

## 1270nm-1610nm CWDM Pigtail Analog LD less than 2GHz

### HEDLM-X1XXXXX

#### Features:

- ◆ Coaxial Package
- ◆ InGaAsP/InP MQW-DFB Laser Diode
- ◆ Low threshold, high slope efficiency and high output power LD
- ◆ Operating Case Temperature: -20°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:

HEDLM-XX1XXXXA Series are 1270nm~1610nm InGaAsP/InP CWDM MQW-DFB laser diode modules designed for communication systems. These modules have low threshold current and high performance at high temperature, which are ideally suitable analog CWDM of optical microwave transmission applications.

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

**Ordering Information: (Standard version <sup>\*Note1</sup>)**

Part No.	Package Series:	Pin Type	Isolator	Connector	RF Bandwidth
HEDLM-27130ASA1G	A	LD-Pin-1	Single Stage	SC/APC	<2GHz
HEDLM-33120BFA2G	B	LD-Pin-2	Single Stage	FC/APC	<2GHz
HEDLM-39130CSA1G	C	LD-Pin-1	Single Stage	SC/APC	<2GHz
HEDLM-43130DT1G	D	LD-Pin-1	Single Stage	ST/PC	<2GHz
HEDLM-49120EFA2G2	E	LD-Pin-2	Dual Stage	FC/APC	<2GHz
HEDLM-55130DF1G	D	LD-Pin-1	Single Stage	FC/PC	<2GHz
HEDLM-57130CFA1G2	C	LD-Pin-1	Dual Stage	FC/APC	<2GHz
HEDLM-59120DF2G	D	LD-Pin-2	Single Stage	FC/PC	<2GHz
HEDLM-61120CFA1G2	C	LD-Pin-1	Dual Stage	FC/APC	<2GHz

\*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	-20~+85	°C
Forward Current (LD)	IfL	120	mA
Reverse Voltage (LD)	VrL	2	V
Reverse Voltage (PD)	VrP	10	V
Soldering Temperature (<10s)	Stemp	260	°C

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

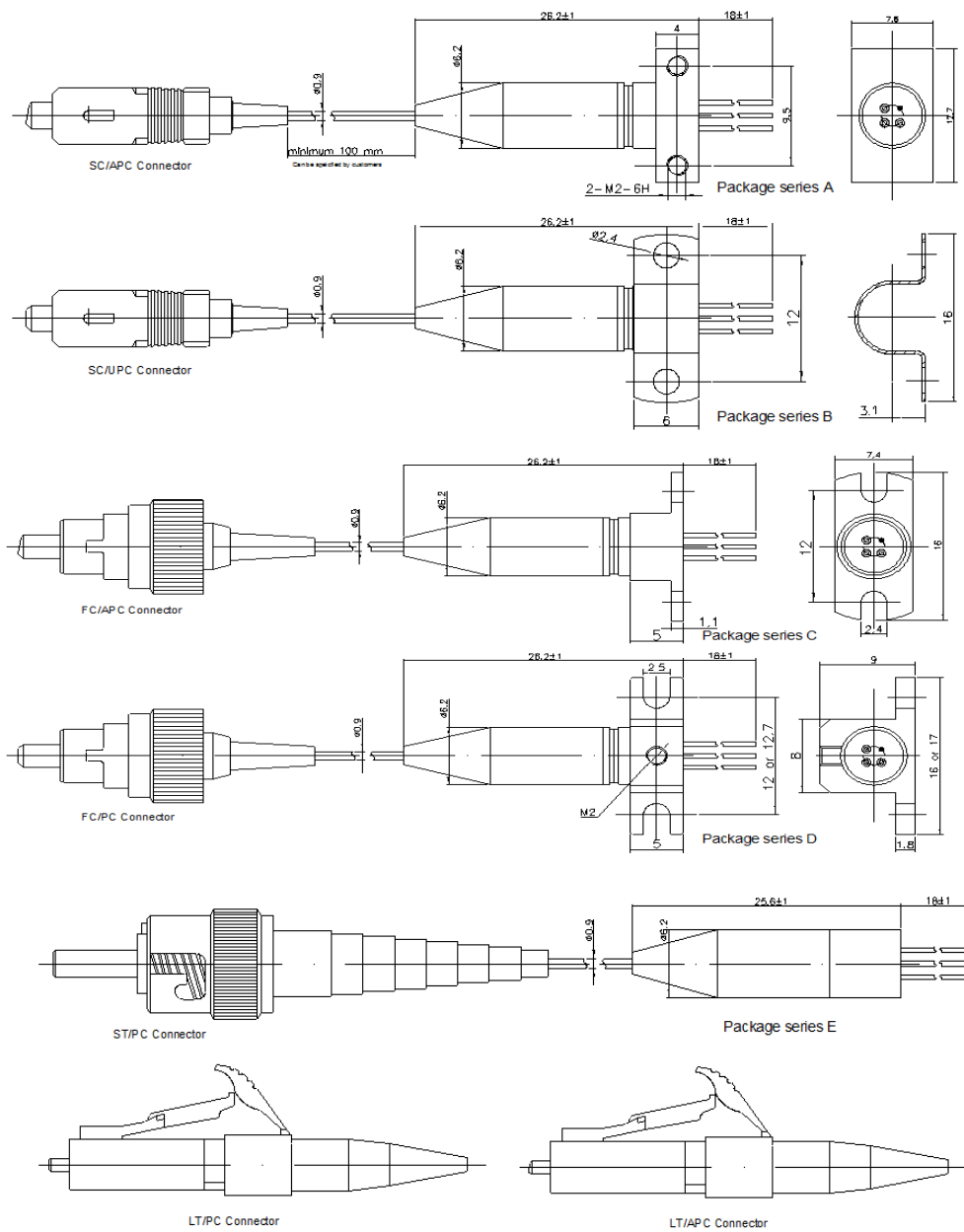
**Electrical and Optical Characteristics:**

