

Elec Eng 2E15

Lab 4: BJTs

Deliverables and Evaluation

1. Summary

For this lab:

- All tasks are required
- You get 75% of the marks based on your data
- You get the remaining 25% for discussion

2. Deliverables

Do not submit a report.

Submit a record of the data gathered and/or determined during the experiment (i.e. voltage measurements, estimates for β , etc.). Include screen captures of the waveforms in Tasks 1 & 2 and the Excel plot obtained in Task 2.

Submit a single page with a maximum of two paragraphs discussion of your conclusions from the results obtained in Tasks 3 & 4.

3. Evaluation

Evaluation is based on the submitted data and discussion as follows:

Task 1:

- | | |
|-------------------------------------|---|
| • NPN output characteristics | 5 |
| • Estimate of $V_{CE(sat)}$ for NPN | 5 |
| • PNP output characteristics | 5 |

Task 2:

- | | |
|---|----|
| • NPN transfer characteristics | 5 |
| • Estimate of $V_{BE(ON)}$ for NPN | 5 |
| • Excel plot of $\ln(I_C)$ vs. $\ln(I_B)$ | 10 |
| • Estimate of β | 10 |

Task 3:

- | | |
|---|----|
| • Voltage measurements | 10 |
| • Estimates of β for both devices | 10 |

Task 4:

- | | |
|------------------------|----|
| • Voltage measurements | 10 |
|------------------------|----|

Discussion 25