

Lab 8 PNP Transistor Bias

Negative Supply

1. Assemble the circuit in Fig. 1. Connect the positive voltage from the power supply to ground and the common (or ground) to V_{CC} .

2. Calculate the following quantities:

$$V_B = \underline{\hspace{2cm}}$$

$$V_E = \underline{\hspace{2cm}}$$

$$I_E \doteq I_C = \underline{\hspace{2cm}}$$

$$V_{RC} = \underline{\hspace{2cm}}$$

$$V_C = \underline{\hspace{2cm}}$$

$$V_{EC} = \underline{\hspace{2cm}}$$

$$V_{CB} = \underline{\hspace{2cm}}$$

Is the transistor active?

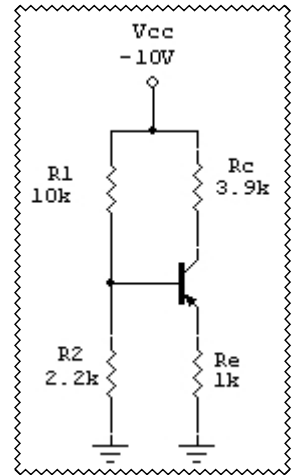


Fig. 1

3. Measure the values calculated in step 2 and comment on how these values match.

$$V_B = \underline{\hspace{2cm}}$$

$$V_E = \underline{\hspace{2cm}}$$

$$I_E \doteq I_C = \underline{\hspace{2cm}}$$

$$V_{RC} = \underline{\hspace{2cm}}$$

$$V_C = \underline{\hspace{2cm}}$$

$$V_{EC} = \underline{\hspace{2cm}}$$

$$V_{CB} = \underline{\hspace{2cm}}$$

Positive Supply

4. Assemble the circuit in Fig. 2. Connect the positive supply to V_{EE} .

5. Calculate the following values. Notice that the object of this circuit is to drive current through an LED.

$$V_B = \underline{\hspace{2cm}}$$

$$V_E = \underline{\hspace{2cm}}$$

$$V_{RE} = \underline{\hspace{2cm}}$$

$$I_E \doteq I_C = \underline{\hspace{2cm}}$$

What is the current through the LED?

6. Measure the values calculated in step 5 and compare these values.

$$V_B = \underline{\hspace{2cm}}$$

$$V_E = \underline{\hspace{2cm}}$$

$$I_{LED} = \underline{\hspace{2cm}}$$

$$V_C = \underline{\hspace{2cm}}$$

$$V_{EC} = \underline{\hspace{2cm}}$$

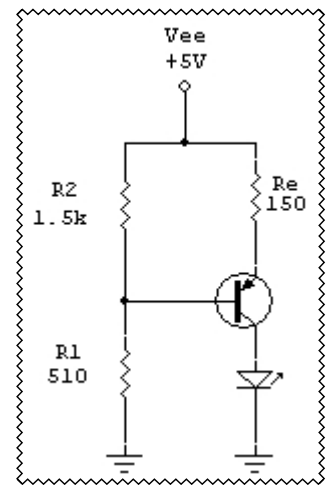


Fig. 2