

Q Discuss the construction and operation of FET by using proper level diagram.

Ans:- FETs stands for Field Effect Transistor. There are labeled as unipolar devices to highlight the fact that the current carriers are either holes or electrons.

There are two basic classes of FETs:-

- i) Junction Field Effect Transistor (JFET)
- ii) Metal Oxide Semiconductor FET (MOSFET).

Construction of JFET:- It has three terminals: the source, the drain, and the gate. The source is the semiconductor terminal from which carriers are emitted that travel through a semiconductor channel to be collected by the drain. The third terminal, labeled the gate, is used to control the flow of the electrons.

Operation:- For a fixed drain-source voltage, by making the P^+ gate more negative with respect to the source, and hence with respect to the channel, the width of the depletion layers increases, the width of the channel as well as its cross sectional area decreases, and its resistance increases, resulting in a decreasing drain current.