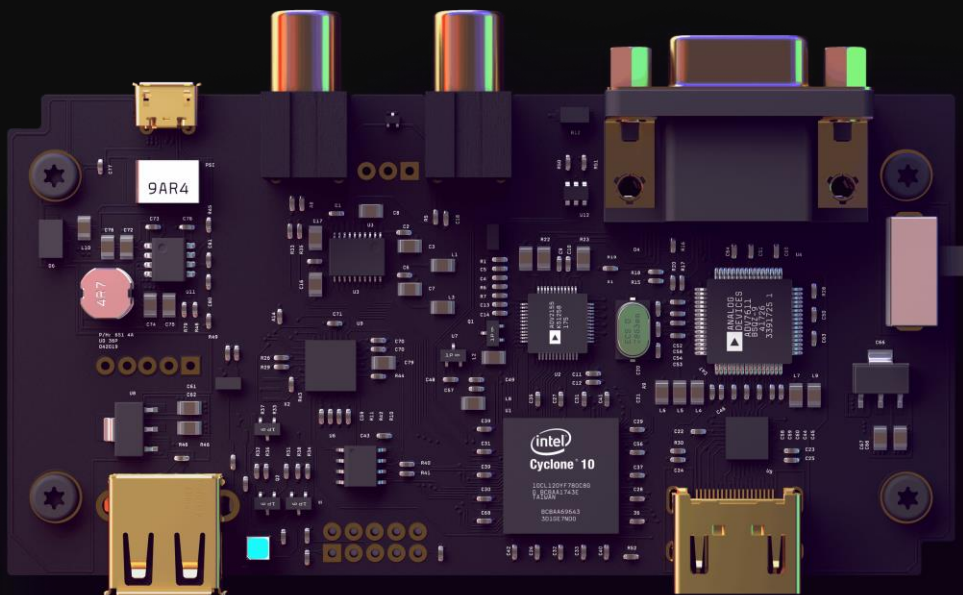


EC205

Analog Electronics Lab

Lab – 2



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Experiment 2: Clipping and Clamping Circuits

Aim: To study clipping circuits and clamping circuits

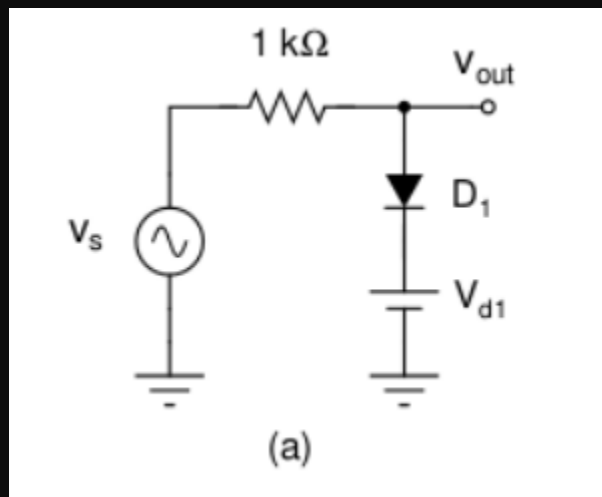
i) Clipping Circuits

ii) Clamping Circuits

i.1]

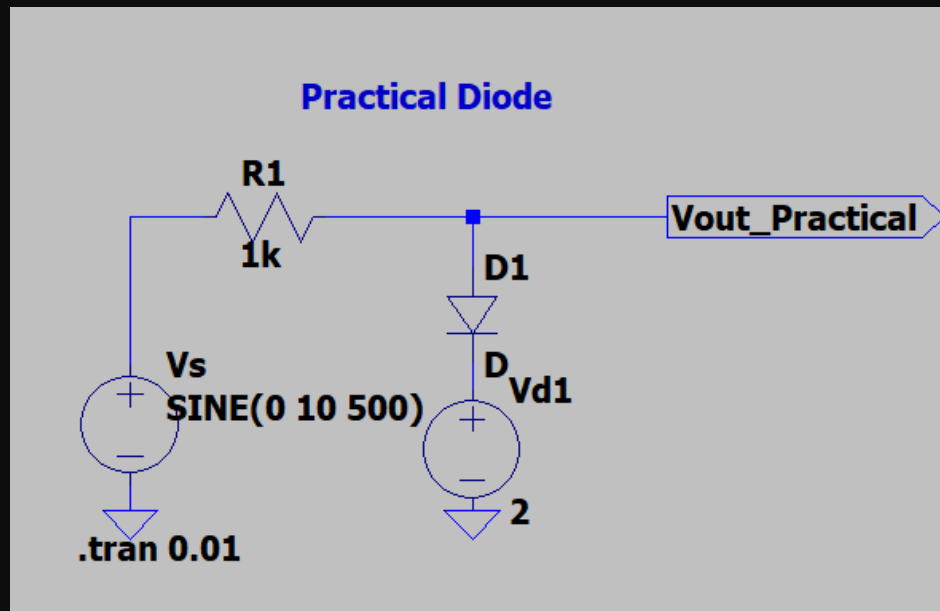
Output will be clipped when in forward bias.

