

PCB Design Considerations

A- PCB DESIGN OPTIMIZATION:

Identify what each part of your circuit does, and divide the circuit into sections according to function. For example, my LM386 audio amplifier circuit has four main sections: a power supply, an audio input, the LM386, and an audio output. It might help to draw some diagrams at this point to help you visualize the design before you start laying it out.

Keep the components in each section grouped together in the same area of the PCB to keep the conductive traces short. Long traces can pick up electromagnetic radiation from other sources, which can cause interference and noise.

The different sections of your circuit should be arranged so the path of electrical current is as linear as possible. The signals in your circuit should flow in a direct path from one section to another, which will keep the traces shorter.

Each section of the circuit should be supplied power with separate traces of equal length. This is called a *star configuration*, and it ensures that each section gets an equal supply voltage. If sections are connected in a daisy-chain configuration, the current drawn from sections closer to the supply will create a voltage drop and result in lower voltages at sections further from the supply:

