

Precision Pulse Control

The PCO-7114-50-4 is a compact and economical pulsed-current OEM laser diode driver module that outputs up to 50 A at a fixed pulse width of ≤ 4 ns. It is designed to provide extremely fast high-current pulses for driving laser diodes in range finder, LIDAR (Light Imaging, Detection and Ranging), ADAS (Advanced Driver Assistance Systems), atmospheric communications and other applications requiring high-current nanosecond pulses.

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 for connection to a remotely located diode.

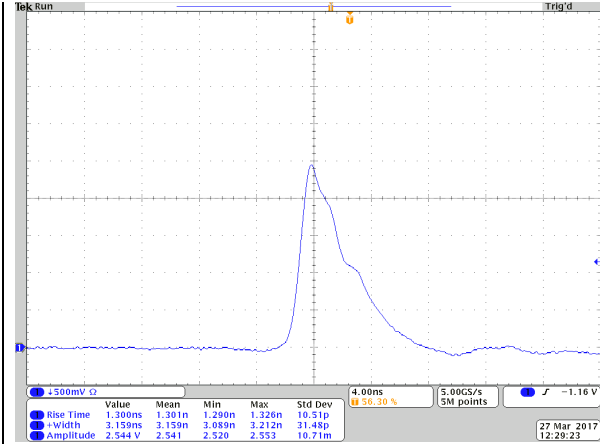
System Operation

Output current is controlled with the voltage at the high-voltage input. The output frequency is the same as the pulses fed to the trigger input.

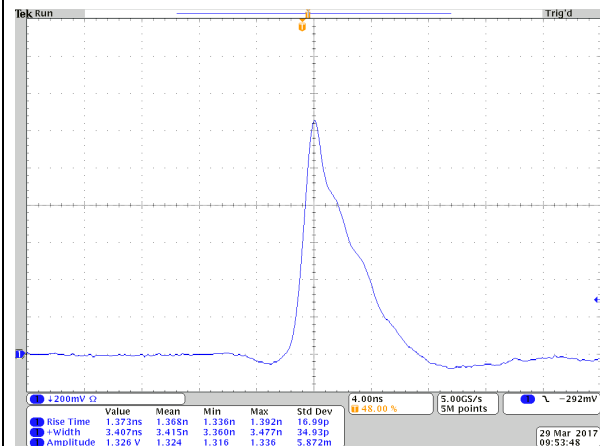
A current monitor output is provided to observe the laser diode current in real time with an oscilloscope.

Ordering Information

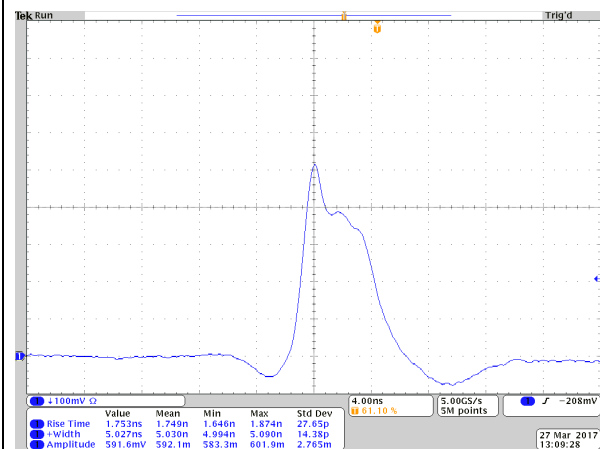
PCO-7114-50-4	50 A, 4 ns
Included Control Cable	PCA-9190
Optional Current Monitor Cable	PCA-9140
Optional Micro-Strip Line Output Cable	1820-0030



PCO-7114-50-4 (50.8 A, 3.16 ns, 40 kHz repetition rate, shorted load, inverted current monitor)



PCO-7114-50-4 (26.5 A, 3.41 ns, 190 kHz repetition rate, shorted load, inverted current monitor)



PCO-7114-50-4 (11.83 A, 5.03 ns, 430 kHz repetition rate, shorted load, inverted current monitor)

