

1550nm MQW-DFB Pigtail Analog LD from 1GHz to 2GHz

HEDLM-5XXXXXX

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:

HEDLM-5XXXXXX Series are 1550nm 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.

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

| Part No. | Package Series | Pin Type | Isolator | Connector | RF Bandwidth |
|------------------|----------------|----------|--------------|-----------|--------------|
| HEDLM-5010ASA1G | A | LD-Pin-1 | Single Stage | SC/APC | <1GHz |
| HEDLM-5120BFA2G | B | LD-Pin-2 | Single Stage | FC/APC | <2GHz |
| HEDLM-5130CSA1G | C | LD-Pin-1 | Single Stage | SC/APC | <2GHz |
| HEDLM-5020DT1G | D | LD-Pin-1 | Single Stage | ST/PC | <1GHz |
| HEDLM-5120EFA2G2 | E | LD-Pin-2 | Dual Stage | FC/APC | <2GHz |
| HEDLM-5120CFA1G2 | C | LD-Pin-1 | Dual Stage | FC/APC | <2GHz |

*Note1: For more ordering information, please refer to nomenclature or 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) | IfL | 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.

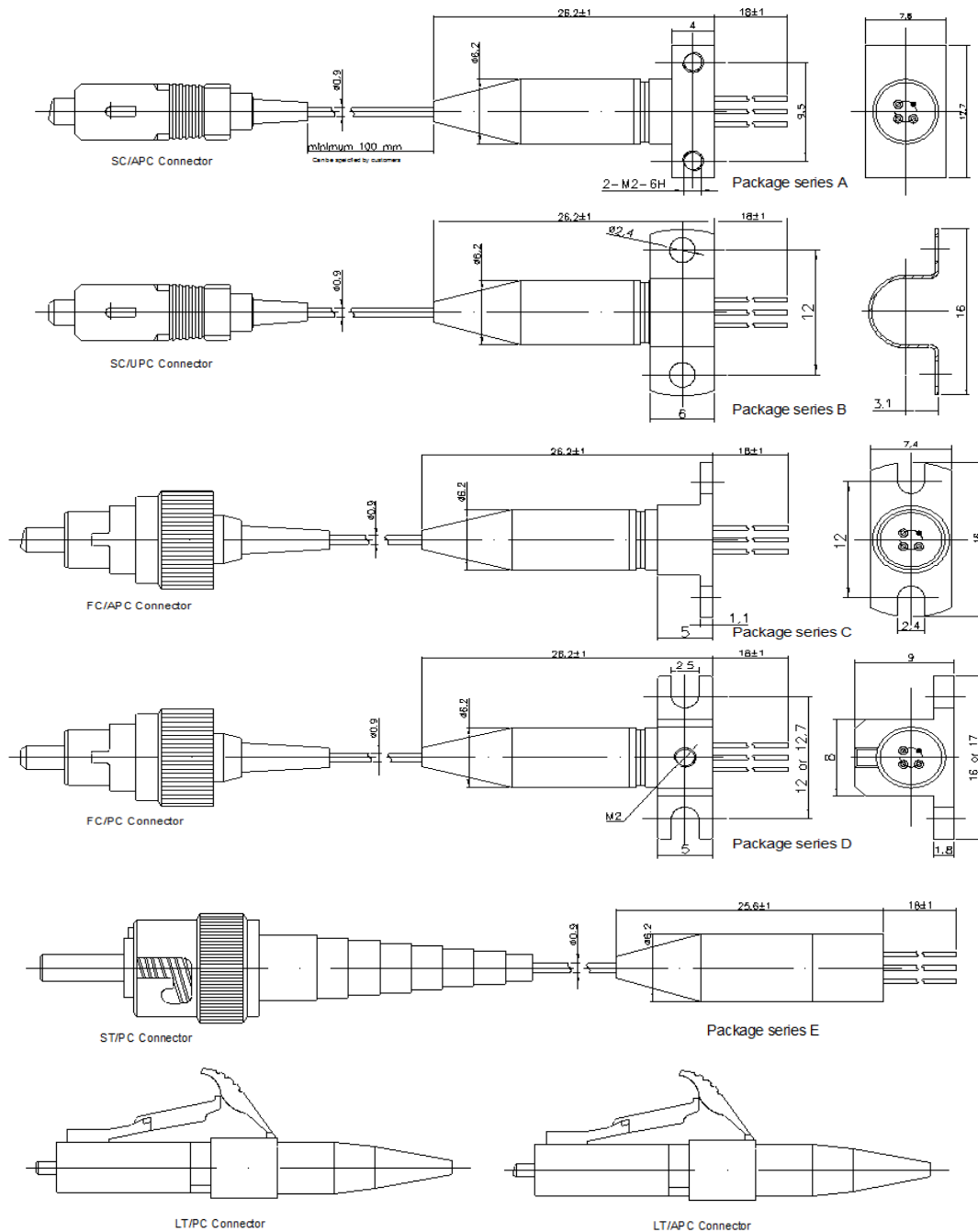
Electrical and Optical Characteristics:

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

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--|-----------------|---|------|------|------|-------|
| Threshold Current | Ith | CW | — | 10 | 15 | mA |
| | | CW, Tc=-40~+85 | — | — | 50 | |
| Output Power (After coupled) | Po | CW, If=Ith+20mA | 1 | 2.5 | 3 | mW |
| Operating Current | If | CW | — | 30 | 40 | mA |
| | | CW, Tc=-40~+85 | — | 40 | 70 | |
| Operating Voltage | Vf | CW, Tc=-40~+85 | — | — | 1.6 | V |
| Slope Efficiency | Se | CW | 0.05 | — | 0.15 | mW/mA |
| Wavelength | λ_c | CW | 1540 | 1550 | 1560 | nm |
| | | CW, Tc=-40~+85 | 1530 | — | 1570 | |
| Spectral Width | $\Delta\lambda$ | CW, -20dB, Tc=-40~+85 | — | — | 1 | nm |
| Side-mode suppression ratio | SMSR | CW, Tc=-40~+85 | 30 | — | — | dB |
| Tracking Error | ΔPf | Im hold(@Pf=3mW(25°C)), CW, TC=-40~+85 | -1 | — | 1 | dB |
| Relative Intensity Noise ^{*Note3} | RIN | CW | — | — | -145 | dB/Hz |
| Monitor Current | Im | CW, VrP=5V, Tc=-40~+85 | 80 | 300 | — | uA |
| Monitor Dark Current | Id | CW, Vrp=5V | — | 1 | 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 | — | — | |

*Note3: Zero link loss, f=1780MHz

Pigtail Package Dimension: *Note4、5、6



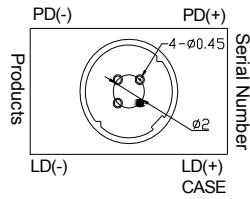
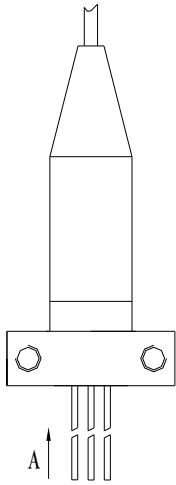
*Note4: PIN direction and laser mark can be customized. Pigtail is standard SM fiber; the length also can be customized.

*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.

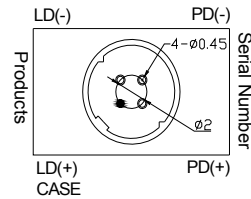
| Fixed card type | A(mm) | B(mm) |
|-----------------|-------|-------|
| D | 16 | 12 |
| D-S | 17 | 12.7 |

*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.

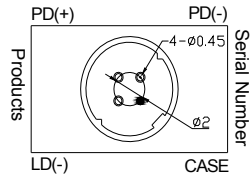
The Direction of Fix Card:



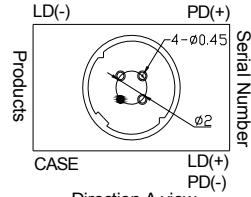
Direction A view
PLD1A-1(DEFAULT)



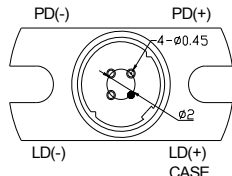
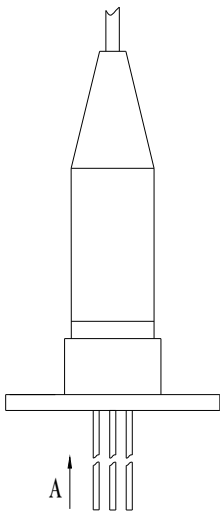
Direction A view
PLD1A-2



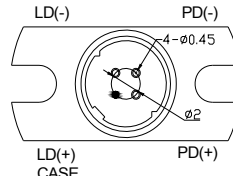
Direction A view
PLD2A-1(DEFAULT)



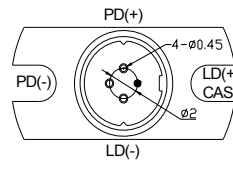
Direction A view
PLD2A-2



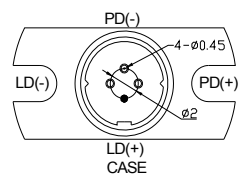
Direction A view
PLD1C-1(DEFAULT)



