

Pulsed Laser Diode Driver LSP-40

Description

The LSP-40 is a small and inexpensive driver for pulsed laser diodes (PLDs). The driver allows the user to test different PLDs under varying drive conditions easily and conveniently. The driver contains both the high voltage supply and suitable electronics necessary to switch the PLD drive current to generate short light pulses, encapsulated in a compact, shielded housing. Apart from two external resistors, which define the pulse width and drive current, all that is required is a +12 VDC supply and a trigger signal.

An optional evaluation board, equipped with two potentiometers for setting the pulse width and drive current, is also available.

Both LSP-40 and the optional evaluation board are ideal for use with any of Laser Components' pulsed laser diodes at 905 or 1550 nm.



LSP-40 with Evaluation Board

Features

- Drive current up to 40 A
- Variable pulse length 30 – 1000 ns
- Wavelength: 905 nm / 1550 nm*
- Optical peak power: up to 220 W*
- Straightforward operation
- Compact housing

* depending on the PLD used

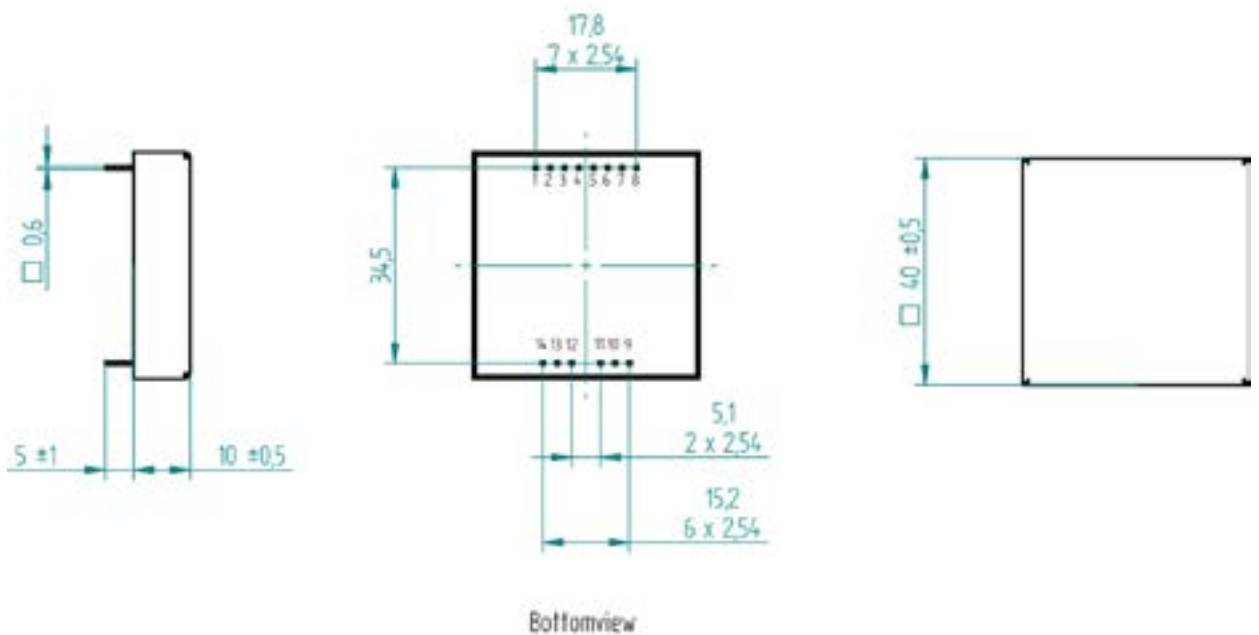
Applications

- Rangefinding
- Laser radar / LIDAR
- Burn-in racks
- Ceilometer
- Medical
- Optical trigger

