

PLD-NS-SYNC

SHORT PULSE LASER **DIODE** **DRIVER**



Key Features

- Special Design for 10/14 pin Butterfly Laser Diode
- Output current up to 2000 mA
- Compliance voltage up to 3 V
- Adjustable pulse width 1–100 ns
- Repetition rate up to 10 MHz
- External trigger option
- External clock option
- Master/slave operation mode with the repetition rate jitter suppression
- USB, RS-232, CAN, UART interfaces
- On-Board TEC Controller
- 5Vdc Input Power
- Completed by Heatsink
- Compact Size 85 mm × 60 mm × 21 mm

Description

The PLD-NS-SYNC is a compact short-pulse seed laser diode driver for powering 10/14-pin butterfly laser diode modules for applications, which require pulse widths from 1 ns to 100 ns. The pulse repetition frequency can be varied from 1 kHz to 10 MHz.

The driver is specially designed to minimize jitter between external trigger signal and optical pulse by enabling external clock synchronization. The driver also supports operation in Master/Slave mode and synchronization of optical pulses between two lasers, one operates as Master and another one as Slave, with the optical pulse position jitter below 500 ps and tunable delay between the optical pulses from two lasers.

The driver circuitry requires a single 5 VDC power source. All other needed voltages are generated on board by high-frequency switching power supplies. The driver supplies a bidirectional proportional-integral-derivative (PID) thermoelectric cooler controller (TEC) with current capability of 1.5 A and a voltage capability of 4 V.

The main parameters of PLD-NS-SYNC (output current, pulse width, repetition frequency, temperature set, pulse delays in sync mode) are controlled by computer interface.

The PLD-NS-SYNC has an external TTL-compatible input for repetition rate control from single shot up to 1 MHz. The driver has an external output for synchronization with each current pulse. The PLD-NS-SYNC has an external input/output of the clock frequency for synchronous operation of two drivers with minimal period jitter between optical pulses.

The current pulse monitor output can be viewed with an oscilloscope by on-board SMA connector allowing the user a real time view of the current. Voltage amplitude 1 V is equal to 2 A current.

Driver has landing pads for soldering a butterfly laser diode directly into driver board and large heat sink for stable heat dissipation.

Specifications

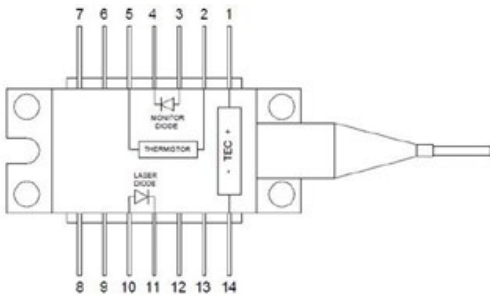
Parameter	Min.	Typ.	Max.	Units
INPUT				
Voltage	4.8	5.0	5.2	VDC
Current	-	-	2	A
External trigger (50 Ω)	3.3	-	5	VDC
OUTPUT				
Current	-	-	2000	mA
Compliance Voltage	1	-	3	V
Pulse width *	1	-	100	ns
Pulse width step	-	0.2	-	ns
Repetition rate *	0.001	-	10	MHz
Rise time **	50	-	500	ps
Fall time **	200	-	1000	ps
TEC current	-1.5	-	1.5	A
TEC Voltage	1	-	4	V
TEC Temperature Set	15	25	50	°C
Repetition rate in sync mode	-	-	1	MHz
Optical pulse delay in sync mode	-50	-	+50	ns
TEMPERATURE				
Operating	+10	-	+50	°C
Storage	-20	-	+70	°C
Humidity, Non-Condensing	-	-	95	%
CONNECTIONS				
Power and interface connector	Terminal block (1-282834-0 TE connectivity)			
USB	Mini-USB, Type B (1734035-1 TE connectivity)			
External trig in/out	SMA (1-1478979-0 TE connectivity)			
Clock in/out	U.FL (U.FL-R-SMT-1(10) Hirose Electric)			
MECHANICAL				
Size	85 × 60 × 21 mm			
Weight, not more	160 g			

* Maximum duty cycle is limited to 2 %

** Output performance depends upon laser diode characteristics. Performance cannot be guaranteed for all laser types. See optical output waveforms.

