



RAMA
UNIVERSITY

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FACULTY OF ENGINEERING AND
TECHNOLOGY

MEC-022

Lecture - 03

FET CAN BE OF TWO MAJOR TYPES

MOSFET (metal oxide semiconductor field effect transistor)

JFET (junction field effect transistor)

❖ Metal Oxide Semiconductor Field Effect device was first solid state device conceived (Lilienfield, 1928), however it took very long to develop a successful commercial application of such devices.

❖ The first successful device was fabricated in 1950, however the reliable commercial fabrication did not start until decade later.

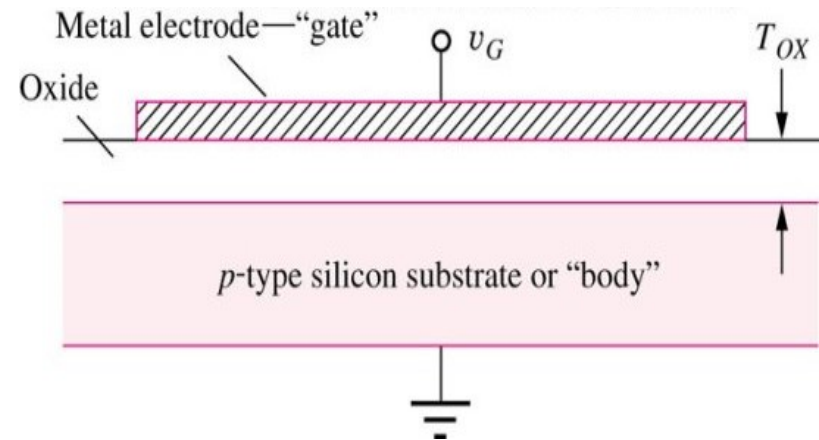
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❖ BJT devices were first introduced in 1948 and quickly became commercially available. The first IC with logic gates and operational amplifiers that appeared in early 1960s, were based on BJT technology.

❖ They are still widely used, particularly in applications requiring high speed and high precision

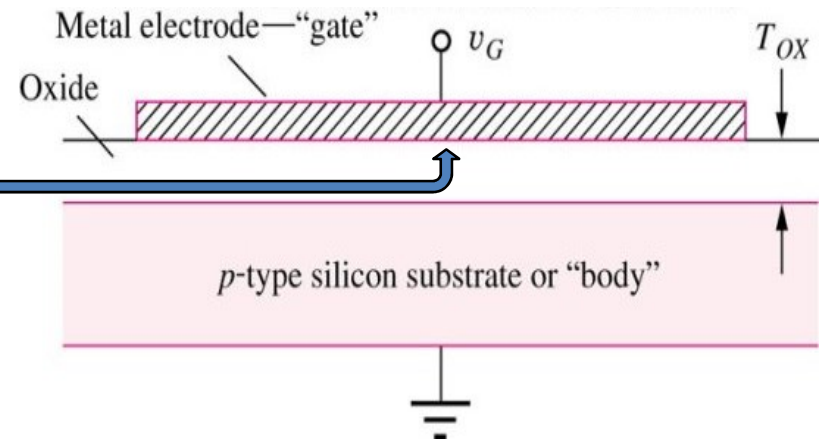
MOS Capacitor Structure

- Metal Oxide Semiconductor capacitor is the core structure of the a Metal Oxide Semiconductor Field Effect Transistor.
- Consists of two electrodes and insulator in between.



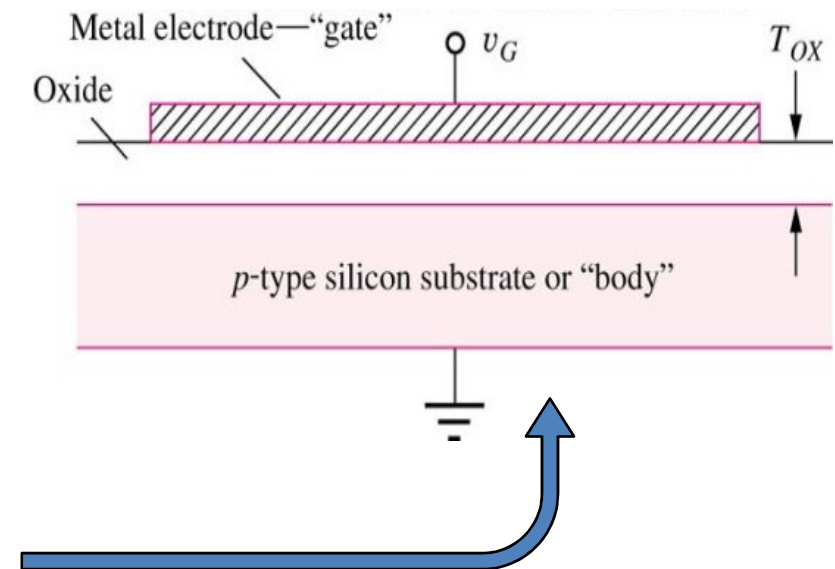
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- First electrode (Gate): low-resistivity material such as metal or polycrystalline silicon.
- Dielectric - Silicon dioxide: stable high-quality electrical insulator between gate and substrate.
- Second electrode (Substrate, Body): n - or p -type semiconductor.



Thank You!

