

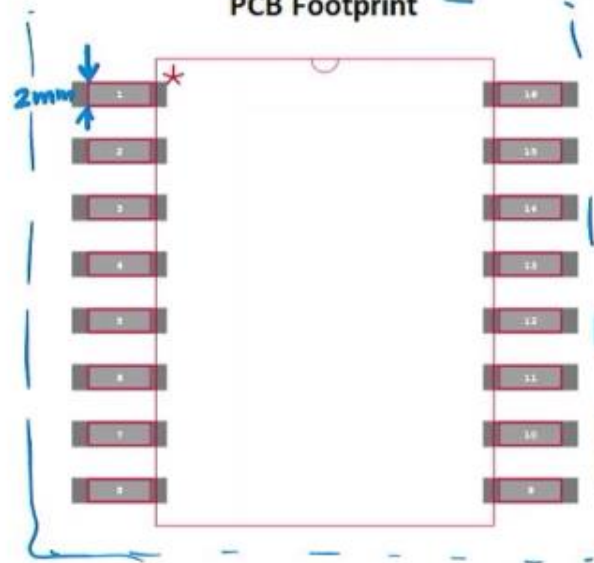
The PCB layout design includes :

1. Components Footprints Creation.
- 2.
- 3.
- 4.
- 5.

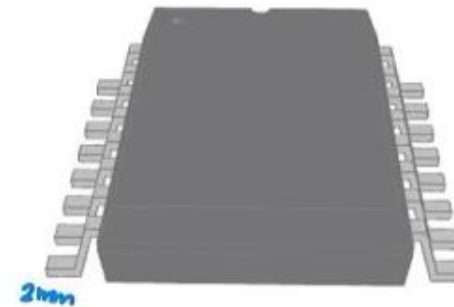
Schematic Symbol



PCB Footprint



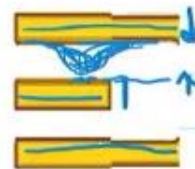
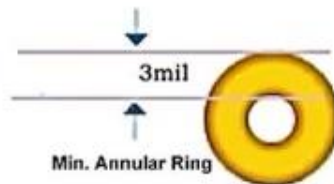
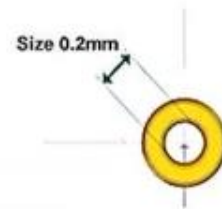
3D Model



The PCB layout design includes :

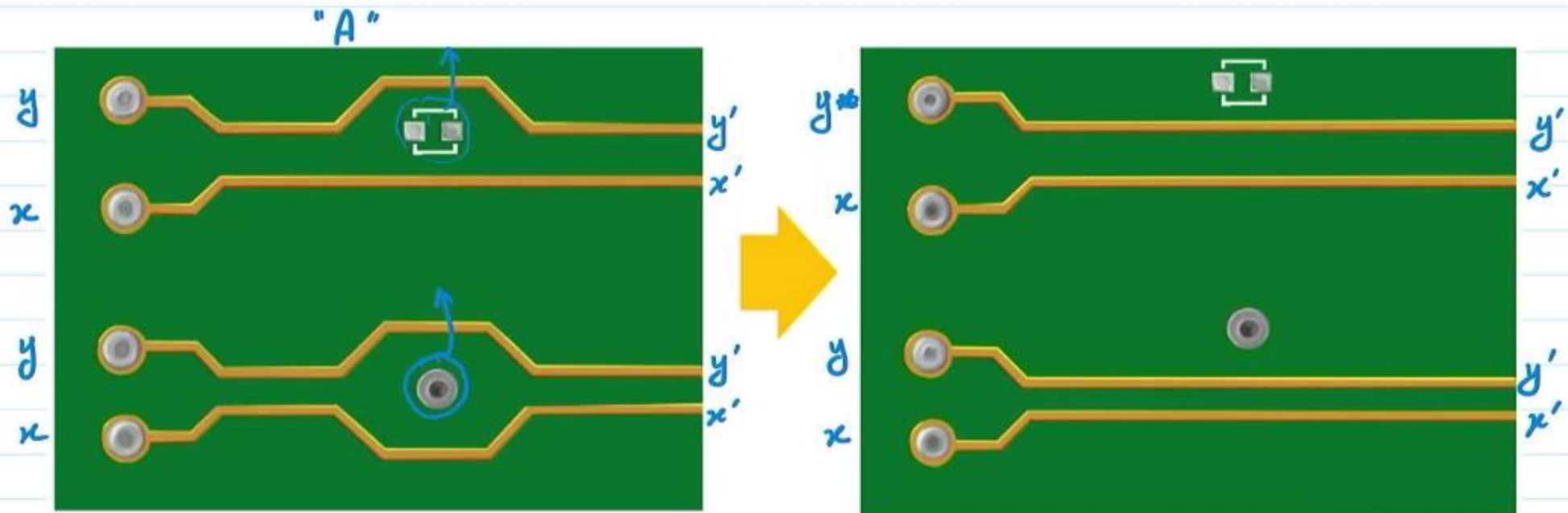
1. Components Footprints Creation.
2. Setting of DRC parameters such as trace width , spacing , via padstacks etc.
- 3.
- 4.
- 5.

Clearance					
All	Trace	Via	Pad	SMD	Copper
Trace	0.1524				
Via	0.1524	0.1524			
Pad	0.1524	0.1524	0.1524		
SMD	0.1524	0.1524	0.1524	0.1524	
Text	0.1524	0.1524	0.1524	0.1524	
Copper	0.1524	0.1524	0.1524	0.1524	0.1524
Board	0.1524	0.1524	0.1524	0.1524	0.1524
Drill	0.1524	0.1524	0.1524	0.1524	0.1524



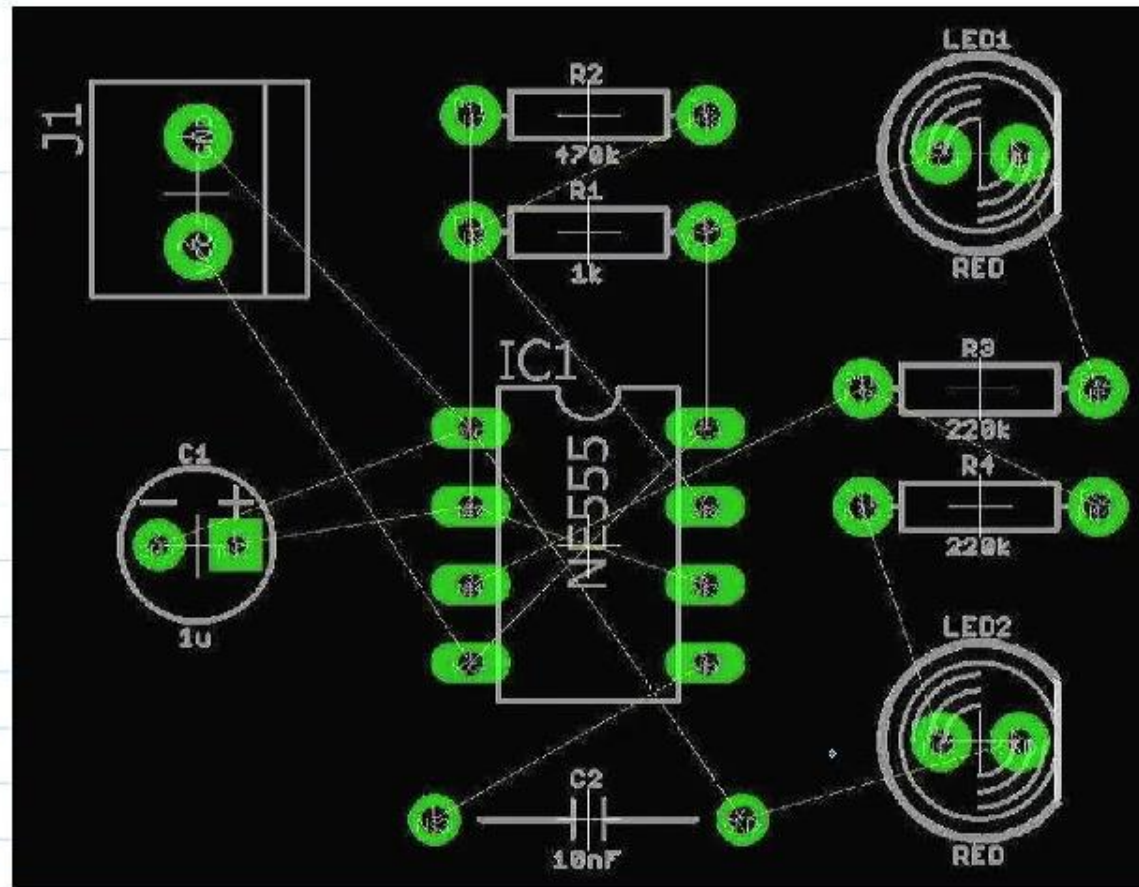
The PCB layout design includes :

1. Components Footprints Creation.
2. Setting of DRC parameters such as trace width, spacing, via padstacks etc.
3. Identifying controlled impedance traces and setting their rules.
- 4.
- 5.



