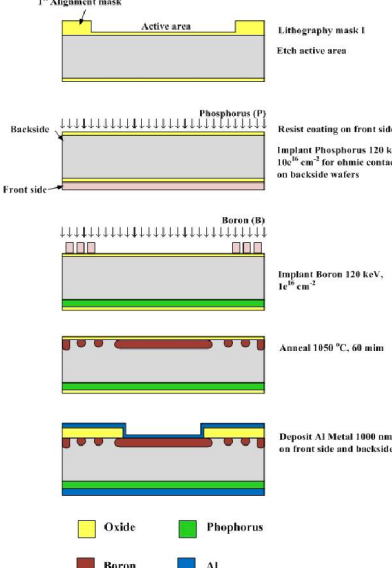
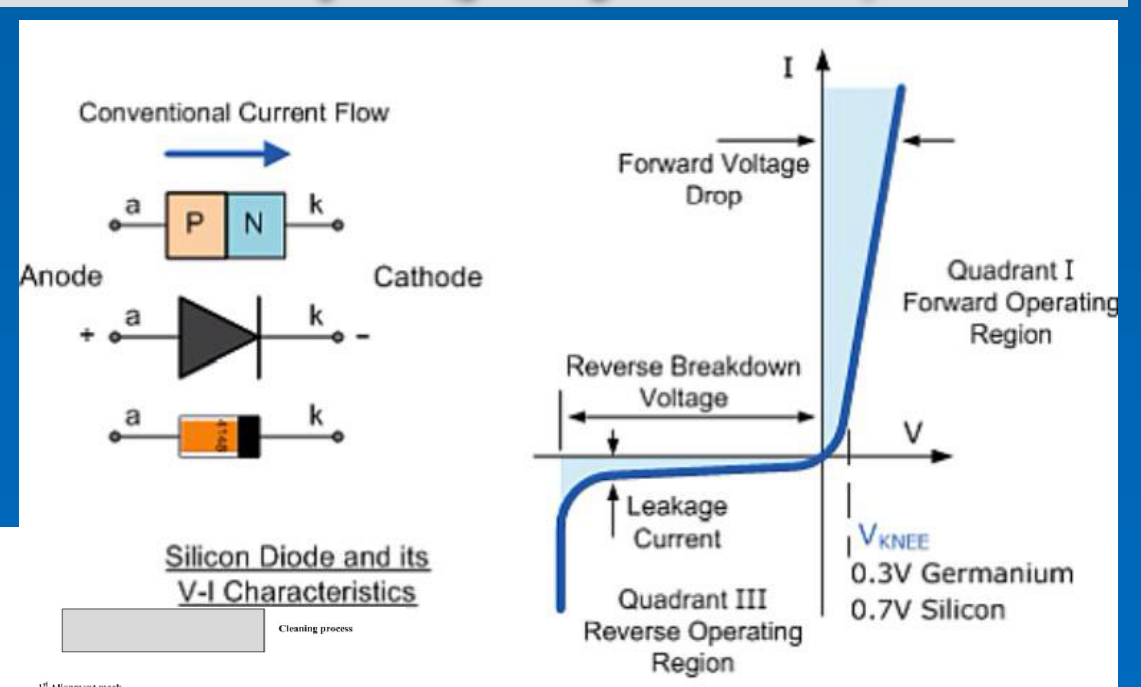
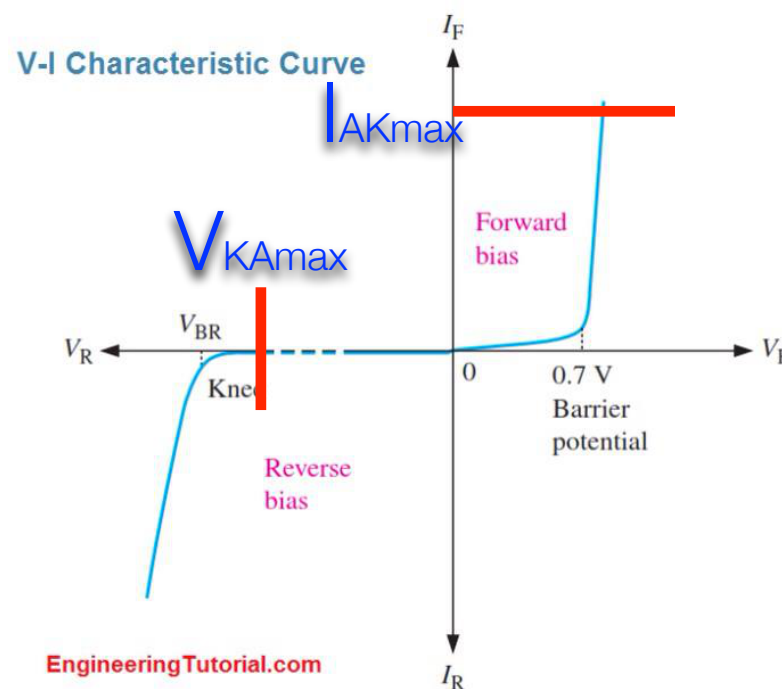
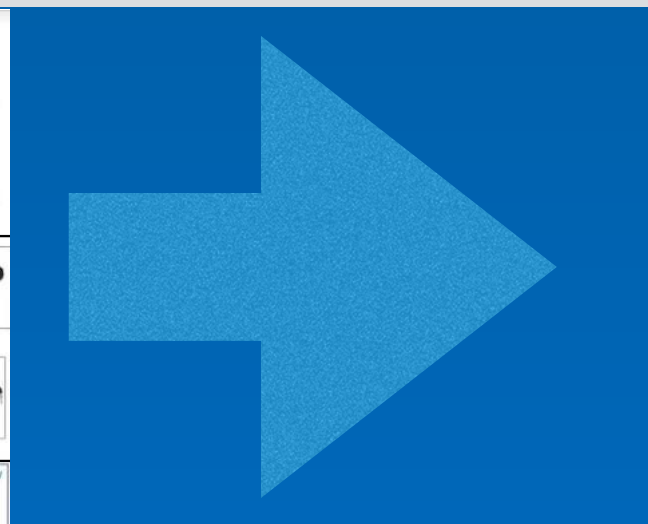
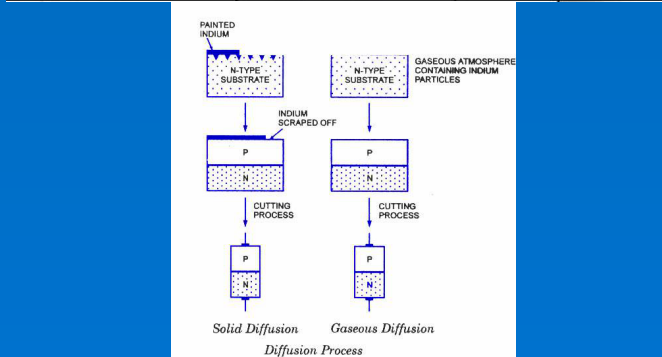
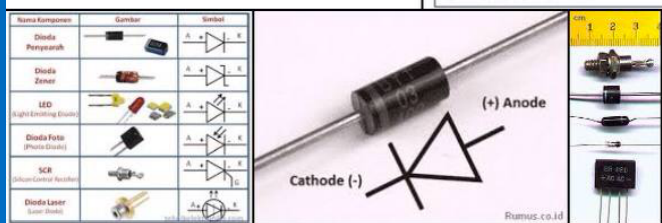
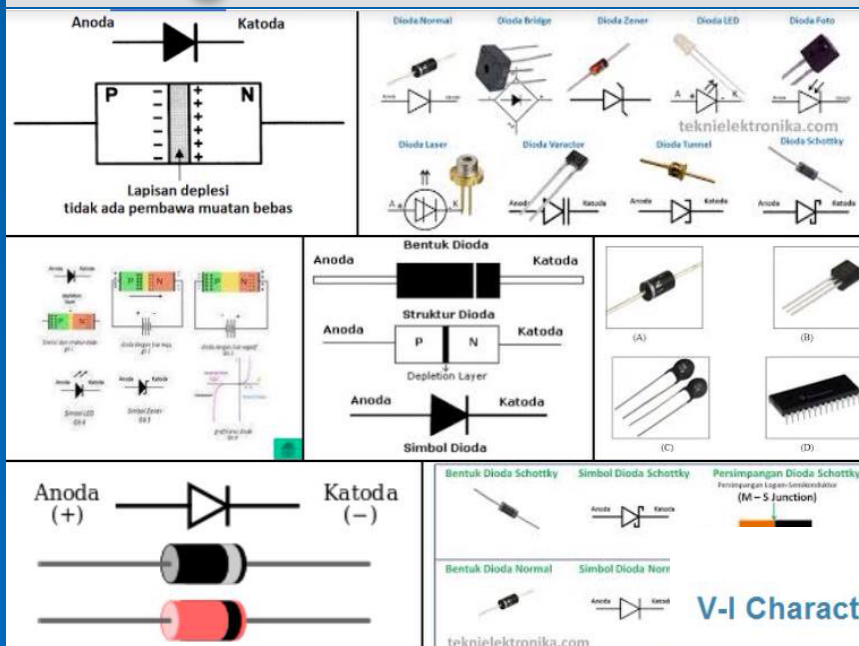


