



## Precision Pulse Control

The PCO-7115-5-1 is a compact and economical pulsed-current OEM laser diode driver module with a current range of 0.5 A to 5 A with a fixed pulse width of 1 ns typical. It is designed to provide extremely fast 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 stripline cable can be used for connection to a remotely-located diode.

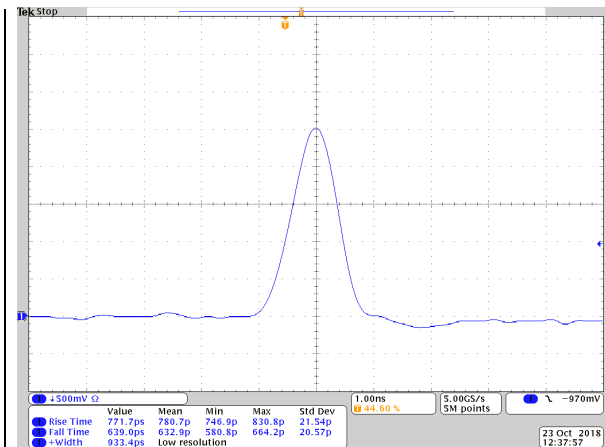
## System Operation

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.

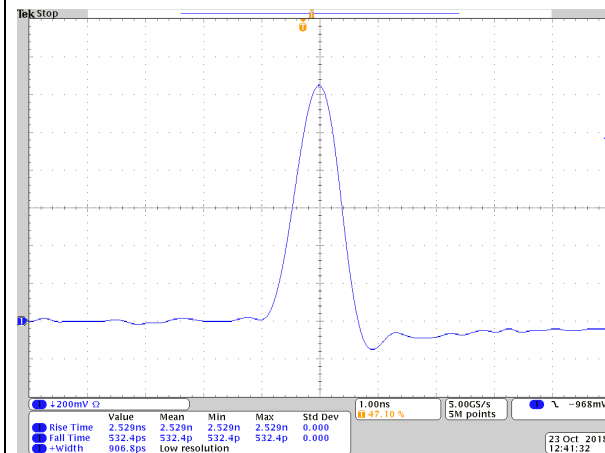
A current monitor output is provided to observe the laser diode current in real time with an oscilloscope.

## Ordering Information

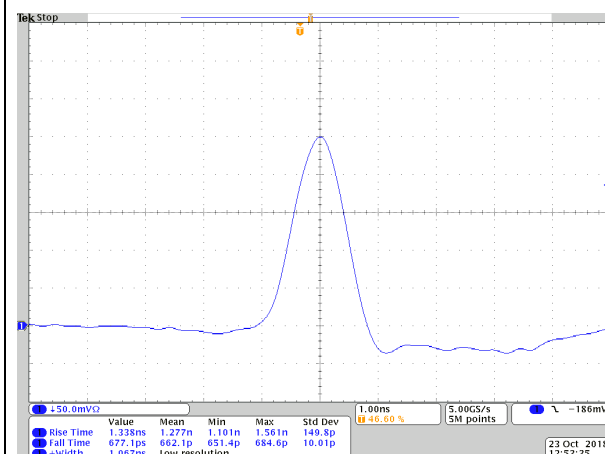
PCO-7115-5-1	5 A, 1 ns
Included Control Cable	PCA-9190
Optional Current Monitor Cable	PCA-9245
Optional Micro Stripline Output Cable	1820-0030



PCO-7115-5-1 (5.0 A, 0.933 ns, 1 MHz, shorted load, inverted current monitor)



PCO-7115-5-1 (2.5 A, 0.906 ns, 1 MHz, shorted load, inverted current monitor)



PCO-7115-5-1 (0.5 A, 1.067 ns, 1 MHz, shorted load, inverted current monitor)

**PCO-7115-5-1**

Output current range	0.5 A to 5.0 A
Pulse width	1 ns typical, 0.5 A to 5.0 A
Rise time	1 ns $\pm$ 1 ns
Frequency	Single shot to 1 MHz
Throughput delay	37 ns typical
Housekeeping power required	24 V $\pm$ 250 mV, 60 mA
Maximum high voltage input	190 V DC, 20 mA, 3.8 W
Compliance voltage	5 V

**Trigger**

Trigger input	0 to +5 V
Trigger pulse width	50 ns to 100 ns
Termination impedance	50 $\Omega$

**Input connector**

Molex 10 position connector, 0901420010	
24 V input	J1 Pin 2
Trigger input	J1 Pin 4
High voltage input	J1 Pin 10
Common returns	J1 Pins 1, 3, 5

**Current monitor**

SMB connection, use 50 $\Omega$ impedance	
Current monitor scaling	2 A/V typical
Current monitor termination	50 $\Omega$
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)	6.35 cm x 3.83 cm x 1.0 cm
(Height with the mating connector: 2.15 cm)	
Weight	15 g (approx.)
Operating Temperature	0 °C to 40 °C
Cooling	Air cooled

**Notes**

All specifications were measured in a free-air environment with an ambient temperature of 25°C. Since resistors R1 and R2 create an unwanted worst-case heat source of about 3.7 W, we recommend air cooling the PC board with a minimum 17.66 CFM airflow source. The exhaust air should ideally be located behind R1 and R2 such that the hot airflow exits directly and does not traverse across the module. This additional cooling is especially recommended when operating above 3 A with a frequency of greater than 600 kHz and/or if this module is operated in a confined area where heat is likely to build up. In general, the user should allow a 15 minute warm-up period to obtain a more stable output. Stability can be greatly improved by adding an airflow cooling source as described above.

All electrical measurements were taken via the current monitor connection while driving a shorted load.

Specifications are subject to change without notice.

