WHAT IS PCB
A printed circuit board (PCB) mechanically supports and electrically connects electronic components using conductive tracks, pads and other features etched from copper sheets laminated onto a non-conductive substrate. Components are generally soldered on the PCB.--------wiki
02 PCB CLASSIFICATION

01 BY MATERIAL

02 BY LAYER

03 BY VIAS

04 BY SURFACE FINISH

05 BY HARDNEDD
PCB CLASSIFICATION

01 BY MATERIAL

02

Organic material

- Phenolic resin, glass fiber/epoxy,
- Polyimide, BT/Epoxy, etc.

Inorganic material

- Aluminum, Copper-invar-copper,
- Ceramic, etc.
PCB CLASSIFICATION

Single layer pcb

- Phenolic resin, glass fiber/epoxy, Polyimide, BT/Epoxy, etc.
- Aluminum, Copper, Invar, Copper, Ceramic, etc.

Two layer pcb

Multi layer pcb
a. Buried via hole board
b. Blind via hole board
c. Plated through hole board
PCB CLASSIFICATION

1. Hot Air Levelling
2. Gold finger board
3. Carbon oil board
4. Gold plating board
5. Entek/OSP
6. Immersion gold
7. Immersion Tin
8. Immersion Silver
PCB CLASSIFICATION

Rigid pcb

Flexible pcb

Rigid-Flex pcb

PCBWAY.COM

PCBWay technology
Double sided PCB manufacturing process

IQC → Board cut → Drilling → IPQC → Deburring

Pattern plating Nickel gold Copper Tin

Etching → AOI → Solder mask → IPQC → PTH

IPQC → Routing/V-cut → IPQC → Surface finish → IPQC

Electrical test → FQC → OSP → FQC

FQA → Shipment → Packing
Multilayer PCB manufacturing process

1. IQC → Board cut → Inner layer drilling → IPQC → Deburring
2. Brown Oxide → AOI → Etching → IPQC → Inner layer dry film
3. Layer-up → Lamination → Outer layer drilling → IPQC → Deburring
4. Pattern plating (Nickel gold, Cooper Tin) → IPQC → Outer layer dry film → IPQC → PTH
PCB manufacturing process

- Etching
- AOI
- Solder mask
- IPQC
- Silkscreen
- IPQC
- Routing/V-cut
- IPQC
- Surface finish
- IPQC
- Electrical test
- FQC
- OSP
- FQC
- FQA
- Shipment
- Packing
Dry film is a kind of polymer compound, which can produce polymerization after irradiation of ultraviolet rays. Then will form a stable substance attached to the board surface, so as to achieve the function of blocking plating and etching.
Etching is using chemical way to remove unwanted copper from pcb. Then the circuit is appeared, usually acid is used to etch.

Making chemical oxidation of copper surfaces to generate oxides on the surface to increase roughness. It will improve adhesion.
Automated optical inspection (AOI) is an automated visual inspection of printed circuit board manufacture where a camera autonomously scans the device under test for both catastrophic failure (such as missing component) and quality defects.

It is commonly used in the manufacturing process because it is a non-contact test method. This guarantees the high reliability of Multi-CB multilayer circuit boards.
Combine Automatic optical alignment system and the traditional flying needle machine together, with the help of image-processing software and flying-pin-only cameras, flying probe test is easier and more accurate.

The layout is analysed according to the pcb file for short circuits and interruptions. This is important because only the E-test detects incorrect and broken conductors. And the detected defective circuit board will be marked.

Check [https://www.youtube.com/watch?v=3wtkQx66mxk](https://www.youtube.com/watch?v=3wtkQx66mxk)
Note: This flow is based on the most common pcb manufacturing process. Sometimes the manufacturing process will be adjusted accordingly to your pcb design requirement.
PCB prototype easy way