LAPIS SEMICONDUCTOR
JOG-01155 Rev. 8

Optical Components

Rev. 8 [5. 2009]

OL3450L-A,OL3451L-A,OL3453L-A
OL4450L-A,OL4451L-A,OL4453L-A
OL4450L-B,OL4451L-B,OL4453L-B
OL5450L-A,OL5451L-A,OL5453L-A
OL5450L-B,OL5451L-B,OL5453L-B
OL6450L-A,OL6451L-A,OL6453L-A
Series

2mWCoaxial DFB Laser Diode Modules

1. DESCRIPTION

The OL3450L-A, OL3451L-A, OL3453L-A, OL4450L-A, OL4451L-A, OL4453L-A, OL4450L-B,OL4451L-B,OL4453L-B, OL5450L-A, OL5451L-A, OL5453L-A, OL5450L-B, OL5451L-B, OL5453L-B, OL6450L-A, OL6451L-A, OL6453L-A series consist of an MQW-DFB laser diode, a monitor PD, a single-stage optical isolator, a single-mode fiber and a coaxial package.

2. FEATURES

- High output power: 2.0mW fiber output power under CW
- Wide operating temperature range: Tc=0 to +70°C
- Side-mode suppression: 30dB
- Multi-quantum-well (MQW) DFB structure
- Internal monitor PD for power control
- Built-in single-stage optical isolator
- Coaxial Package
- No TEC required

3. APPLICATION

- WDM supervisory channel in SDH system with optical in-line amplifier

4.OPTICAL AND ELECTRICAL CHARACTERISTICS

(Tc = 0 to +70°C, unless otherwise specified)

Parameter	Symbol	Test Conditions		Min.	Typ.	Max.	Unit
Fiber Output Power	Pf	CW		2.0			mW
Threshold Current	Ith	Tc=+25°C,CW			10	35	mA
		Tc=+70°C,CW			27	40	
Operation Current	Iop	Pf=2.0mW,CW			50	120	mA
Forward Voltage	Vf	Pf=2.0mW,CW			1.1	1.5	V
Peak Wavelength	λp	Pf=2.0mW ,CW	OL345xL-A	1300	1310	1320	nm
			OL445xL-A	1470	1480	1490	
			OL445xL-B	1480	1490	1500	
			OL545xL-A	1500	1510	1520	
			OL545xL-B	1510	1520	1530	
			OL645xL-A-S1	1620	1630	1640	
			OL645xL-A-S2	1625	1630	1645	
Side-mode suppression ratio	SMSR	Pf=2.0mW,CW, Tc=+25°C		30			dB
Rise/Fall times	Tr/Tf	Pf =2.0mW,Ibias=Ith 10-90%				0.5	ns
Photodiode Dark Current	Id	Vrd=5V, Tc=+25°C				20	nA
Monitor Current	Im	Pf=2.0mW,CW,Tc=+25°C		50			μA
Tracking Error*	TRE	(RT to WCT)		-1	---	+1	dB

*TRE=10*log{(Pf@0~+70°C)/(Pf@25°C)} at Im hold(@25°C)

5.ABSOLUTE MAXIMUM RATING

(Tc = +25°C, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Fiber Output Power	Pf	3	mW
LD Reverse Voltage	Vrl	2	V
Monitor PD Forward Current	Ifd	10	mA
Monitor PD Reverse Current	Ird	3	mA
Monitor PD Reverse Voltage	Vrd	15	V
Operating Case Temperature (Tc)	Tc	0 to +70	°C
Storage Temperature	Tstg	-40 to +85	°C
Lead Soldering Temperature (10s)	-	260	°C

6.CONNECTOR AND FIBER SPECIFICATIONS

Parameter	Specifications	Unit
Type	SM	---
Mode Field Diameter	9+/-1	µm
Cladding Diameter	125+/-2	µm
Jacket Diameter	900	µm
Length	1(Min)	m
Connector Type	FC/SC/LC/MU/MU-J	---

7.ORDERING INFORMATION

OL 6 45 0 L – A – AF SC – S1

Wavelength
3: 1.3µm
4: 1.4µm
5: 1.5µm
6: 1.6µm

Pin Assignment
0: C type
1: A type
3: B type
(See P.5)

Peak Wavelength
A, B: See Table A (P.4)

Flange type
AF: Angled Flange
SF: Straight Flange
NF: No Flange
AT: Angled Thin Flange

Connector type
SC: SC Connector
FC: FC Connector
LC: LC Connector
MU: MU Connector
MUJ: MU-J Connector

