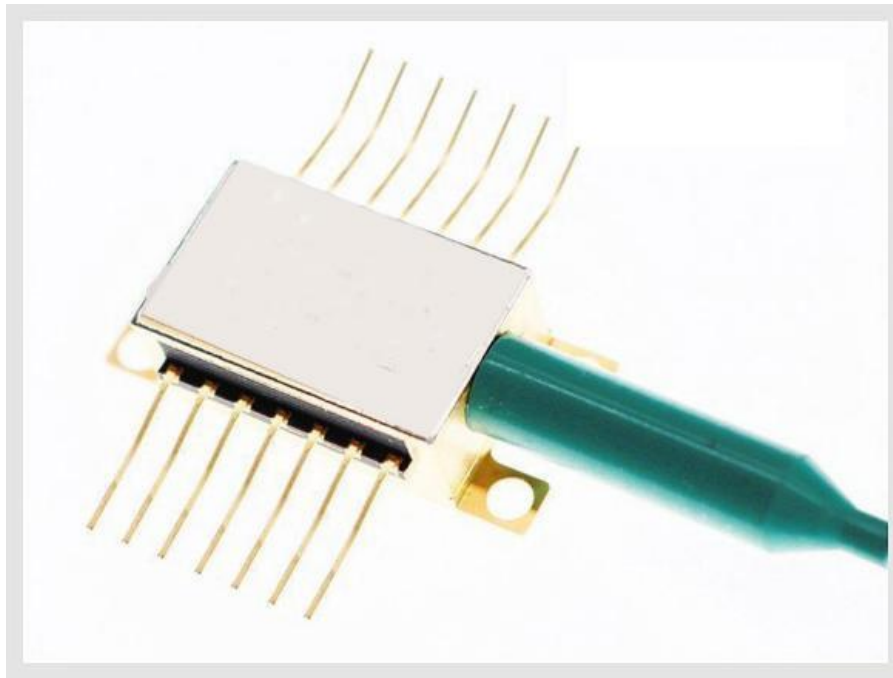


1540-1560nm 50mW PM 8nm Tunable DBR

Laser Diode



- **Product Description**

This single-frequency DBR laser diode is ideal for applications including low-noise pumping, second harmonic generation, time-resolved fluorescence spectroscopy, and fiber-optic sensing. The laser is integrated with an optical isolator, thermoelectric cooler (TEC), thermistor, and monitoring photodiode. It is housed in a 14-pin butterfly package, equipped 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-1560-50-2-PA-14BF

● Application area

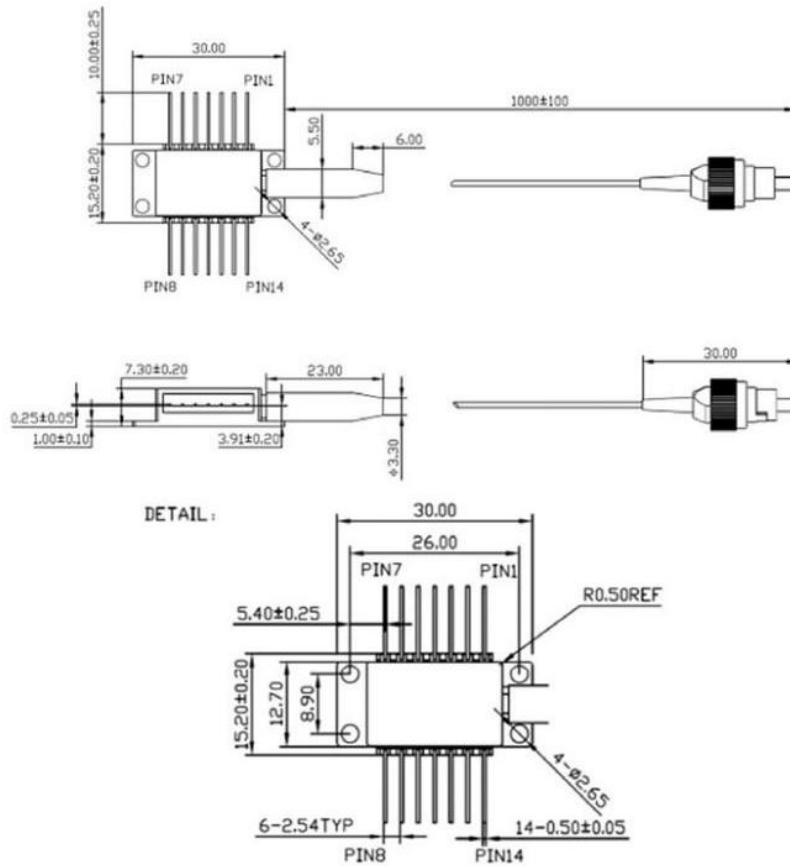
Dense Wavelength Division Multiplexing (DWDM) | Fiber-optic Sensing | Quantum Key Distribution (QKD) | LiDAR | Scientific Spectroscopy Experiments

