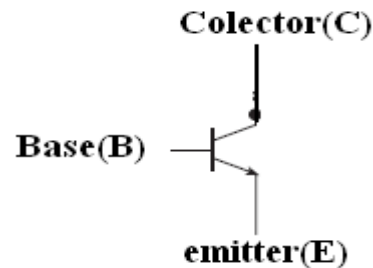


# Logic Families

- Digital integrated circuits are produced using several different circuit configurations and production technologies. Each such approach is called a specific logic family.
- Logic families discussed in the chapter include transistor transistor logic (TTL), metal oxide semiconductor (MOS) logic, emitter coupled logic (ECL)
- *Types of Logic Family*
  - Diode logic (DL)
  - Resistor transistor logic (RTL)
  - Diode transistor logic (DTL)
  - Transistor transistor logic (TTL)
  - Emitter coupled logic (ECL)

## Bipolar junction transistor

- Bipolar junction transistor (BJT) is the active switching element used in all RTL and TTL.
- BJT has two junctions, the base-emitter and the base-collector junction



- The basic switching operation is as follows:

- The base is approximately 0.7V more positive, then the transistor is **ON** and goes into saturation.
- In saturation the transistor ideally acts like a close switch between collector and emitter

