

Tunable Laser Diode 1310nm 10mW



TLD-1310-14BF Fiber Bragg Grating laser is a stable narrow band light source with a wavelength tuning possibility in 1-2 nm range. 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 ($\Delta\nu < 0.1\text{MHz}$)
- Tuning range: $> 1\text{nm}$
- Wavelength: 1310nm
- SM or PM fiber
- FC-APC connector
- Internal monitor PD and TEC
- 14-pin butterfly package

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

| Item | Symbol | Test condition | Min. | Typ. | Max. | Unit |
|-----------------------------|--------------------------|--|------|-------|------|----------------------|
| Output Power | P_f | | | 10 | 20 | mW |
| Forward Voltage | V_f | $P_f=10\text{mW}$ | | | 2.5 | V |
| Threshold Current | I_{th} | | 30 | | 50 | mA |
| Forward Current | I_f | $P_f=10\text{mW}$ | | 200 | 300 | mA |
| Center Wavelength | λ_c | $P_f=10\text{mW}$ | 1280 | | 1320 | nm |
| Spectral Width | $\Delta\lambda$ | $P_f=10\text{mW}$ | | 100 | | kHz |
| Side Mode Suppression Ratio | SMSR | $P_f=10\text{mW}$ | 40 | 45 | | dB |
| Relative Intensity Noise | RIN | $P_f=10\text{mW}$ | | -145 | | dB/Hz |
| Monitor Current | I_m | $P_f=10\text{mW}, V_{RD}=5\text{V}$ | 40 | | 200 | μA |
| PD Dark Current | I_d | $V_{RD}=5\text{V}$ | | | 0.1 | μA |
| 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 Ω |
| Extinction Ratio | X_p | $P_f=10\text{mW}$ | 17 | | | dB |
| Mode Hop Free Range | ΔI | | | 30 | | mA |
| Tuning Range | Δf | | 1 | 1.5 | | nm |
| PZT Tuning Voltage | V_T | | 0 | | 150 | V |
| Current Tuning | $\Delta\lambda/\Delta I$ | | | 0.001 | | nm/mA |
| Temperature Tuning | $\Delta\lambda/\Delta T$ | | | 0.08 | | nm/ $^\circ\text{C}$ |

Absolute Maximum Ratings

| Item | Symbol | Rating | Unit |
|----------------------------|-----------|------------|------|
| LD Forward Current | I_f | 350 | 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

| No. | FUNCTION | No. | FUNCTION |
|-----|----------------|-----|----------------|
| 1 | Cooler anode + | 8 | PZT tuning - |
| 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 | PZT tuning + | 14 | Cooler anode - |

