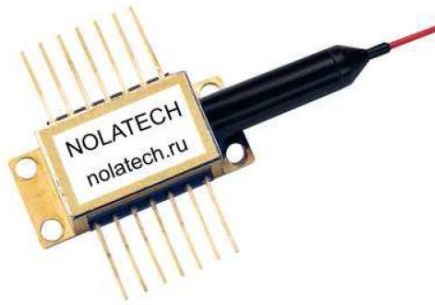


## DFB Laser Module 1550nm 10mW



DFB-1550-14BF distributed feedback 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).

### Key Features

- Optical output: 10mW
- Narrow linewidth ( $\Delta\nu < 10\text{MHz}$ )
- Wavelength: 1550nm @ 25°C
- SM or PM Fiber ( $\varnothing 0.9\text{mm}$ )
- FC-APC connector
- 14-pin butterfly package
- Internal monitor PD and TEC
- Optical isolator (optional)

### Optical and electrical characteristics: (T = 25°C)

| Item                                     | Symbol                   | Test condition                                   | Min. | Typ.  | Max. | Unit                 |
|--|--------------------------|--|------|-------|------|----------------------|
| Output Power, CW                         | $P_f$                    | CW   |      | 5     | 10   | mW                   |
| Output Power, Pulse                      | $P_p$                    | Pulse  |      | 20    | 30   | mW                   |
| Forward Voltage                          | $V_F$                    | $P_f=5\text{mW}$                                 |      |       | 2    | V                    |
| Threshold Current                        | $I_{th}$                 |  | 8    | 10    | 12   | mA                   |
| Forward Current                          | $I_F$                    | $P_f=5\text{mW}$                                 |      | 50    | 70   | mA                   |
| Center Wavelength                        | $\lambda_c$              | $P_f=5\text{mW}$                                 | 1545 | 1550  | 1555 | nm                   |
| Spectral Width                           | $\Delta\lambda$          | $P_f=5\text{mW}$                                 |      | 5     | 10   | MHz                  |
| Side Mode Suppression Ratio              | SMSR                     | $P_f=5\text{mW}$                                 | 35   | 40    |      | dB                   |
| Relative Intensity Noise                 | RIN                      | $P_f=5\text{mW}$                                 |      | -140  |      | dB/Hz                |
| Monitor Current                          | $I_m$                    | $P_f=5\text{mW}, V_{RD}=5\text{V}$               | 40   |       | 500  | $\mu\text{A}$        |
| PD Dark Current                          | $I_d$                    | $V_{RD}=5\text{V}$                               |      |       | 0.1  | $\mu\text{A}$        |
| Cooler Voltage                           | $V_C$                    | $I_F=EOL, TC=70^\circ\text{C}$                   |      |       | 2.7  | V                    |
| Cooler Current                           | $I_C$                    | $I_F=EOL, TC=70^\circ\text{C}$                   |      |       | 1.4  | A                    |
| Thermal Resistance                       | $R_o$                    | $T_{LD}=25^\circ\text{C}, B=3900\pm 100\text{K}$ | 9.5  | 10.0  | 10.5 | k $\Omega$           |
| Extinction Ratio                         | $X_P$                    | $P_f=5\text{mW}$                                 | 19   |       |      | dB                   |
| Single-Frequency Continuous Tuning Range | $\Delta f$               |  |      | 2.5   |      | nm                   |
| Current Tuning                           | $\Delta\lambda/\Delta I$ |  |      | 0.002 |      | nm/mA                |
| Temperature Tuning                       | $\Delta\lambda/\Delta T$ |  |      | 0.09  |      | nm/ $^\circ\text{C}$ |
| Optical Isolation (optional)             | $I_{ISO}$                |  | 25   |       |      | dB                   |

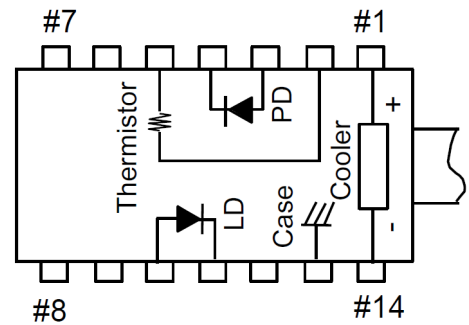
## Absolute Maximum Ratings

| Item                       | Symbol    | Rating     | Unit |
|----------------------------|-----------|------------|------|
| LD Forward Current         | $I_f$     | 100        | mA   |
| LD Reverse Voltage         | $V_r$     | 1.8        | V    |
| PD Reverse Voltage         | $V_{RD}$  | 10         | V    |
| Operation Case Temperature | $T_C$     | -40 to +70 | °C   |
| Storage Temperature        | $T_{stg}$ | -40 to +85 | °C   |
| Cooler Current             | $I_C$     | 1.4        | A    |

## PACKAGING

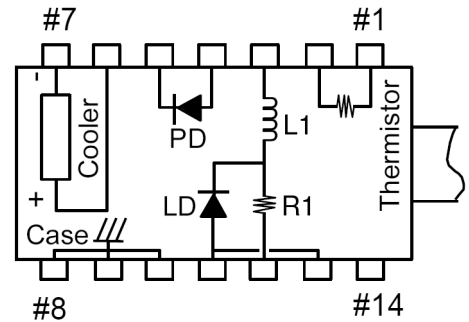
### Type1:

| No. | FUNCTION       | No. | FUNCTION         |
|-----|----------------|-----|------------------|
| 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 - |



### Type 2:

| No. | FUNCTION             | No. | FUNCTION              |
|-----|----------------------|-----|-----------------------|
| 1   | Thermistor           | 8   | Case                  |
| 2   | Thermistor           | 9   | Case                  |
| 3   | LD DC bias cathode - | 10  | Case                  |
| 4   | PD anode -           | 11  | LD anode +            |
| 5   | PD cathode +         | 12  | LD RF input cathode - |
| 6   | Cooler anode +       | 13  | LD anode +            |
| 7   | Cooler cathode -     | 14  | NC                    |



$R1 = 20\Omega$ ;  $L1 = 180nH$

