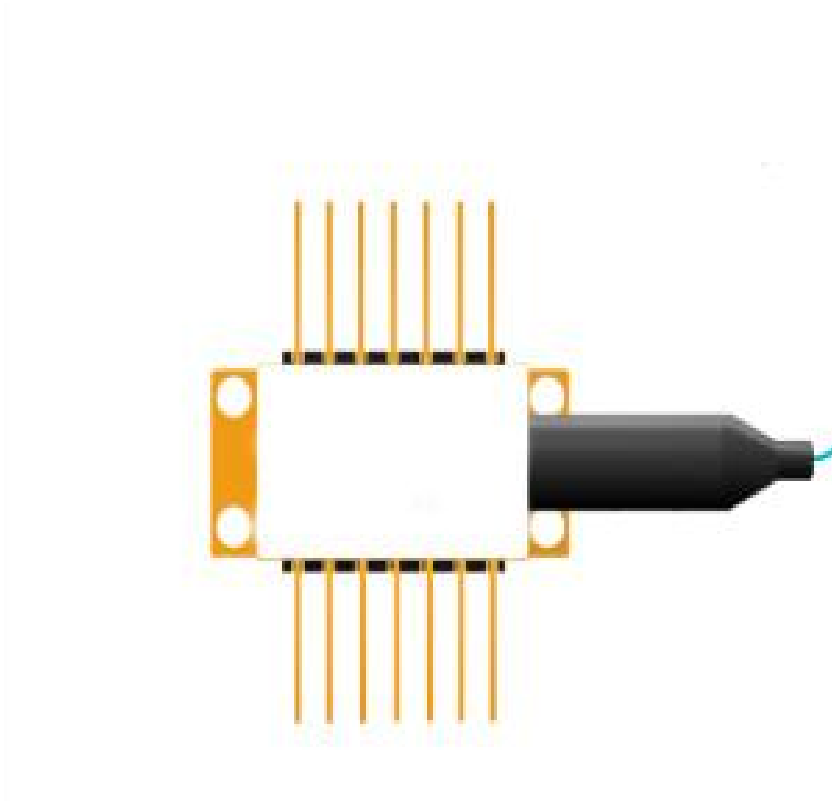


# 1572nm 30mW PM Narrow Linewidth Laser

## Diodes



### ● Product Description

The 1572nm Fiber Bragg Grating laser is single frequency laser diode module designed for optical measurement and communication. The laser is packaged in 14-pin standard butterfly package with monitor photodiode and thermo-electric cooler (TEC)

## ● Product features

Optical output 30mW; with TEC; SMSR 40dB; Optical Isolation 30dB; Pigtail

Length  $1.0 \pm 0.1\text{m}$ ; PM fiber; FC/APC

## ● Part Number

MP-NL-1572-A-A81-PA

## ● Application area

Metro and Long Haul DWDM, 100 GHz spaced networks | SONET/SDH

OC-48/STM16 ring and meshed applications | Drop-side of DWDM long-haul

transport equipment | Optical Test and Instrumentation | Microwave Photonics |

CATV networks | Sensors

## ● Core parameters

| Wavelength | Output Power | Fiber Type |
|------------|--------------|------------|
| 1572nm     | 30mW         | PM         |

## ● General Parameters

### Optical Characteristics

| Parameter                                             | Symbol          | Condition             | Min.   | Typical | Max.   | Unit  |
|-------------------------------------------------------|-----------------|-----------------------|--------|---------|--------|-------|
| Center Wavelength                                     | $\lambda_c$     | TL=15~35°C<br>CW      | 1569.5 | 1572.0  | 1572.5 | nm    |
| Peak Optical Output Power                             | PO              | -                     | 10     | -       | 30     | mW    |
| Spectral linewidth                                    | LW              | -                     | -      | 1       | 10     | MHz   |
| Side-mode Suppression Ratio                           | SMSR            | CW                    | 30     | 40      | -      | dB    |
| Optical Isolation                                     | -               | -10 < TC < +70 °<br>C | 30     | -       | -      | dB    |
| Polarization Extinction Ratio                         | ER              | -                     | 20     | -       | -      | dB    |
| Relative Intensity Noise                              | RIN             | CW, output power 5mW  | -      | -       | -150   | dB/HZ |
| Wavelength drift with case (-10 to 70 °C) temperature | $\Delta\lambda$ | TL=15~35°C            | -      | -       | ±30    | pm    |
| Single-Frequency Continuous Tuning Range              | $\Delta f$      |                       |        | 3       |        | GHz   |

