

EE311 Exp. #2

Diode Clipping and Clamping Circuits

Report #2

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Prepared by

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***CAUTIONARY REMARK: All questions will be answered in the assigned blanks. Don’t use extra place for the answers due to the fact that they are not guaranteed to be evaluated.***

**Part 1--Introduction:** Explain the main objective of the first experiment on your own words. (10pts)

**Part 2--Procedure: a) Motivation in Diodes:** Explain the following concepts: (30pts)

a) Rise Time

b) Fall Time

c) Linear Diode Model

d) Pin Diode

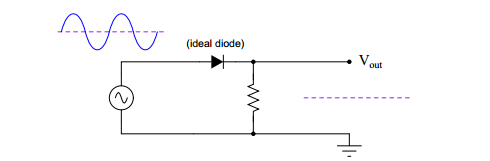
e) Schotky Diode

f) Tunnel Diode

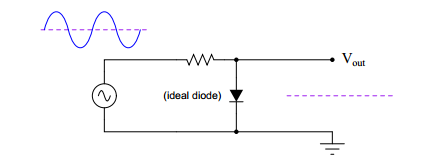
e) Varactor Diode

**b)** Sketch the shape of the output voltage waveform for the following ”clipper” circuits, assuming an ideal diode with no forward voltage drop:(15pts)

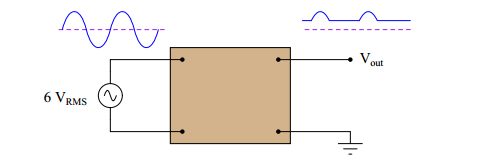
**i)**



**ii)**

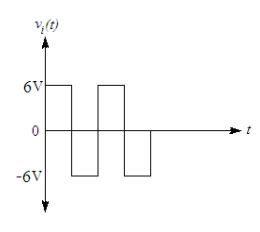
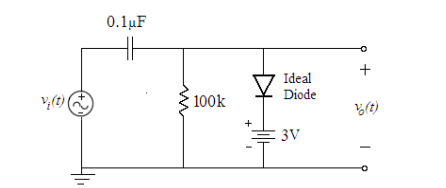


**c)** Design a clipper circuit that clips any portion of the input AC waveform below +3 volts: (15pts)



**Figure.2**

**d)** Plot Vo(t) of the following circuit.Which condition should be satisfied regarding C, rD and RL in order to avoid output waveform distortion? Is that condition satisfied in here? (C=0.1uF, RL=100kΩ and rD is equal to inner resistance of the ideal diode.) (25pts)



**Figure.3**

**Part-3--Conclusion:** Conclude your report with your learning from this experiment on your own words. Moreover, you can discuss or criticize some over-expected or under-expected sides of the experiment. (10pts)

**Part-4--References:** If you have referred parts, specify their references below. (5pts)