IC161P: APPLIED ELECTRONICS

Exercise -I

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Group D

1.Abstract

The objective of the experiment is to plot Vin and Vout graph for the following circuits using LT SPICE and understand the behaviour of the diode.

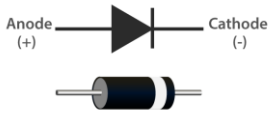
2.Apparatus Required

S.N.	Name
1	Diode
2	Resistance
3	Capacitor
4	Power Supply
5	Connecting Wires
6	Zener Diode(EDZV9_1B)

3.Theory

A Diode is an electronic device made by joining P type and N type semi-conductor which allows the current to flow in one direction that is forward biased. The opposite side which doesn't allow is reverse biased. The P side has holes as its majority charge carriers while N side has electrons as its majority charge carriers.

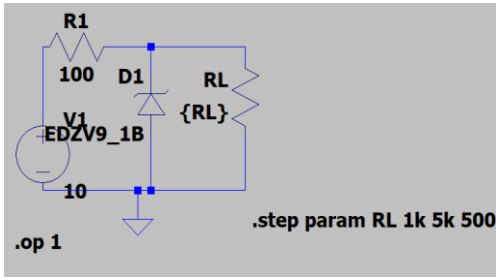
Zener Diode is a type of diode which works normally when connected in forward biased but can't go beyond a certain voltage called Zener Voltage or Knee Voltage.

