

What is a MOSFET?

MOSFET stands for **Metal Oxide Semiconductor Field Effect Transistor**. The MOSFET is the basis for all modern digital electronics, used for both high voltage power switching, low voltage digital signaling, and everything in between.

Source: Usually connected to ground, when voltage is applied to the gate current flows from Drain to Source.

Gate: When voltage is applied to the gate, it creates a path for current to flow from the Drain to the Source.

Drain: Usually connected to positive voltage, the Drain will measure the same voltage (usually zero) as the Source when the gate is on.

N-Doped Substrate: Made of Silicon doped with Phosphorus, the N-doped substrate has an extra electron which can flow through the field effect region create by the gate.

P-Doped Substrate: Made of Silicon doped with Boron, the P-doped substrate has missing electrons which allow current to flow when a positive voltage on the gate creates a field effect.

Insulator: Required for the MOSFET to function, it acts similar to a capacitor and creates the "field effect" of the MOSFET that allows electrons to flow through the P-doped substrate.

