Pigtailed Coaxial DFB-LD
TLDxxxx Series

■ 1310nm/1550nm InGaAsP LD

■ DFB Laser with Optical Isolator

■ SMQW Structure

■ SMF Pigtailed, SC or FC Connector

■ 2.5Gbps Transmission

Family Model

TLDx20x TLDx30x TLD340x

Features

- 1.3μm/1.55μm InGaAsP SMQW DFB laser diode
- Low threshold, high slope efficiency LD
- High output power uncooled laser diode
- Operating temperature ; 0℃ to +70℃ / -20℃ to +85℃
- Single-mode fiber pigtailed with SC or FC connector
- Tested by our Reliability and Qualification Program

Description

The TLDxxxx series, pigtailed coaxial LD module consists of an uncooled, reliable strained MQW InGaAsP laser(DFB) and a back-facet InGaAs PIN photodiode.

The parts of pigtailed LD module – single-mode fiber, lens and laser diode - are actively aligned by high power YAG laser welding method. This packaging guarantees high coupling efficiency, high slope efficiency, low operating current and low tracking error over a wide temperature range (0℃ to +70℃/-20℃ to +85℃), and provides high optical performance for ITU-T G.652 standard optical fiber.

Applications

Used in telecommunication and data communication systems, from medium to high speed for intra-office, short-haul inter-office and long-haul inter-office applications.

- Fiber in the loop(FTTO, FTTC, FTTH etc.)
- Intra-office and Inter-office links
- Transport links (SDH,SONET, PDH)
- Private optical networks
- Subscriber loops

Absolute Maximum Ratings

Parameters	Symbol	Unit	Min.	Max.	Remarks
Ambient Operating Temperature	T_{op}	℃	0 -20	70 85	Indoor Use Extended Temp
Storage Temperature	T_{stg}	℃	-40	85	
Forward Current(LD)	I_{FL}	mA	-	150	
Reverse Voltage(LD)	V_{RL}	V	-	2	
Reverse Current(mPD)	I_{RP}	mA	-	2	
Reverse Voltage(mPD)	V_{RP}	V	-	15	
Lead Soldering Temp./Time		°C/sec		260/10	

Electrical and Optical Characteristics

(T_{op} = 25℃)

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max.	Remarks
Threshold Current	I_{th}	CW	mA		8 10	15 15	TLD3XXX TLD5XXX
Operating Current	I_{op}	CW, @P_f	mA			40	
Forward Voltage	V_f	CW, @P_f	V			1.6	
Fiber Output Power	P_f	CW, $I_{op}=I_{th}$ +20mA	mW		2.0 3.0 4.0		TLDX20X TLDX30X TLD340X
Slope Efficiency	η	CW	mW/mA	0.08 0.12 0.16	0.10 0.15 0.20		TLDX20X TLDX30X TLD340X
Peak Wavelength	λ_C	CW, @P_f	nm	1290 1530	1310 1550	1330 1570	TLD3XXX TLD5XXX
Spectral Linewidth	$\Delta\lambda$	CW, @P_f	nm			1	
Side Mode Suppression Ratio	SMSR	CW	dB	30			
Rise/Fall Time	t_R, t_F	I_b= I_{th}, 20-80%	ns		0.2	0.3 0.15	 ≥2.5Gbps
Tracking Error	γ	APC,T_C=0~+70℃ or -20~+85℃	dB	-1.0		1.0	I_m=const.
Optical Isolation[1]	ISO		dB	30			
Dark Current(m-PD)	I_D	V_{RP}=5V	nA		1	10	
Monitor Current(m-PD)	I_m	V_{RP}=5V, @P_f	mA	0.08			
Capacitance(m-PD)		V_{RP}=5V, f=1MHz	pF			10	

1. Optical Isolation is only applicable for the optical isolator option

! Handling Caution

The LD module can be damaged by overvoltage and current surges. Precautions should be taken for transient power supply.

This device is susceptible to damage as a result of electrostatic discharge(ESD). Take proper precautions during both handling and testing

The stress to the fiber pigtail may cause the damage on the performance. The fiber pigtail may snap off by dropping the module.

Laser Eye Safety

These LD modules have laser semiconductor product and are classified as AEL Class IIIb per U.S. FDA/CDRH 21CFR 1040 and class 3a per EN60825-1. These products comply with 21CFR, Chapter 1, Subchapter J(21CFR 1040.10 and 1040.11 laser safety requirements).

