

# **ELECTRONICS LAB.**

## **PART 5 EXPERIMENTS**

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# EXPERIMENT: 5.1

## EXAMINATION OF EMITTER GROUND AMPLIFIER

### EXPERIMENTAL PROCEDURE:

Plug the Y-0016/009 module. Make the circuit connections as in figure 14.5

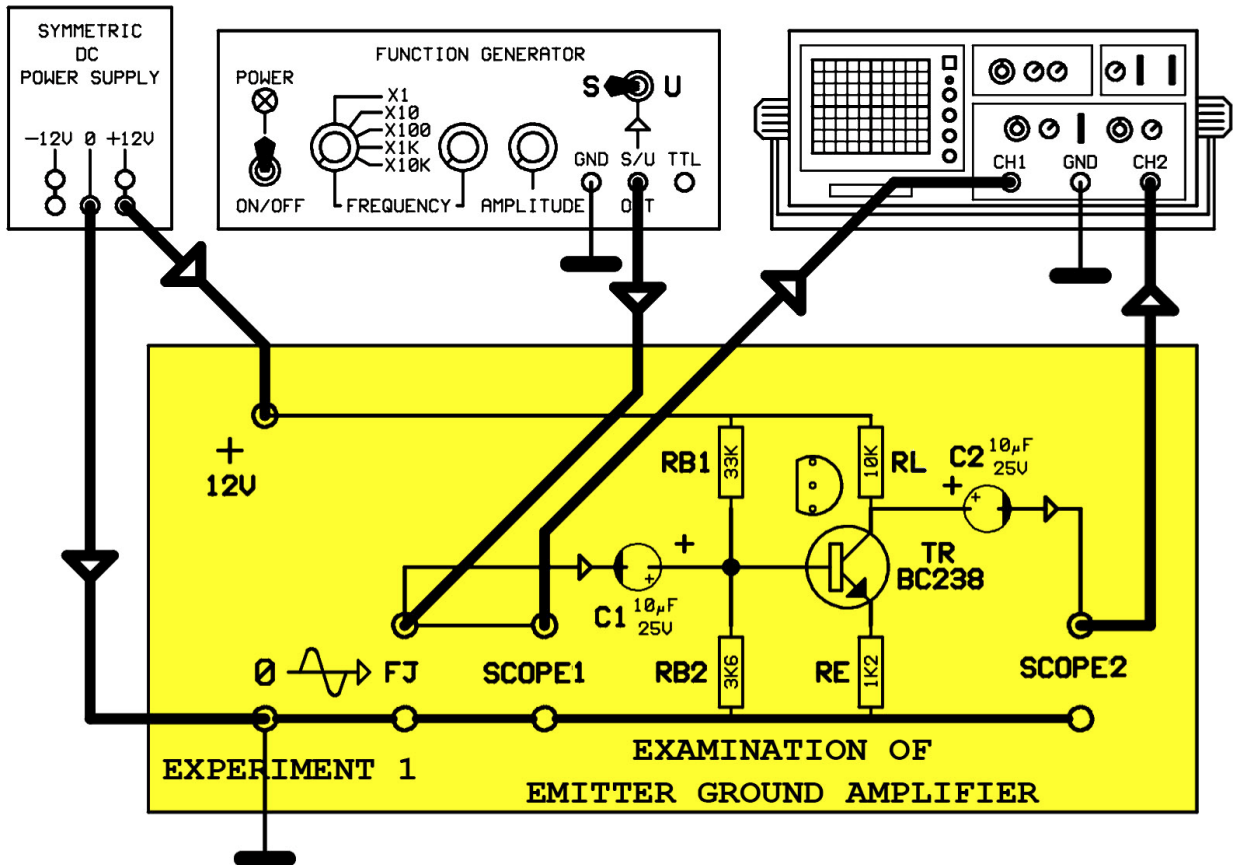


Figure 14.5

- 1- Adjust the amplitude potentiometer of function generator to zero. (**mid-terminal will be on left**).
- 2- Adjust the output waveform to sine, frequency to 1KHz and amplitude to peak to peak  $V_{ipp}=100mV$
- 3- See the input and output signals at oscilloscope. What is the phase relation between input and output signals?

4- Measure the output signal amplitude (**V<sub>opp</sub>**). Calculate the circuit gain (**A**).

$$A = \frac{V_{O_{PP}}}{V_{i_{PP}}} =$$

5- Write the properties of emitter ground amplifier.

