

Adjustable Constant Current LASER Diode/LED driver

I was testing couple of low-cost laser diodes comes from china and was wondering those diodes doesn't have any protection/driver circuitry, these diodes has simple series resistor for current control which is not a good idea. Laser diodes are harmful and should have some sort of constant current circuit as basic protection for laser diode. As result I bult this circuit which provides highly accurate current control. The module is a great tool to drive low cost laser diodes with superb accuracy. This circuit can drive diode starting from 0 mA to 115mA, usually these cheap diodes required 30mA current. The project has onboard multi-turn potentiometer to adjust the output current with great accuracy. It is advisable to turn the trim-pot to 0 level and then hook-up the laser diode.

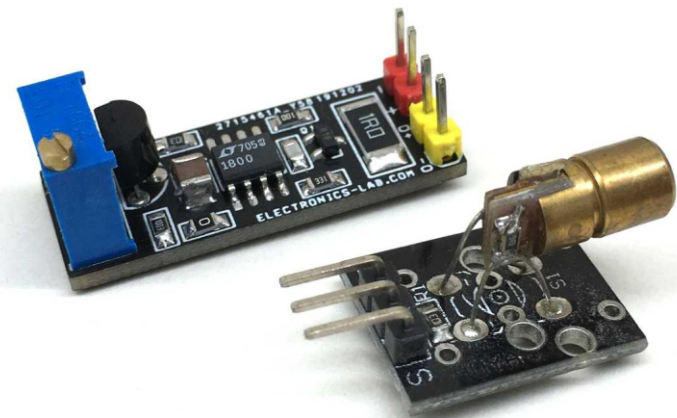
Testing diode with this circuit is very easy, first step set the trim-pot to 0 level (fully turned CCW) , power the board with 5V DC, check the voltage on centre pin of trim-pot it should be 0 Volt, then connect the laser diode with current meter in series, slowly turn the trim-pot Clockwise set the current as per requirement. Cheap laser diodes take approx. 30mA current.

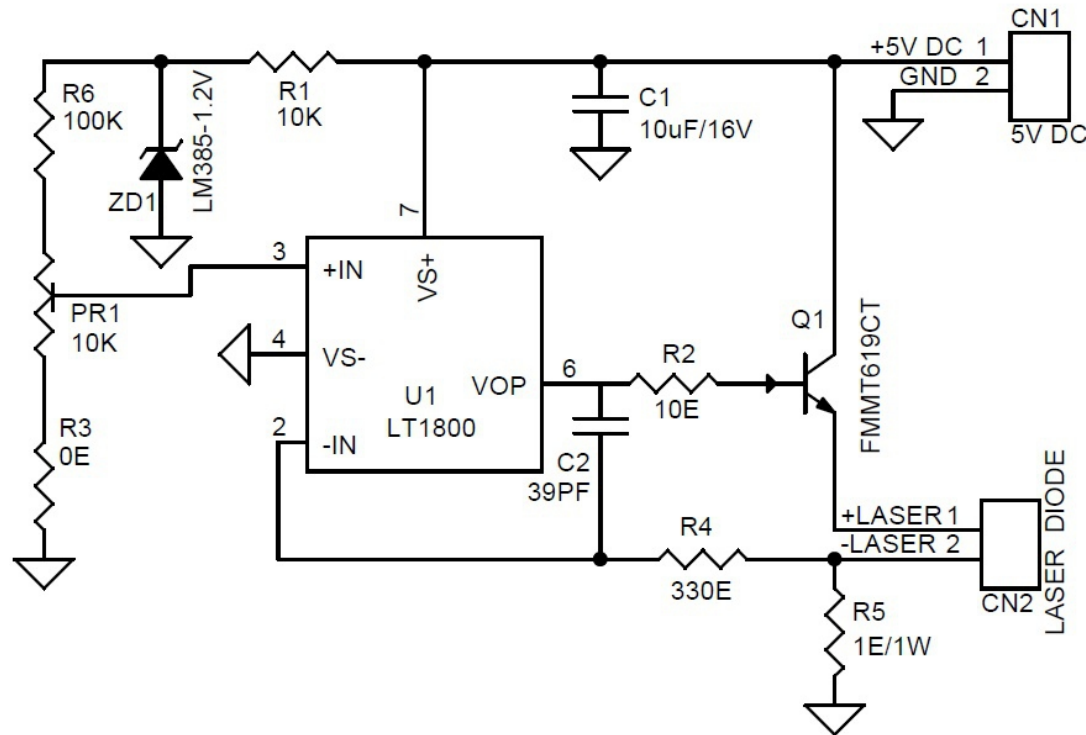
The driver also can be used to drive LEDs, Operating voltage of this circuit is 5V DC and maximum load 115mA. Project built using LT1800 op-amp.

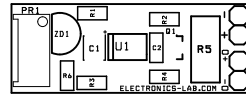
The LT[®]1800 is a low power, high speed rail-to-rail input and output operational amplifier with excellent DC performance. The LT1800 features reduced supply current, lower input offset voltage, lower input bias current and higher DC gain than other devices with comparable bandwidth. The LT1800 has an input range that includes both supply rails and an output that swings within 20mV of either supply rail to maximize the signal dynamic range in low supply applications. The LT1800 maintains its performance for supplies from 2.3V to 12.6V and is specified at 3V, 5V and $\pm 5V$ supplies. The inputs can be driven beyond the supplies without damage or phase reversal of the output.

Features

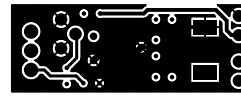
- Supply 5V DC
- Load Capacity 0mA to 115mA







SILK SCREEN TOP



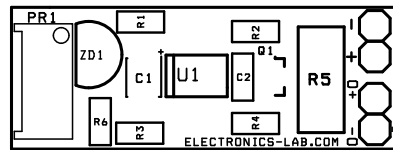
BOTTOM LAYER



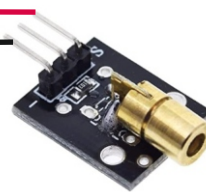
TOP LAYER

PCB DIMENSIONS 31.75MM X 11.75MM

CURRENT
ADJUST POT



GND
5V DC



SR.	QNTY.	REF.	DESC.
1	1	CN1	2 PIN MALE HEADER 2.54MM
2	1	CN2	2 PIN MALE HEADER 2.54MM
3	1	C1	10uF/16V SMD 1210
4	1	C2	39PF/50V SMD 0805
5	2	PR1	10K VERTICAL TRIMPOT
6	1	Q1	FMMT619CT SMD SOT23
7	1	R2	10E SMD 0805
8	1	R3	0E SMD 0805
9	1	R4	330E SMD 0805
10	1	R5	1E/1W SMD 2512
11	1	R6	100K SMD 0805
12	1	U1	LT1800 SO8
13	1	ZD1	LM385-1.2V TO92
14	1	R1	10K SMD 0805