EXPERIMENT- 3

Objective: To study different types of Feedback amplifier.

Resources Required: Transistor, Resistance, Regulated Power supply, Capacitor, Signal Generator, CRO , Breadboard and Wires ,CRO Probes

Thoery:

amplifier is a type of amplifier whose feedback exists between the output and input signal. The concept of feeding the output signal back to its input circuit is known as feedback and that is why it is known as a feedback amplifier. It is dependent between the output and input with effective control. Feedback is of two type

1.Poitive Feedback

2. Negative Feedback

In positive feedback, the feedback energy (voltage or currents), is in phase with the input signal and thus aids it. Positive feedback increases gain of the amplifier also increases distortion, noise and

instability. Because of these disadvantages, positive feedback is seldom employedin amplifiers. But the positive feedback is used in oscillators.

In negative feedback, the feedback energy (voltage or current), is out of phase with the input signal and thus opposes it. Negative feedback reduces gain of the amplifier. It also reduce distortion, noise and instability.This feedback increases bandwidth and improves input and output impedances. Due to these advantages, the negative feedback is frequently used in amplifiers.

There are four types of feedback amplifiers

- Voltage series feedback amplifiers
- Voltage shunt feedback amplifiers
- Current shunt feedback amplifiers
- Current series feedback amplifiers

CIRCUIT DIAGRAMS:-

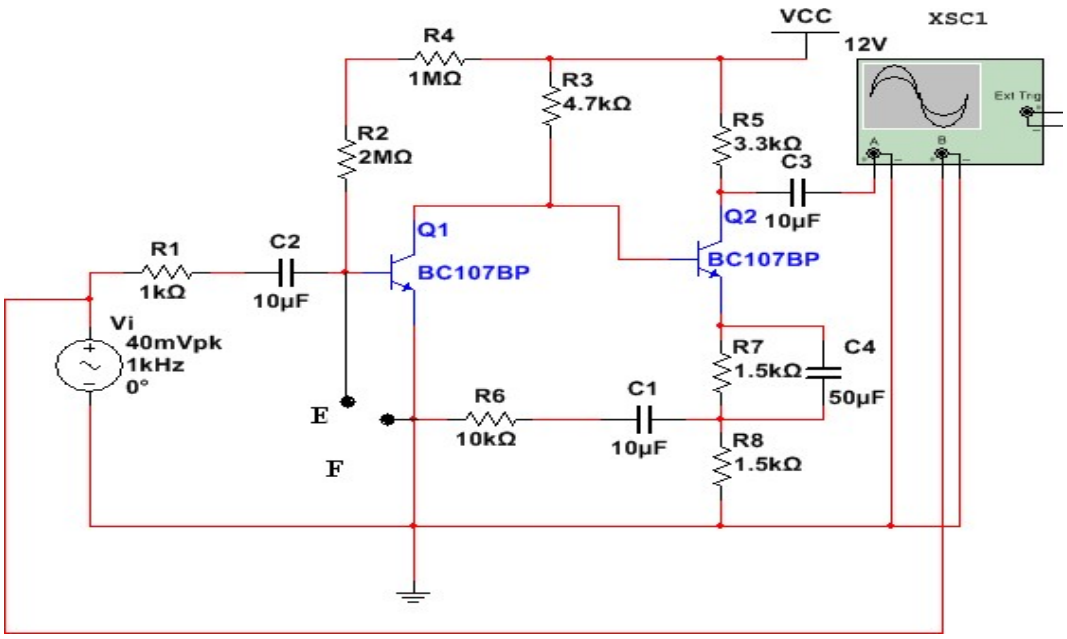

Fig: Current shunt feedback amplifiers

PROCEDURE:

1. Place all the necessary components required for the design of the current shunt feedback amplifier circuit i.e. Resistors, Capacitors, Diodes, Transistors, Voltage sources, Power sources, Ground etc on the design window.
2. Connect all the components by proper wiring and also assure that nodes are formed at the interconnection points
3. .Connect the channel of the Oscilloscope to the output of the circuit and by using the simulation switch and check output waveform.
4. Vary the input frequency from 10Hz to 1MHz with input voltage constant (40mvpp) and note down the output voltage.
5. Calculate the voltage gain in dB using the formula Av=20 log(Vo/Vi).

OBSERVATIONS TABLE

1. WITHOUT FEEDBACK

Vi= 40mvp-p at 1kHz

S.No	Frequency(hz)	Output voltage(vo)	Voltage gain (vo/vi)	Gain (db) Avf=20 log (vo/vi).

Bandwidth without feedback=----------

2. WITH FEEDBACK

Vi= 40mvp-p at 1kHz

S.NO	Frequency(hz)	Output voltage(vo) -- Bandwidth without feedback=----------	Voltage gain (avf=vo/vi)	Gain (db) Avf=20 log (vo/vi).

RESULT:

The Av of the current shunt feedback amplifier is_____and the bandwidth is ……without feedback and The Av of the current shunt feedback amplifier is ……and the bandwidth is ……..with feedback.