Title of the Experiment

MOSFET based Class B Push Pull Amplifier

Theory

Push-pull amplifiers employ a pair of "complementary," or matching, transistors, one of which is an NPN type and the other a PNP type. The input signal that both power transistors receive is the same, with the same amplitude but opposite phase. Therefore, the "two-halves" that are produced are put back together at the output terminal, with one transistor amplifying just half, or 180o, of the input waveform cycle, and the second transistor amplifying the remaining half, or 180o, of the input waveform cycle. This kind of amplifier circuit's conduction angle is therefore just 180 degrees, or 50% of the input signal. The clever term "push-pull" refers to the pushing and pulling action of the transistors' alternate half cycles.

Schematic Diagram

The circuit schematic of the Class B Push-Pull Amplifier in eSim is as shown below

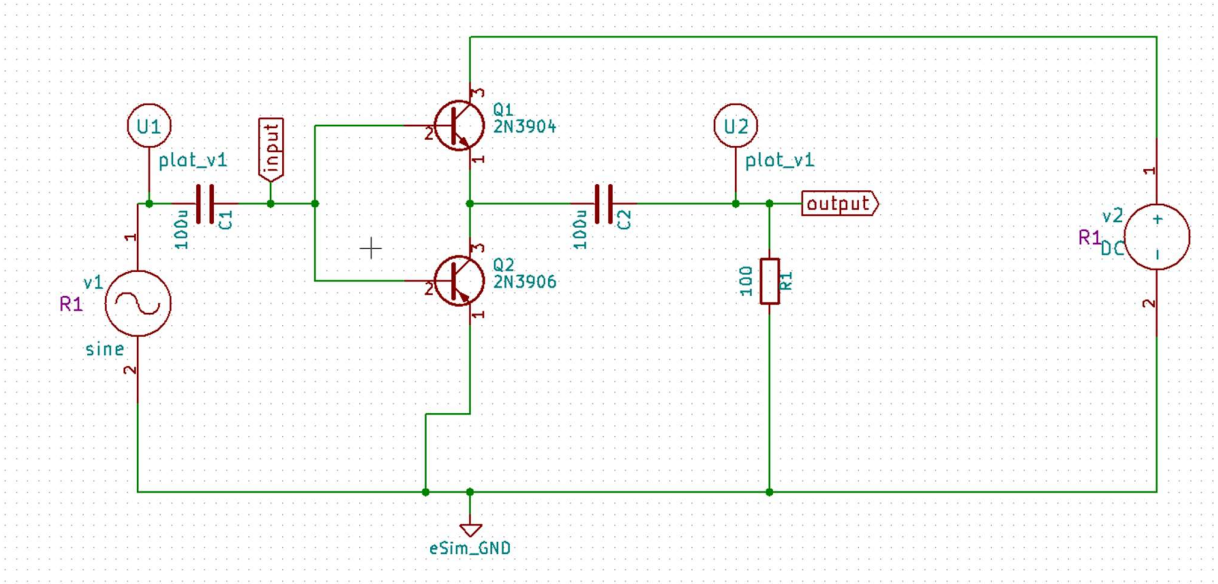

Figure 1: Schematic Diagram of Class B Amplifier

Simulation Results

1. NGSpice

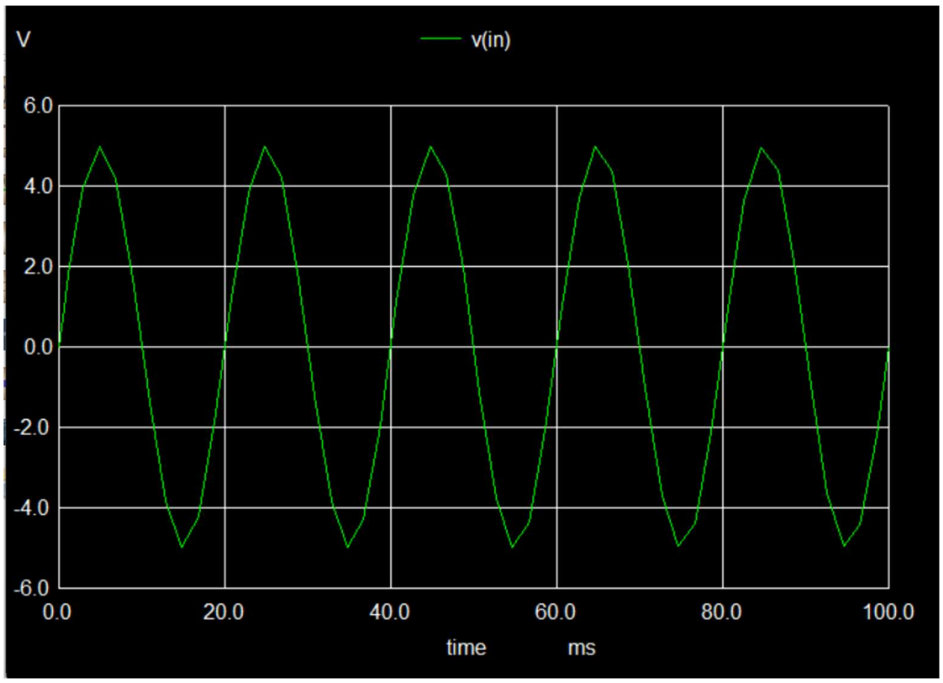

Figure 2: Input Signal given to the Class B Amplifier

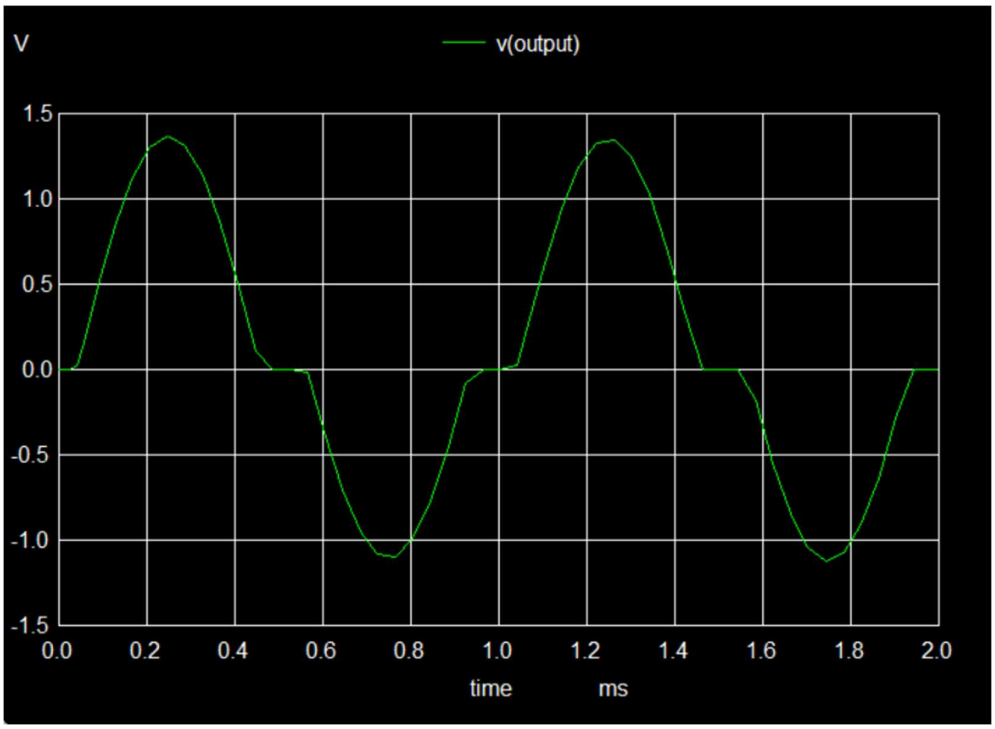

Figure 3: Output Signal given from the Class B Amplifier

2. Python Plot

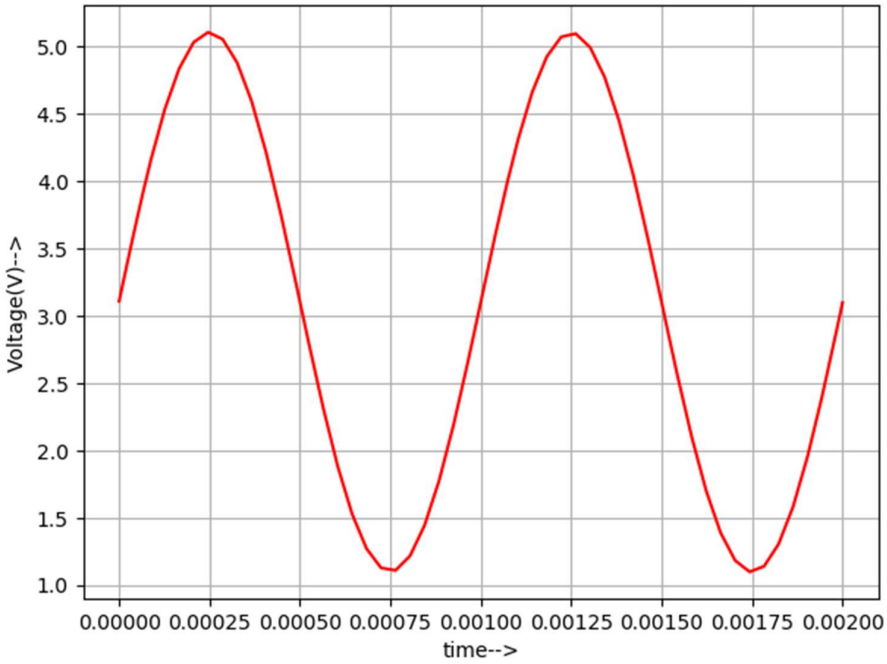

