

OL5104L-20-Wnnnn

1550nm/20mW Laser Diode Butterfly Module with PMF, Built in Cooler, Isolator.

1. DESCRIPTION

OL5104L-20-Wnnnn is a 1550nm Laser Diode in Butterfly package with PMF.

2. FEATURES

- Fiber output : Po=20mW
- Continuous Wave (CW) MQW DFB Laser
- 14-pin Butterfly package module
- Selected wavelengths according to ITU-T grid
- Polarization maintaining (PANDA) fiber
- Built-in TEC, Thermistor and Monitor PD

3. APPLICATION

- High speed transmission systems (~ 10Gb/s)

4. OPTICAL AND ELECTRICAL CHARACTERISTICS

(TLD= 25°C, Tc=0 to 65°C , unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Fiber Output Power	Po	CW	20	---	---	mW
Threshold Current	Ith	---	---	---	40	mA
Operation Current	Iop	Po=20mW,CW	---	---	150	mA
LD Forward Voltage	Vf	Po=20mW,CW	---	---	2.0	V
Peak Wavelength	λ_p	Po=20mW,CW,*1	Table 1			nm
Spectral Width	$\Delta\lambda$	Po=20mW,CW, -3dB	---	---	20	MHz
Side Mode Suppression Ratio	SMSR	Po=20mW,CW	30	---	---	dB
Relative Intensity Noise	RIN	Po=20mW,CW, f=0.5GHz	---	---	-140	dB/Hz
Photodiode Dark Current	ID	Vr(PD)=5V	---	---	100	nA
Monitor Current	Im	Po=20mW, Vr(PD)=5V	100	---	---	μ A
TEC Capacity	ΔT	Po=20mW, Tc=0 to 65°C	40	---	---	°C
TEC Current	Ipe	$\Delta T=40^\circ\text{C}$, Tcase=65°C Po=20mW	---	---	1.2	A
TEC Voltage	Vpe	$\Delta T=40^\circ\text{C}$, Tcase=65°C Po=20mW	---	---	2.4	V
Thermistor Resistance	Rth	Tthm=25°C	9.5	10.0	10.5	k Ω
Polarization Extinction Ratio	Erp	---	15	---	---	dB
Optical Isolation	Iso	---	23	---	---	dB

*1 the wavelength specified should be defined at temperature between 20 and 30 degree C.

Table 1 – Nominal central frequencies

OkI Part Number	Nominal central frequencies (THz) for spacings of 100 GHz	Nominal central wavelengths (nm)	OkI Part Number	Nominal central frequencies (THz) for spacings of 100 GHz	Nominal central wavelengths (nm)
W2877	196.10	1528.77	W4692	193.80	1546.92
W2955	196.00	1529.55	W4772	193.70	1547.72
W3033	195.90	1530.33	W4851	193.60	1548.51
W3112	195.80	1531.12	W4932	193.50	1549.32
W3190	195.70	1531.90	W5012	193.40	1550.12
W3268	195.60	1532.68	W5092	193.30	1550.92
W3347	195.50	1533.47	W5172	193.20	1551.72
W3425	195.40	1534.25	W5252	193.10	1552.52
W3504	195.30	1535.04	W5333	193.00	1553.33
W3582	195.20	1535.82	W5413	192.90	1554.13
W3661	195.10	1536.61	W5494	192.80	1554.94
W3740	195.00	1537.40	W5575	192.70	1555.75
W3819	194.90	1538.19	W5655	192.60	1556.55
W3898	194.80	1538.98	W5736	192.50	1557.36
W3977	194.70	1539.77	W5817	192.40	1558.17
W4056	194.60	1540.56	W5898	192.30	1558.98
W4135	194.50	1541.35	W5979	192.20	1559.79
W4214	194.40	1542.14	W6061	192.10	1560.61
W4294	194.30	1542.94	W6142	192.00	1561.42
W4373	194.20	1543.73	W6223	191.90	1562.23
W4453	194.10	1544.53	W6305	191.80	1563.05
W4532	194.00	1545.32	W6386	191.70	1563.86
W4612	193.90	1546.12	W6468	191.60	1564.68

*Wavelength value is in Vacuum condition.

Table 1 – Nominal central frequencies

OkI Part Number	Nominal central frequencies (THz) for spacings of 100 GHz	Nominal central wavelengths (nm)	OkI Part Number	Nominal central frequencies (THz) for spacings of 100 GHz	Nominal central wavelengths (nm)
W6550	191.50	1565.50	W8788	188.80	1587.88
W6631	191.40	1566.31	W8873	188.70	1588.73
W6713	191.30	1567.13	W8957	188.60	1589.57
W6795	191.20	1567.95	W9041	188.50	1590.41
W6877	191.10	1568.77	W9126	188.40	1591.26
W6959	191.00	1569.59	W9210	188.30	1592.10
W7042	190.90	1570.42	W9295	188.20	1592.95
W7124	190.80	1571.24	W9379	188.10	1593.79
W7206	190.70	1572.06	W9464	188.00	1594.64
W7289	190.60	1572.89	W9549	187.90	1595.49
W7371	190.50	1573.71	W9634	187.80	1596.34
W7454	190.40	1574.54	W9719	187.70	1597.19
W7537	190.30	1575.37	W9804	187.60	1598.04
W7620	190.20	1576.20	W9889	187.50	1598.89
W7703	190.10	1577.03	W9975	187.40	1599.75
W7786	190.00	1577.86	W0060	187.30	1600.60
W7869	189.90	1578.69	W0146	187.20	1601.46
W7952	189.80	1579.52	W0231	187.10	1602.31
W8035	189.70	1580.35	W0317	187.00	1603.17
W8118	189.60	1581.18	W0403	186.90	1604.03
W8202	189.50	1582.02	W0488	186.80	1604.88
W8285	189.40	1582.85	W0574	186.70	1605.74
W8369	189.30	1583.69	W0660	186.60	1606.60
W8453	189.20	1584.53	W0746	186.50	1607.47
W8536	189.10	1585.36	W0833	186.40	1608.33
W8620	189.00	1586.20	W0919	186.30	1609.19
W8704	188.90	1587.04	W1006	186.20	1610.06

*Wavelength value is in Vacuum condition.

