



Attachment

Materials: Electronics & Batteries

Electronic Component Basics

a. CPU

The CPU (Central processing unit) carries out the instructions from the program. CPUs are often built for specific applications, such as fitness trackers or smart watches. You must always specify the brand and model of CPU that you want your product to contain.

b. GPU

The GPU (Graphical processing unit) is a processor specialised in image creation.

c. PCB

The CPU and other components are assembled on the PCB (Printed circuit board).

- # Layers
- Min. thickness
- Max. thickness
- Thickness tolerance
- Panel size
- Board material
- Lamination

d. PCBA

The PCBA (PCB Assembly) is what you have once all the components are mounted on the PCB.

e. Sensors

A module or subsystem that is used to changes in the environment. Sensors can send information (based on the input) to the processor. There are various types of sensors:

- Light
- Motion
- Sound
- Vibration
- Chemical

Sensors are used in fitness trackers, smartwatches, tablet computers and other portable electronics,.

f. Power Supply

A subsystem that supplies electrical power to the device. We advise you to use 'brand name' power supplies, such as TDK or Maxell.

Tooling

a. Injection Molding

Melted metal or plastic (i.e., stainless steel) is inserted into a cavity. The metal cools down and forms a solid component, for example a power bank case. An injection mold cannot be modified, and is generally only used for a certain type of metal.

b. Punching / Cutting Tools

Punching can cut and/or bend metal sheets into certain shapes.

Batteries

a. Lithium-Ion Batteries (Li-Ion)

Li-Ion batteries are extremely common in all types of electronic devices, such as phones, tablets, power banks and electric bikes. Li-ion battery transportation (including li-ion battery powered devices) are strictly regulated by IATA.

b. Lithium-Polymer Batteries (Li-Pol)

Li-pol is essentially the same as Li-ion. The main difference is that Li-pol batteries can be made thinner than Li-ion batteries. Li-pol is around 20% more expensive than Li-ion.

c. Alkaline Batteries

Regular AA or AAA batteries. AA and AAA powered devices are subject to less strict regulations compared to those with li-ion batteries.