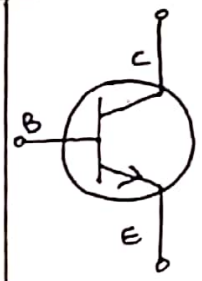
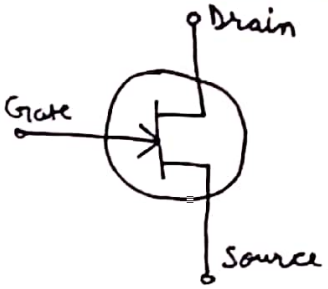
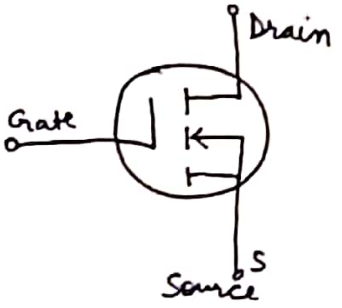
	BJT	JFET	MOSFET
1> Symbol			
2> Definition	Current is due to both e⁻ & holes that's why it is called Bipolar Junction Device.	Current is due to either e⁻ or holes that's why it is called unipolar device	Current is due to e⁻ or holes that's why it is called unipolar device.
3> Input Resistance	low	large (1MΩ – 5MΩ)	very large
4> Biasing used	fixed bias, CB bias	Self bias	DMOSFET – self bias EMOSFET – feedback bias
5> Operating Region	Active, Saturation & cutoff	Ohmic & Pinch off	Linear & Saturation
6> Thermal Runaway	Thermal runaway occurs at high temp.	No thermal runaway	No Thermal runaway
7> Terminals	Base, Emitter & collector	Gate, Drain & Source	Gate, Drain & Source
8> Input Current	in order of mA.	in order of nA	in order of pA
9> Applications	low Current application	low voltage application	power consumption is less.

Q. How are MOFETs better than JFET?

1> Compared to JFET, MOSFETs are easier to fabricate

2> JFET's are operated only in the depletion mode. The depletion type MOSFET may be operated in both depletion and enhancement modes.

3> Drain Resistance is higher in JFET than the MOSFET.

4> gate leakage current in JFET — nA
gate leakage current in MOSFET — pA

5> Input Resistance

JFET	MOSFET
$10^8 \Omega$	$10^{10} - 10^{15} \Omega$

6> MOSFET has zero offset voltage

7> Source & Drain terminals can be interchanged

8> In a JFET, transverse electric field across the RB-PN junc^n controls the conductivity of the channel. In a MOSFET, the transverse $\vec{E}$ induced across an insulating layer deposited on the semiconductor material controls the conductivity of the channel.

Aditya
XI-G1
1910990183
BEE