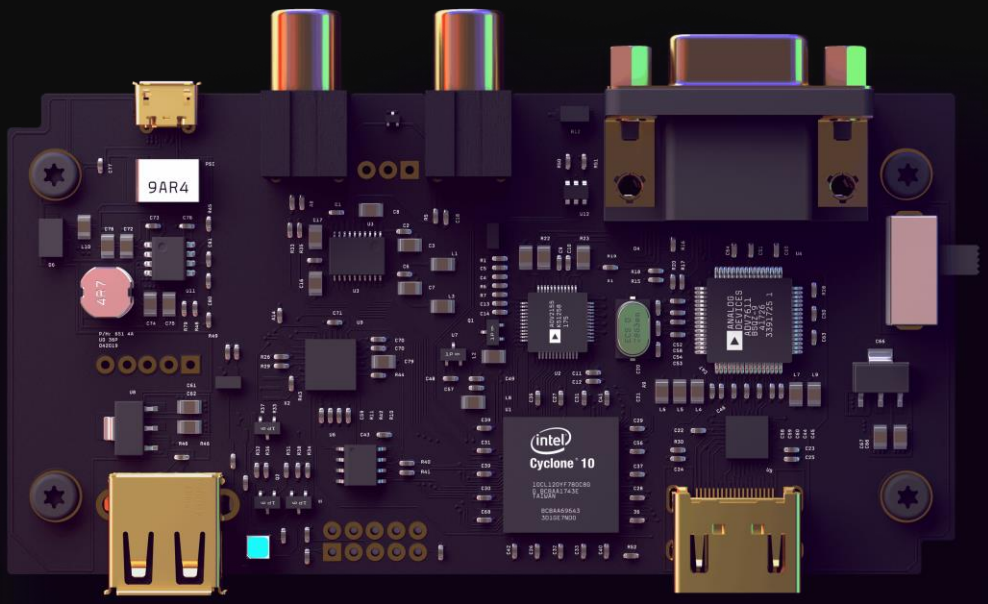
EC205

Analog Electronics Lab

Lab – 2



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Experiment 2: Clipping and Clamping Circuits

Aim: To study clipping circuits and clamping circuits

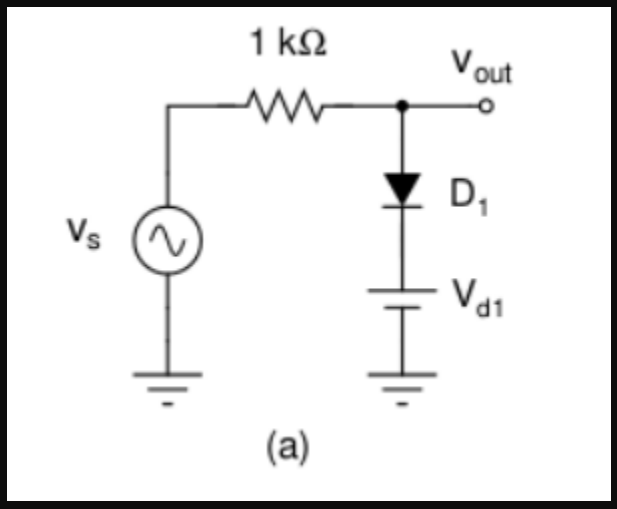
i) Clipping Circuits

ii) Clamping Circuits

i.1]

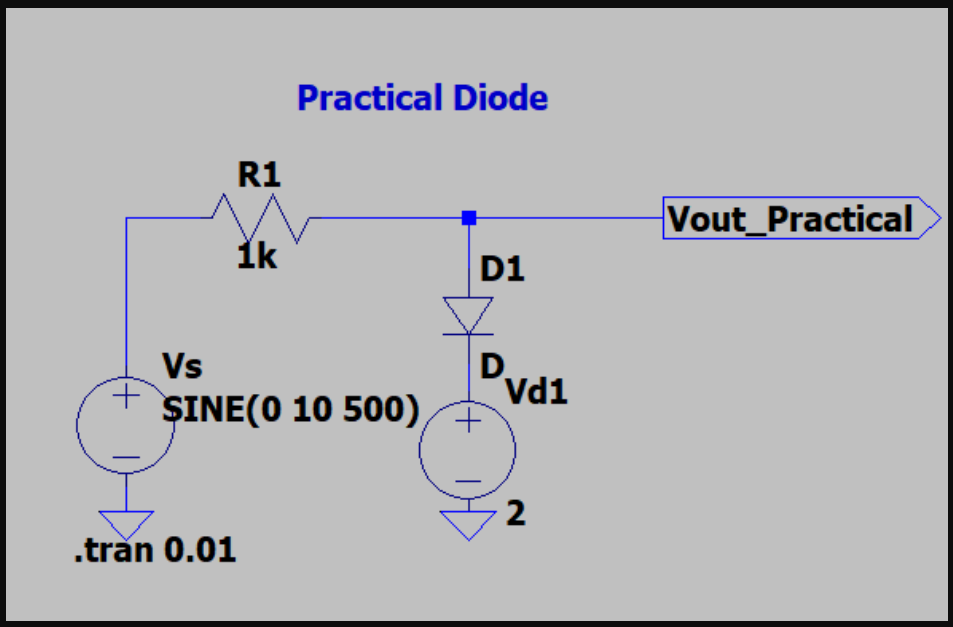
Output will be clipped when in forward bias.

