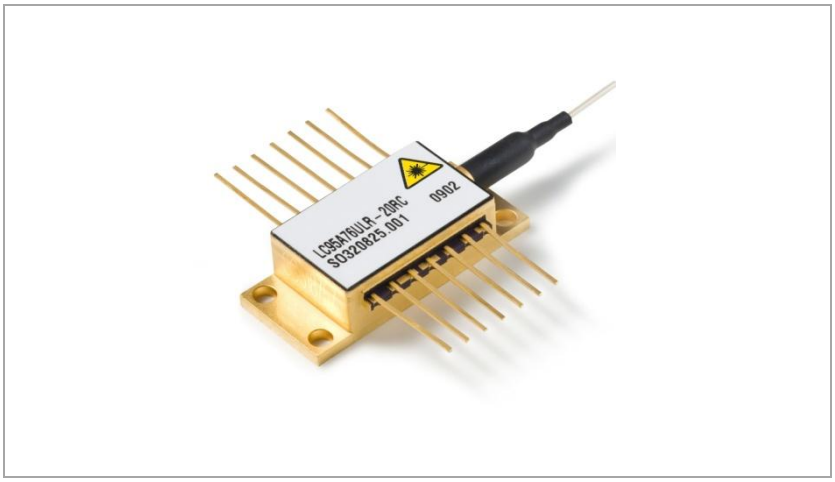
Data Sheet

# Pulsed 1064nm / 1030nm Narrow Bandwidth FBG High Power Laser Diode Module

## LC96A1064NBFBG-20R




The II-VI Laser Enterprise LC96A10xxNBFBG-20R wavelength stabilized high power single mode laser module has been designed as a light source for pulsed narrow bandwidth fiber laser and direct frequency conversion applications. Processes and techniques of coupling the fiber to the laser allow high peak output powers that are very stable with both time and temperature. A narrow bandwidth grating located in the polarization maintaining optical fiber close to the package allows for short pulse operation.

**Features:**

- High pulse output power, up to 1W peak
- Wavelength stabilized at 1064nm
- Narrow bandwidth emission of <0.3nm
- Short pulse operation of 5ns-500ns
- Polarization maintaining single mode optical fiber
- Internal thermoelectric heat pump and monitor diode
- Hermetically sealed 14-pin butterfly package
- RoHS compliant

**Applications**

- Fiber lasers
- Frequency conversion
- Spectroscopy

## Characteristics

Conditions unless otherwise stated:
Case temperature -20 to +75°C
Submount temperature 25°C
Monitor diode bias -5 V
CW operation

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Threshold current | 10 | 30 | 50 | mA |
| Operating power at 750mA | 300 | 350 | | mW |
| Operating pulsed peak power (<500ns / 500kHz)<br>• LC96A1064NBFBG-20R | 700 | 1000 | | mW |
| Operating pulsed peak current (<500ns / 500kHz)<br>• LC96A1064NBFBG-20R | | | 2 | A |
| Forward voltage | | 1.5 | 2.5 | V |
| Peak wavelength<br>• LC96A1064NBFBG-20R | 1063 | 1064 | 1065 | nm |
| Spectral width (FWHM) | | | 0.3 | nm |
| Pulse width | 5 | | 500 | ns |
| Repetition rate | | | 500 | kHz |
| Duty cycle | | | 2 | % |
| Rise time | | | 1.6 | ns |
| Monitor detector responsivity | 0.3 | 1.0 | | µA/mW |
| Monitor dark current | | | 10 | nA |
| Thermistor resistance (at 25°C) | 9.5 | 10 | 10.5 | kΩ |
| Heat pump current ($\Delta T$ = 50°C, $I_f = I_f$ max) | | | 1.5 | A |
| Heat pump voltage ($\Delta T$ = 50°C, $I_f = I_f$ max) | | | 3.0 | V |
| Polarization extinction ratio | 10 | 13 | | dB |

