

Optical Components

OL3450L-2, OL3451L-2, OL3453L-2 Series

2mWCoaxial DFB Laser Diode Modules

1. DESCRIPTION

The OL3450L-2, OL3451L-2, OL3453L-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 $+70^\circ\text{C}$
- 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

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Fiber Output Power	P _f	CW	2.0			mW
Fiber Output Power (Average)	P _{AVG}	Modulated	1.0			mW
Threshold Current	I _{th}	T _c =+25°C, CW, BOL		7	15	mA
		T _c =+70°C, CW, BOL		25	40	
		T _c =+70°C, CW, EOL			1.5*I _{th} -BOL	
Operation Current	I _{op}	P _f =2.0mW, CW		70	110	mA
Slope efficiency	η	P _f =2.0mW, CW, T _c =+25°C	0.05	0.064		W/A
Modulation Current	I _{mod}	P _f =2.0mW, CW, T _c =+25°C		30	40	mA
Peak Wavelength	λ _p	P _f = 2.0mW, CW	1263		1360	nm
Spectral Width	Δλ	P _f = 2.0mW, CW, -20dB		0.2	0.5	nm
Side-mode suppression ratio	SMSR	P _f =2.0mW, CW	32	40		dB
Rise/Fall times	T _r /T _f	P _{AVG} =1.0mW, 20-80% ExR*=9dB		0.09	0.15	ns
Relative Intensity Noise	RIN	P _f =2.0mW, CW		-140	-130	dB/Hz
Monitor Current	I _m	P _f = 2.0mW, CW, T _c =+25°C	50	400	2200	μA
Tracking Error**	TRE	P _f =2.0mW, CW	-1	---	+1	dB

*ExR=Extinction ratio

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

5. ABSOLUTE MAXIMUM RATING

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

Parameter	Symbol	Rating	Unit
Fiber Output Power	P _f	4	mW
LD Reverse Voltage	V _{rl}	2	V
Monitor PD Forward Current	I _{fd}	10	mA
Monitor PD Reverse Current	I _{rd}	3	mA
Monitor PD Reverse Voltage	V _{rd}	30	V
Operating Case Temperature (T _c)	T _c	0 to +70	°C
Storage Temperature	T _{stg}	-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

OL345 0 L – 2 – AF SC

Pin Assignment

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

Flange type

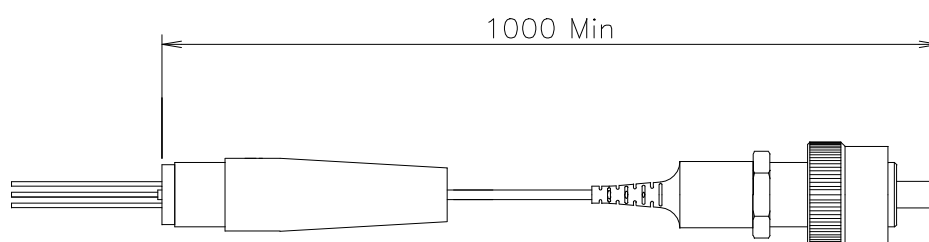
AF: Angled Flange
SF: Straight Flange
NF: No Flange

