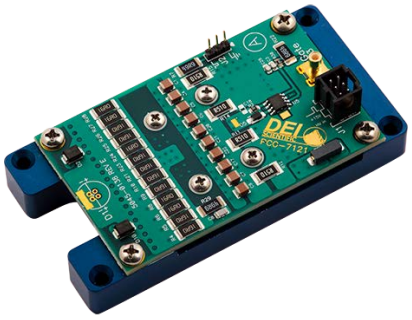
PCO-7121 Laser Diode Driver Module — Datasheet



Precision Pulse Control

The PCO-7121 is a compact and economical OEM pulsed-current laser diode driver module. It is designed to provide extremely fast high-current pulses for driving laser diodes in range finder, LIDAR, atmospheric communications and other applications requiring high-current nanosecond pulses. This module offers variable output current from 5 A to 50 A with pulse widths from 22 ns to 1 µs at frequencies up to 1 MHz.

Laser Diode Connection

Mounting pads are provided to mount the laser diode directly to the driver. The four-hole mounting pattern accepts TO-18, TO-5, TO-52, 5.6 mm, and 9 mm packages.

To facilitate various packages and mounting preferences, two solder pads at the end of the board accept various laser diode packages mounted on-axis to the driver. Alternately, low-inductance strip line cable can be used to connect the board to a remotely-located diode.

System Operation

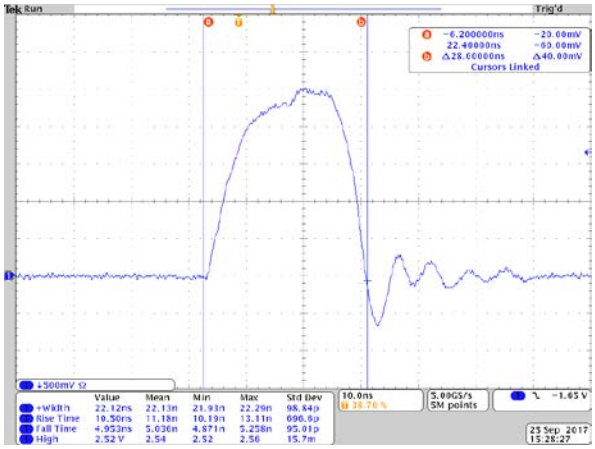
The DC high voltage and +15 VDC power supplies are connected via J1, a six-pin male header connector, using the supplied control cable. Pulse current depends on HV supply voltage over the range of 0 V to +95 V (maximum). Externally-generated pulses are fed to the gate input via either J1 or SMB connector. The width and repetition rate of the gate pulses directly set the timing of the output pulses.

A current monitor output is provided to observe the diode current in real time with an oscilloscope.

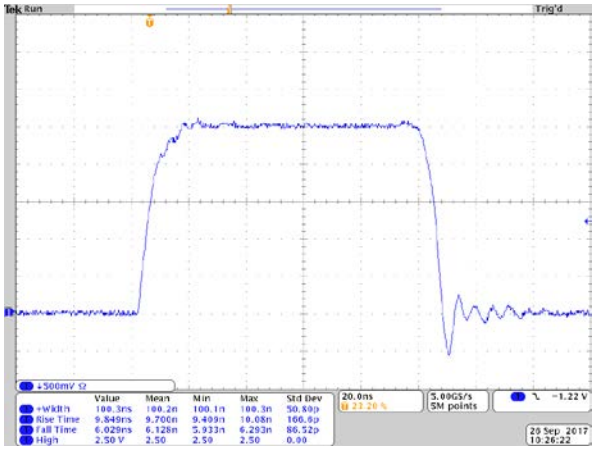
The driver is supplied mounted on a ½" thick aluminum heat spreader to provide the cooling needed and to simplify mounting or installation of the driver.

Ordering Information

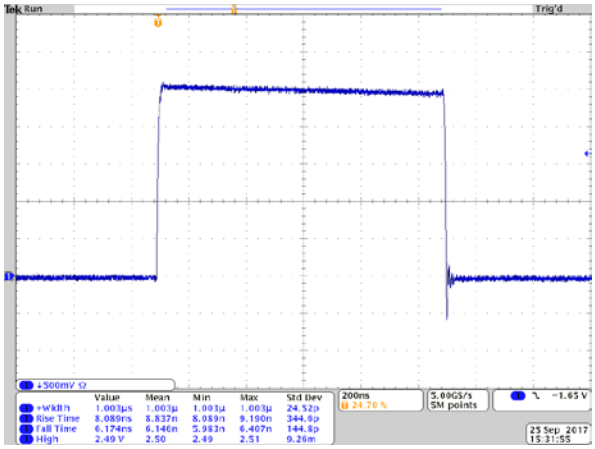
PCO-7121	Module
Included Control Cable	6100-0137
Optional Current Monitor Cable	PCA-9145



PCO-7121 (50 A, 22 ns, shorted load, inverted waveform)



PCO-7121 (50 A, 100 ns, shorted load, inverted waveform)



PCO-7121 (50 A, 1000 ns, shorted load, inverted waveform)

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Pulse Amplitude

Output current range	5 A to 50 A
Pulse width	22 ns to 1000 ns
Rise time	≤ 12 ns *2
Fall time	≤ 10 ns
Frequency	Single shot to 1 MHz
Throughput delay	28 ns typical
Housekeeping power required	15 V ± 250 mV, 80 mA
High voltage input voltage	0 V to 95 VDC
High voltage input power	≤ 12 W (typical) *1

Gate

Gate input	+5 V
Gate pulse width	10 ns to 1000 ns
Termination impedance	50 Ω
Gate Connector	SMB or J1 Pin 2

Input connector

Gate input	J1 Pin 2
+15 VDC input	J1 Pin 4
High voltage input	J1 Pin 6
Return	J1 Pins 1, 3, 5

Current monitor

Current monitor scaling	20 A/V typical
Current monitor termination	50 Ω
Current monitor +	J2 Pin 1
Current monitor –	J2 Pin 3

Output connector D3

Four-hole mounting pattern accepts TO-18, TO-5, TO-52, 5.6 mm, and 9 mm packages

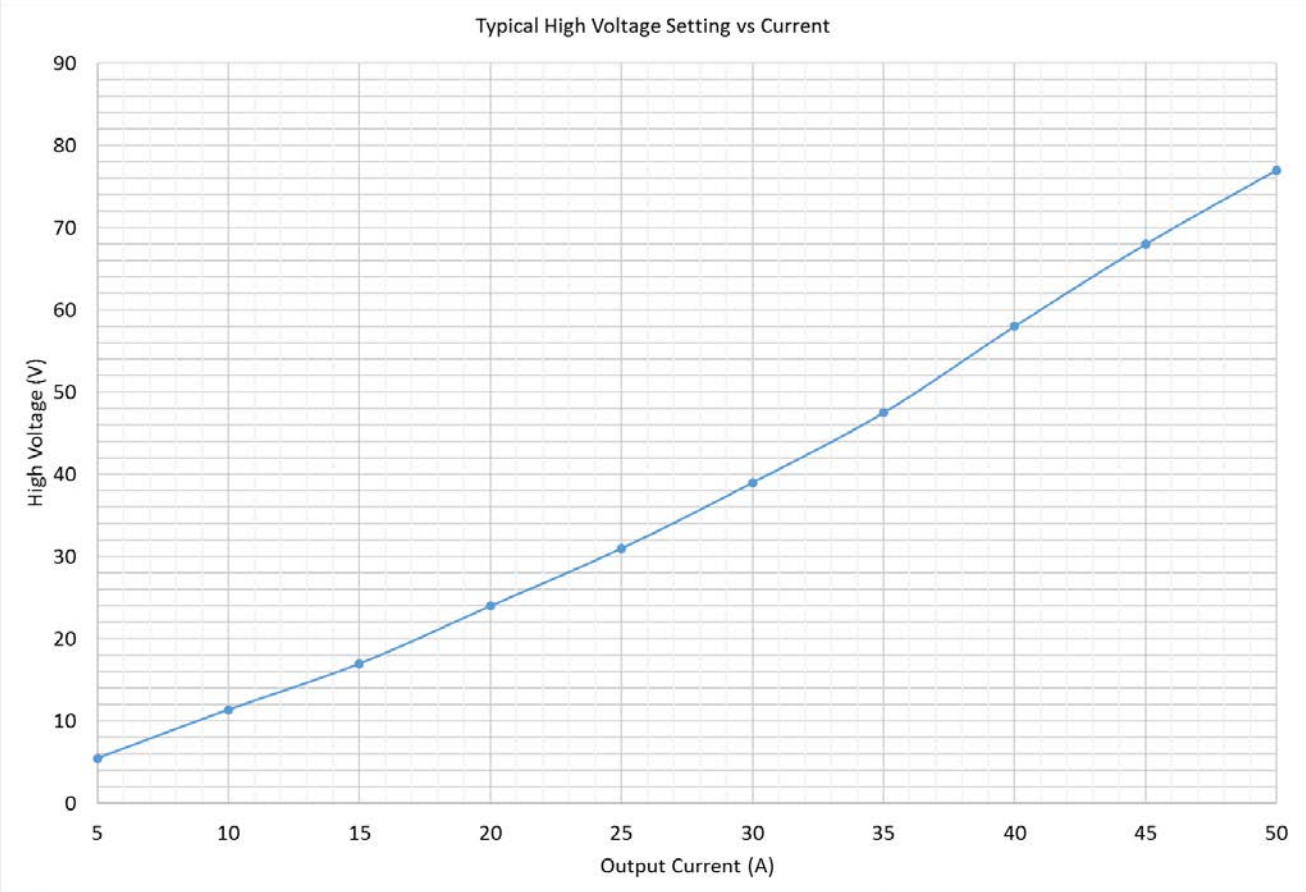
General

Size (LxWxH)	101.6 mm x 50.8 mm x 27 mm
Weight (approximate)	100 g
Mounting hole spacing	92.1 mm x 43.2 mm
Hole diameter	3.8 mm
Operating Temperature	0 °C to 35 °C
Cooling	Air cooled

Notes

*1 Driving a shorted load at maximum SOA level.
*2 For output currents above 20 A.

All specifications are measured after the module is thermally stabilized (30 minutes), driving a shorted load and using the current monitor connection.
Specifications are subject to change without notice.
Warranty: One year parts and labor on defects in materials and workmanship.



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CAUTION:
Permanent damage will occur if the instrument is operated above the appropriate SOA line in the graph below.