ECEN 325 - 512

Characterization and DC Biasing of the BJT

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Contributors:

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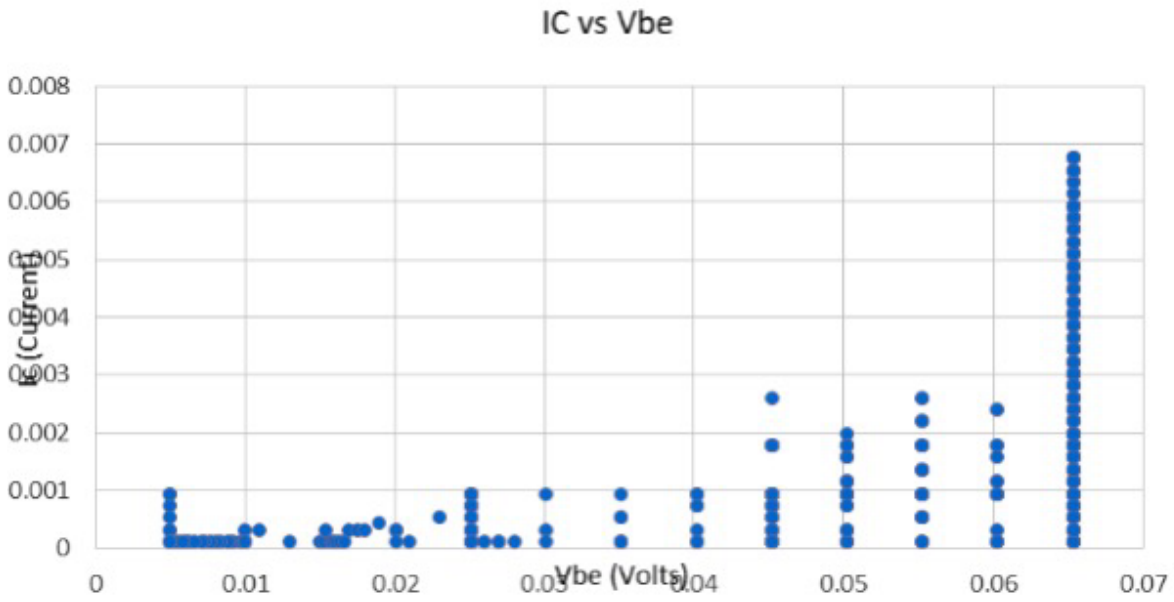
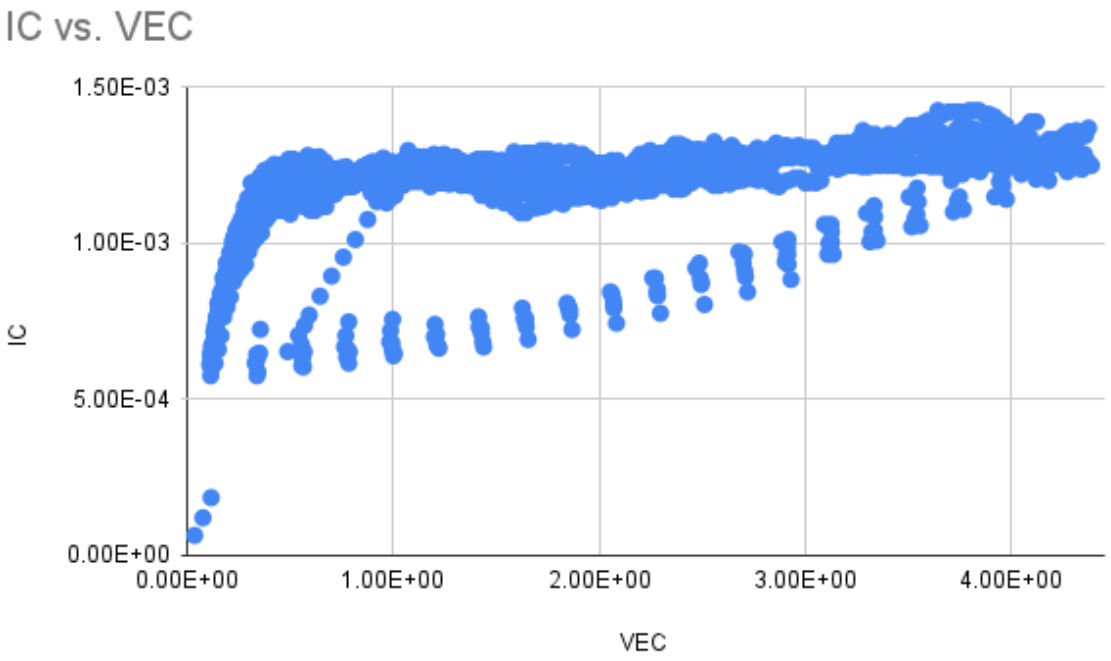
Measurements

1. Build the NPN characterization circuit in Fig. 2 using the 2N3904 transistor

- Plot IC as a function of VBE in Excel.



- Plot IC as a function of VEC in Excel.



Data Table:

The provided data table is a good way to organize measured values. This format simplifies the detection of inconsistencies, allows for easy comparison of results across different methods or frequency domains, and ensures transparency and data integrity. By structuring data in this manner, we can efficiently manage and reference our findings, enhancing the clarity and reliability of our work.

3. Figure 6(a) and 6(b).

NPN		PNP	
Vc	3.375 V	Vc	1.604 V
V2	2.257 V	Vre	3.379 V
Ic	1.083 A	V2	2.741 V
Vre	1.62 V	Ic	1.069 A

4. Figure 7(a) and 7(b) and 8(a) and 8(b).

NPN		PNP	
Vc	3 V	Vc	1.6 V
V2	0.46 V	V2	2.2 V
Vx	2.059 V	Vx	1.7 V
Vy	1.199 V	Vy	1.19 V
Ic	2.22 mA	Ic	1.925 mA

Results:

This laboratory experiment presented a distinctive departure from our previous assignments, characterized by its extended duration, requiring us to divide the workload between two separate groups, each dedicating a substantial three-hour period to complete it. Despite the considerable time investment, we managed to successfully complete the task, with our recorded data closely mirroring the simulated values. Naturally, a margin of error may exist due to the use of distinct values.