*a- Input impedance* .....

*b- Output impedance* .....

*c- Voltage gain* .....

*d- Current gain* .....

*e- Power gain* .....

## EXPERIMENT: 5.2

### EXAMINATION OF BASE GROUND AMPLIFIER

#### EXPERIMENTAL PROCEDURE:

Plug the Y-0016/009 module. Make the circuit connections as in figure 14.7

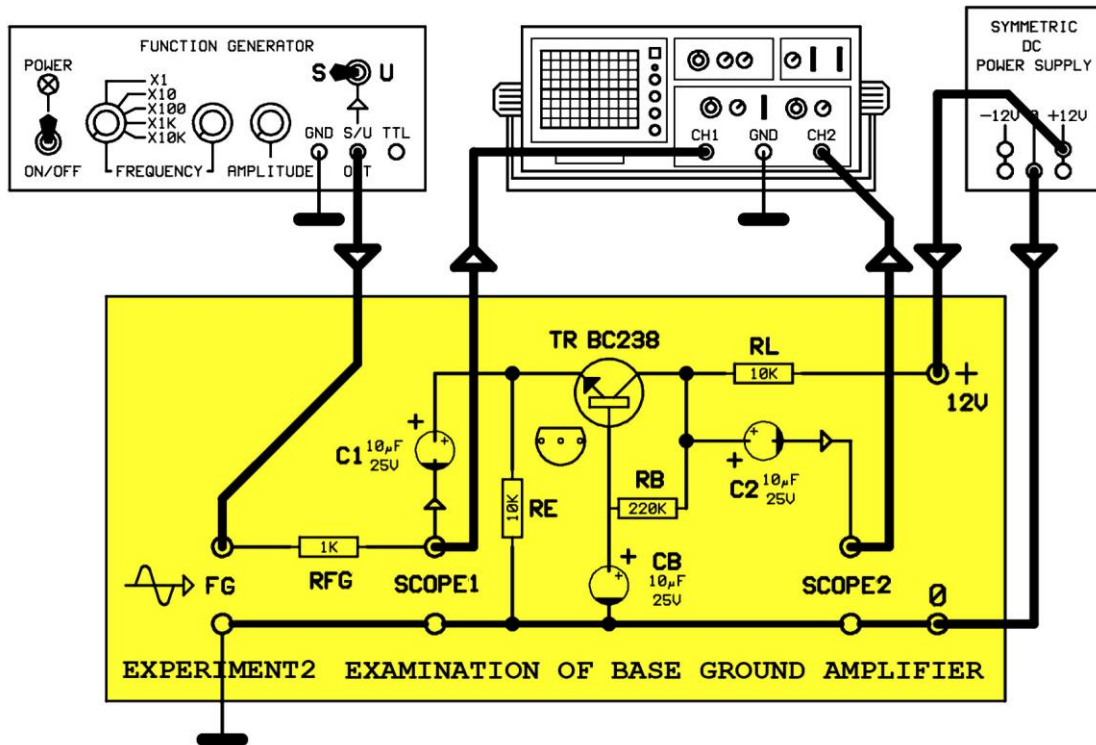


Figure 14.7

1- Adjust the amplitude potentiometer of function generator to zero. (**mid-terminal will be on left**). RFG resistor is used to prevent the function generator's short-circuiting because input impedance of base ground amplifier is too low.

2- Adjust the output signal to sine wave at point scope1, frequency to 1KHz and amplitude to peak to peak **V<sub>ipp</sub>**=10mV. Apply power to the circuit.

3- See the input and output signals displayed by oscilloscope. What is the phase relation between input and output signals?

4- Measure the output signal amplitude (**V<sub>opp</sub>**). Calculate the circuit gain (**A**).

*Peak to peak output signal amplitude:*

**V<sub>opp</sub>**=

*Gain is the ratio of output voltage to input voltage.*

**Gain:**

$$A = \frac{V_{O_{PP}}}{V_{i_{PP}}} =$$

5-Write the properties of base ground amplifier.