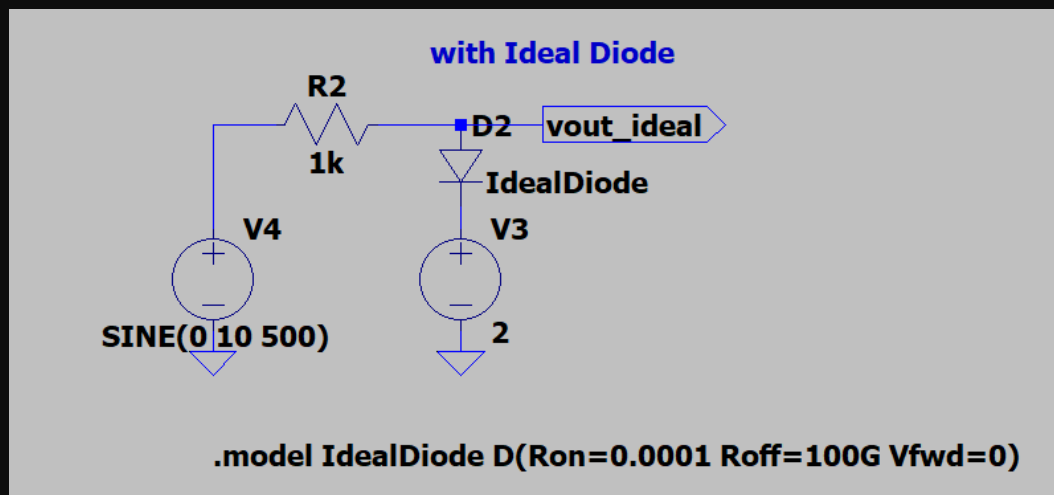
Circuit diagram:



Circuit in LTspice:

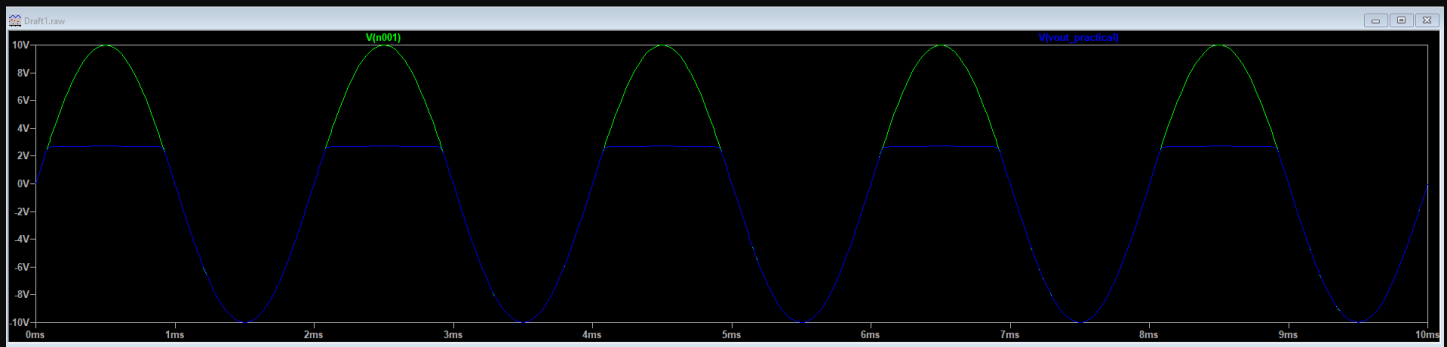
Case 1: for $V_{d1}=2\text{V}$



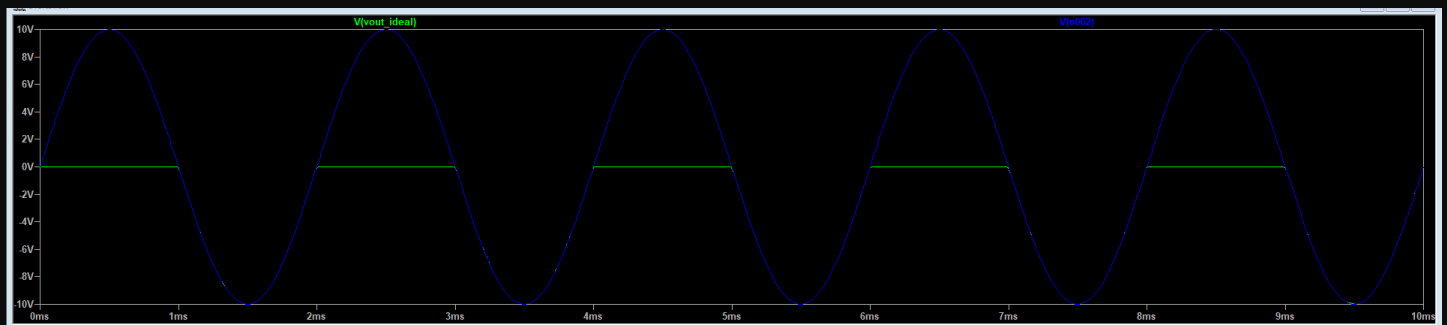


Results:

