# 1550nm 30mW single mode DFB laser


## Product Description

With optimized optical properties, 1550nm single-mode DFB is an ideal choice for demanding sensing system applications. The innovative chip design has suppressed high-order longitudinal and transverse modes while maintaining linear polarization stability. The laser has high output power, narrow line width and good consistency and is currently favored by domestic scientific research customers. At present, our existing inventory wavelengths cover 1000-2400nm. For some specific application areas of customers, we can provide customers with customized chip screening services.

## Part Number

PL-DFB-1550-C-1-SA-14BF

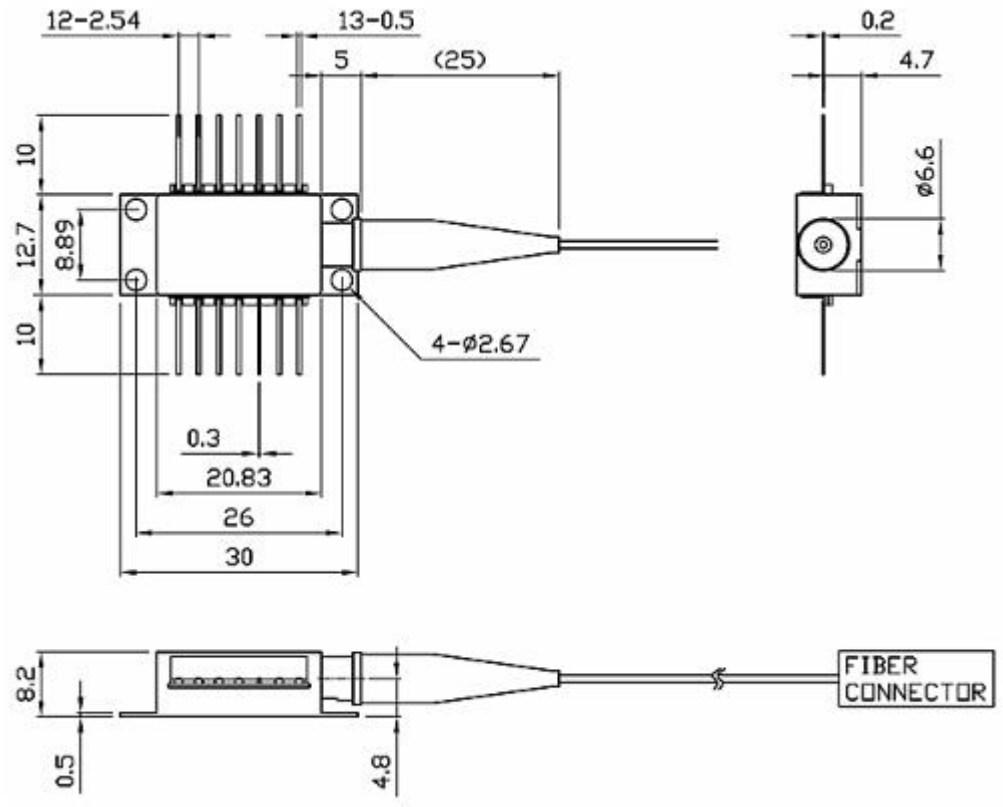
## Product features

Ultra-high output power、 Narrow linewidth、 Internal TEC and thermistor 、 2 nm TEC tunability

## Application area

Fiber optic communication、 Seed source

## Dimensional Drawing




## Parameters

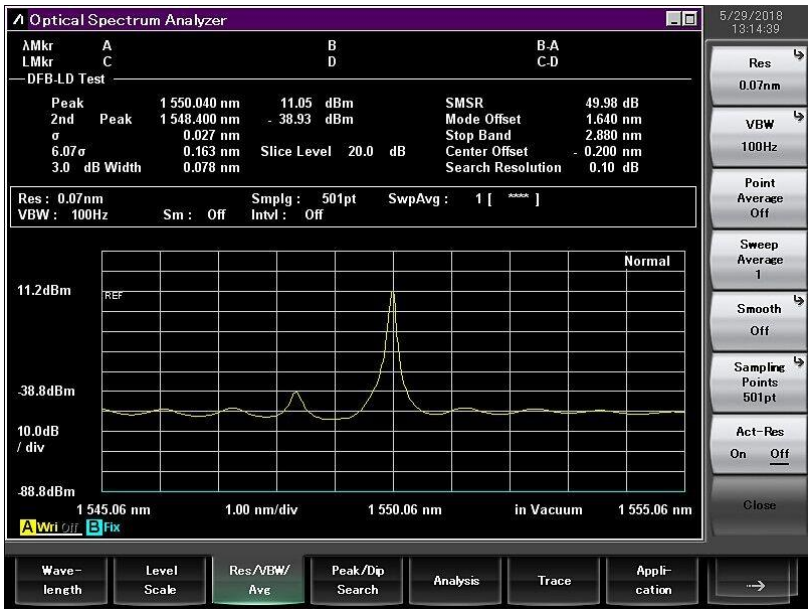
| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|---|---|---|---|---|---|---|
| Incident wavelength | λR | 1549 | 1550.12 | 1551 | nm | T = 20°C, ITEC = 0, POP= 20mw |
| Threshold current | ITH | | 10 | 35 | mA | T = 20°C |
| Output power | Popt | 20 | 30 | 40 | mW | T = 0 … 50°C |
| Threshold voltage | UTH | | 1.80 | | V | |
| Laser current | IOP | | | 200 | mA | Popt = 20mw |
| Laser voltage | UOP | | 2.0 | | V | Popt = 20mw |

| | | | | | | |
|---|---|---|---|---|---|---|
| Electro-optical conversion ratio | ηWP | | 12 | | % | Popt = 20mw |
| Slope efficiency | ηS | | 0.74 | | W/A | T = 20°C |
| 3dB modulation bandwidth | v3dB | 0.10 | | | GHz | Popt =20mw(For ESD protection diodes) |
| Relative noise intensity | RIN | | -130 | -120 | dB/Hz | Popt = 0.3 mW @ 1 GHz |
| Wavelength tuning current | | | 0.01 | | nm/mA | |
| Wavelength tuning temperature | | | 0.1 | | nm/deg | |
| Thermistor | Rthermal | 3 | | 5 | K/mW | |
| Side mode suppression | | 30 | | | dB | |
| Beam divergence | θ | 10 | | 25 | ° | Popt = 20mwFull 1/e2 bandwidth |
| Spectral bandwidth | Δv | | 3 | | MHz | Popt = 20mw |
| TEC current | ITEC | | | 1000 | mA | Proper heat sink required |
| NTC Thermistors | | 9.5 | 10.0 | 10.5 | kΩ | T= 25℃ |
| NTC temperature dependence | | 10/exp[3892·(1/298K-1/TOP)] | | | kΩ | |

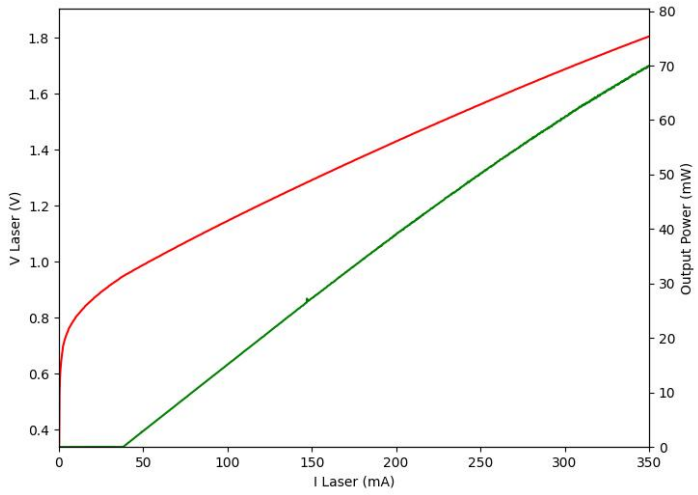
## Absolute Maximum

| storage temperature | -40 … 125°C |
|---|---|
| Operating temperature | -20 … 80°C |
| Electric power loss | 500mW |
| Forward laser current | 130mA |
| Backward current | 10mA |
| Soldering temperature* | 270C° |
| (*TEC temperature must be below 70°C) | |

