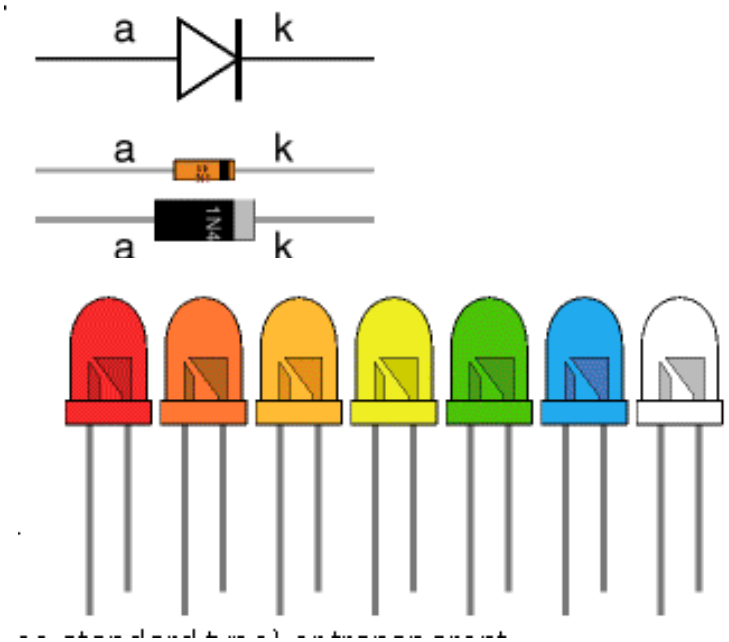
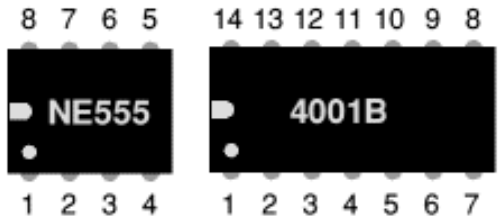
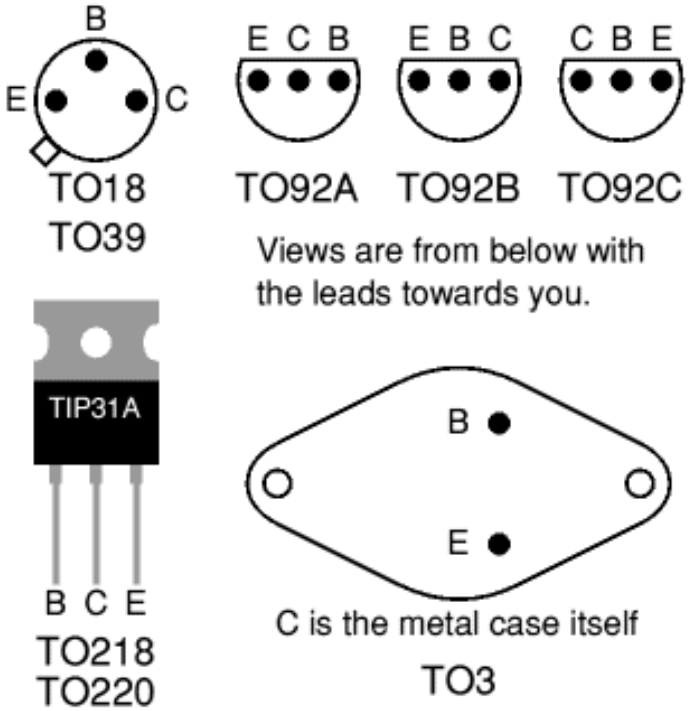
Basic electronic Devices







Transistor leads for some common case styles.