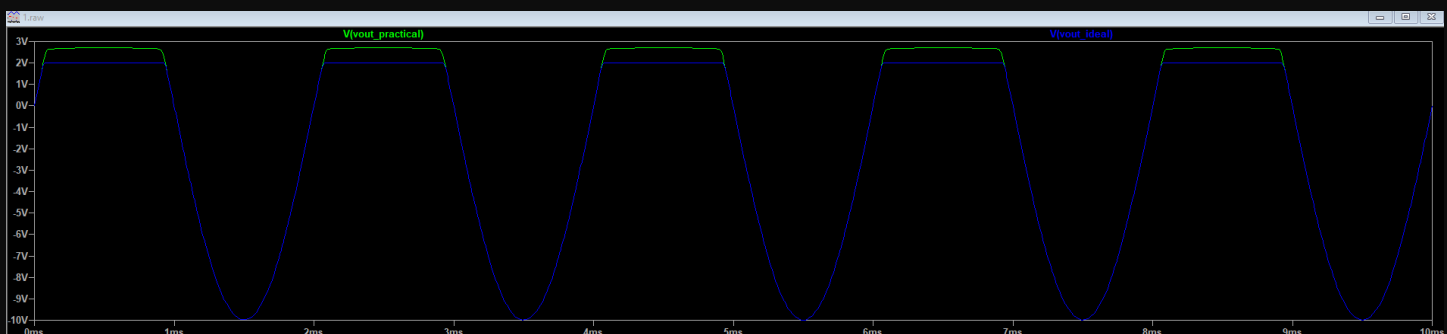
For a practical Diode



For a Ideal Diode

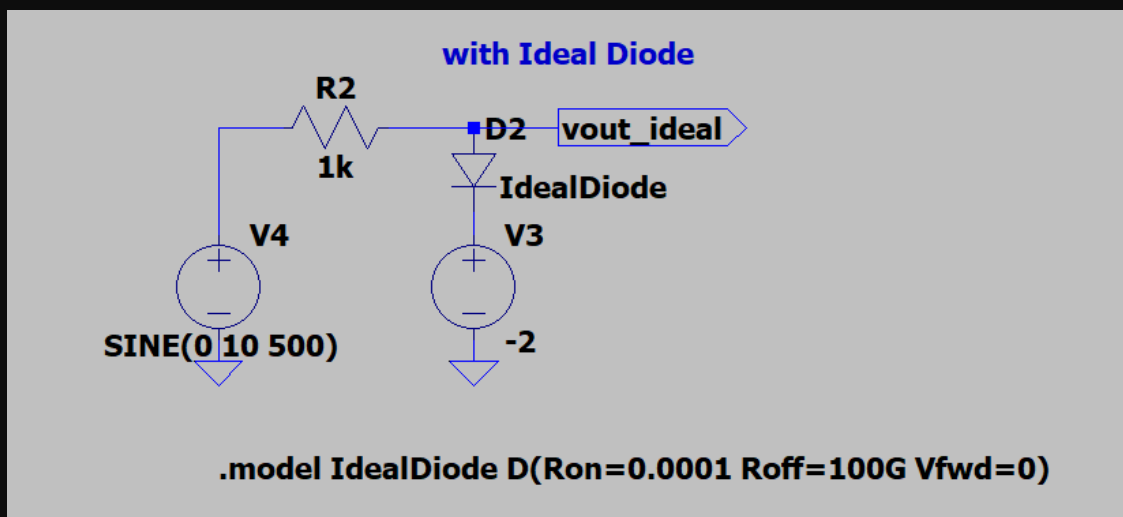
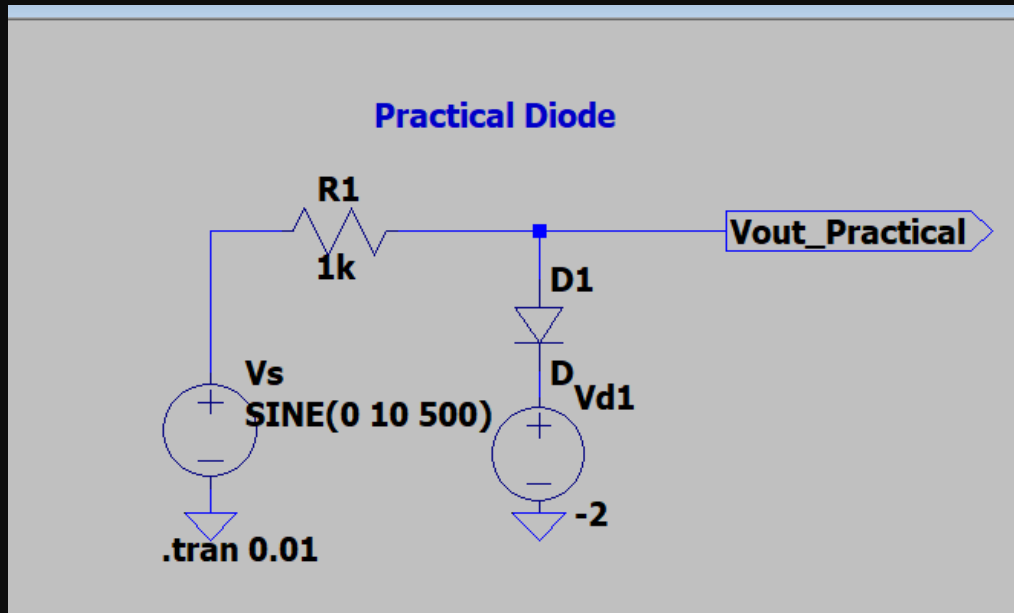


Comparison between both



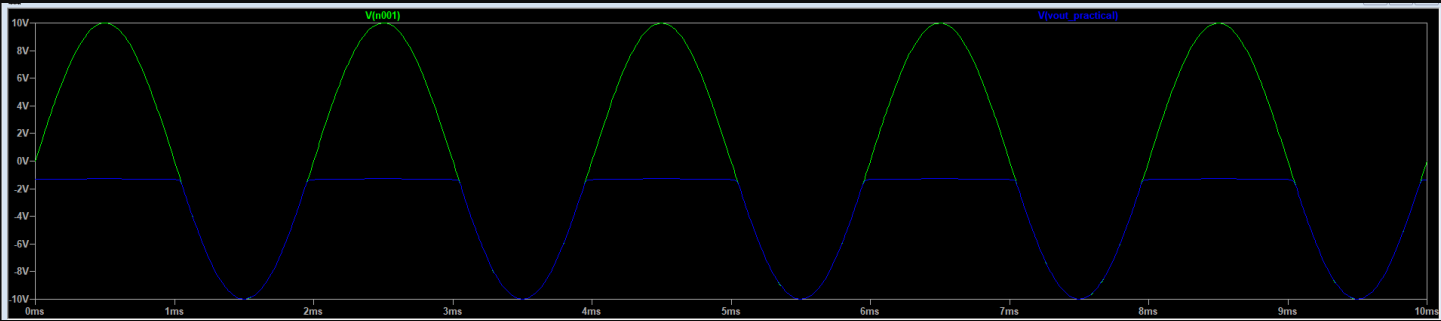
Circuit in LTspice:

Case 2: $V_{d2} = -2V$

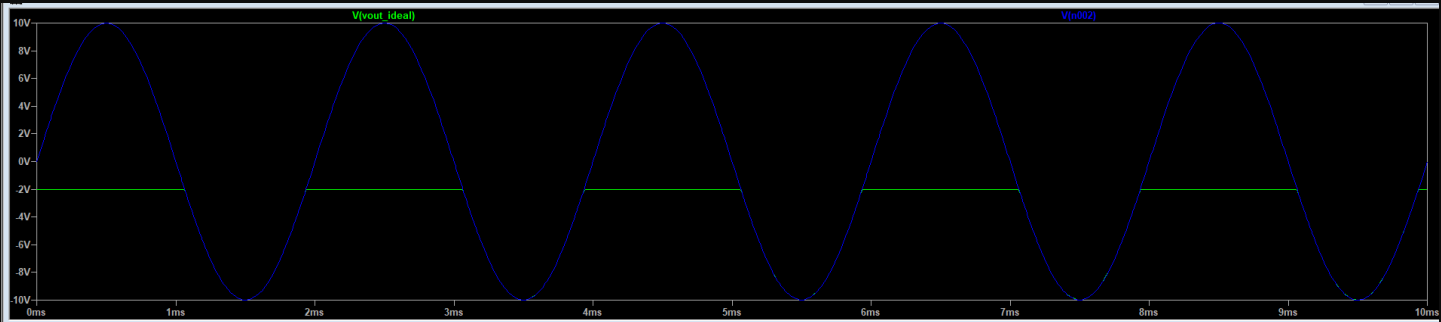


Results:

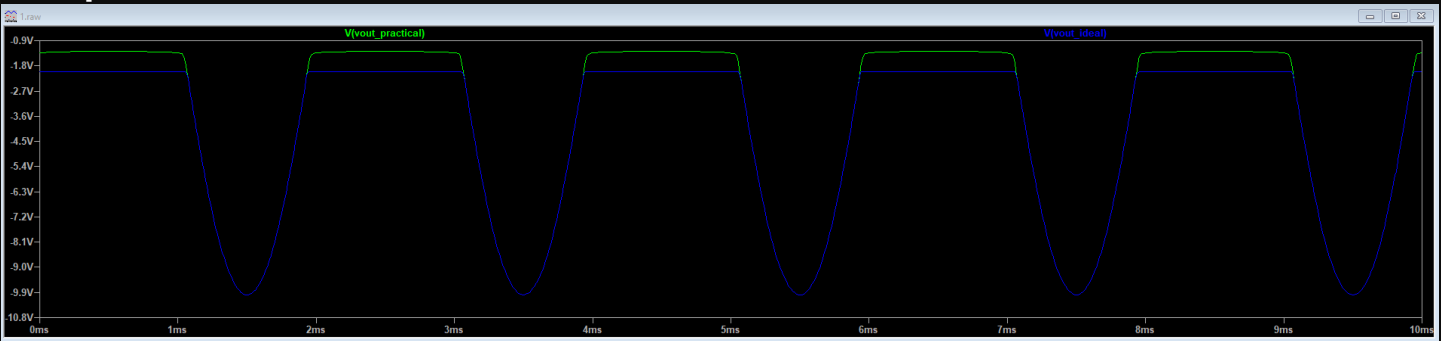
For a practical Diode



For a Ideal Diode



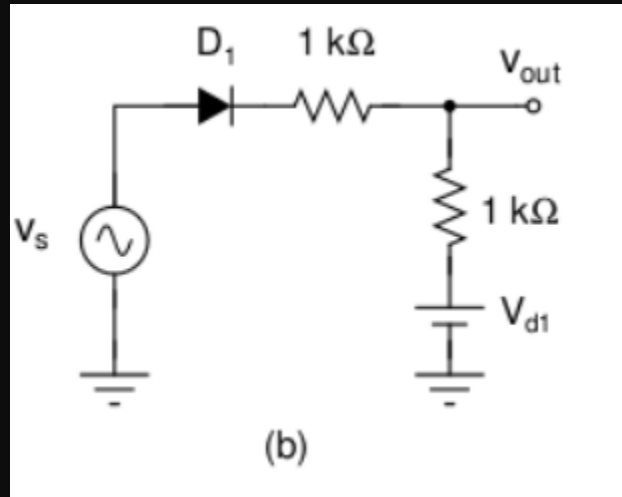
Comparison between both



i.2]

