

PLD-PS

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
- Extra short 50 ps pulse width
- Repetition rate up to 30 MHz
- External trigger option
- USB, RS-232, CAN, UART interfaces
- LabView and Python libraries
- On-Board TEC Controller
- 5VDC Input Power
- Integrated heatsink
- Compact size 85 × 60 × 21 mm

Description

The PLD-PS is a compact short-pulse seed laser diode driver for powering 10/14-pin butterfly laser diode modules for applications, which require pulse widths about 50 ps. The pulse repetition frequency can be varied from 1 kHz to 30 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-PS (power, repetition frequency, temperature set point) are controlled by computer interface.

The PLD-PS has an external TTL-compatible input for repetition rate control from single shot up to 30 MHz.

The PLD-PS 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

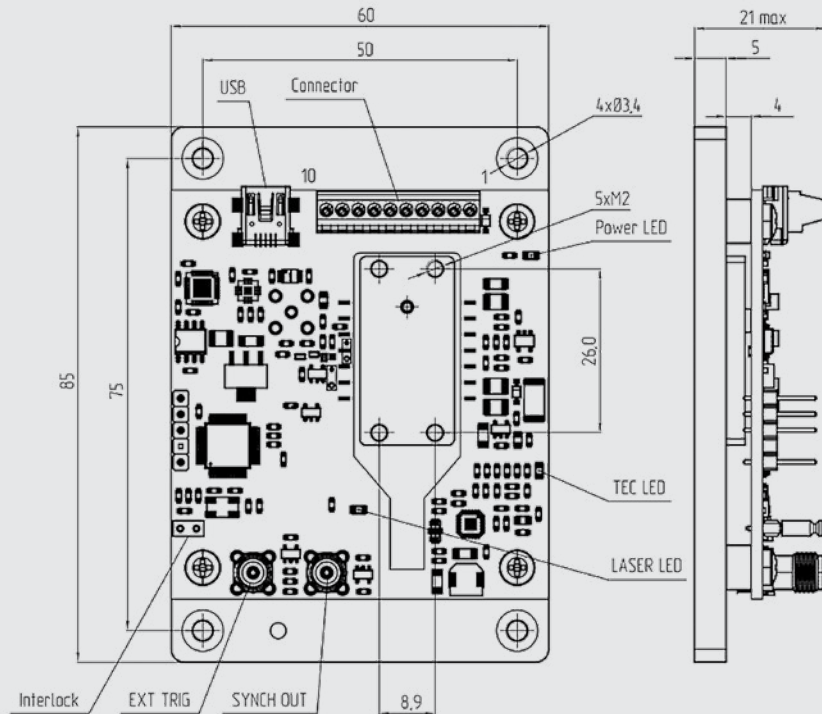
Parameter	Min.	Typ.	Max.	Units
INPUT				
Voltage	4.8	5.0	5.2	VDC
Current	-	-	0.6	A
External trigger (50 Ω impedance)	3.3	-	5	VDC
OUTPUT				
Current	-	-	2000	mA
Compliance Voltage	1	-	3	V
Pulse width*	40	50	150	ps
Repetition rate*	0.001	-	30	MHz
Rise time*	40	50	60	ps
Fall time*	40	50	100	ps
TEC current	-1.5	-	+1.5	A
TEC Voltage	1	-	4	V
TEC Temperature Set	15	25	45	$^{\circ}$ C
TEMPERATURE				
Operating	+10	-	+50	$^{\circ}$ C
Storage	-20	-	+70	$^{\circ}$ 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)			
MECHANICAL				
Size	85 \times 60 \times 21 mm			
Weight, not more	160 g			

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

Dimensions and Connections

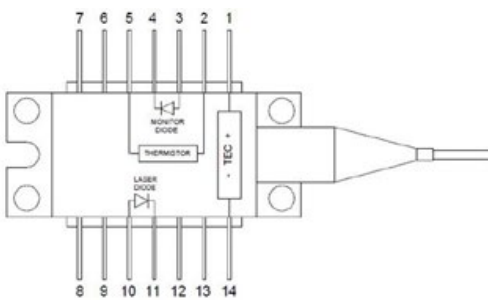
Connector pinout

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



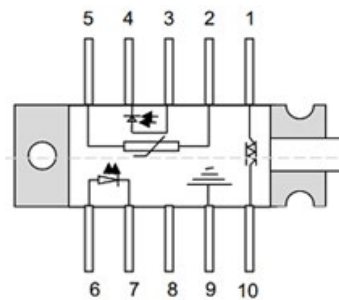
Compatible Laser Pinout

14-pin Butterfly package



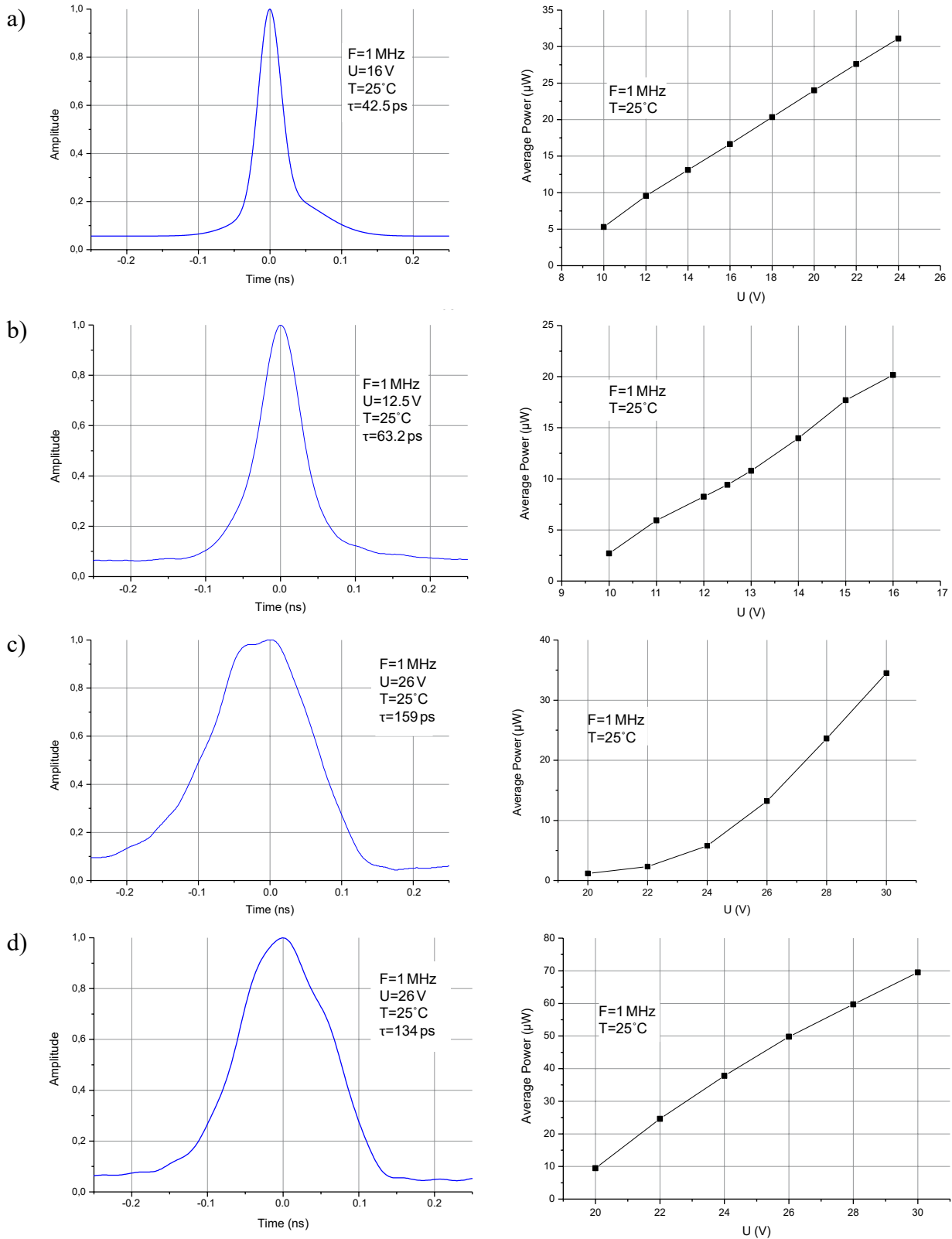
Nº	Description	Nº	Description
1	TEC Anode	8	n/c
2	Thermistor	9	n/c
3	Monitor PD Anode	10	LD Anode
4	Monitor PD Cathode	11	LD Cathode
5	Thermistor	12	n/c
6	n/c	13	n/c
7	n/c	14	TEC Cathode

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



Typical pulse form and dependence of average power on operation voltage for different types of laser diode

a) DFB 1064 nm, b) FBG 1550 nm, c) FBG 1064 nm, d) FP 1030 nm