

EEE210 : Electronic Circuits and Devices

Lab #2 : Transfer Characteristic of Circuits with Diodes (Part 2)

Experimental work : Use diodes 1N4148 or an equivalent. All oscilloscope readings are done with DC coupling of the input channels.

Build the circuit of figure 1 in the circuit simulator *Multisim*.

1. Apply on V_i a symmetrical triangular wave of frequency 100 Hz (approximately), amplitude 6 V and 0 DC-offset.
2. Connect channels 1 and 2 of the oscilloscope on signals V_i and V_o respectively and observe the waveforms.
3. Measure the transfer characteristic of the circuit by placing the oscilloscope in the *X-Y deflection mode*.
4. Adjust the center of the oscilloscope screen to the point ($V_i = 0, V_o = 0$) and accurately measure the coordinates of the break points. Export the data from the *X-Y* window to a spreadsheet.
5. Observe the shape of the output signal V_o ; you should notice that the positive parts of the signal resemble those of a sine wave.

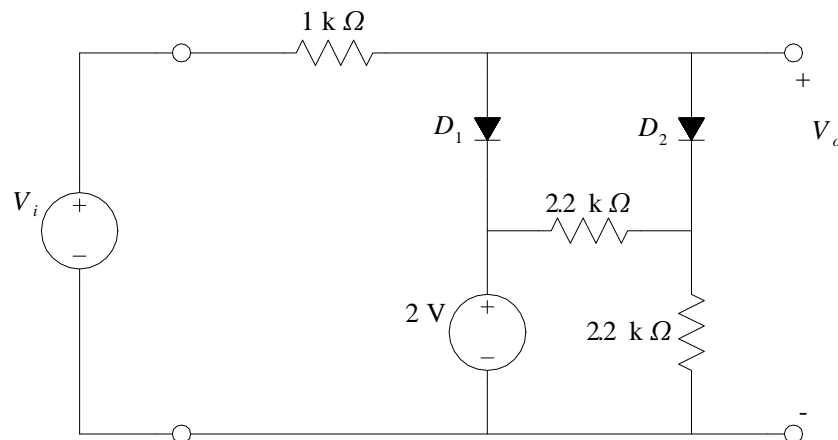


FIGURE 1 –

Report : Compare the experimental input–output transfer characteristic with that predicted by the theory. Use the piece-wise linear model of the diode that includes a 0.7 V voltage source.