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What are Printed Circuit Boards?

A printed Circuit Board is used to mechanically support and electronically connect electronic components using conductive pathways, tracks or signal traces etched from copper sheets laminated onto a non conductive substrate. It is also called a printed wiring board or an etched wiring board. Alternatives to Printed Circuit Boards include wire wrap and point to point construction.

Advantages:

Printed circuit boards are often preferred to its alternatives as they are less expensive and more reliable. However they require more effort while doing the layout and more initial cost. They are cheaper and faster for high volume production since production and soldering of them can be done by automated equipment.

Types:

Pcb manufacturing is undertaken by many companies. The following are the different types of printed circuit boards available in these companies.

1. Multilayer circuit boards.

2. Quick turn Printed circuit boards.

3. Prototype printed circuit boards

4. Production printed circuit boards.

Manufacturing:

Materials:

Conducting layers are typically made of thin copper foil .Insulating layers dielectric is typically laminated together with epoxy resin prepped. The board is typically coated with a solder mask which is green in color. The other colors normally available are black, blue, white and red. There are quite a few dielectrics that can be chosen to provide different insulating values depending upon the requirement of the circuit. These are Teflon, Phenolic cotton Paper, cotton paper and epoxy orFR-3, woven glass and epoxy or FR4, matte glass and polyester orFR-6. Fr-4 is the most commonly used material today. The board with copper in it is called â€˜copper clad laminateâ€™.

Patterning:

The vast majority of printed circuit boards are made by bonding a layer of copper over the entire substrate sometimes on both sides, then removing unwanted copper after applying a temporary mask, leaving only the desired copper traces. A few boards are made by adding traces to the bare substrate usually by a complex process of multiple electroplating steps. pcb manufacturing method depends mainly on whether it is for production volume or sample/prototype quantities.

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