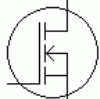



	MOSFET  Metal Oxide Semiconductor Field Effect Transistor	BIPOLAR  Bipolar Junction Transistor
Output Current	is controlled by the input gate voltage.	is controlled by the input base current.
Cost	More Expensive	Lower Cost
ESD Risk	Easily damaged by ESD Electrostatic Discharge.	ESD is rarely a problem
Gain	Very high current gain which is nearly constant for varying drain currents.	Lower current gain and it is not constant. It decreases when the collector current increases. Gain increases as temperature increases.
Input Resistance	Very high. More than 10^7 Ohms (usually a good thing) For AC signals this figure can be much lower due to the capacitance of the device.	Low (often a bad thing)
Input Current	Picoamps (approximately zero).	Milliamps
Saturation	$V_{DS} = 20 \text{ mV}$ Even lower heat dissipation when saturated (fully turned on).	$V_{CE} = 200 \text{ mV}$ Low heat dissipation when saturated (fully turned on).
Switching Speed and Frequency Response	Faster than Bipolar Better frequency response May result in unwanted (parasitic) supersonic (frequency too high to hear) oscillations that can destroy your speaker tweeters.	Slower than MOSFETs. Inferior frequency response.
Voltages	When fully turned on (saturated), the potential drop across the device is about 20 mV. (between the source and drain).	When fully turned on (saturated), the potential drop across the device (V_{ce}) is about 200 mV. (between the collector and emitter).
Bias (input) Voltages	N Channel MOSFETS need +2 to +4 volts to turn them on. The gate current is approximately zero.	Base current starts to flow with an input voltage of about +0.7V. Relatively large base currents are needed to make transistors operate.
Thermal Runaway	When MOSFETS heat up, the current flowing through them decreases. They are less likely to be destroyed by overheating.	When bipolar transistors heat up, the gain increases and so the current through them increases too. This in turn causes further heating and yet more gain and current. This can cause catastrophic failure called thermal runaway. Negative feedback helps to prevent this.

