Butterfly Laser Diode Driver Module

1. Product Introduction

The butterfly- package laser driver board is a multi- functional module integrating temperature control and laser diode driving. It adopts advanced semiconductor laser power supply technology and high- quality components. It features excellent constant- current performance, stable output current and strong anti- interference capability. Built- in dual protection circuits for voltage regulation and constant- current limit prevent over- current and surge, ensuring reliable operation and extended service life of laser diodes. With complete on-board configuration, stable performance and high cost- effectiveness, this module is suitable for manufacturers, enterprises, universities and research institutes.

2. Product Features

- Adaptive output voltage for 2.5 V load
- Selectable output current: 100 mA, 300 mA, 500 mA, 1000 mA, 1500 mA
- Software- controlled output current
- High temperature- control accuracy: ±0.01 ° C
- Protections against over- current, over- voltage and over- temperature
- Soft- start and soft- stop current ramping functions
- High stability, strong anti- interference and low- noise performance

3. Product Applications

- Driving of semiconductor pump lasers and DFB seed sources
- Temperature- controlled source for laboratory and scientific research

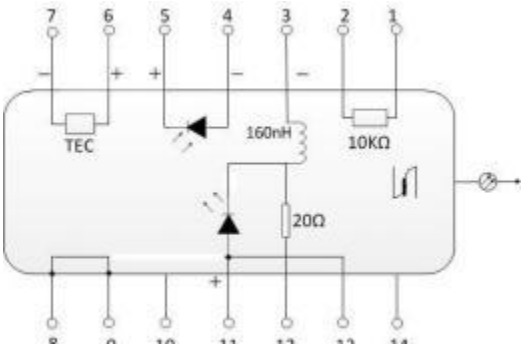
4. Product Specifications & Model Selection:

Model / Parameters	BDF-051H-A/B	BDF-055H-A/B	BDF-051T-A/B	BDF-051T5-A/B
Input Voltage (VDC)	5V±15%	5V±15%	5V±15%	5V±15%
Output Voltage (V)	0~2.5	0~2.5	0~2.5	0~2.5
Output Current (mA)	0~100	0~500	0~1000	0~1500
Temperature Control Accuracy	±0.01℃			
Module Dimension	W×L×H=120*85*30mm			
Remote Interface	RS485 (Standard)			

Note: Input power shall be DC 5 V (4.8- 5.2 V). Exceeding this range may cause permanent damage to the module.

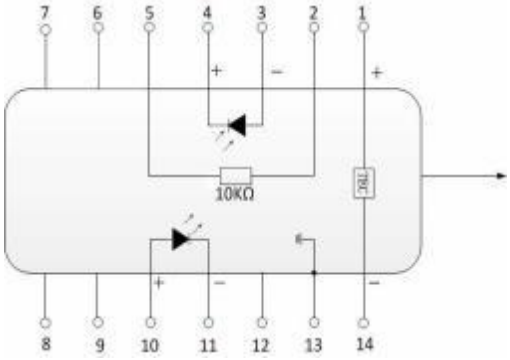
5. Pin Definition

Type A



PIN	Description	PIN	Description
1	Thermistor	14	NC
2	Thermistor	13	Laser Anode(+)
3	Laser Cathode(-)	12	Laser Cathode(-)
4	PD Monitor Anode(-)	11	Laser Anode(+)
5	PD Monitor Cathode(+)	10	NC
6	TEC(+)	9	Case Ground
7	TEC(–)	8	Case Ground

Type B (Pump Laser Pinout)



PIN	Description	PIN	Description
1	TEC(+)	14	TEC(–)
2	Thermistor	13	Case Ground
3	PD Monitor Anode(-)	12	NC
4	PD Monitor Cathode(+)	11	Laser Cathode(-)
5	Thermistor	10	Laser Anode(+)
6	NC	9	NC
7	NC	8	NC

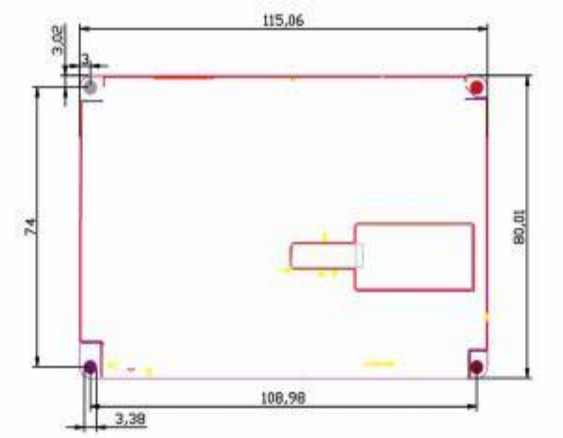
6. Product Interfaces：

5VDC Input power

RS485 Communication Interface



Laser clamp Place the laser Tighten screws to cool down



7. PC Software Control (RS485 Serial Communication)

7.1 Connection Setup

Connect the laser driver power supply to PC with serial cable. Install the serial-port driver PL23XX_Prolific_DriverInstaller_v207, then launch control software LD- DRV - V2.2- 240224.

7.2 Port Selection

Select the correct COM port number and open serial port.

7.3 Real- time Status Monitoring

This section displays real- time operating parameters of the laser driver unit.

7.4 Parameter Configuration