

## 1310nm MQW-DFB Pigtail Analog LD from 2GHz to 6GHz

## HEDLN-3XXXXXX

**Features:**

- ◆ Coaxial Package
- ◆ InGaAsP/InP MQW-DFB Laser Diode
- ◆ Low threshold, high slope efficiency and high output power LD
- ◆ Operating Case Temperature: -40°C to +85°C
- ◆ Single-mode fiber pigtailed with SC, LC, FC or ST connector
- ◆ Optional with Isolator

**Applications:**

- ◆ CATV Analog Return Path Optical Transmitter
- ◆ GSM/CDMA Optical Repeater
- ◆ W-CDMA/CDMA2000/TD-SCDMA Optical Repeater
- ◆ Microwave Transmission System
- ◆ Test Equipments

**General:**

HEDLN-3XXXXXX Series are 1310nm InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are pigtail modules, and have low threshold current and high performance at high temperature.

A laser diode is mounted into a coaxial package integrated with a single mode fiber pigtail, an isolator and an InGaAs monitor PD.

**Absolute Maximum Ratings:** <sup>\*Note1</sup>

Parameter	Symbol	Min.	Max.	Unit	Test Condition
Storage Temperature	Tstg	-40	100	°C	-
Operating Temperature	Top	-40	85	°C	-
Forward Current(LD)	If(LD)		150	mA	
Reverse Voltage(LD)	Vr(PD)		2	V	CW
Forward Current(PD)	If(LD)		2	mA	
Reverse Voltage(PD)	Vr(PD)		15	V	CW
Soldering Temp	-	-	260	°C	-
Soldering Time	-	-	10	S	S

\*Note1: Exceeding any one of these values may destroy the device immediately.

**Electrical and Optical Characteristics:**

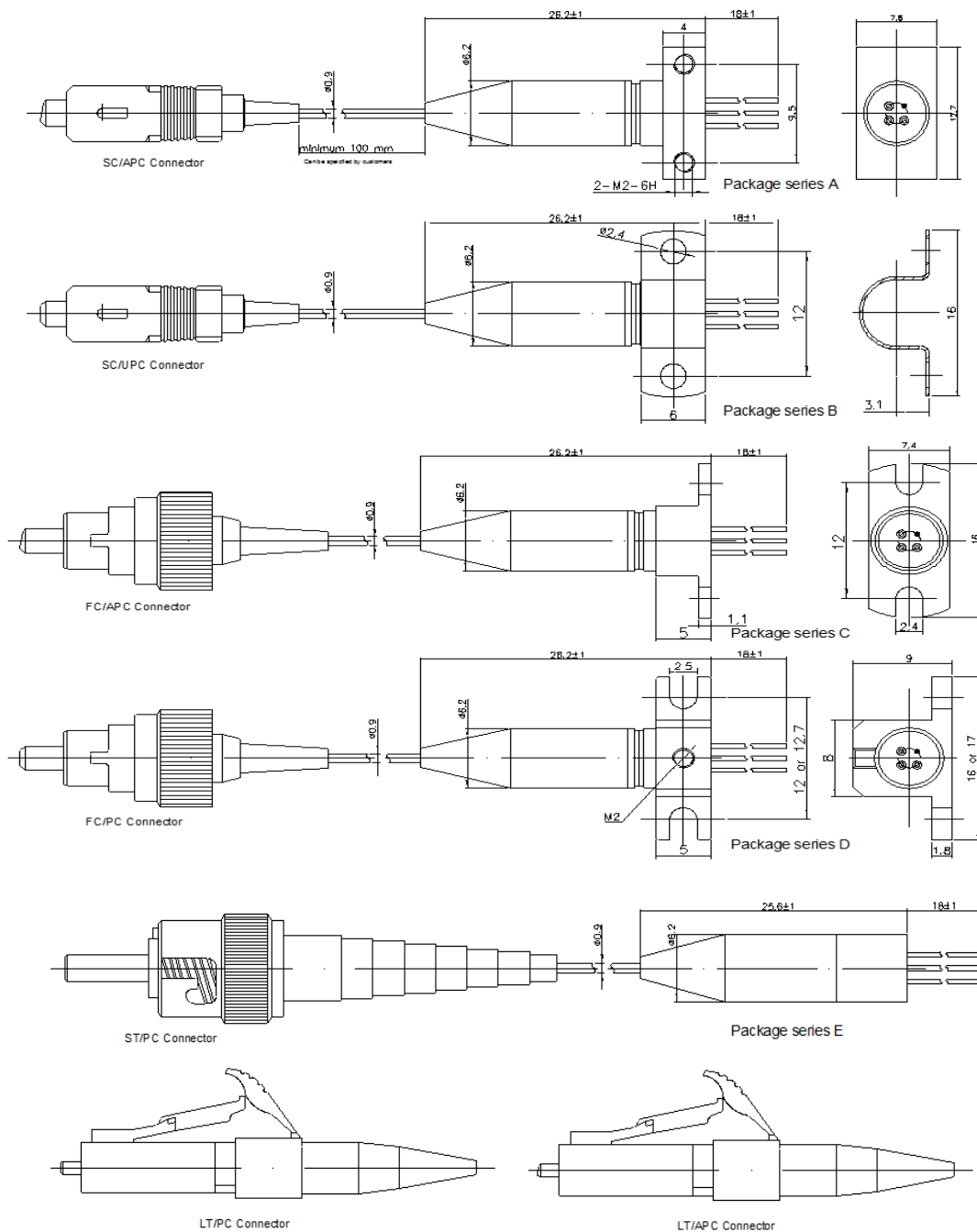
(SMF, Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Rated Power	Po	1	-	4	mW	Ith+20mA
Slope Efficiency	SE			0.2	mW/mA	
Threshold Current	Ith		10	15	mA	-
Forward Voltage Drop	Vop	-	1.0	1.2	V	CW, Ith+20mA
Cent Wavelength	$\lambda_c$	1300	1310	1320	nm	-
Spectrum Width(-3dB)	$\Delta\lambda$	-	0.5	1	nm	Ith+20mA
Side-mode Suppression Ratio	SMSR	35		-	dB	-
Bandwidth	Bw	2.5			GHz	
Monitor Current	Im	100		900	uA	CW, Ith+20mA
Dark Current of Monitor	Id	-	-	100	nA	5V
Optical Isolation (Single stage)	ISO	35	40	-	dB	
Optical Isolation (Double stage)	ISO	45	50	-	dB	
Return loss	RL			-45	dB	
<b>Analog Characteristic index</b>						
Relative Intensity Noise	RIN	-	-155	-150	dB/Hz	-
RF Bandpass Flatness	BF		$\pm 1.5$		dB	
Third-order Distortion	IMD3	-	-55	-	dBc	
Carrier Noise Ratio	CNR	51	-	-	dB	Note 1
Composite Second Order	CSO	-	-	-57	dBc	
Composite Triple Beat	CTB	-	-	-65	dBc	