5.ABSOLUTE MAXIMUM RATING

(Tc = 25°C, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Fiber Output Power	P _o	24	mW
LD Reverse Voltage	V _R	2	V
LD Forward Current	I _F	170	mA
PD Forward Current	I _F (PD)	10	mA
PD Reverse Voltage	V _R (PD)	15	V
Cooler Current	I _c	1.4	A
Operating Case	T _c	0 to 65	°C
Storage Temperature	T _{stg}	-40 to 85	°C
Lead Soldering	-	260 (10sec)	°C

6. CONNECTOR AND FIBER SPECIFICATIONS

Parameter	Specifications	Unit
Type	PMF	---
Alignment	Slow Axis	---
Jacket Diameter	900	μm
Length	1 (Min.)	m
Connector	FC/SPC	---

7.ORDERING INFORMATION

7.1 Marking on each device

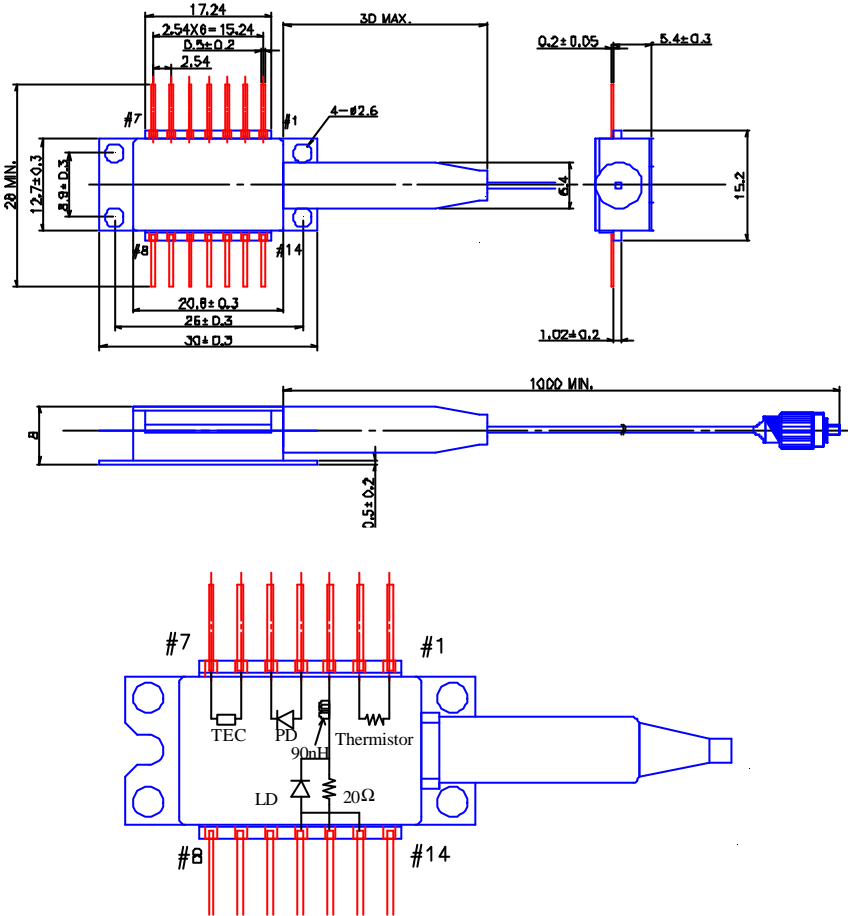
- (1) Part Number
- (2) Manufacturer's serial number
- (3) Warning label to indicate danger from invisible laser radiation is on the individual carrier box.

7.2 The following test data shall be packaged with each module.

- (1) Oki part number
- (2) Lot number
- (3) Serial number
- (4) Fiber-coupled I-L curve at T_{LD}=25°C and T_c=25°C
- (5) Threshold current (I_{th}) at T_{LD}=25°C
- (6) Operation current (I_{op}) at P_o=20mW and T_{LD}=25°C
- (7) Monitor current (I_m) at P_o=20mW and T_{LD}=25°C and T_c=25°C
- (8) Peak Wavelength (λ_p) at P_o=20mW, T_{LD}=25°C and T_c=25°C

8.OUTLINE DRAWING

All dimensions in millimeters
 Tolerances unless noted +/-0.5
 Package No. 104(Unit: mm)



Package Pinout

Pin No.		Pin No.	
1	Thermistor	8	GND
2	Thermistor	9	GND
3	LD Cathode	10	NC
4	Monitor Anode	11	LD Anode(GND)
5	Monitor Cathode	12	LD RF
6	TEC+	13	GND
7	TEC-	14	NC