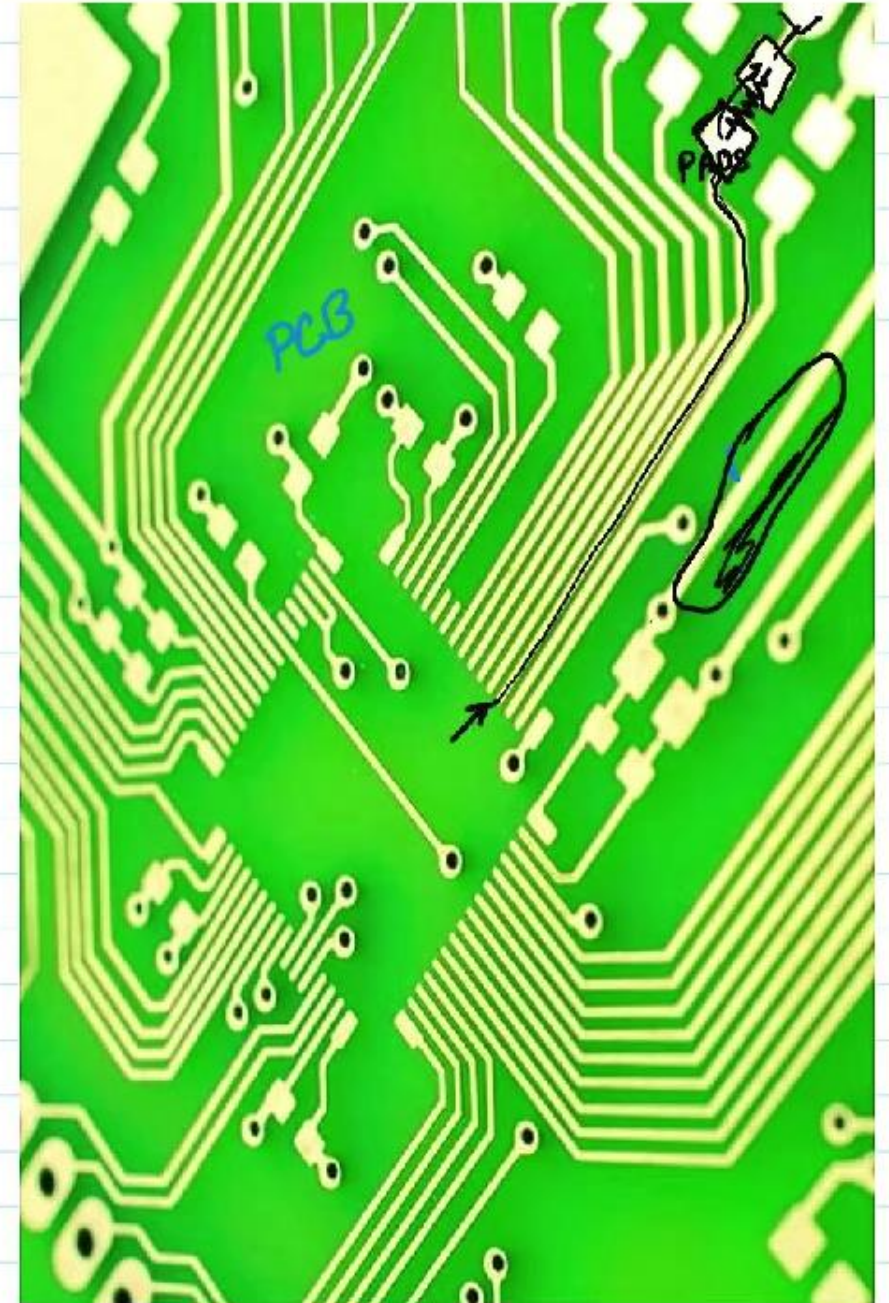


Printed Circuit Board (PCB)

- PCB is a non-conductive substrate that mechanically supports and electrically connects the electronic components using tracks, pads and other features etched on a laminated copper sheet.
- PCB populated with electronic components are called Printed Circuit Board Assembly (PCBA).