*a- Input impedance .....*

*b- Output impedance .....*

*c- Voltage gain .....*

*d- Current gain .....*

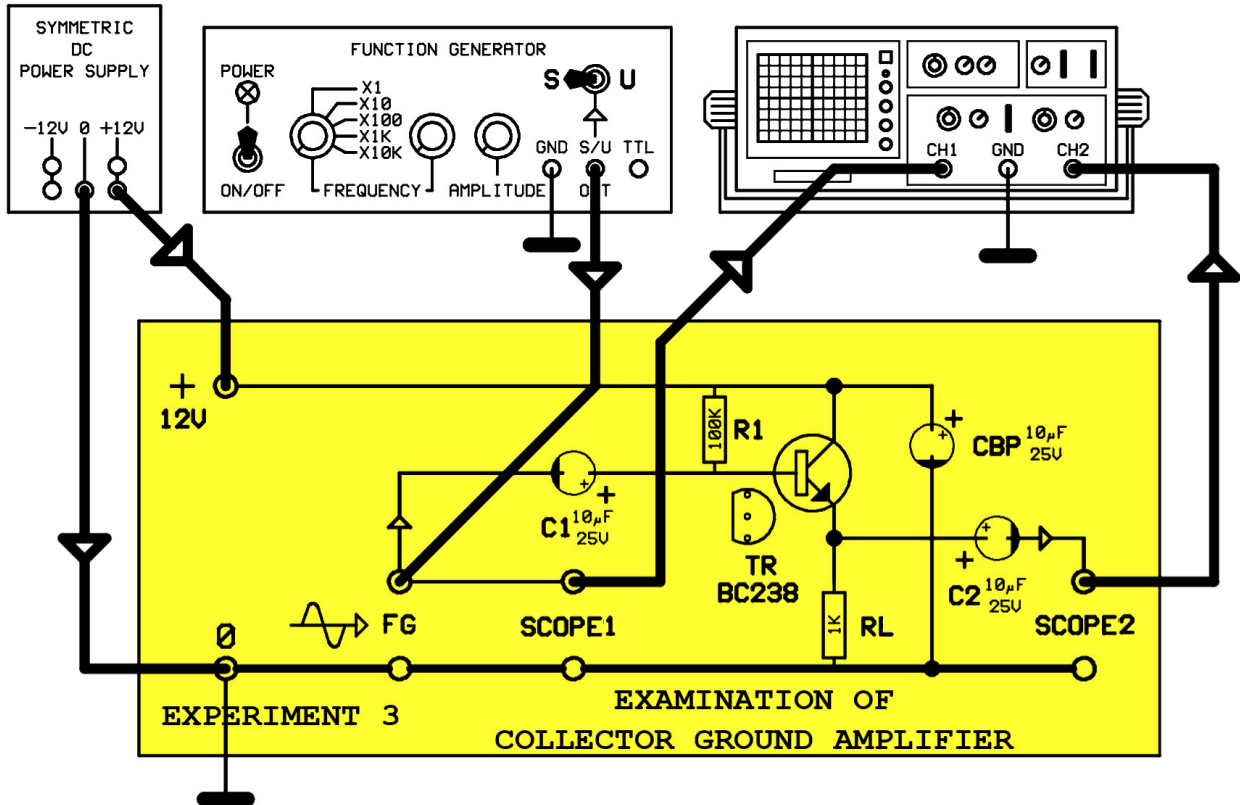
*e- Power gain .....*

# EXPERIMENT: 5.3

## EXAMINATION OF COLLECTOR GROUND AMPLIFIER

### EXPERIMENTAL PROCEDURE:

Plug Y-0016/009 module. Make the circuit connections as in figure 14.9



**Figure 14.9**

- 1- Adjust the amplitude potentiometer of function generator to zero. (**mid-terminal will be on left**). Apply power to the circuit.
- 2- Adjust the output signal to sine wave, frequency to 1KHz and amplitude to peak to peak **V<sub>ipp</sub>=1V**.
- 3- See the input and output signals displayed by oscilloscope. What is the phase relation between input and output signals

4- Measure the output signal amplitude (**V<sub>opp</sub>**). Calculate the circuit gain (**A**).

*Output signal amplitude is a little smaller than the input. Peak to peak output signal is:*

**V<sub>opp</sub>**=

*Gain is the ratio of output voltage to input voltage.*

**Gain:**

$$A = \frac{V_{oPP}}{V_{iPP}} =$$

5-Write the properties of collector ground amplifier

**a-** *Input impedance* .....

**b-** *Output impedance* .....

**c-** *Voltage gain* .....

**d-** *Current gain* .....

**e-** *Power gain* .....