(Po=3mW, SMF, Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold Current	I <sub>th</sub>	CW	—	12	—	mA
		CW, T <sub>c</sub> =85°C	—	35	—	
Output Power (After coupled)	P <sub>o</sub>	CW, I <sub>f</sub> =I <sub>th</sub> +20mA	1	2.5	3	mW
Operating Voltage	V <sub>f</sub>	CW, T <sub>c</sub> =-20~+85°C	—	—	1.6	V
Slope Efficiency	SE	CW, 1290 nm to 1310 nm	0.15	—	—	mW/mA
		CW, 1330 nm to 1390 nm	0.14	—	—	mW/mA
		CW, 1410 nm to 1470 nm	0.13	—	—	mW/mA
		CW, 1470 nm to 1550 nm	0.12	—	—	mW/mA
		CW, 1570 nm to 1610 nm	0.11	—	—	mW/mA
Wavelength	λ <sub>c</sub>	CW	λ <sub>c</sub> -7	λ <sub>c</sub>	λ <sub>c</sub> +7	nm
Spectral Width	Δλ	CW, -20dB, T <sub>c</sub> =-20~+85°C	—	0.1	1	nm
Wavelength Temperature Co-efficiency	—	CW, T=-20~+85°C	—	0.09	0.12	nm/°C
Side-mode suppression ratio	SMSR	CW, T <sub>c</sub> =-20~+85°C	30	40	—	dB
Tracking Error	ΔPf	I <sub>m</sub> hold(@Pf=3mW(25°C)), CW, T <sub>c</sub> =-20~+85°C	-1	—	1	dB
Rise/Fall Times	t <sub>R</sub> , t <sub>F</sub>				0.1	ns
Relative Intensity Noise <sup>*Note3</sup>	RIN	CW	—	—	-145	dB/Hz
Monitor Current	I <sub>m</sub>	CW, V <sub>rP</sub> =5V, T <sub>c</sub> =-20~+85°C	75	—	750	uA
Monitor Dark Current	I <sub>d</sub>	CW, V <sub>rP</sub> =5V	—	—	200	nA
Monitor Capacitance	C	V <sub>rP</sub> =5V, f=1MHz	—	—	10	pF
Connector Repeatability	—		-1	—	1	dB
Optical Isolation	—	Single Stage	30	—	—	dB
	—	Dual Stage	40	—	—	

\*Note3. Zero link loss, f=1780MHz

**Pigtail Package Dimension:** \*Note4、 5、 6



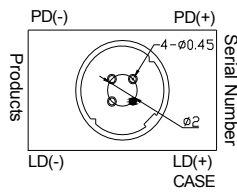
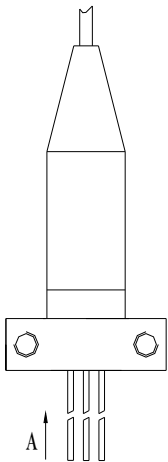
\*Note4: PIN direction and laser mark can be customized. Pigtail is standard SM fiber, the length also can be customized.

\*Note5: 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.

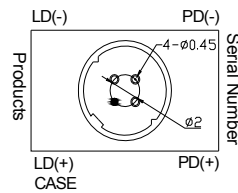
Fixed card type	A(mm)	B(mm)
D	16	12
D-S	17	12.7

\*Note6: 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.

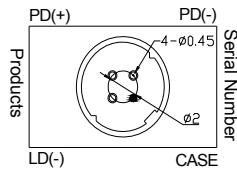
The Direction of Fix Card:



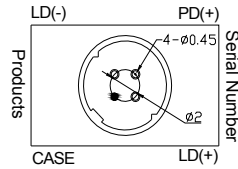
Direction A view  
PLD1A-1(DEFAULT)



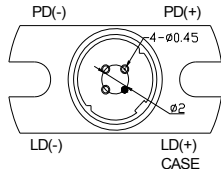
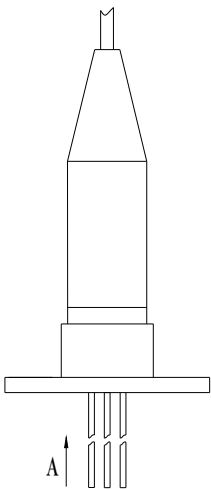
Direction A view  
PLD1A-2