Connector type

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

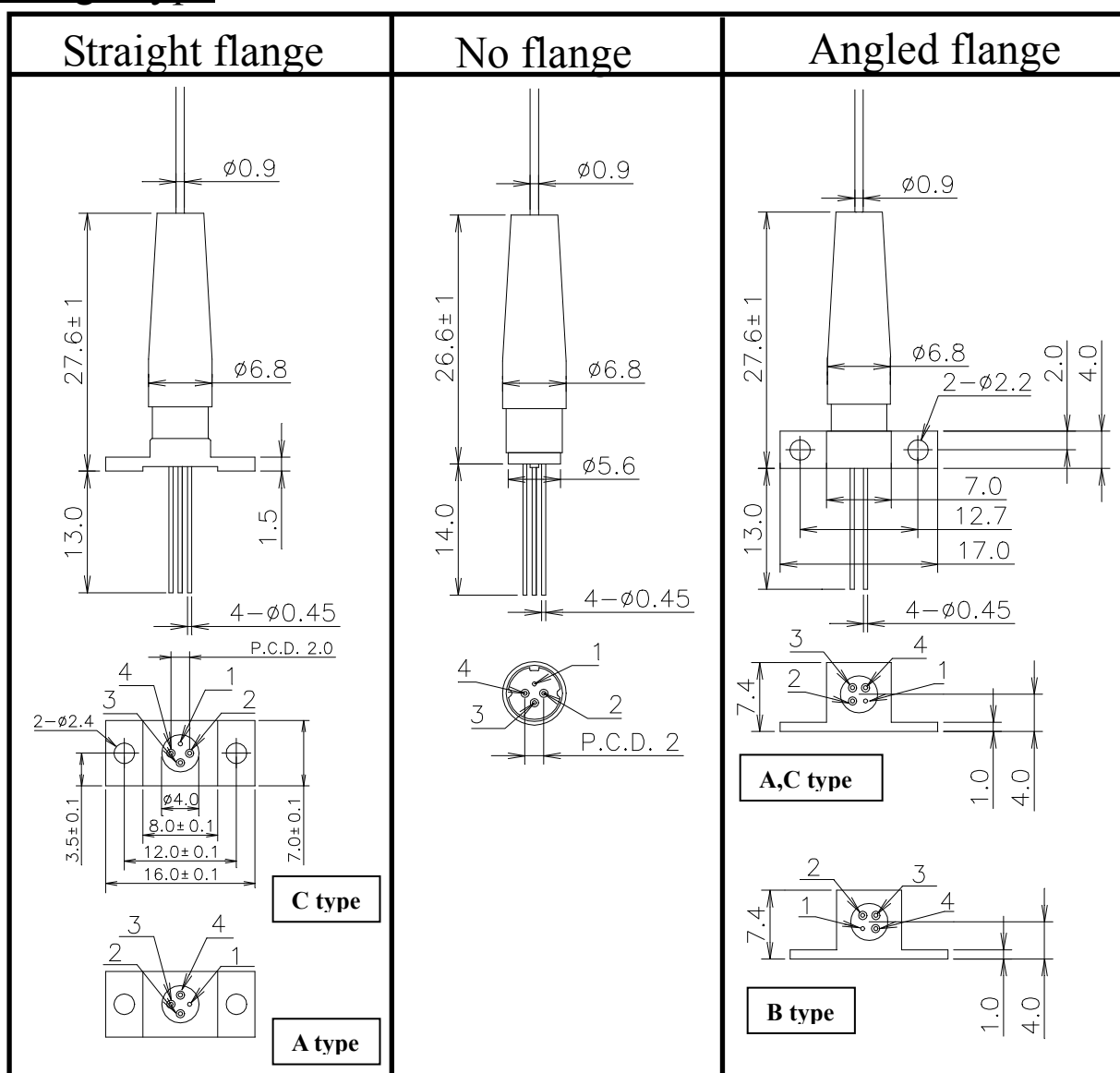
8. OUTLINE DRAWING

Length (mm)



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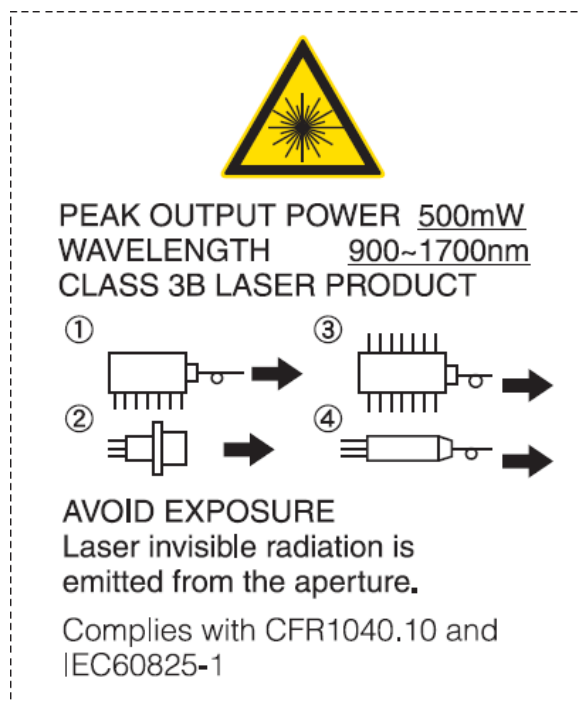
All dimensions in millimeters

Flange TypePin Assignment

OL3450L (C type)	OL3451L (A type)	OL3453L (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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