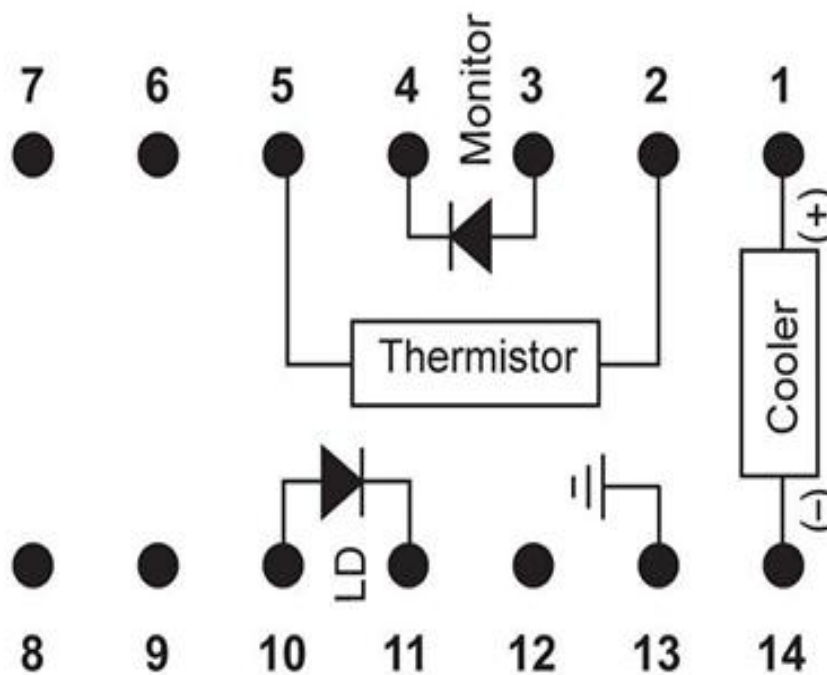
## Electrical Characteristics

| Parameter             | Symbol     | Condition                | Min.  | Typical | Max. | Unit       |
|-----------------------|------------|--------------------------|-------|---------|------|------------|
| Threshold Current     | ITH        | -                        | -     | 45      | 65   | mA         |
| Slope Efficiency      | $\eta$     | CW output power<br>30 mW | 0.064 | 0.1     | -    | mW/mA      |
| Operating current     | Iop        | CW                       | -     | 250     | 300  | mA         |
| TEC set temperature   | Ts         | -                        | 15    | -       | 35   | °C         |
| Laser Forward Voltage | VF         | CW output power 5 mW     | -     | 1.3     | 1.8  | V          |
| Monitor Dark Current  | ID         | -                        | -     | -       | 0.1  | $\mu$ A    |
| Input Impedance       | ZIN        | -                        | 22    | 25      | 28   | $\Omega$   |
| Thermistor Current    | ITC        | -                        | 10    | -       | 100  | $\mu$ A    |
| Thermistor Resistance | RTH        | TL = 25 °C               | 9.5   | 10      | 10.5 | K $\Omega$ |
| TEC Current           | ITEC       | TL = 25 °C, TC = 70 °C   | -     | -       | 1.8  | A          |
| TEC Voltage           | VTEC       | TL = 25 °C, TC = 70 °C   | -     | -       | 3.5  | V          |
| TEC capacity          | $\Delta T$ | Tc = 70°C                | -     | -       | 50   | °C         |

### Absolute maximum ratings:

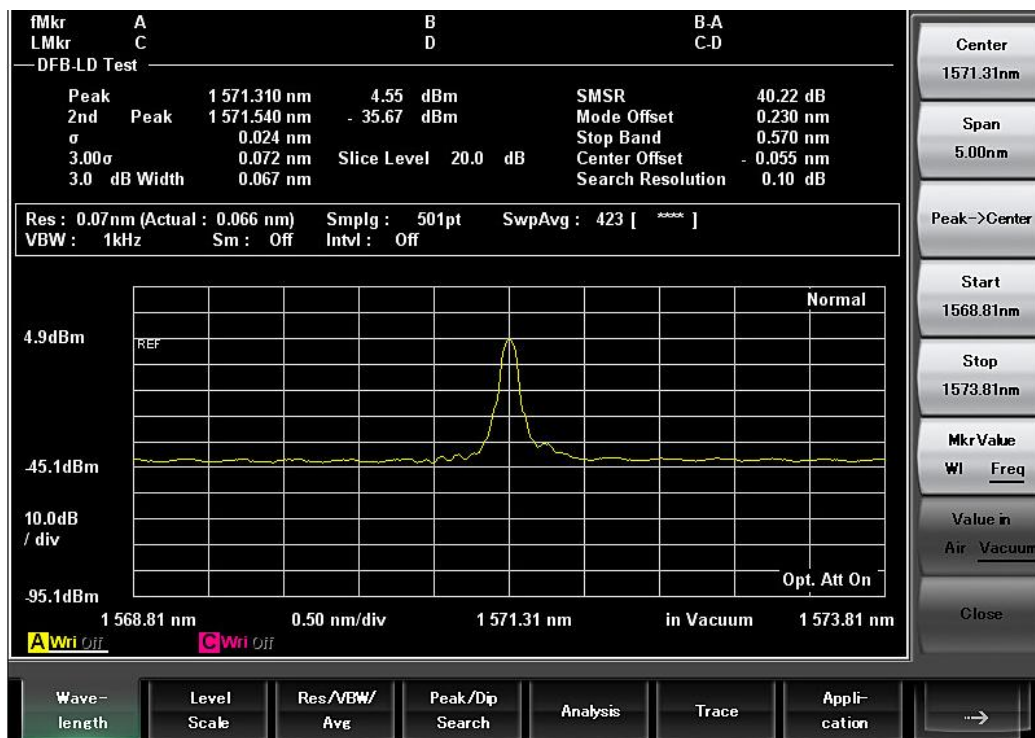
| Parameter                  | Symbol | Min. | Typical | Max. | Unit |
|----------------------------|--------|------|---------|------|------|
| Storage temperature        | Ts     | -40  | -       | 85   | °C   |
| Operating case temperature | Top    | -15  | -       | 75   | °C   |
| Forward Current            | If     | -    | -       | 300  | mA   |
| Reverse Voltage            | VR     | -    | -       | 2    | V    |
| Photodiode Forward Current | IFPD   | -    | -       | 2    | mA   |
| Photodiode Reverse Voltage | VRPD   | -    | -       | 10   | V    |
| TEC current                | ITEC   | -    | 0.8     | 1.5  | A    |
| TEC voltage                | VTEC   | -    | 1.5     | 3.5  | V    |

