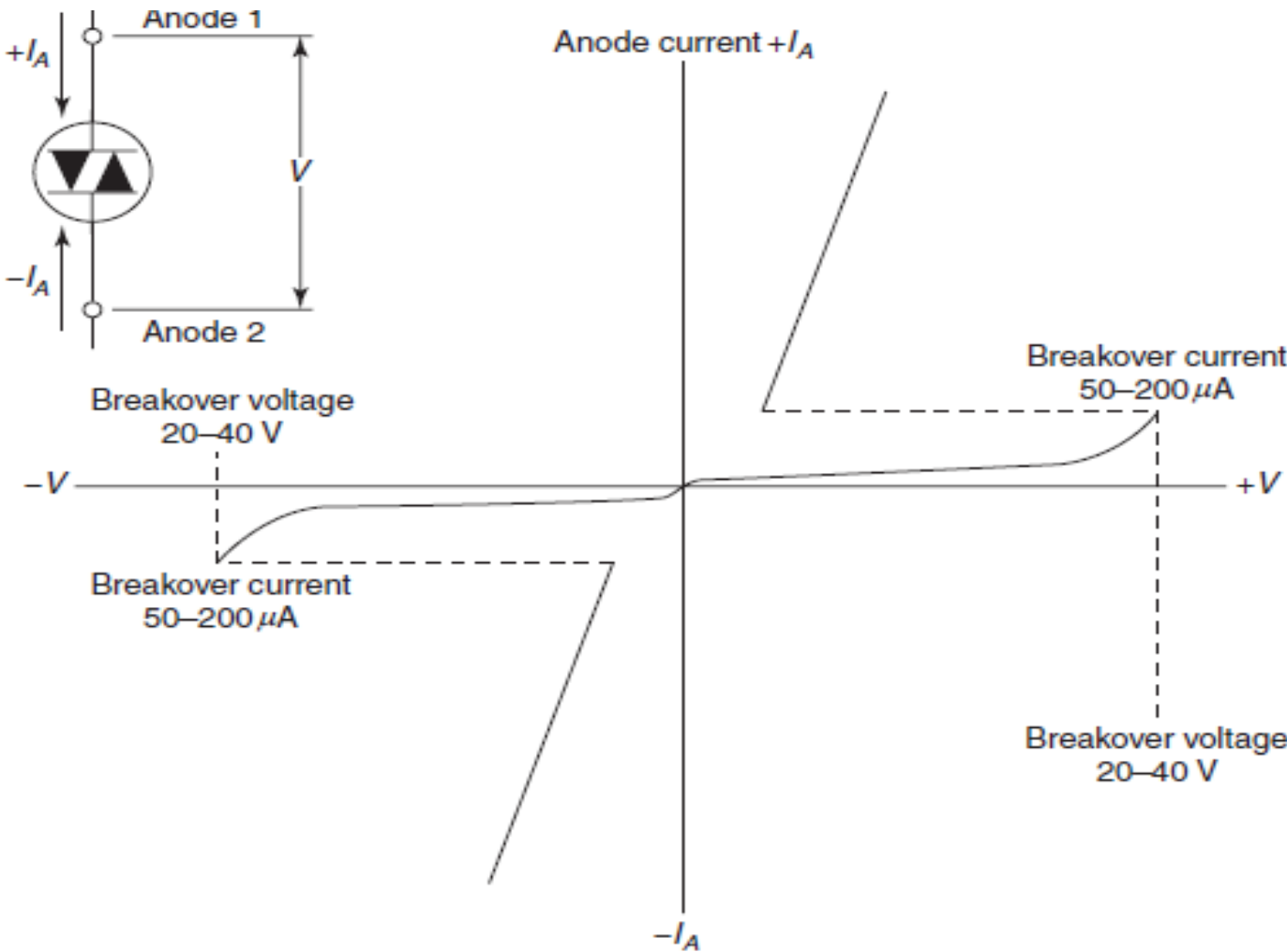


Lecture 7

I-V characteristics of the DIAC:



UNIUNCTION TRANSISTOR (UJT):

- The uni-junction transistor is a three-terminal single-junction device. The switching voltage of the UJT can be easily varied.
- The UJT is always operated as a switch in oscillators, timing circuits and in SCR/TRIAC trigger circuits.

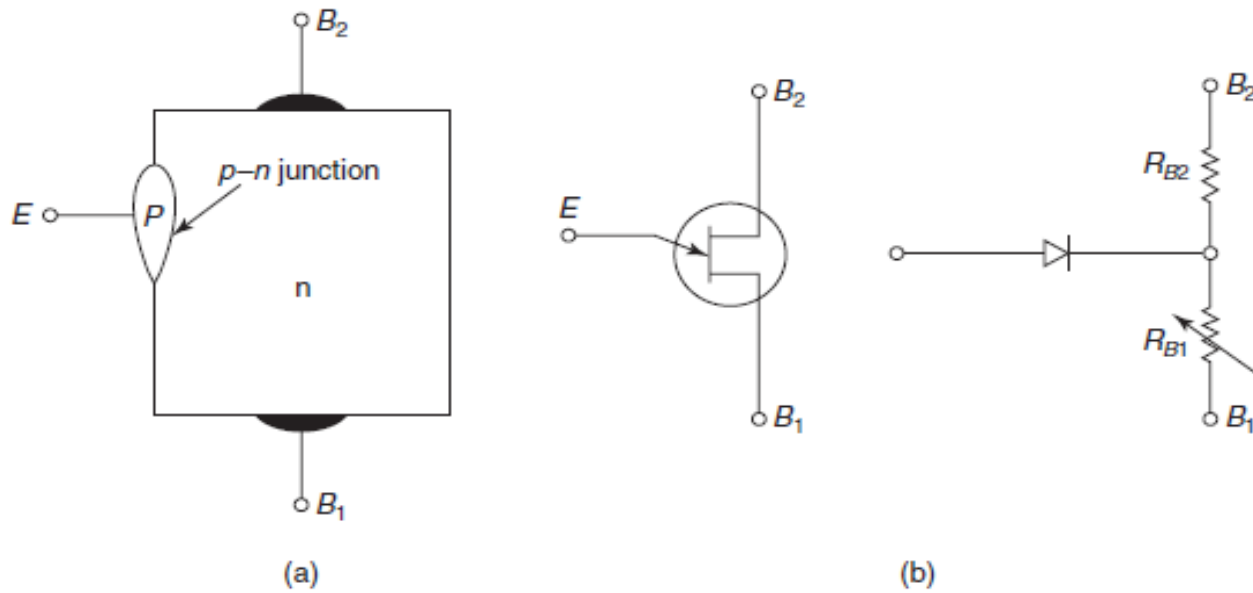


Figure 8-16 (a) Basic UJT structure (b) UJT symbol and equivalent circuit

Constructional Features:

- The UJT structure consists of a lightly doped *n-type silicon bar provided with ohmic contacts on either side.*
- The two end connections are called *base B1 and base B2. A small heavily doped p-region is alloyed into one side of the bar. This p-region is the UJT emitter (E) that forms a p–n junction with the bar.*
- *Between base B1 and base B2, the resistance of the n-type bar called inter-base resistance (RB) and is in the order of a few kilo ohm.*
- This inter-base resistance can be broken up into two resistances—the resistance from *B1 to the emitter is RB1 and the resistance from B2 to the emitter is RB 2.*
- *Since the emitter is closer to B2 the value of RB1is greater than RB2.*
- Total resistance is given by:

$$RB = RB1 + RB2$$