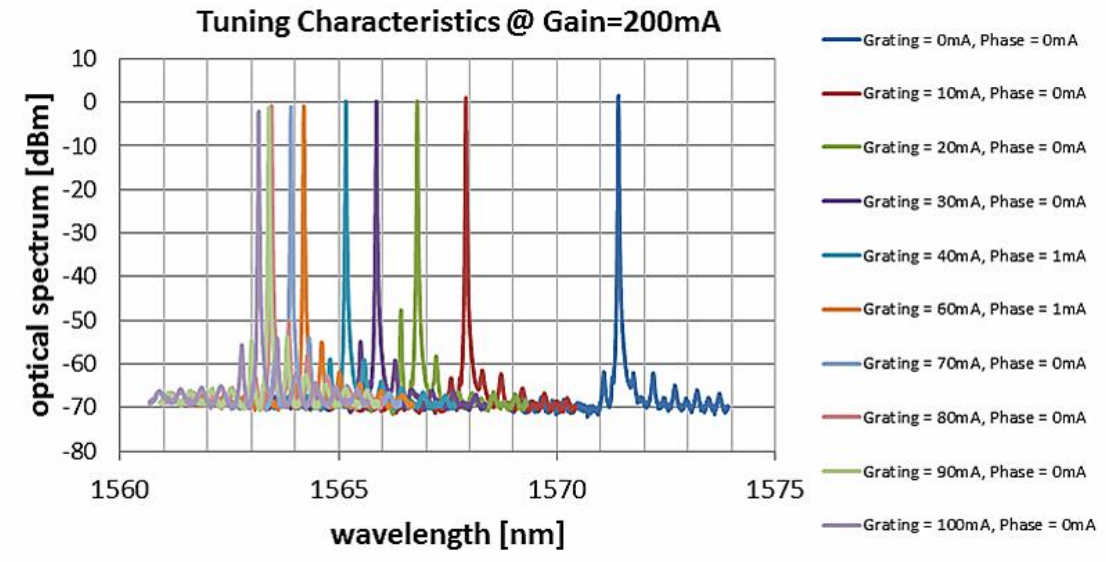
Pin definition

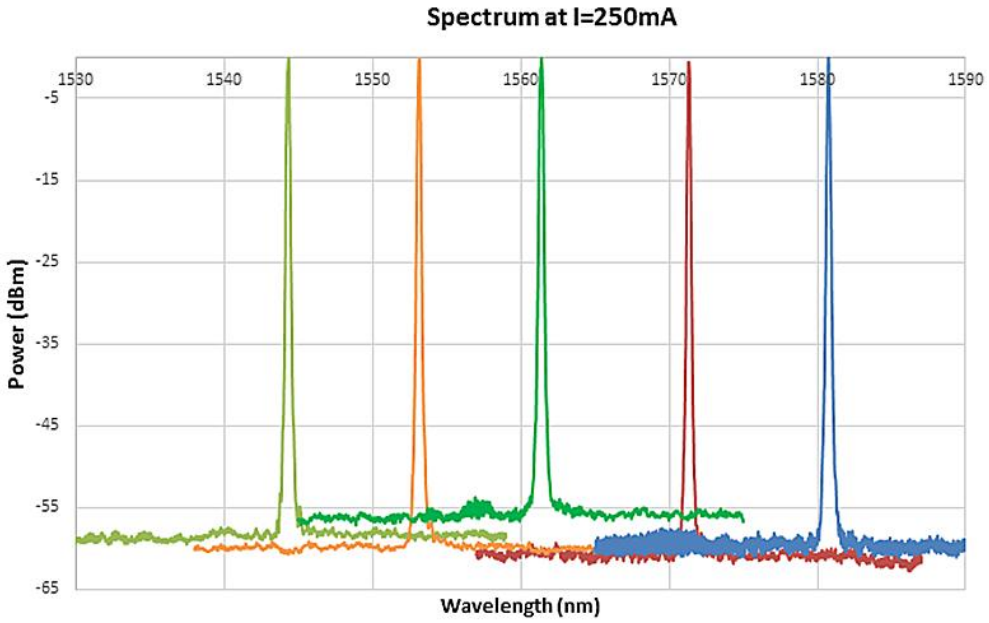
Stitches	Function	Stitches	Function
1	Thermistors	8	Case ground
2	Thermistors	9	Case ground
3	Laser Diode Cathode (-)	10	NC (No Connection)
4	Monitor photodiode anode	11	gain
5	Monitor photodiode cathodes	12	Grating
6	Thermoelectric cooler positive (+)	13	gain
7	Thermoelectric cooler negative electrode (-)	14	Phase

