Answer on Question #41134 - Physics - Other

In the normal operation of a bipolar transistor. What is the biasing of emitter base and collector base junction?

Solution.

Bipolar transistor amplifiers must be properly biased to operate correctly. The bias point is the operating point of a device. The term is normally used in connection with devices such as transistors.

Bipolar transistors parameters depend on many factors (temperature, voltage, etc.). That's why the operating point of the transistor changes its position. If transistor includes in the passive circuit, it should minimize the influence of the spread parameters and ensure a stable position of the operating point.

The main purpose of the resistive bias circuit is current stabilization of emitter. It must be chosen so as to minimize the effect of changes of the gain on the value of the base current.

So, we forward bias the emitter-base junction:

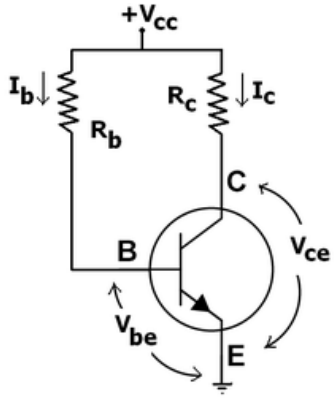

fig.1. emitter-to-base bias

But, configuration base-collector employs negative feedback to prevent thermal runaway and stabilize the operating point.

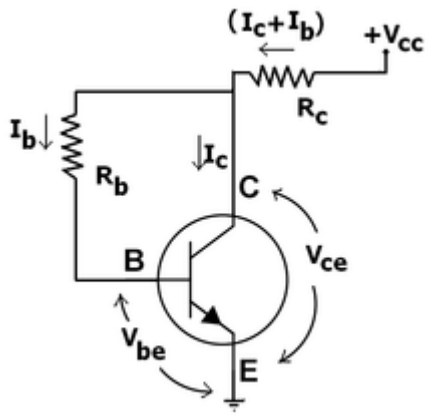

fig.2. collector-to-base bias

The reverse bias voltage could be a few volts to tens of volts for most transistors. There is no current flow, except leakage current, in the collector circuit.

In the fig.3 it is shown in simple form emitter-to-base bias(a), collector-to-base bias(b)

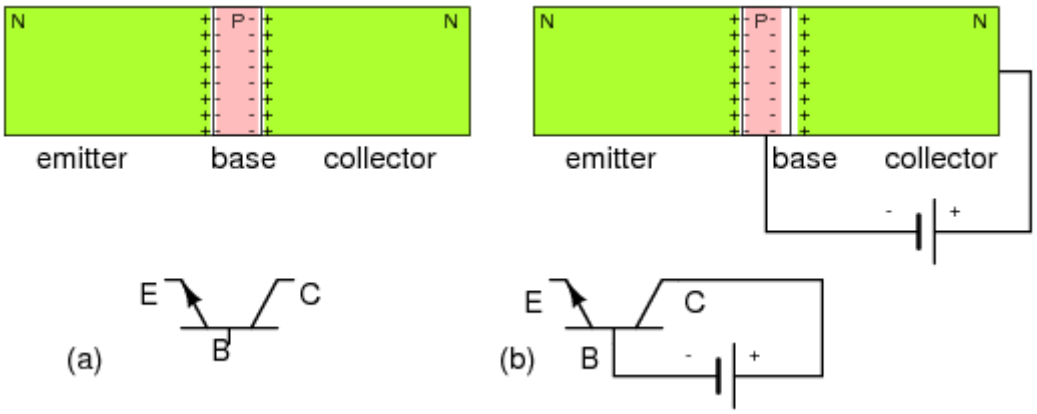

fig.3.

Answer.

Base-emitter are forward biased, base-collector are reverse biased.