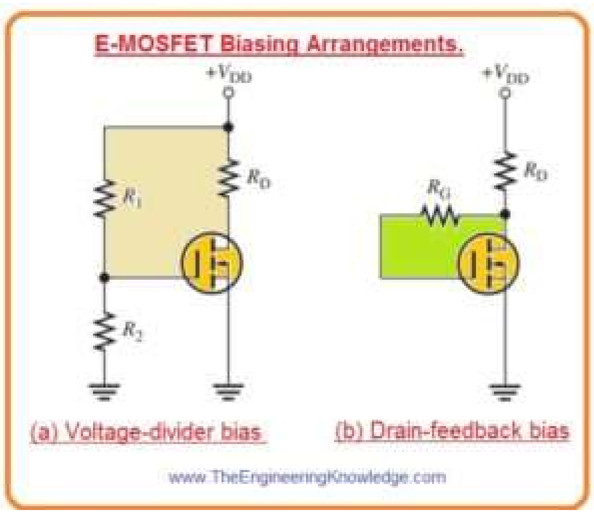
MOSFET Bias Circuits



Hello friends, I hope you all are doing great. In today's tutorial, we will have a look at **MOSFET Bias Circuits.** The MOSFET is type of FET and stands for metal oxide field effect transistor used as amplifier and switch in different circuit configuration. In digital and analog circuit MOSFET is commonly used than BJT. There are 2 further main types of MOSFET first is E-MOSFET and second one D-MOSFET.

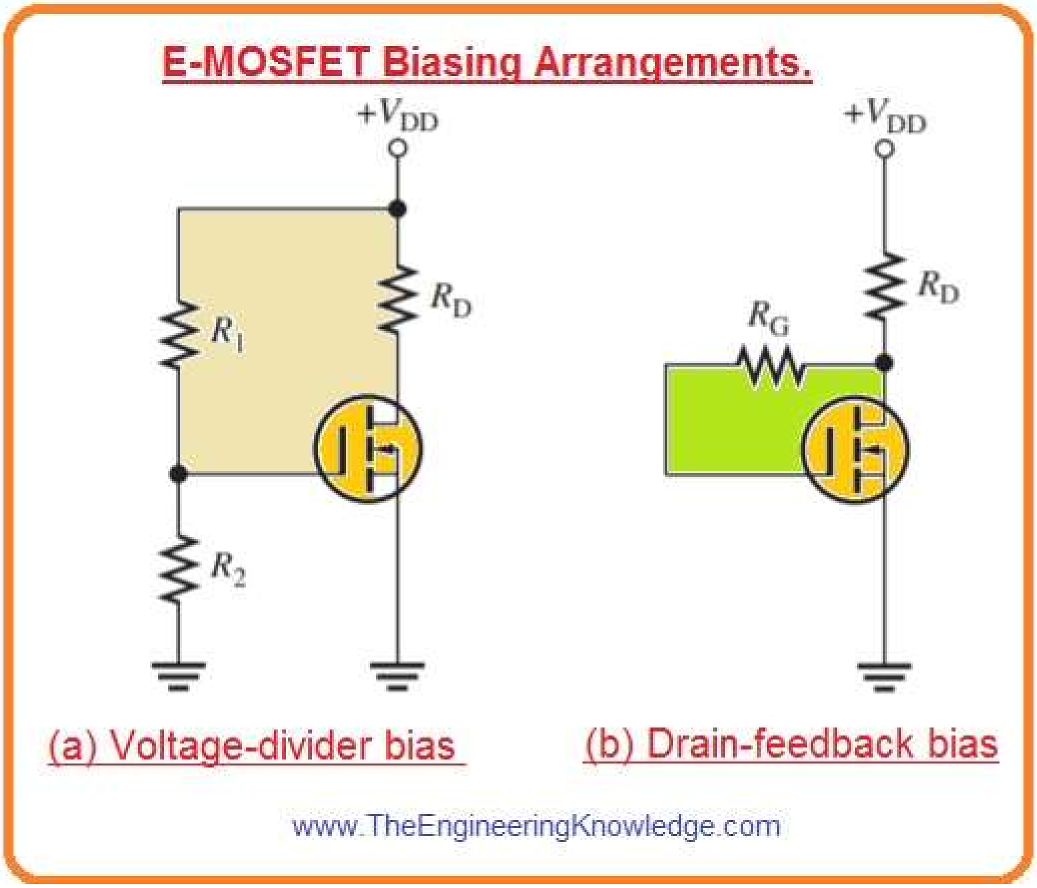
The main benefit which it provides over the BJT that it need very less amount of current at the input for controlling of a load. In today's post, we will have a detailed look at its different basing methods and their related circuits with the detailed. So let get started with *MOSFET Bias Circuits.*

MOSFET Bias Circuits

E-MOSFET Bias Congifuration

- Since for E-MOSFET the value of VGS should be larger than the threshold value VGS(th), so zero biasing cannot be used.

