

## LC-TOSA1XXFX5

### Transmitter Optical Sub-assembly: 1550nm MQW-FP Laser Diode

#### Features

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



#### Applications

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

#### General

LC-TOSA1XXFX5 Series are 1550nm InGaAsP/InP MQW-FP 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-TOSA11AFS5 | LD-Pin-1 | FP      | S     | 1.25Gbps  |
| LC-TOSA11BFL5 | LD-Pin-2 | FP      | L     | 1.25Gbps  |
| LC-TOSA11AFM5 | LD-Pin-1 | FP      | M     | 1.25Gbps  |
| LC-TOSA12AFS5 | LD-Pin-1 | FP      | S     | 2.5Gbps   |
| LC-TOSA12BFL5 | LD-Pin-2 | FP      | L     | 2.5Gbps   |
| LC-TOSA12AFM5 | LD-Pin-1 | FP      | M     | 2.5Gbps   |

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

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

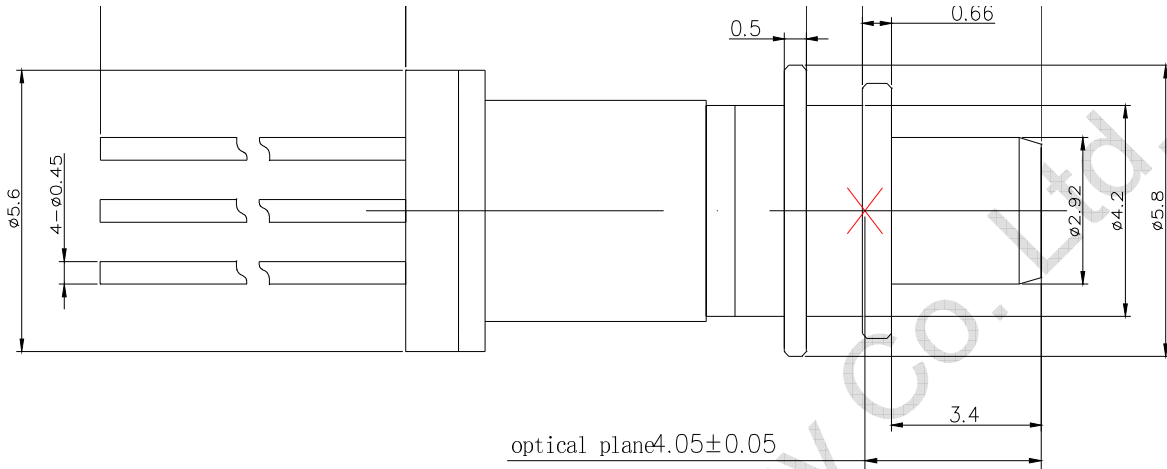
| Parameter                    | Symbol | Ratings  | Unit |
|------------------------------|--------|----------|------|
| Storage temperature          | Tstg   | -40~+100 | C    |
| Operating case temperature   | Top    | -40~+85  | C    |
| Forward current (LD)         | IFD    | 150      | mA   |
|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

## Electrical and optical characteristics

(Pf=0.3mW, 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   | 0.05 | 0.3  | 0.6  | mW    |
| Operating voltage       | Vf             | CW, Tc=-40~+85□   | —    | 1.2  | 1.6  | V     |
| Slope Efficiency        | Se             | CW, Average(Ith to Ith+20mA)                              | —    | —    | 0.03 | mW/mA |
| Peak wavelength         | λp             | CW  | 1520 | 1550 | 1580 | nm    |
|                         |                | CW, Tc=-40~+85°C  | 1490 | —    | 1585 | —     |
| Spectral width          | Δλ             | CW, 20dB down,  | —    | 1.5  | 3    | nm    |
| Rise time               | tr             | Ib=Ith, 20-80%,<br>Tc=-40~+85°C                           | —    | —    | 0.05 | ns    |
| Fall time               | tf             | Ib=Ith, 80-20%,<br>Tc=-40~+85°C                           | —    | 0.15 | 0.05 | ns    |
| Tracking error          | ΔPf            | I <sub>m</sub> hold(@Pf=0.16mW(25°C))<br>CW, Tc=-40~+85°C | -1.5 | —    | 1.5  | dB    |
| Monitor current         | I <sub>m</sub> | CW, VrP=5V,<br>Tc=-40~+85°C                               | 200  | —    | 1000 | uA    |
| Monitor dark current    | I <sub>d</sub> | VrP=5V  | —    | —    | 10   | nA    |
| Monitor capacitance     | C              | VrP=5V, f=1MHz  | —    | —    | 20   | pF    |
| Connector repeatability | —              | —   | -1   | —    | 1    | dB    |

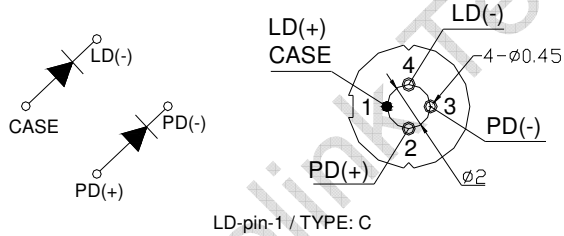
## TOSA Package series<sup>\*Note3</sup>



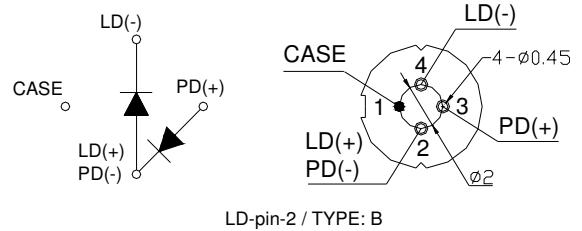
\*Note3: Laser mark can be customized.

## Pin Assignment

TYPE: 1



TYPE: 2



## Ordering Information

LC—TOSA1       
A B C D E

| Order | 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   | F=FP LD              |             |

|          |                   |                 |             |             |             |
|----------|-------------------|-----------------|-------------|-------------|-------------|
| <b>D</b> | <b>Power</b>      | S= $\leq$ 0.3mW | L=0.3-0.8mW | M=0.8-1.8mW | H=1.8-2.5mW |
| <b>E</b> | <b>Wavelength</b> | 5=1550nm        |             |             |             |

### 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   |

### Notice:

Eoptolink reserves the right to make changes or discontinue any product or service identified in this publication, without notice, in order to improve design and/or performance. Applications that are described herein for any of the products are for illustrative purposes only. Eoptolink makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

### Contact:

Add: Floor 5, Building 2, No. 21 Gaopeng Avenue, High-Tech District, CHENGDU, SICHUAN 610041 P.R. CHINA

Tel: (+86) 028-85122709 ext 816 & 809

Fax: (+86) 028-85121912

Postal: 610041

E-mail:sales@eoptolink.com

<http://www.eoptolink.com>