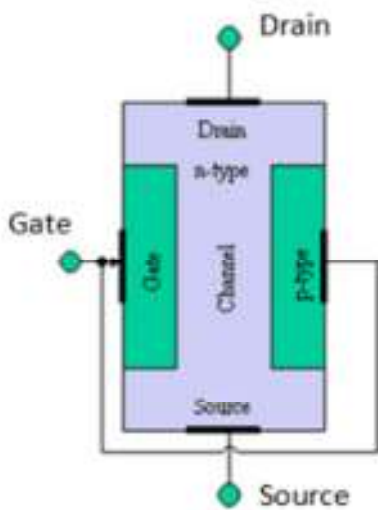


Junction Field Effect Transistor (JFET)

A field effect transistor is a voltage controlled device i.e. the output characteristics of the device are controlled by input voltage.

A JFET is a three terminal semiconductor device in which current conduction is by one type of carrier i.e. electrons or holes.

The current conduction is controlled by means of an electric field between the gate and the conducting channel of the device.



The bar forms the conducting channel for the charge carriers.

The two pn junctions forming diodes are connected internally and a common terminal called gate is taken out

The voltage between the gate and source is such that the gate is reverse biased.

Working of JFET:

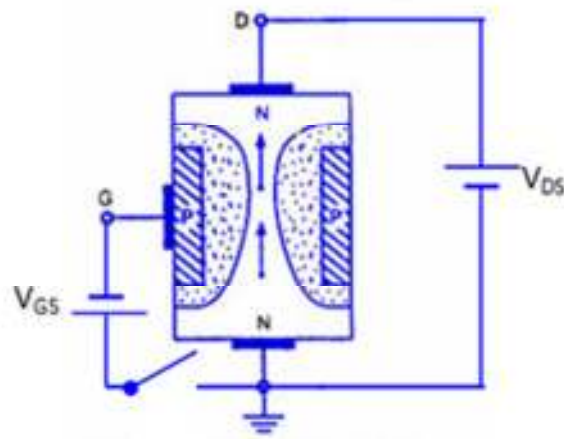
The current conduction by charge carriers (i.e. electrons) is through the channel between the two depletion layers and out of the drain.

The width and hence resistance of this channel can be controlled by changing the input voltage V_{GS} .

The greater the reverse voltage V_{GS} , the wider will be the depletion layer and narrower will be the conducting channel. The narrower channel means greater resistance and hence source to drain current decreases.

Reverse will happen when V_{GS} decreases.

Case-I:



Case-II:

