



## C13D-5A-C2G

### 1310nm DFB Laser Diode TO-can with Aspherical Lens

#### Description

The Lasermate C13D-5A-C2G is a 1310nm wavelength, DFB laser diode, TO-can, designed for use in telecommunication applications.



#### Features

- 1310nm InGaAsP/InP MQW-DFB laser diode (LD)
- Uncooled and Hermetically sealed
- -40 to 85°C operating temperature
- High performance, high speed InGaAs monitor PIN photodiode (PD)
- Packaged in aspherical lens TO-56 type

#### Applications

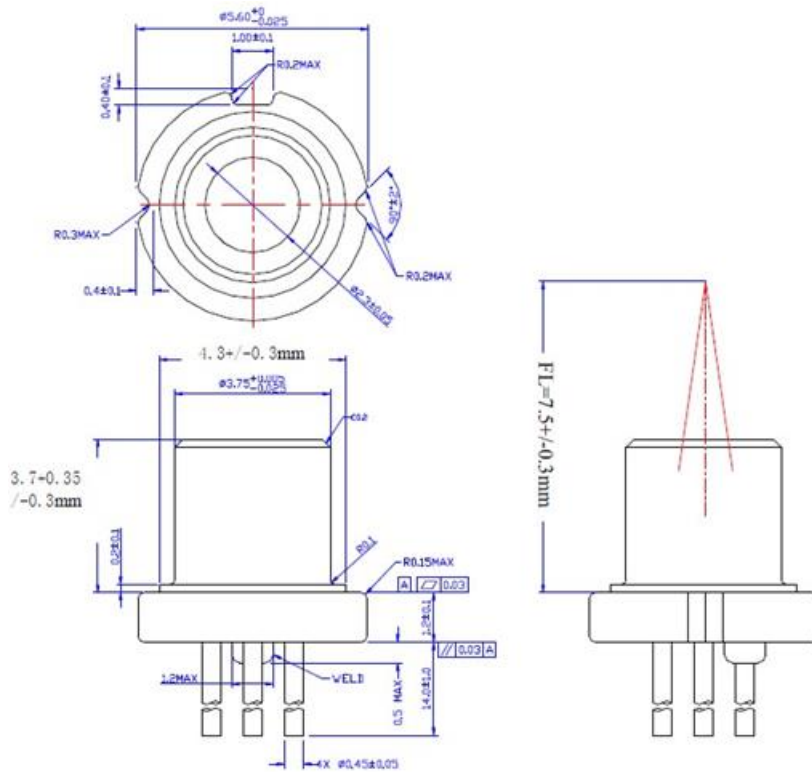
- SONET OC-12/OC-48
- SDH STM-4/STM-16
- Gigabit Ethernet
- Stable emitting source

#### Specifications

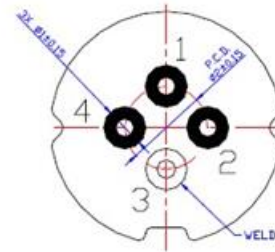
| Absolute Maximum Ratings   |                  |         |      |            |
|----------------------------|------------------|---------|------|------------|
| Parameters                 | Symbol           | Value   | Unit | Conditions |
| Storage temperature        | Tstg             | -40~+85 | °C   |            |
| Operating case temperature | Top              | -40~+85 | °C   |            |
| Peak optical output power  | Po               | 15      | mW   |            |
| Forward current (LD)       | I <sub>FLD</sub> | 120     | mA   |            |
| Reverse voltage (LD)       | V <sub>RLD</sub> | 2       | V    |            |
| Reverse current (PD)       | I <sub>RPD</sub> | 2       | mA   |            |
| Reverse voltage (PD)       | V <sub>RPD</sub> | 20      | V    |            |
| Soldering temperature      | Stemp            | 260     | °C   | 10 seconds |

| Electro-Optical Characteristics (CW @ T <sub>c</sub> = 25°C unless otherwise noted) |                 |      |      |      |       |   |
|---|-----------------|------|------|------|-------|---|
| Parameters  | Symbol          | Min. | Typ. | Max. | Unit  | Conditions                                |
| Threshold current   | I <sub>th</sub> | —    | 5    | 10   | mA    | CW  |
| Operating voltage   | V <sub>op</sub> | —    | 1.1  | 1.6  | V     | CW, I <sub>th</sub> +20mA                 |
| Operating power   | P <sub>op</sub> | 5.0  | 8.0  | —    |       | CW, I <sub>th</sub> +20mA                 |
| Slope efficiency  | η               | 0.25 | —    | —    | mW/mA | CW, I <sub>th</sub> +20mA                 |
| Peak wavelength   | λ <sub>p</sub>  | 1300 | 1310 | 1320 | nm    | CW, I <sub>th</sub> +20mA                 |
| Side-mode suppression rate  | SMSR            | 35   | 40   | —    | nm    | CW, I <sub>th</sub> +20mA                 |
| Wavelength temp. coefficient  | Δλ/ΔT           | —    | 0.08 | 0.12 | nm/°C | Pop=5mW                                   |
| Focal Length  | Df              | 7.0  | 7.5  | 8.0  | mm    | Po=5mW, SMF (10/125)                      |
| Rise time   | Tr              | —    | 80   | 120  | ps    | I <sub>b</sub> =I <sub>th</sub> , 20%~80% |
| Fall time   | Tf              | —    | 100  | 150  | ps    | I <sub>b</sub> =I <sub>th</sub> , 20%~80% |
| Relaxation oscillation frequency  | F <sub>R</sub>  |      | 4.5  |      | GHz   | Pop=5mW                                   |
| Monitor current   | I <sub>m</sub>  | 80   | —    | 1000 | uA    | Pop, V <sub>rp</sub> =5V                  |
| Monitor dark current  | I <sub>d</sub>  | —    | —    | 200  | nA    | V <sub>rp</sub> = 5V                      |

### Outline Dimensions (unit: mm)



### Pin Assignment



| Pin Number | Function             |
|------------|----------------------|
| 1          | PD Anode             |
| 2          | LD Anode, PD Cathode |
| 3          | GND                  |
| 4          | LD Cathode           |

### Additional Notes

- Avoid eye or skin exposure to laser radiations.
- The device is sensitive to electro-static discharge (ESD). The device should be handled with ESD proof tools. To assemble the device on PCB, proper grounding is required to prevent ESD.
- Specifications are subject to change without notice.