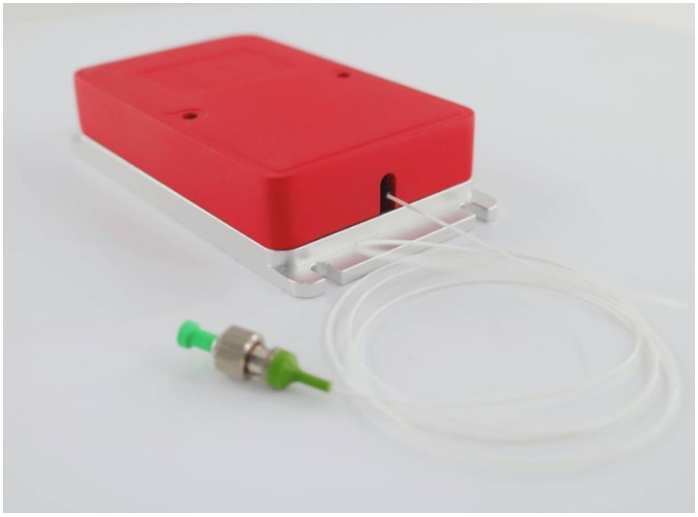
High Power Narrow Linewidth ECL External Cavity Semiconductor Laser Module 1550nm 10mW 5KHz



Product Description

The laser uses a self-designed and produced external cavity chip, and achieves stable output with narrow line width, high power and low noise through hybrid integration, which is suitable for the field of highly integrated coherent detection. It has low phase noise, low frequency noise, and the integrated line width can reach below 3kHz; it has a small design size, stable performance and excellent vibration characteristics.

Part Number

SCL0-ECL-1550-A-A81-L02-M0-SA

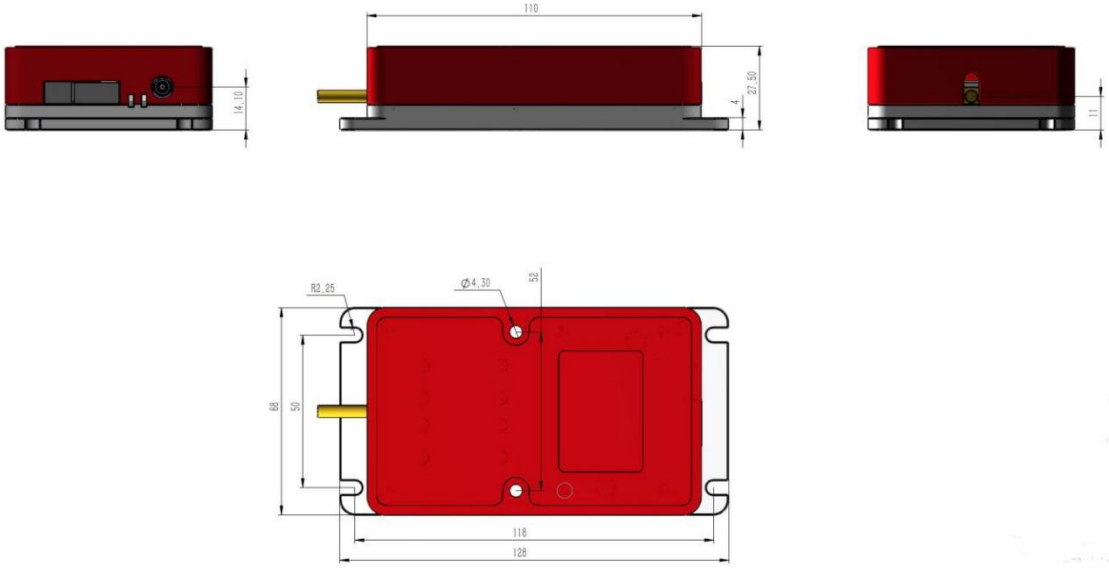
Product features

Wavelength stability: ±10pm、 Power stability 0.01dB、 Power consumption 5W、 Dimensions: 96x27x68mm、 Working temperature: -20~75°C

Application area

Silicon photonic integrated chip technology、 ECL External Cavity Lasers、 Tunable Photonics Technology、 Ultra-narrow line width