Laser Data

Wavelength : nm(Model :) / nm(Model :)

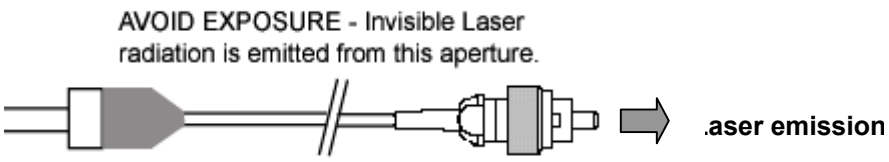
Measured Output power : mW(1310nm) / mW(1550nm)

Limited Power : mW(1310nm) / nW(1550nm)

Caution

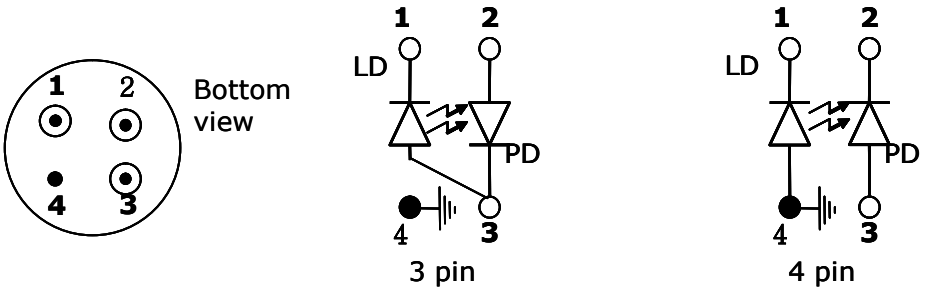
On operation, If optical connectors are unterminated, modules can emit invisible laser radiation. Radiation emitted by laser devices can be dangerous to the eyes. Avoided eye or skin exposure to direct or scattered radiation

Ref : IEC60825



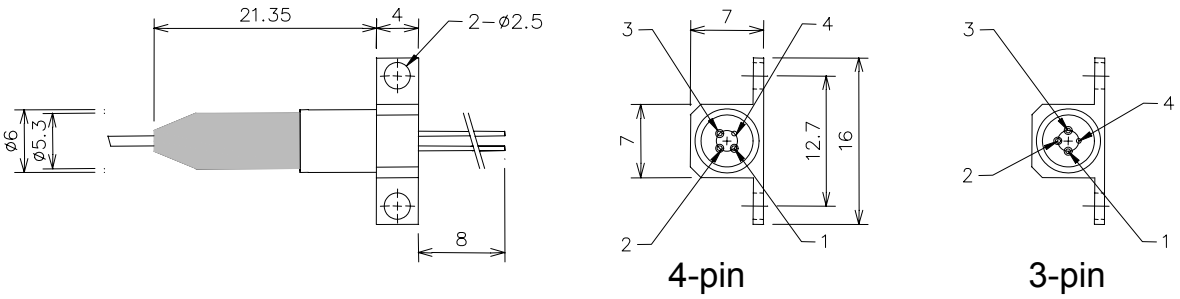
Pin Descriptions

Pin No.	Description	
	3 pin type	4 pin type
1	LD cathode	LD cathode
2	Backfacet PD anode	Backfacet PD cathode
3	LD anode & PD cathode	Backfacet PD anode
4	Case ground	LD anode & Case ground



Outline Diagram

- TLDx20x-xxxH, TLDx30x-xxxH



- TLDx20x-xxxV, TLDx30x-xxxV

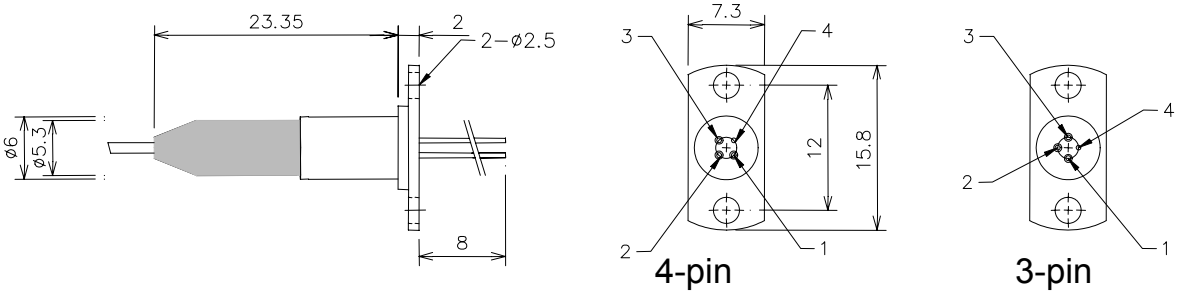


Fig.3 TLD series Dimensions [unit: mm]

Ordering Information

Component	Device Type		Wave-length	Output Power	Pin		Temp. Range	Fiber	Conn-ector	Flange
T	**L**	**D**	**3**	**20**	**4**	**-**	**E**	**S**	**S**	**N**
	L; Pigtail LD	**D**;DFB (with isolator) **E**;DFB (without isolator)	**3**;1.3μm **5**;1.55μm	**20**;2.0mW **30**;3.0mW **40**;4.0mW (1.3u only) **2G**:2mW - 2.5Gbps **3G**: 3mW - 2.5Gbps	**3**; 3pin **4**; 4pin		**I**;Indoor Use (0~70℃) **E**;Extended Temp (-20~85℃)	**S**;SMF **M**;MMF	**N**;None **S**;SC **F**;FC **T**;ST **L**;LC	**N**;None **V**;Vertical **H**;Hori-zontal

*Note 1 ; additional order information
- Connector type default is SC/PC and the default length of fiber is 1m

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