

Optical Components

OL5450L-2, OL5451L-2, OL5453L-2

Series

2mW Coaxial DFB Laser Diode Modules

1. DESCRIPTION

The OL5450L-2, OL5451L-2, OL5453L-2 series consist of an MQW-DFB laser diode, a monitor PD, a single-stage optical isolator, a single-mode fiber and a coaxial package.

These modules are coaxial DFB Laser Diode Modules for 2.5Gbit/s transmission with high power at high temperature.

2. FEATURES

- Fiber output power: $P_f=2.0\text{mW}$
- Wide operating temperature range: $T_c=0$ to $+85^\circ\text{C}$
- Side mode suppression: 32dB
- 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

- OC-48, STM-16

4.OPTICAL AND ELECTRICAL CHARACTERISTICS

(Tc = 0 to +85°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Fiber Output Power	Pf	CW	2.0			mW
Fiber Output Power (Average)	PAVG	Modulated	1.0			mW
Threshold Current	Ith	Tc=+25°C, CW, BOL		7	15	mA
		Tc=+85°C, CW, BOL		25	40	
		Tc=+85°C, CW, EOL			1.5*Ith-BOL	
Operation Current	Iop	Pf=2.0mW, CW		70	110	mA
Slope efficiency	η	Pf=2.0mW, CW, Tc=+25°C	0.05	0.073		W/A
Modulation Current	Imod	Pf=2.0mW, CW, Tc=+25°C		30	40	mA
Peak Wavelength	λp	Pf=2.0mW, CW	1500		1580	nm
Spectral Width	Δλ	Pf=2.0mW, CW, -20dB		0.2	0.5	nm
Side-mode suppression ratio	SMSR	Pf=2.0mW, CW	32	40		dB
Rise/Fall times	Tr/Tf	PAVG=1.0mW, 20-80% ExR*=9dB		0.09	0.15	ns
Relative Intensity Noise	RIN	Pf=2.0mW, CW		-140	-130	dB/Hz
Monitor Current	Im	Pf=2.0mW, CW, Tc=+25°C	50	400	2200	μA
Tracking Error**	TRE	Pf=2.0mW, CW	-1	---	+1	dB

*ExR=Extinction ratio

**TRE=10*log{(Pf@0~+85°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	4	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	30	V
Operating Case Temperature (Tc)	Tc	0 to +85	°C
Storage Temperature	Tstg	-40 to +85	°C
Lead Soldering Temperature (10s)	-	260	°C

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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

OL545 0 L – 2 – AF SC

Pin Assignment

0: C type
1: A type
3: B type
(See P.4)

Flange type

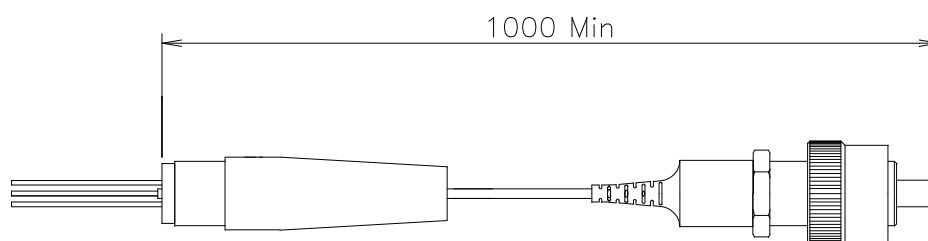
AF: Angled Flange
SF: Straight Flange
NF: No Flange