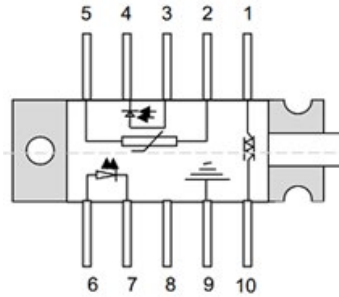
Compatible Laser Pinout

14-pin Butterfly package



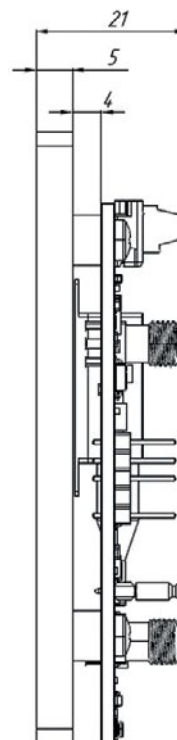
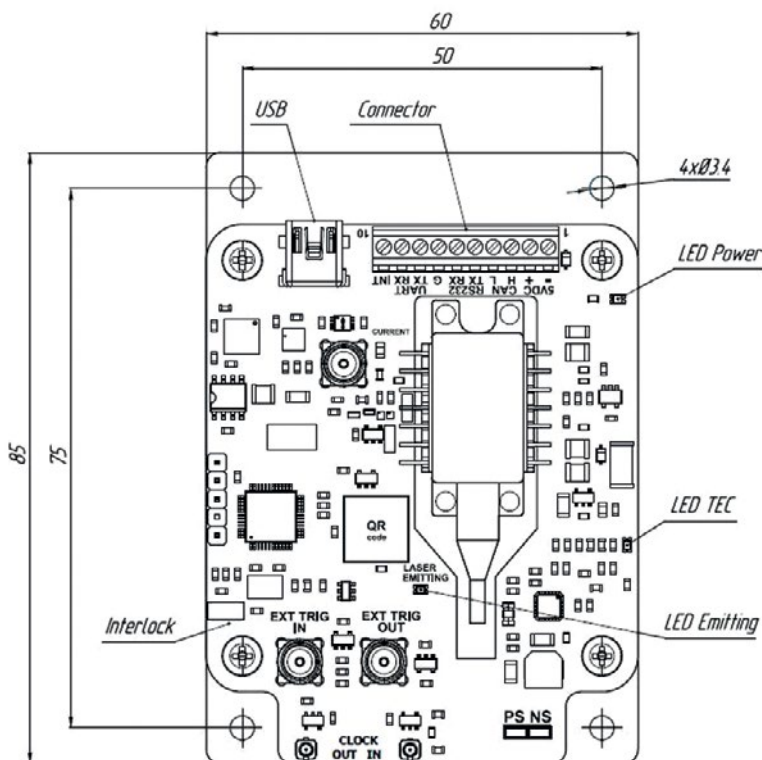
Nº	Description	Nº	Description
1	TEC Anode	8	n/c
2	Thermistor	9	n/c
3	Monitor PD Anode	10	LD Anode
4	Monitor PD Cathode	11	LD Cathode
5	Thermistor	12	n/c
6	n/c	13	n/c
7	n/c	14	TEC Cathode

10-pin Butterfly package



Nº	Description	Nº	Description
1	TEC (+)	6	Laser anode (+)
2	Thermistor	7	Laser cathode (-)
3	Monitor anode (-)	8	NC
4	Monitor cathode (+)	9	Package ground
5	Thermistor	10	TEC (-)

Dimensions and Connections



1	GND
2	+5VDC
3	CAN H
4	CAN L
5	RS232-TX
6	RS232-RX
7	GND
8	UART-TX
9	UART-RX
10	Interlock

Typical Performance Characteristics