Semiconductors

has characteristics of conductors + insulators

e- are confined

free e-

Elements

Si

2, 8, 4

Ge

2, 8, 18, 4

Doping - add impurities

1pt per million

Arsenic

2, 8, 18, 5

Donor

n-type

1 too many e-

electrons move

Aluminum

2, 8, 3

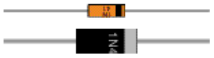
Acceptor

p-type

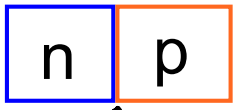
1 too few e-

holes move

Diodes

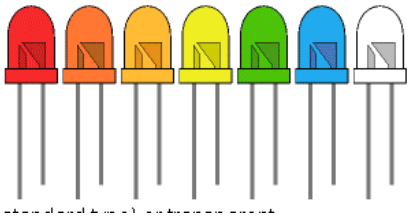
Example: 

Circuit symbol: 

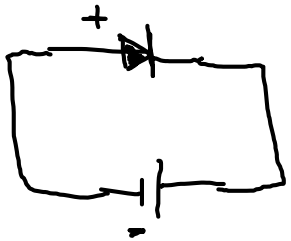


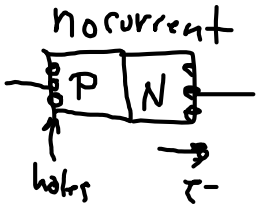
PN Junction

no electron can cross



current can flow in only 1 direction



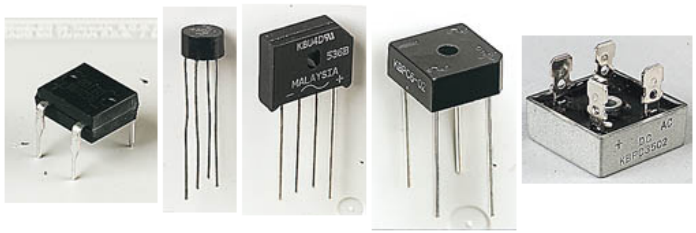


Reverse Bias

98% of current is blocked

http://www.kpsec.freeuk.com/components/diode.htm

Rectifiers



Various types of Bridge Rectifiers

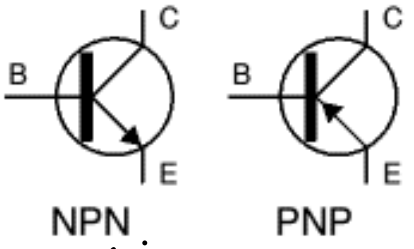
Zener

Example: 

a = anode, k = cathode

Circuit symbol: 

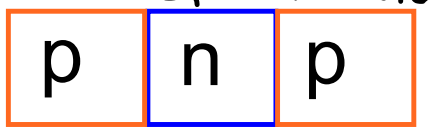
Transistors

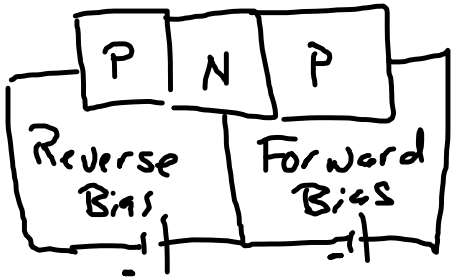


Never point in
Transistor circuit symbols

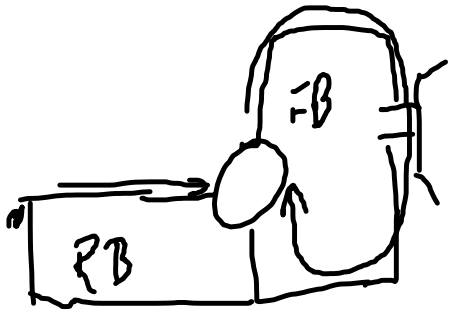
Current amplifiers

Emitter Base Collector





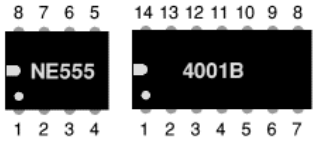
Transistor are controlled by current



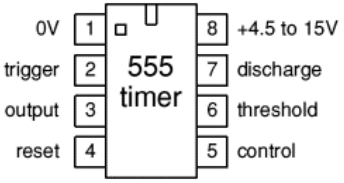
FET

Voltage controlled amplifier

ICs



Timer



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