- In below figure you can see 2 configurations of E-MOSFET biasing.



- In these configurations n channels, MOSFET is used.
- Two biasing configurations are shown first is voltage divider and second one drain feedback bias.
- The benefits of the use of this 2 configuration is to make more positive at the gate than by the source through amount VGS(th).
- The equation for voltage divider bias configuration is given here.

VGS=[R2/(R1 + R2)]VDD

VDS=VDD – IDRD

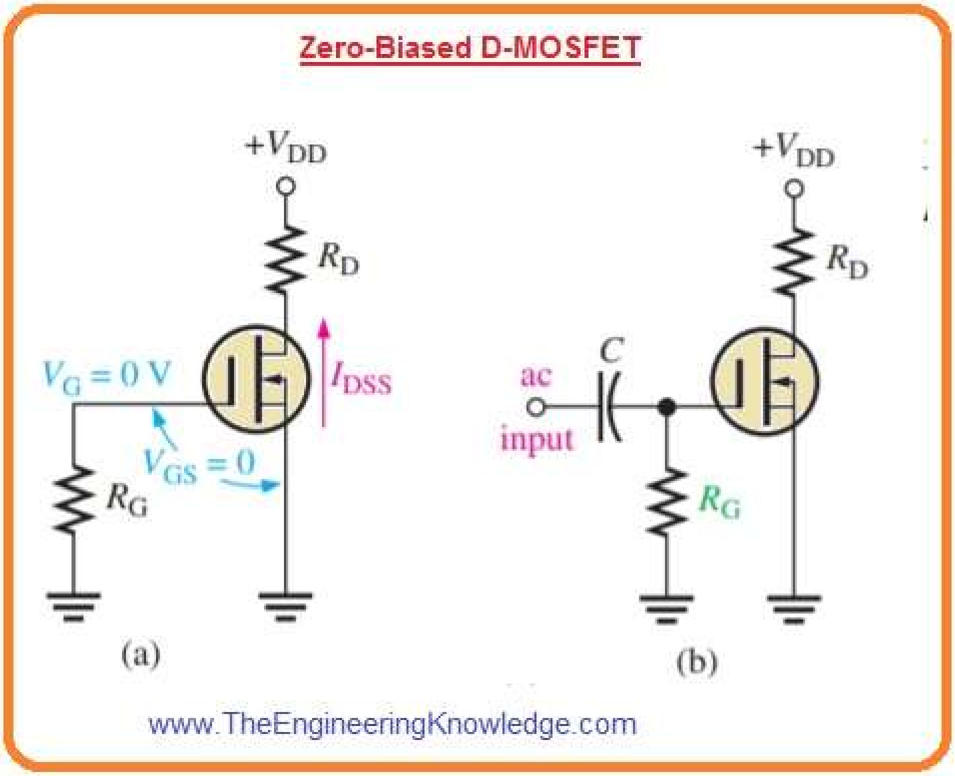
- In this equation ID will be equal to K(VGS – VGS(th))^{2}we have discussed this expression in last tutorial about MOSFET.
- In drain feedback bias circuitry shown in figure the gate current is very less and so there will be no voltage drop about the resistance RG. So VGS = VDS.

D-MOSFET Bias Configuration

- As we know that D-MOSFET can operate with both positive and negative values of VGS voltage.
- The basic method of biasing is to make VGS=0 so ac voltage at gate changes the gate to source voltage over this zero voltage biasing point.
- Zero bais configuration for MOSFET is shown in below figure.
- As VGS is zero and ID=IDSS as denoted. The drain to source voltage will be.

VDS = VDD – IDSSRD

- The main function of RG is to sustain an ac voltage input by separating it from ground as shown in figure denoted as b.
- As there is no dc gate current there will be no effect of RG on zero gate to source bias.



So friends that is detailed post about the MOSFET Bias Circuits if you have any question ask in comments. Thanks for reading