

# Optical Components

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

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### 2mWCoaxial DFB Laser Diode Modules

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#### 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

(Tc = 0 to +70°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=+70°C, CW, BOL		25	40	
		Tc=+70°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	0.064		W/A
Modulation Current	Imod	Pf=2.0mW, CW, Tc=+25°C		30	40	mA
Peak Wavelength	λp	Pf= 2.0mW, CW	1263		1360	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~+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	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 +70	°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

OL345 0 L – 2 – AF SC

### Pin Assignment

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

### Flange type

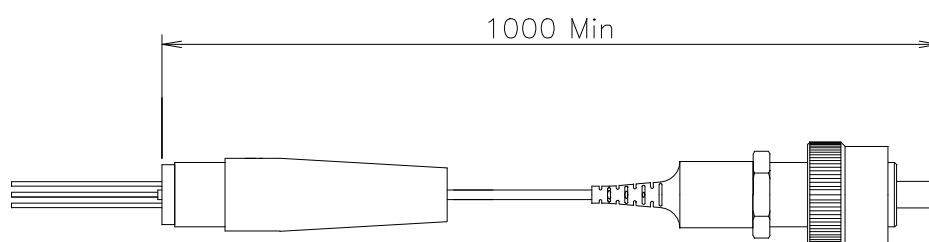
AF: Angled Flange  
SF: Straight Flange  
NF: No Flange

### Connector type

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

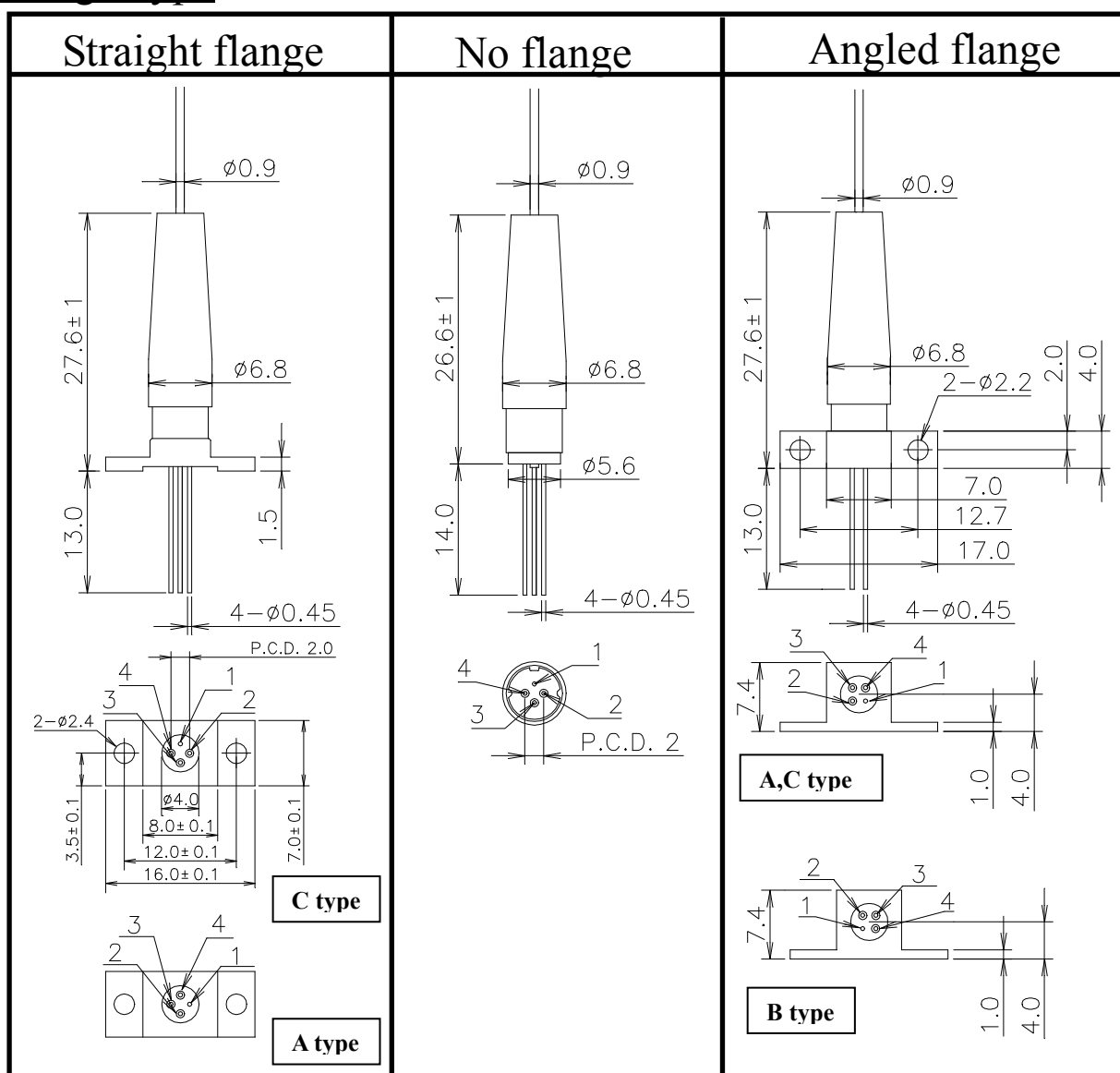
## 8. OUTLINE DRAWING

Length (mm)



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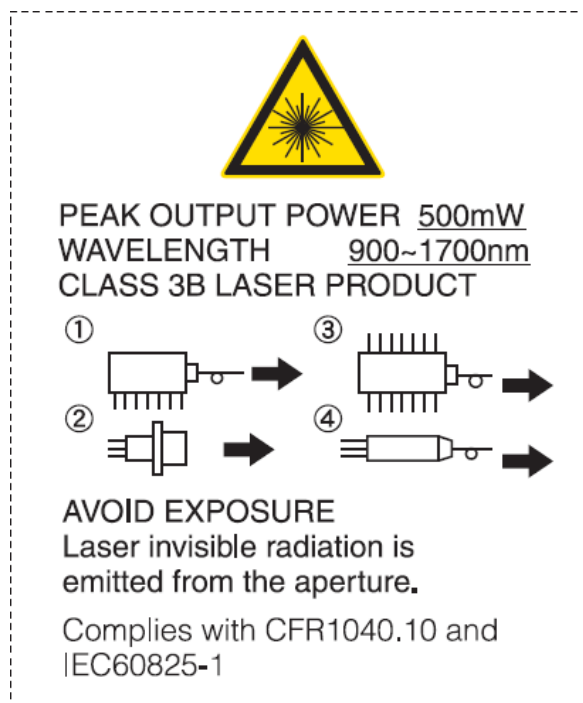
All dimensions in millimeters

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



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

All specifications described herein are subject to change without notice.

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