● 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



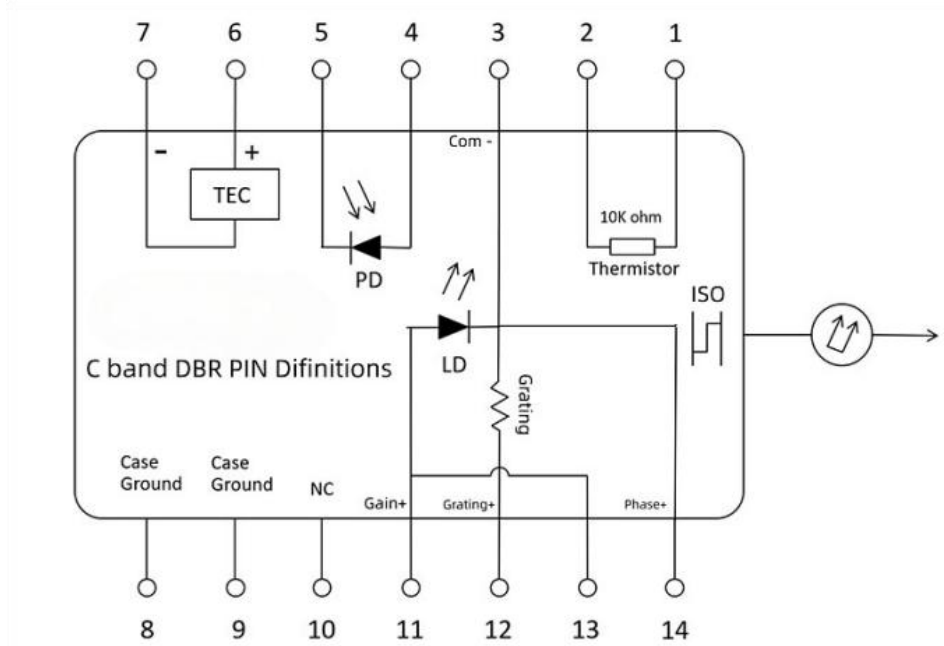
Spectral width	-	3	--	MHz
RF direct modulation rate	-	10	-	Gb/s
Threshold current	-	40	-	mA
Polarization extinction ratio	20	-	-	dB
Edge mode suppression ratio	40	50	-	dB
Relative intensity noise	-	-	-135	dB/Hz
Chip temperature	10	25	40	°C
Operating temperature	-5	-	+75	°C
Storage temperature	-40	-	+85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

A. Test the drive current @250mA

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

Absolute maximum rating

Laser section	Current operating range Continuous wave (C.W.) range (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

