OELDC-500BF/OELDC-800BF Laser Diode Controller

Description

OELDC Laser Diode Controller combines ultra-stable temperature controller and accurate constant current driver. It is ideal to drive laser diode module (transmission laser diode, pump laser diode, etc.), semiconductor optical amplifier (SOA), super luminescent diode (SLD) and light emitting diode (LED). Two PI loops monitor and control both laser diode current and temperature. Double +/-5V power supply provides 20~500mA / 50~800mA laser diode current and 1.2A / 2.0A thermoelectric cooler (TEC) control current. With on-board Butterfly solder pads, mounting Butterfly packaged module is easy and reliable. Adjustable current limitation and slow-start can protect the module.

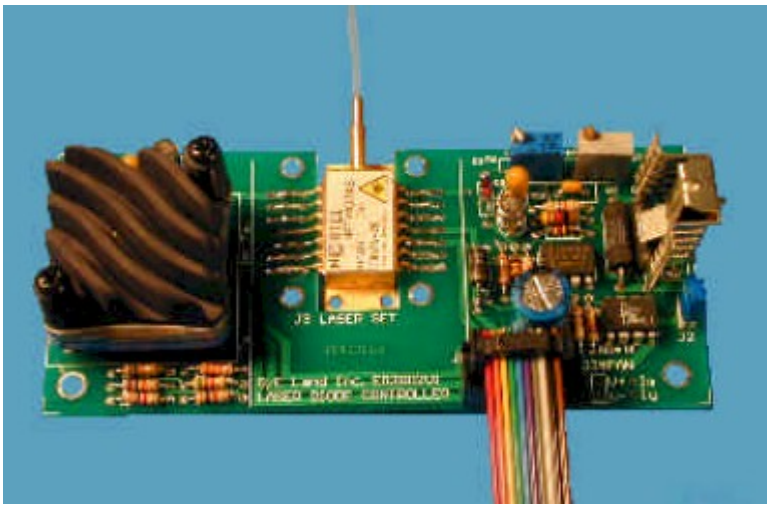


Figure1. Butterfly Type Laser Diode Controller

Features

- On-board Butterfly Solder Pads for Butterfly Packaged Module.
- Up to 500mA (OELDC-500BF) or 800mA (OELDC-800BF) Laser Diode Current Drive Capacity.
- 0.03% Driving Current Accuracy.
- Adjustable Laser Current Limitation.
- Slow Start Circuitry.
- Laser Diode Enable Switch and LED Indicator.
- High TEC Drive Capacity: 1.2A (OELDC-500BF) or 2.0A (OELDC-800BF).
- 0.005^{o}C Temperature Stability.
- Temperature Stabilization Point: +25^{o}C/10Kohms (Others on Request)
- Temperature Control Always-On Function.
- +/-5V Double Power Supply.

OELDC-500BF Parameters

	Min.	Typ.	Max.
Laser Diode Output Current	20mA		500mA
Output Current Accuracy @500mA	0.01%	0.03%	0.05%
Output Current Stability @250mA, 24 hrs		0.1% or 0.3mA	
TEC Output Current			1.2mA
Temperature Stability @25°C, I hr	0.002°C	0.005°C	0.01°C
Temperature Stability @25°C, 24 hr	0.003°C	0.008°C	0.03°C
External Temperature Sensor	10K ohms @25°C therimistor, or on request		
Laser Diode Operation Mode	Continuous Constant Current Driving		
Laser Diode Operation Mode(optional)	Constant Output Power		
External Modulation (optional)	up to 1 MHz		
Temperature Stability	0.005 °C		
Slow-start Delay Time	1.8 S	2.0 S	2.5 S
Power Supplier	5V/2.0A, -5V/1.0A or +5V/3.0A(optional)		
Operation Temperature	0 to + 35 °C		
Storage Temperature	- 20 to + 70 °C		
Size	115 x 50 x 30 mm (W x L x H)		

OELDC-800BF Parameters

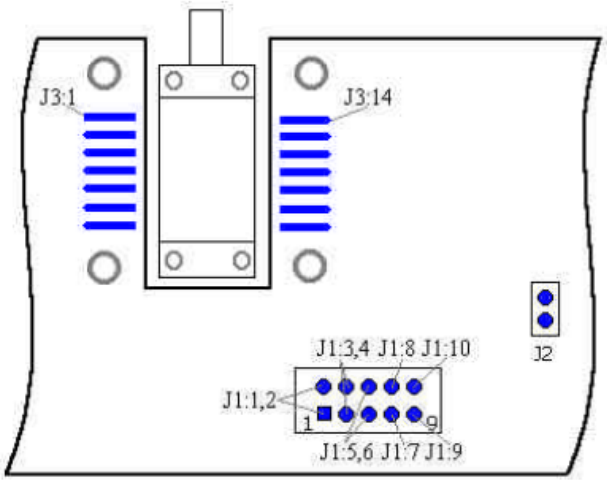
	Min.	Typ.	Max.
Laser Diode Output Current	50mA		800mA
Output Current Accuracy @800mA	0.01%	0.03%	0.05%
Output Current Stability @400mA, 24 hrs		0.12% or 0.5mA	
TEC Output Current			2.0 mA
Temperature Stability @25°C, I hr	0.002°C	0.005°C	0.02°C
Temperature Stability @25°C, 24 hr	0.005°C	0.01°C	0.05°C
External Temperature Sensor	10K ohms @25°C therimistor, or on request		
Laser Diode Operation Mode	Continuous Constant Current Driving		
Laser Diode Operation Mode(optional)	Constant Output Power		
External Modulation (optional)	up to 1 MHz		
Temperature Stability	0.005 oC		
Slow-start Delay Time	1.8 S	2.0 S	2.5 S
Power Supplier	5V/3.0A, -5V/1.0A or +5V/4.0A (optional)		
Operation Temperature	0 to + 35 °C		
Storage Temperature	- 20 to + 70 °C		
Size	115 x 50 x 40 mm (W x L x H)		

Electrical Connection

PIN No.	FUNCTION
J1:1	Power +5V
J1:2	Power +5V
J1:3	Power Ground
J1:4	Power Ground
J1:5	Power -5V
J1:6	Power -5V
J1:7	Laser Enable Switch
J1:8	Laser Enable Switch
J1:9	Laser Working LED Anode (+)
J1:10	Laser Working LED Cathode (-)

J2: Jumper for Laser Diode Current Measurement.

PIN No.	FUNCTION
J3:1	Cooler Anode (+)
J3:2	Thermistor 1
J3:3	N/A
J3:4	N/A
J3:5	Thermistor 2 (connected to GND)
J3:6	N/A
J3:7	N/A
J3:8	N/A
J3:9	N/A
J3:10	Laser Diode Anode (+) (connected to GND)
J3:11	Laser Diode Cathode (-)
J3:12	N/A
J3:13	Case (connected to GND)
J3:14	Cooler Cathode (-)



Top view of connectors layout