Characteristic curves

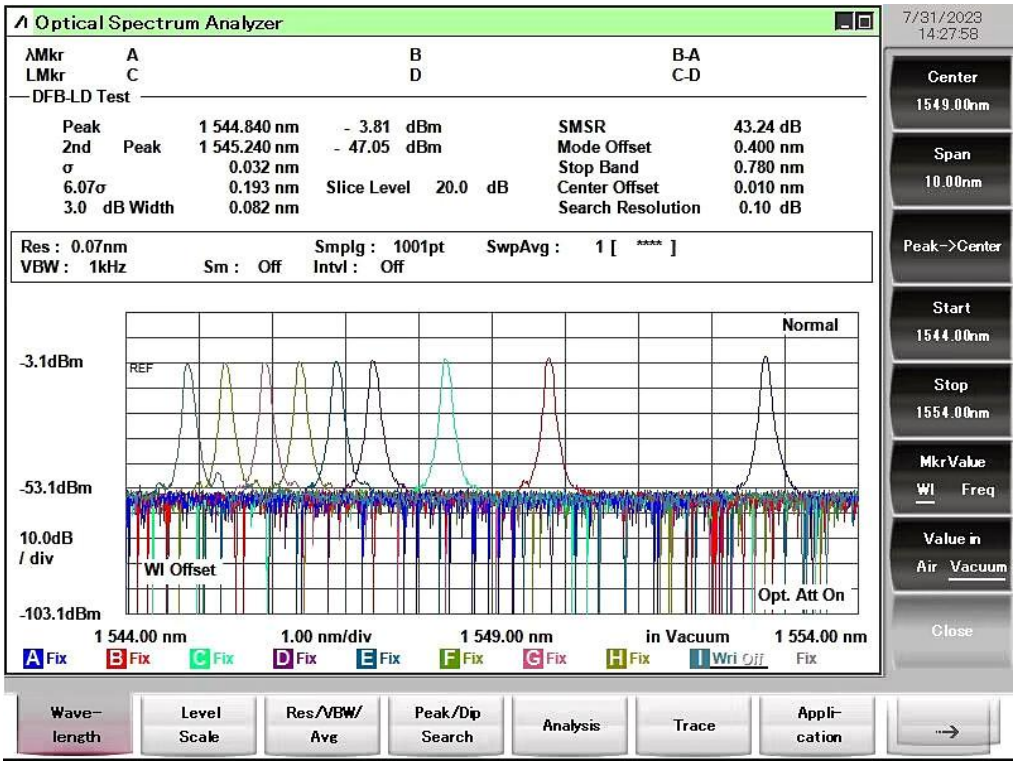
Tuning characteristic curve (tuning range 8.5-10 nm).



