

Feng Chia University

Electrical Engineering Fundamentals II Lab

Laboratory 10

BJT Amplifier Circuits - VTC Measurement

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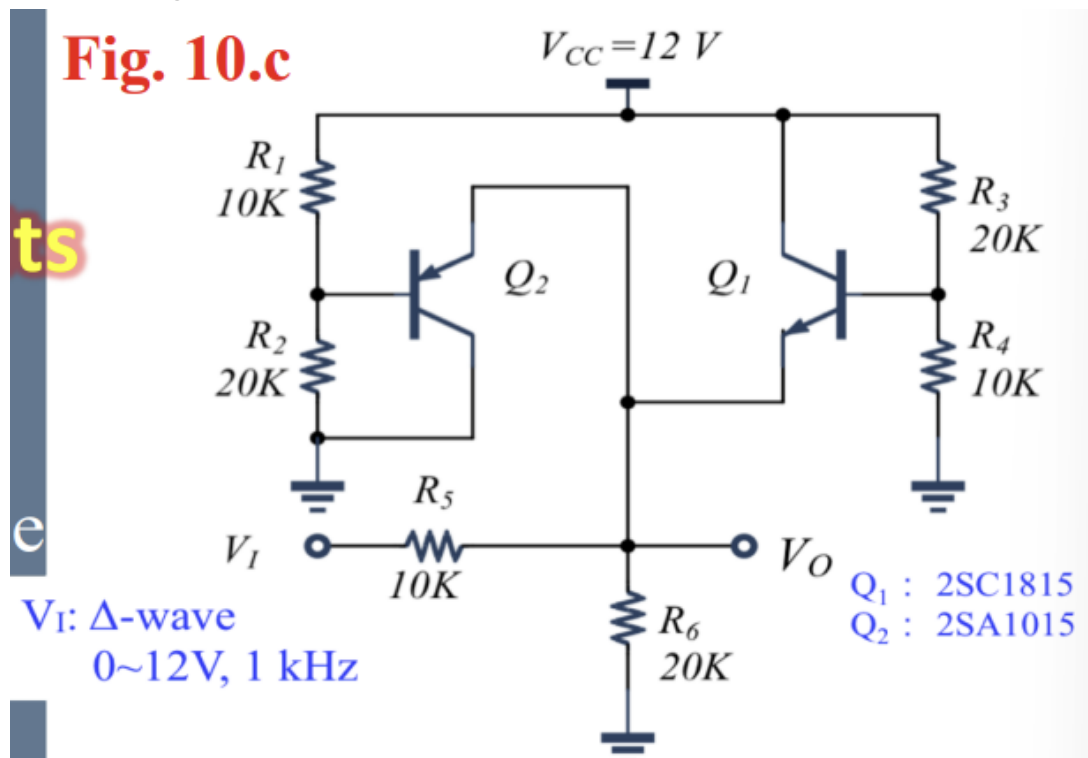
## I. Introduction

- To observe the behavior of BJT amplifier circuits.

## II. Materials

- Power supply
- Function generator
- Oscilloscope
- Devices  
Q: 2SC1815  $\times 1$ , 2SA1015  $\times 1$   
Resistors: R = 10 k $\Omega$   $\times 3$ , 20 k $\Omega$   $\times 3$

## III. Circuit diagram



▲ Figure 1. Circuit of Experiment 10.c VTC Measurement of Multiple BJT Circuits

## IV. Methods

Using Oscilloscope to observe voltage.

## V. Experiments data

### 1. Experiment 10.c VTC Measurement of Multiple BJT Circuits

Table 1: Measurement of Multiple BJT Circuits

|             | $V_{IA}$ | $V_{IB}$ | $V_{OA}$ | $V_{OB}$ | $A_V$  |
|-------------|----------|----------|----------|----------|--------|
| Measurement | 10 V     | 5 V      | 6.7500 V | 3.2500 V | 0.7000 |
| Theoretical | 10 V     | 5 V      | 6.6667 V | 3.3333 V | 0.6667 |

## VI. Results



▲ Figure 2. VTC curve of Experiment 10.c

## VII. Discussion

1. Compare the theoretical VTC with the experimental VTC.  
The measurement and theoretical value are identical the same.
2. Try to discuss why the transistor won't be in saturation mode?  
Because the circuit is following circuit, the transistor won't be in saturation mode.

## VIII. Conclusion

From the experimental data above, the BJT work in an ideal situation.