Figure 4: Input Signal given to the Class B Amplifier

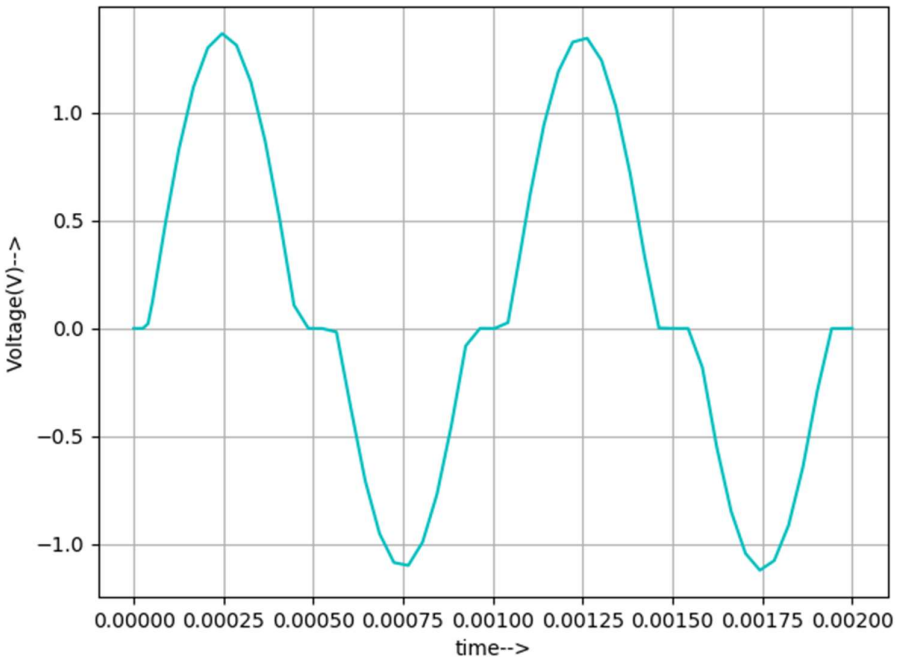

Figure 5: Output Signal given from the Class B Amplifier

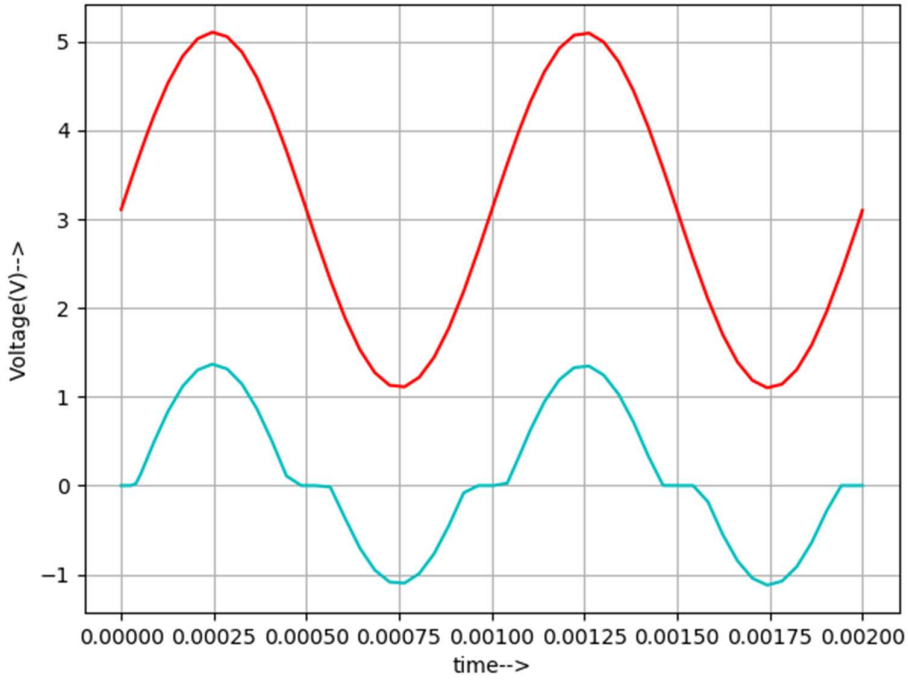

Figure 6: Transient Analysis of Class B Amplifier

Conclusion

Therefore , we have successfully verified the transient analysis of the Class B Push Pull Amplifier and achieved the appropriate waveforms.

References

https://www.electronics-tutorials.ws/amplifier/amp_6.html

https://www.tutorialspoint.com/amplifiers/class_b_power_amplifier.htm

https://www.elprocus.com/class-b-amplifier/

https://www.allaboutcircuits.com/technical-articles/introduction-to-class-b-power-amplifiers/