PCO-7114-50-4 Laser Diode Driver Module-Datasheet



PCO-7114-50-4

Output current range	5 A to 50 A
Pulse width	20 A to 50 A, ≤ 4 ns 5 A to 19.99 A, ≤ 5 ns 0 A to 4.99 A, ≤ 6 ns
Rise time	2 ns ± 1 ns
Frequency, Max at 50 A, (See SOA graphs below)	Single Shot to 650 kHz
Jitter	≤ 500 ps
Throughput delay	37 ns typical
Housekeeping power required	24 V \pm 250 mV, 10 mA
Maximum high voltage input	180 V DC, 25 mA, 4.5 W
Compliance voltage	5 V

Trigger

Trigger input	+5 V
Trigger pulse width	50 ns to 100 ns
Termination impedance	50 Ω

Input connector

24 V input	J1 Pin 2
Gate input	J1 Pin 4
High voltage input	J1 Pin 10
24 V, HV, and Gate returns	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

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

General

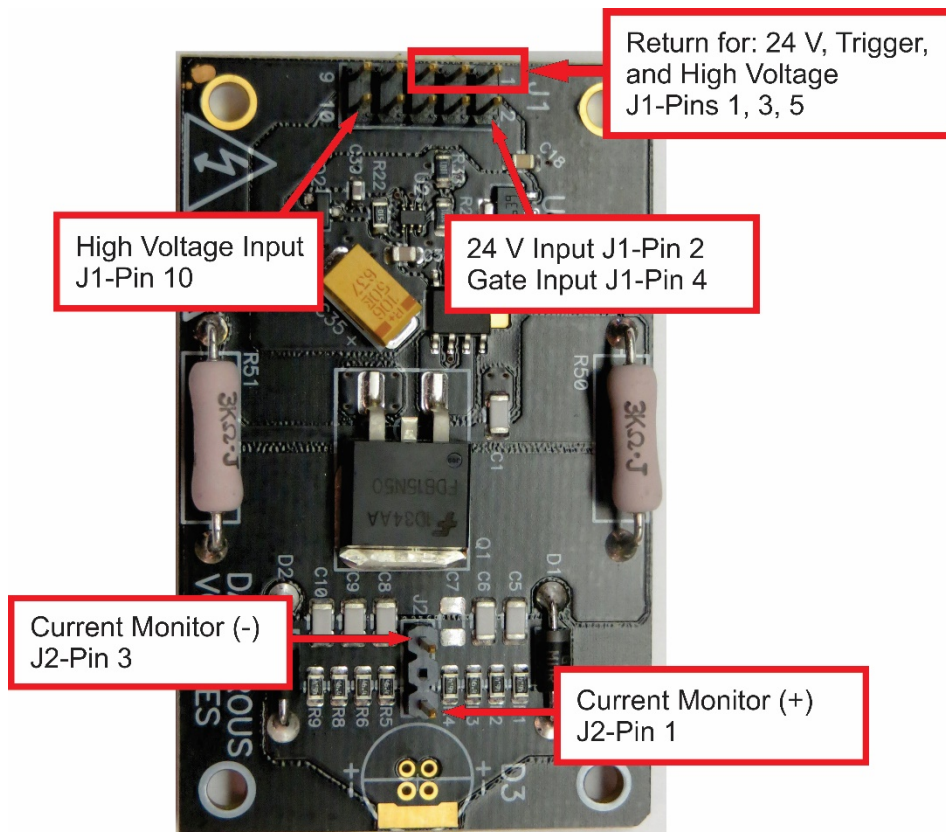
Size (LxWxH)	6.25 cm x 3.83 cm x 1.0 cm
Weight	15 g (approx.)
Operating Temperature	0 $^{\circ}$ C to 40 $^{\circ}$ C
Cooling	Air cooled

Notes

Warranty: One year parts and labor on defects in materials and workmanship.

All specifications are measured when driving a shorted load using the current monitor connection.

Specifications are subject to change without notice.



Safe operating area graphs; stay below the line for proper operation.

