

## LC-TOSA 2.5G 1550nm MQW-DFB Laser Diode Module

## HEL-TOSA1XXDX5

**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: -40°C to +85°C
- ◆ RoHS Compliant Products Available

**Applications:**

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

**General:**

HEL-TOSA1XXDX5 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  $\phi 5.6\text{mm}$  coaxial package integrated with an InGaAs monitor PD, a single -mode fiber-stub and a split sleeve for the optical connector with  $\phi 1.25\text{mm}$  ferrule. And we also can provide two 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 <sup>\*Note1</sup>)**

Part No.	Connector Type	Pin Type	Power	Data Rate	Isolator
HEL-TOSA21BD055G	2	LD-Pin-2	05	1.25G	Single Stage
HEL-TOSA21BD155	2	LD-Pin-2	15	1.25G	None
HEL-TOSA22BD255G	2	LD-Pin-2	15	2.5G	Single Stage

\*Note1: For more ordering information, please refer the nomenclature and contact HighEasy 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	°C

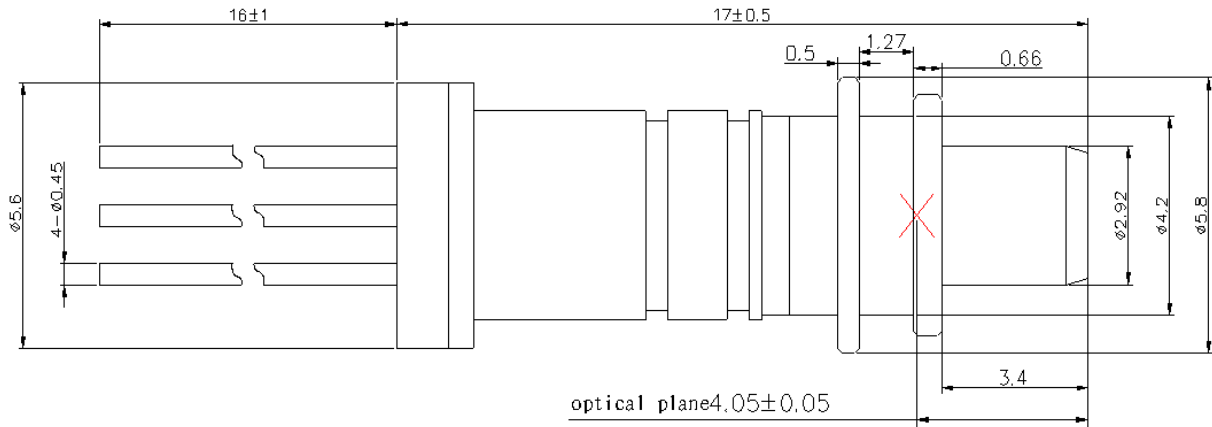
\*Note2: Exceeding any one of these values may destroy the device immediately.

**Electrical and Optical Characteristics:**

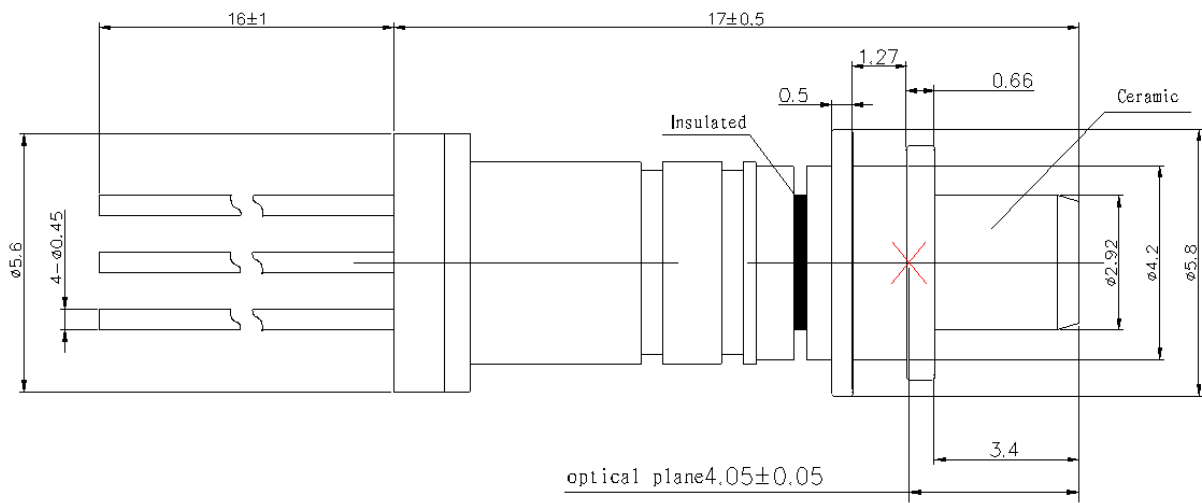
(Pf=1.5mW, SMF (9.5/125μm), Tc=+25°C, unless otherwise noted.)

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=-40~+85°C	—	1.2	1.6	V
Slope Efficiency	Se	CW, Average(Ith to Ith+20mA)	0.05		0.14	mW/mA
Peak Wavelength	λp	CW	1540	1550	1565	nm
		CW, Tc=-40~+85°C	1530		1575	
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: \*Note3



LC-TOSA1

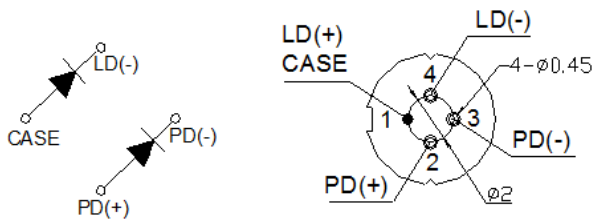


LC-TOSA2

\*Note3: Laser mark can be customized.

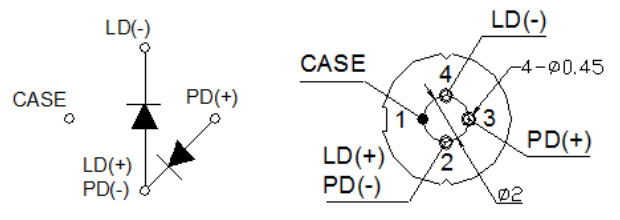
Pin Assignment:

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

Order	Parameter	Detailed Description			
A	Connector Type	1= unInsulated		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				
		05=0.5-1.0mW	15=1.1-1.5mW	25=1.6-2.0mW	35=2.0-2.5mW
F	Wavelength	5=1550nm			
G	Isolator	Blank=None	G= Single Stage	G2=Dual Stage	
H	Fiber Type	Blank=SM			

**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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