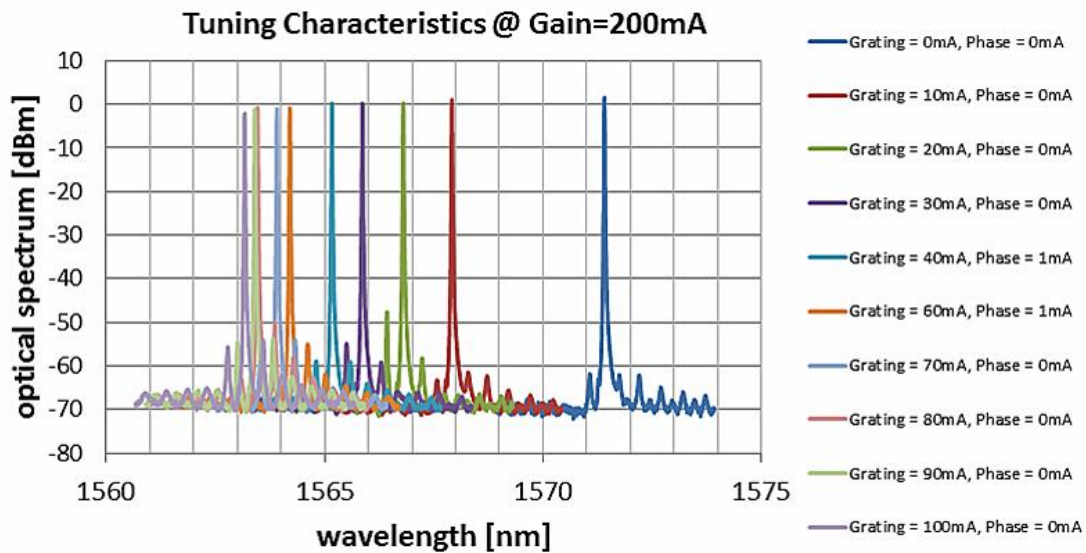
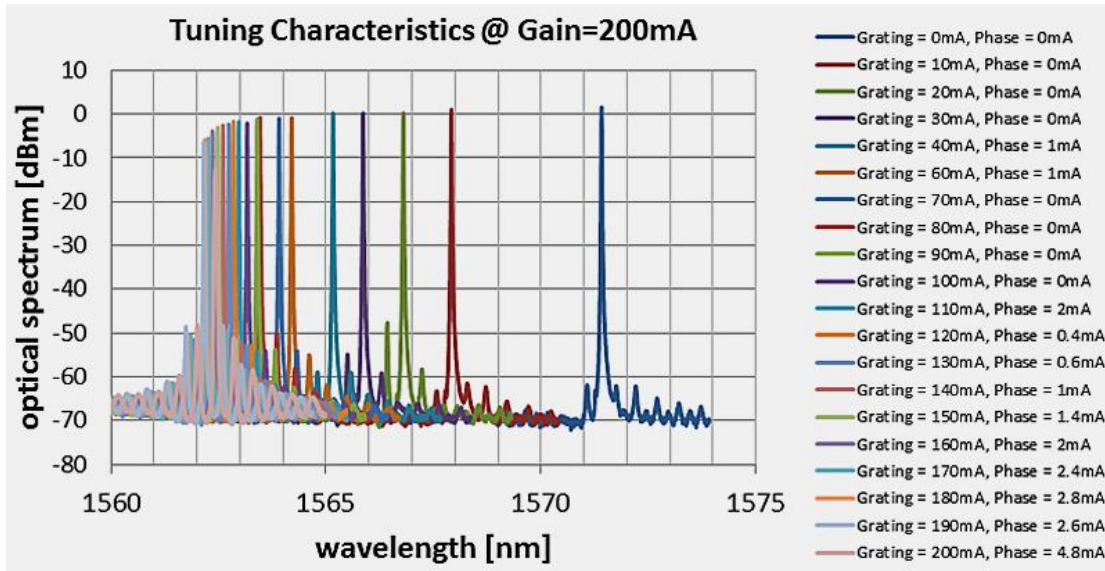