DIODE BIASA (GENERIK) (p-n junction)

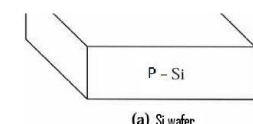
- Komponen-komponen aktif adalah komponen yang dalam analisis rangkaian listrik tidak hanya dapat dimodelkan setara (ekivalen) dengan komponen-komponen pasif **R**, **L** dan/atau **C** saja, tapi juga harus melibatkan **Sumber Tegangan**, **Sumber Arus** dan/atau **Saklar**.
- Komponen aktif yang paling sederhana adalah **DIODE** (**biasa, generik**) yang dibuat dengan bahan **SEMIKONDUKTOR** atau **SAMBUNGAN p-n** (**p-n junction**).



pn junction Diode Fabrication

Start:-

- The starting point is a flat, damage-free, single-crystal, Si wafer.
- Common dopants are boron for P-type layers and phosphorus, antimony and Arsenic for N-type layers.
- Assume the wafer is p-type, having been uniformly doped with boron during the formation of the crystal.

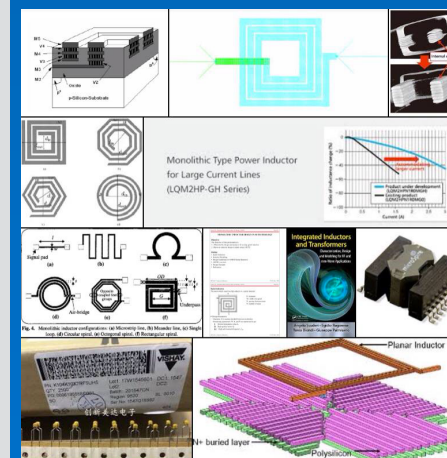
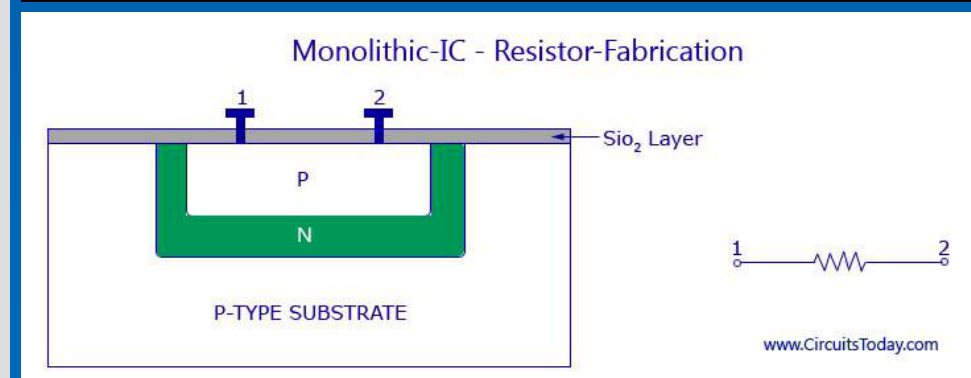
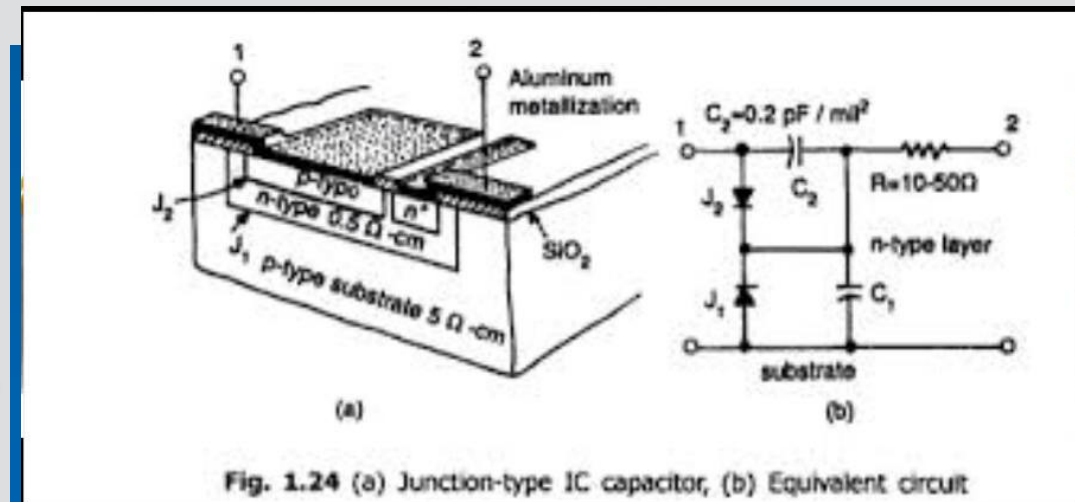


MONOLITHIC dan SURFACE MOUNT DEVICES (SMD)

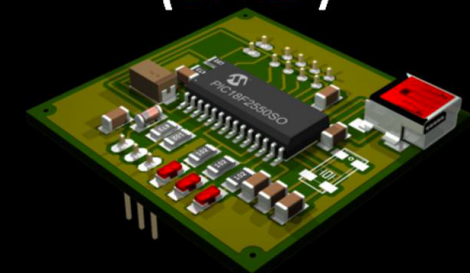
Selain di-produksi sebagai komponen diskrit, komponen-komponen elektronika juga diproduksi sebagai komponen **monolithic** dengan teknologi rangkaian terintegrasi (**IC Technology**), teknologi **SMD**, dan lain-lain.

Dengan Teknologi **IC** (**integrated Circuits**) komponen-komponen **monolithic** dibuat bersama-sama dan di-integrasikan menjadi suatu keping (**chip**), yang kemudian dikemas menjadi komponen terpadu yang disebut **IC**.

Teknologi **SMD** memungkinkan untuk merangkai **chip-chip** komponen di atas suatu **board**, **TANPA** harus **dikemas** dalam bentuk **IC**.

