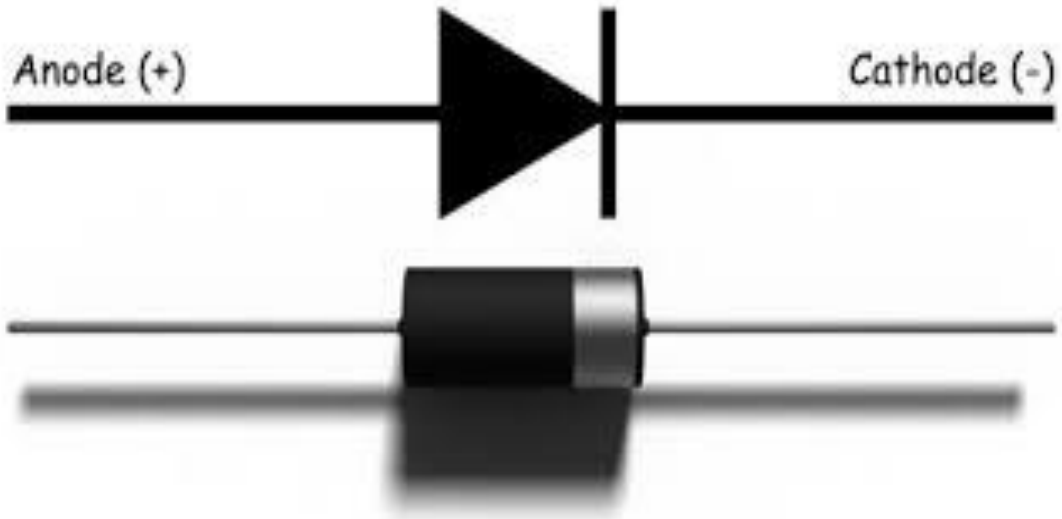
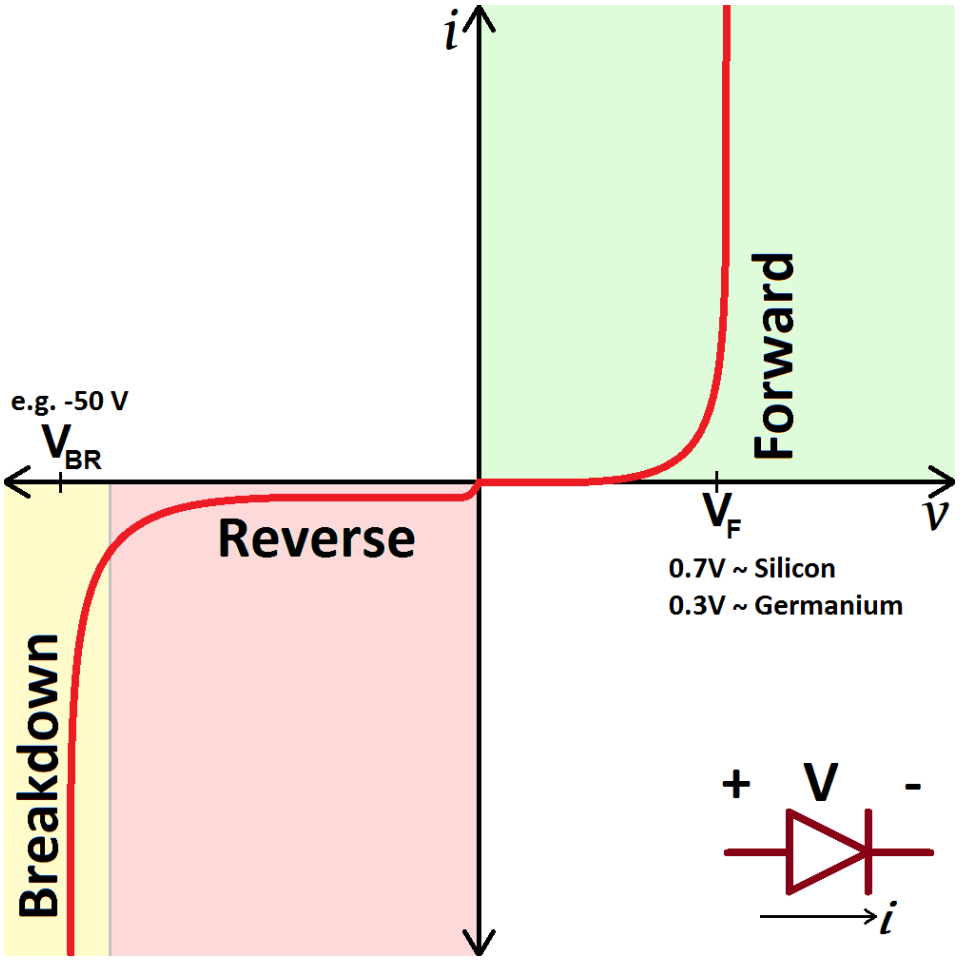
To test a diode and a transistor.

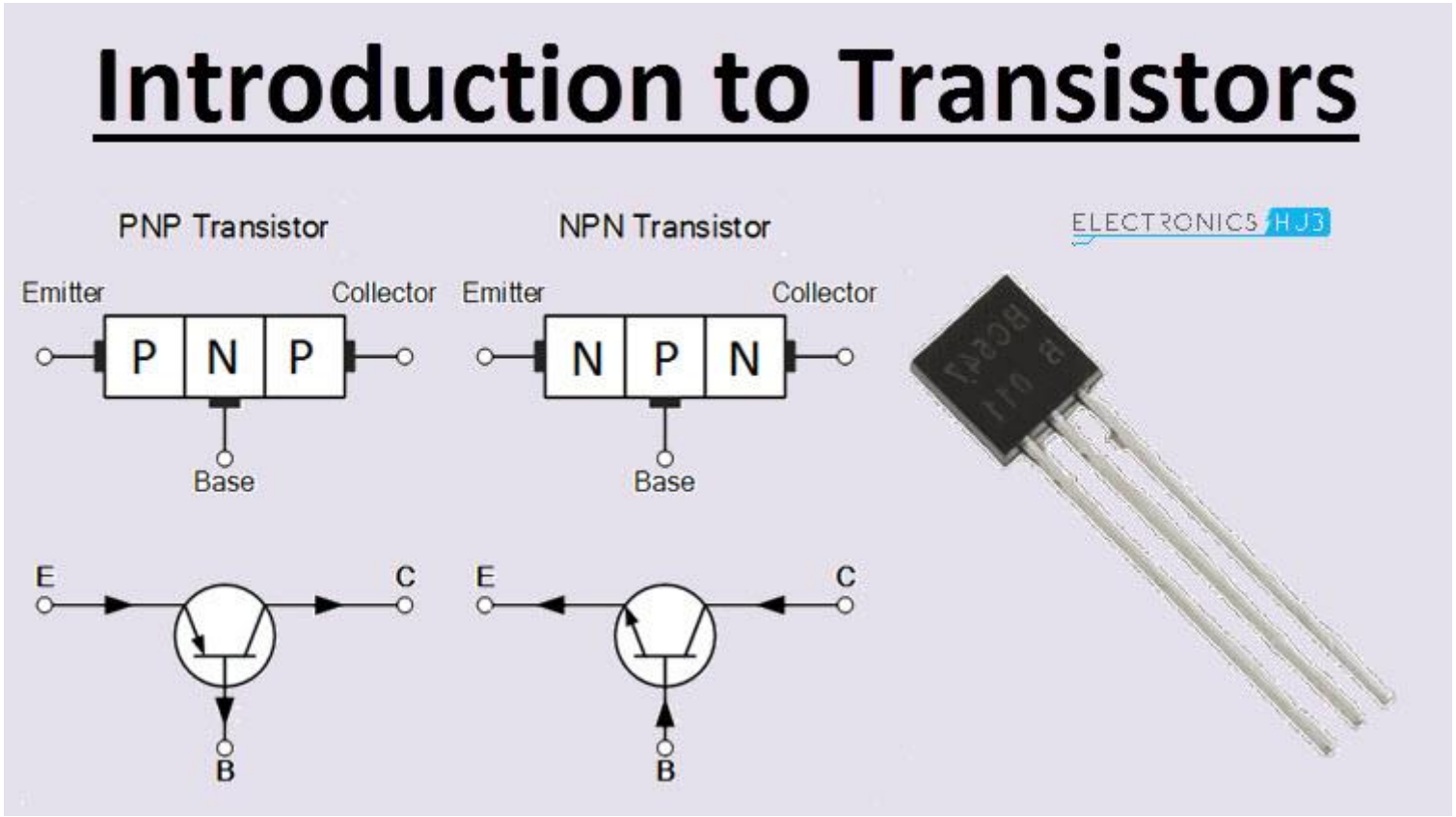
Diodes



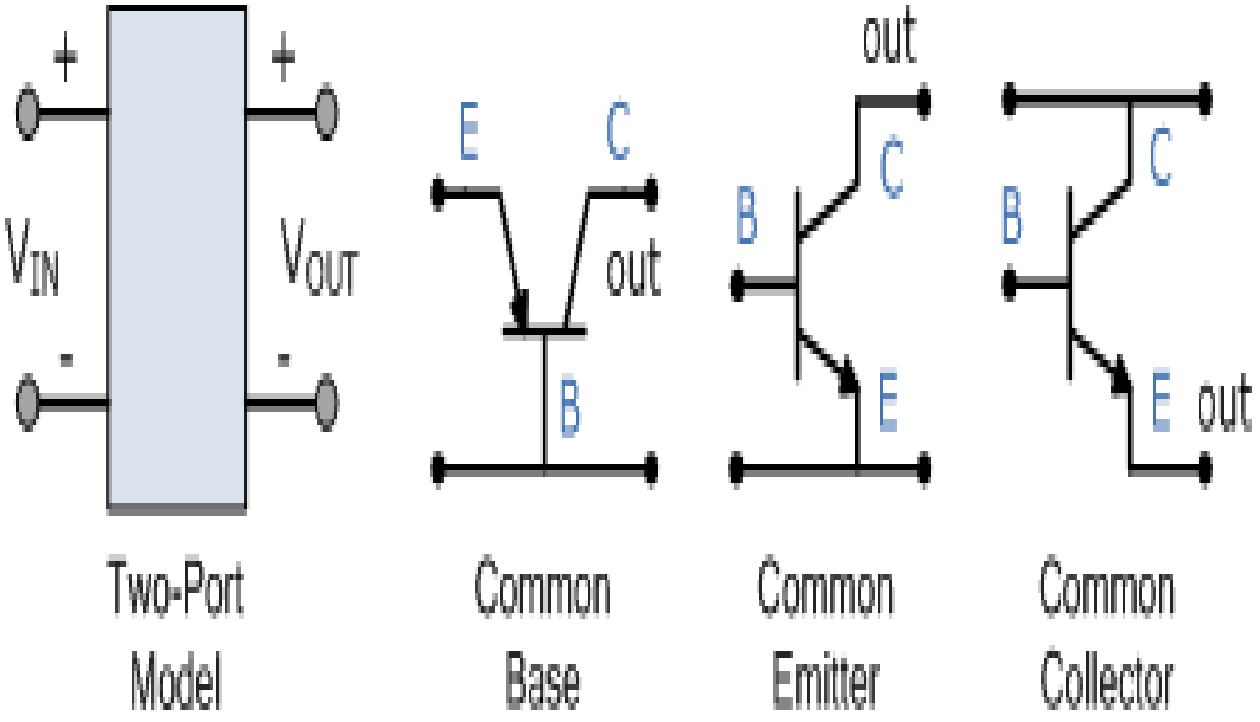
Characteristics of a diode



Transistors



Configurations of transistors



Characteristics of transistors

- Two types
- (i) Input Characteristics

- (ii) Output characteristics

Input Characteristics

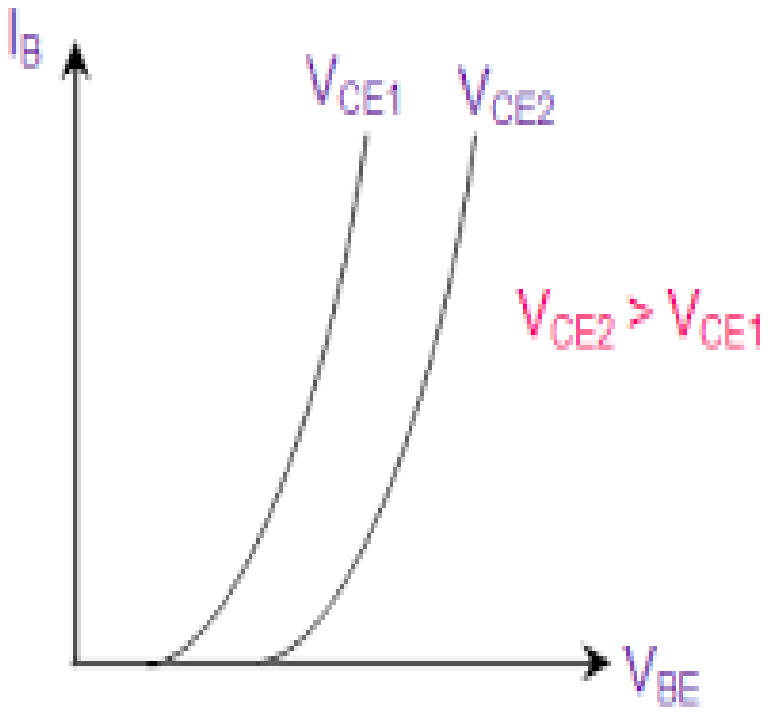
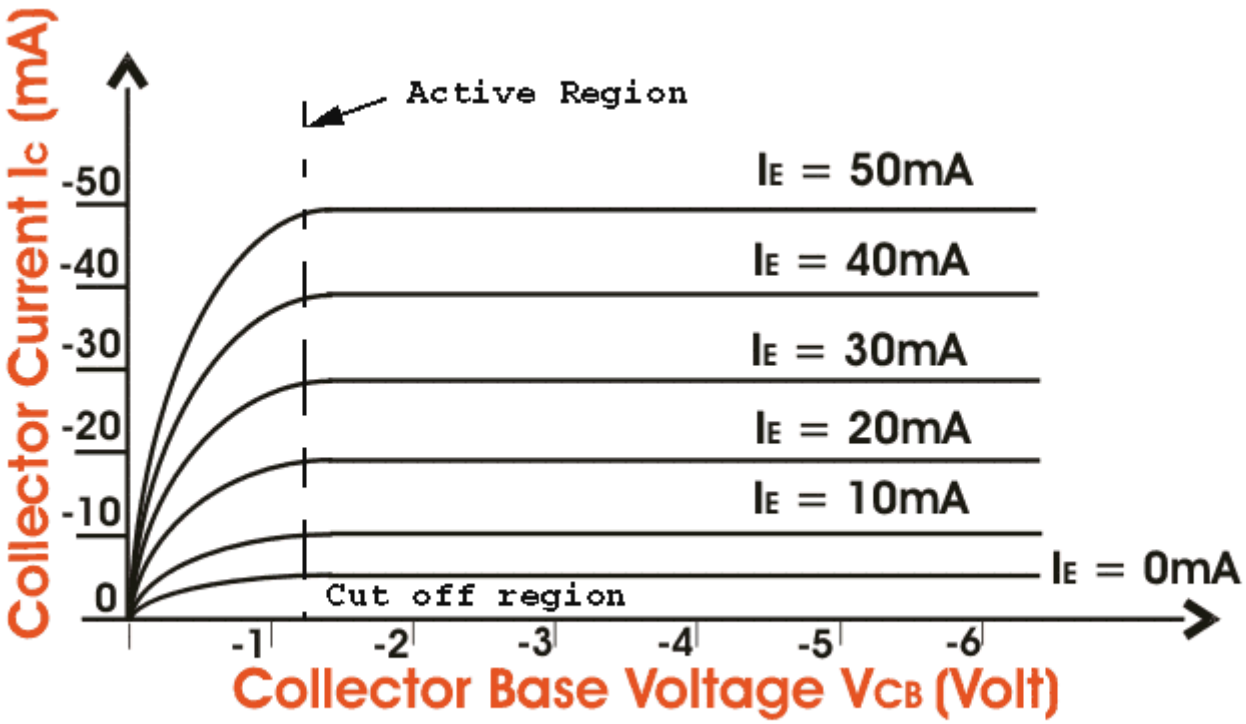


Figure 10 Input Characteristics for CE Configuration

Output characteristics



Diode testing

- Diodes are checked by Go/no-go checks
- Principle: Checking the forward and reverse resistance of a PN junction diode that may be present.
- The source of current for the resistance check is the internal battery in the multimeter.
-

Poll

- The source of current in the resistance check of a diode is
- (A) External battery
- (B) Internal battery of multimeter
- (C) Can be A or B
- (D) Neither A nor B

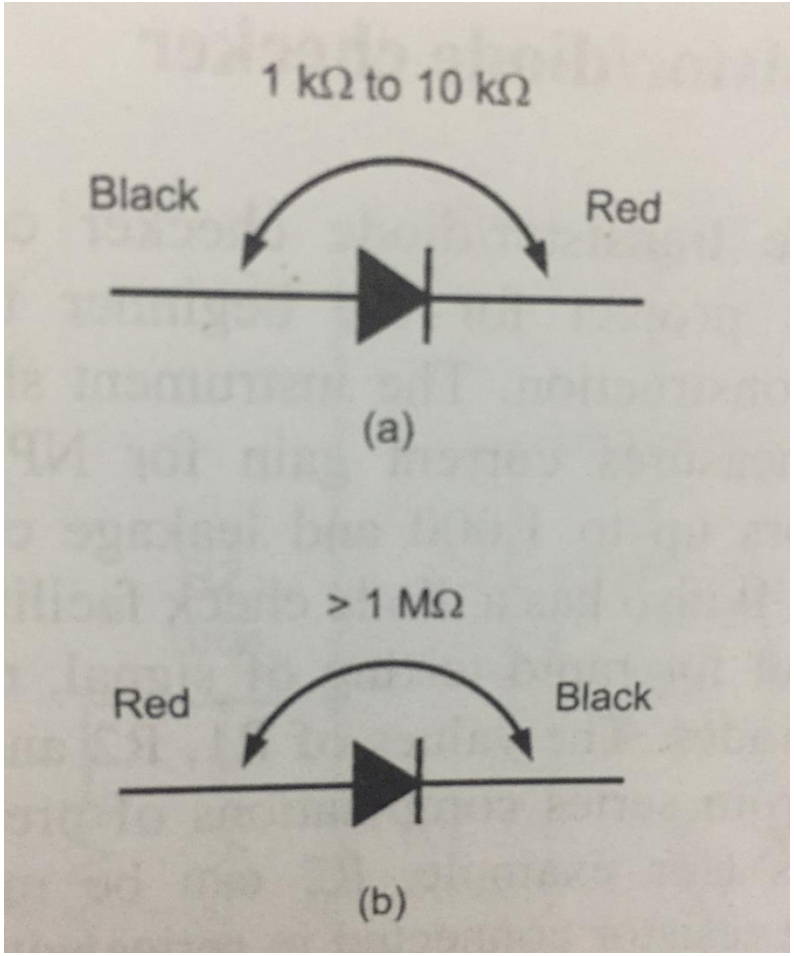
Multimeter


HV
000
V⎓
1000
200
20
2000m
200m
OFF
750
V~
200
A⎓
200µ
2000µ
20m
200m
10
2000
k
200k
20k
2000
Ω
200
hFE
NPN
PNP
10A⎓MAX
VΩmA
1000V⎓MAX
750V~MAX
500mA⎓MAX
FUSED
COM
500V⎓MAX
DT830B
DIGITAL
MULTIMETER