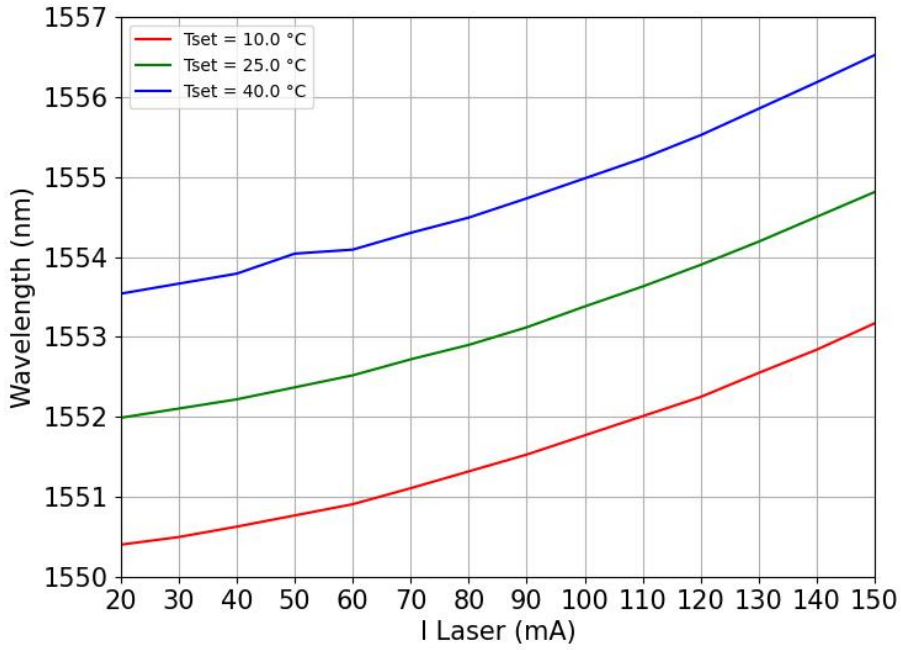
## Spectrum



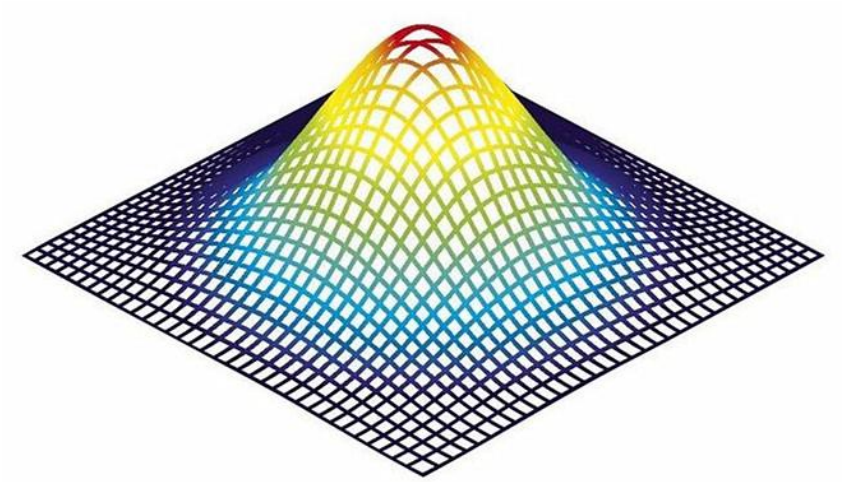

## L-I-V curve



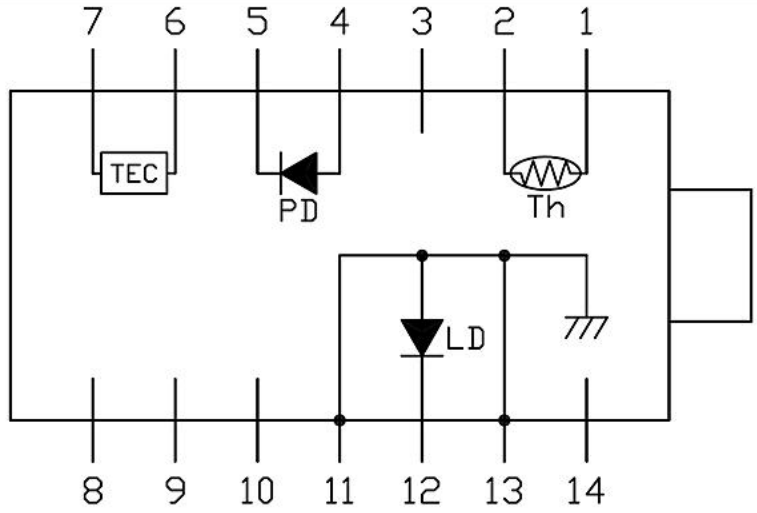
Temperature/wavelength tuning of TEC current




Beam quality analysis



Pin definition
With TEC pin configuration




| 1 | Thermistor | 8 | NC |
|---|---|---|---|
| 2 | Thermistor | 9 | NC |
| 3 | NC | 10 | NC |
| 4 | PD Monitor Anode (-) | 11 | Laser Anode (+),Case Ground |
| 5 | PD Monitor Cathode (+) | 12 | RF Laser Input Cathode (–) |
| 6 | Thermoelectric Cooler (+) | 13 | Laser Anode (+),Case Ground |
| 7 | Thermoelectric Cooler (–) | 14 | NC |