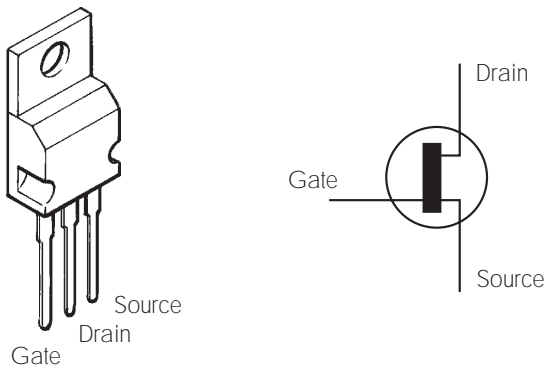


THE FIELD EFFECT TRANSISTOR (FET)

THE FIELD EFFECT TRANSISTOR

WHAT IT LOOKS LIKE



WHAT IT'S USED FOR

To supply large currents or switch large-current devices on or off. When it is used in electronic systems kits it is called a transducer driver. The two main types are MOSFET and JUGFET. FET means Field Effect Transistor. Typical current range 2-12 A.

WHAT IT'S MADE OF

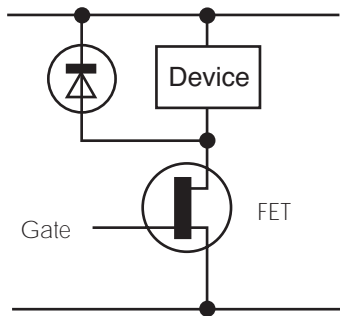
P-type or n-type semiconductor material with two metal contacts called the drain D and the source S - one at each end. A third contact, gate G connects to the side.

HOW IT WORKS

The voltage at the gate G controls the flow of current between the drain D and source S. Very little current flows into the gate because it has a high impedance ($> 10^9$ ohms). A voltage of 4.5 V at gate G turns the FET on; less than 4.5 V turns it off so no current flows. The voltage creates a field which determines the current flow.

HOW YOU USE IT

Connect in series with the device you need to control. MOSFETs give high power, high speed switching for power supplies, motor speed controllers, and audio amplifiers.



NOTES

- FETs are sensitive to static.
- A heat sink is needed for a current flow of 2 - 12A.
- The MPT3055A switches up to 12 A.
- MOSFET general purpose IR 530.
- JUGFET general purpose 2N3819.