Dimensional Drawing

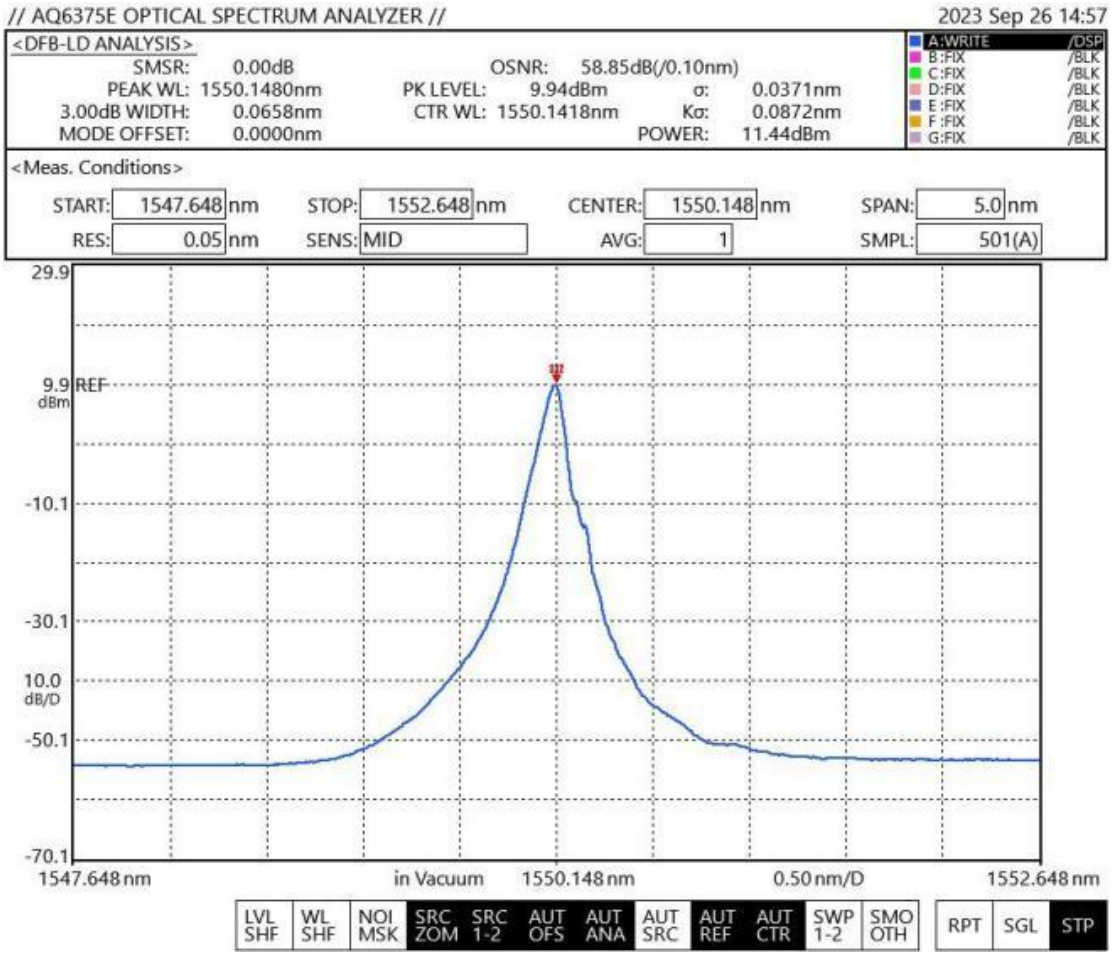


General parameters

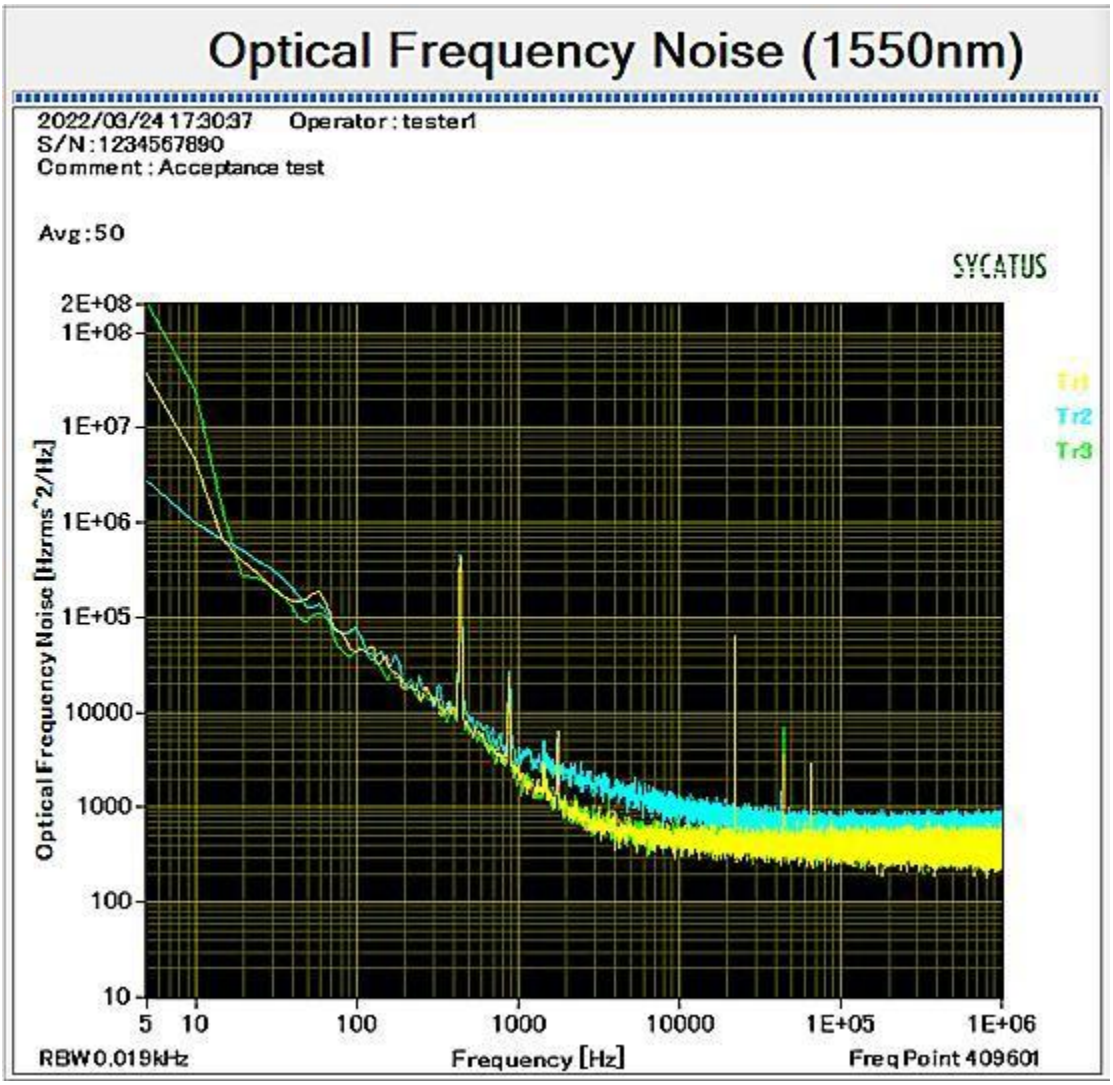
Output light characteristics	Parameter	Unit
Output optical power	≥ 10, 20	mW
Integrated line width	≤3, 5 (note 1)	kHz
Intrinsic linewidth	<100	Hz
Working wavelength	1550±5 or ITU-T Grid ±0.2	nm
Frequency stability	Typical <10-8 (2MHz)	@100s
Relative intensity noise	≤- 150	dBc /Hz
Operating temperature	-10～60	℃
Optical Isolation	≥40	dB
Electrical Characteristics	Parameter	Unit
Supply voltage	5- 6	V
Normal operating current	500 (note2)	mA
Module starting current	1500 (note3)	mA

Note 1: Tested using the phase noise method, similar to the Lorentz linewidth for a simple test using the delayed self-heterodyne beat method.
Note 2: Typical values are related to external operating temperature.
Note 3: The current value of the module when the TEC is in high current working state during startup. In order to ensure normal startup, the power supply usually needs to provide a current of 2A.

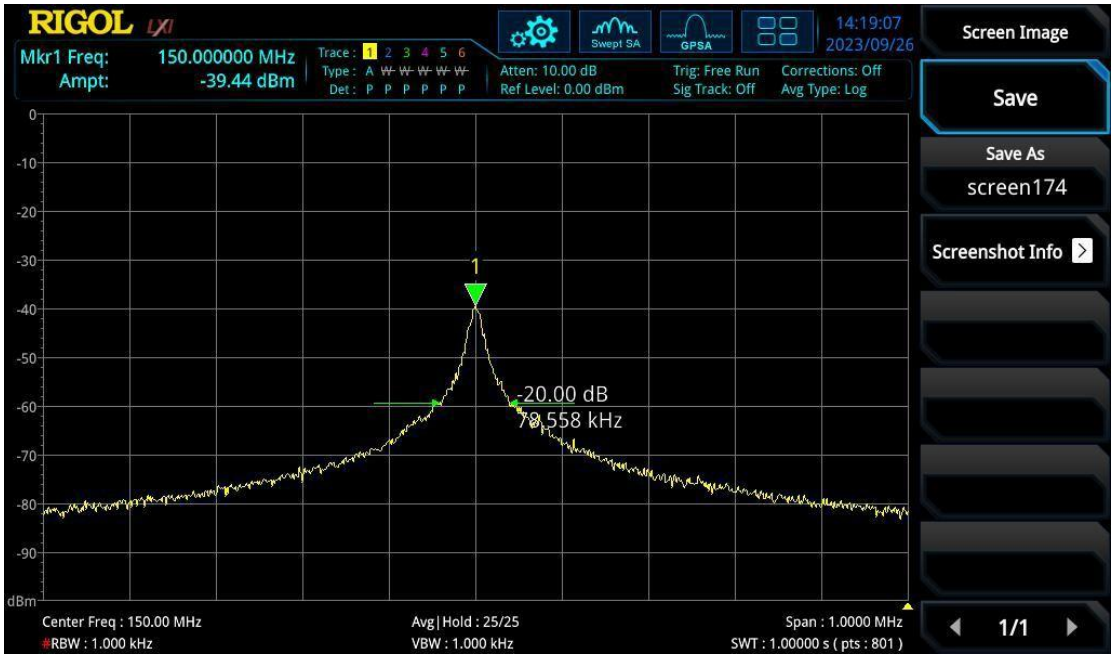
spectrum


// AQ6375E OPTICAL SPECTRUM ANALYZER //
2023 Sep 26 14:57
<DFB-LD ANALYSIS>
SMSR: 0.00dB
OSNR: 58.85dB(/0.10nm)
PEAK WL: 1550.1480nm
PK LEVEL: 9.94dBm
σ: 0.0371nm
3.00dB WIDTH: 0.0658nm
CTR WL: 1550.1418nm
Kσ: 0.0872nm
MODE OFFSET: 0.0000nm
POWER: 11.44dBm
A:WRITE /DSP
B:FIX /BLK
C:FIX /BLK
D:FIX /BLK
E:FIX /BLK
F:FIX /BLK
G:FIX /BLK
<Meas. Conditions>
START: 1547.648 nm
STOP: 1552.648 nm
CENTER: 1550.148 nm
SPAN: 5.0 nm
RES: 0.05 nm
SENS: MID
AVG: 1
SMPL: 501(A)
29.9
9.9 REF
dBm
-10.1
-30.1
10.0
dB/D
-50.1
-70.1
1547.648 nm
in Vacuum
1550.148 nm
0.50 nm/D
1552.648 nm
LVL SHF
WL SHF
NOI MSK
SRC ZOM
SRC 1-2
AUT OFS
AUT ANA
AUT SRC
AUT REF
AUT CTR
SWP 1-2
SMO OTH
RPT
SGL
STP

Frequency Noise



Line width measurement



Model Description

SCL0-ECL-□□□□-☆-A8▽-L□□-M□- XX

□□□□: Wavelength

1530.33: 1530.33nm
1550.12: 1550.12nm
*****
1565.5: 1565.5nm

☆: Output Power

A:10mW
B:20mW
C:30mW
D:40mW
E:50mW

▽: Wavelength Tolerance

1: ±1nm

2: ±2nm

3: ±10nm

L□□: Linewidth

01: Grade 1 ＜1KHZ

02: Grade 2 ＜3KHZ

03: Grade 3 ＜5KHZ

04: Grade 4 ＜10KHZ

05: Grade 5 ＜20KHZ

M□: Modulation

0: CW
1: External Modulation
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

DWDM ITU wavelength 1

ITU channel number	ITU Frequency THz	Wavelength nm	ITU channel number	ITU Frequency THz	Wavelength nm	ITU channel number	ITU Frequency THz	Wavelength nm
15	191.50	1565.50	30	193.00	1553.33	45	194.50	1541.35
16	191.60	1564.68	31	193 10	1552.52	46	194.60	1540.56
17	191.70	1563.86	32	193 20	1551.72	47	194.70	1539.77
18	191.80	1563.05	33	193.30	1550.92	48	194.80	1538.98
19	191.90	1562.23	34	193.40	1550.12	49	194.90	1538.19
20	192.00	1561.42	35	193.50	1549.32	50	195.00	1537.40
21	192.10	1560.61	36	193.60	1548.51	51	195.10	1536.61
22	192.20	1559.79	37	193.70	1547.72	52	195.20	1535.82
23	192.30	1558.98	38	193.80	1546.92	53	195.30	1535.04
24	192.40	1558.17	39	193.90	1546.12	54	195.40	1534.25
25	192.50	1557.36	40	194.00	1545.32	55	195.50	1533.47
26	192.60	1556.55	41	194.10	1544.53	56	195.60	1532.68
27	192.70	1555.75	42	194 20	1543.73	57	195.70	1531.90
28	192.80	1554.94	43	194.30	1542.94	58	195.80	1531.12
29	192.90	1554.13	44	194.40	1542.14	59	195.90	1530.33