NarulaInstituteOfTechnology

Project:Design Of A JFETAmplifier

Subject :PR291

Group name

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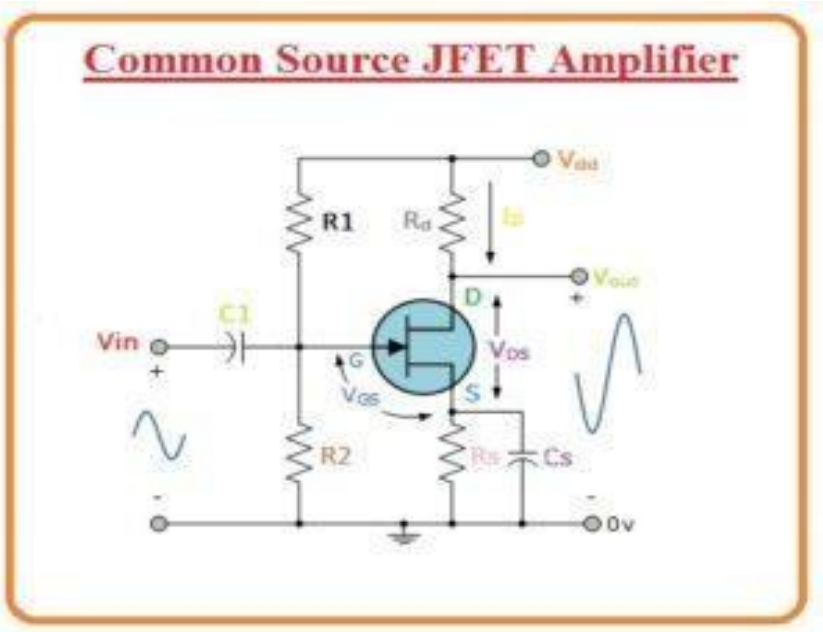
INTRODUCTION

- The design of this amplifier's circuit depends on a JFET. To create this amplifier first of all you should search a proper Q- point for exact biasing of the JFET amplifier with a single arrangement of Common-source (CS).
- For this interpretation look at the circuit diagram, in this circuit, we are using N channel JFET, which is connected in a common source arrangement.
- The voltage at gate of JFET is supplied by a potential divider system which is created by a resistance R1 and Resistance R2 and it (gate) is biased to work in its saturation region. That is equal to the energetic(active) region of BJT.
- The JFET receipts practically no current at gain letting the gate to be work like an open circuit.