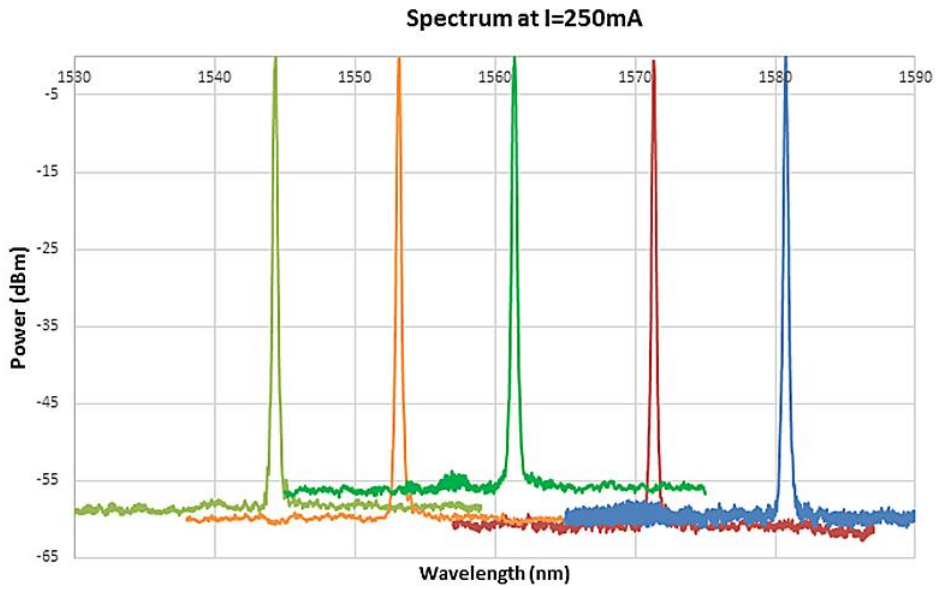
Pin definition

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

Optical Spectrum Analyzer 7/31/2023 14:27:58

AMkr	A	B	B-A
LMkr	C	D	C-D

—DFB-LD Test—

Peak	1 544.840 nm	- 3.81 dBm	SMSR	43.24 dB
2nd Peak	1 545.240 nm	- 47.05 dBm	Mode Offset	0.400 nm
σ	0.032 nm		Stop Band	0.780 nm
6.07σ	0.193 nm	Slice Level 20.0 dB	Center Offset	0.010 nm
3.0 dB Width	0.082 nm		Search Resolution	0.10 dB

Res : 0.07nm VBW : 1kHz Sm : Off Smpg : 1001pt SwpAvg : 1 [****]
 Intvl : Off

REF

WI Offset

Opt. Att On

Normal

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

Wave-length
Level Scale
Res/VBW/Avg
Peak/Dip Search
Analysis
Trace
Application

Center
1549.00nm

Span
10.00nm

Peak→Center

Start
1544.00nm

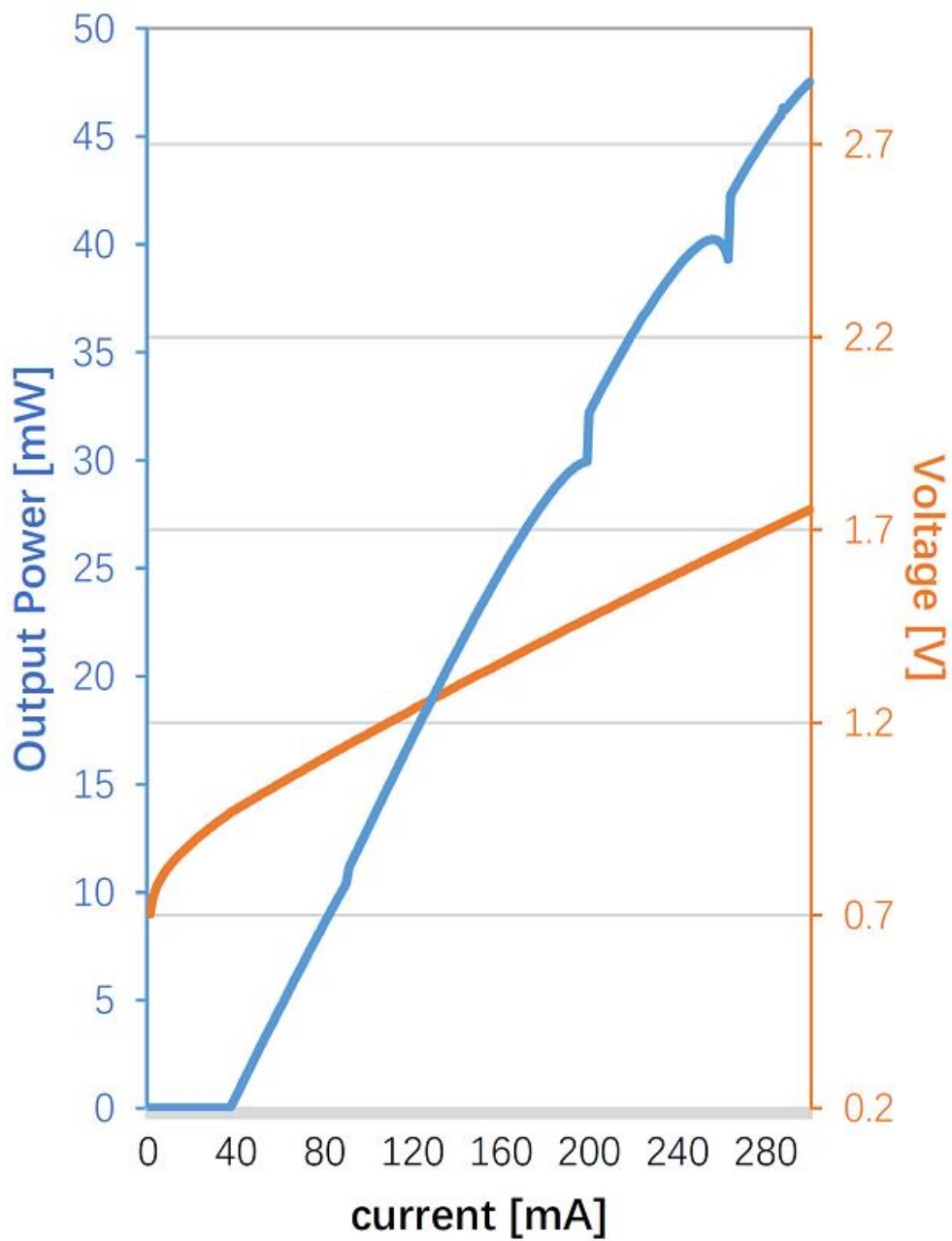
Stop
1554.00nm

Mkr Value
WI Freq

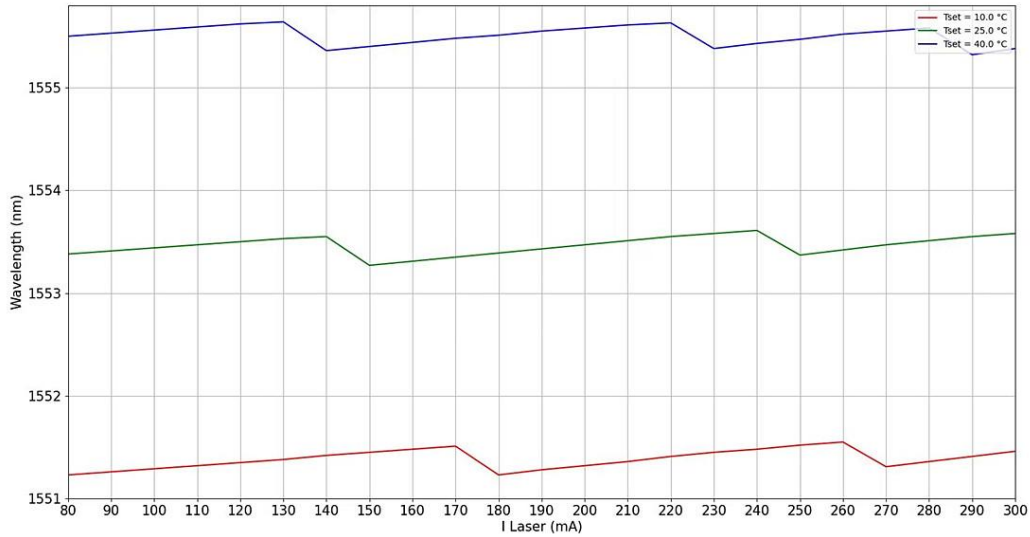
