

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING
BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY
COURSE NO.: EEE208
EXPT. NO. 04

Name of the Experiment: Study of Feedback Amplifier Circuit

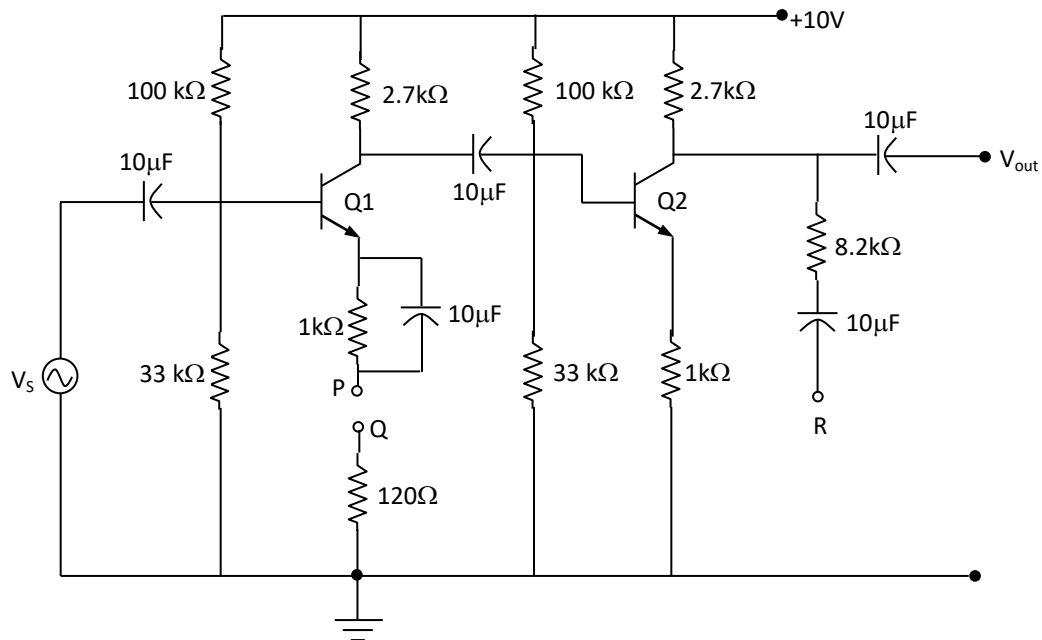
Objective:

Study of voltage gain, bandwidth, input & output impedances under current series and voltage series feedback conditions of a two stage CE amplifier configuration

Equipment Required:

Transistor	: C828 or C829	2 pieces
Resistors	: 100k, 33k, 1k, 2.7k, 8.2k, 120Ω	2 pieces each
Potentiometer	: 10k	1 piece
Capacitors	: 10 μF	4 pieces
Signal generator		1 unit
Oscilloscope		1 unit
DC power supply		1 unit

Circuit Diagram:



Procedure:

1. Connect the point P to ground.
2. Apply input signal of 1 kHz, V_{in} should be 10 mV to 20 mV (p-p).
3. Keep the input constant during the experiment.
4. Keeping the input voltage constant increases the frequency of the input.
5. Measure the output voltage V_{out} , find out the 3 db point
6. Connect the 10 k potentiometer to the output terminal. Vary the potentiometer until the voltage is half of the open circuit voltage.
7. Apply current series feedback in the first stage of the amplifier. To do this connect P and Q. Repeat steps 2, 4, 5 and 6, respectively.
8. Apply voltage series feedback. To do this connect P, Q and R. Repeat steps 2, 4, 5 and 6, respectively.

Sample Data Sheet:

Frequency	Without Feedback		Current-Series Feedback		Voltage-Series Feedback	
	V_{in} , mV	V_{out} , mV	V_{in} , mV	V_{out} , mV	V_{in} , mV	V_{out} , mV
1kHz to 5MHz						

Reports:

- What is feedback? Why is it used?
- Classify and explain feedback topologies briefly and mention their advantages.
- Calculate gain A and plot frequency response characteristics for the different amplifier configurations.
- Find out bandwidth with current series and voltage series feedback.
- Relate between output impedances obtained from different amplifier configurations.
- Why coupling capacitors are used between the two stages of the amplifier?
- Why emitter bypass capacitor is omitted from the second stage?
- Is it possible that an amplifier without feedback may oscillate at high frequency, if so why?

Reference: Integrated Electronics – Millman & Halkias