

LC-TOSA 2.5G 1270nm~1610nm MQW-DFB CWDM Laser Diode

HEL-TOSAXXXDXXX

Features:

- ◆ Coaxial Package
- ◆ InGaAsP/InP MQW-DFB Laser Diode
- ◆ Low threshold, high slope efficiency and high output power LD
- ◆ Maximum Soldering Temperature /Time:260°C/10s
- ◆ Operating Case Temperature: 0°C to +70°C
- ◆ RoHS Compliant Products Available



Applications:

- ◆ Optical Transmitter of Data Signal
- ◆ Optical Transmitter of Analog Signal
- ◆ Microwave Transmission System
- ◆ Test Equipments

General:

HEL-TOSA1XXFXX3 Series are 1550nm 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 155M to 2.5G.have an isolator integrated inside.

A laser diode is mounted into a $\phi 5.6$ mm coaxial package integrated with an InGaAs monitor PD, a single -mode fiber-stub and a split sleeve for the optical connector with $\phi 1.25$ mm ferrule. And we also can provide tow connector types of fiber-stub cover. The one is insulated, related PN is HEL-TOSA2XXXXX. The other is not insulated, related PN is HEL-TOSA1XXXXX.

Ordering Information: (Standard version ^{*Note1})

| Part No. | Connector Type | Data Rate | Pin Type | Power | λ ^{*Note2} (nm) | Isolator |
|--------------------|----------------|-----------|----------|-------|----------------------------------|--------------|
| HEL-TOSA21BD1533G2 | 2 | 1.25G | LD-Pin-2 | 15 | 1330 | Dual Stage |
| HEL-TOSA22BD2544G | 2 | 2.5G | LD-Pin-2 | 25 | 1440 | Single Stage |
| HEL-TOSA22BD2555G2 | 2 | 2.5G | LD-Pin-2 | 25 | 1550 | Dual Stage |
| HEL-TOSA22BD1561G | 2 | 2.5G | LD-Pin-2 | 15 | 1610 | Single Stage |

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

*Note2: For the detailed CWDM wavelength, please refer the following table.

Absolute Maximum Ratings:

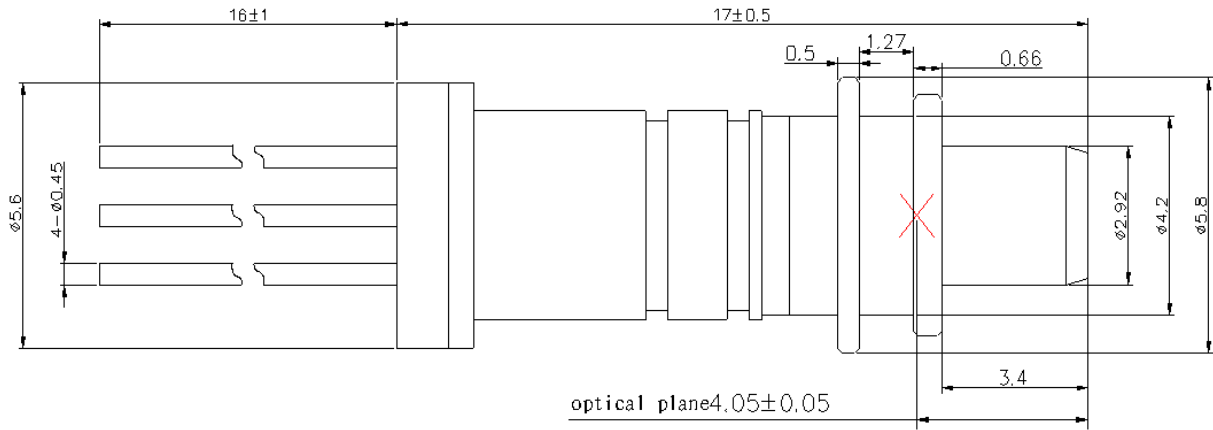
| Parameter | Symbol | Ratings | Unit |
|------------------------------|--------|---------|------|
| Storage Temperature | Tstg | -40~+85 | °C |
| Operating Case Temperature | Top | 0~+70 | °C |
| Forward Current (LD) | IFD | 150 | mA |
| Reverse Voltage (LD) | VrL | 2 | V |
| Reverse Voltage (PD) | VrP | 20 | V |
| Reverse Current (PD) | IrP | 2 | mA |
| Soldering Temperature (<10s) | Stemp | 260 | °C |

Electrical and Optical Characteristics:

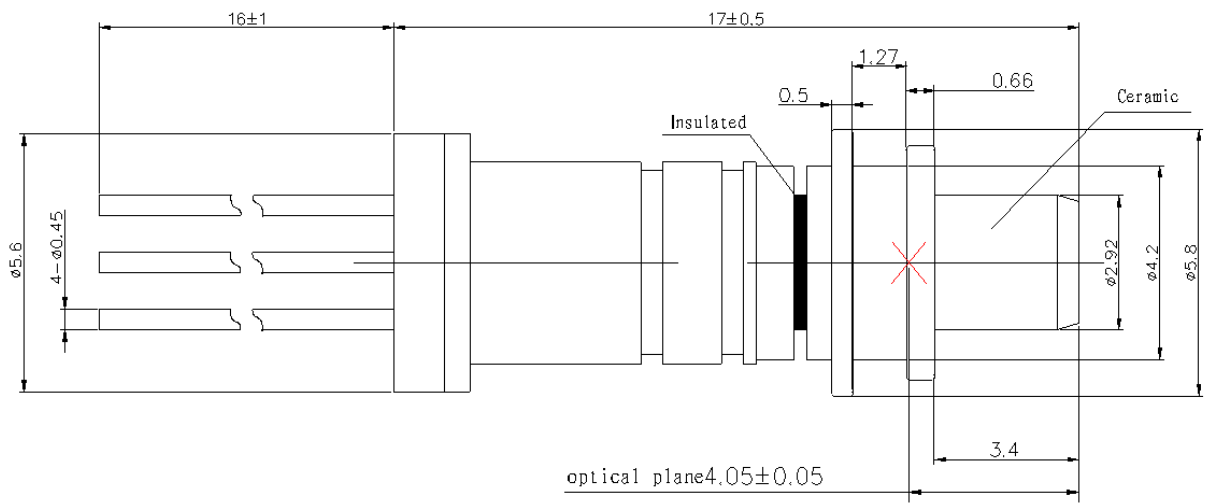
(Pf=1.5mW, SMF(9.5/125μm), Tc=+25°C, unless otherwise noted.)

| 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 | 2.5 | mW |
| Operating Voltage | Vf | CW, Tc=0~+70 | — | 1.2 | 1.6 | V |
| Slope Efficiency | Se | CW, Average(Ith to Ith+20mA) | 0.05 | | 0.14 | mW/mA |
| Peak Wavelength | λp | CW | (*3) | | | nm |
| Wavelength Temperature Coeff | — | CW, Tc=0~+70°C | | 0.1 | | nm/°C |
| Side mode suppression ratio | SSR | CW, Tc=0~+70 | 35 | 40 | | dB |
| Rise Time | tr | Ib=Ith, 20-80%, Tc=0~+70 | — | | 0.05 | ns |
| Fall Time | tf | Ib=Ith, 80-20%, Tc=-40~+85°C | — | 0.15 | 0.05 | ns |
| Tracking Error | ΔPf | Im hold(@Pf=0.16mW(25°C) CW, Tc=0~+70 | -1.5 | — | 1.5 | dB |
| Monitor Current | Im | CW, VrP=5V, Tc=0~+70 | 100 | 500 | 900 | uA |
| Monitor Dark Current | Id | 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: *Note3



LC-TOSA1

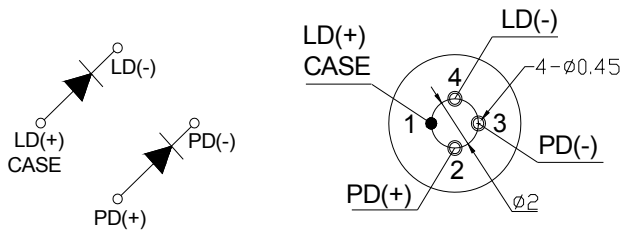


LC-TOSA2

*Note3: Laser mark can be customized.

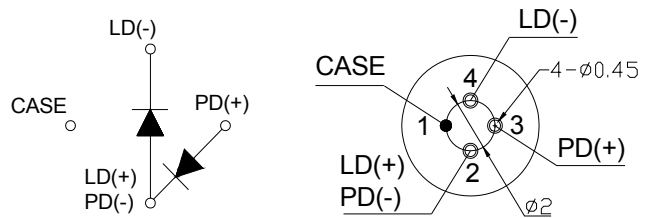
Pin Assignment:

TYPE: 1



LD-pin-1 / TYPE: C

TYPE: 2



LD-pin-2 / TYPE: B

Nomenclature:
HEL-TOSA
 A B C D E F G H

| No | Parameter | Detailed Description | | | | | |
|----|----------------|----------------------|---------|-----------------|-------------|---------------|---------|
| A | Connector Type | 2=Insulated | | | | | |
| B | Data Rate | 1=1.25G | | | 2=2.5G | | |
| C | Pin Type | A=LD-pin-1 | | | B= LD-pin-2 | | |
| D | LD Type | D=DFB LD | | | | | |
| E | Power | 08=0.5-0.1mW | | 15=1.1-1.6mW | | 25=1.61-2.5mW | |
| F | Wavelength | 27=1270 | 29=1290 | 31=1310 | 33=1330 | 35=1350 | 37=1370 |
| | | 39=1390 | 41=1410 | 43=1430 | 45=1450 | 47=1470 | 49=1490 |
| | | 51=1510 | 53=1530 | 55=1550 | 57=1570 | 59=1590 | 61=1610 |
| G | Isolator | Blank=None | | G= Single Stage | | G2=Dual Stage | |
| H | Fiber Type | Blank=SM | | | M=MM | | |

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.

Notice:

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