

## PLD-NS

# 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
- USB, RS-232, CAN, UART interfaces
- LabView and Python libraries
- On-Board TEC Controller
- 5Vdc Input Power
- Completed by Heatsink
- Compact Size 85 mm x 60 mm x 21 mm

## Description

The PLD-NS 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 circuitry requires a single 5 VDC power source. All other needed voltages are generated on the 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 (output current, pulse width, repetition frequency, temperature set) are controlled by computer interface.

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.

The PLD-NS has an external TTL-compatible input for repetition rate control from single shot up to 10 MHz.

The PLD-NS has an external output for synchronization with each current pulse.

*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
<b>INPUT</b>				
Voltage	4.8	5.0	5.2	VDC
Current	-	-	2	A
External trigger (50 Ω)	3.3	-	5	VDC
<b>OUTPUT</b>				
Current	-	-	2000	mA
Compliance Voltage	1	-	3	V
Pulse width**	1	-	100	ns
Pulse width step	-	0.2	-	ns
Repetition rate*	0.001	-	10000	kHz
Rise time**	50	-	500	ps
Fall time**	200	-	1000	ps
Sync OUT (50 Ω)	2.3	2.5	2.7	V
TEC current	-1.5	-	1.5	A
TEC Voltage	-	-	4	V
TEC Temperature Set	15	25	50	°C
<b>TEMPERATURE</b>				
Operating	+10	-	+50	°C
Storage	-20	-	+70	°C
Humidity, Non-Condensing	-	-	95	%
<b>CONNECTIONS</b>				
Power and interface connector	Terminal block (1-282834-0 TE connectivity)			
USB	Mini-USB, Type B (1734035-1 TE connectivity)			
<b>MECHANICAL</b>				
Size	85 × 60 × 21 mm			
Weight, not more	160 g			

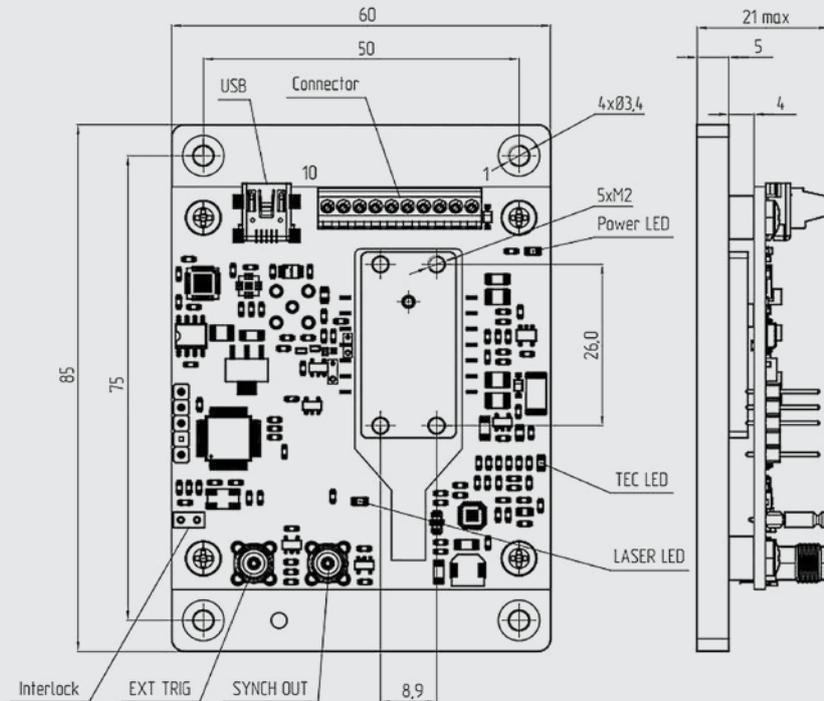
\* Maximum duty cycle is limited to 2 %

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

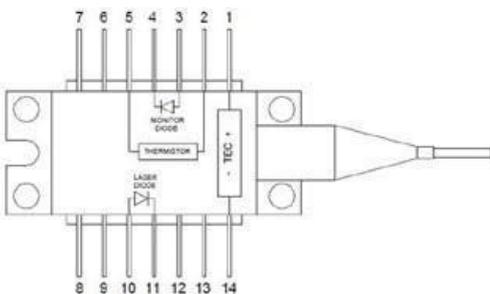
### Connector pinout

PIN	Function	Description
1	GND	Device ground
2	+5VDC	Power input
3	CANH	CAN bus high
4	CANL	CAN bus low
5	RS232 TX	RS232 port transmit
6	RS232 RX	RS232 port reception
7	GND	Device ground
8	UART TX	UART TX
9	UART RX	UART RX
10	INT	Interlock



