

## 1310nm MQW-FP Pigtail Analog LD from 1GHz to 2GHz

## HEFLM-3XXXXXX

**Features:**

- ◆ Coaxial Package
- ◆ InGaAsP/InP MQW-FP 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:**

HEFLM-3XXXXXX Series are 1310nm InGaAsP/InP MQW-FP laser diode modules designed for fiber optic communication systems. These modules are transmitter optical sub-assembly integrated with a single-stage optical isolator, and are ideally suitable for 1GHz or 2.4GHz transmission applications.

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

Part No.	Package Series	RF Bandwidth	Isolator	Connector
HEFLM-3020ASA1G	A	<1GHz	Single Stage	SC/APC
HEFLM-3120BFA1G2	B	<2GHz	Dual Stage	FC/APC
HEFLM-3120EFA1G2	E	<2GHz	Dual Stage	FC/APC
HEFLM-3010DF1	D	<1GHz	N=None	FC/PC

\*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	15	V
Reverse Current (PD)	IrP	2	mA
Soldering Temperature (<10s)	Stemp	260	°C

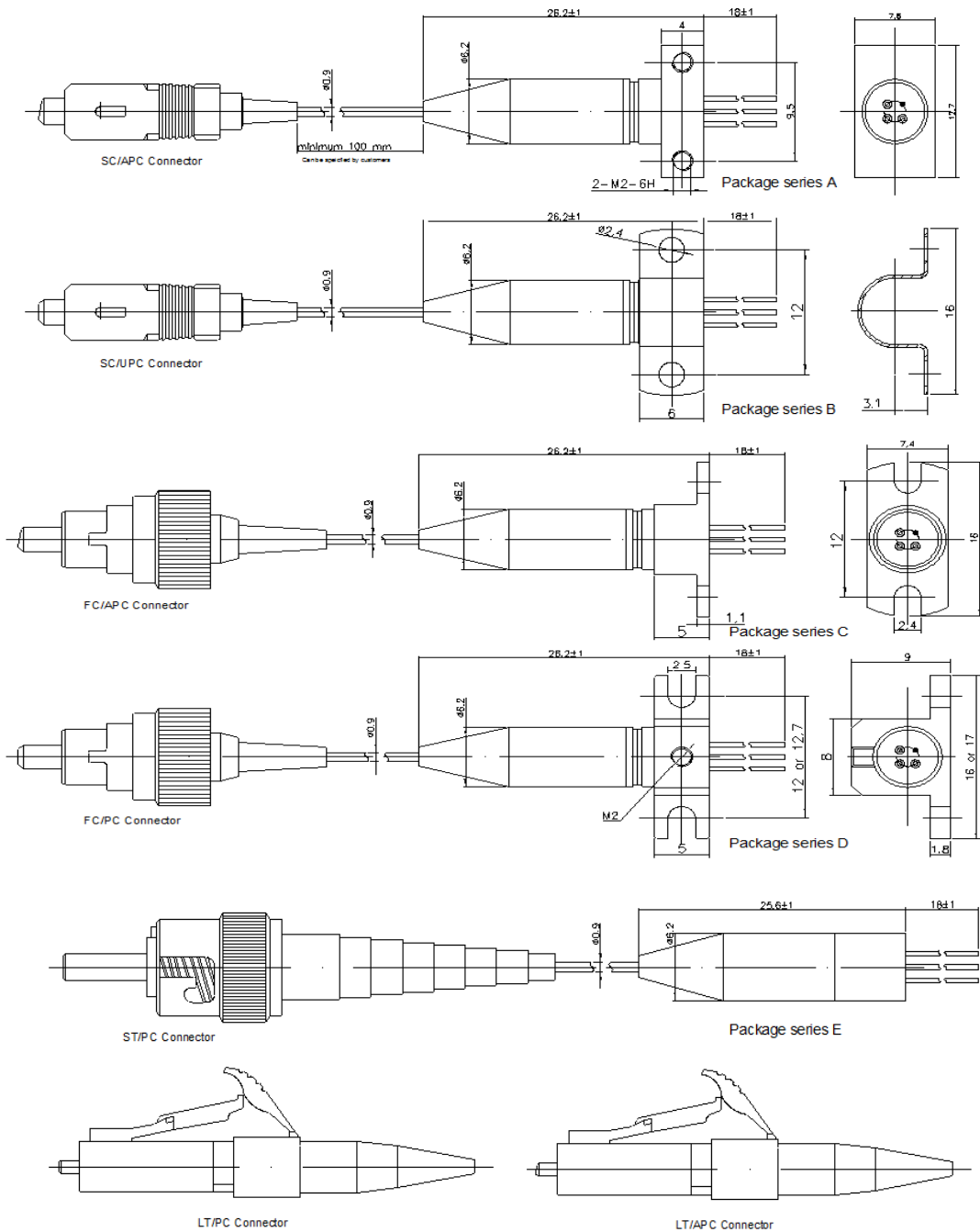
\*Note2: Exceeding any one of these values may destroy the device immediately.

**Electrical and Optical Characteristics:**

(Pf=2mW, SMF (9/125μm), 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	2.5	3	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	0.125	0.15	mW/mA
Peak Wavelength	λp	CW	1280	1310	1340	nm
Spectral Width	Δλ	CW, 20dB down, Tc=-40~+85°C	—	2	5	nm
Rise Time	tr	Ib=Ith, 20-80%, Tc=-40~+85°C	—	0.1	0.2	ns
Fall Time	tf	Ib=Ith, 80-20%, Tc=-40~+85°C	—	0.15	0.25	ns
Monitor Current	Im	CW, VrP=5V, Tc=-40~+85°C	200			uA
Monitor Dark Current	Id	VrP=5V	—	—	10	nA
Monitor Capacitance	C	VrP=5V, f=1MHz	—	—	10	pF
Connector Repeatability	—		-1	—	1	dB
Optical Isolation		Single Stage	30			dB
		Dual Stage	40			

**Pigtail Package Dimension:** \*Note3, 4, 5



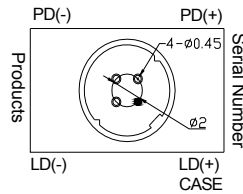
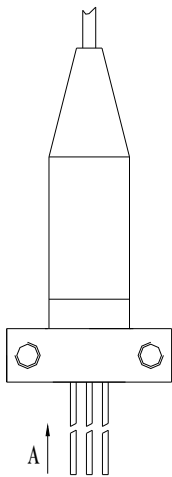
\*Note3: PIN direction and laser mark can be customized. Pigtail is standard SM fiber, the length also can be customized.

\*Note4: 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.

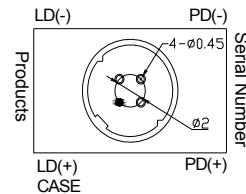
Fixed card type	A(mm)	B(mm)
D	16	12
D-S	17	12.7

\*Note5: 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.

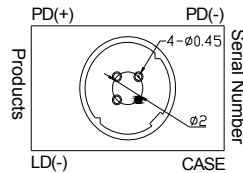
The Direction of Fix Card:



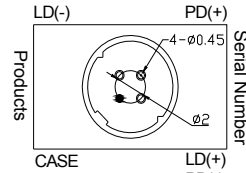
Direction A view  
PLD1A-1(DEFAULT)



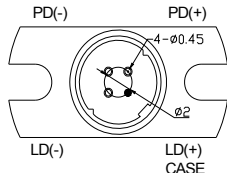
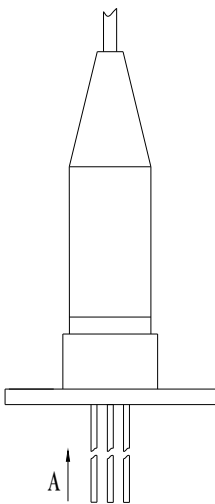
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PLD1A-2



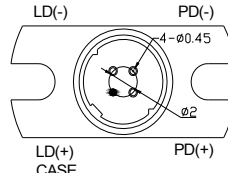
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PLD2A-1(DEFAULT)



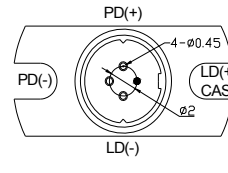
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PLD2A-2



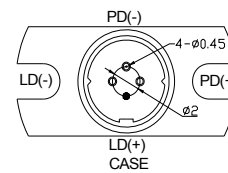
Direction A view  
PLD1C-1(DEFAULT)



