Vias

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Vias are tiny openings between PCB layers which are conductive allowing electricity to go through the layers. There are numerous types of vias which include:

1. Through-hole vias

Through-hole vias go from the top layer to the bottom layer connecting all layers of a PCB.

2. Blind vias

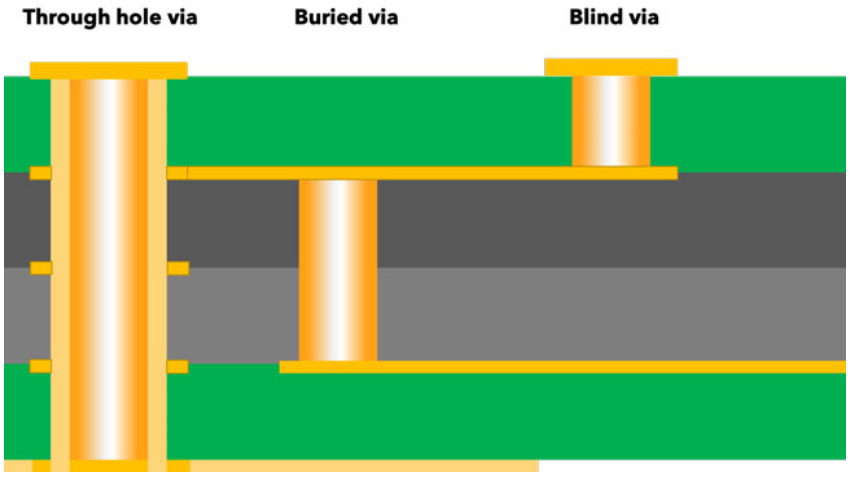
Blind vias go from a PCB's top or bottom layer to a layer in between.

3. Buried vias

Buried vias are only used internally connecting the inner layers of a PCB.

4. Stacked vias

Stacked vias are not a distinct type of vias as they are a combination of blind and buried vias which are placed on top of one another to connect between layers.



Application of vias

Vias are very beneficial for PCBs with their connectivity functions between layers and components. They enable signal routing across different layers which helps in saving space with a more direct connection. Having more space allows the user to place more components in a smaller area which decreases the overall costs of manufacturing PCBs. Moreover, thermal vias are used to transfer heat from active components to other layers or to ground. They should be placed relatively close to components especially in high power circuits. Difference in temperatures in a PCB can reach up to 30 degrees celcius and heat imbalances and mismanagement cause failure. Therefore, thermal vias are used as a method for cooling and maintaining low temperature differences.