Advantages and disadvantages of Li-Ion, Li-Po, Cell battery

Li-Po, Li-Ion, and Cell batteries are the most popular battery technology lines today. They are used in most computers, smartphones or power banks available on the market.

Let's learn more about these battery technology lines to be able to choose the battery that best suits your needs.

Li-Ion battery

Li-Ion or Lithium-Ion batteries were introduced in 1991, since then, the battery line has been widely used for many electronic devices such as laptops, phones, power banks, computers. DSLR photos. In addition, this battery line is also used for medical equipment, electric vehicles or in the military.

Current Li-Ion batteries usually have three main components: a positive electrode (metal oxide), a negative electrode (carbon) and an electrolyte (Lithium salt in organic solvents). They operate on the principle of Li ion exchange between the two ends of the electrode and take the electrolyte solution as the intermediate medium.

Advantages of Li-Ion battery

1. Li-Ion batteries have a longer life than conventional batteries. Their charge times can be up to 1000 times if properly charged
2. The cost to produce Lithium-Ion batteries is relatively low, so the market price is also quite cheap. Therefore, on the market they have a high popularity, used for many different types of devices.
3. Lithium-Ion batteries have a fairly large energy density, high energy storage capacity, plus less self-discharge of energy, bringing good efficiency. In particular, they are also considered to be more environmentally friendly than some battery lines.

Disadvantages of Li-Ion battery

Despite these great advantages, Li-Ion batteries also have certain weaknesses.

1. This type of battery has a large weight, a fixed design that makes it difficult to customize to apply to different product lines.
2. The life of the battery can be reduced quickly if the user does not know how to use it. Especially when charging at too high a current, the temperature in the battery increases, greatly affecting the life of the battery.
3. The materials that make up the Li-Ion battery are flammable and there is a risk of explosion if used incorrectly.
4. The compatibility for electronic devices, especially phones, is not very high.
5. Li-Ion batteries need a protection circuit to ensure that the voltage and current in the battery are within safe limits.

Notes when using Li-Ion battery

To ensure the best use of Li-Ion batteries for electronic devices, especially phones, tablets, laptops, etc., you will need to note a few points as follows:

1. In the first 3 charges need to be sure to charge for 8 hours each time.
2. When the battery is below 15%, it needs to be plugged in immediately.
3. Absolutely do not let the battery reach the 0% mark before plugging in the charger.

4. After the battery is 100% full, you should unplug the charger immediately to limit the overheating of the device. The heat generated by the battery as the ions move during charging and when fully charged can cause the battery to die.
5. Do not use the device while charging.
6. For devices that use cases such as tablets and phones, they need to be removed when charging to avoid the accumulation of heat, causing the battery to become hotter, reducing the life of the battery.

Li-Po . Battery

Li-Po batteries or full name Lithium Polymer have been on the market since the 70s. They also use the principle of Ion exchange between the two electrodes, but dry polymer is used as an electrolyte instead of salt. Lithium as Li-Ion battery.

This battery line is currently mainly used for high-end electronic device products such as iPhone, iPad, MacBook Pro.

Advantages of Li-Po . batteries

Li-Po batteries have certain outstanding advantages, such as:

1. The small and light shape makes the design and application to different electronic devices more diverse.
2. Although the battery size is smaller, the Li-Po battery capacity is much higher when compared to the Li-Ion battery line.
3. The performance of Lithium Polymer batteries is always maintained at a stable level.
4. The life of the battery is at a high level, the level of energy loss (battery bottle) after a long time of use is negligible.
5. Because the structure of the dry polymer resembles a non-conductive plastic layer, but has the ability to exchange Ions, this type of battery limits fire and explosion, improving product safety.

6. Besides, the structure of the Li-Po battery also makes the product more resistant to shock and impact.
7. The fact that Li-Po batteries have 2 positive and negative contacts also helps this battery line limit the risk of fire caused by short circuits.

Disadvantages of Li-Po . batteries

Li-Po batteries have great advantages, but there are also some disadvantages that make this product line limited.

1. Cost is one of the downsides of Li-Po batteries. These batteries are usually about 40% more expensive than Li-Ion batteries.
2. Because of the high price, the popularity of this battery line in the market is also much lower.
3. Although Li-Po batteries rarely happen to explode, once they explode, the danger is much greater than Li-Ion batteries.
4. Improper use of the battery also risks causing the battery to automatically explode.
5. When using a Li-Po battery about 1/3 of its life, the battery capacity will also be reduced by about 20%.

Notes when using Li-Po . batteries

To ensure the longest using time of electronic devices using Li-Po batteries, users should note a few points as follows:

1. Users do not need to charge for 8 hours in the first 3 charges. However, when the battery is at 15%, it still needs to be charged.
2. Should avoid the case that the battery has 0% to charge.
3. Limit overnight charging.
4. Do not use while charging.
5. Do not use current with too high voltage level or current in the unstable state to charge.
6. Only chargers that are compatible with the device should be used.

Cell Battery

Cell battery is a battery line used on laptops, power banks, and devices that require large battery capacity. Basically, a cell battery is a collection of many Li-Ion or Li-Po batteries. In which each cell will correspond to 1 battery. So it can be understood that a 3-cell battery means a battery with 3 Li-Po or Li-Ion tablets. Same for 4 Cel battery and 6 Cell battery.

However, assessing whether the battery is healthy or not through the number of Cells is not completely accurate, because for laptops, tablets . it must be based on many different factors. We can only rely on the parameters given by the manufacturer to estimate the actual usage time is about 30% lower.

Because Cell battery is a combination of Li-Po or Li-Ion batteries, so it also has the strengths and weaknesses of the two above battery lines.

Advantages of Cell Battery

1. The design is quite diverse depending on the product line used as well as the battery material used.
2. The performance that Cell battery achieves is also at the level corresponding to the type of battery it uses. Typically will reach between 500 and 1000 charges when used properly.

Disadvantages of Cell Battery

1. Because it is a collection of many batteries, the volume of the Cell battery is much larger than that of other batteries.
2. The price also depends on the type of battery that Cell battery uses. If it is a Li-Ion battery line, the cell battery will cost less than the Li-Po line.
3. The service life will decrease significantly over many times of charging and using.

Notes when using Cell Pin

Similar to the two lines of Li-Ion and Li-Po batteries, the use of Cell batteries will also need to be used properly to ensure long-term use.

1. When the battery level is 15%, it needs to be charged.
2. Absolutely limit the use of the battery (0%) and then proceed to charge.
3. Do not charge overnight.
4. Using unstable current, too low or too high voltage will affect the life of the battery.

A better understanding of the Li-Ion, Li-Po and Cell battery technology lines will help you better understand how to use them properly. Thereby ensuring the life of the battery as well as the safety of you and your

electronic devices.

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