

Title: Study of Transistor Characteristics in Common Emitter Amplifier

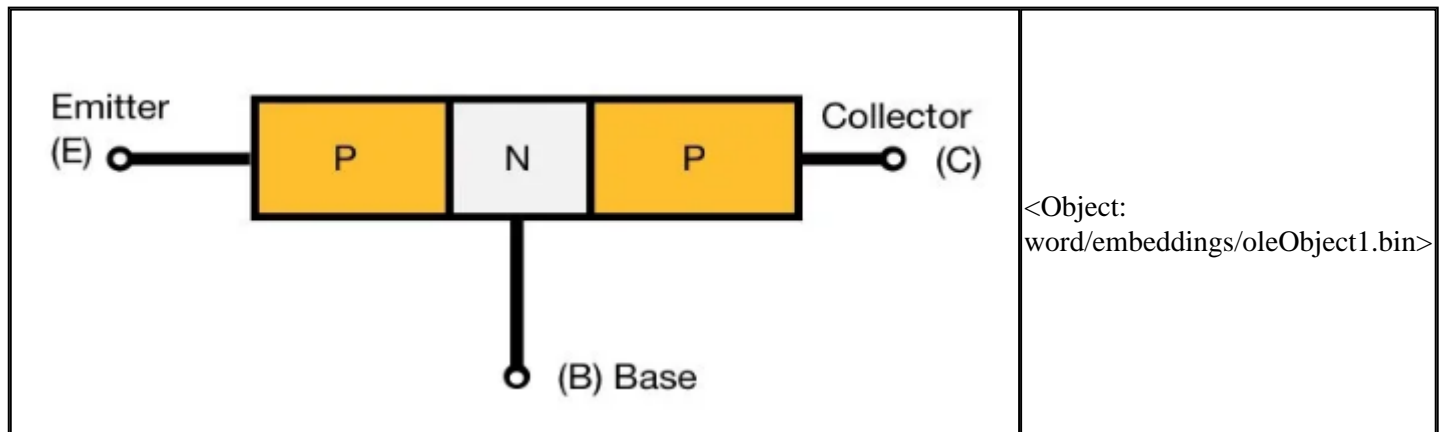
Introduction:

A Bipolar Junction Transistor is a three-terminal semiconductor device made up of two p-n junctions that may amplify or magnify a signal. It is a gadget that is controlled by current. The base, collector, and emitter are the three terminals of the BJT. A bipolar junction transistor (BJT) is a kind of transistor that employs both electrons and holes as charge carriers. There are two types of bipolar junction transistors –

NPN transistors and

PNP transistors.

A diagram of these two types of bipolar junction transistors is given below.

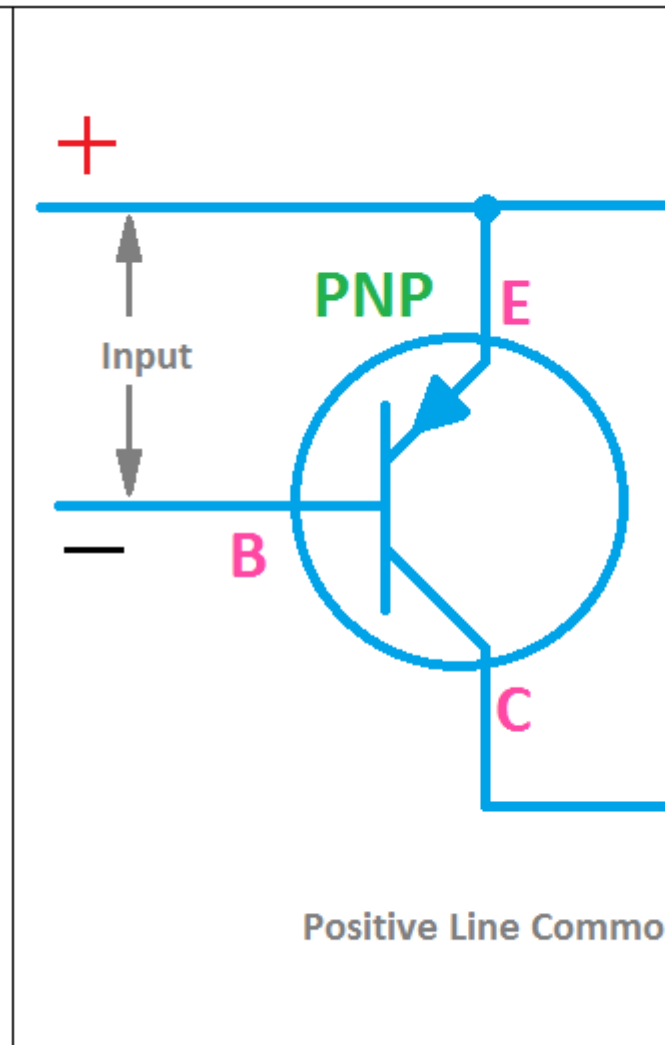
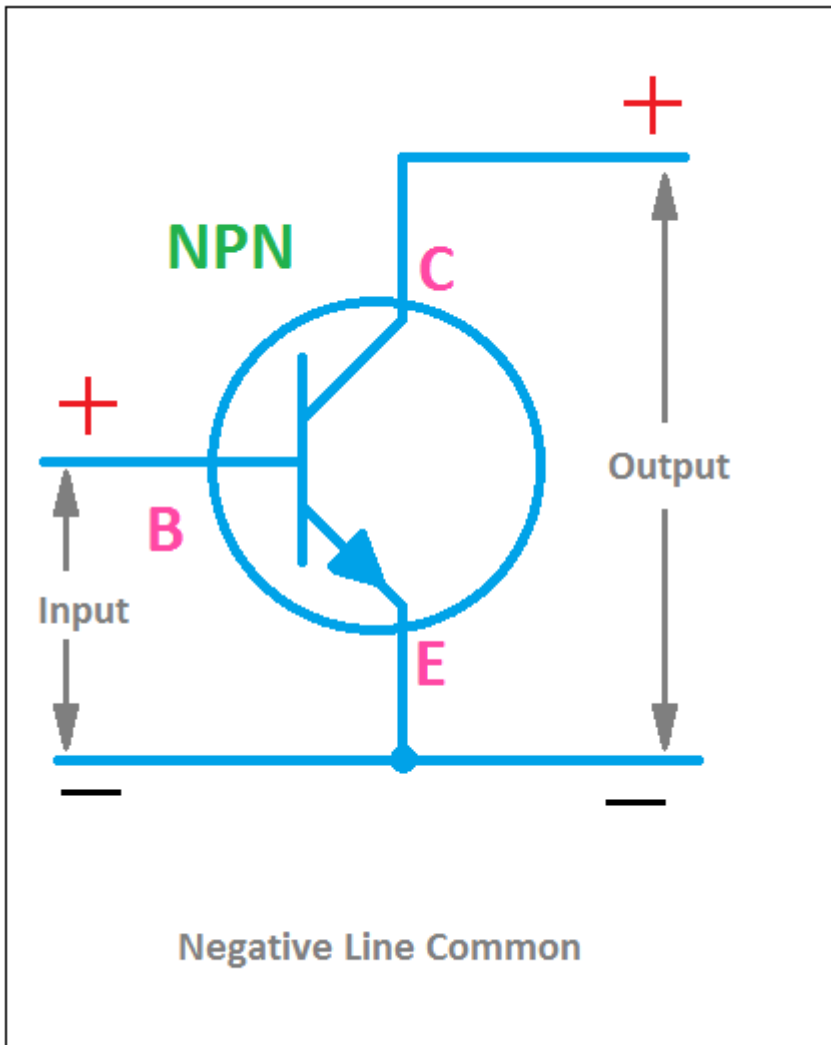


Theory and Methodology:

A bipolar junction transistor includes a three-terminal device so it can be connected to a circuit in three possible ways through one terminal being common between others which means one terminal in between input as well as output is common. Every connection simply responds in a different way to the input signal.

In the PNP transistors, the emitter is more positive with the base and also with respect to the collector. The PNP transistor is a three-terminal device that is made from semiconductor material. The three terminals are collector, base, and emitter, and the transistor is used for switching and amplifying applications.

The NPN transistor is exactly opposite to the PNP transistor. The NPN transistor contains three terminals which are the same as the PNP transistor which are emitter, collector, and base.



The behavior of the bipolar transistor in every circuit configuration is extremely different & generates dissimilar circuit characteristics with respect to input & output impedances and gains like the voltage, power, and current. Applications in BJT they are:

Switching

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Amplification

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Converters

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Amplifiers.

Simulation Model:

Result Analysis:

Conclusion