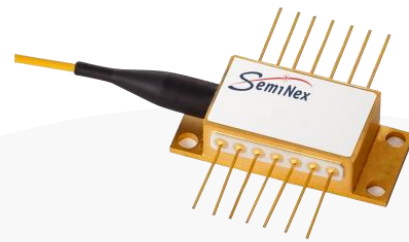


# External Cavity Laser 14-pin Butterfly Narrow Linewidth Single-Frequency



## Part Number: 14BF-310

External Cavity Laser  
14BF Narrow Linewidth Single-Frequency  
CW Wavelength at 1550nm C-Band



## Features

- Narrow linewidth (~10 kHz)
- Central wavelength 1550 nm or other C band
- Good wavelength stability
- Low power dissipation
- Ultra-low RIN, excellent SMSR
- **SemiNex ROSA Chip Inside**

## Application

- Fiber optical sensing: acoustic & seismic interferometric sensing, Oil & Gas - exploration and production
- LiDAR and industrial metrology
- Optical measurements and instrumentation



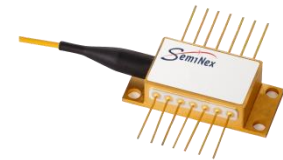
SemiNex delivers the highest available power at infrared wavelengths between 12xx and 19xx nm. When necessary, we will further optimize the design of our InP & GaSb laser chips to meet our customers' specific optical and electrical performance needs. Diodes, bars and packages are tested to meet customer and market performance demands. Typical results and packaging options are shown. Contact SemiNex for additional details or to discuss your specific requirements.

External Cavity Laser  
 14-pin Butterfly  
 Narrow Linewidth Single-Frequency



# Specification

14BF-310



| Optical                       | Symbol         | Min. | Typ.           | Max. | Units |
|-------------------------------|----------------|------|----------------|------|-------|
| Center Wavelength             | $\lambda_c$    |      | 1550 or C band |      | nm    |
| Linewidth (Lorentzian)        | FWHM           |      | 10             |      | kHz   |
| Fiber Output Power            | Pf             |      | 10             |      | mW    |
| Side Mode Suppression         | SMSR           |      | 55             |      | dB    |
| Polarization Extinction Ratio | PER            | 20   |                |      | dB    |
| Random Intensity Noise        | RIN            |      |                | -145 | dB/Hz |
| Optical Isolation             | ISO            |      | 50             |      | dB    |
| Operating Temperature         | T <sub>O</sub> | -20  |                | 60   | °C    |
| Storage Temperature           | T <sub>S</sub> | -40  |                | 85   | °C    |
| Operating Humidity            | %              | 5    |                | 85   |       |

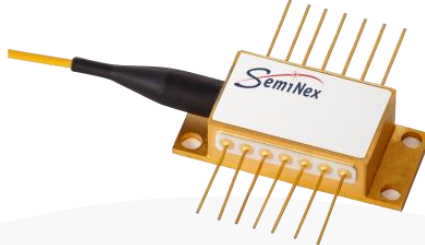
| Parameter   | Symbol           | Min. | Typ. | Max. | Unit |
|-------------|------------------|------|------|------|------|
| LD Voltage  | V <sub>LD</sub>  |      | 1.6  | 1.8  | V    |
| LD Current  | I <sub>LD</sub>  |      | 150  | 300  | mA   |
| TEC Voltage | V <sub>TEC</sub> |      | 1.8  | 2.5  | V    |
| TEC Current | I <sub>TEC</sub> |      | 1    | 1.5  | A    |
| TEC Temp.   | T <sub>TEC</sub> |      | 25   | 50   | °C   |

\*Specified values are rated at a constant heat sink temperature of 20°C.  
 \*\*High temperature operation will reduce performance and MTTF.  
 Unless otherwise indicated all values are nominal.