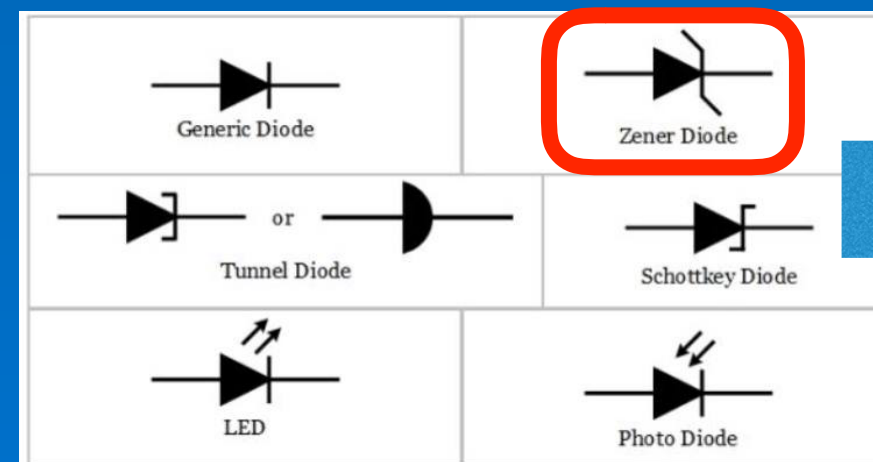
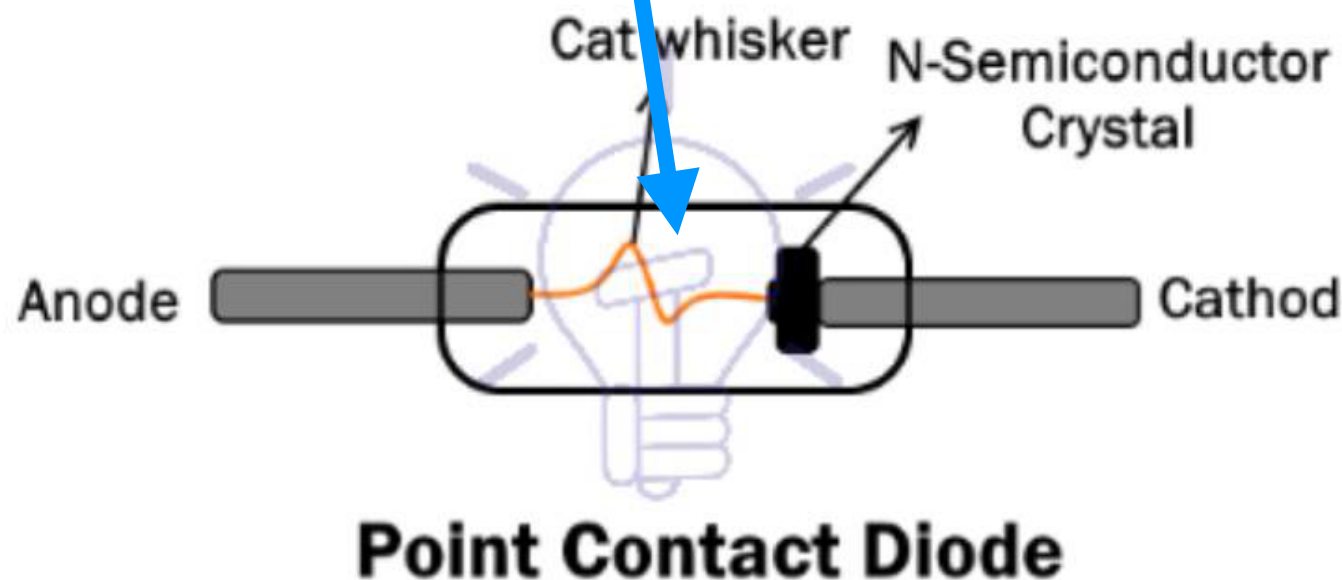
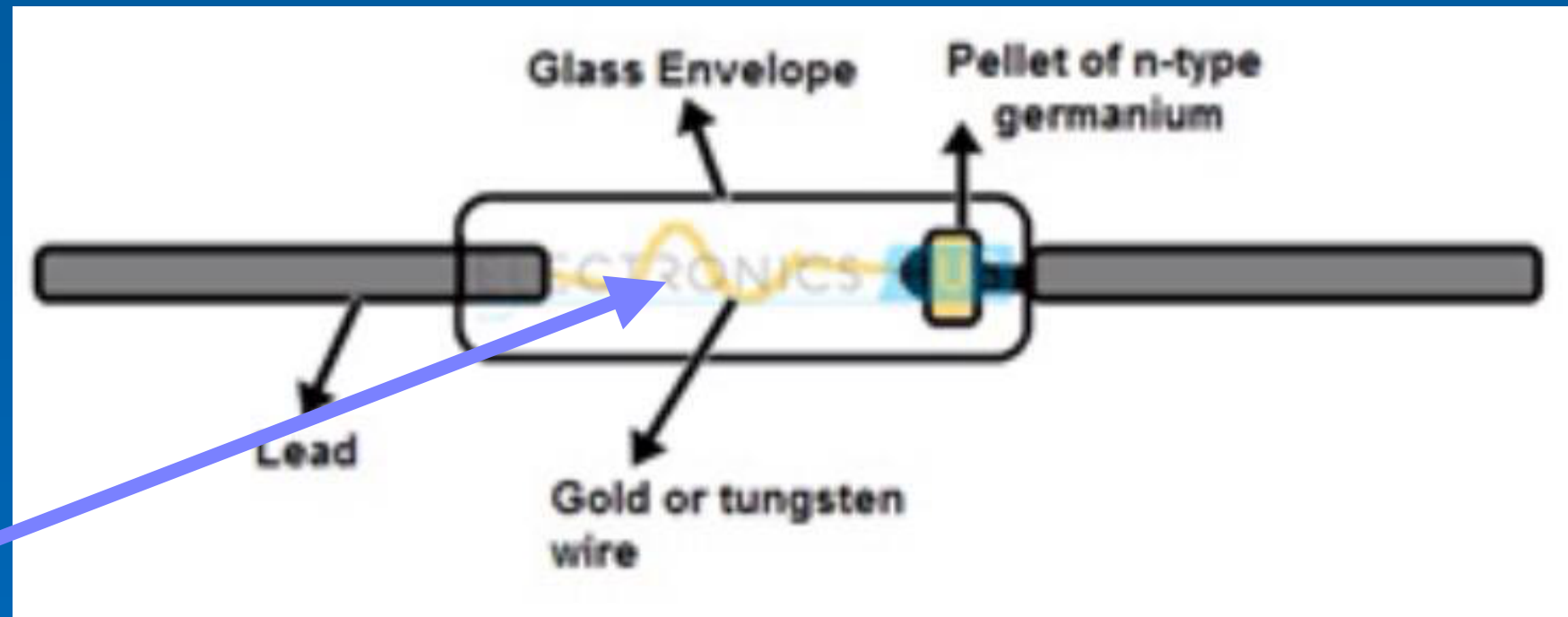


Surface Mount Device (SMD)



"Keluarga" DIODE

Selain **DIODE** (biasa, generik) **p-n junction** ada banyak macam2 komponen elektronika yang tergolong diode, walau pun tidak dibuat dengan prinsip **p-n junction**, misalnya yang disebut "**point-contact diode**".



What is a ZENER DIODE?

A **Zener diode** is designed to have a specific breakdown voltage, so that it will conduct current in reverse when the cathode reaches its threshold voltage. The breakdown voltage can be as low as 2.4V to as high as 1kV.

Applications

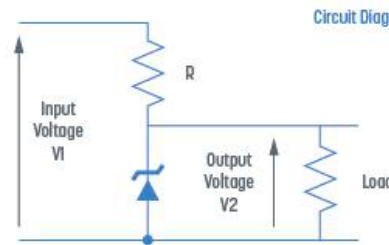
Some common uses for Zener diodes in circuits:

- Voltage regulation
- As a voltage reference
- Surge suppressors
- Switching signals
- Clipping waveforms

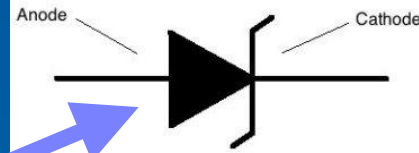
Cathode: The cathode is typically connected to a positive voltage. The zener diode will not conduct electricity from cathode to anode until the breakdown voltage is reached.

Anode: The anode is typically connected to ground. If a positive voltage is applied to the anode, it will conduct like a regular diode.