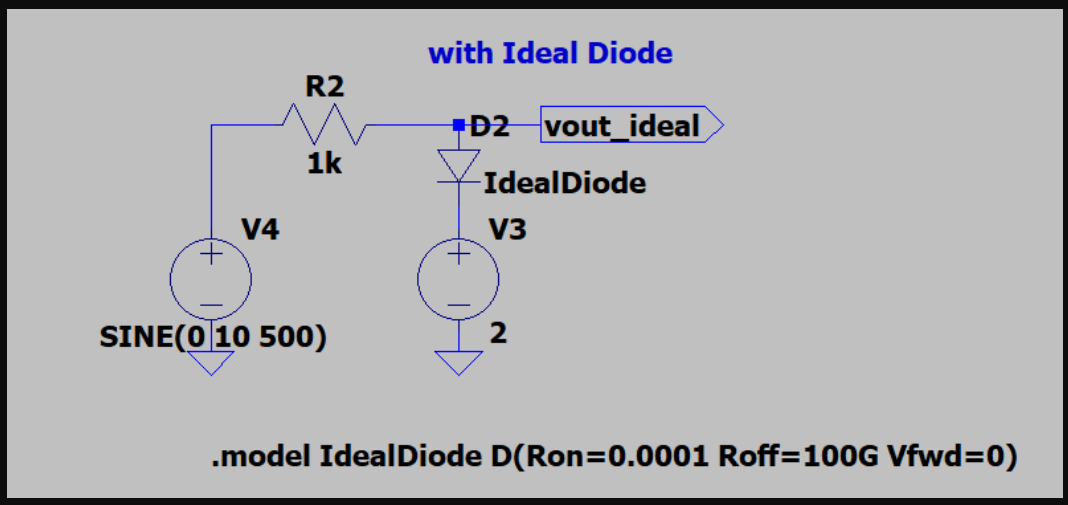
Circuit diagram:



Circuit in LTspice:

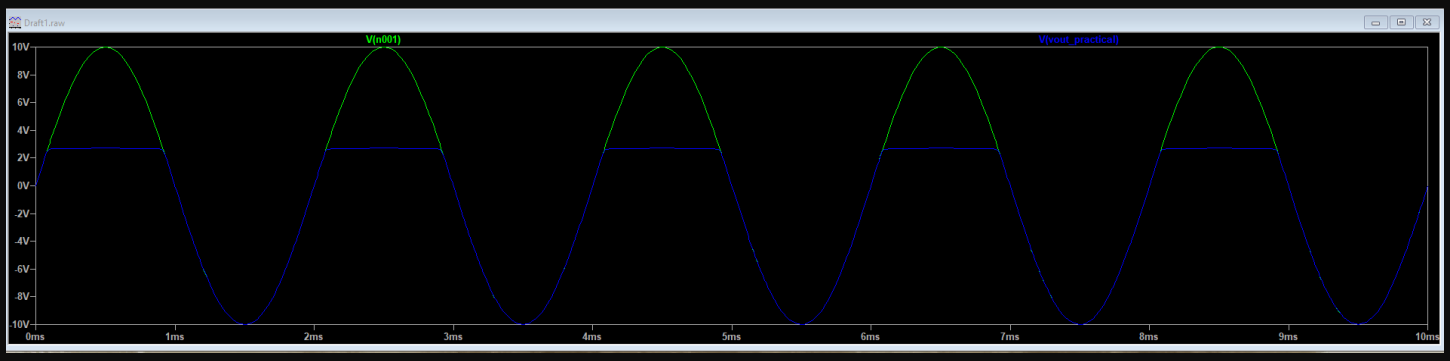
Case 1: for V_{d1}=2V



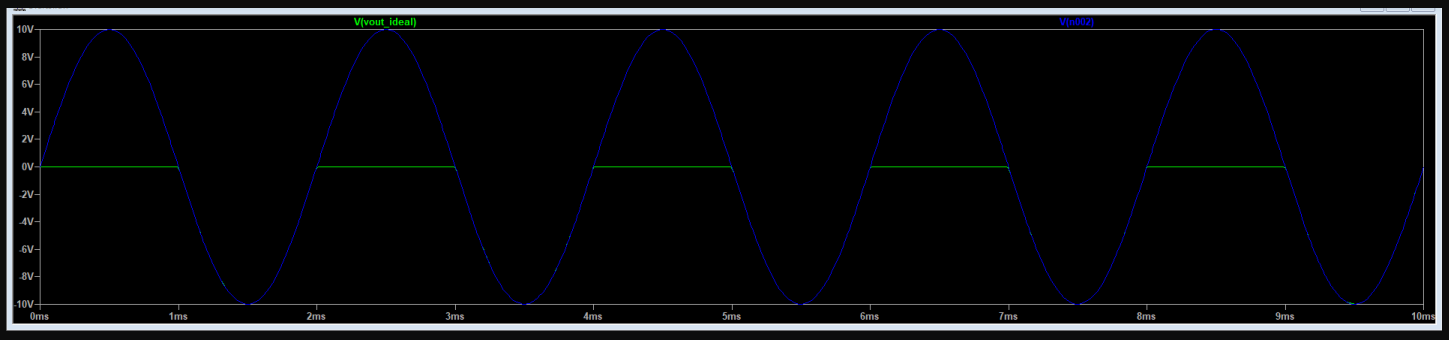


Results:

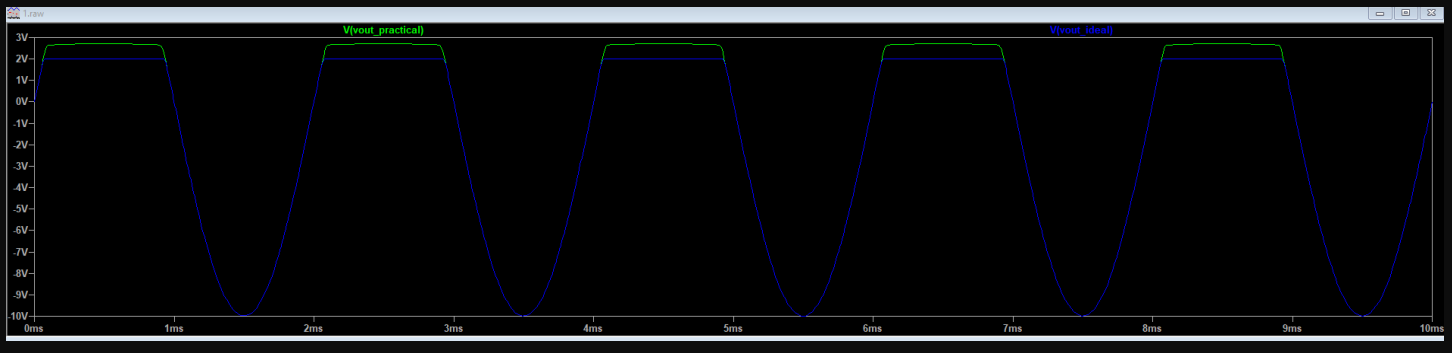
For a practical Diode



For a Ideal Diode

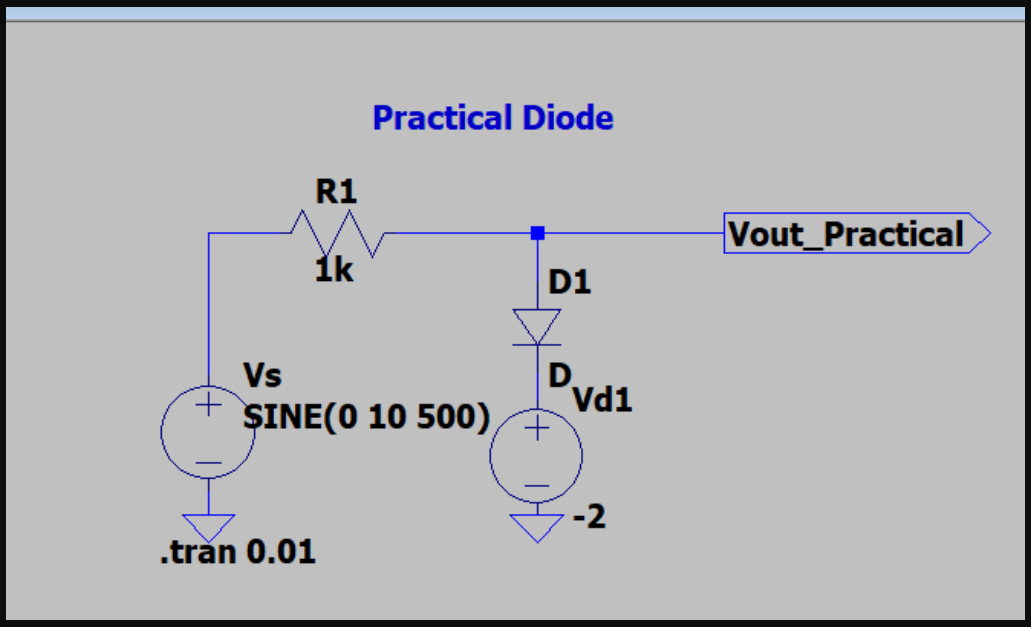


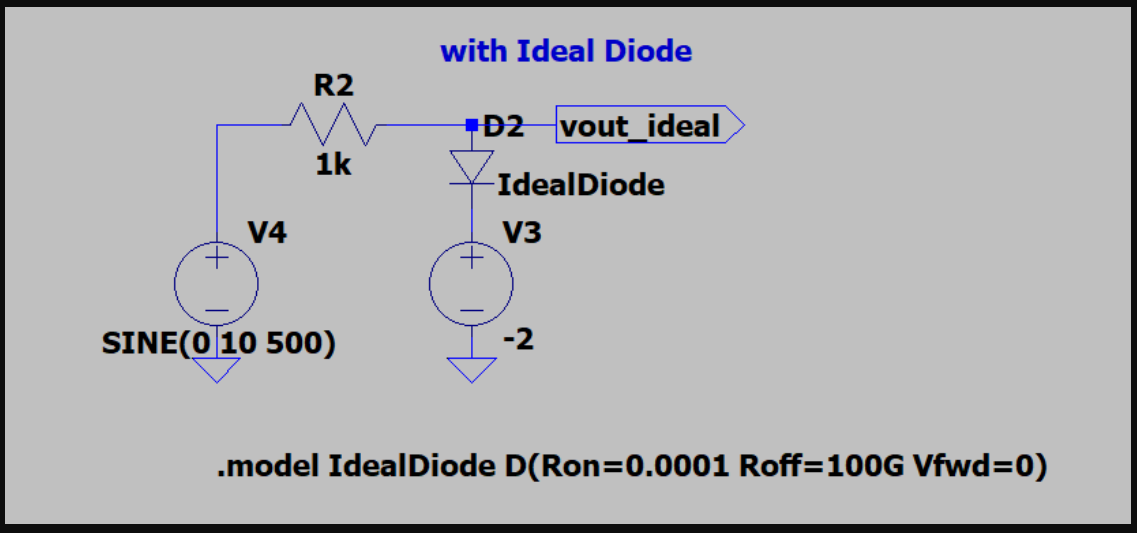
Comparison between both



Circuit in LTspice:

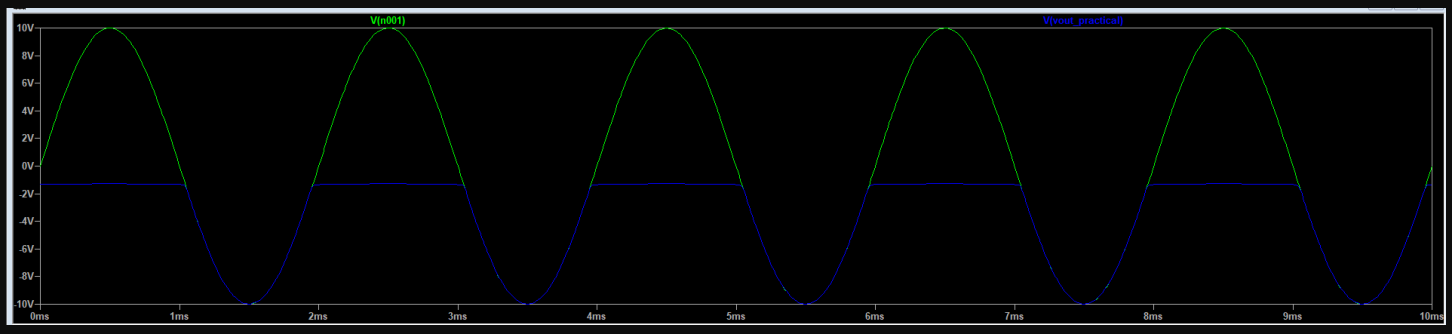
Case 2: V_{d2}=-2V



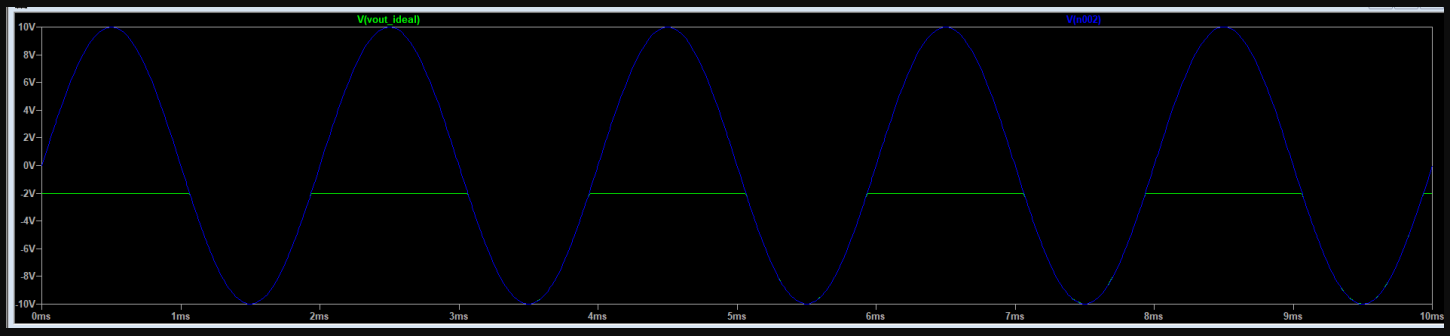


Results:

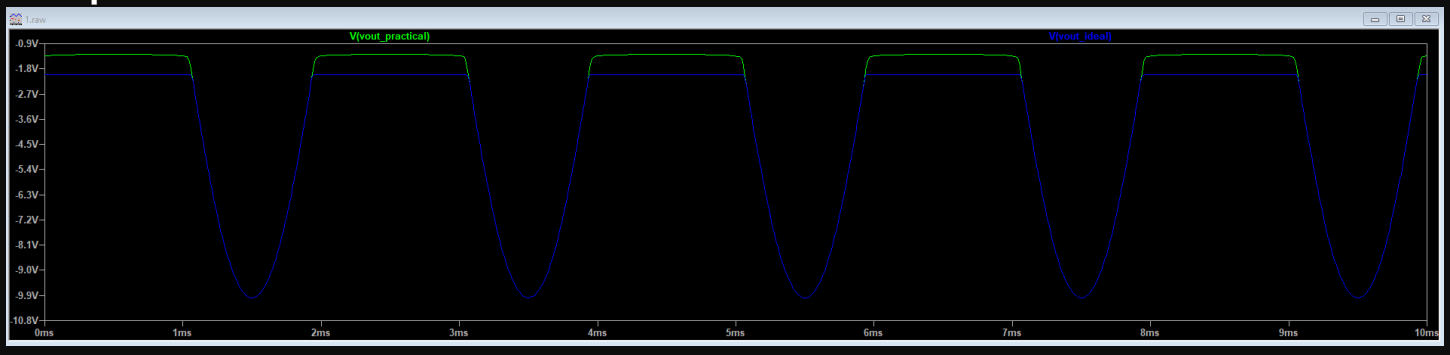
For a practical Diode



For a Ideal Diode



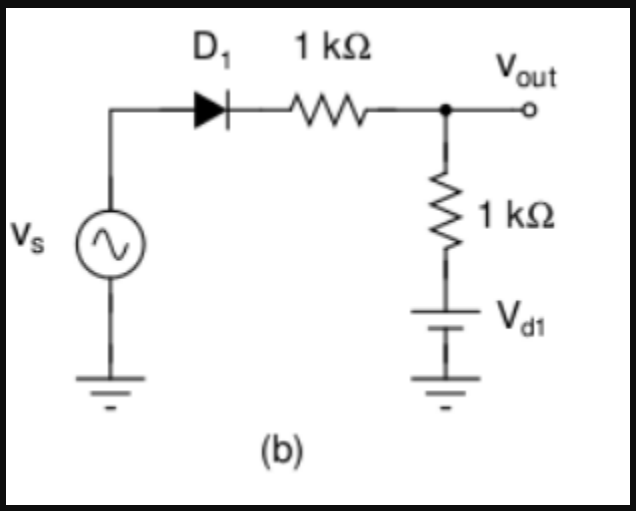
Comparison between both



i.2]

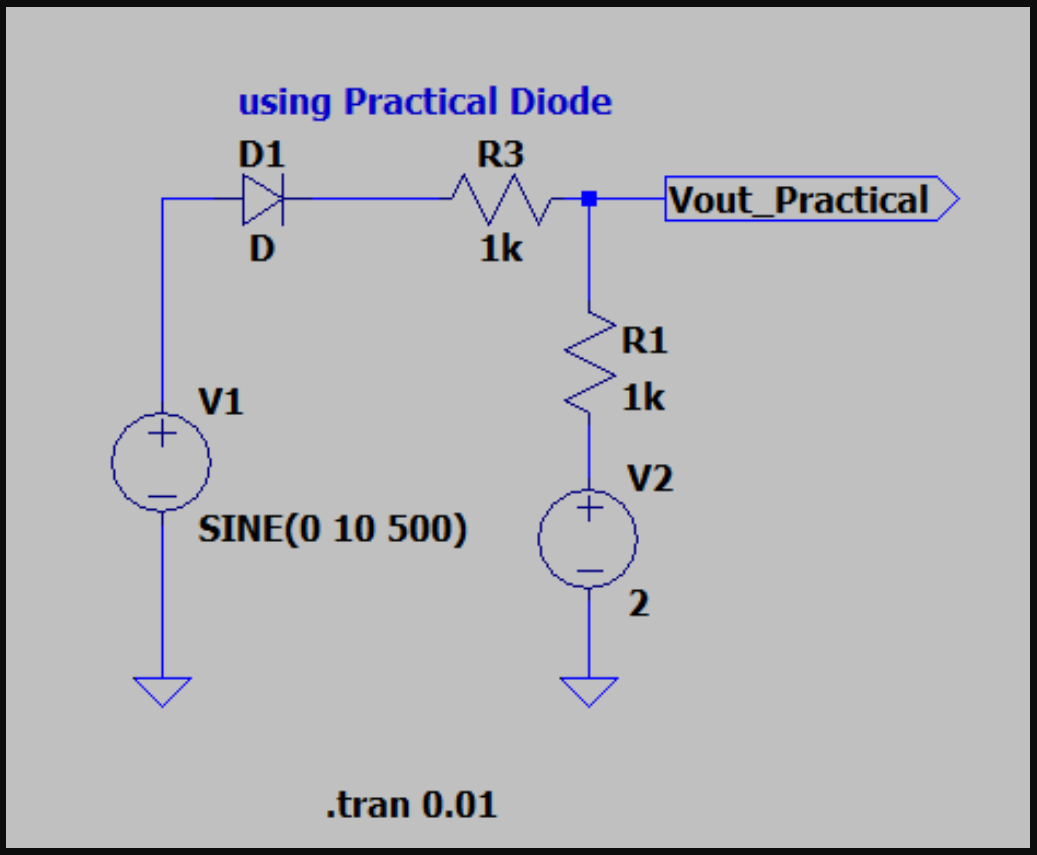
Output Voltage will be clipped.

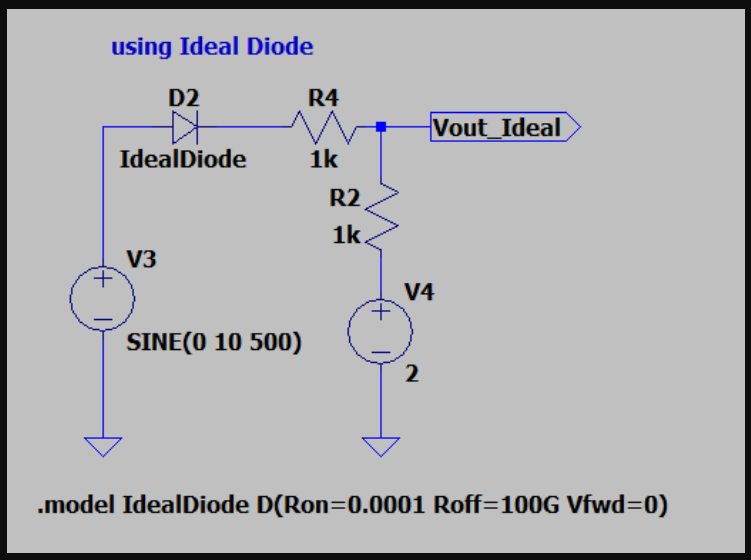
Circuit diagram:



Circuit in LTspice:

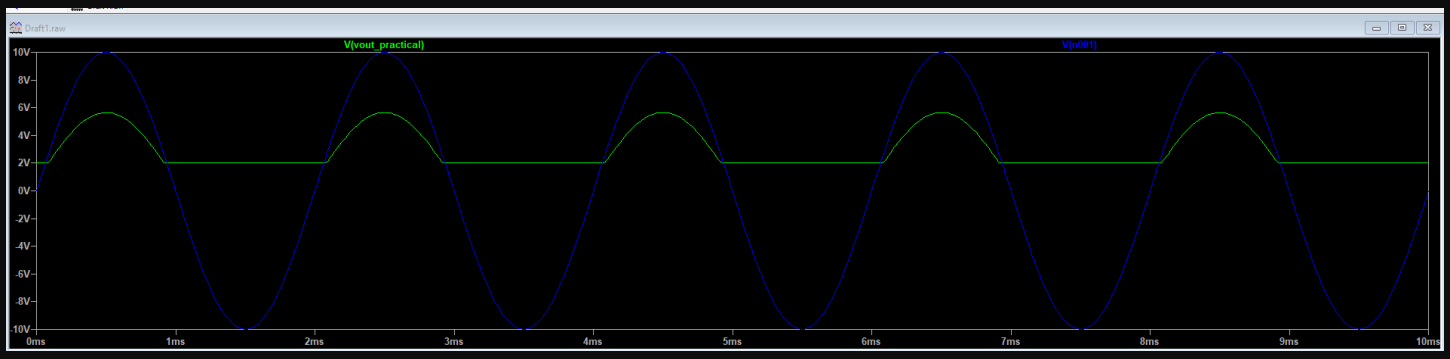
for V_{d1}=2V



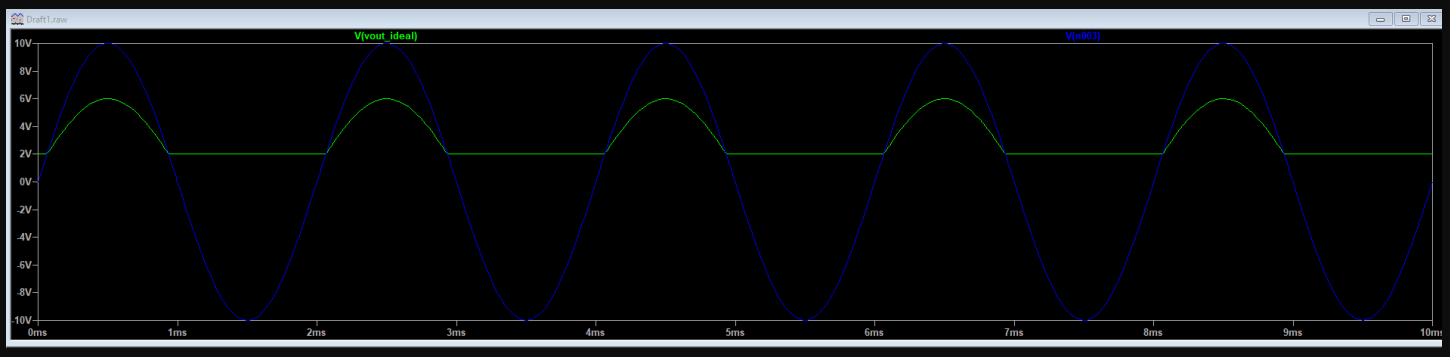


Results:

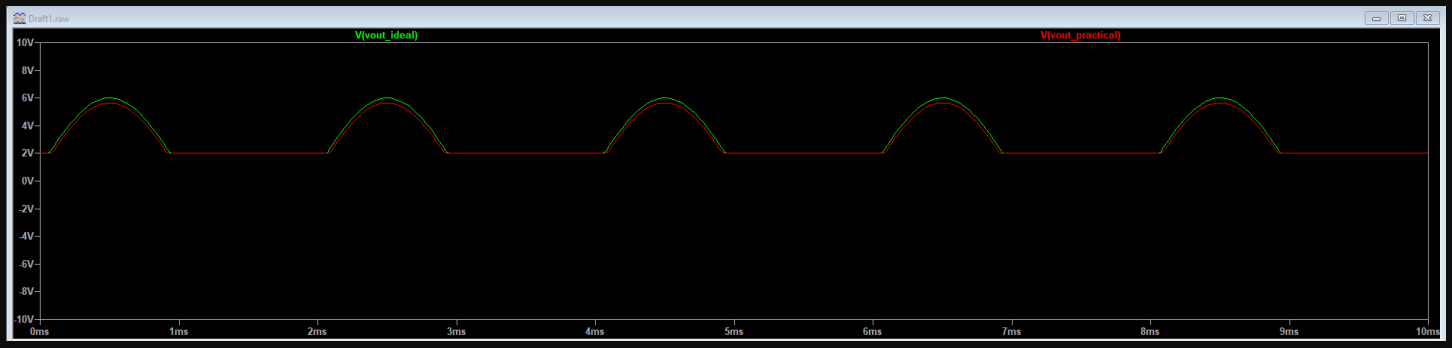
For a practical Diode



For a Ideal Diode



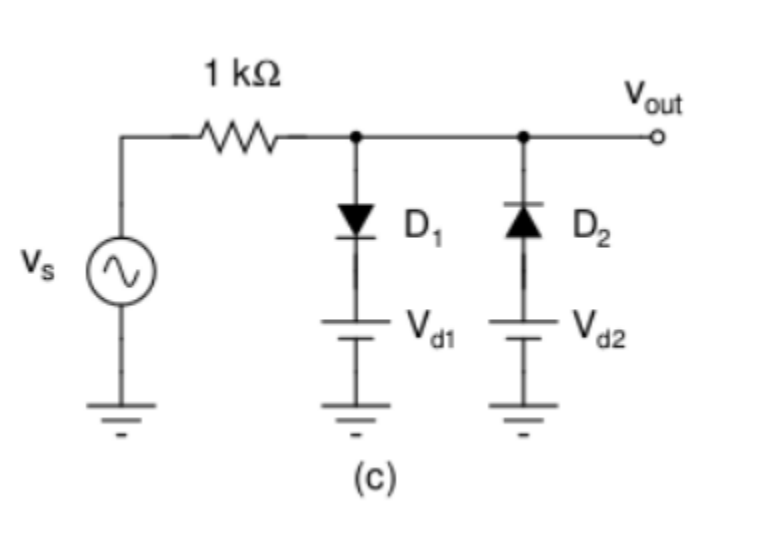
Comparison between both



i.3]

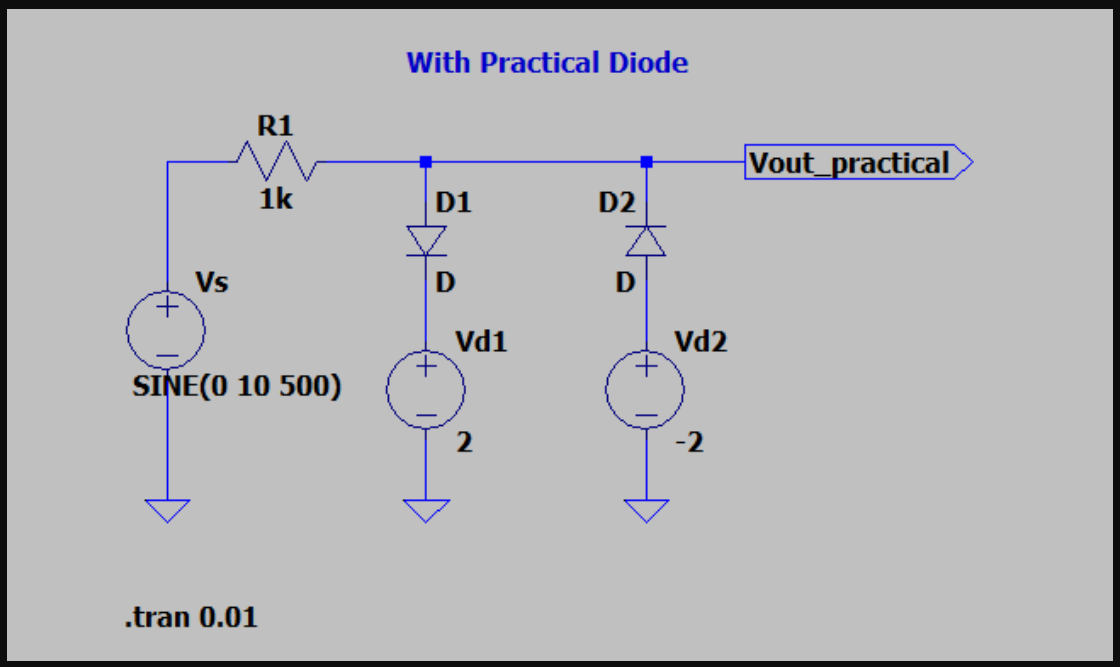
Output Voltage will be clipped.

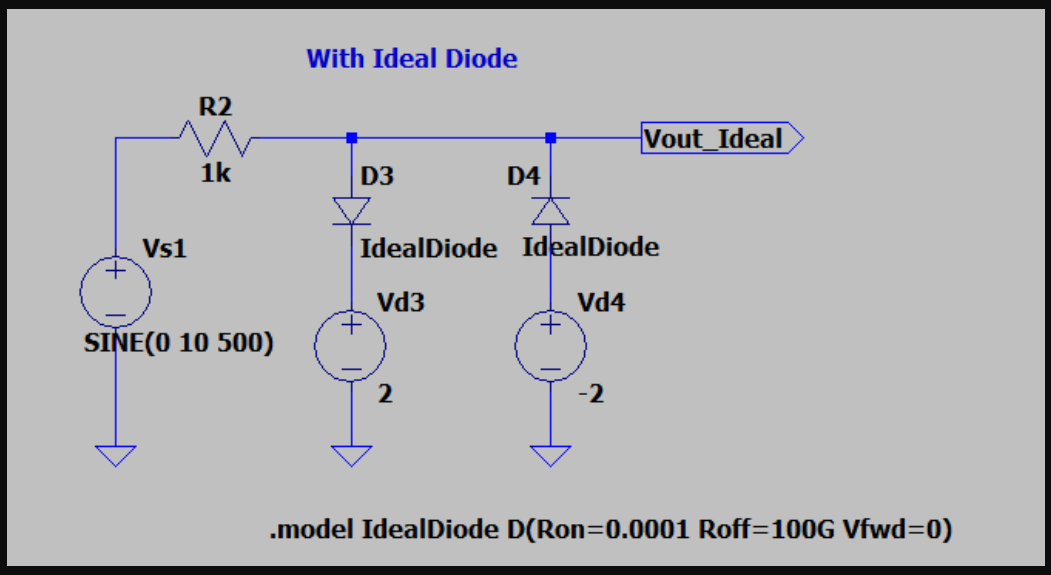
Circuit diagram:



Circuit in LTspice:

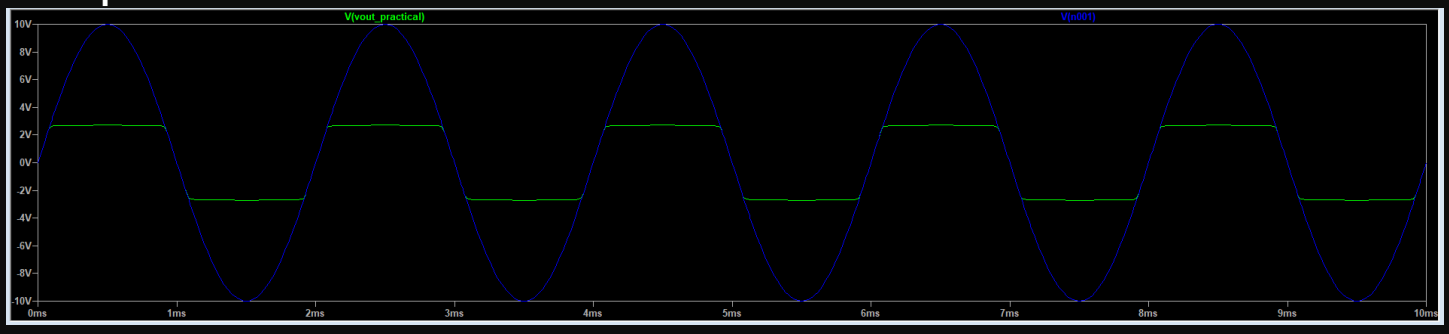
for V_{d1}=2V and V_{d2}=-2V



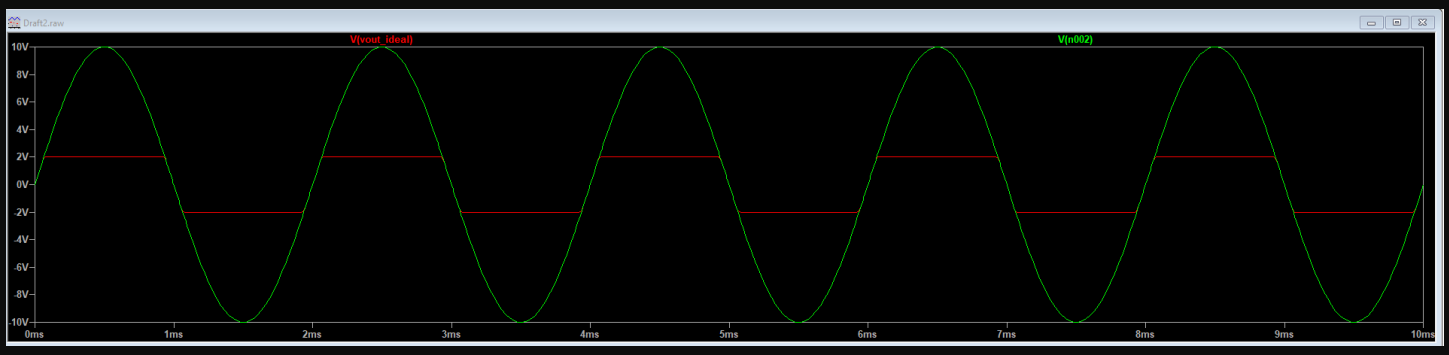


Results:

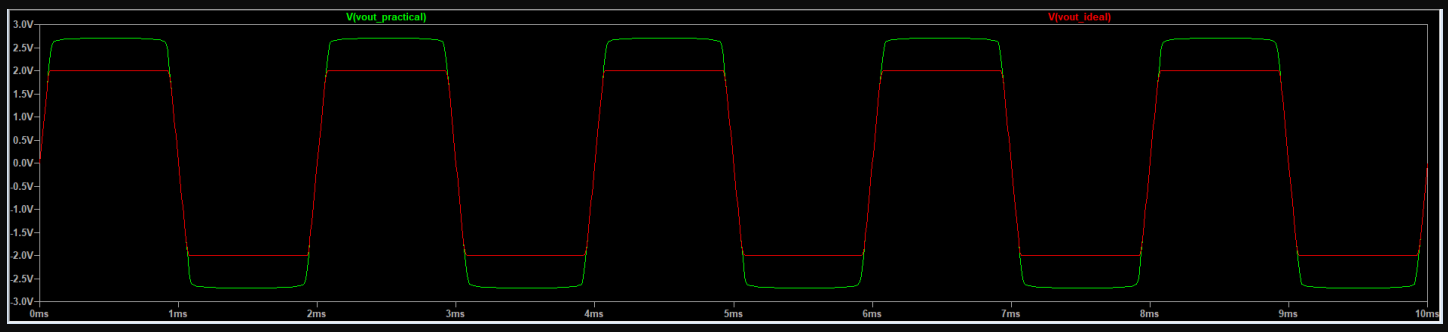
For a practical Diode



For a Ideal Diode



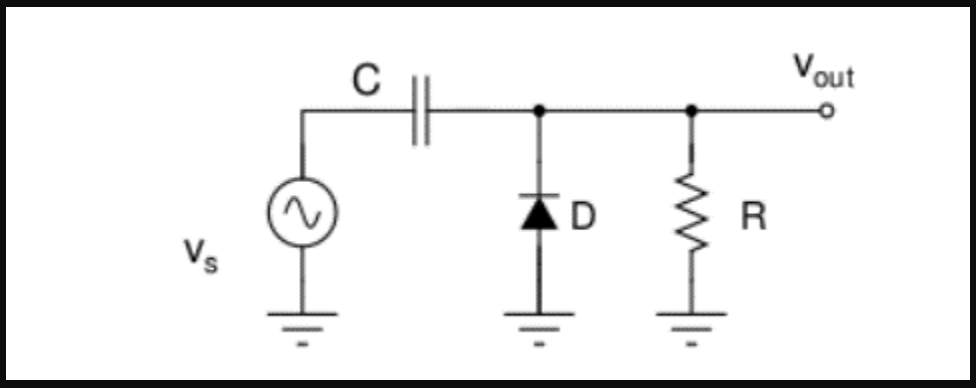
Comparison between both



ii]

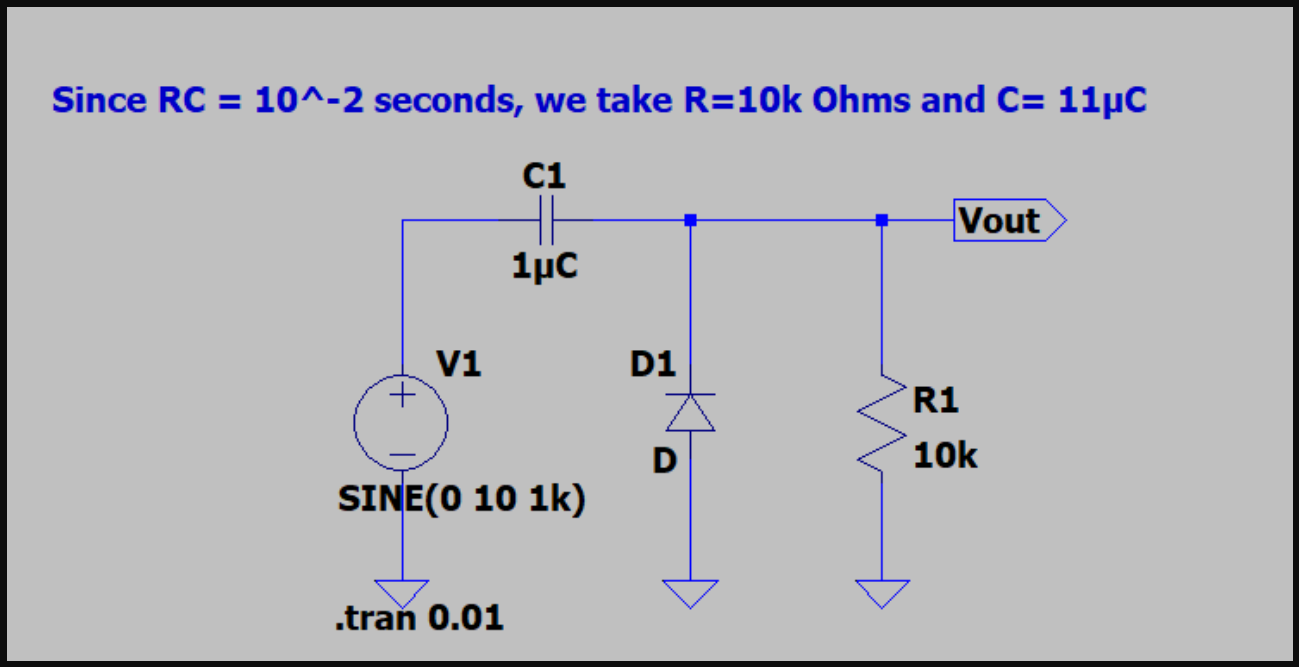
Output voltage will be clamped

Circuit diagram:



Case 1: for V_{Speak}=10V, f=1kHz RC=10T_s so we take R = 10kΩ and C=1μF

Circuit in LTspice:



Results: