



WORKSHOP PRACTICE

DETCE/DEE/S2

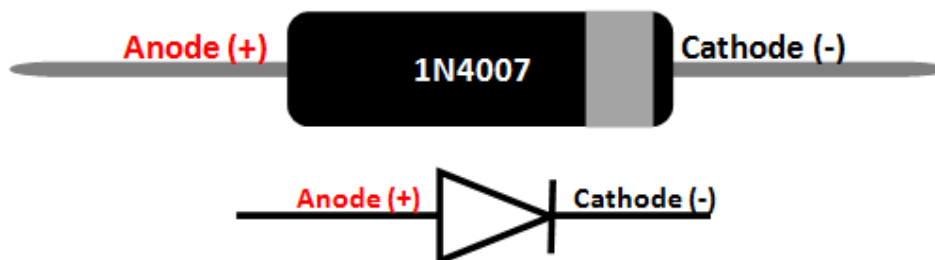
SMITA UKIL

PN JUNCTION DIODE

A **PN** junction diode is one of the semiconductor devices with two semiconductor materials in physical contact, one with excess of holes (P-type), and other with excess of electrons (N-type). The most important characteristics of **PN** junction is its ability to allow the flow of the current in only one direction. *In the opposite direction, it offers very high resistance.*

USE: Semiconductor diodes find wide applications in all phases of electronics, viz. Radio and TV, optoelectronics, power supplies, industrial electronics, instrumentation, computers, etc.

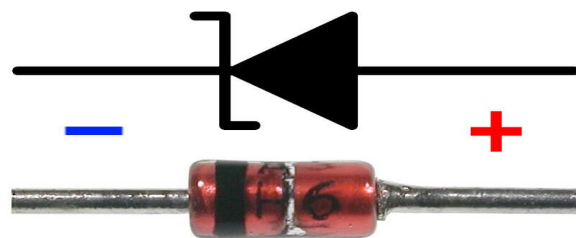
SYMBOL:



ZENER DIODE

ZENER DIODE: When the reverse voltage reaches breakdown voltage in normal PN junction diode, the current through the junction and the power dissipated at the junction will be high. Such an operation is destructive and the diode gets damaged. Whereas diodes can be designed with adequate power dissipation capabilities to operate in the breakdown region. One such a diode is known as **ZENER** diode. **Zener** diode is heavily doped than the ordinary diode.

SYMBOL:



Cathod

Anod

Zener Diode

USE: Under the reverse bias condition the voltage across the diode is almost constant although the current through the diode increases. The voltage across the zener diode serves as a reference voltage. Hence, the diode can be used as a voltage regulator.



LIGHT EMITTING DIODE/LED

A light-emitting diode (LED) is a semiconductor device that emits visible light when an electric current passes through it. The light is not particularly bright, but in most LEDs it is monochromatic, occurring at a single wavelength.

Characteristics of LED:

Light Generated by LED is Directional. A. LED is all forward directional lighting, not Omni as conventional light bulb.

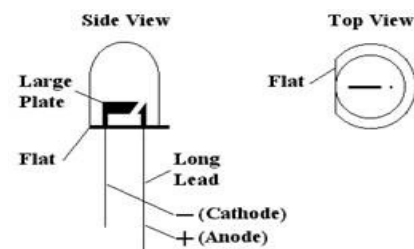
LED can Generate Different Light Colour.

Temperature will Affect LED Efficacy.

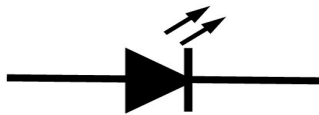
Low Energy Consumption.

Long Life.

IDENTIFICATION AND SYMBOL OF AN LED:



side and top view of an LED



Applications of LED

- Sensor Applications
- Mobile Applications
- Sign Applications
- Automotive Uses
- LED Signals
- Illuminations
- Indicators

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