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

**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 °C to 40 °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.

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**Output current range**
5 A to 50 A
20 A to 50 A, ≤ 4 ns
5 A to 19.99 A, ≤ 5 ns
0 A to 4.99 A, ≤ 6 ns
2 ns ±1 ns

**Pulse width**
Single Shot to 650 kHz
≤ 500 ps
37 ns typical
24 V ± 250 mV, 10 mA
180 V DC, 25 mA, 4.5 W
5 V

**Rise time**
2 ns ±1 ns

**Frequency, Max at 50 A**
(See SOA graphs below)

**Jitter**

**Throughput delay**
37 ns typical

**Maximum high voltage input**
24 V, 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

**Return for:** 24 V, Trigger, and High Voltage J1-Pins 1, 3, 5

**High Voltage Input** J1-Pin 10

**24 V Input** J1-Pin 2
**Gate Input** J1-Pin 4

**Current Monitor (+)** J2-Pin 1
**Current Monitor (-)** J2-Pin 3
Safe operating area graphs; stay below the line for proper operation.

- Frequency vs. Current
  - Measured in open air (no fan or box)

- High Voltage Setting vs. Current
  - (typical)