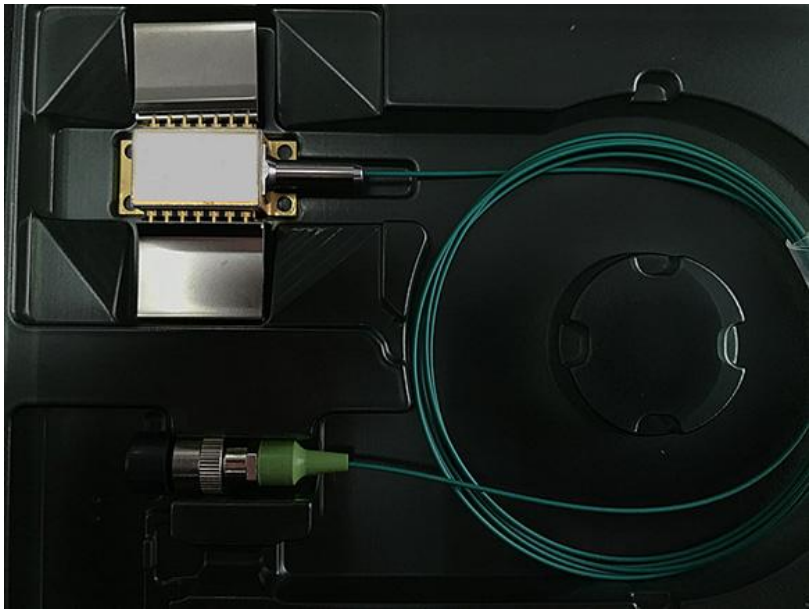
# 1064nm 30mW SM DFB laser diode



## Product Description

**The high-power single-mode DFB lasers offer a wavelength range from 1020 nm to 1180 nm. All models come in a standard 14-pin butterfly module package with polarization-maintaining fiber (PMF) and built-in optical isolator. They feature excellent spectral stability and can operate under various driving conditions from continuous wave to short pulses (picosecond, nanosecond), making them ideal as seed lasers for fiber lasers in applications such as material processing. Gain-switching operation in high-speed models can generate optical pulses of 50 ps or 15 ps to further enhance fiber laser processing performance. We also provide a variety of**

driver boards, including 50 ps, 15 ps, nanosecond, DFB-SOA, CW, and others. We believe our products can help you optimize your fiber laser designs.

## Product features

Dual-mode output; high spectral purity; fast switching capability; industrial-grade reliability; low-power design

## Part Number

MP-DFB-1064-30-A81-14BF-SA

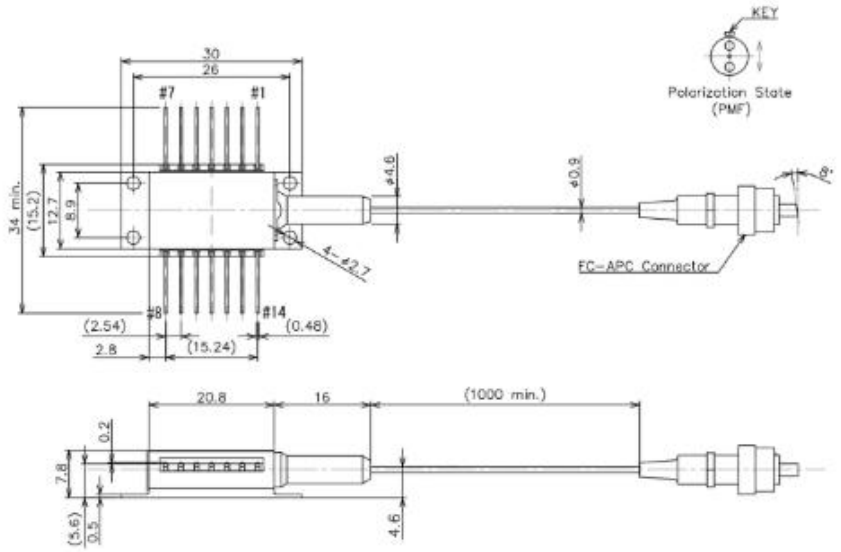
## Application area

Laser ranging | Optical coherence tomography | Distributed temperature sensing | Communication systems | Optical trapping research

## Core parameters

| Central Wavelength | Output Power |
|---|---|
| 1064nm | 30mW |

## Dimension Drawing




## General Parameters

**Optical and Electrical Characteristics (TLD = 25 °C)**

| Performance Parameter | Symbol | Test Condition | MIN | TYP | MAX | Unit |
|---|---|---|---|---|---|---|
| Peak Wavelength | λp | CW, Pf = 30 mW | 1059 * | 1064 | 1069* | nm |
| Temperature Coefficient | dλp/dT | CW | – | 0.08 | – | nm/K |
| Current Coefficient | dλp/dI | CW | – | 0.008 | – | nm/mA |

| | | | | | | |
|---|---|---|---|---|---|---|
| Threshold Current | Ith | CW | – | 15 | 25 | mA |
| CW Output Power | Pf | CW | 30 | – | – | mW |
| Pulse Peak Power | Pf_peak | 5 ns / 100 kHz | – | 100 | – | mW |
| Operating Current | Iop | CW, Pf = 30 mW | – | 110 | 160 | mA |
| Operating Voltage | Vop | CW, Pf = 30 mW | – | 1.5 | 1.8 | V |
| Pulse Peak Current | Iop_peak | Pf_peak = 100 mW | – | 320 | – | mA |
| Pulse Width | tpw | Pulse | 0.05 ** | – | 100 | ns |
| Duty Cycle | D.C. | Pulse | – | – | 2 | % |
| Side Mode Suppression Ratio | SMSR | CW, Pf = 30 mW4 ns / 1 MHz, Pf_peak = 50 mW | 3030 | 5040 | – | dB |
| Polarization Extinction Ratio | PER | CW, Pf = 30 mW | 15 | 20 | – | dB |

| | | | | | | |
|---|---|---|---|---|---|---|
| Monitor PD Current | Im | CW, Pf = 30 mW | 50 | 200 | 800 | μA |
| Thermistor Resistance | Rth | TLD = 25 ℃, B = 3900 K | 9.5 | 10 | 10.5 | kΩ |

*Peak wavelength selectivity of ±1 nm available.

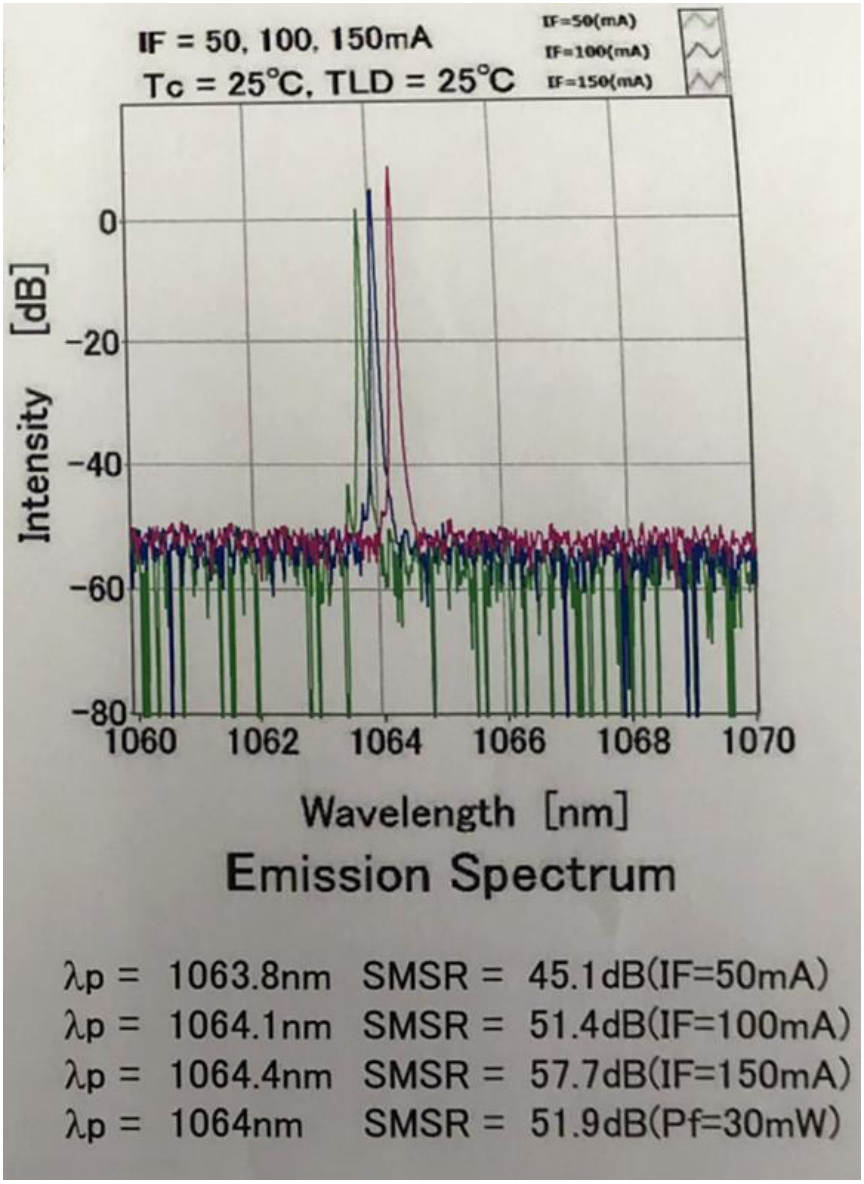
** Pulse width of 0.05 ns achievable under gain-switching operation.