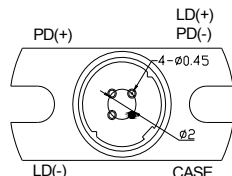
Direction A view
PLD1C-2



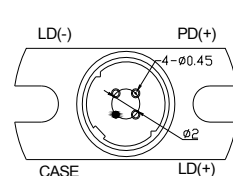
Direction A view
PLD1C-3



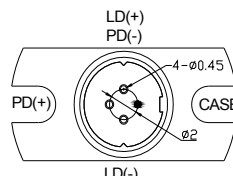
Direction A view
PLD1C-4



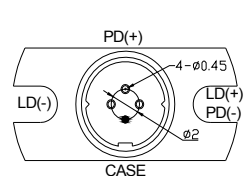
Direction A view
PLD2C-1(DEFAULT)



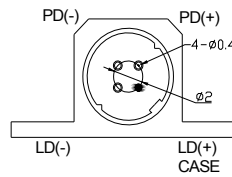
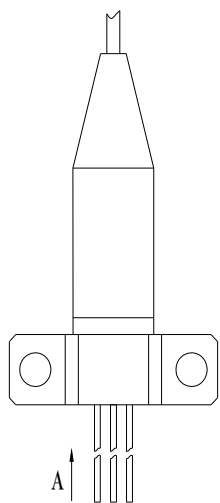
Direction A view
PLD2C-2



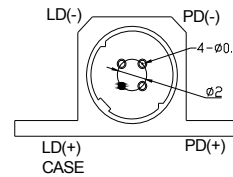
Direction A view
PLD2C-3



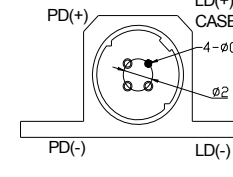
Direction A view
PLD2C-4



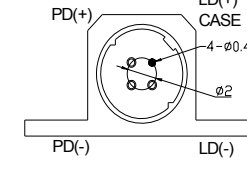
Direction A view
PLD1D-1(DEFAULT)



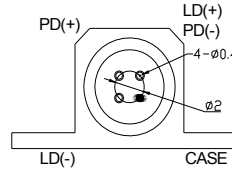
Direction A view
PLD1D-2



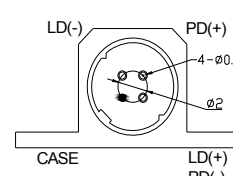
Direction A view
PLD1D-4



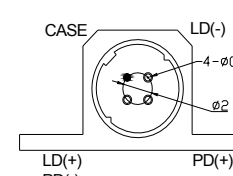
Direction A view
PLD1D-4



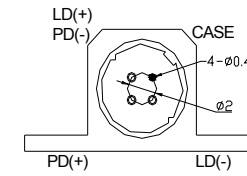
Direction A view
PLD2D-1(DEFAULT)



Direction A view
PLD2D-2



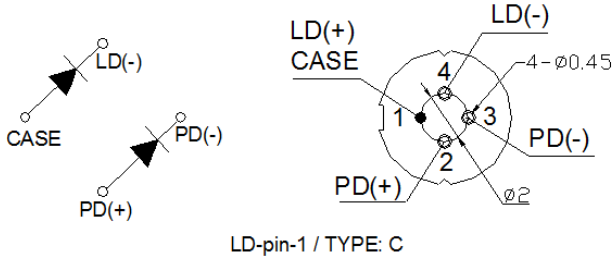
Direction A view
PLD2D-3



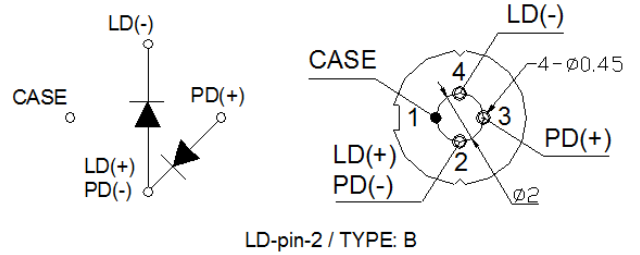
Direction A view
PLD2D-4

Pin Assignment:

TYPE: 1



TYPE: 2



Nomenclature:

HEDLM—□ □ □ □ □ □ □
A B C D E F G

| No. | Parameter | Detailed Description | | | |
|-----|-------------------|----------------------|---------------|-----------------|-----|
| A | Center Wavelength | 5=1550 | | | |
| B | RF Bandwidth | 0<1GHz | | 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 | |
| | | FA=FC/APC | | SA=SC/APC | |
| F | Pin Type | 1=LD-pin-1 | | 2=LD-pin-2 | |
| | | Blank=None | | G= Single Stage | |
| G | Isolator | Blank=None | | 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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