1, If=Iop, Optical Modulation, Index=3.2%/channel (minimum),60 PAL-D unmodulated carries (47 to 550MHz), 10km single mode fiber, -1dBm received power, receiver responsivity=0.85A/W.

2, If=Iop, Optical Modulation Index=3.2%/channel (minimum), CNR, CSO, CTB tested value at worst case over all test frequencies. NTSC 120ch. 10km single mode fiber, -1dBm received power, Receiver responsivity=0.85A/W

**Pigtail Package Dimension:** \*Note2, 3, 4



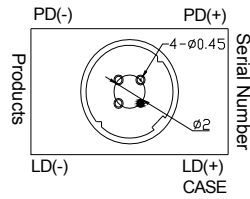
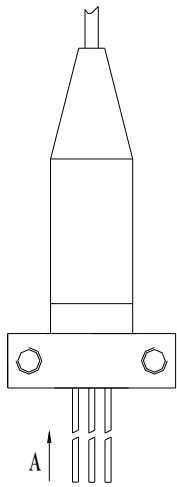
\*Note2: PIN direction and laser mark can be customized. Pigtail is standard SM fiber, the length also can be customized.

\*Note3: For the package series D, the clamping rings dimensions (A) and drill size (B) are can be selected. The following types can be available. Please designate the detailed type while ordering the package series D.

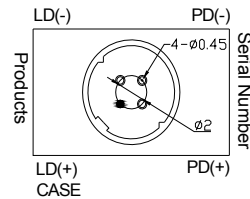
Fixed card type	A(mm)	B(mm)
D	16	12
D-S	17	12.7

\*Note4: For the package series B, the fix card is fixed by customer self. For the detailed information of fix card of A, C, D package series, please refers the following graphs.

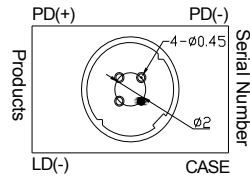
The Direction of Fix Card:



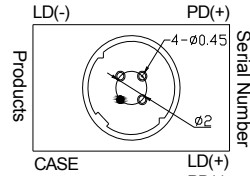
Direction A view  
PLD1A-1(DEFAULT)



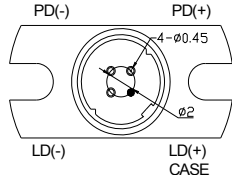
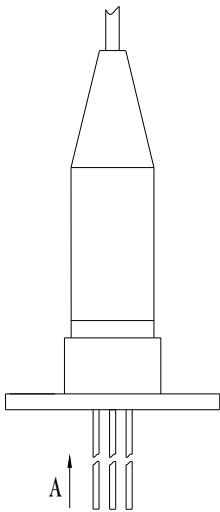
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PLD1A-2



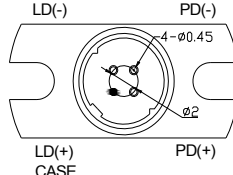
Direction A view  
PLD2A-1(DEFAULT)



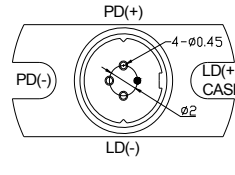
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PLD2A-2



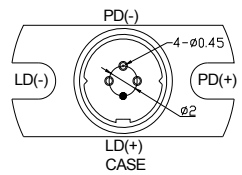
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PLD1C-1(DEFAULT)



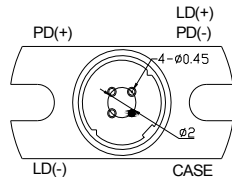
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PLD1C-2



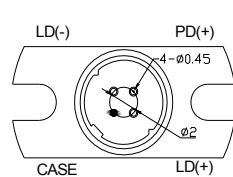
Direction A view  
PLD1C-3



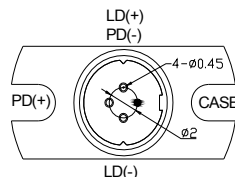
Direction A view  
PLD1C-4



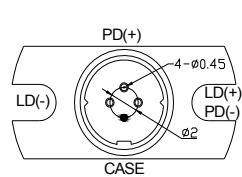
Direction A view  
PLD2C-1(DEFAULT)



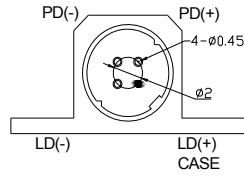
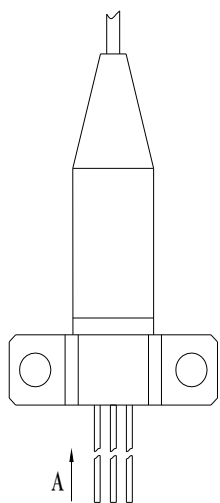
Direction A view  
PLD2C-2



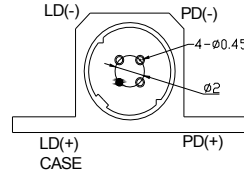
Direction A view  
PLD2C-3



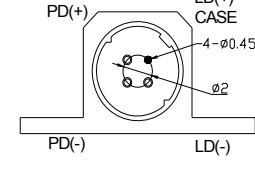
Direction A view  
PLD2C-4



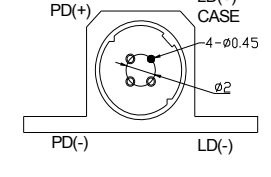
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PLD1D-1(DEFAULT)



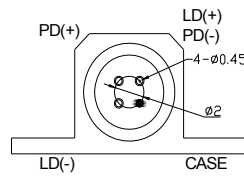
Direction A view  
PLD1D-2



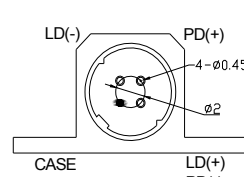
Direction A view  
PLD1D-4



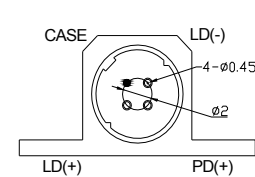
Direction A view  
PLD1D-4



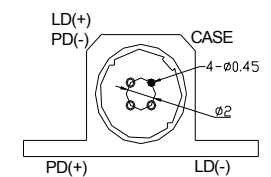
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PLD2D-1(DEFAULT)



Direction A view  
PLD2D-2



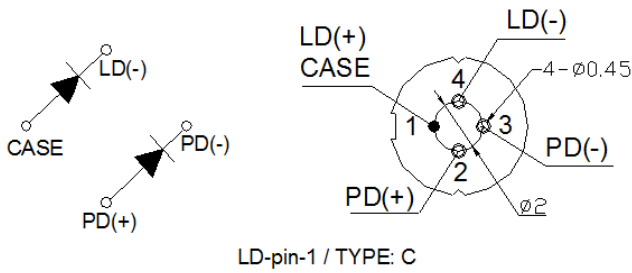
Direction A view  
PLD2D-3



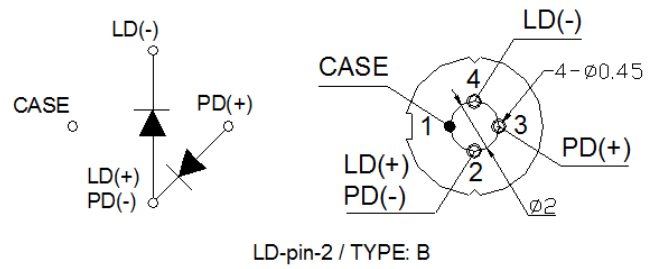
Direction A view  
PLD2D-4

### Pin Assignment:

TYPE: 1



TYPE: 2



### Nomenclature:

HEDLN—□ □ □ □ □ □ □  
 A B C D E F G

No.	Parameter	Detailed Description			
A	Center Wavelength	3=1310			
B	RF Bandwidth	2=2.5GHz	4<4.3GHz	6=6GHz	
C	Power	10=1-2mw	20=2.1-3mw	30=3.1-4mw	
D	Package Series	A	B	C	D E
E	Connector	F=FC/PC	S=SC/PC	T=ST/PC	L=LC/PC
		FA=FC/APC	SA=SC/APC	LA=LC/APC	Blank=None
F	Pin Type	1=LD-pin-1		2=LD-pin-2	
G	Isolator	Blank=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.

### Notice:

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