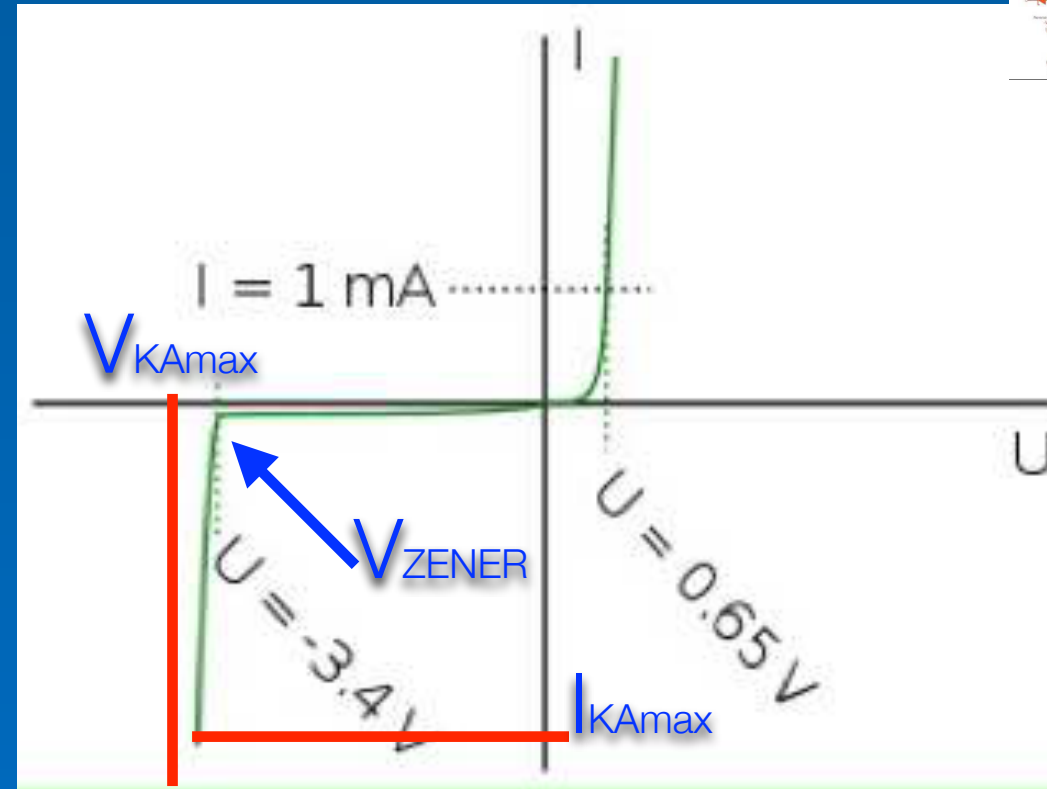
Circuit Diagram



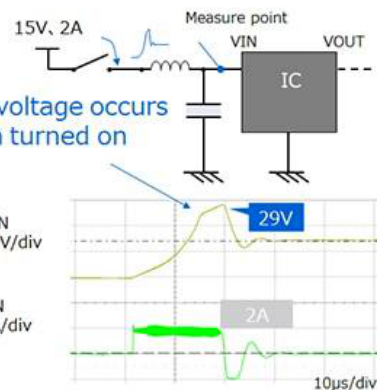
Zener Diode



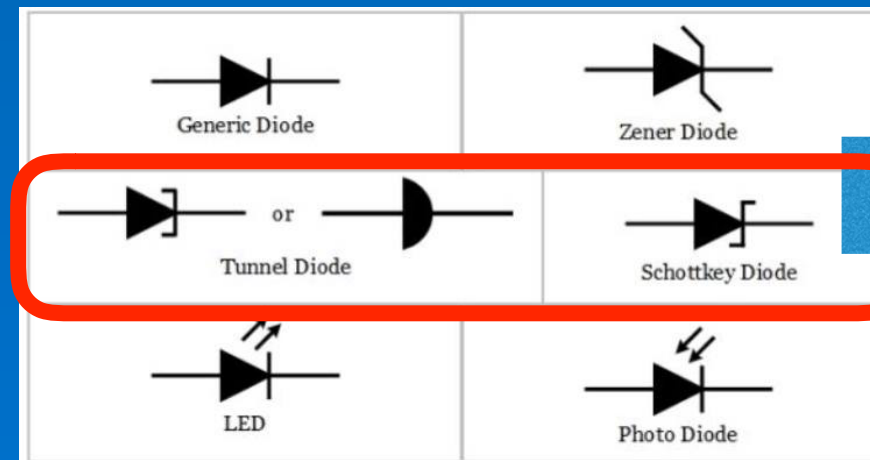
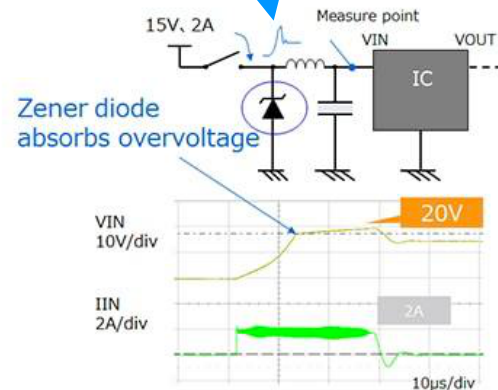
ProjectIoT123.com



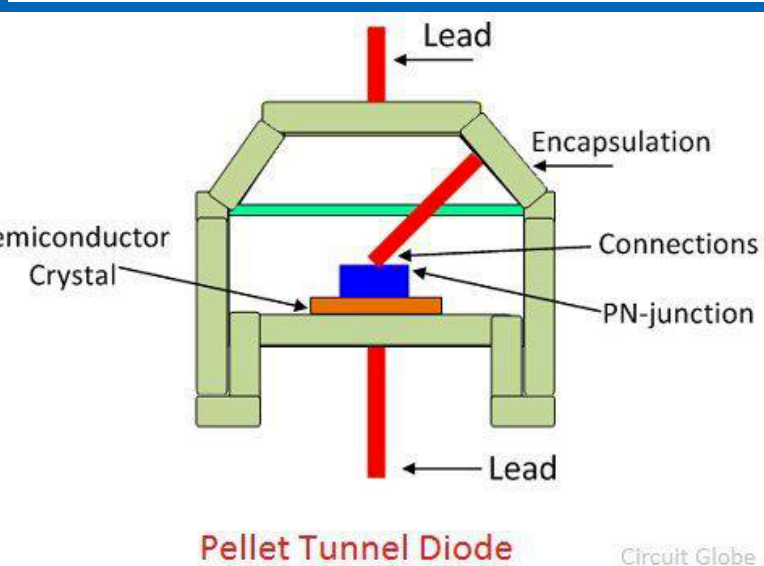
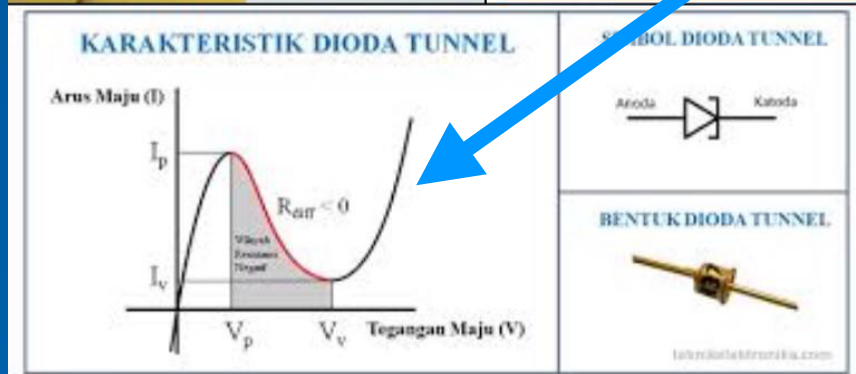
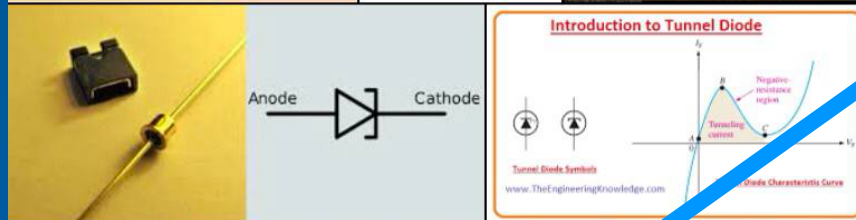
Without Zener Diode