### Pin definition

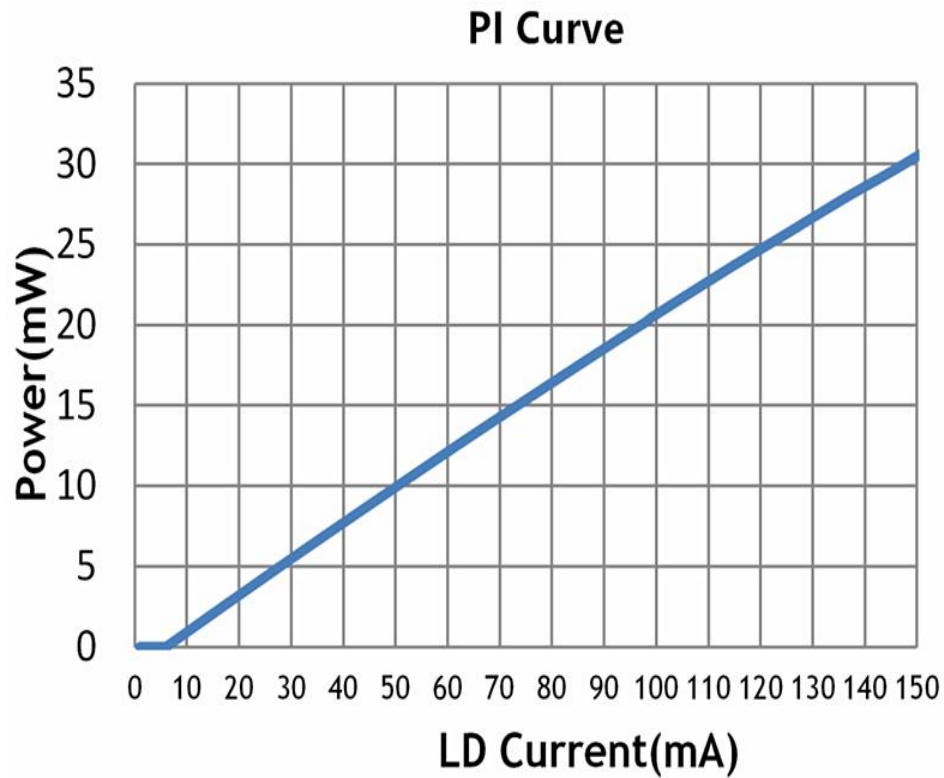


| None PZT Bulit inside |               |    |                 |
|-----------------------|---------------|----|-----------------|
| NO                    | Parameter     | NO | Parameter       |
| 1                     | Cooler anode+ | 8  | NC              |
| 2                     | Thermistor    | 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



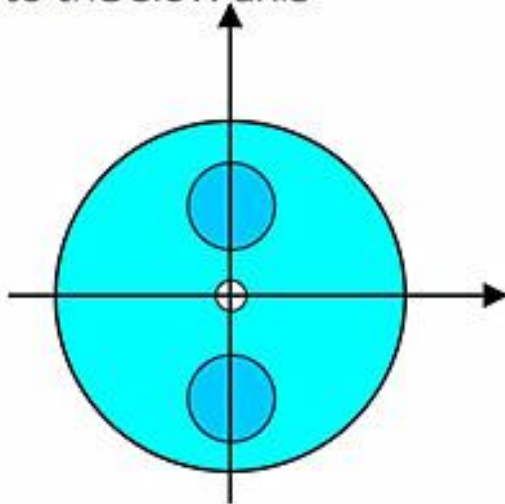
## L-I-V Curve



## 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 |

Polarized light aligned  
to the slow axis



Polarized light aligned  
to the fast axis

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