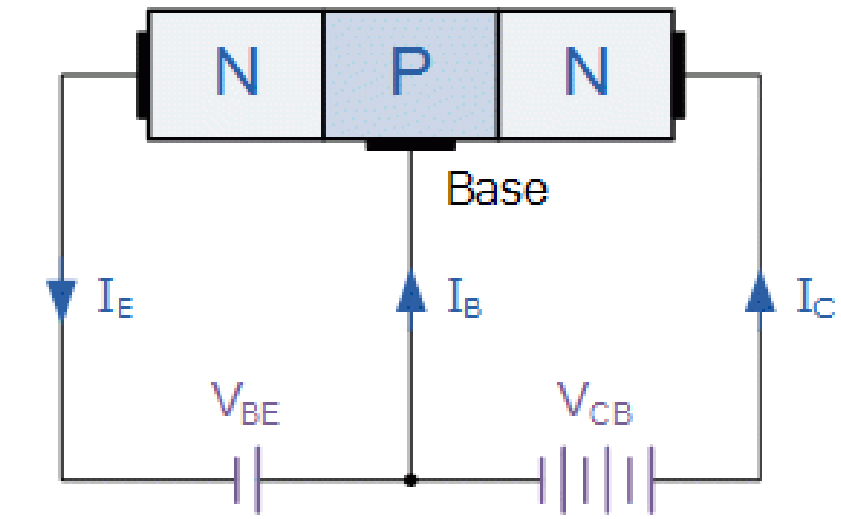
Diode Go/no-go checks

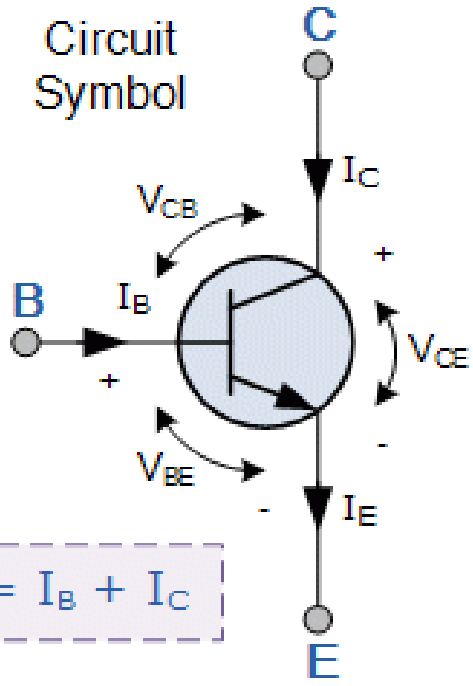
- When the red (positive) side of ohmmeter is connected to the cathode and the diode under test is forward biased, the ohmmeter will indicate a low resistance reading.
- When the leads are reversed, ohmmeter indicates a very high of infinite resistance.
- Zener diodes are tested similarly.