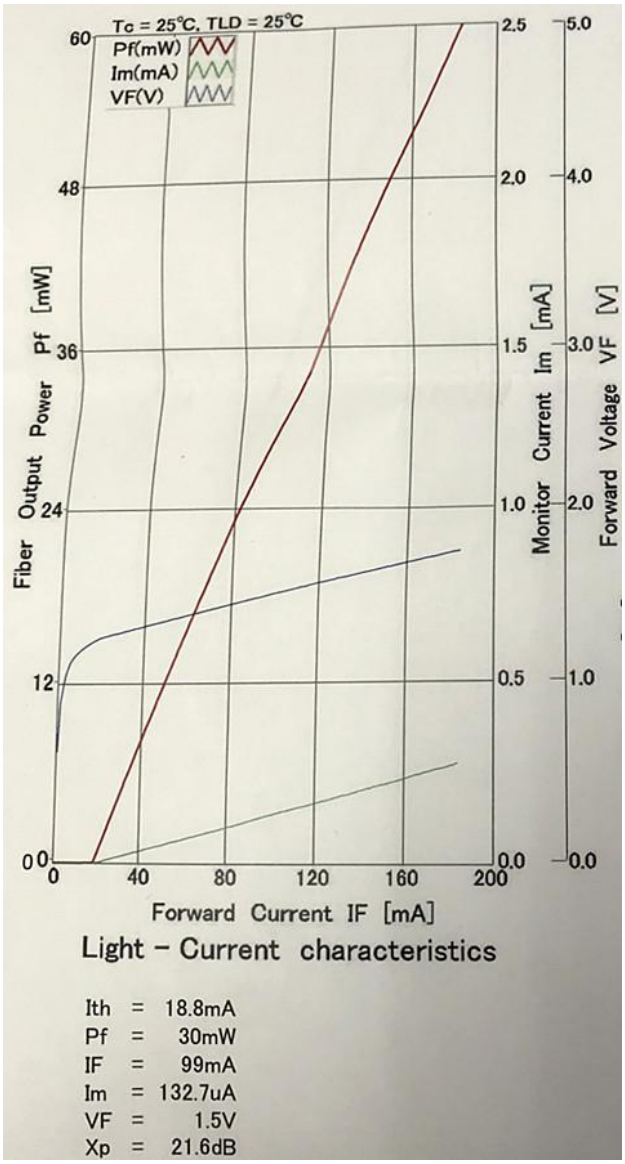
## Absolute Maximum Ratings

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Optical Output Power (CW) | Pf | 50 | mW |
| LD Forward Current (CW) | IF | 250 | mA |
| Peak Power (Pulse 10 ns / 1 MHz) | Pf_pulse | 150 | mW |
| LD Peak Current (10 ns / 1 MHz) | IF_pulse | 600 | mA |
| LD Reverse Voltage | VRLD | 2 | V |
| TEC Drive Current | ITEC | 2 | A |
| TEC Drive Voltage | VTEC | 4.3 | V |
| Operating Temperature | Tc | 0 ~ 60 | ℃ |
| Storage Temperature | Tstg | -40 ~ 85 | ℃ |
| Lead Soldering Temperature (5 s) | Tsld | 230 | ℃ |

# Product Features

### Spectrum Test Plot & P-I-V Curve

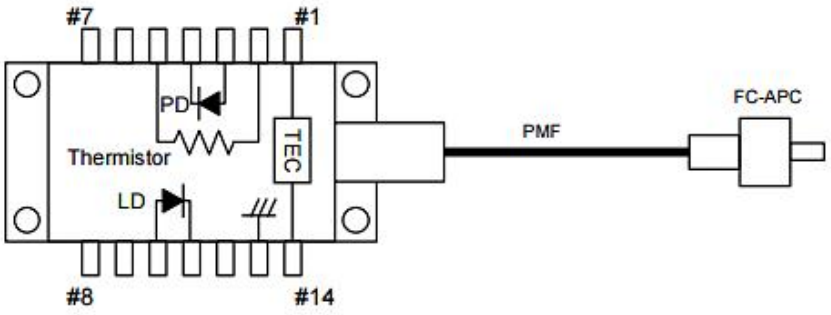





Light – Current characteristics

| | | |
|---|---|---|
| Ith | = | 18.8mA |
| Pf | = | 30mW |
| IF | = | 99mA |
| Im | = | 132.7uA |
| VF | = | 1.5V |
| Xp | = | 21.6dB |

## Pin Definition



| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | TEC (+) | 8 | NC |
| 2 | Thermistor | 9 | NC |
| 3 | PD Anode | 10 | Laser Anode |
| 4 | PD Cathode | 11 | Laser Cathode |
| 5 | Thermistor | 12 | NC |
| 6 | NC | 13 | Case Ground |
| 7 | NC | 14 | TEC (-) |

## Ordering Information

| Fiber Type | Fiber Diameter | Connector Type |
|---|---|---|
| Polarization Maintaining Fiber | 900 µm | FC / APC |
| | 250 µm | Ferrule |