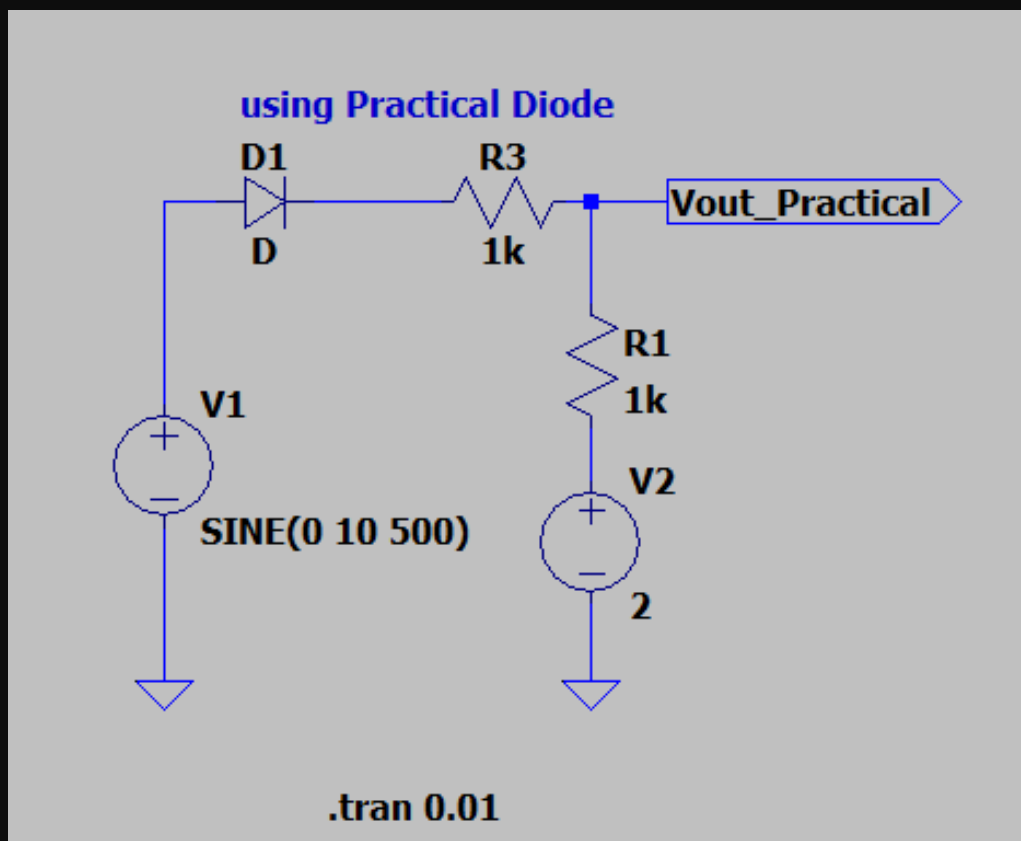
Output Voltage will be clipped.

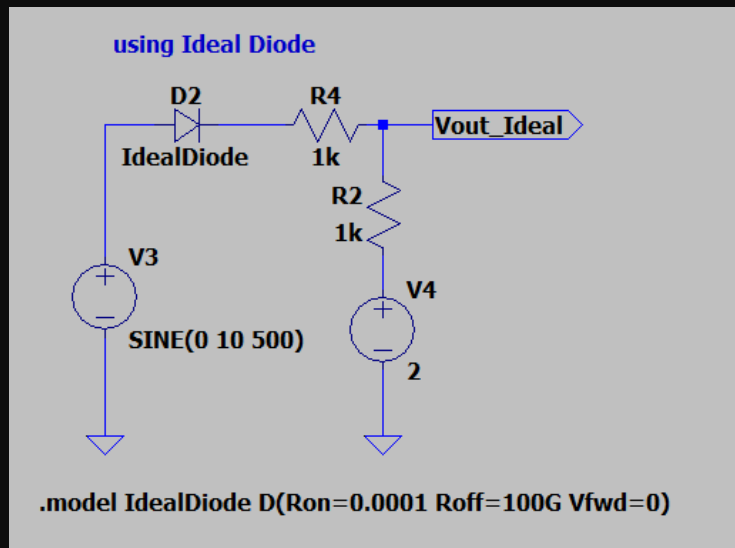
Circuit diagram:



Circuit in LTspice:

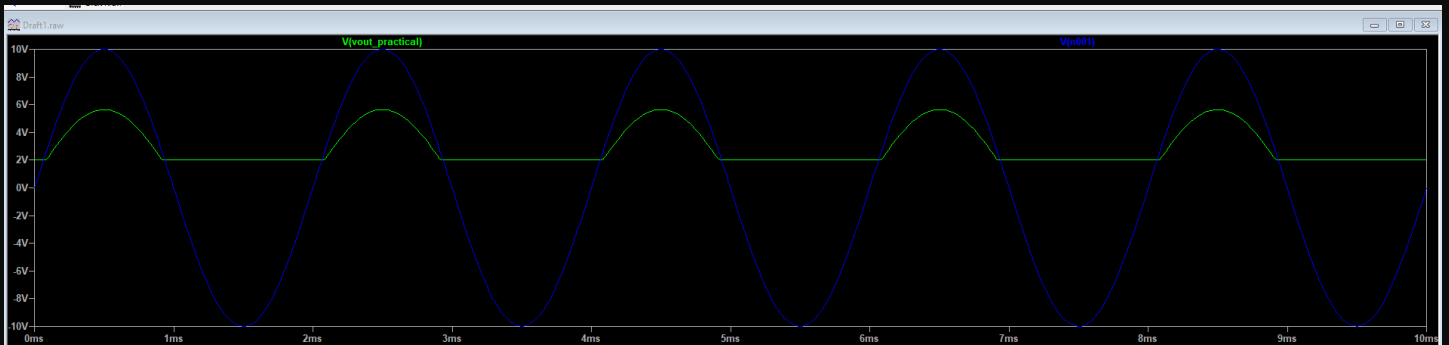
for $V_{d1}=2\text{V}$



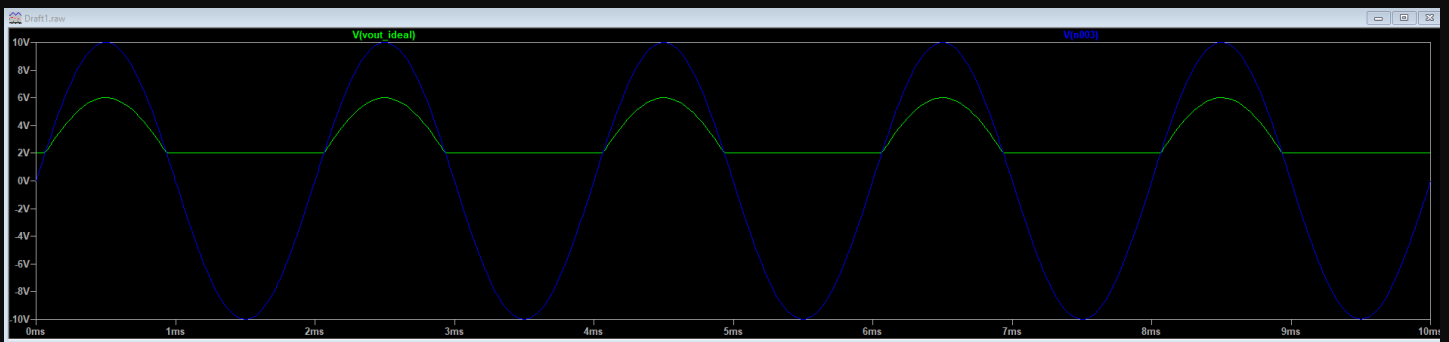


Results:

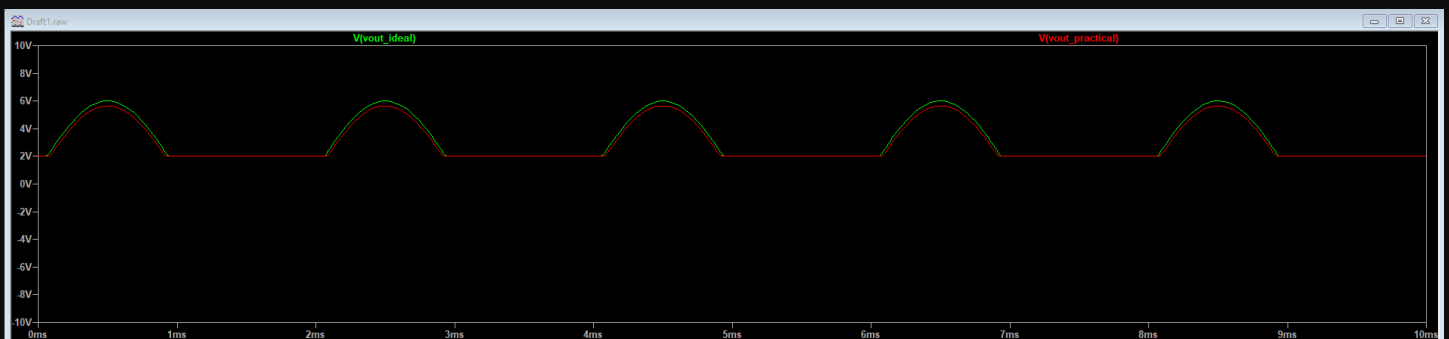
For a practical Diode



For a Ideal Diode



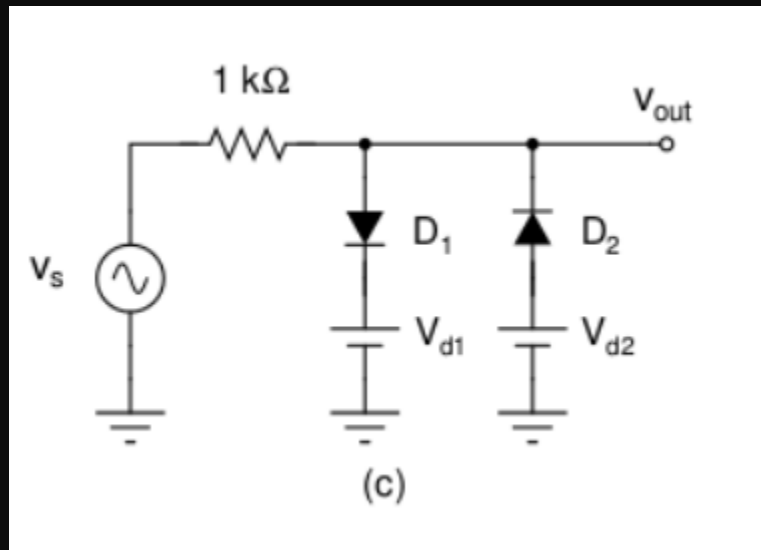
Comparison between both



i.3]

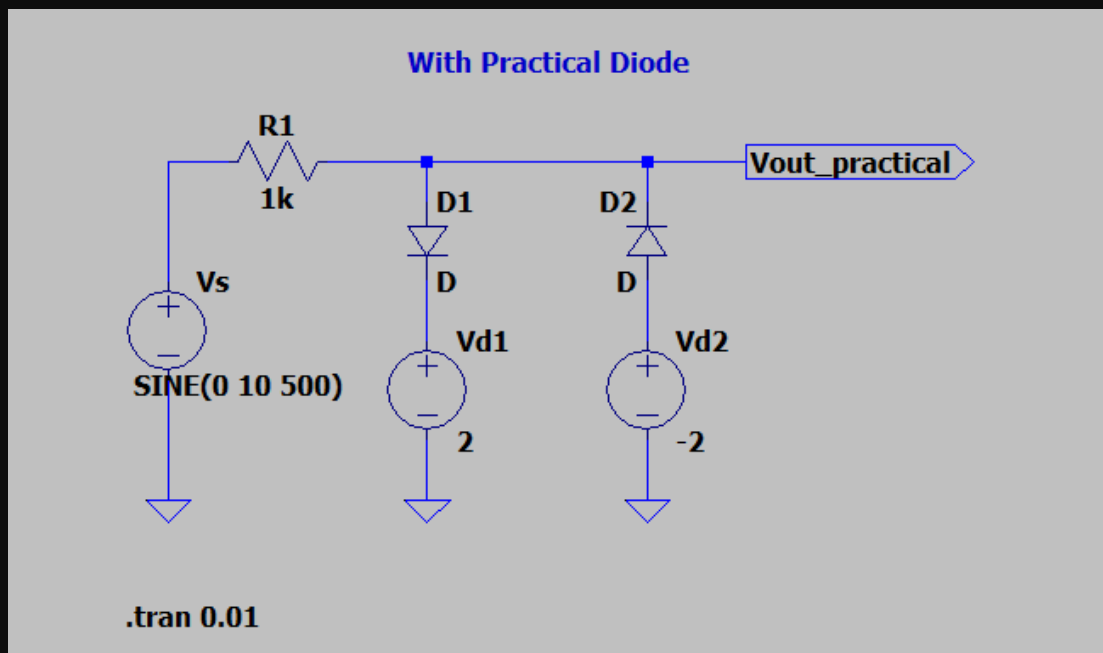
Output Voltage will be clipped.

