

# ***Voltage Regulator***

## ***Intro***

→ *So, in this video, we will see a Voltage Regulator following the four-step process on which I have already created a video, so let's start.*

## ***Voltage Regulator***

→ *The Voltage Regulator will convert 9v to 12v to 5v. The one series which are going to use is called "IC7805" here 78 is the common term and the "xx" in the series name "78xx" will indicate the voltage it can shift.*

→ *It has three pins the first pin is for the input the second pin is Ground and the third pin is for the output.*

## ***Real-Time Applications***

- *Mobile Phone Chargers*
- *Laptop Chargers*
- *UPS Inverter Battery*

## ***Online Circuit Simulation***

→ *Let's open our Tinker CAD, create a new project, and then simply drag some basic components like Bread Board, a 9V Battery, a LED, and a resistor. Now I will drag a 5V Regulator the code for which is (LM7805) which is a Voltage Regulator only.*

→ *Let's do the connections so first of all, we connect the LM7805 to any random strip of the Bread Board then we will connect the positive terminal of the battery to the power rails, and then connect the positive power rail to the Regulator's Input, then we will connect the negative terminal of the battery to the negative power rail. Now we will connect the negative power rail to the ground of the LM7805. Now we will connect the 1<sup>st</sup> Terminal of the resistor to the output of the LM7805. Now we will connect the positive pin of the LED to the 2nd Terminal of the resistor then we will connect the negative power rail to the negative pin of the LED. Then we will click on "Run Simulation" and push the button and our LED should be glowing perfectly.*

## ***Practical Experimentation***

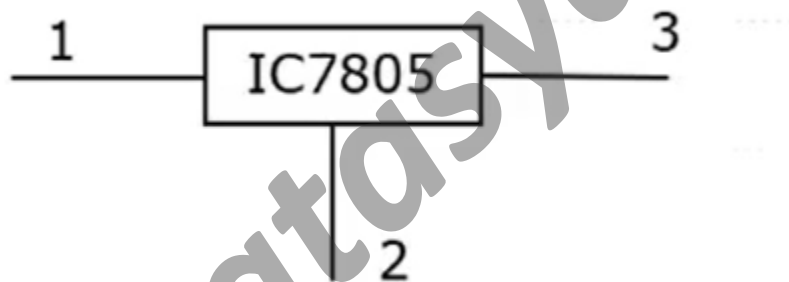
→ ***Components Required:***

- ***A Breadboard***
- ***A 9v Battery***
- ***Some Jumper Wires***
- ***A +5V Voltage Regulator (LM7805)***
- ***A Resistor***
- ***A LED***

→ Let's do the connections so first of all, we connect the LM7805 to any random strip of the Bread Board then we will connect the positive terminal of the battery to the power rails, and then connect the positive power rail to the Regulator's Input, then we will connect the negative terminal of the battery to the negative power rail. Now we will connect the negative power rail to the ground of the LM7805. Now we will connect the 1st Terminal of the resistor to the output of the LM7805. Now we will connect the positive pin of the LED to the 2nd Terminal of the resistor then we will connect the negative power rail to the negative pin of the LED, and our LED should be glowing perfectly.

### **Circuit Diagram**

→ The Circuit Diagram for Voltage Regulator is:



*IC7805 is the name of the +5V Voltage Regulator.*

*Different Voltage Regulators have Different names.*

→ First, we will draw the symbol of a battery, then the symbol of a LED, Then we will draw the symbol of the resistor, we will draw the symbol of the LM7805 because we used that specific Voltage

*Regulator, then we will connect the negative line of the battery to the LED's negative pin, then we will connect the positive line of the battery to the input of the LM7805, Then we will connect the negative line of the battery to the Ground of LM7805, then we will connect the output of the LM7805 to the 1st Terminal of the resistor and 2nd Terminal of the resistor to the Positive line of the LED, and your diagram is completed.*

## **Outro**

→ *That's all for this video and I will see you in this next one until then  
BYE BYE!!*