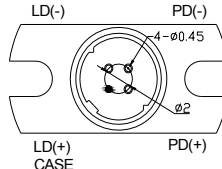
Direction A view  
PLD2A-1(DEFAULT)



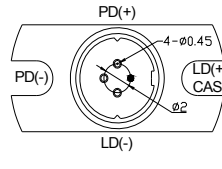
Direction A view  
PLD2A-2



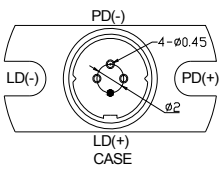
Direction A view  
PLD1C-1(DEFAULT)



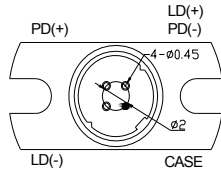
Direction A view  
PLD1C-2



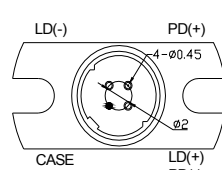
Direction A view  
PLD1C-3



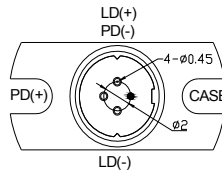
Direction A view  
PLD1C-4



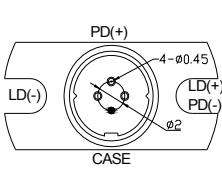
Direction A view  
PLD2C-1(DEFAULT)



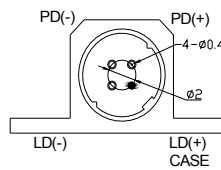
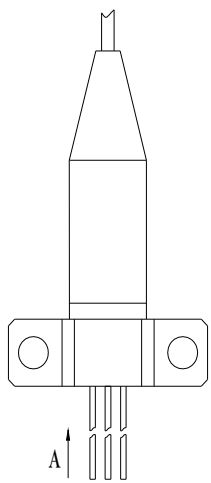
Direction A view  
PLD2C-2



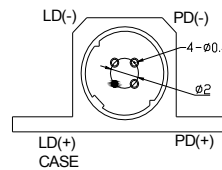
Direction A view  
PLD2C-3



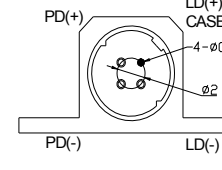
Direction A view  
PLD2C-4



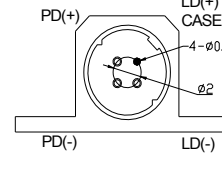
Direction A view  
PLD1D-1(DEFAULT)



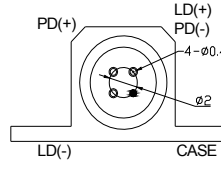
Direction A view  
PLD1D-2



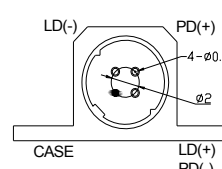
Direction A view  
PLD1D-4



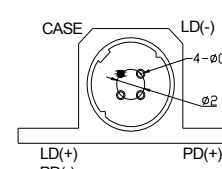
Direction A view  
PLD1D-4



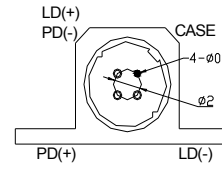
Direction A view  
PLD2D-1(DEFAULT)



Direction A view  
PLD2D-2



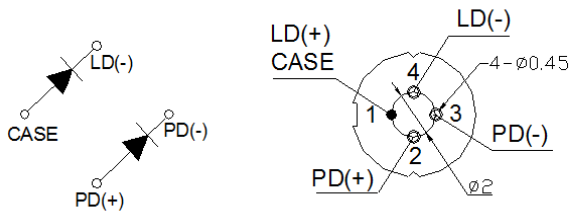
Direction A view  
PLD2D-3



Direction A view  
PLD2D-4

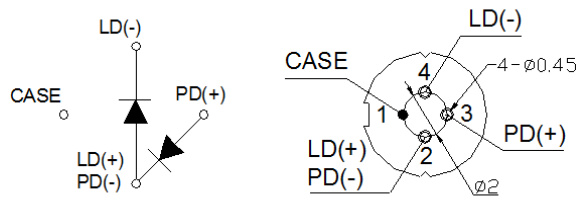
**Pin Assignment:**

TYPE: 1



LD-pin-1 / TYPE: C

TYPE: 2



LD-pin-2 / TYPE: B

**Nomenclature:**

HEDLM—□ □ □ □ □ □ □ □

No.	Parameter	Detailed Description					
A	Center 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
B	RF Bandwidth	1<2GHz					
C	Power	10=0.8-1.8mw		20=1.81-2.8mw		30=2.81-3.5mw	
D	Package Series:	A	B	C	D	E	
E	Connector	F=FC/PC		S=SC/PC		T=ST/PC	
		FA=FC/APC		SA=SC/APC		LA=LC/APC	
F	Pin Type	1=LD-pin-1			2=LD-pin-2		
G	Isolator	Blank=None		G= Single Stage		G2=Dual Stage	
H	Wavelength Spec	Blank=-3/+3nm					

**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:**

HighEasy 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. HighEasy makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.