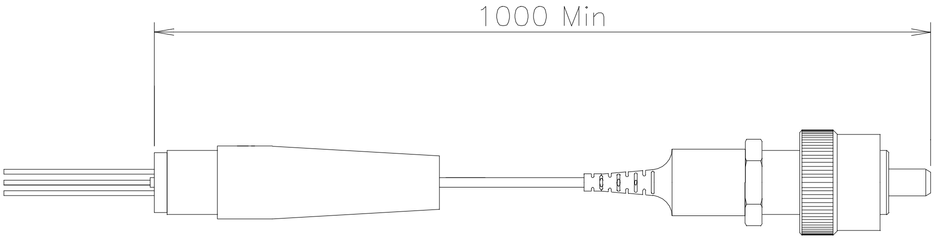
Wavelength Tolerance
S1 (default), S2: See Table A (P.4)

Table A. Peak Wavelength vs. LAPIS Semiconductor Part Number

Peak Wavelength(Typ.)	Wavelength Tolerance	LAPIS Semiconductor Part Number
1310nm	+/-10nm	OL345xL-A
1480nm	+/-10nm	OL445xL-A
1490nm	+/-10nm	OL445xL-B
1510nm	+/-10nm	OL545xL-A
1520nm	+/-10nm	OL545xL-B
1630nm	+/-10nm	OL645xL-A-S1
1630nm	+15/-5nm	OL645xL-A-S2

8.OUTLINE DRAWING

Length (mm)



All dimensions in millimeters

Flange Type (continued)

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<tr><th>Straight flange</th><th>No flange</th><th>Angled flange</th></tr>
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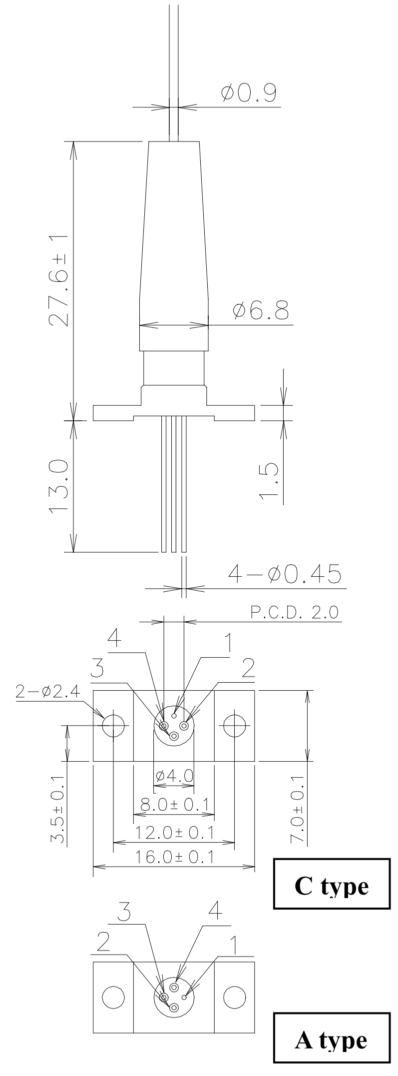

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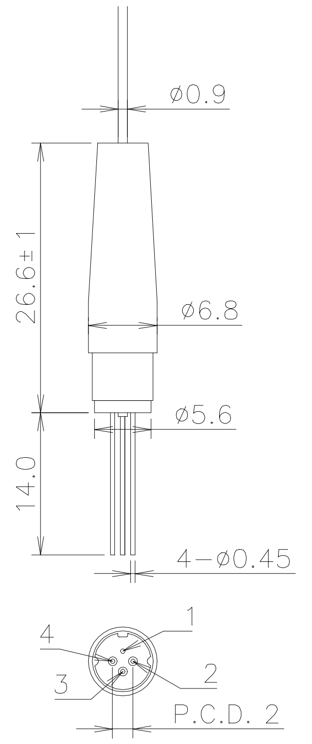

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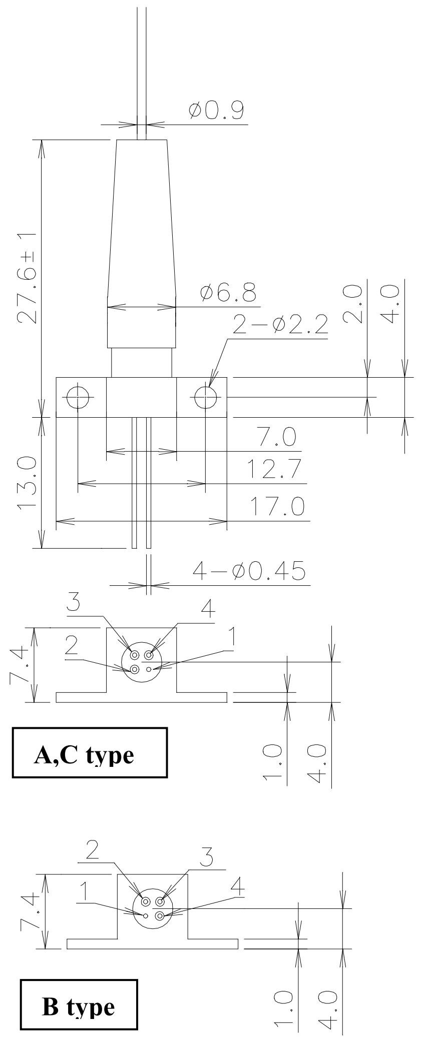