## Absolute Maximum Ratings

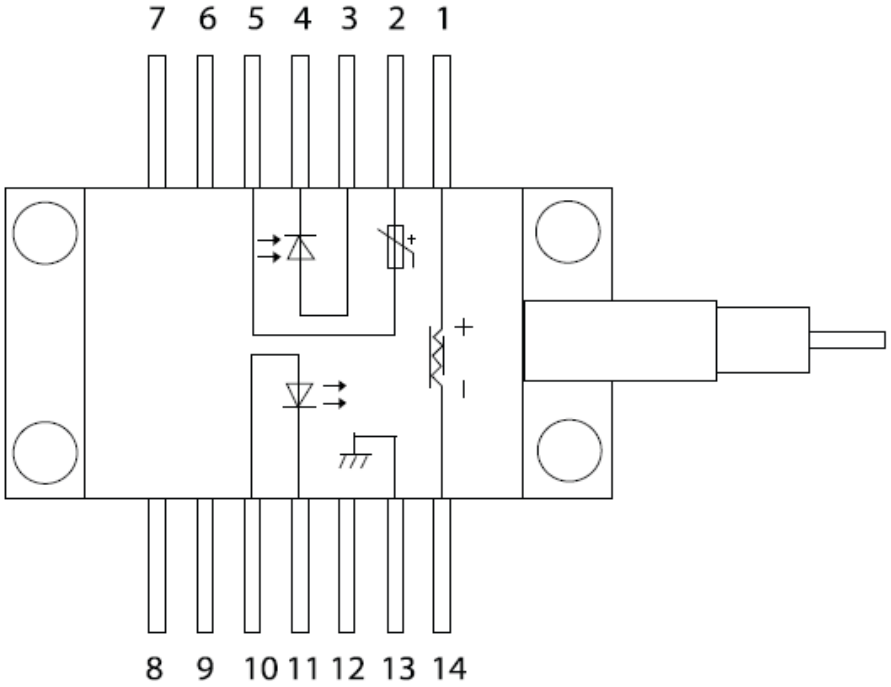
| Parameter | Min | Max | Unit |
|---|---|---|---|
| Storage temperature | -40 | 85 | °C |
| CW laser forward current (10s max) | | 1 | mA |
| Laser reverse voltage | | 2 | V |
| Heat pump current | | 2.2 | A |
| Lead soldering temperature (10s max) | | 350 | °C |
| Fiber bend radius | 30 | | mm |

## Fiber Characteristics

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Fiber type: Polarization maintaining Nufern PM980-HP or equivalent (e.g. Fujikura SM98) | | | | |
| Mode field diameter | 5.6 | 6.6 | 7.6 | µm |
| Buffer diameter | 230 | 245 | 260 | µm |
| Optical length (module to fiber end) | 0.7 | | | m |
| Lens to FBG center | 12 | 14 | 16 | cm |
| Pristine fiber proof test level | 200 | | | psi |
| FBG proof test level | 150 | | | psi |

## Connections

| Pin # | Description | Pin# | Description |
|---|---|---|---|
| 1 | Peltier cooler (+) | 8 | Not connected |
| 2 | Thermistor | 9 | Not connected |
| 3 | Monitor anode (-) | 10 | Laser anode (+) |
| 4 | Monitor cathode (+) | 11 | Laser cathode (-) |
| 5 | Thermistor | 12 | Not connected |
| 6 | Not connected | 13 | Case ground |
| 7 | Not connected | 14 | Peltier cooler (-) |



## RoHS Compliance

II-VI Laser Enterprise is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

## Ordering Information

LC96A1064NBFBG-20R 1064nm Narrowband FBG High Power Laser Diode Module

## Contact Information

**www.laserenterprise.com**

## Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by II-VI Laser Enterprise before they become applicable to any particular order or contract. In accordance with the II-VI Laser Enterprise policy of continuous improvement specifications may change without notice. Further details are available from any II-VI Laser Enterprise sales representative.