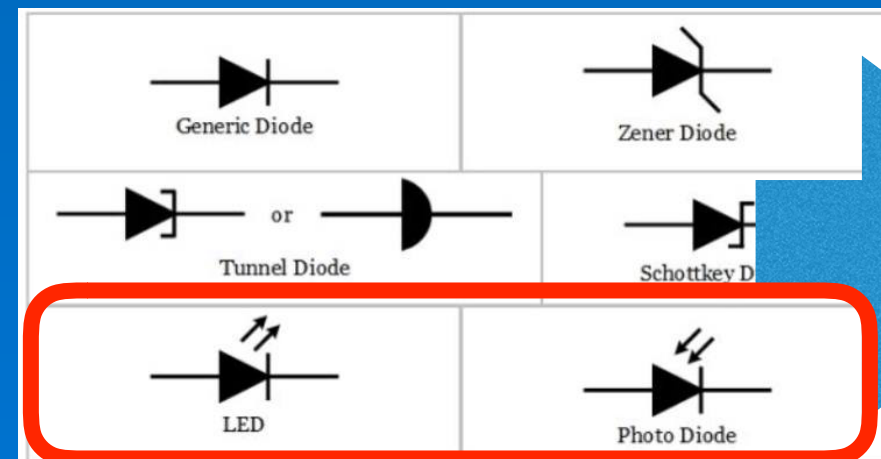
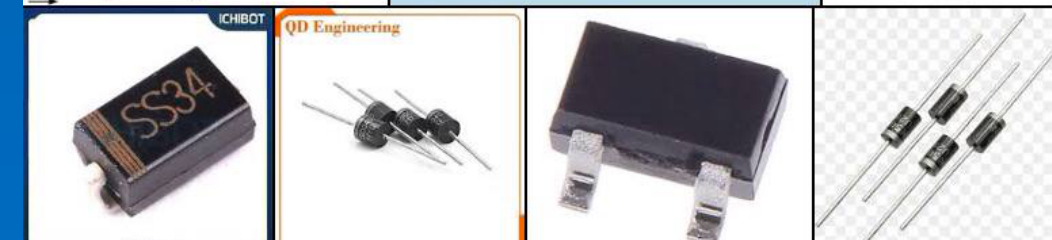
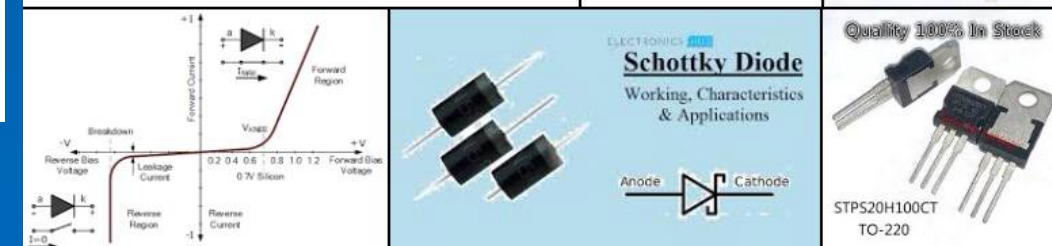
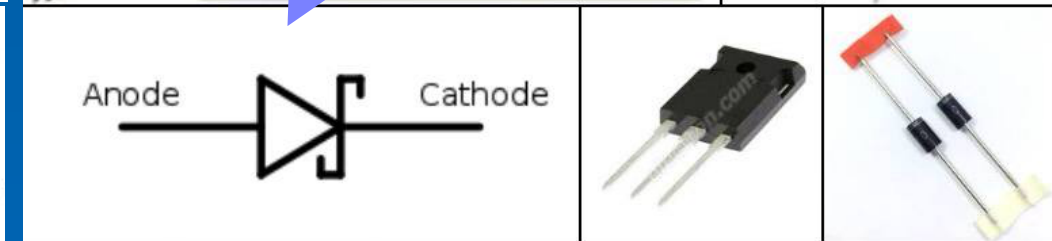
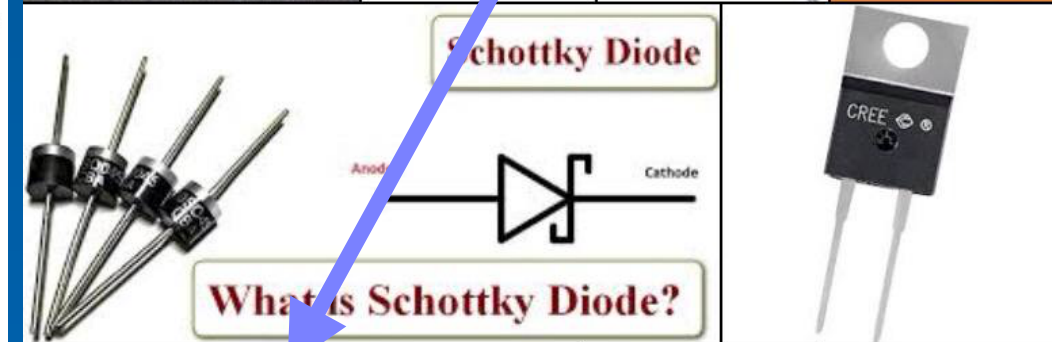
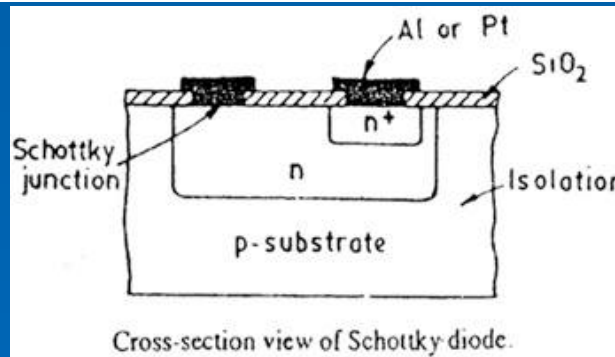
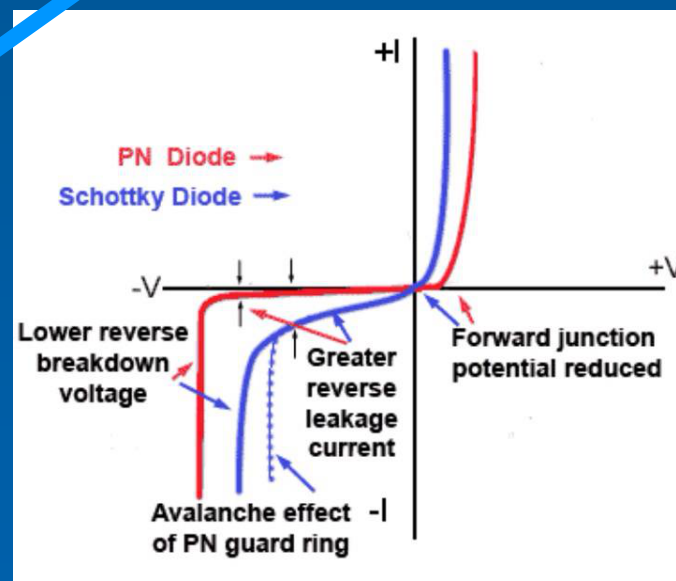
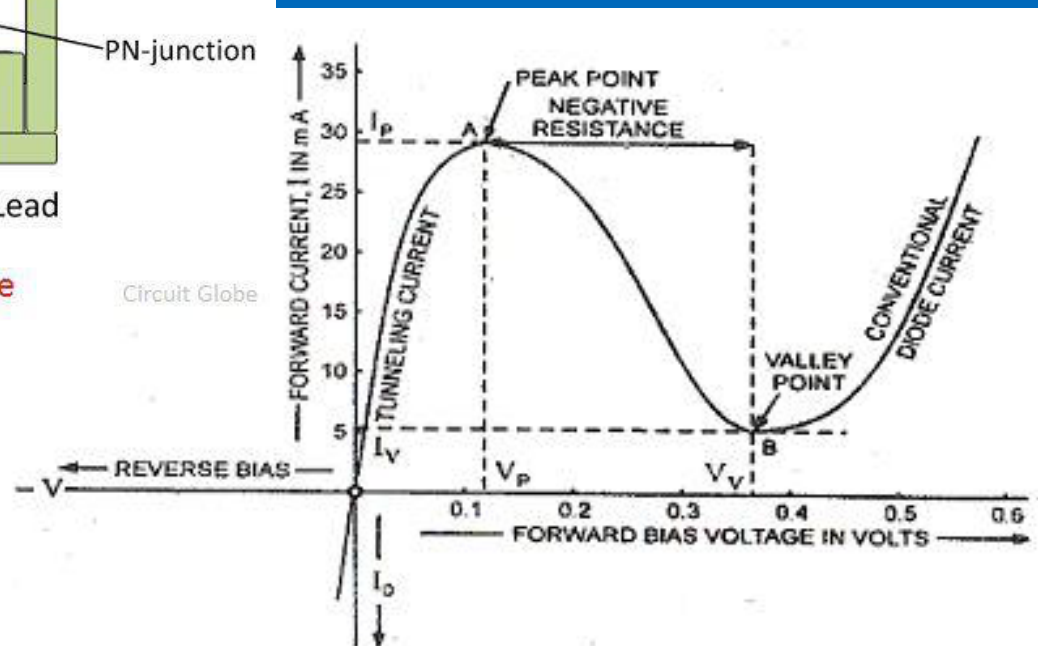
With Zener Diode



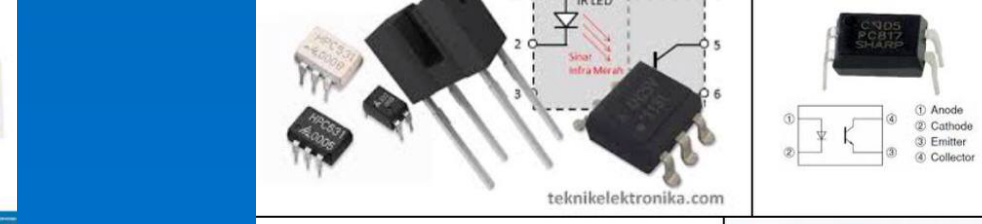
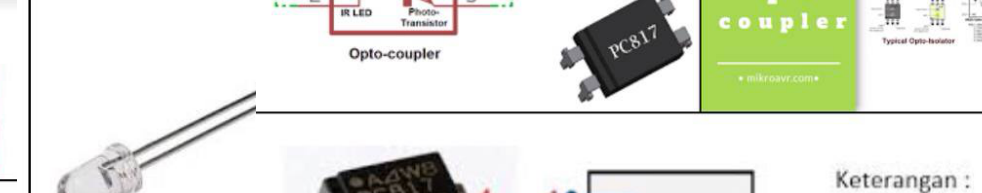
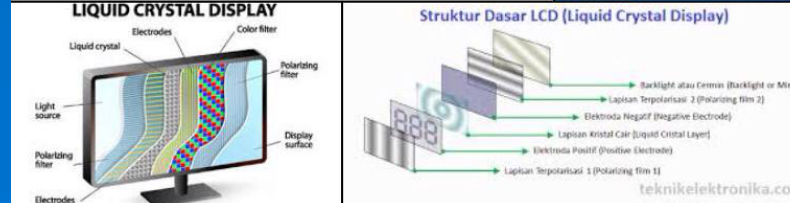
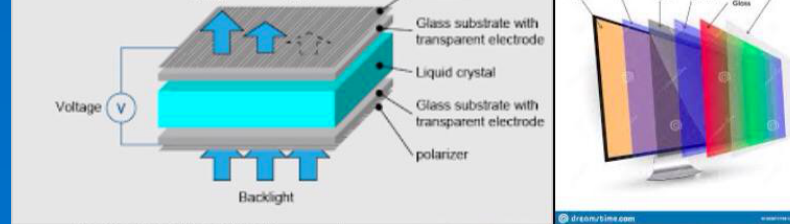
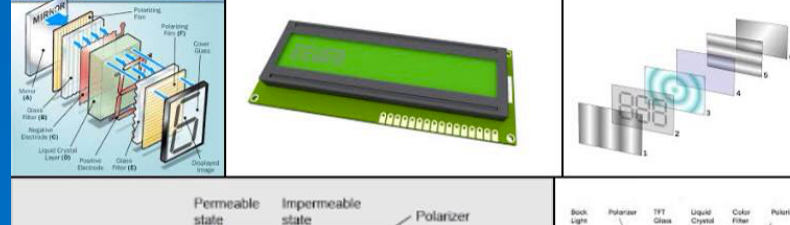
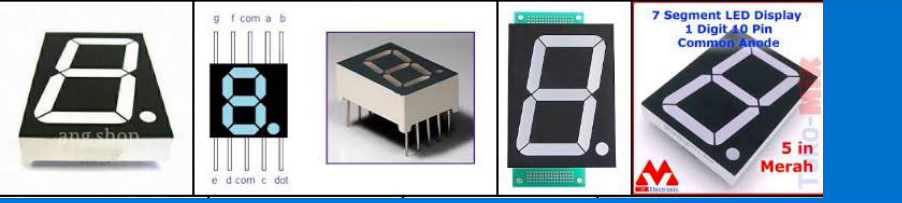
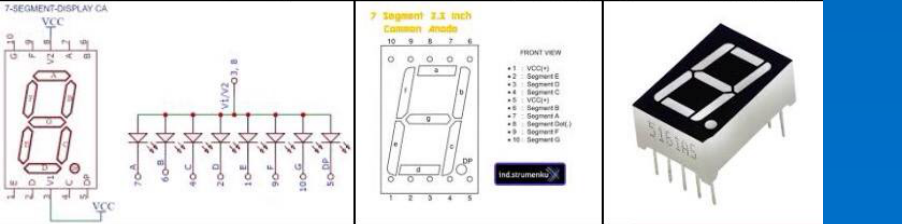
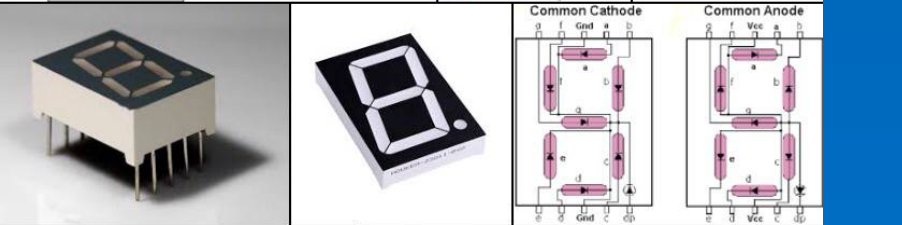
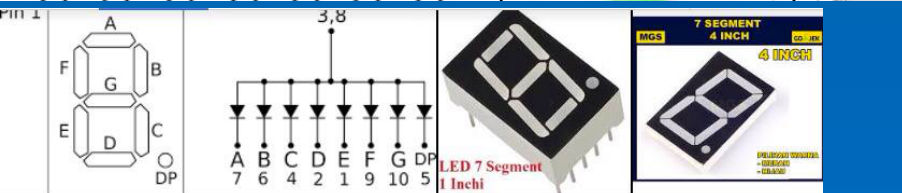
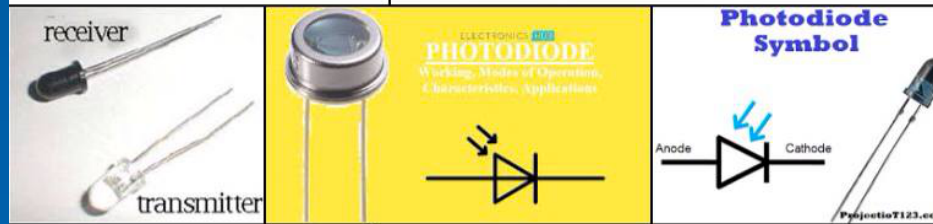
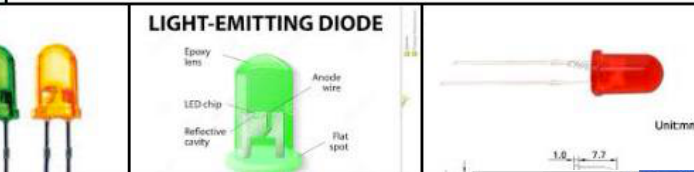
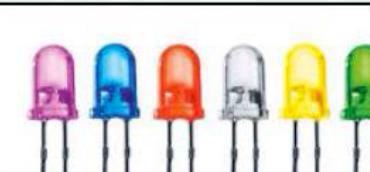
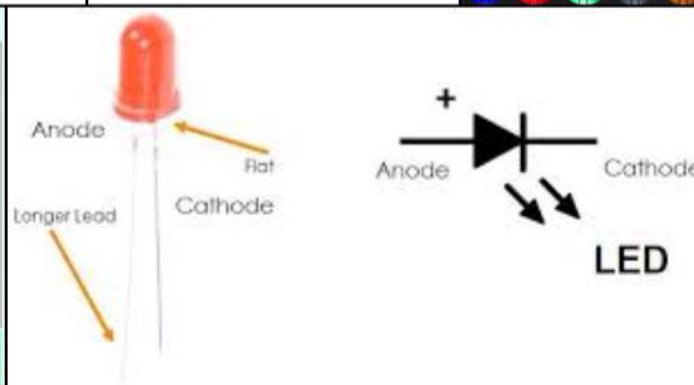
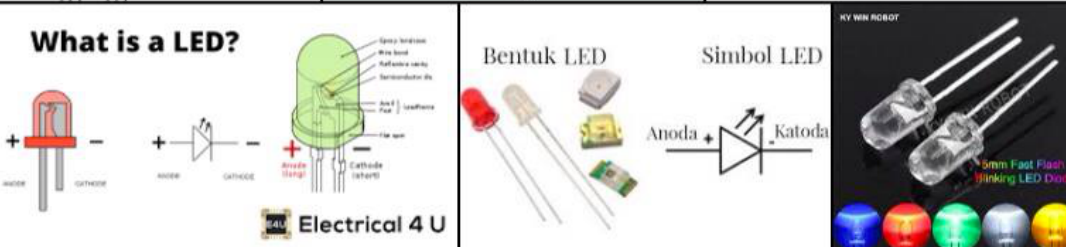
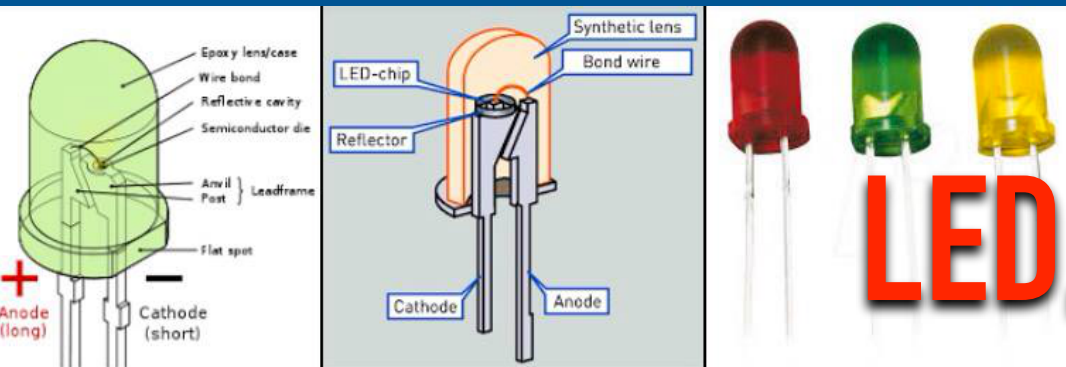
Diode Tunnel dan Schottky



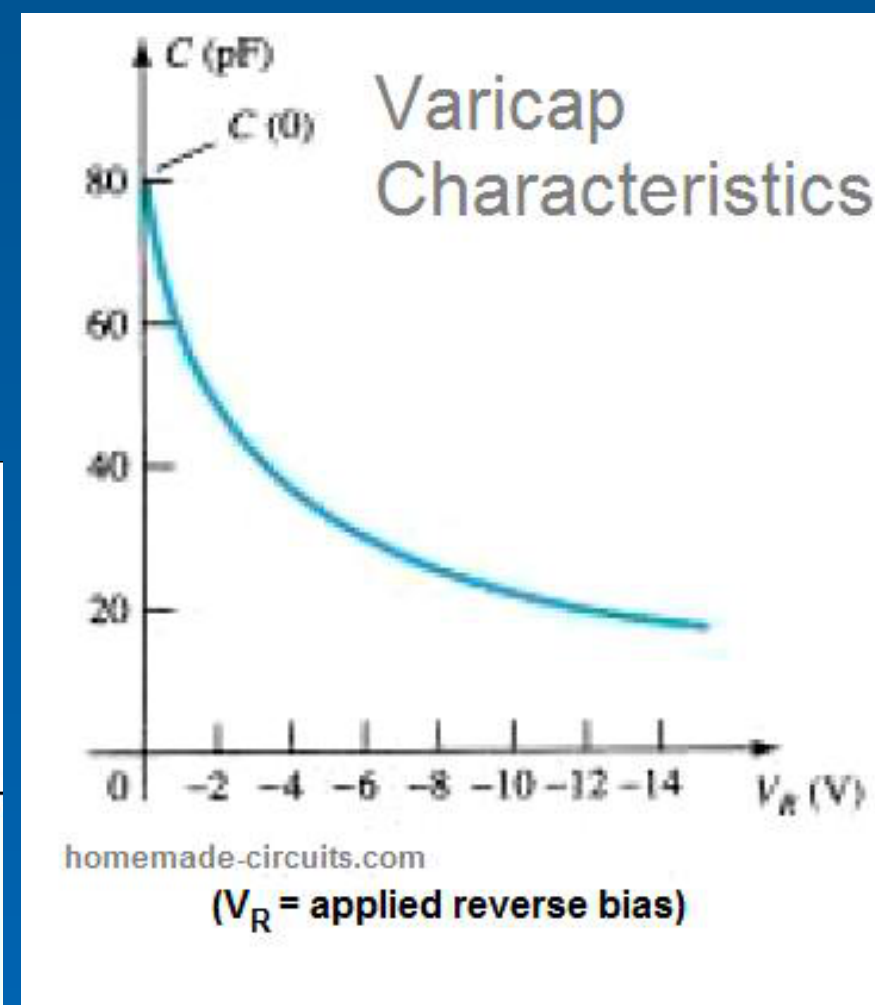
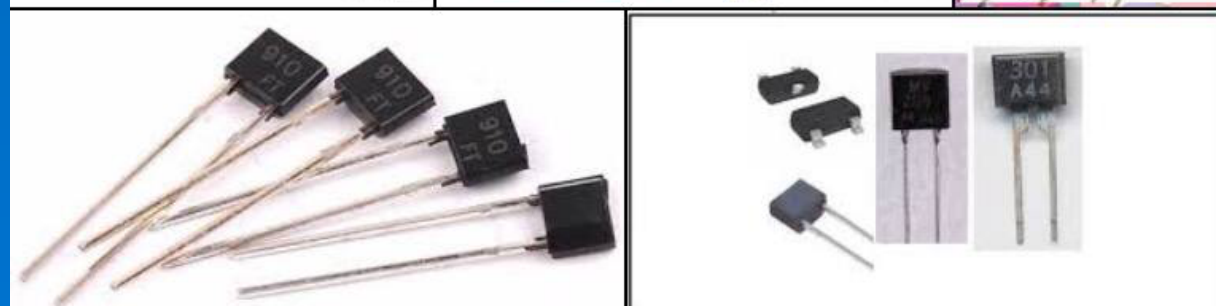
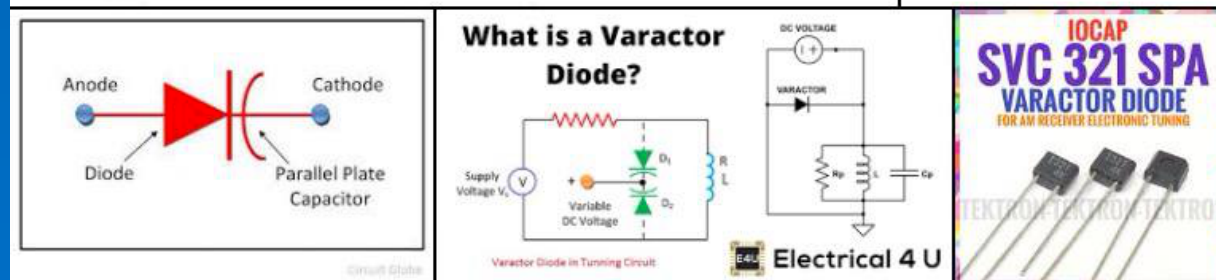
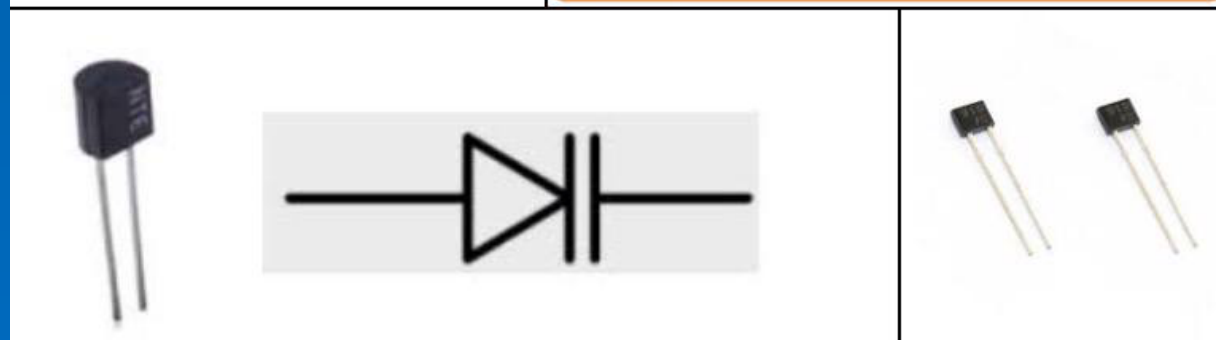
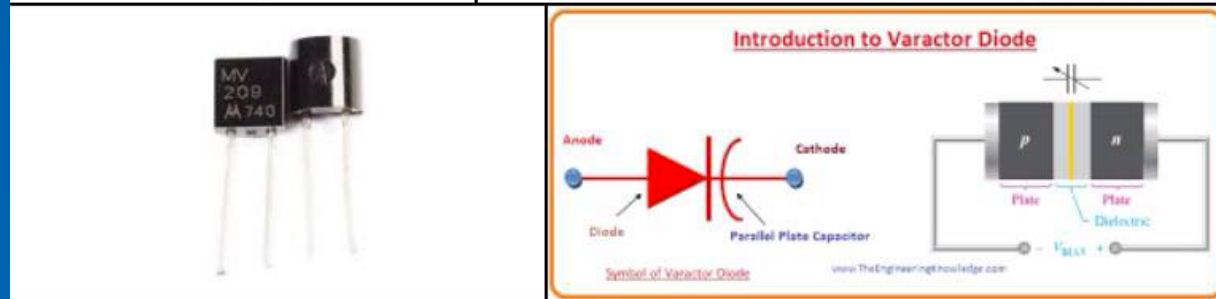
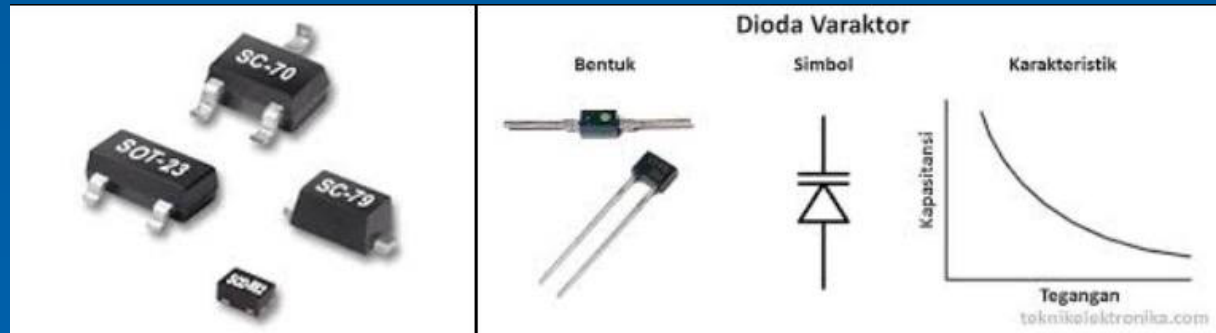
Circuit Globe



