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| **Kingdom of Saudi Arabia**  **Ministry of Education**  **University of Hail**  **College of Computer Science and Engineering**  **Department of Computer Engineering** |  | **المملكة العربية السعودية**  **وزارة التعليم**  **جامعة حائل**  **كلية علوم وهندسة الحاسب الآلي**  **قسم هندسة الحاسب الألي** |

**Electronics - 203**

Experiment #6: Bipolar Junction Transistor Characteristics

Part#1

**Name :** Khaled Mofdi Alshammri

**Couse :** EE-203

Introduction :

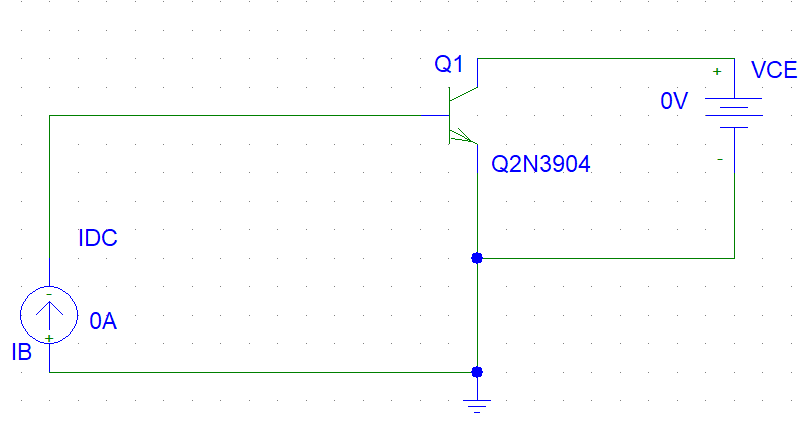
in this experiment i will study transistor BJT type PNP ( PNP mean positive negative positive ) and will analysis current with software PSpice, then find beta value and alpha value with use some law to find it

Lets get started :

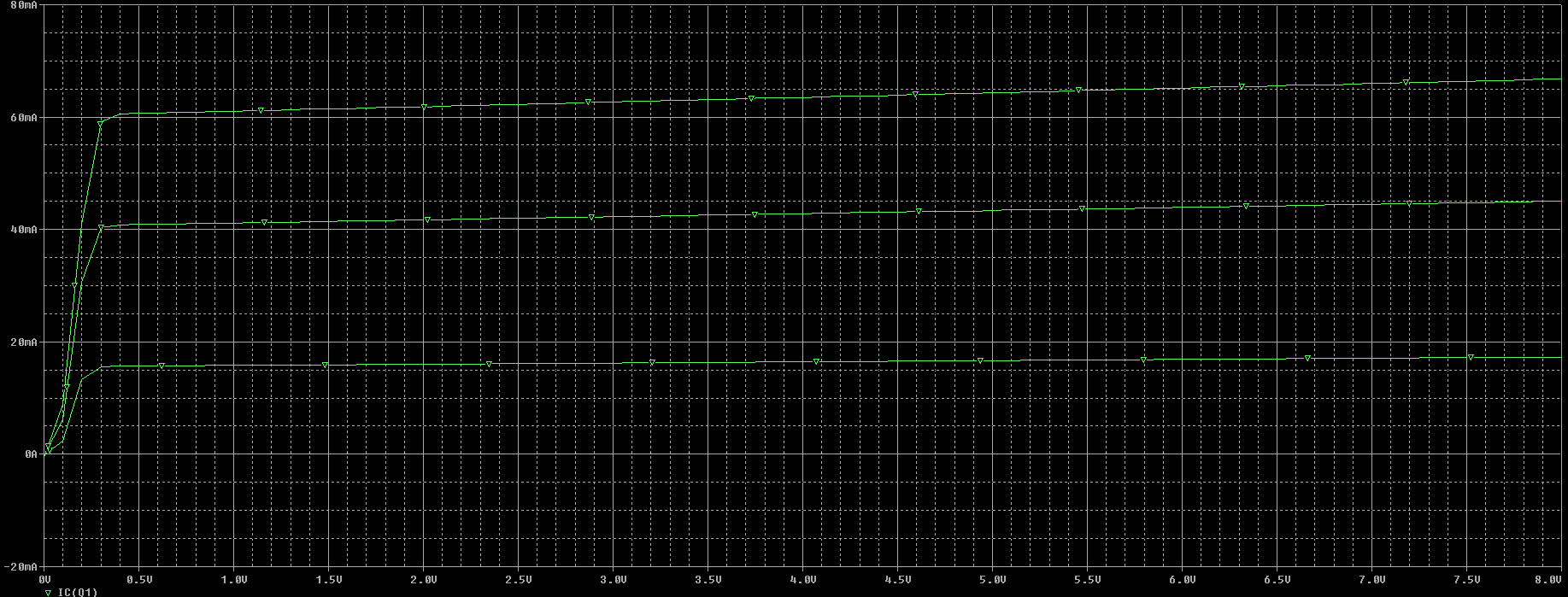
**A ) Determine α and β from the curves for the following values of IB and VCE: IB =**

**0.1mA, 0.3mA and 0.5mA at VCE = 2.5V and VCE = 5V.** Compare with experimental

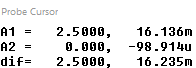
result.



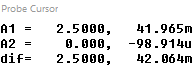
***Trace Circuit ( IC ) Current :***



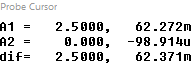
Result Cursor at **VCE** = 2.5v :



Ic = 16.136mA at 2.5v



Ic = 41.965mA at 2.5v



Ic = 62.272mA at 2.5v

***1 ) Find***

***2 ) Find***

**3**

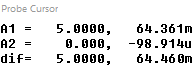
Result Cursor at **VCE** = 5v :



Ic = 16.673mA at 5v



Ic = 43.376mA at 5v



Ic = 64.361mA at 5v

***1 ) Find***

***2 ) Find***

Conclusion :

At voltage 2.5v small and in voltage 5v the increasing value but is almost same .

And if I have IC ,IB and () I cant find IE

IE = ( +1 ) IB  or IE = I*C* /