Connector type

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

8.OUTLINE DRAWING

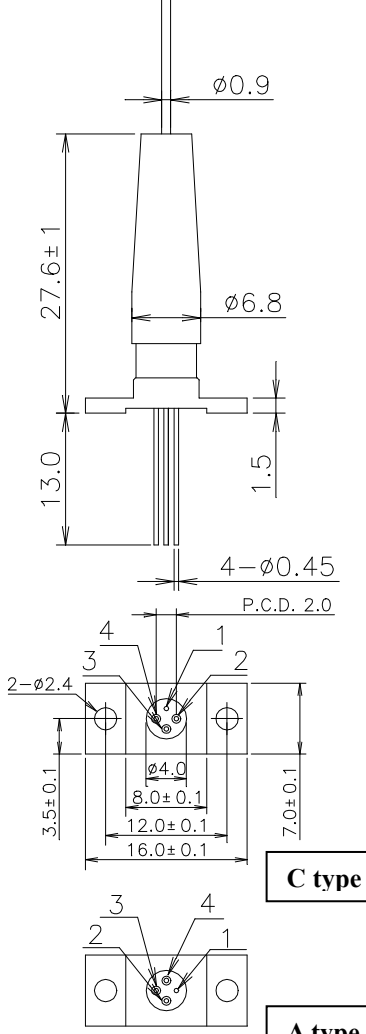
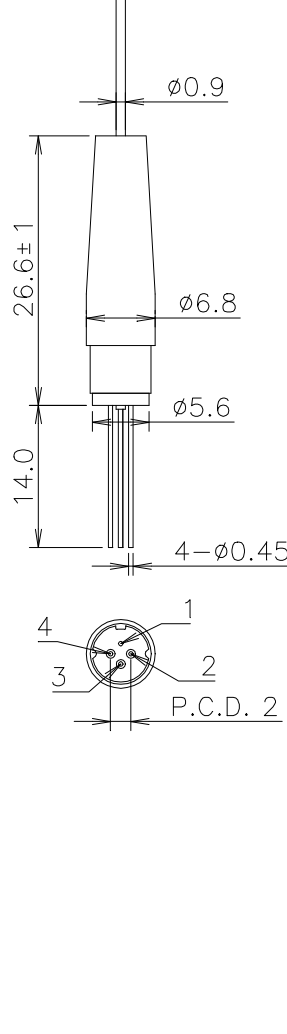
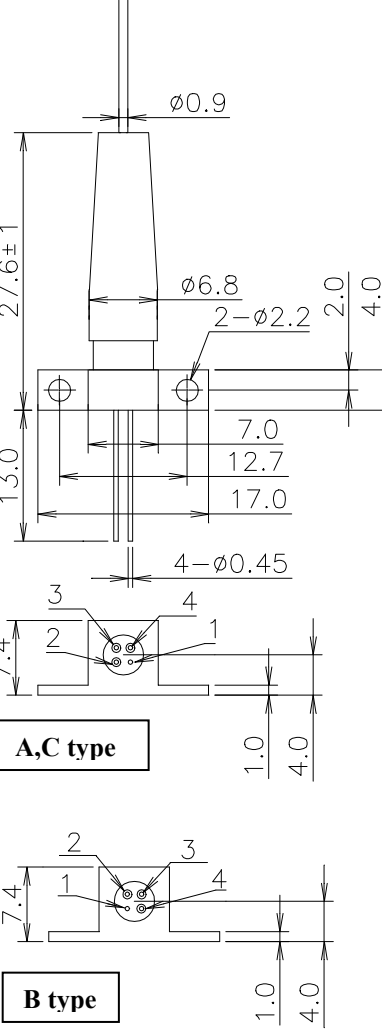
Length (mm)



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ALL DIMENSIONS IN MILLIMETERS

Flange Type

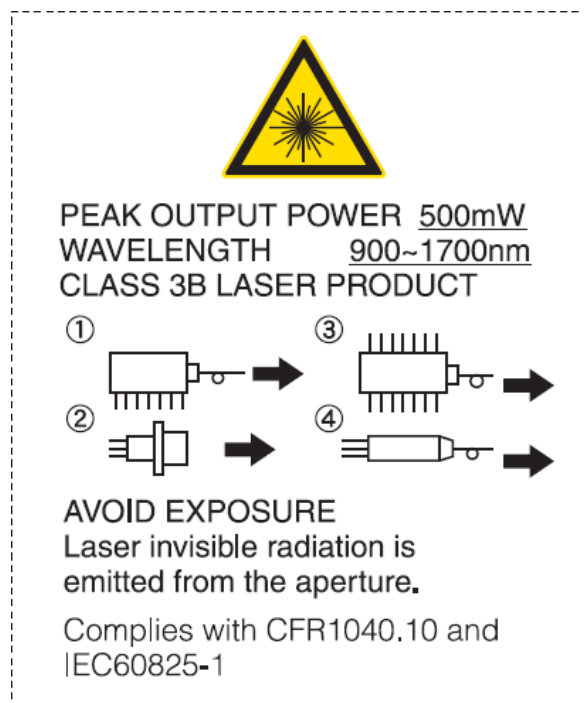
Straight flange	No flange	Angled flange
 C type A type	 A type	 A,C type B type

Pin Assignment

OL5450L (C type)	OL5451L (A type)	OL5453L (B type)																																				
<table><tr><th colspan="2">PIN configuration</th></tr><tr><th colspan="2">Assignment</th></tr><tr><td>1</td><td>CASE</td></tr><tr><td>2</td><td>LD cathode</td></tr><tr><td>3</td><td>PD anode</td></tr><tr><td>4</td><td>LD anode PD cathode</td></tr></table>	PIN configuration		Assignment		1	CASE	2	LD cathode	3	PD anode	4	LD anode PD cathode	<table><tr><th colspan="2">PIN configuration</th></tr><tr><th colspan="2">Assignment</th></tr><tr><td>1</td><td>LD anode (CASE)</td></tr><tr><td>2</td><td>LD cathode</td></tr><tr><td>3</td><td>PD cathode</td></tr><tr><td>4</td><td>PD anode</td></tr></table>	PIN configuration		Assignment		1	LD anode (CASE)	2	LD cathode	3	PD cathode	4	PD anode	<table><tr><th colspan="2">PIN configuration</th></tr><tr><th colspan="2">Assignment</th></tr><tr><td>1</td><td>LD anode (CASE)</td></tr><tr><td>2</td><td>PD anode</td></tr><tr><td>3</td><td>PD cathode</td></tr><tr><td>4</td><td>LD cathode</td></tr></table>	PIN configuration		Assignment		1	LD anode (CASE)	2	PD anode	3	PD cathode	4	LD cathode
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9. SAFETY INFORMATION ON THIS PRODUCT



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 destroy 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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