Types of PCBs :

There are mainly three types of PCBs.

1. Single sided PCB
2. Double sided PCB
3. Multi-layer PCB



Legend:

- Rogers 4350
- FR4
- Copper, 1.4 mils

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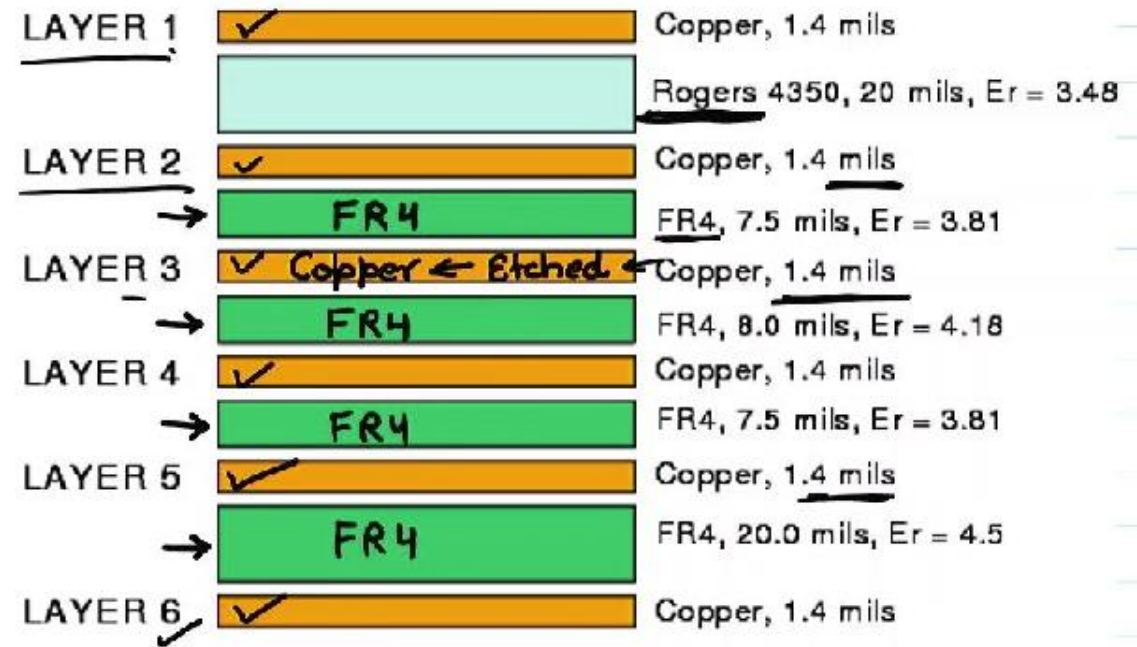
What is a mil thickness ?

A mil is a unit of thickness equal to one thousandth of an inch. (0.001 inch)



NPTEL

Example $2 \text{ mil} / 1000 = 0.002 \text{ inches}$



Legend:

- Rogers 4350
- FR4
- Copper, 1.4 mils

Multilayer PCB

6 - Layer PCB

What PCB is made of ?

- A basic PCB starts with a copper-clad fiberglass material or then copper sheets attached to either side of the board.

it consists of

1. Copper foil
2. Copper plating
3. Solder flow
4. Solder mask
5. Traces
6. Slots and cut-outs.

Two types of PCB

1. Through - hole Technology.

Mounting of electronic components by lead inserted through one side of the board and soldered onto copper trace on other side.

2. Surface - mount Technology.

Components have small metal tabs or end-caps which can be soldered directly on the PCB surface. This does not need PTH.

PCB Base

- Base material of substrate is fibre glass.
- FR-4 is commonly used
- Solid core gives PCB its rigidity and thickness.
- There are also flexible PCBs built on high temperature Plastic.

FR-4 :

- FR stands for "Flame Retardant"
- Composite material composed of woven fiberglass cloth with an epoxy resin binder that is flame resistant.