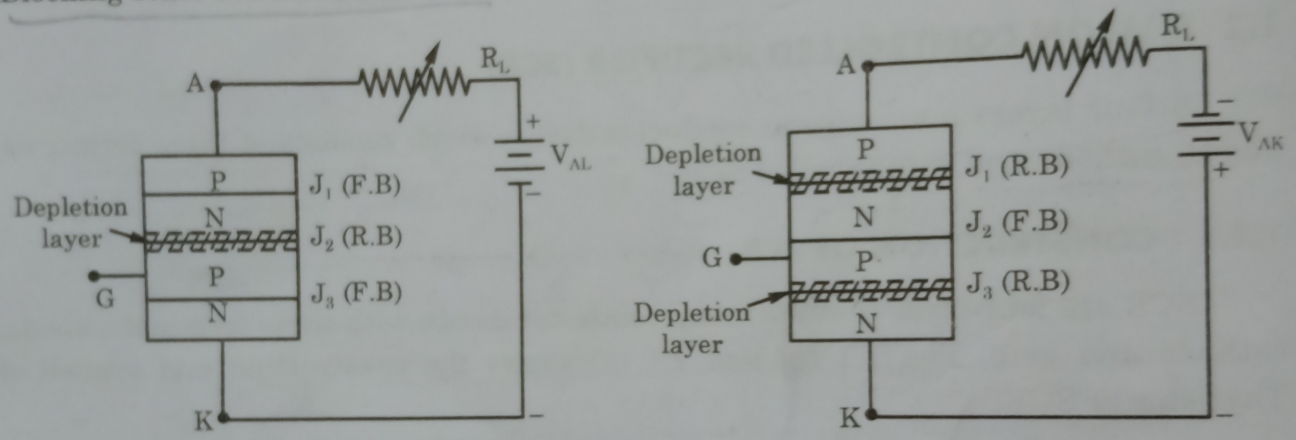
terminal as shown in figure 1.1 (b).

1.2.2 WORKING PRINCIPLE

The working principle of SCR can be explained with the help of figure 1.2 as shown below. **When the anode voltage is made positive w.r.t cathode,** the p-n junction J_1 and J_3 are forward biased, whereas the junction J_2 is reverse biased as shown in figure 1.2 (*a*). Therefore small leakage current flow from anode to cathode. Thus no conduction will be occur in the device. This state of SCR is called forward Blocking state or forward off state.



(*a*) *SCR Forward biased* (*b*) *SCR Reverse biased*

Fig. 1.2. *SCR Conducting Diagram*

Now, When the anode to cathode voltage (V_{AK}) is increased to a large value, the forward leakage current will start flow through the device. When the forward voltage (V_{AK}) is reach to voltage called forward breakover voltage (V_{BO}), then the junction J_2 will be breakdown. This is known as the avalanche breakdown. Since the junction J_1, J_3 are more forward biased as a result large forward anode current will start flowing in the device. Thus we can say that the device will be conducting or in ON state. In the on-state the anode current is limited by external resistance R_L as shown in fig 1.2.

When the cathode is made positive w.r.t anode, the junction J_1 & J_3 will be reverse biased, whereas the junction J_2 will be forward biased as shown in figure 1.2 (*b*). A small reverse leakage current will flow. As the cathode to Anode voltage is increased to a large value, the junction J_1 and J_3 will breakdown. The voltage at which this condition is achieved is known as reverse breakover voltage (V_{BR}).