

(An Autonomous Institution)

19EET202 / ANALOG ELECTRONICS

II YEAR / III SEMESTER

UNIT-2: MULTI JUNCTION DEVICES

1

MOSFET

We'll Discuss

LINE

Wh

2

Structure

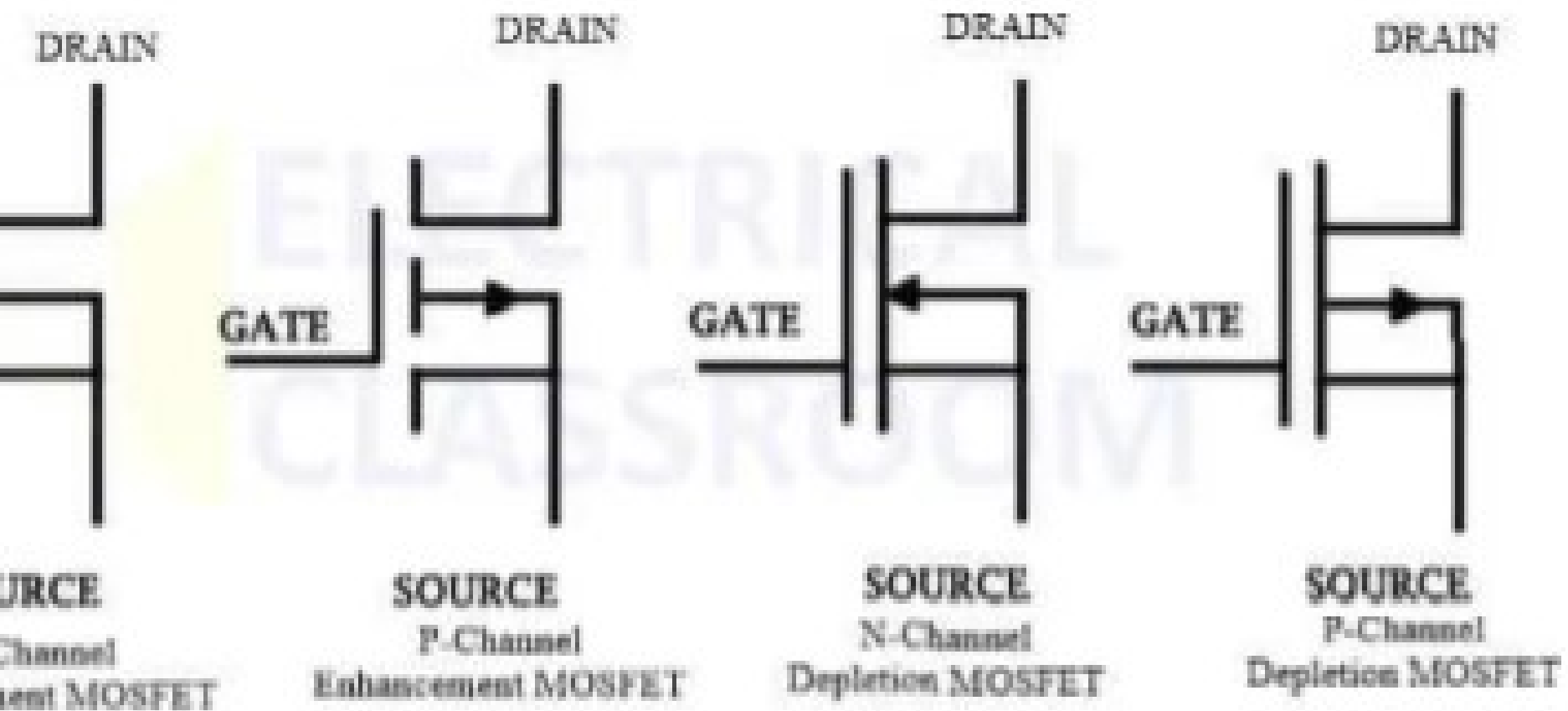
Wide Semiconductor Field Effect Transistors

voltage controlled devices, in which the current flowing through the drain is proportional to the provided input voltage.

It has a smaller value of capacitance and its input impedance is higher than that of FET due to small leakage current.

It is applied widely in switching and amplification of electronic signals because of its ability to change conductivity with the applied voltage.

MOSFET SYMBOLS



in two modes-

Depletion Mode: The transistor requires the Gate-Source voltage (V_{GS}) to be negative. The depletion-mode MOSFET is equivalent to a “Normally Closed” switch.

