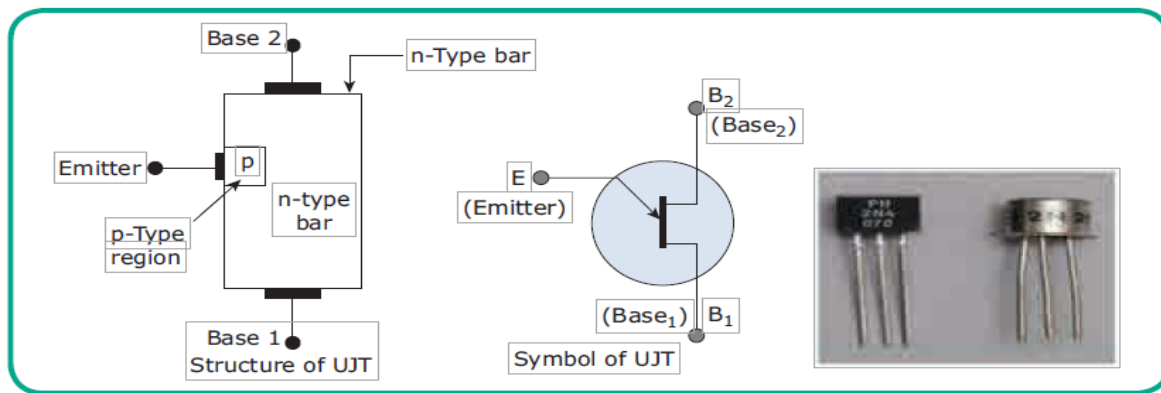


## UNIPOLAR JUNCTION TRANSISTOR (UJT)

UJT is a three terminal semiconductor switching device. As the name indicates, it has only one PN junction (i.e. unijunction). UJT can be used to control a large AC power with small gain, and not to be used as amplifier. It exhibits negative resistance characteristics and can be used as an oscillator.

### Basic Structure of Unijunction Transistor and its Symbol



**Construction:** Figure 6.8 shows the basic structure of UJT and its symbol. It consists of lightly doped N-type silicon bar with ohmic contacts at the two ends, called base1 ( $B_1$ ) and base2 ( $B_2$ ). A P-type emitter is diffused nearer to the base2 of the bar, and this forms a PN junction diode with the base as shown in Figure 6.8(a). The P-type region is called emitter (E), since the device contains two base terminals with one PN junction and hence it is also called as double base diode. The resistance ( $R_{BB}$ ) between the bases ( $B_1$  and  $B_2$ ) is called inter-base resistance and is very high (5 to 10 k $\Omega$ ), when emitter is in open condition.

### Application

1. UJT is used as relaxation oscillator.
2. It is widely used as triggering device for SCR and TRIAC.
3. It is used in phase control circuits.

4. **UJTs can also be used to measure magnetic flux.**
5. **It is used in switching circuits**
6. **It is used as sawtooth generator.**
7. **It is used in tuning circuits (TV).**