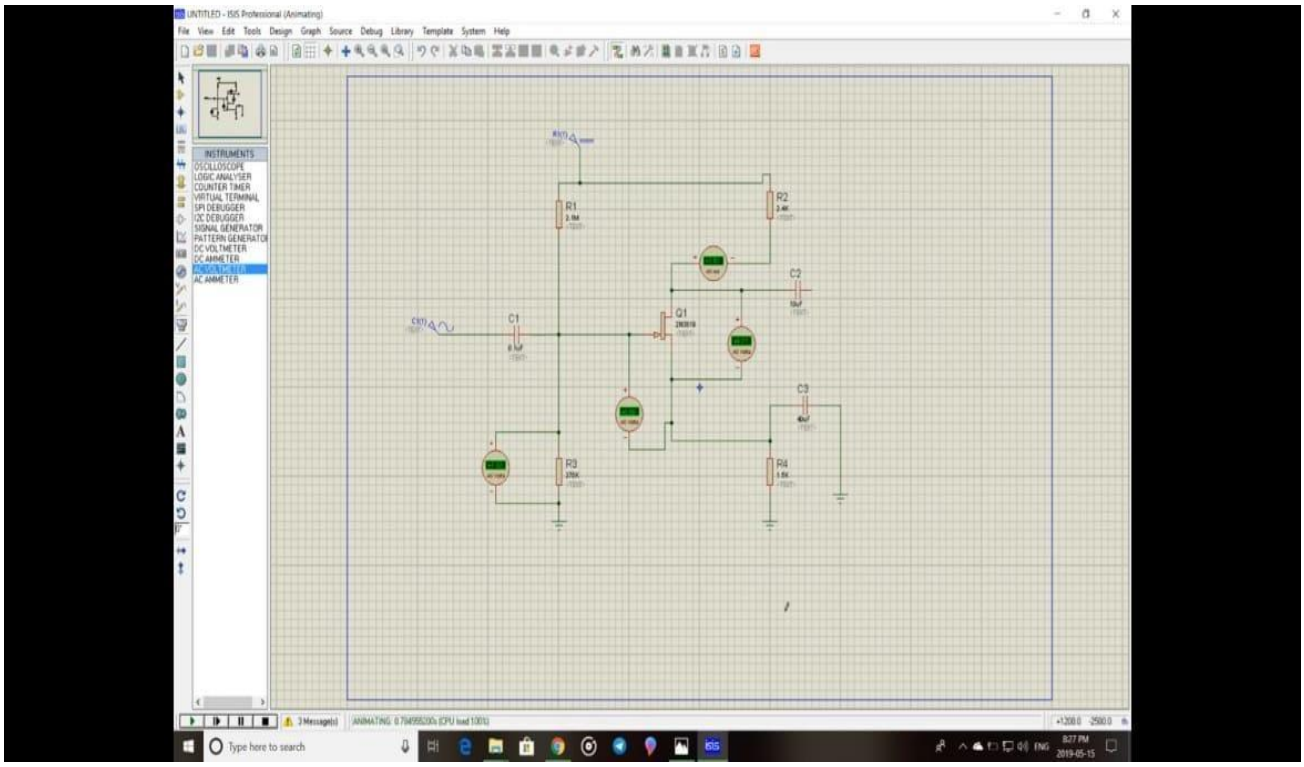


COMPONENTS

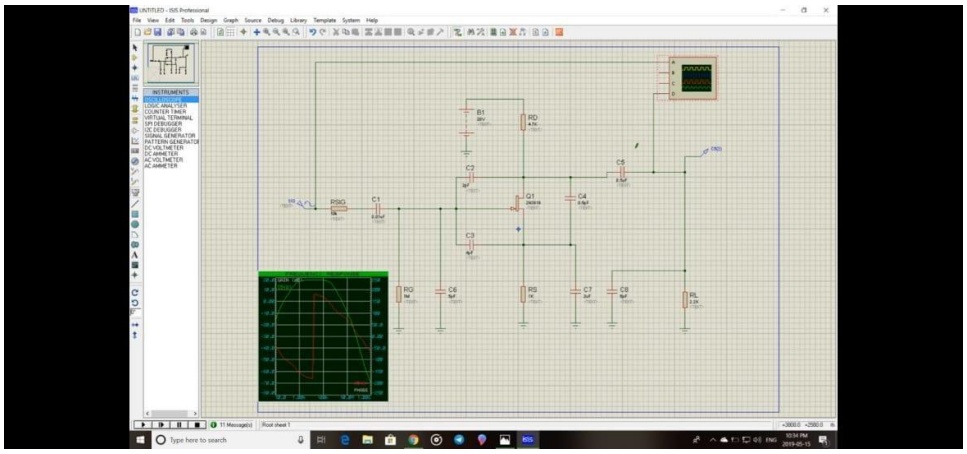
JUNCTION FET : Bipolar Transistor
SOURCE, (S) : Emitter, (E)
DRAIN, (D) : Collector, (C)
GATE, (G) : Base, (B)

SOFTWARE USED : Proteus

CIRCUIT DIAGRAM



WAVEFORM:



PRECAUTIONS:

- Missing DC Bias Current Return Path When AC-CoupledShould Be Avoided.
- Supplying Reference Voltages for In-Amps, Op Amps, andADCs
- Correctly Providing In-Amp Reference Voltage
- Preserving Power-Supply Rejection (PSR) When Amplifiers AreReferenced from the Supply Rail Using Voltage Dividers
- Decoupling Single-Supply Op-Amp Circuits

CONCLUSION

The experiment effectively exemplified how one can use a Junction Field-Effect Transistor in a common-source amplifier configuration, which is the most widely used JFET amplifier design. In this design, the input is connected to thegate, while the output is taken at the drain. The source is shorted and is common to both the input and output. This design is like a common-emitter amplifier except that the JFET has a very high input impedance and a low noise output.

RESULT:

JFET common source amplifier is studied and it’s cut off frequenciesand Bandwidth is found.