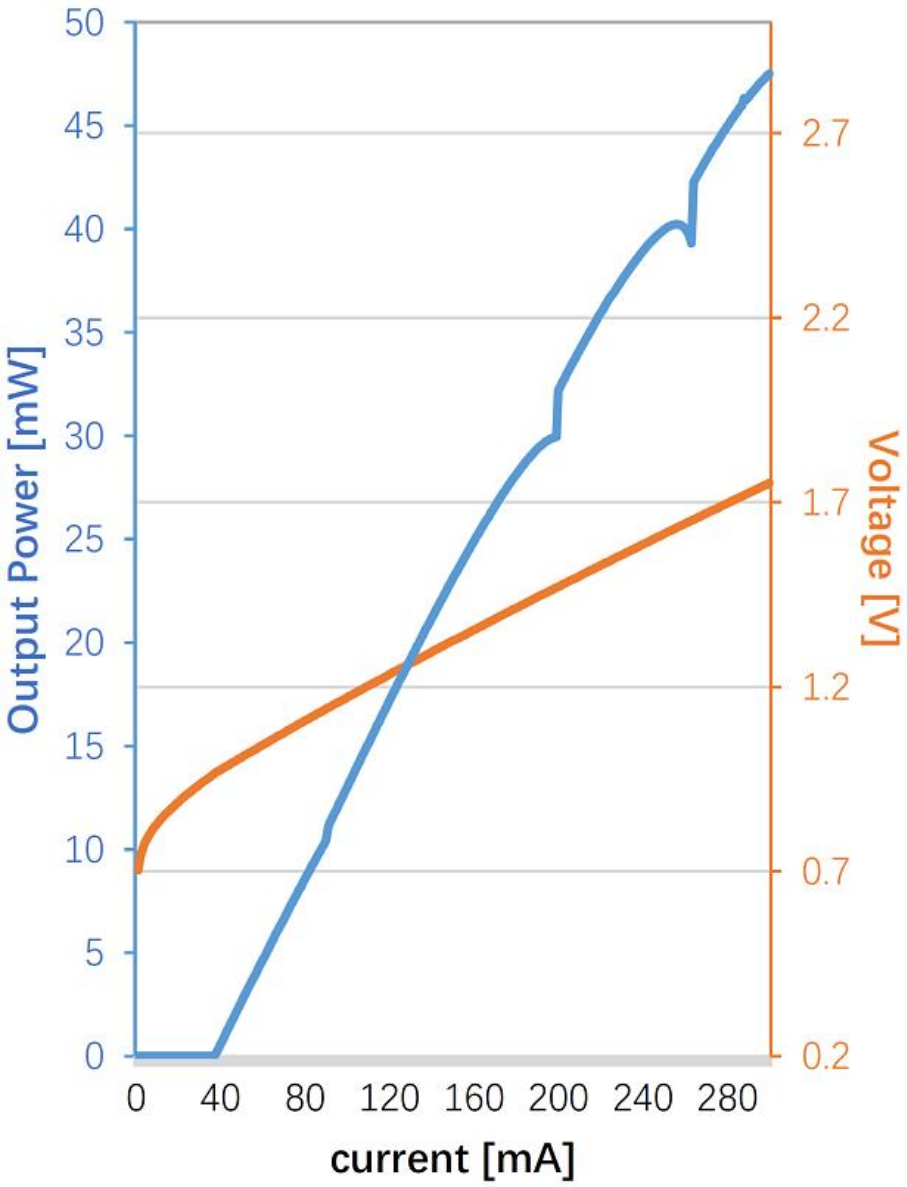



Spectrum at I=250mA
1530
1540
1550
1560
1570
1580
1590
-5
-15
-25
-35
-45
-55
-65
Power (dBm)
Wavelength (nm)

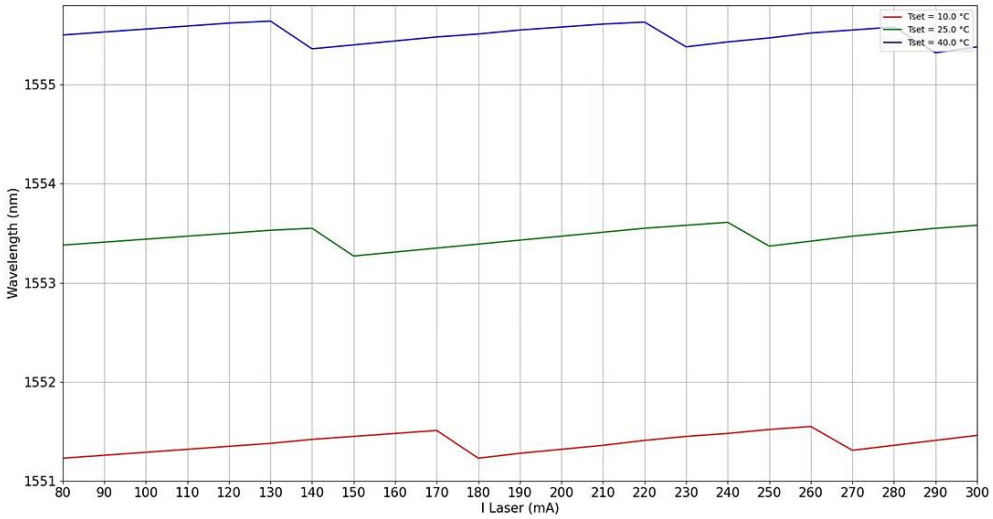
spectrum


Optical Spectrum Analyzer
7/31/2023
14:27:58
λMkr A B B-A
LMkr C D C-D
DFB-LD Test
Peak 1 544.840 nm - 3.81 dBm
2nd Peak 1 545.240 nm - 47.05 dBm
σ 0.032 nm
6.07σ 0.193 nm
3.0 dB Width 0.082 nm
Slice Level 20.0 dB
SMSR 43.24 dB
Mode Offset 0.400 nm
Stop Band 0.780 nm
Center Offset 0.010 nm
Search Resolution 0.10 dB
Res : 0.07nm
VBW : 1kHz
Sm : Off
SmpIg : 1001pt
Intvl : Off
SwpAvg : 1 [****]
Normal
-3.1dBm
REF
-53.1dBm
10.0dB
/ div
WI Offset
Opt. Att On
-103.1dBm
1 544.00 nm
1.00 nm/div
1 549.00 nm
in Vacuum
1 554.00 nm
A Fix
B Fix
C Fix
D Fix
E Fix
F Fix
G Fix
H Fix
I Wri Off
Fix
Center 1549.00nm
Span 10.00nm
Peak->Center
Start 1544.00nm
Stop 1554.00nm
MkrValue WI Freq
Value in Air Vacuum
Close
Wave-length
Level Scale
Res/VBW/ Avg
Peak/Dip Search
Analysis
Trace
Appli-cation