Enhancement Mode: The transistor requires a Gate-Source voltage (V_{GS}) to be positive. The enhancement mode MOSFET is equivalent to a “Normally Open” switch.

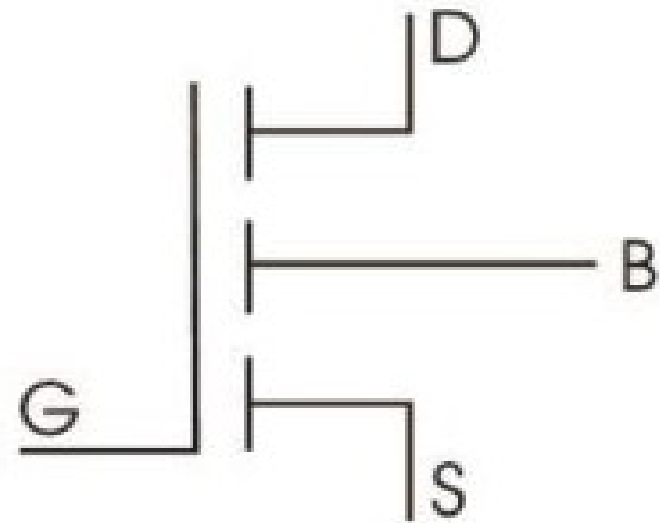
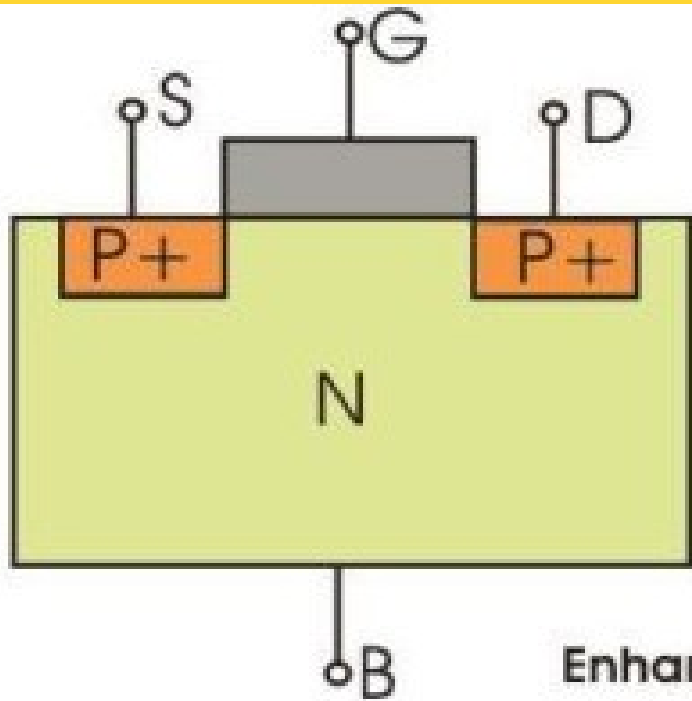
Based on the working principle, MOSFET is classified as follows:

[Depletion MOSFET](#)

