

LC-TOSA 2.5G 1310nm MQW-DFB Laser Diode Module

HEL-TOSAXXXDX3

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-TOSAXXXDX3 Series are 1310nm 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.

A laser diode is mounted into a $\varnothing 5.6$ mm coaxial package integrated with an InGaAs monitor PD, a single -mode fiber-stub and a split sleeve for the optical connector with $\varnothing 1.25$ mm ferrule. And we also can provide tow connector types of fiber-stub cover. The one is ceramic insulated, related PN is HEL-TOSA2XXXXX. The other is not insulated, related PN is HEL-TOSA1XXXXX. However, the optical connector with $\varnothing 2.92$ mm is ceramic and fiber-stub cover is insulated, related PN is HEL-TOSA3XXXXX.

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

Part No.	Connector Type	Pin Type	Power	Data Rate	Isolator
HEL-TOSA21BD013	2	LD-Pin-2	01	1.25G	None
HEL-TOSA22BD023G	2	LD-Pin-2	02	2.5G	Single Stage

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

Absolute Maximum Ratings: ^{*Note2}

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

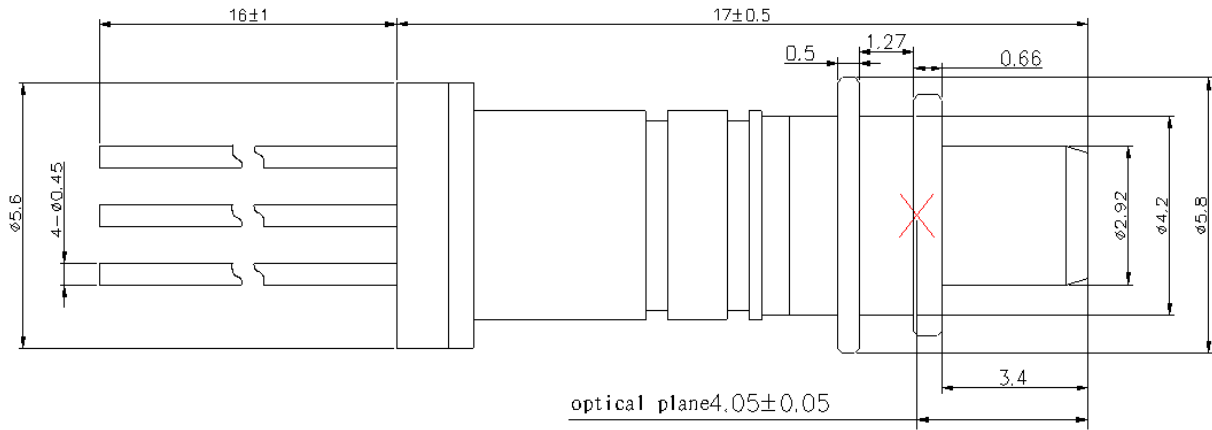
*Note2: Exceeding any one of these values may destroy the device immediately.

Electrical and Optical Characteristics:

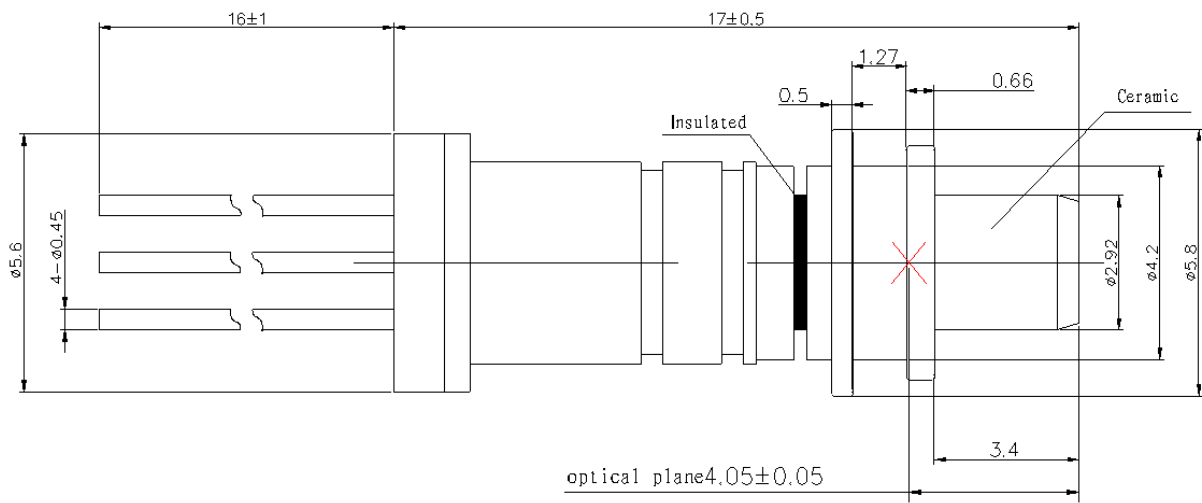
(Pf=1mW, SMF (9.5/125μm), Tc=+25°C, unless otherwise noted.)

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	2.5	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	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	Im hold(@Pf=0.16mW(25°C)) CW, Tc=-40~+85°C	-1.5	—	1.5	dB
Monitor Current	Im	CW, VrP=5V, Tc=-40~+85°C	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

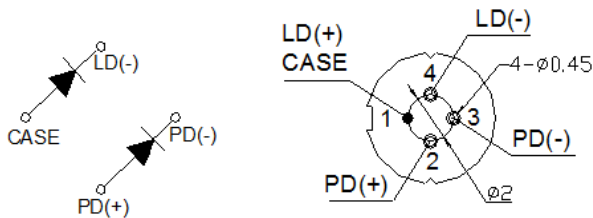


LC-TOSA2

*Note3: Laser mark can be customized.

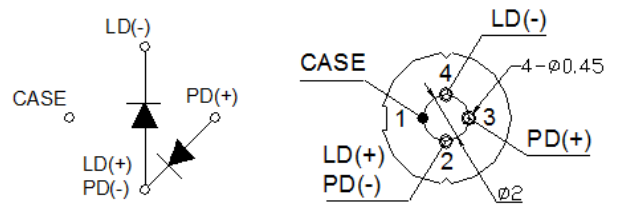
Pin Assignment:

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

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	00=0.2-0.5mW	01=0.6-1.0mW	02=1.1-1.5mW	03=1.6-2.5mW
F	Wavelength	3=1310nm			
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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