Silicon diodes in Go/no-Go checks



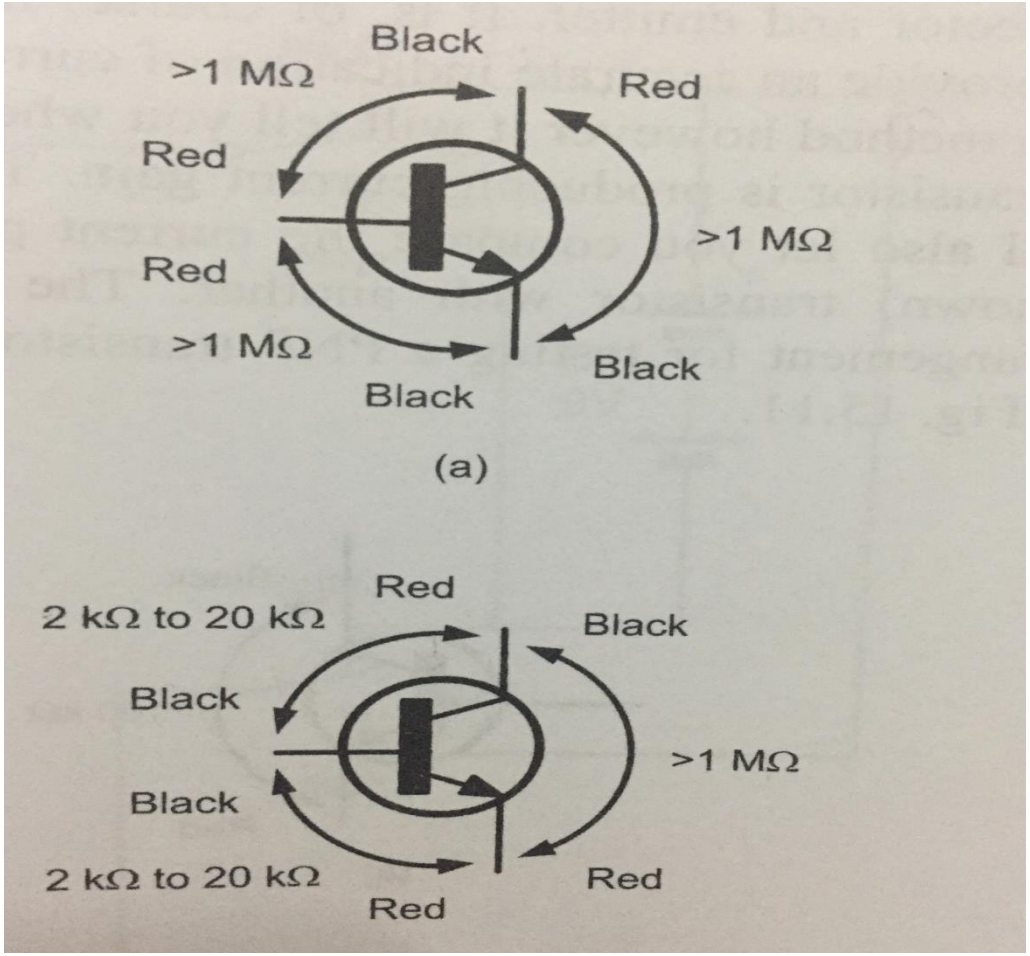
Biasing of NPN transistor



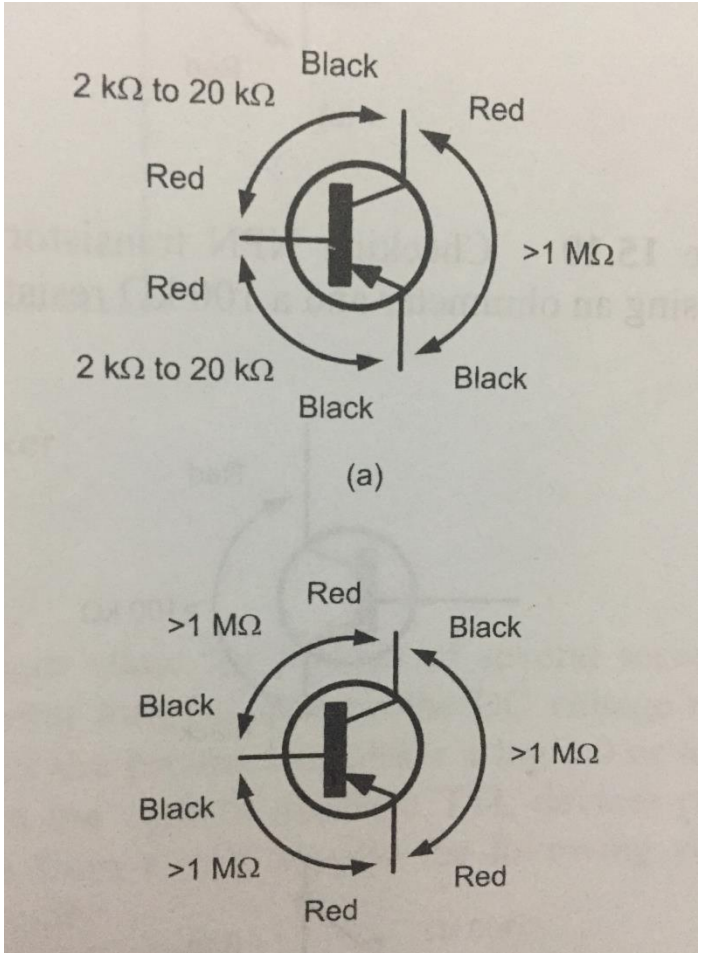


$I_E = I_B + I_C$

Voltages in transistor(NPN) Go/no-go checks



Voltages in transistor(PNP) Go/no-go checks



Poll

- In the a forward biased condition, resistance of a diode is
- (A) Less
- (B) High
- (C) Can be high or low
- (D) None of the above