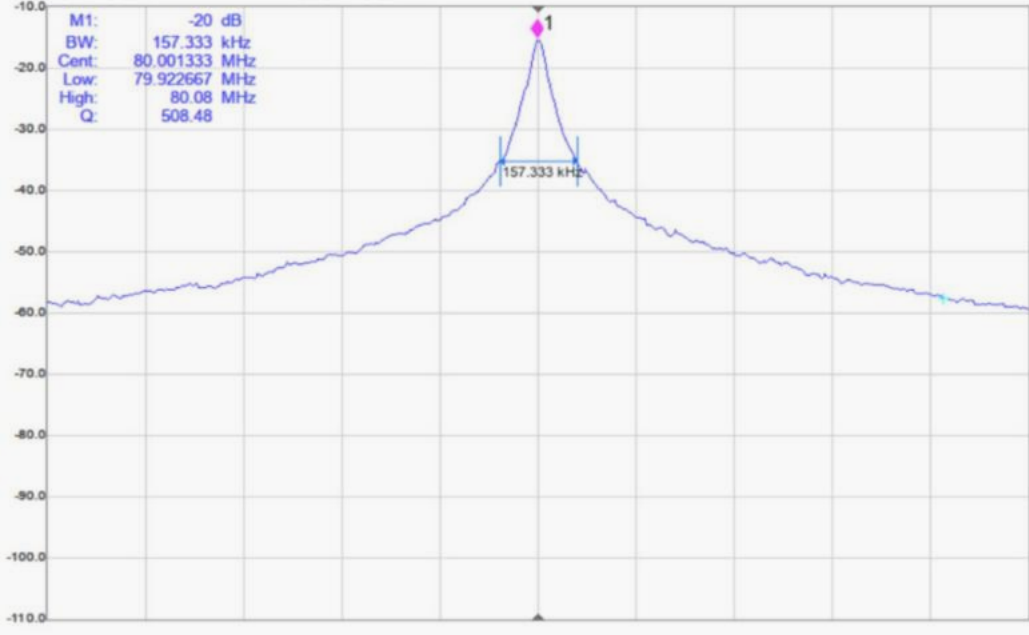
# High Power Laser Diode 14BF Narrow Linewidth Single-Frequency Laser



## SemiNex Laser Diodes 14BF-310 Graphs & Data



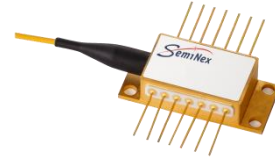
Lorentzian Linewidth (7.86kHz)



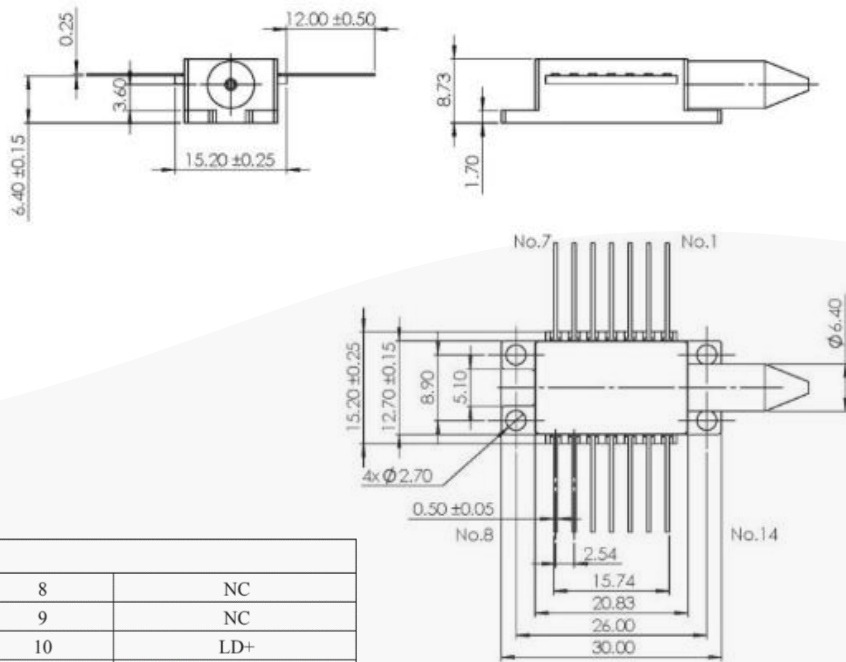
# External Cavity Laser 14-pin Butterfly Narrow Linewidth Single-Frequency



## Mechanical Drawing



| No. | Description  | Parameter            | Unit | Note             |
|-----|--------------|----------------------|------|------------------|
| 1   | Fiber type   | PMF $\phi$ 0.9mm red |      | PMF/SMF Optional |
| 2   | Fiber length | 1000 $\pm$ 10        | mm   |                  |
| 3   | Connector    | FC/APC               |      |                  |



| Pinout |             |    |       |
|--------|-------------|----|-------|
| 1      | TEC +       | 8  | NC    |
| 2      | Thermistors | 9  | NC    |
| 3      | PD -        | 10 | LD+   |
| 4      | PD +        | 11 | LD-   |
| 5      | Thermistors | 12 | NC    |
| 6      | NC          | 13 | Case  |
| 7      | NC          | 14 | TEC - |

### Warnings:

Make sure to wear protective goggles while operating high power laser that could be harmful to eyes. Nearby operators should wear protective goggles to avoid harms from the reflective of the laser. SemiNex reserves the right to modify this document without notice.

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