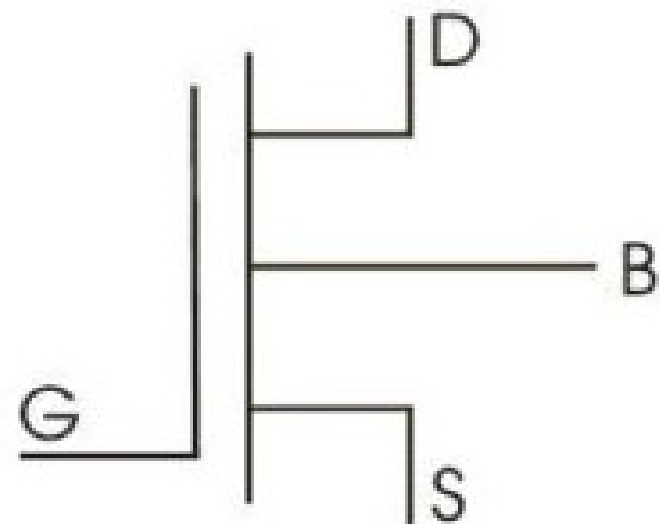
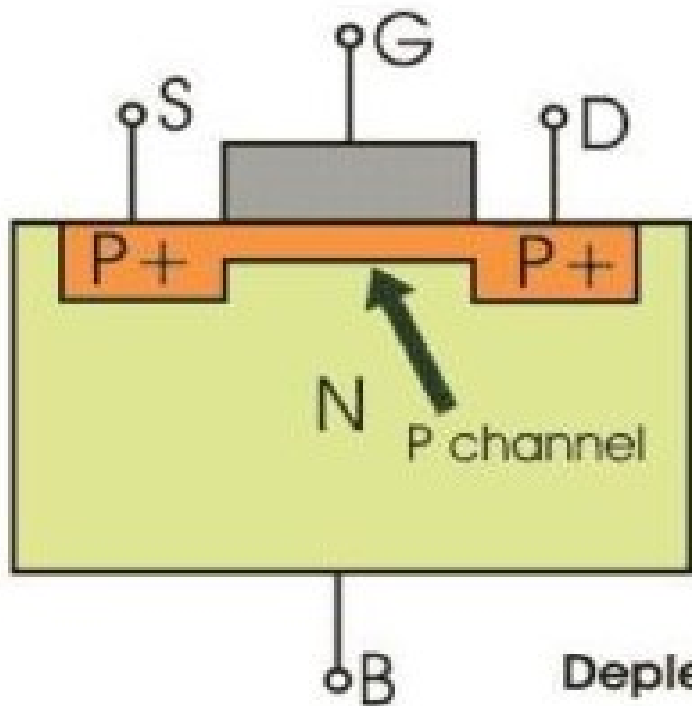
[Enhancement MOSFET](#)

[Depletion MOSFET](#)

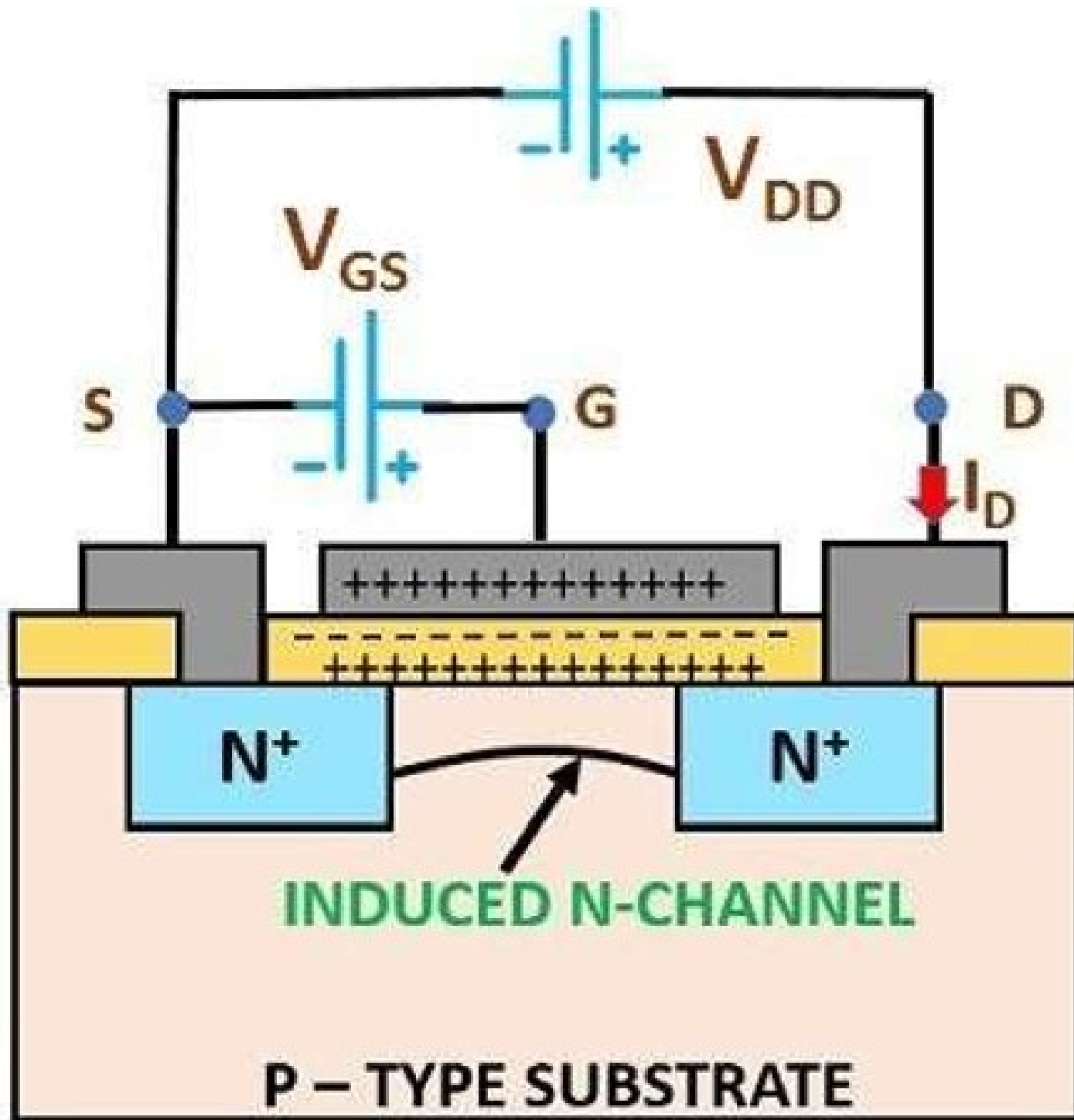
[Enhancement MOSFET](#)