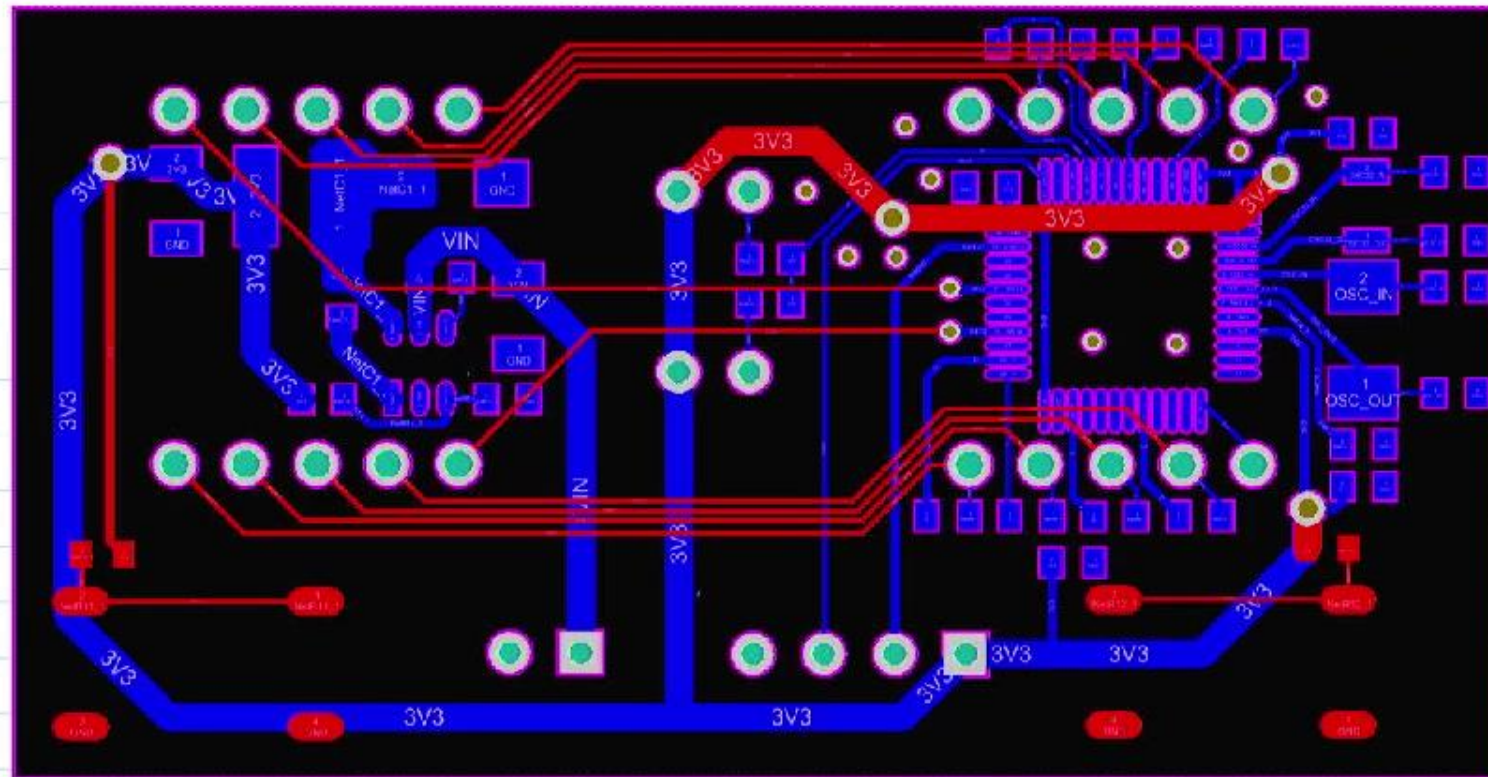
The PCB Layout design includes :

1. Components Footprints Creation.
2. Setting of DRC parameters such as trace width, spacing, via padstacks etc.
3. Identifying controlled impedance traces and setting their rules.
4. Component Placement
- 5.



The PCB Layout design includes :

1. Components Footprints Creation.
2. Setting of DRC parameters such as trace width , spacing , via padstacks etc.
3. Identifying controlled impedance traces and setting their rules.
4. Component Placement
5. Routing



"Gerber" file

Complexity of a PCB :

The factors that play a crucial role in the design complexity are :

1. Component density / component count / Size of board.
2. Routing density required.
3. Pitch of high pin count devices like BGA .
4. Pin count of fine pitch packages.
5. Types of interfaces : HDMI , DDR etc.
6. Designs requiring impedance control $100\ \Omega$ differential line , $50\ \Omega$ single ended line.
7. The circuit require mixed technology of digital , RF or analog.

High - Speed PCB Design :

If it is a high-speed design, the PCB designer need to take special care during design.

- First, we need to find out :

1. The maximum frequency (F_m) in the highest speed signal.
2. The fastest rise or fall time of digital signals. (T_r)
3. The maximum data transfer rate (DTR) for signals.

$$F_m = \frac{0.5}{T_r} = 2.5 \text{ DTR}$$

if the highest frequency content (F_m) is greater than 50 MHz, it should be treated as high-speed design.

High - Speed PCB design Consideration :

1. All High-speed interconnects need to be designed as transmission line.
2. All causes of signal degradation needs to be kept under control.
3. Adequate PCB technology to be chosen. (e.g. analog, RF etc.)
4. Electromagnetic Radiation need to be kept under control.
5. Power integrity has to be maintained.

