|  |  |  |  |
| --- | --- | --- | --- |
| ***Quick and dirty DDL Laser Driver***  Parts Required:   * 1 - LM317 Adjustable Voltage Regulator * 1 - 10uF capacitor\* * 1 - 1n4001 diode\*\* * 1 - 100 ohm variable resistor * x - xxx ohm resistors (Calculate below)   To calculate the fixed resistor values:   1. Find the datasheet for your laser diode and locate the following:    1. Operating Current (Max current) - This is 'I' 2. Use the equation V = I\*R (Ohms law) 3. We need to find R so... R = V/I 4. The LM317 reference voltage is *always* 1.25v - This is 'R' 5. Plug the values into the equation and calculate.  - The number you get will be in kOhms, we need ohms 6. Multiply the result you from above by 1000. This is the resistor value you will need. 7. If you don't have the resistor size needed the resistors can be wired in **parallel** to **decrease** the value or in **series** to **increase** the values. The equations used to calculate these are:    1. *Series:*  RTOTAL = R1 + R2 + R3 + ...    2. *Parallel:*  1 / RTOTAL = (1 / R1) + (1 / R2) + (1 / R3) + ...   To calculate the necessary input voltage:  Add the LED operating voltage from the data sheet to 3v (for the regulator) and this is the power required to operate the laser. If running on battery add another 1.2v.  Now that you have all of your parts:  Simply follow the schematic to build the constant current (DDL) laser driver  C:\Users\Braden\Desktop\schematic2.png | |  |  | | --- | --- | | ***Quick and dirty DDL Laser Driver***  Parts Required:   * 1 - LM317 Adjustable Voltage Regulator * 1 - 10uF capacitor\* * 1 - 1n4001 diode\*\* * 1 - 100 ohm variable resistor * x - xxx ohm resistors (Calculate below)   To calculate the fixed resistor values:   1. Find the datasheet for your laser diode and locate the following:    1. Operating Current (Max current) - This is 'I' 2. Use the equation V = I\*R (Ohms law) 3. We need to find R so... R = V/I 4. The LM317 reference voltage is *always* 1.25v - This is 'R' 5. Plug the values into the equation and calculate.  - The number you get will be in kOhms, we need ohms 6. Multiply the result you from above by 1000. This is the resistor value you will need. 7. If you don't have the resistor size needed the resistors can be wired in **parallel** to **decrease** the value or in **series** to **increase** the values. The equations used to calculate these are:    1. *Series:*  RTOTAL = R1 + R2 + R3 + ...    2. *Parallel:*  1 / RTOTAL = (1 / R1) + (1 / R2) + (1 / R3) + ...   To calculate the necessary input voltage:  Add the LED operating voltage from the data sheet to 3v (for the regulator) and this is the power required to operate the laser. If running on battery add another 1.2v.  Now that you have all of your parts:  Simply follow the schematic to build the constant current (DDL) laser driver  C:\Users\Braden\Desktop\schematic2.png |  | |

*\* Capacitor acts as a voltage filter to smooth ripple, needed in the case \* Capacitor acts as a voltage filter to smooth ripple, needed in the case  
 of an unregulated power supply being used such as a "wall wart". of an unregulated power supply being used such as a "wall wart".  
\*\* This diode provides protection to the laser in the event that the power \*\* This diode provides protection to the laser in the event that the power  
 supply is hooked up backwards. If it doesn't turn on, this is likely why. supply is hooked up backwards. If it doesn't turn on, this is likely why.*