Value in
Air Vacuum

Close

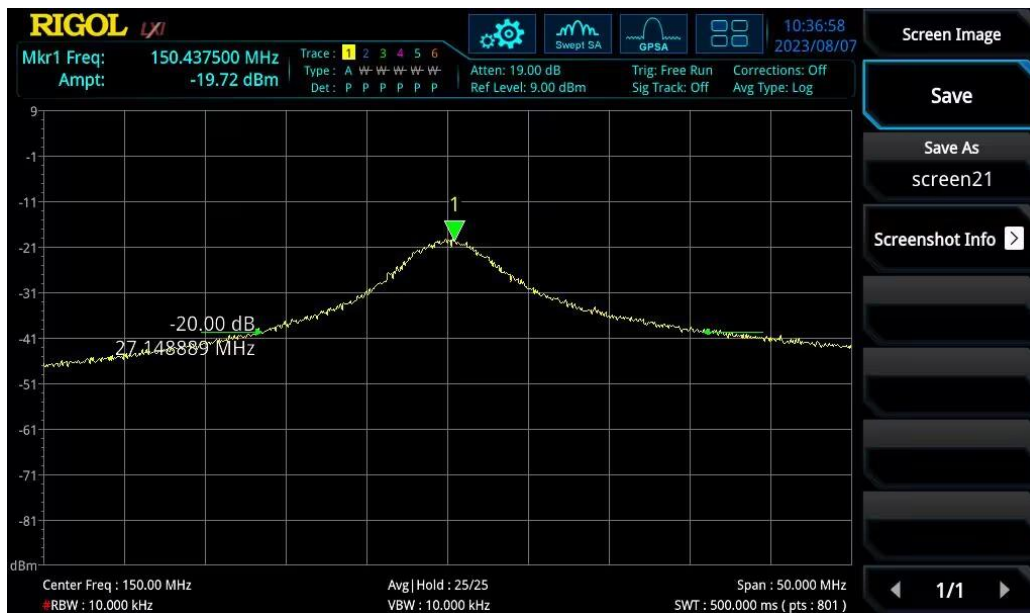
Optical power - current - voltage



1550nm Distributed Bragg Reflection (DBR) Laser Tuning Characteristics



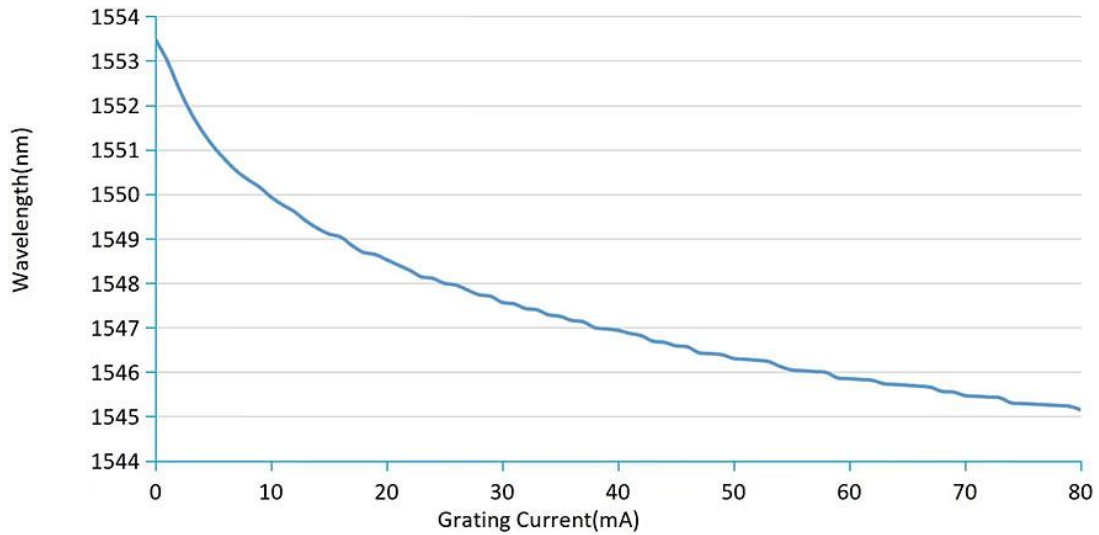
Distributed Bragg Reflection (DBR) laser line width test results





Grating Tuning Current (Wavelength Direction)

1550nm DBR Wavelength Tuning Range@25°C



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