

## LC-TOSA1XXDX3X

**Technical Specification of 1310nm MQW-DFB Laser Diode Module:  
(Transmitter Optical Sub-assembly)**

### Features

- ◆ Coaxial Package
- ◆ InGaAsP/InP MQW-DFB laser Diode
- ◆ Low threshold, high slope efficiency and high output power LD
- ◆ Maximum Soldering Temperature /Time:260□/10s
- ◆ Operating Case temperature: -40C to +85C
- ◆ RoHS Compliant Products Available



### Applications

- ◆ Optical Transmitter of Data Signal
- ◆ Optical Transmitter of Analog Signal
- ◆ Test Equipments

### General

LC-TOSA1XXFX3 Series are 1310μm InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are transmitter optical sub-assembly with low threshold current and high performance at high temperature, Ideally suitable for short reach applications, data rates from 155 Mbps to 2.5Gbps.

A laser diode is mounted into a Ø5.6mm coaxial package integrated with an InGaAs monitor PD, a single -mode fiber-stub and a split sleeve for the optical connector with Ø1.25mm ferrule.

### Ordering information (Standard version <sup>\*Note1</sup>)

Part No.	Pin Type	LD Type	Power	Data Rate
LC-TOSA11ADM3	LD-Pin-1	DFB	M	1.25Gbps
LC-TOSA11BDL3	LD-Pin-2	DFB	L	1.25Gbps
LC-TOSA11ADM3	LD-Pin-1	DFB	M	1.25Gbps
LC-TOSA12ADM3	LD-Pin-1	DFB	M	2.5Gbps
LC-TOSA12BDL3	LD-Pin-2	DFB	L	2.5Gbps
LC-TOSA12ADM3	LD-Pin-1	DFB	M	2.5Gbps

\*Note1: For more ordering information, please refer the nomenclature and contact EPOTOLINK sales.

## Absolute maximum ratings<sup>\*Note2</sup>

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+100	□
Operating case temperature	Top	-40~+85	□
Forward current (LD)	IFD	150	mA
Reverse voltage (LD)	VrL	2	V
Reverse voltage (PD)	VrP	20	V
Reverse current (PD)	IrP	2	mA
Soldering temperature (<10s)	Stemp	260	□

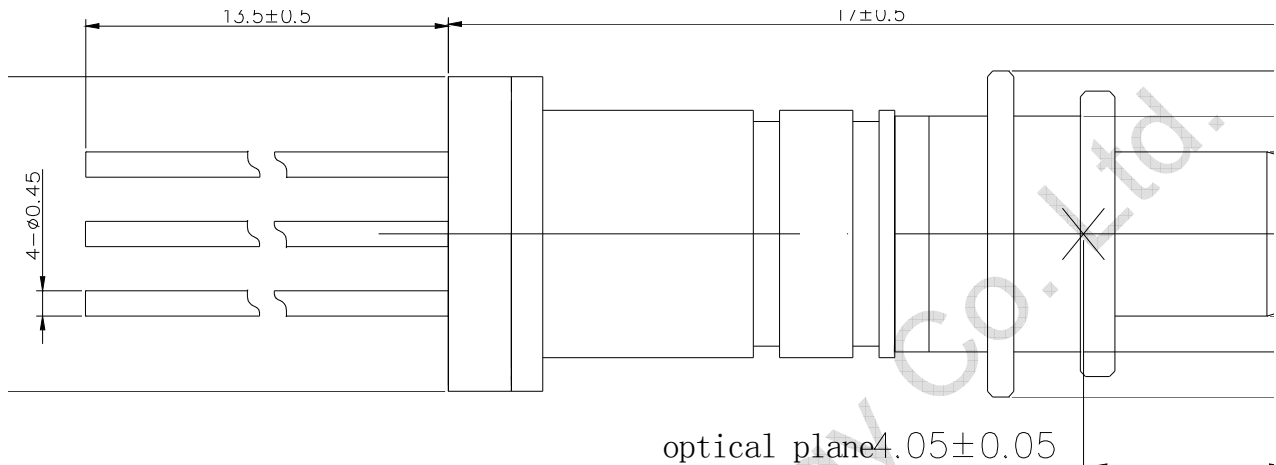
\*Note2: Exceeding any one of these values may destroy the device immediately.