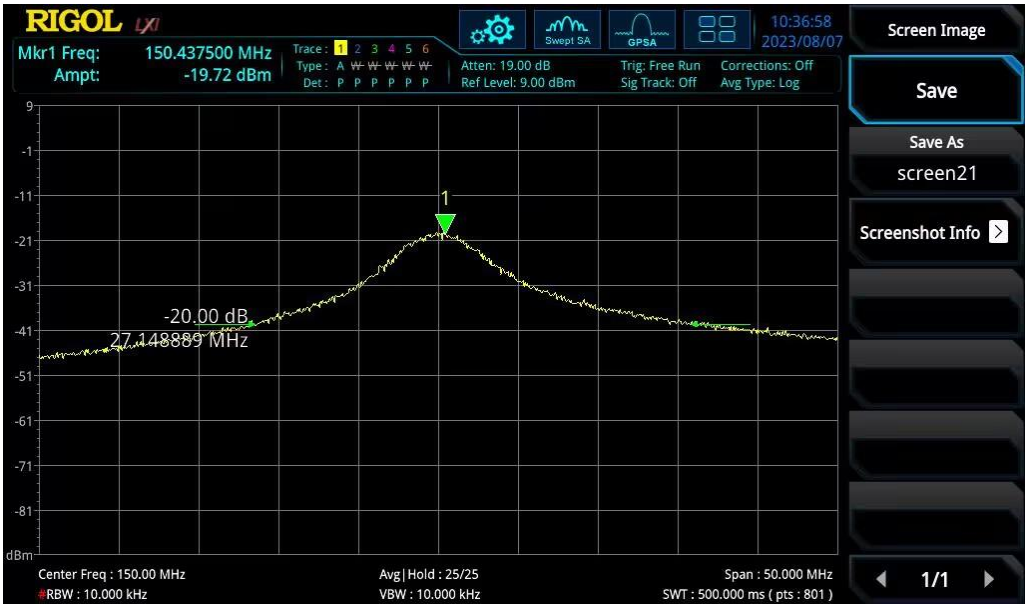
Optical power - current - voltage



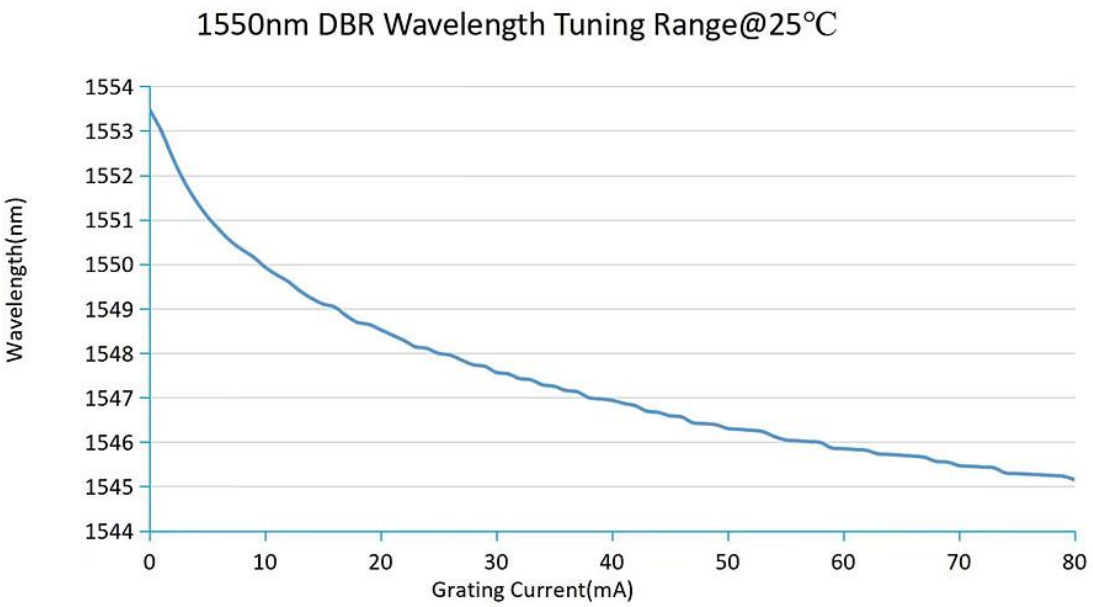
1550nm Distributed Bragg Reflection (DBR) Laser Tuning Characteristics



Distributed Bragg Reflection (DBR) laser line width test results



Grating Tuning Current (Wavelength Direction)



Ordering information

Purchase information

MP-DBR-□□□□-☆-▽-XX

□□□□:Wavelength

1540:1540nm

*****

1560:1560nm

☆:Output Power

30:30mW

50:50mW

▽: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