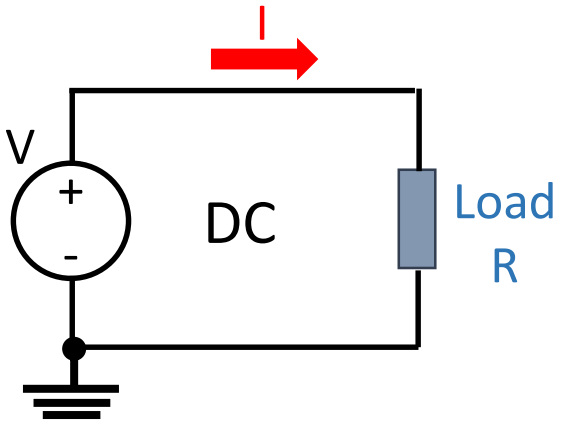
ELEC1100 - Tutorial 2

Diodes & DC Regulation

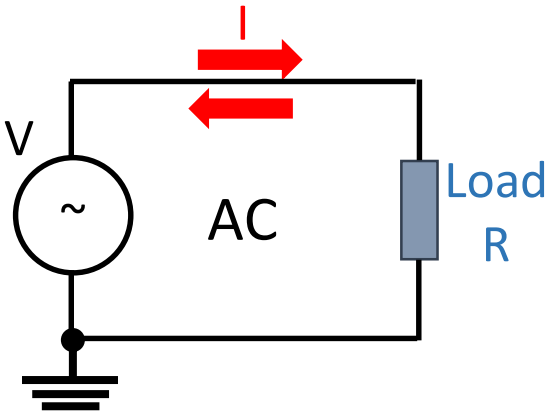
Introduction to Lab#02

Review

Power Sources in Physical Lab

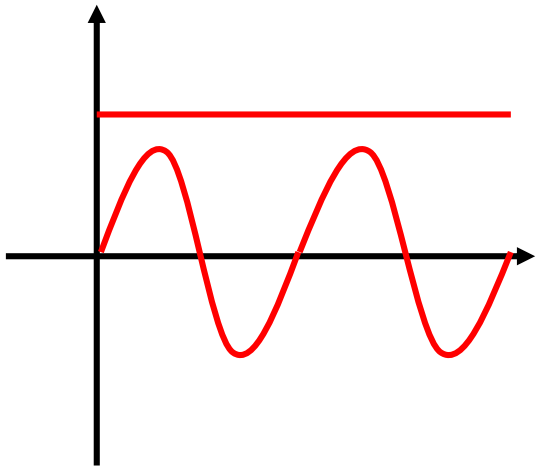


