Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Circuit Simulation Project

https://esim.fossee.in/circuit-simulation-project

Half Bridge Inverter

by

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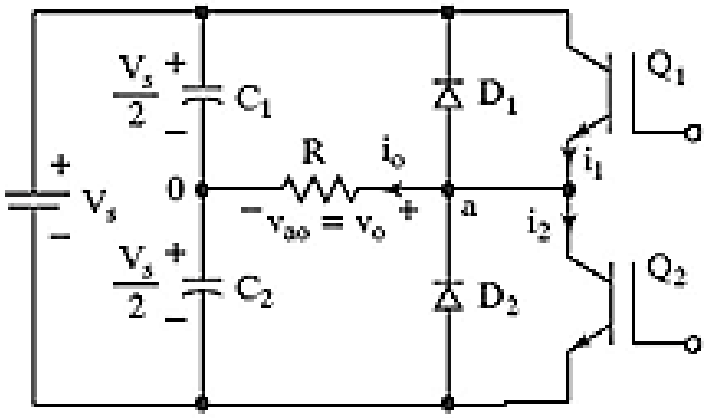
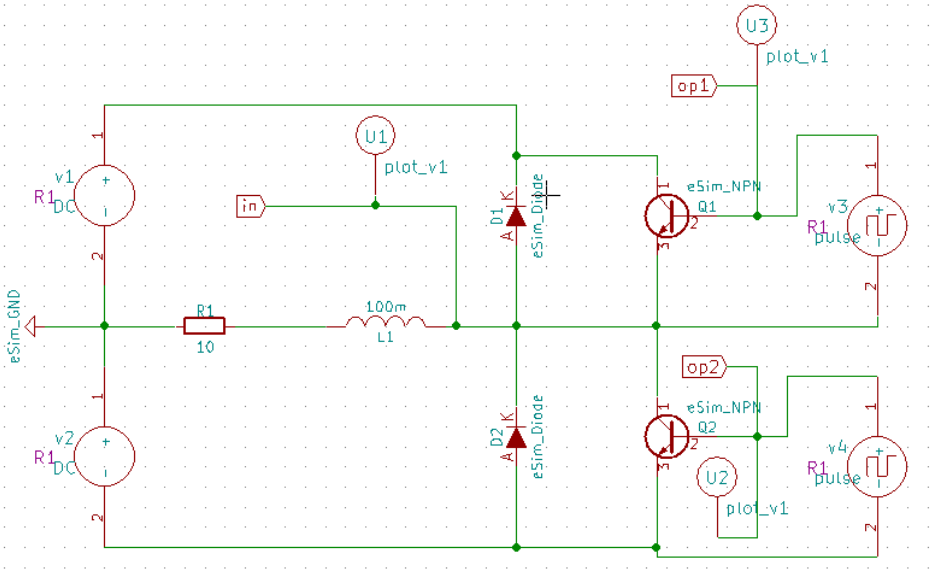
THEORY/DESCRIPTION:

The inverter is a device that converts a dc voltage into ac voltage and it consists of four switches whereas half-bridge inverter requires two diodes and two switches which are connected in anti-parallel. The two switches are complementary switches which means when the first switch is ON the second switch will be OFF Similarly, when the second switch is ON the first switch will be OFF.

DESIGN:

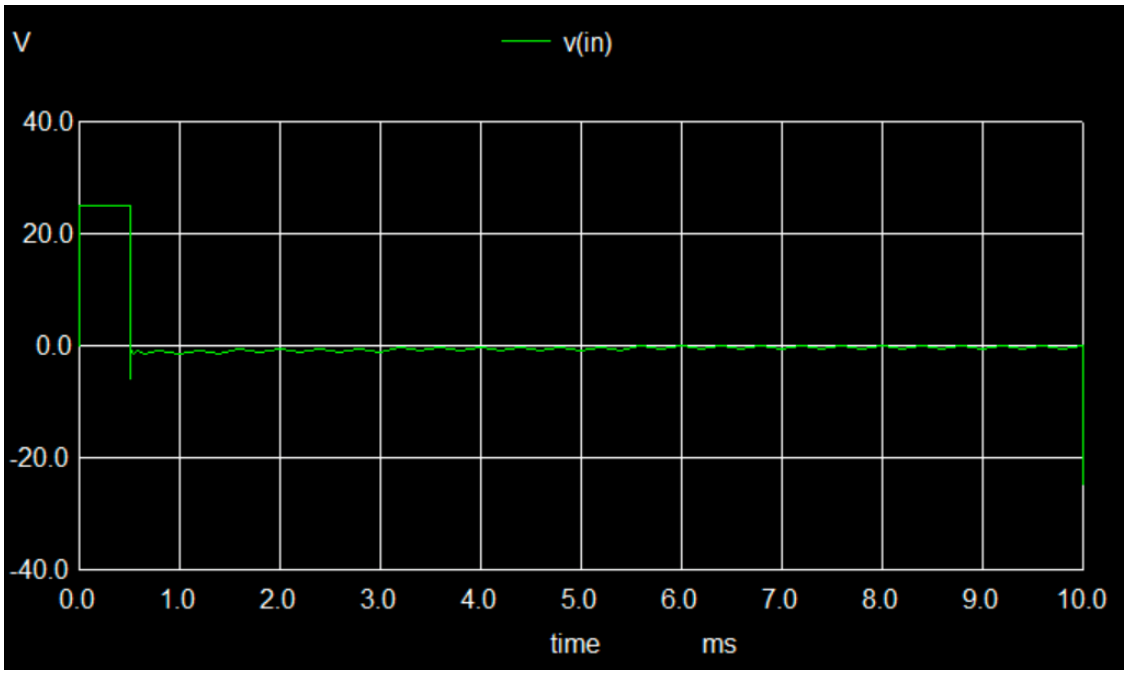


Circuit diagram:

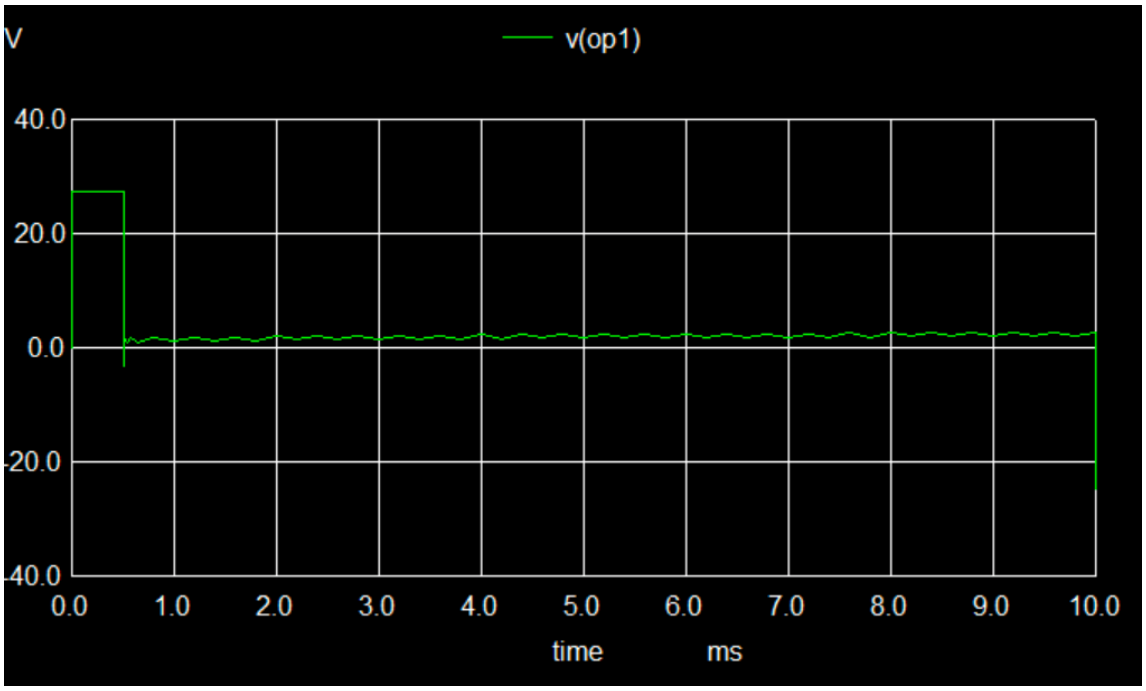


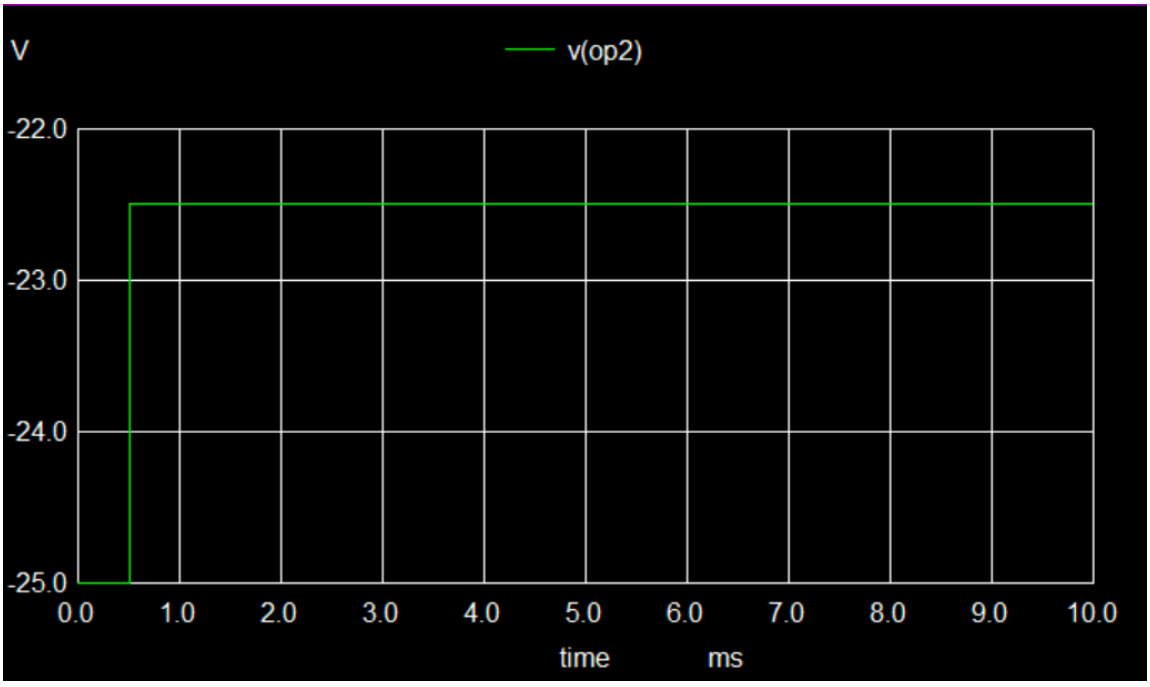
SIMULATION RESULTS:

Ngspice Plots: <u>Input Voltage</u>

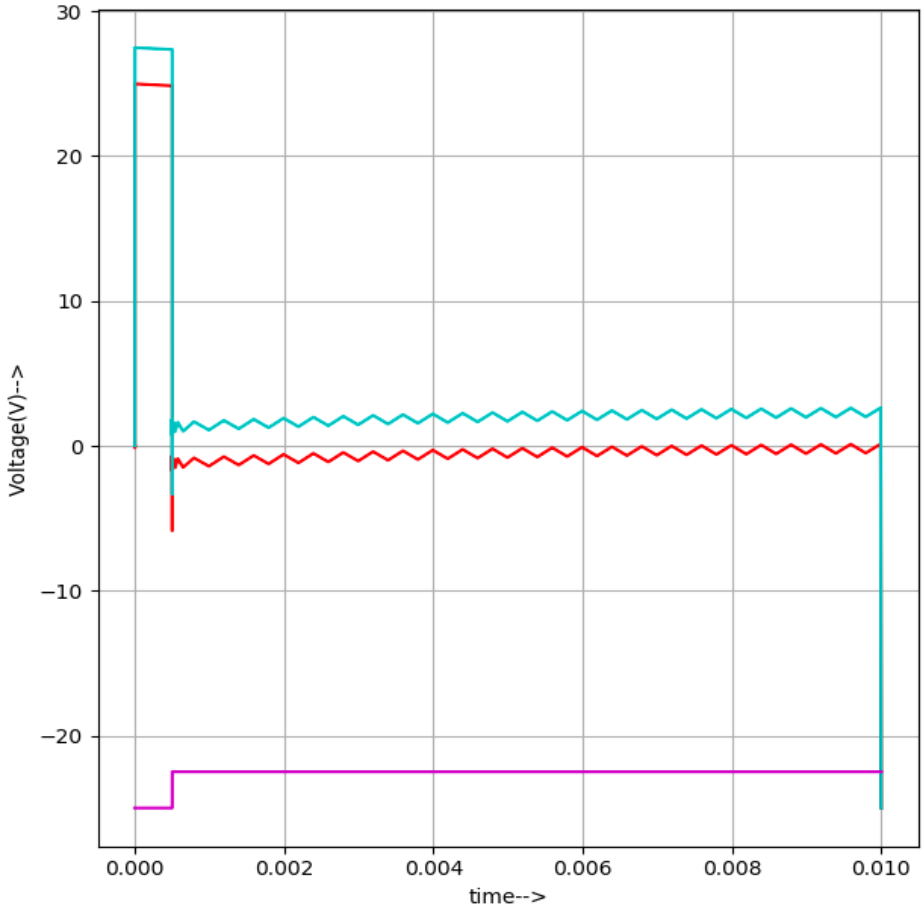


OUTPUT:


V
v(op1)
40.0
20.0
0.0
-20.0
-40.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
time
ms


V
v(op2)
-22.0
-23.0
-24.0
-25.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
time
ms

Python plots:



CONCLUSION:

Hence, we have designed a Non-Inverting Summer and plotted the input and output waveforms using Esim.

Reference:

https://www.elprocus.com/what-is-half-bridge-inverter-circuit-diagram-its-working/