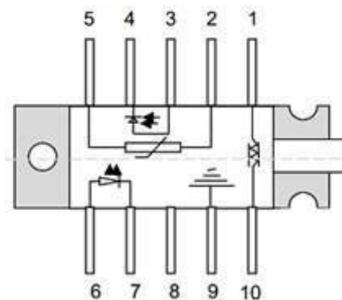
## Compatible Laser Pinout

### 14-pin Butterfly package



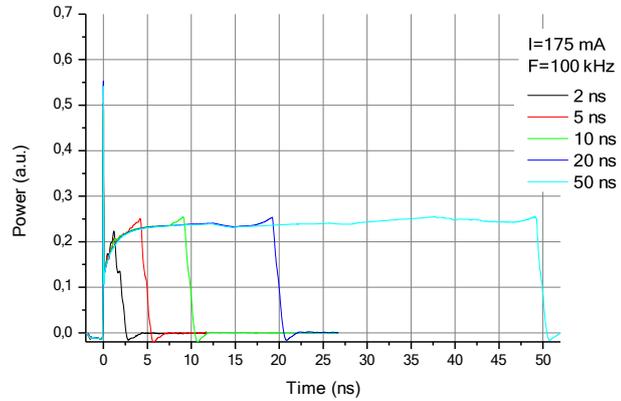
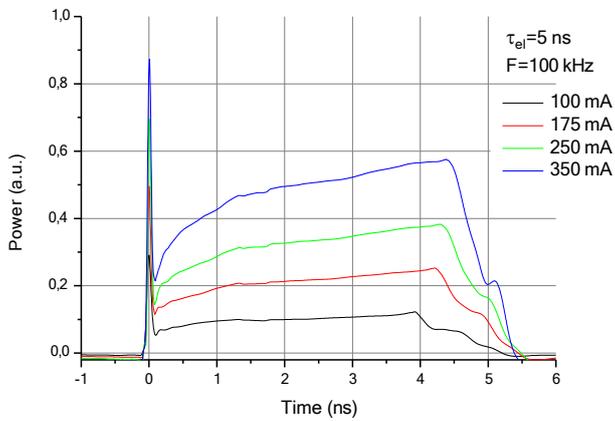
No	Description	No	Description
1	TEC Anode	8	n/c
2	Thermistor	9	n/c
3	Monitor PD Anode	10	LD Anode
4	Monitor PD Cathode	11	LD Cathode
5	Thermistor	12	n/c
6	n/c	13	n/c
7	n/c	14	TEC Cathode

### 10-pin Butterfly package

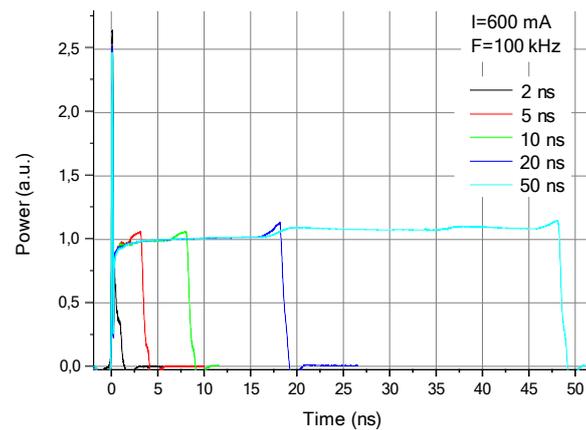
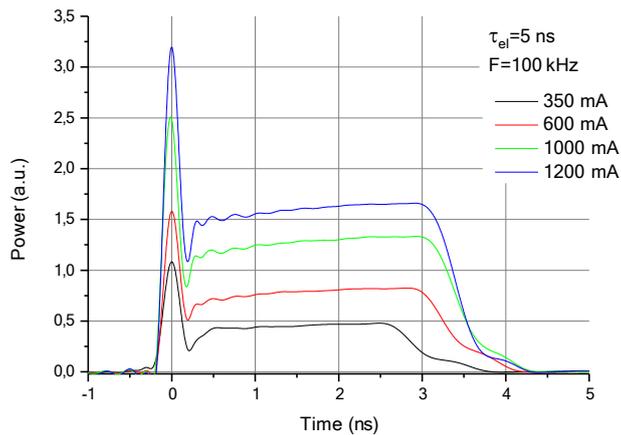


No	Description	No	Description
1	TEC (+)	6	Laser anode (+)
2	Thermistor	7	Laser cathode (-)
3	Monitor anode (-)	8	NC
4	Monitor cathode (+)	9	Package ground
5	Thermistor	10	TEC (-)

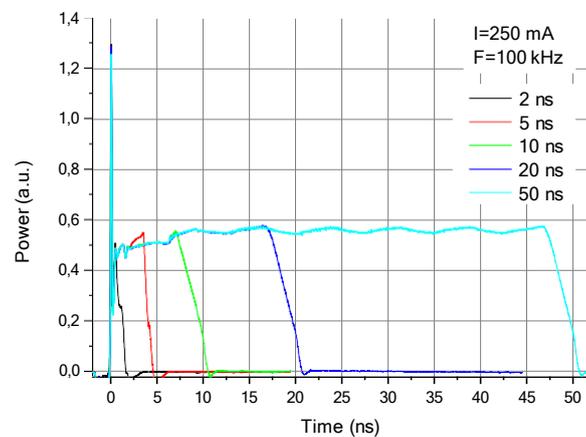
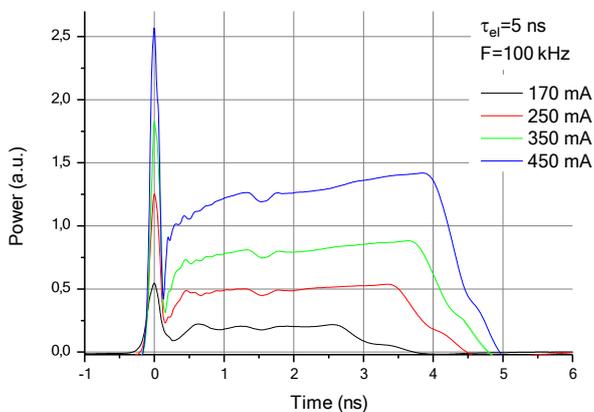
## Typical Performance Characteristics



DFB 1064 at current 0.1-0.35 A, 2 ns, 3 ns, 5 ns, 10 ns, 20 ns, 50 ns



FBG 1064 at current 0.35-1.2 A, 2 ns, 5 ns, 10 ns, 20 ns, 50 ns



FP 1030 at current 0.17-0.45 A, 2 ns, 5 ns, 10 ns, 20 ns, 50 ns