DC power supply



Signal generator

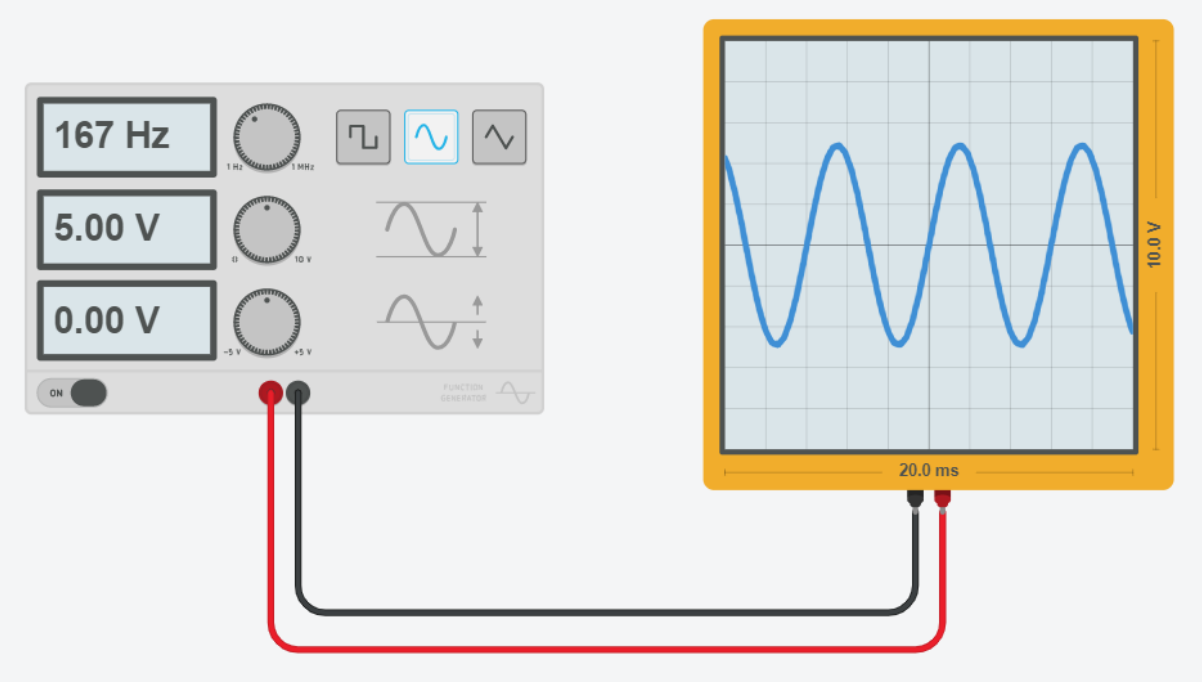
Draw waveforms



Review

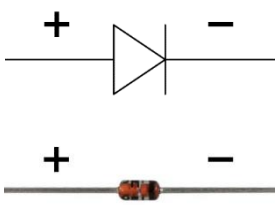
- Generate a Sine wave in Tinkercad

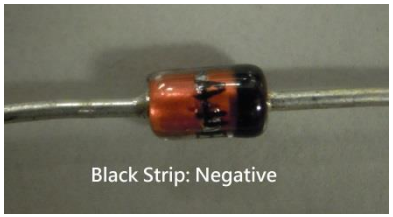
[Lab#02_S1]



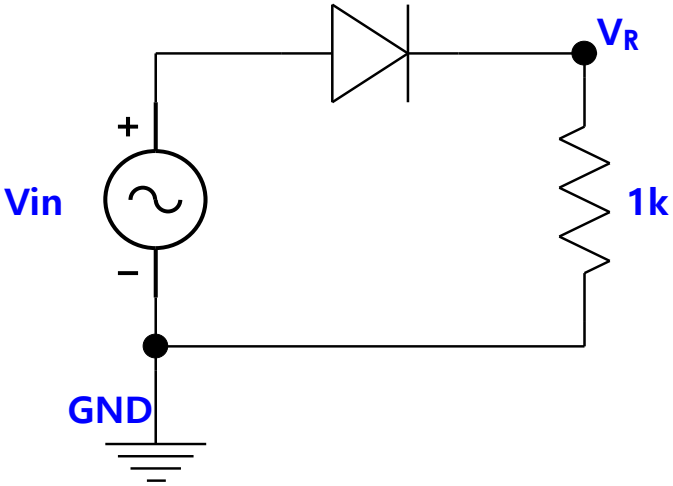
Diode Circuit

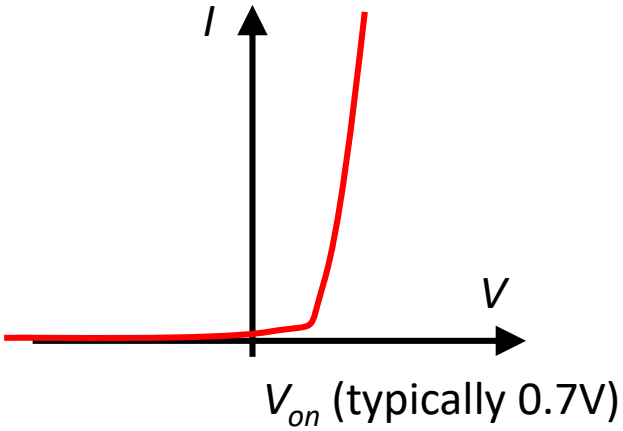
- Regular diode



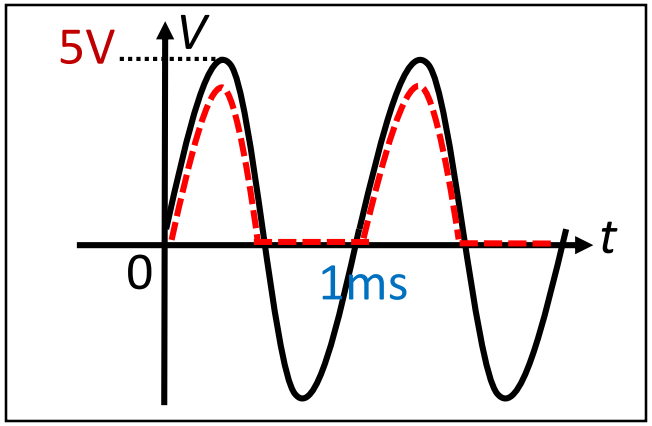


Black Strip is Negative



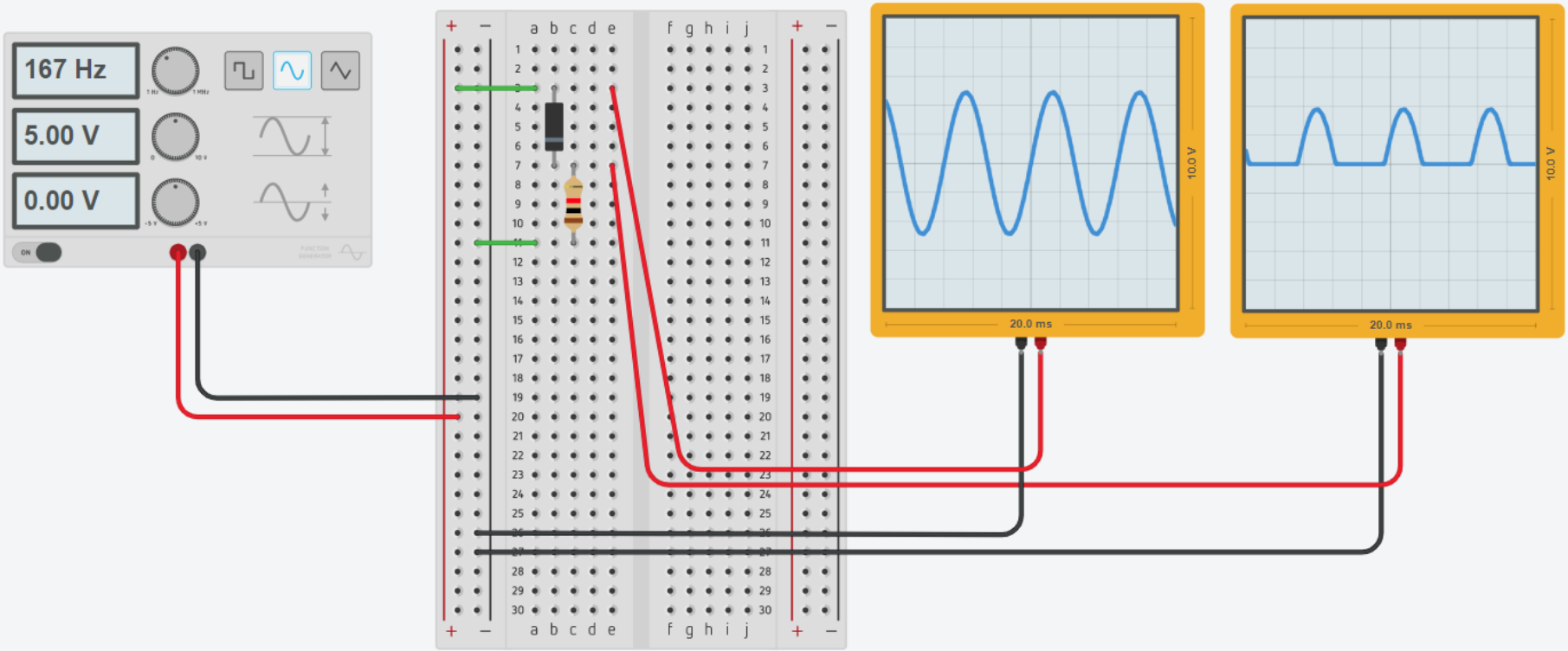


10Vpp, 1kHz



Diode Circuit in Tinkercad

[Lab#02_S2]

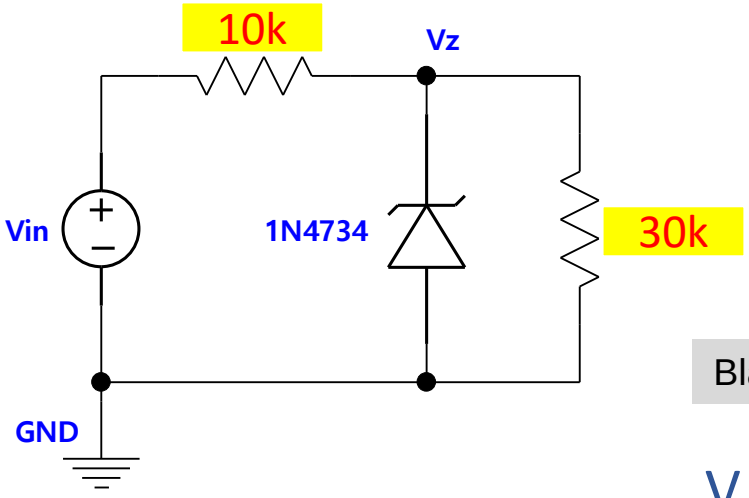


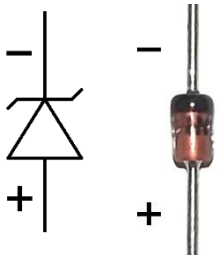
DC to DC Conversion

- When do you need DC to DC?

Eg. Your phone needs 9V to operate, but the motion sensor only needs 5V; you don't want to insert two batteries!

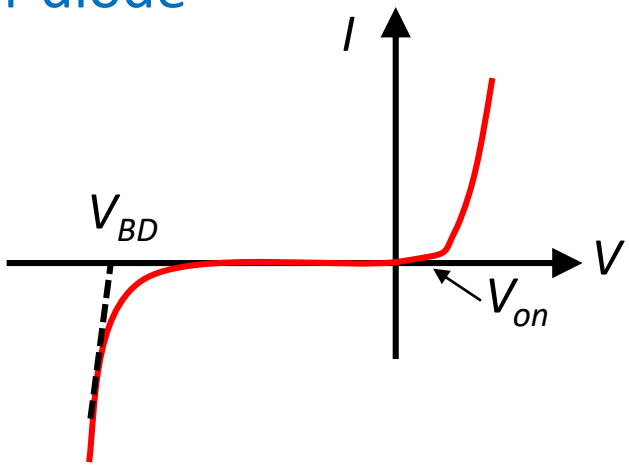
Version I: Zener Diode





Black Strip is Negative

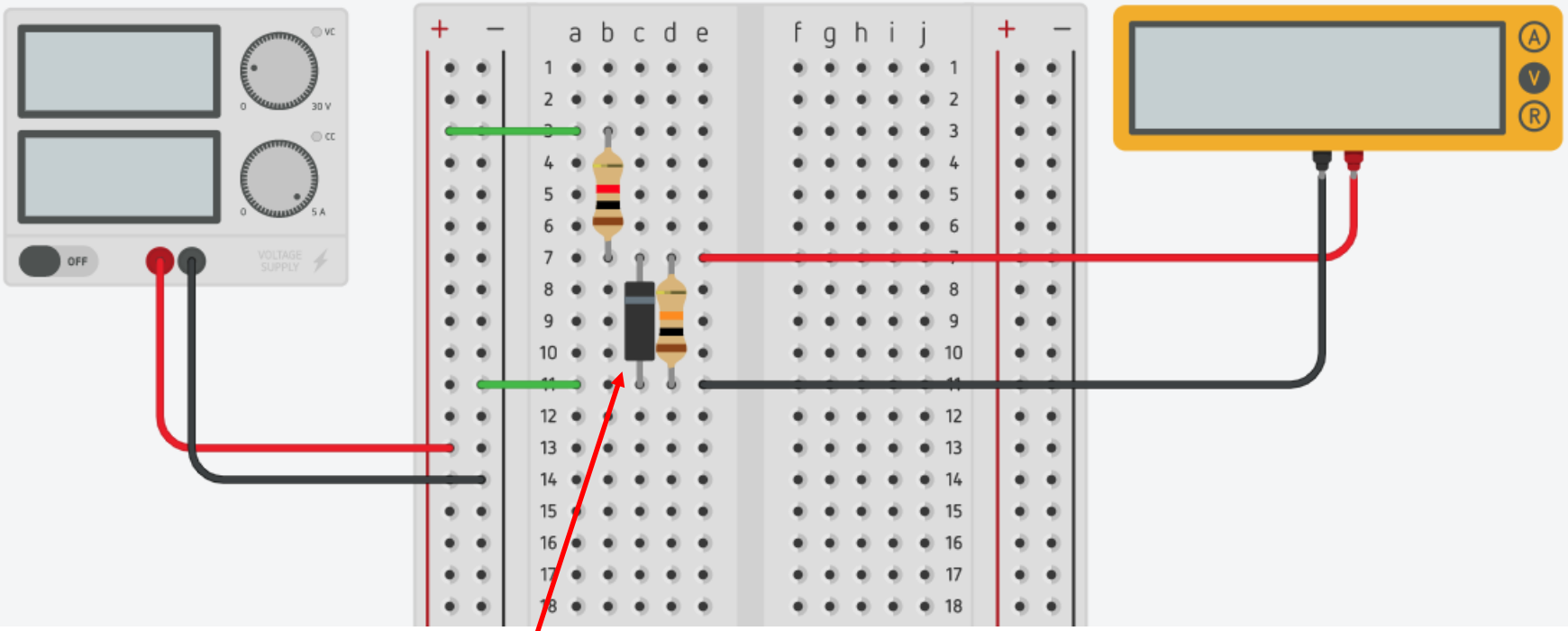
Zener diode



$V_z = V_{bd} \approx -5.7V$

Zener Diode Circuit in Tinkercad

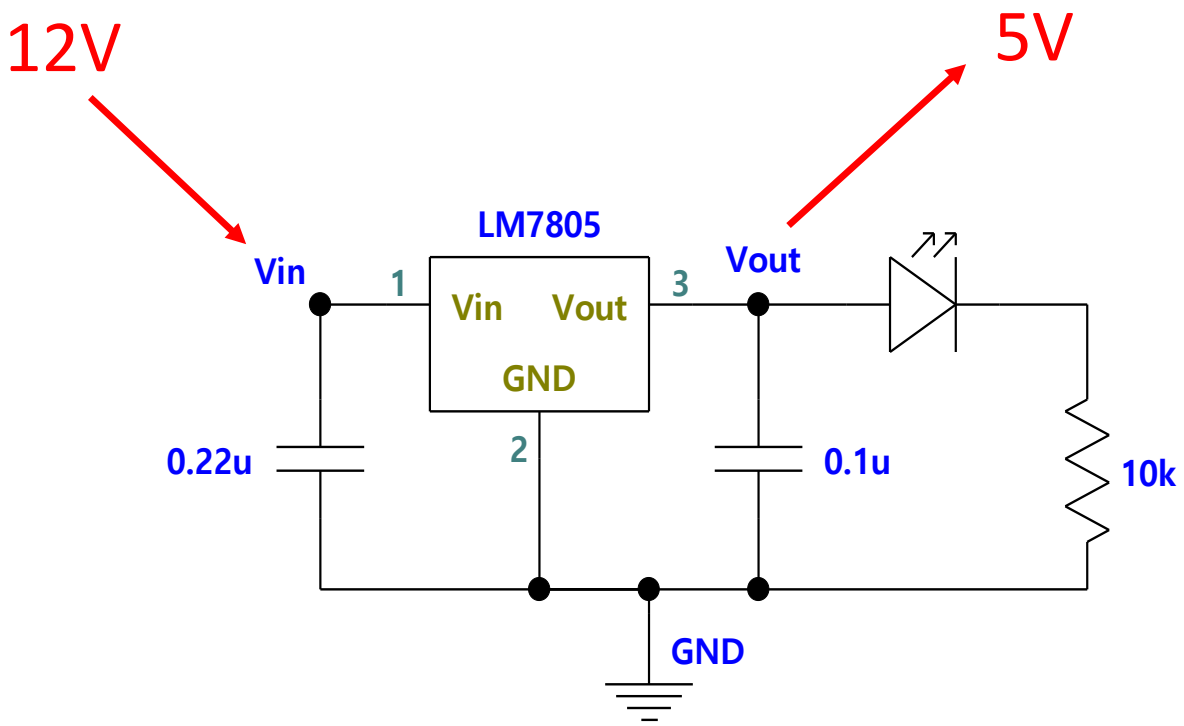
[Lab#02_S3]

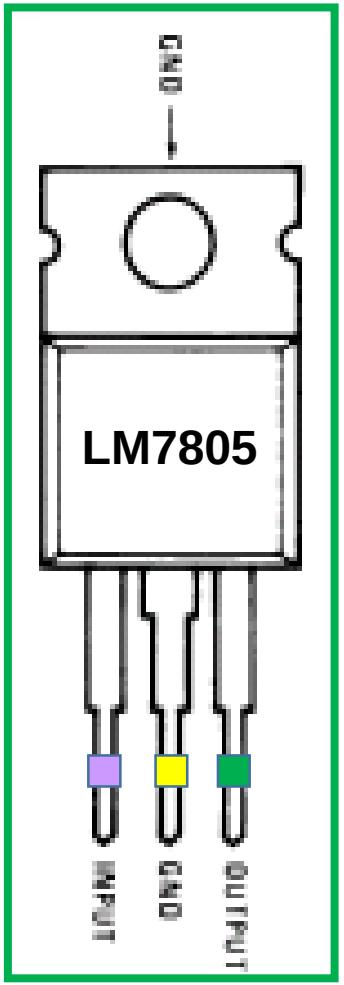


Notice the polarity of Zener diode

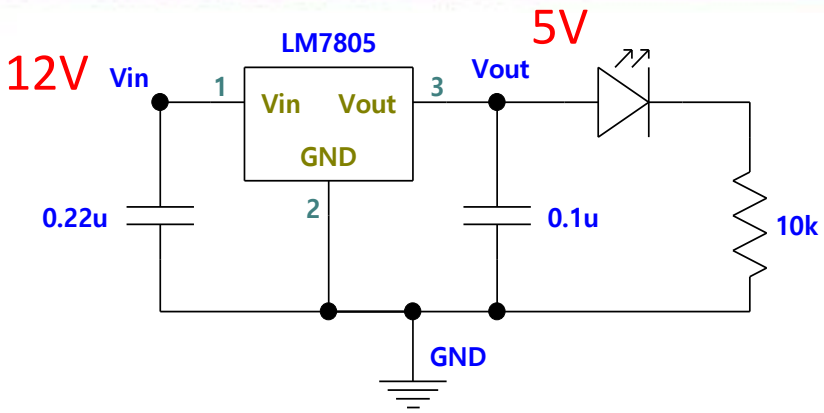
DC to DC Conversion

Version II: Voltage Regulator LM7805





Regulator Circuit in Tinkercad



[Lab#02_S4]