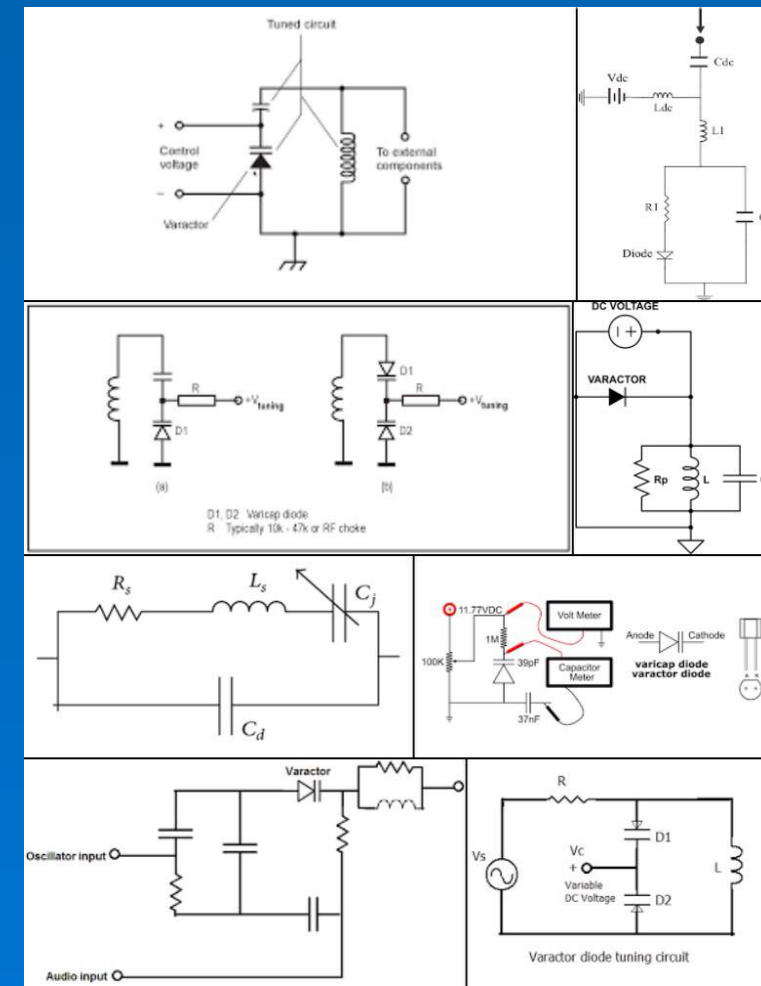
LED, Photodiode dan Optocoupler



VARACTOR



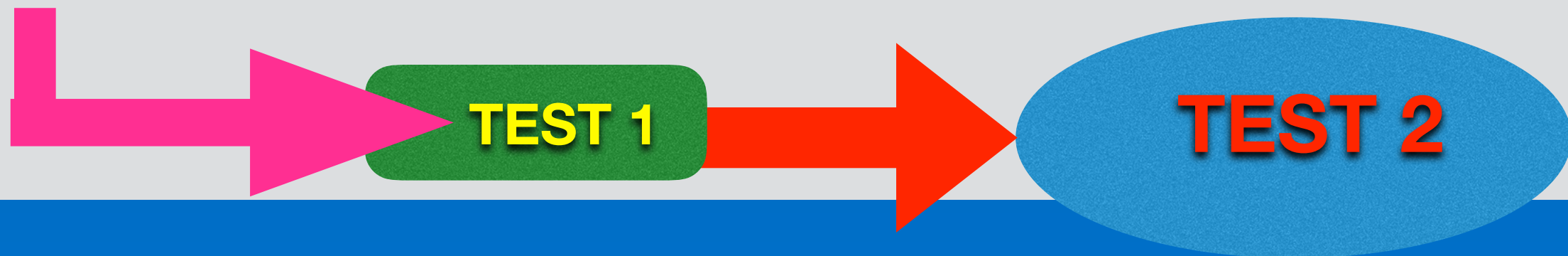
FM MODULATION Voltage Controlled Oscillator



MODUL PEMBELAJARAN

(tentatif, sewaktu-waktu berubah)

- **MODUL 0: PENGANTAR KULIAH**
- **MODUL 1: SERBA-SERBI ELEKTRONIKA**
- **MODUL 2: KOMPONEN-2 ELEKTRONIKA**
 - Sub-MODUL 2A: **Komponen PASIF: RESISTOR**
 - Sub-MODUL 2B: **Komponen PASIF: INDUKTOR**
 - Sub-MODUL 2C: **Komponen PASIF: KAPASITOR**
 - Sub-MODUL 2D: **Komponen PASIF: Catatan dan CONTOH SOAL**
 - Sub-MODUL 2E: **Komponen AKTIF: DIODE (Pengantar)**
 - Sub-MODUL 2F: **Komponen AKTIF: DIODE (Rangkaian)**
 - Sub-MODUL 2G: **Komponen AKTIF: TRANSISTOR**



SELAMAT BELAJAR

Semoga SUKSES meraih PRESTASI!