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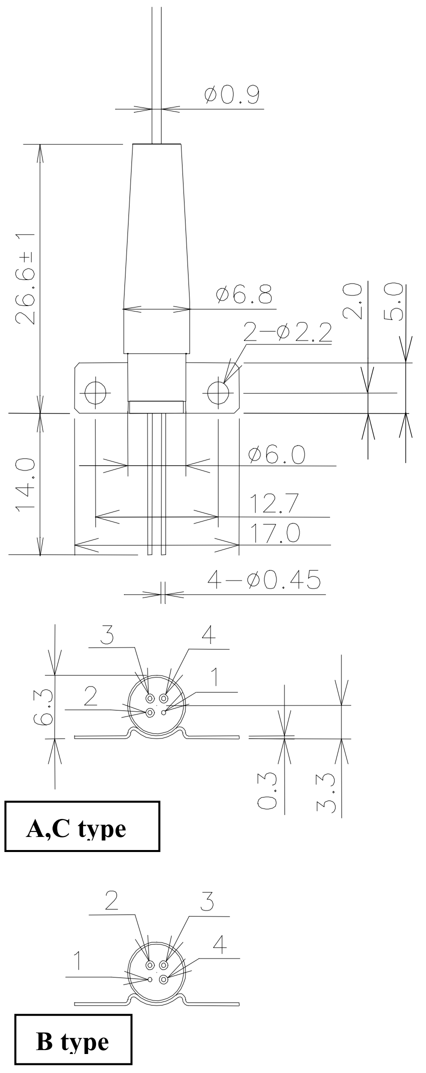
Flange Type

Angled thin flange



Pin Assignment

OLx450L (C type)

PIN configuration	
Assignment	
1	CASE
2	LD cathode
3	PD anode
4	LD anode PD cathode

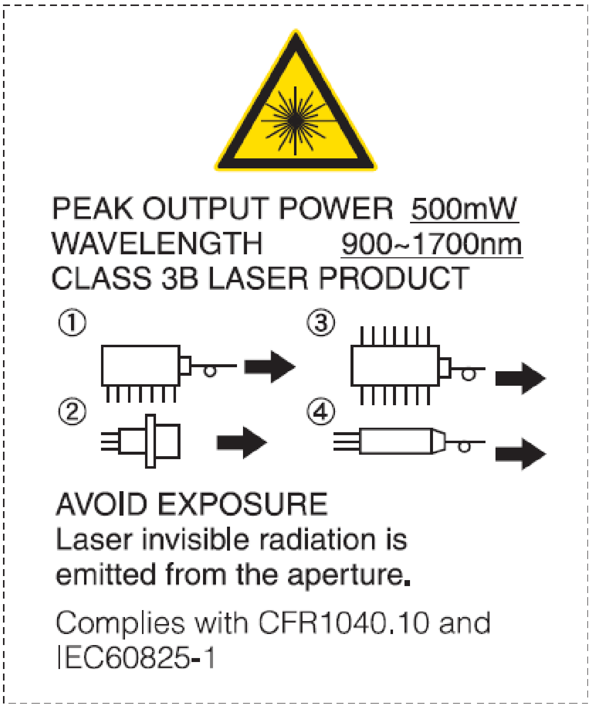
OLx451L (A type)

PIN configuration	
Assignment	
1	LD anode (CASE)
2	LD cathode
3	PD cathode
4	PD anode

OLx453L (B type)

PIN configuration	
Assignment	
1	LD anode (CASE)
2	PD anode
3	PD cathode
4	LD cathode

9. SAFETY INFORMATION ON THIS PRODUCT



PEAK OUTPUT POWER 500mW
WAVELENGTH 900~1700nm
CLASS 3B LASER PRODUCT

AVOID EXPOSURE
Laser invisible radiation is emitted from the aperture.

Complies with CFR1040.10 and IEC60825-1

Warning Laser Beam	A laser beam is emitted from this laser diode during operation. The invisible or visible laser beam, directly or indirectly, may cause injury to the eye or loss of eyesight. Do not look directly into the laser beam. Avoid exposure to the laser beam, any reflected or collimated beam.
Caution GaAs Product	The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled, ingested or swallowed. Do not destory or burn the product. Do not crush or chemically dissolve the product. Do not put the product in the mouth. Observe related laws and company regulations when discarding this product. The product should be excluded from general industrial waste or household garbage.
Caution Optical Fiber	A glass-fiber is attached on the product. Handle with care. When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.

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