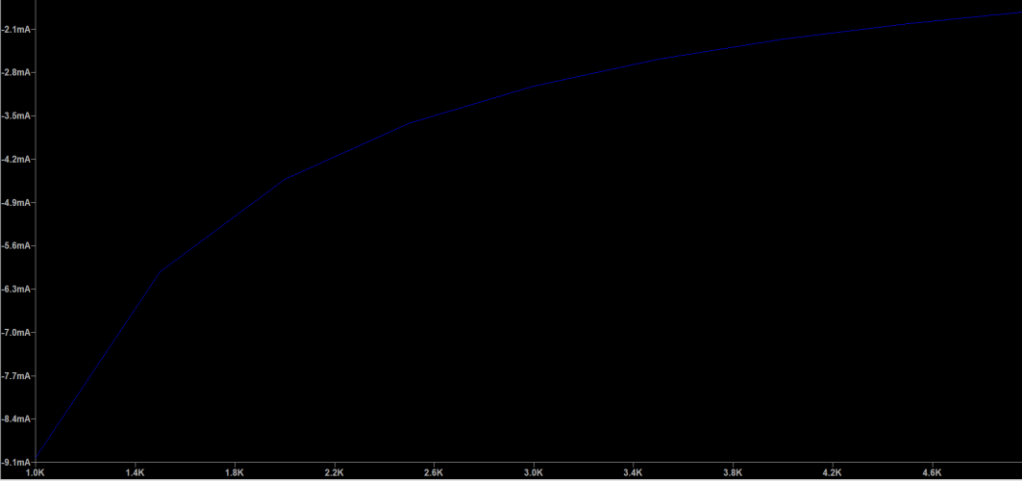


Diode Symbol

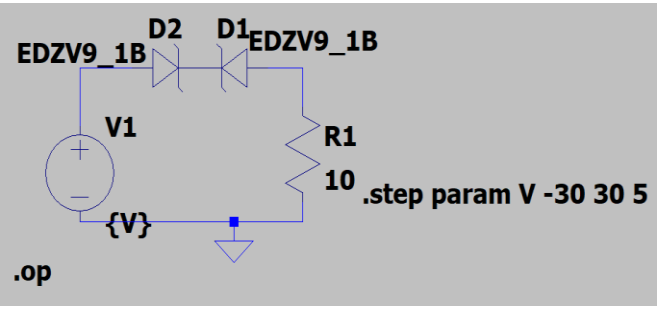
4.Experiments and Observations

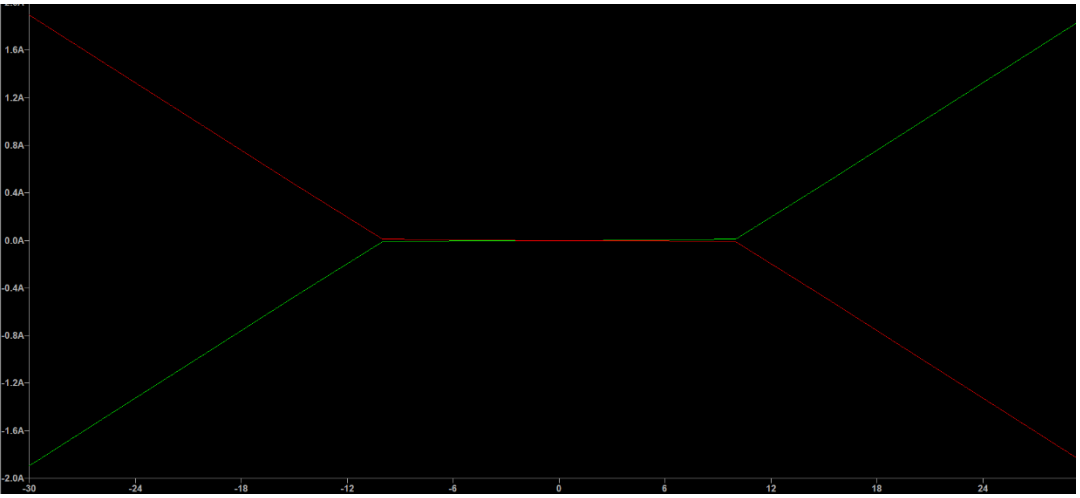
Experiment-1



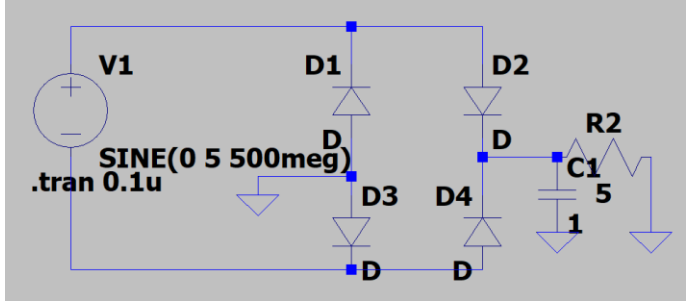


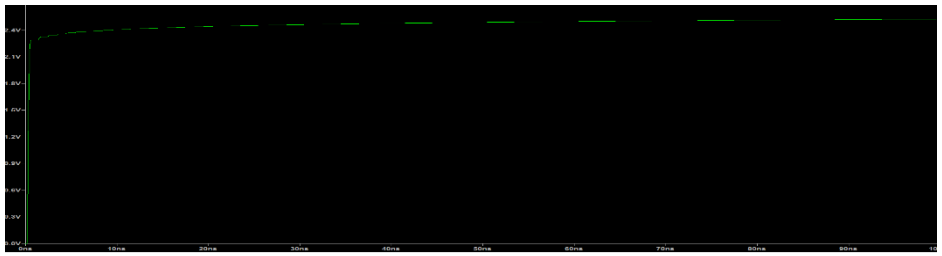
Experiment-2



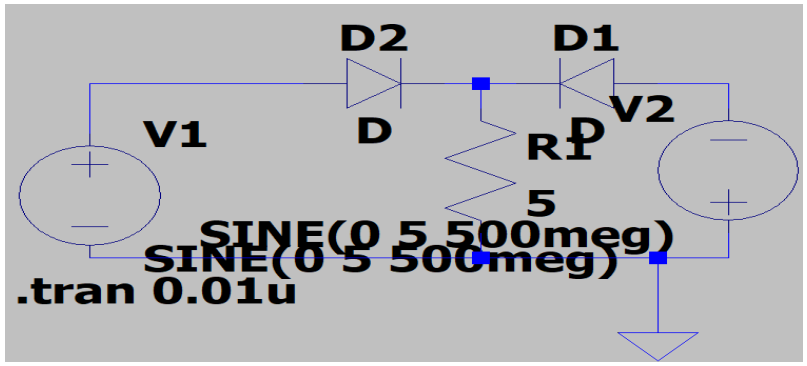


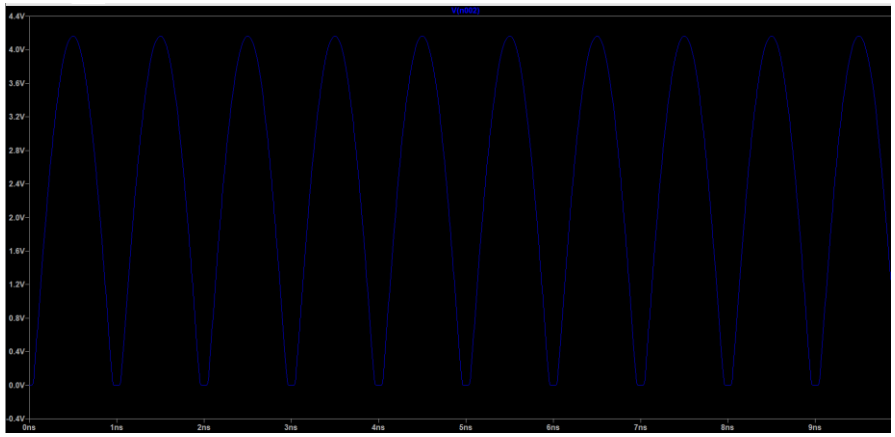
Experiment-3





Experiment-4





5.Conclusion

The general diode starts conducting in forward bias after ca certain threshold voltage (mostly Vt = 0.7v) and in the reverse bias it conducts almost negligibly. But in the case of case of the Zener diode, it conducts at its breakdown voltage and it’s resistance also changes rapidly. For a small range of voltage, a diode can also be treated as a linear circuit(piece-wise linear model) For a small range of voltage, a diode can also be treated as a linear circuit. One important application of Zener diode is its use in voltage regulation as voltage across Zener diode remains fairly constant at the breakdown voltage in reverse bias mode without getting damaged.