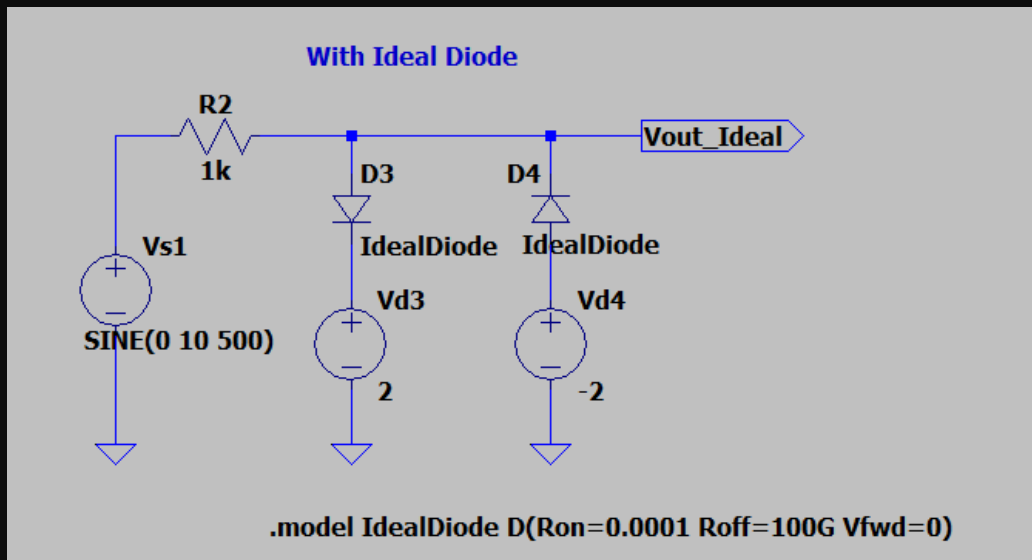
Circuit diagram:



Circuit in LTspice:

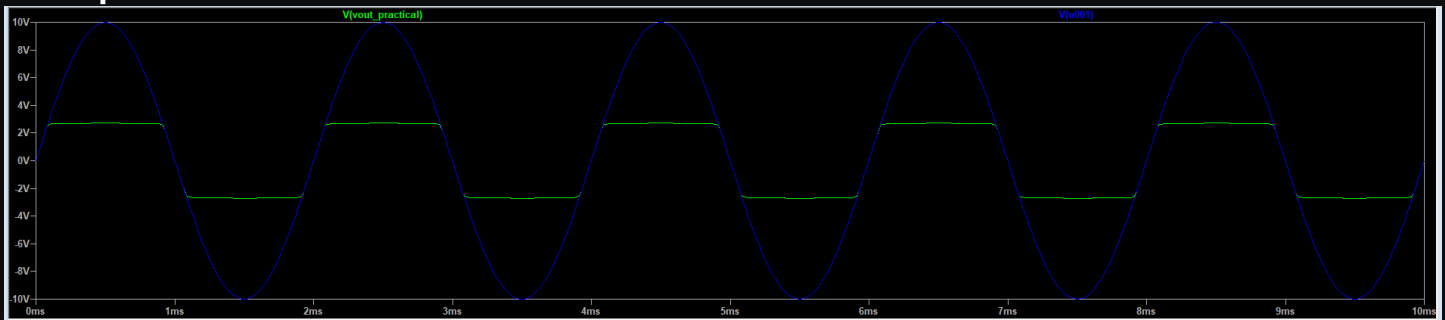
for $V_{d1}=2\text{V}$ and $V_{d2}=-2\text{V}$



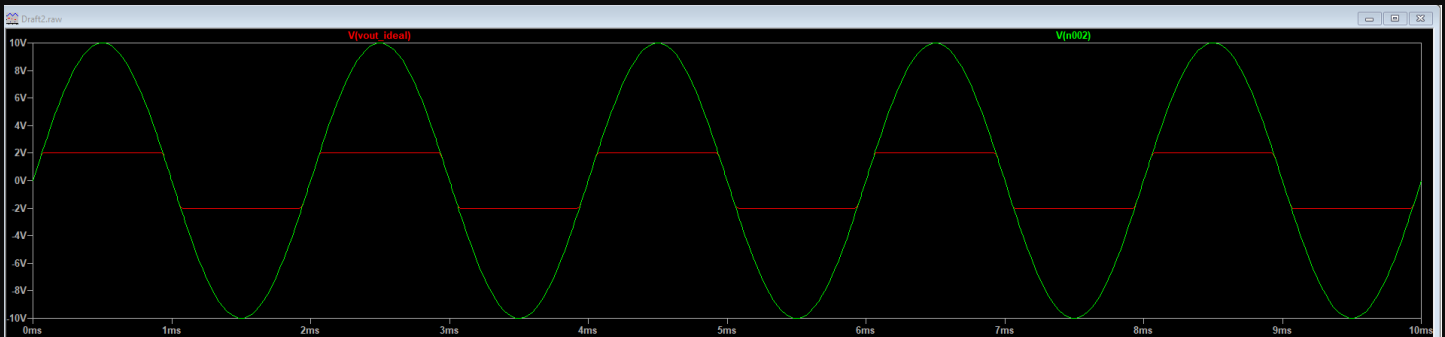


Results:

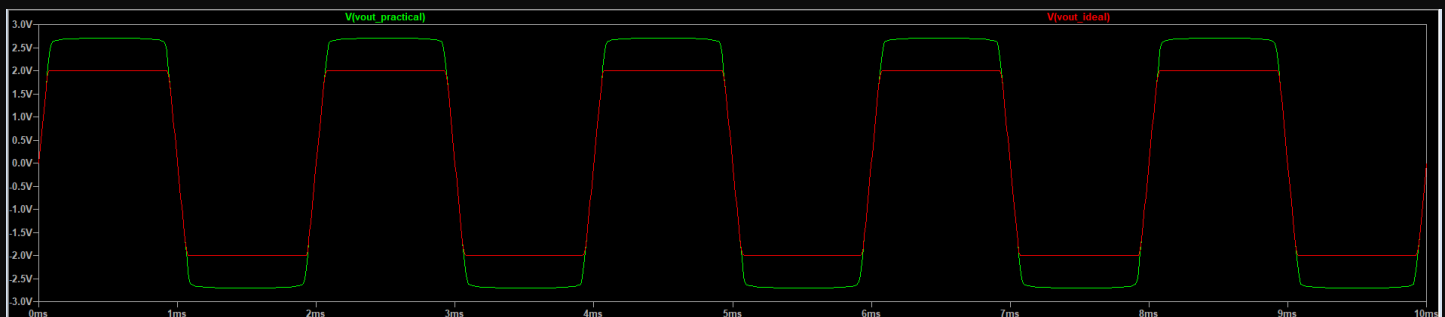
For a practical Diode



For a Ideal Diode



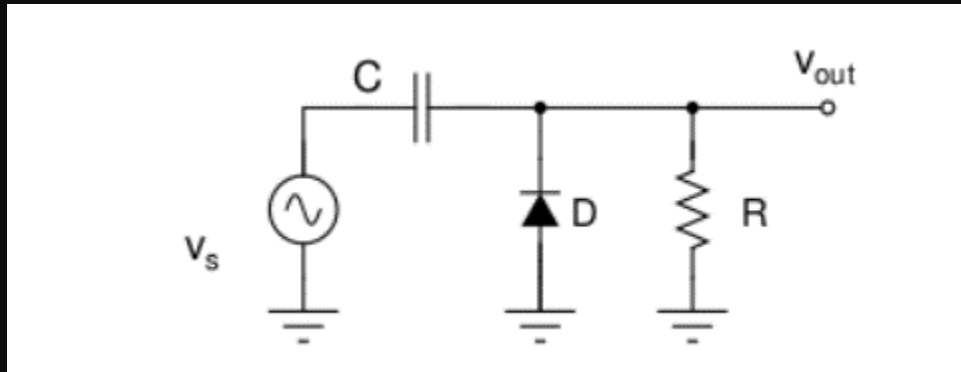
Comparison between both



ii]

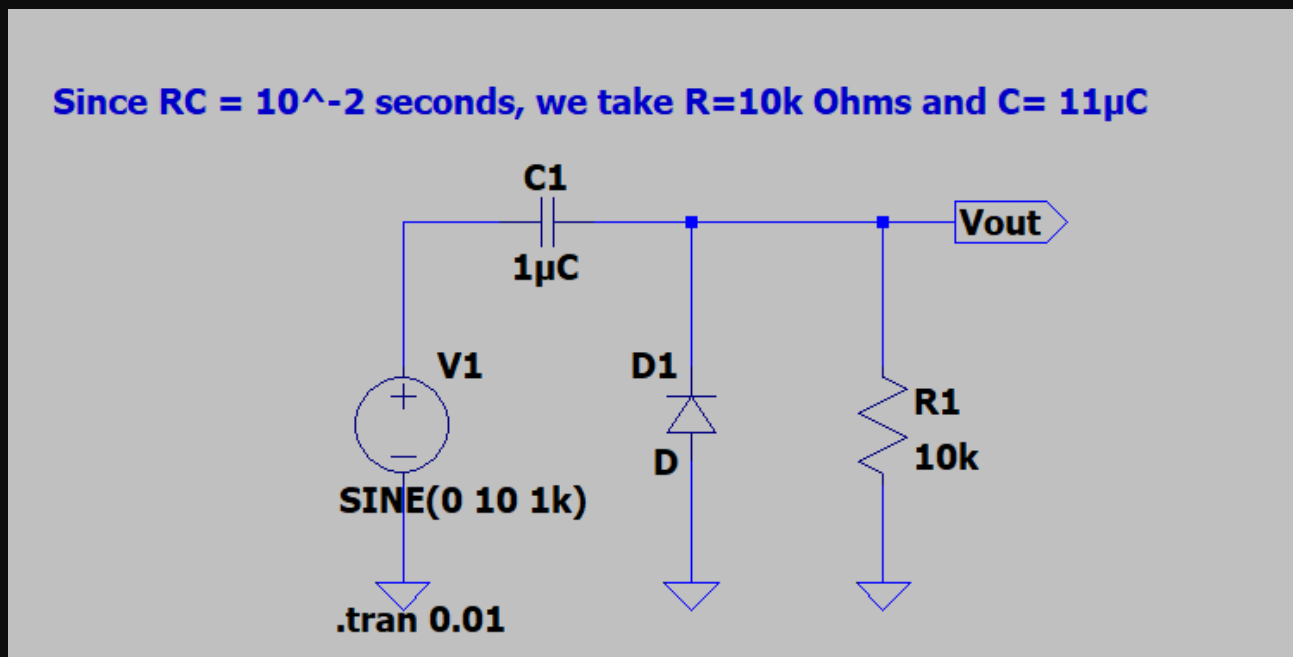
Output voltage will be clamped

Circuit diagram:



Case 1: for $V_{\text{Speak}}=10\text{V}$, $f=1\text{kHz}$ $RC=10T_s$ so we take $R = 10\text{k}\Omega$ and $C=1\mu\text{F}$

Circuit in LTspice:



Results:

