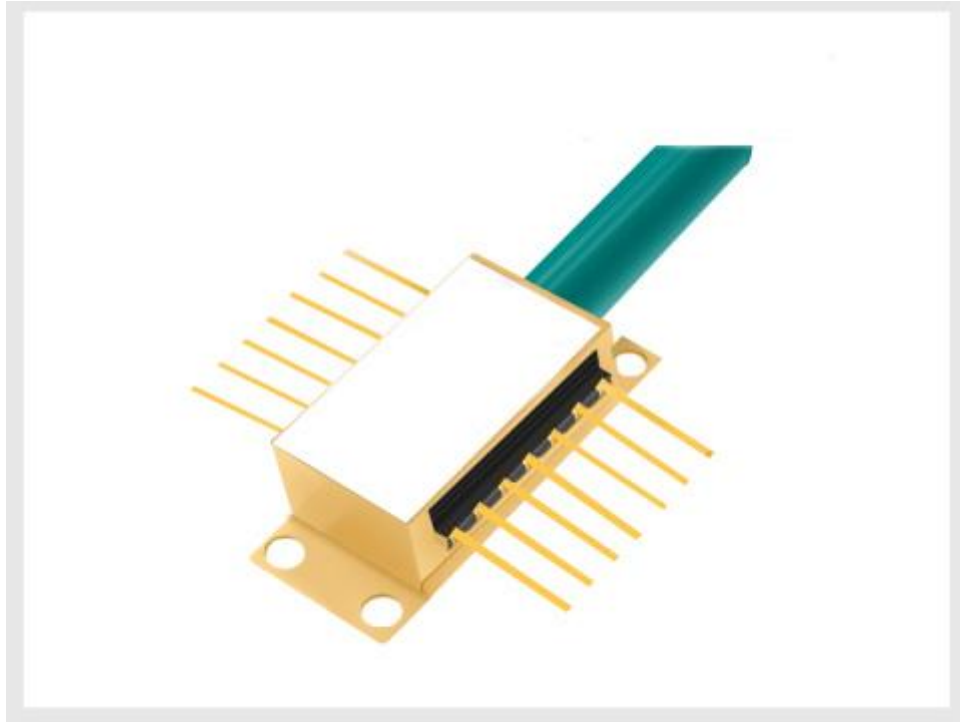


## 915nm 6mW PM Narrow Linewidth Laser Diodes



### ● Product Description

Single frequency FBG-stabilized laser diode module designed for optical measurement and communication. The laser is packaged in Butterfly package with monitor photodiode and thermo-electric cooler (TEC). Module is pigtailed with 0.5-0.9 m of single mode or polarization maintaining (optional) fiber and connectorized by FC/APC connector.

## ● Product features

Optical output: 6mW; Narrow linewidth ( $\Delta\nu < 1\text{MHz}$ ); Wavelength: 915nm @  
25°C; SM or PM Fiber ( $\varnothing 0.9\text{mm}$ ); FC-APC connector; 14-pin butterfly package;  
Internal monitor PD and TEC; Low power consumption

## ● Part Number

MP-NL-915-A-A81-PA

## ● Application area

Coherent Optical Communication | High-Precision Fiber Optic Sensing |  
LiDAR | Optical Metrology & Spectroscopy | Microwave Photonics

## ● Core parameters

| Wavelength | Output Power | Fiber Type |
|------------|--------------|------------|
| 915nm      | 6mW          | PM         |

## ● General Parameters

Optical Characteristics

| Parameter                                             | Symbol          | Condition                | Min. | Typical | Max. | Unit  |
|-------------------------------------------------------|-----------------|--------------------------|------|---------|------|-------|
| Center Wavelength                                     | $\lambda_c$     | TL=15~35°C<br>CW         | 914  | 915     | 916  | nm    |
| Peak Optical Output Power                             | PO              | -                        | -    | 6       | 8    | mW    |
| Spectral linewidth                                    | LW              | -                        | -    | 1       | 10   | MHz   |
| Side-mode Suppression Ratio                           | SMSR            | CW                       | 40   | 50      | -    | dB    |
| Optical Isolation                                     | -               | -10 < TC < +70 °C        | 30   | -       | -    | dB    |
| Polarization Extinction Ratio                         | ER              | -                        | 20   | -       | -    | dB    |
| Relative Intensity Noise                              | RIN             | CW, output power<br>10mW | -    | -       | -135 | dB/HZ |
| Wavelength drift with case temperature (-10 to 70 °C) | $\Delta\lambda$ | TL=15~35°C               | -    | -       | ±30  | pm    |

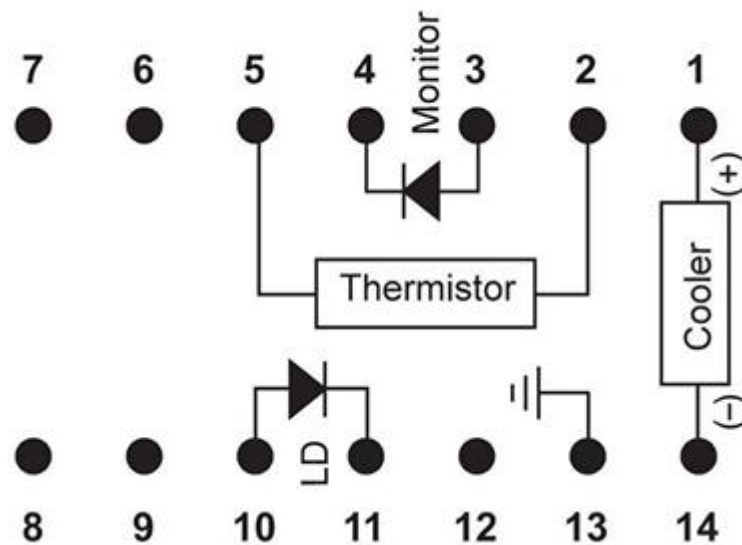
### Electrical Characteristics

| Parameter             | Symbol | Condition              | Min. | Typical | Max. | Unit |
|-----------------------|--------|------------------------|------|---------|------|------|
| Threshold Current     | ITH    | -                      | -    | 25      | 40   | mA   |
| Operating current     | Iop    | CW                     | -    | 50      | 60   | mA   |
| TEC set temperature   | Ts     | -                      | 15   | -       | 35   | °C   |
| Laser Forward Voltage | VF     | CW output power 30 mW  | -    | 1.3     | 2.5  | V    |
| Monitor Dark Current  | ID     | -                      | -    | -       | 0.1  | μA   |
| Input Impedance       | Zin    | -                      | 22   | 25      | 28   | Ω    |
| Thermistor Resistance | RTH    | TL = 25 °C             | 9.5  | 10      | 10.5 | KΩ   |
| Thermistor Current    | ITC    | -                      | 10   | -       | 100  | μA   |
| TEC Current           | ITEC   | TL = 25 °C, TC = 70 °C | -    | -       | 1.4  | A    |
| TEC Voltage           | VTEC   | TL = 25 °C, TC = 70 °C | -    | -       | 2.8  | V    |

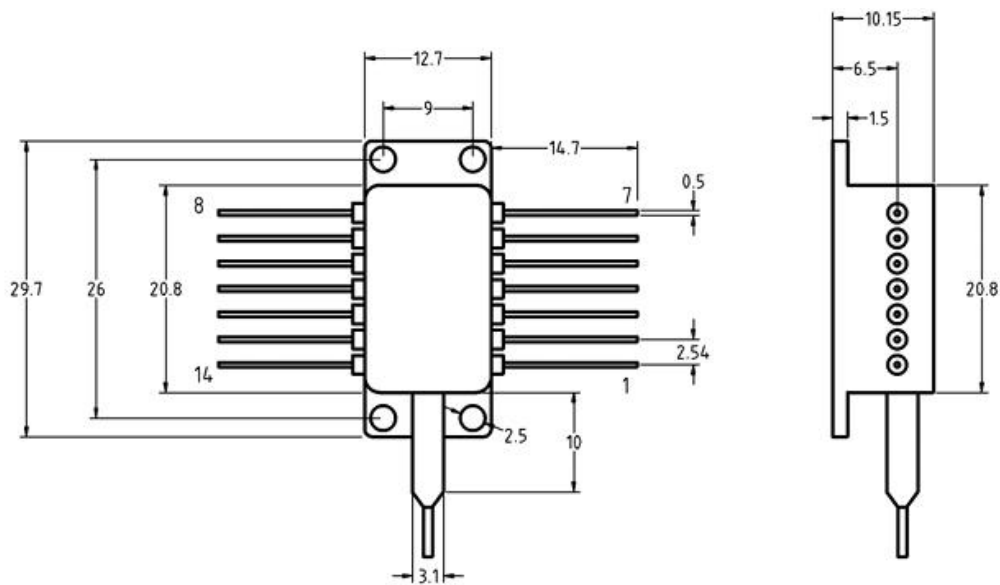
### Absolute maximum ratings:

| Item                | Unit | Min | Typ | Max |
|---------------------|------|-----|-----|-----|
| Case Temperature    | °C   | -5  | 25  | 70  |
| Chip Temperature    | °C   | +10 | 25  | 40  |
| Operating Current   | mA   | 0   | 70  | 100 |
| Forward Voltage     | V    | 0.8 | 1.8 | 2.5 |
| TEC Current         | A    | -   | 1.2 | 1.4 |
| Reverse Voltage(LD) | V    | -   | -   | 1.8 |

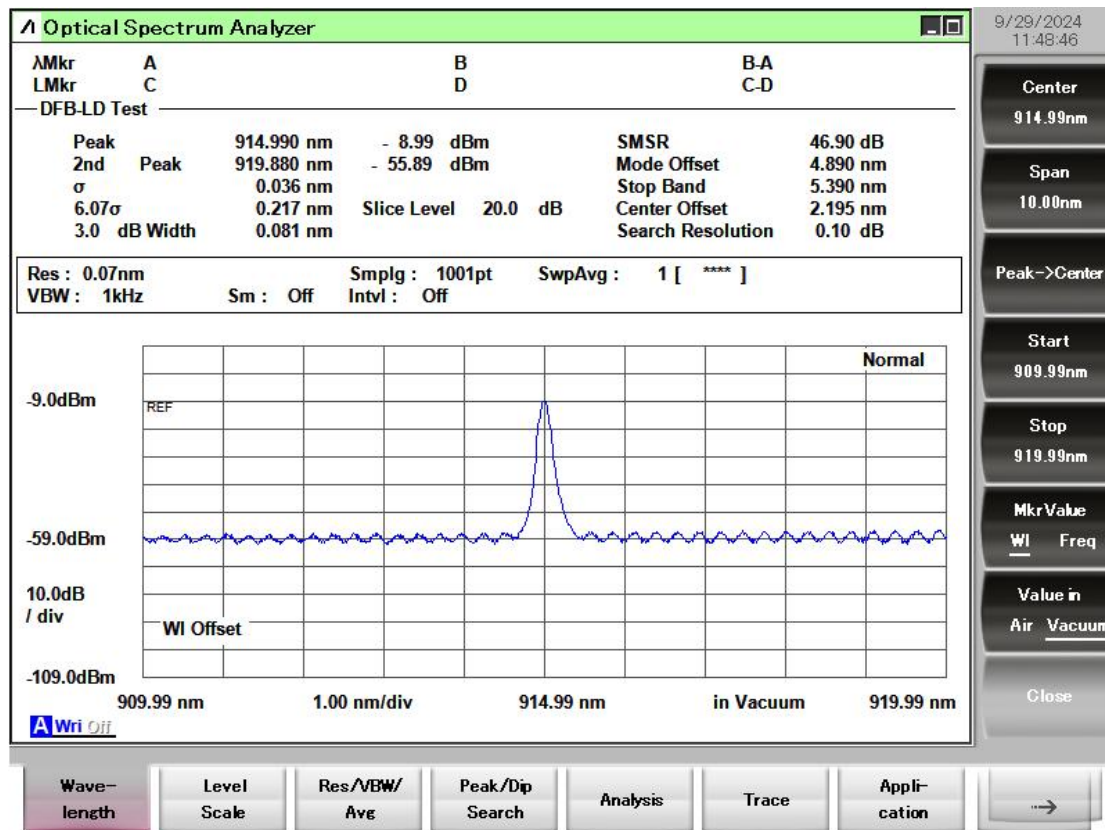
### Pin definition



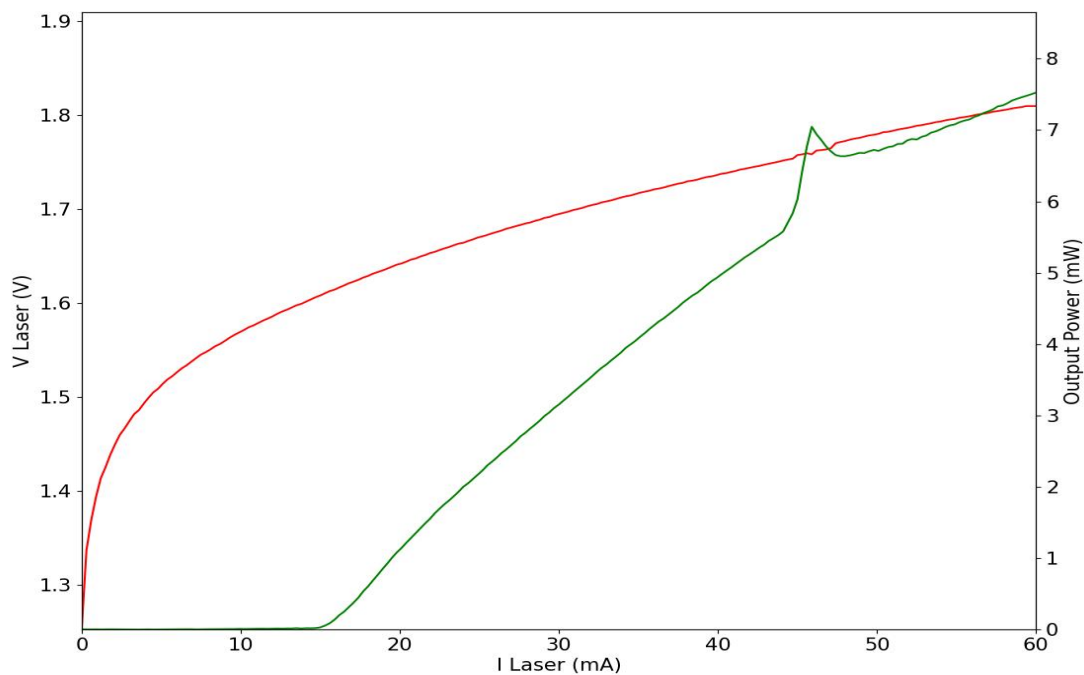
| None PZT Bulit inside |               |    |                 |
|-----------------------|---------------|----|-----------------|
| NO                    | Parameter     | NO | Parameter       |
| 1                     | Cooler anode+ | 8  | NC              |
| 2                     | Thermistor    | 9  | NC              |
| 3                     | PD anode-     | 10 | LD anode+       |
| 4                     | PD cathode+   | 11 | LD cathode-     |
| 5                     | Thermistor    | 12 | NC              |
| 6                     | NC            | 13 | Case            |
| 7                     | NC            | 14 | Cooler cathode- |



## Spectrum

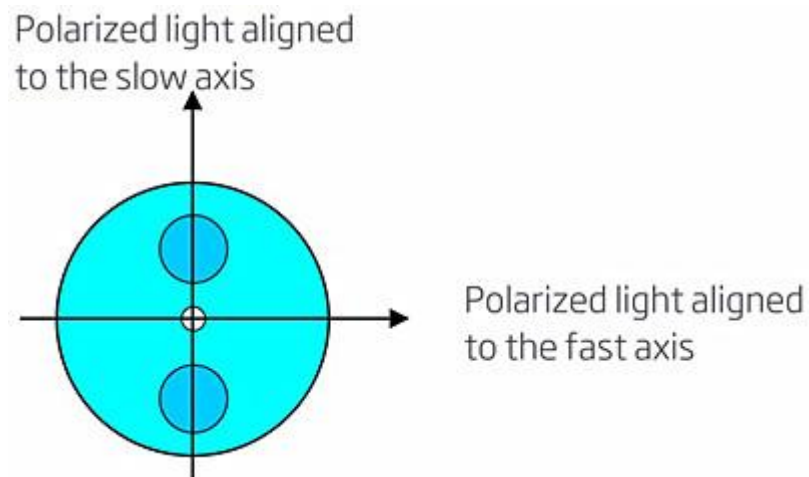


## L-I-V Curve



### Fiber Pigtail Specifications

| Parameters                     | Description                 |
|--------------------------------|-----------------------------|
| Fiber Type                     | PM fiber                    |
| Jacket Type                    | 900μm loose tube            |
| Pigtail Length                 | 1.0±0.1m                    |
| Connector Type                 | FC/APC                      |
| PM fiber Connector Orientation | Please see the right figure |



**Note:** The PM fiber and the connector key are aligned to the slow axis, fast axis is blocked