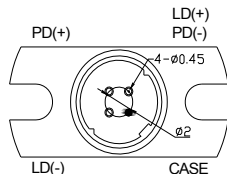
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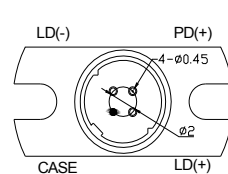
Direction A view  
PLD1C-3



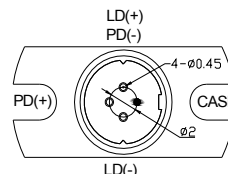
Direction A view  
PLD1C-4



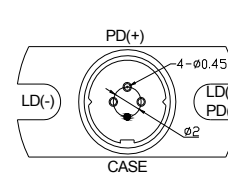
Direction A view  
PLD2C-1(DEFAULT)



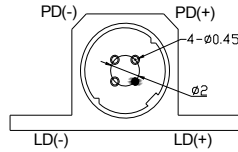
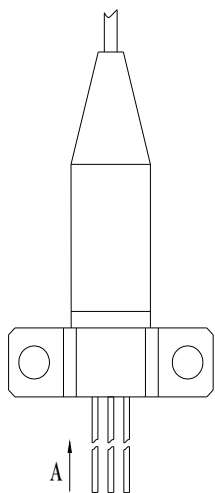
Direction A view  
PLD2C-2



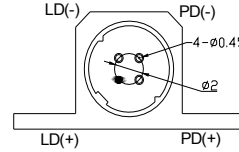
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PLD2C-3



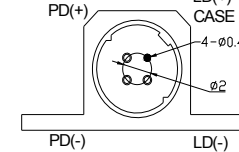
Direction A view  
PLD2C-4



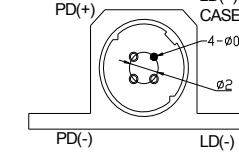
Direction A view  
PLD1D-1(DEFAULT)



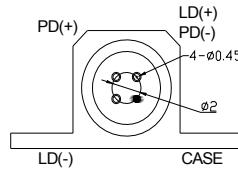
Direction A view  
PLD1D-2



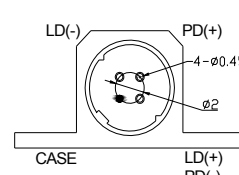
Direction A view  
PLD1D-4



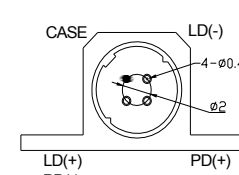
Direction A view  
PLD1D-4



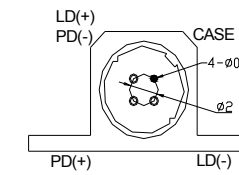
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PLD2D-1(DEFAULT)



Direction A view  
PLD2D-2



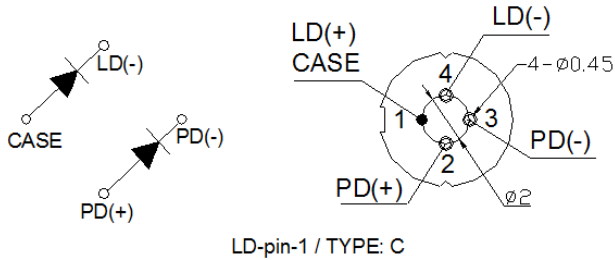
Direction A view  
PLD2D-3



Direction A view  
PLD2D-4

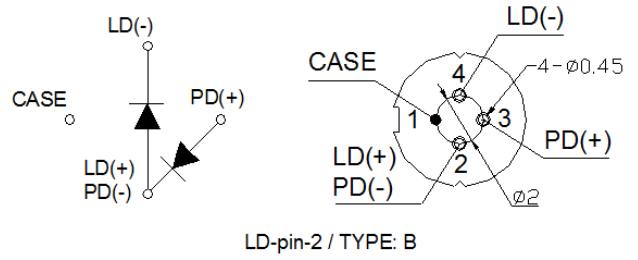
**Pin Assignment:**

TYPE: 1



LD-pin-1 / TYPE: C

TYPE: 2



LD-pin-2 / TYPE: B

**Nomenclature:**

HEFLM — □ □ □ □ □ □ □  
 A B C D E F G

NO	Parameter	Detailed Description			
A	Wavelength	3=1310			
B	RF Bandwidth	0=<1GHz		1=<2GHz	
C	Power	05=0.2-0.99mW	10=1-1.99mW		20=2-2.99mW
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.

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