Specifications for LSP-40

Drive current	0 – 40	A
Pulse length (@ 40 A)	30 – 150	ns
Pulse length (@ 12 A)	30 – 1000	ns
Trigger input	TTL ↑	-
Max. rep. rate	10	kHz
Package dimensions	40 x 40 x 10	mm
Operating voltage	+12	VDC
Operating temperature	-10 ... +85	°C

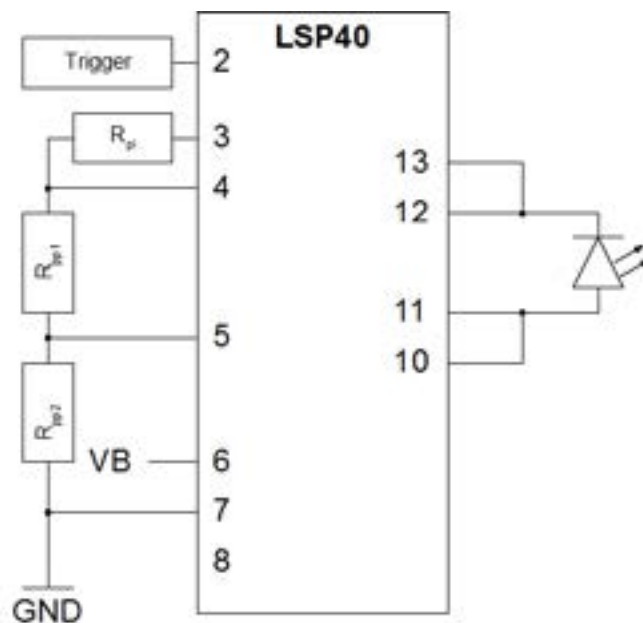
Package Drawing



PIN Configuration

Pin	Function	Comment
1	N.C.	Not connected
2	Trigger	Trigger input
3	PL	Resistor for pulse length setting
4	+5 V - Out	Output voltage +5 V
5	PP	Resistor for pulse power setting
6	VB	Operating voltage
7	GND	Ground
8	N.C.	Not connected
9	N.C.	Not connected
10	GND	Ground / PLD anode
11	GND	Ground / PLD anode
12	LDC	PLD cathode
13	LDC	PLD cathode
14	N.C.	Not connected

Application Example



Application example (page 3):**Pin 4:**

At pin 4 a reference voltage ($U_{Ref} = +5\text{ V}$) is displayed that is produced by the module. This reference voltage is provided in order to do without any additional external voltage supplies.

Pin 5:

Pin 5 is a control input in order to set the pulse power. By applying a voltage (U_{pp}) to this pin the PLD pulse current can be set. With a voltage of $+5\text{ V}$ the maximum possible current (ca. 40 A) is set, with lower voltages smaller than $+1\text{ V}$ the pulse current is 0 A . In between these two voltages the setting of the pulse current can be interpolated linearly. Fine adjustment is possible when the PLD is up and running.

In the shown example of a circuit the control voltage U_{pp} is set with the help of U_{Ref} and a simple voltage divider consisting of R_{pp1} and R_{pp2} . The following relation approximately applies:

$$U_{pp} = U_{Ref} \cdot \frac{R_{pp2}}{R_{pp1} + R_{pp2}};$$

$$R_{pp2} \geq 1\text{ k}\Omega$$

Pin 3:

At pin 3 the pulsewidth can be set by applying $+5\text{ V}$ over a resistor R_{PL} (it is recommended to use U_{Ref} here as well). For the pulsewidth the following relation approximately applies:

$$R_{pl} = 0,175 \left[\frac{\text{k}\Omega}{\text{ns}} \right] \cdot t_{puls} [\text{ns}]$$

Product Changes

LASER COMPONENTS reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application.

Ordering Information

Products can be ordered directly from LASER COMPONENTS or its representatives. For a complete listing of representatives, visit our website at www.lasercomponents.com

Custom designed products are available on request.

Laser Safety

Personal Hazard:

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 "Safety of laser products".

Handling Precautions:

Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload.



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