## Electrical and optical characteristics

(Pf=1mW, SMF(9.5/125μm), Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Threshold current	Ith	CW	—	8	15	mA
Fiber Coupling Power	Pf	CW, If=Ith+20mA	1	1.5	2.8	mW
Operating voltage	Vf	CW, Tc=-40~+85□	—	1.2	1.6	V
Slope Efficiency	Se	CW, Average(Ith to Ith+20mA)	0.05		0.14	mW/mA
Peak wavelength	λp	CW	1290	1310	1330	nm
		CW, Tc=-40~+85°C	1265		1355	
Side mode suppression ratio	SSR	CW, Tc=-40~+85°C	35	40		dB
Rise time	tr	Ib=Ith, 20-80%, Tc=-40~+85°C	—		0.05	ns
Fall time	tf	Ib=Ith, 80-20%, Tc=-40~+85°C	—	0.15	0.05	ns
Tracking error	ΔPf	I <sub>m</sub> hold(@Pf=0.16mW(25°C)) CW, Tc=-40~+85°C	-1.5	—	1.5	dB
Monitor current	I <sub>m</sub>	CW, VrP=5V, Tc=-40~+85°C	100	500	900	uA
Monitor dark current	I <sub>d</sub>	VrP=5V	—	—	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	10	20	pF
Connector repeatability	—		-1	—	1	dB
Optical Isolation	—	Single Stage	30			dB
		Dual Stage	40			

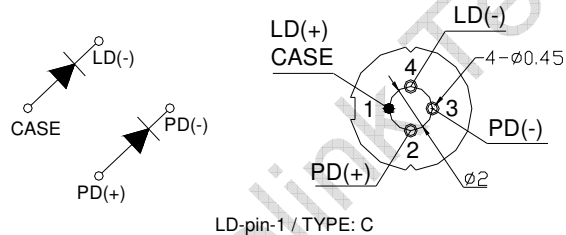
## TOSA Package series<sup>\*Note3</sup>



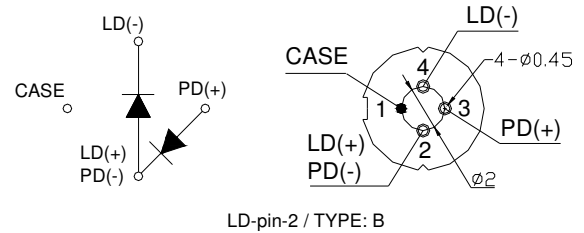
\*Note3: Laser mark can be customized.

## Pin Assignment

TYPE: 1



TYPE: 2



## Ordering Information

LC-TOSA1   D  3   
 A B C D E F

No	Parameter	Detailed Description			
A	Data rate	1=1.25Gb/s		2=2.5Gb/s	
B	Pin Type	A=LD-pin-1		B= LD-pin-2	
C	LD Type	D=DFB LD			
D	Power	S= $\leq 0.1$ mW	L=0.3-0.8mW	M=0.8-1.8mW	H=1.8-2.8mW

<b>E</b>	<b>Wavelength</b>	3=1310nm		
<b>F</b>	<b>Isolator</b>	N=None	G= Single Stage	G2=Dual Stage

## Precaution

- (1) The modules should be handled in the same manner as ordinary semiconductor devices to prevent the electro-static damages. For safe keeping and carrying, the modules should be packaged with ESD proof material. To assemble the modules on PCB, the workbench, the soldering iron and the human body should be grounded.
- (2) Please pay special attention to the atmosphere condition because the dew on the module may cause some electrical damages.
- (3) Under such a strong vibration environment as in automobile, the performance and reliability are not guaranteed.

## Obtaining Document

You can visit our website:

<http://www.eoptolink.com>

Or contact Eoptolink Technology Inc., Ltd. listed at the end of the documentation to get the latest documentation.

## Revision History

Version	Initiated	Reviewed	Approved	Release Date
Va-4	Zore.Zhao	Kelly.Cao		2009-12-26

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