Enhancement Mode

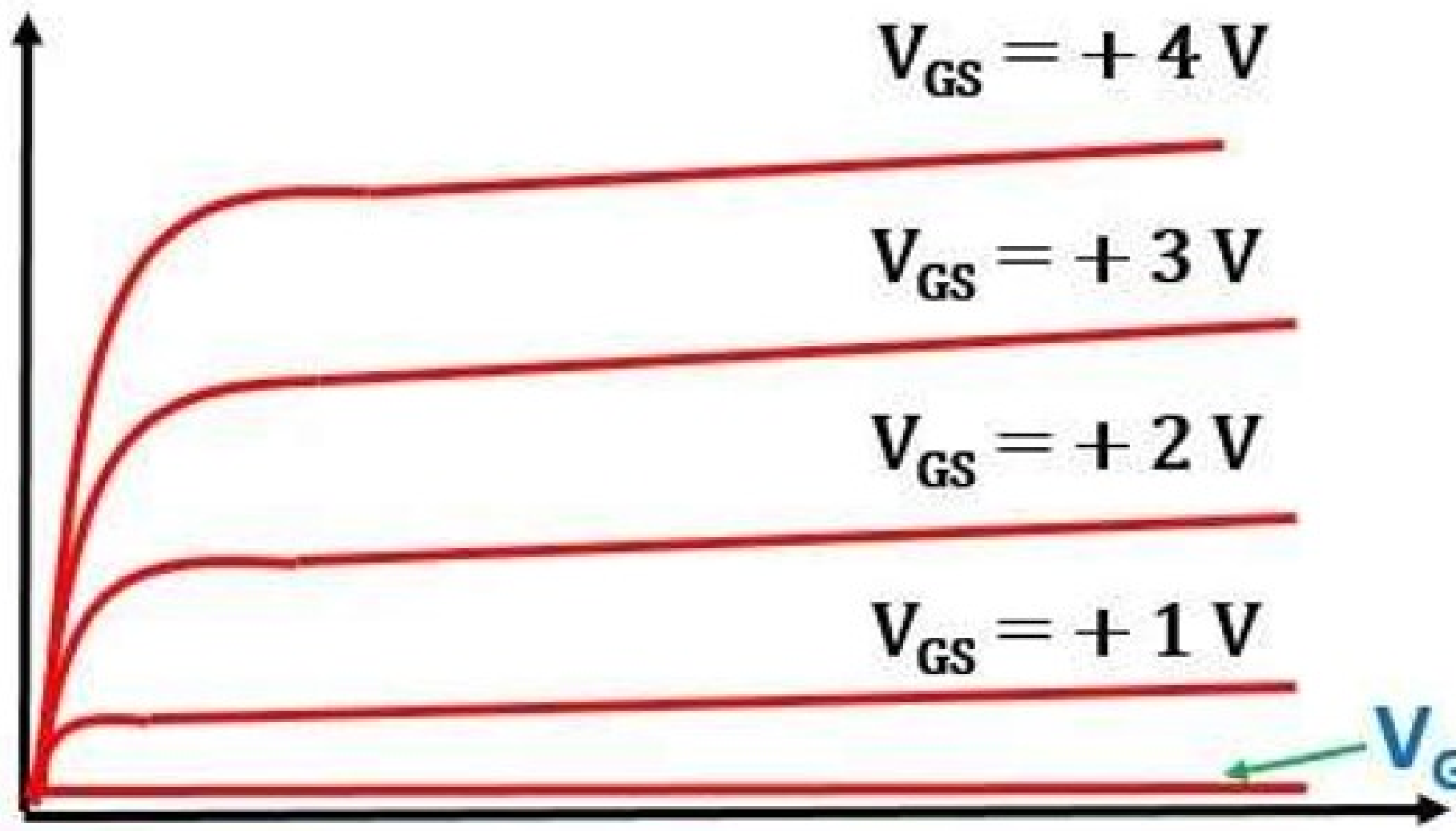


Depletion Mode



Drain current,

I_D in mA

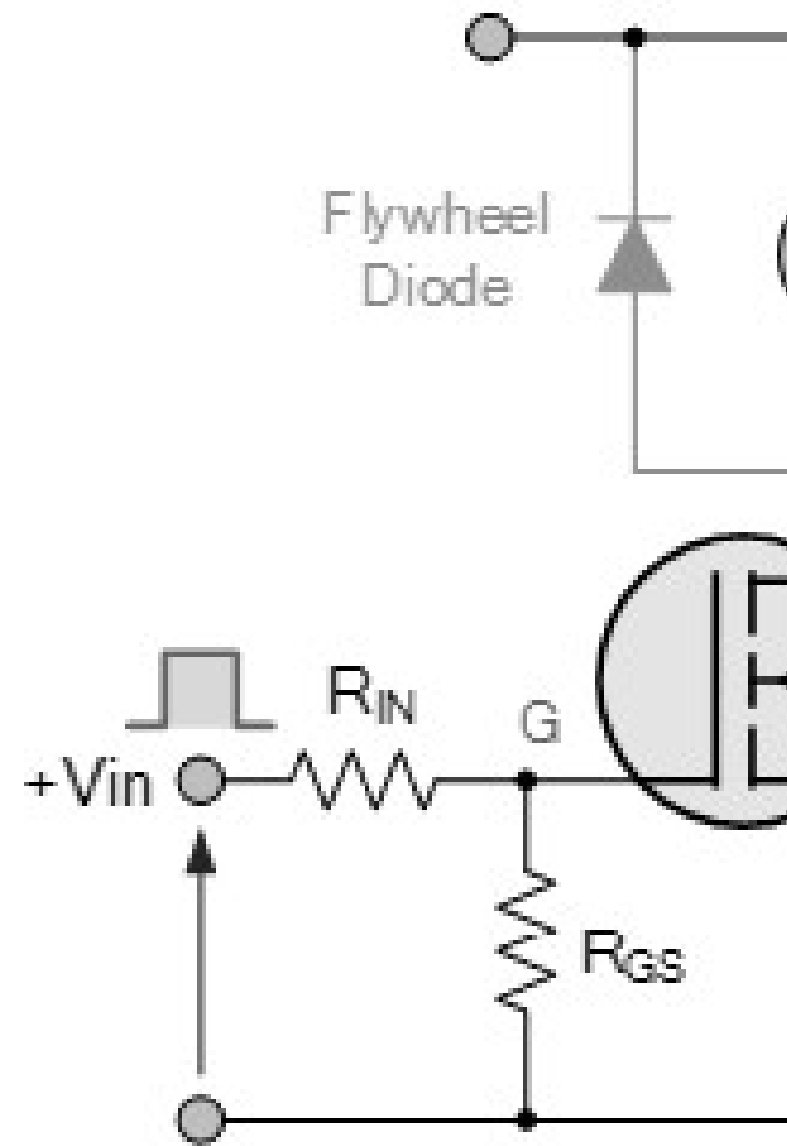


Drain Source Voltage, V_{DS} in volts

IS	BJT	FET	MOSFET
type	Current controlled	Voltage controlled	Voltage Cont
flow	Bipolar	Unipolar	Unipolar
als	Not interchangeable	Interchangeable	Interchange
l modes	No modes	Depletion mode only	Both Enhance and Depletion
edance	Low	High	Very high
istance	Moderate	Moderate	Low
l speed	Low	Moderate	High
e	High	Low	Low
ability	Low	Better	High

DC Motors of Chopper Amplifiers Amplifying Signals

T as a Switch



MOSFET As Sw

be used in the making of
must work in

triode region can be

n the saturation region a
te as an amplifier.

2. For MOSFET is to be
then it must operate in
- a) Cut-off region
 - b) Triode region
 - c) Saturation region
 - d) Both cut-off and triode
used

Answer: d

Explanation: In both reg
the task of a switch.

THANK