LI-ION 10180 -1/3 AA size- FLAT-TOP BUTTON-TOP - BUCK

Autor:
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Each LiFePO4 AA or AAA cell is used with a dummy cell to replace two alkaline or NiMH AA or AAA cells. Don’t use one LiFePO4 cell to replace one alkaline or NiMH cell, otherwise your appliance will be damaged by excessive high voltage

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GTF 3.7V 14500 -AA size- 2300mAh Li-ion Rechargeable Battery For LED Flashlight Torch

Features:
100% brand new 14500 3.7V Li-ion 2300mAh rechargeable battery
Perfect for Flashlight, Rc toy or electronic gadgets
100% QC of every battery
Capacity: 2300mAh
Voltage: 3.7V
Chemistry: Li-ion
Recharge: up to 1000 cycles
Safe and environmental friendly
Keep in a dry and cool place

Color: Purple

Package Included:
GTF 4x 3.7V 14500 2300mAh Li-ion Rechargeable Battery For LED Flashlight Torch

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Product Details

Capacity: 600mAh

Specifications:

Size: AA (14505) or (14500)
Voltage: 3.2V
Capacity: 600mAh
Brand: Etinesan
Chemistry: Lithium Phosphate (LiFePO4)
Dimensions: Diameter: About 14.5mm, Height: 50.5mm

Features:

No memory effect
Long storage life
Light weight and high energy density
same size as an AA size battery, but has 3 times higher voltage
Recharges up to 1500 Cycles
Battery tested based on International Electronic Commission (IEC) standard to ensure capacity, quality and life time

Environmentally safe, No memory effect, environment-friendly materials
Ideal replacement for alkaline and NiMH AA cells

YOU can buy the dummy cell here if you need more:

Easily Power Common Applications Such As:

Solar Lights
Emergency Lights
3.2VDC Device with 0.8A Max drain
Custom Battery Packs
And More...

Note:
This is the new Generation of Li-Ion Battery (Li-Fe-PO4): High discharging rate, non explosive, lighter weight and much safer Overall.

This Battery is a AA Size battery. Please measure and compare and verify that it is written 14505 or 14500 on the battery.

100% brand new with 100% QC of every battery

Overview

The Klarus 10180 rechargeable Lithium-ion battery features an 80mAh capacity and is designed specifically for use within the Klarus Mini One Ti keychain flashlight. This unprotected battery is equipped with INR Lithium-ion chemistry, or NMC, which is a hybrid of Manganese and Nickel together to provide a high-performing power source. INR batteries are typically used for their energy load and electronic devices that require a continuous discharge. The hybrid Li-ion chemistry takes the high capacity from Nickel and the stability from Manganese to create a reliable power source for portable power products. The Klarus 10180 rechargeable battery, when compared with other lithium-ion batteries, provides a higher capacity and power.

Specifications

Battery Size
10180

Battery Chemistry
INR Lithium-Ion (Li-ion)

Nominal Voltage
3.7V

Rated Capacity
80mAh, 0.296Wh

Weight
0.240 oz. (6.8g)

Construction

Cylindrical Panasonic 18650 lithium-ion battery cell before closing. Several thousand of them form the Tesla Model S battery (see Gigafactory).

Lithium-ion battery monitoring electronics (over-charge and deep-discharge protection)

An 18650 size lithium ion battery, with an alkaline AA for scale. 18650 are used for example in notebooks or Tesla

The three primary functional components of a lithium-ion battery are the positive and negative electrodes and electrolyte. Generally, the negative electrode of a conventional lithium-ion cell is made from carbon. The positive electrode is a metal oxide, and the electrolyte is a lithium salt in an organic solvent.[69] The electrochemical roles of the electrodes reverse between anode and cathode, depending on the direction of current flow through the cell.

The most commercially popular negative electrode is graphite. The positive electrode is generally one of three materials: a layered oxide (such as lithium cobalt oxide), a polyanion (such as lithium iron phosphate) or a spinel (such as lithium manganese oxide).[70] Recently, graphene based electrodes (based on 2D and 3D structures of graphene) have also been used as electrodes for lithium batteries.[71]

The electrolyte is typically a mixture of organic carbonates such as ethylene carbonate or diethyl carbonate containing complexes of lithium ions.[72] These non-aqueous electrolytes generally use non-coordinating anion salts such as lithium hexafluorophosphate ($LiPF_6$), lithium hexafluoroarsenate monohydrate ($LiAsF_6$), lithium perchlorate ($LiClO_4$), lithium tetrafluoroborate ($LiBF_4$), and lithium triflate ($LiCF_3SO_3$).

Depending on materials choices, the voltage, energy density, life, and safety of a lithium-ion battery can change dramatically. Recently, novel architectures using nanotechnology have been employed to improve performance.

Pure lithium is highly reactive. It reacts vigorously with water to form lithium hydroxide and hydrogen gas. Thus, a non-aqueous electrolyte is typically used, and a sealed container rigidly excludes moisture from the battery pack.

Lithium-ion batteries are more expensive than NiCd batteries but operate over a wider temperature range with higher energy densities. They require a protective circuit to limit peak voltage.

For notebooks or laptops, lithium-ion cells are supplied as part of a battery pack with temperature sensors, voltage converter/regulator circuit, voltage tap, battery charge state monitor and the main connector. These components monitor the state of charge and current in and out of each cell, capacities of each individual cell (drastic change can lead to reverse polarities which is dangerous),[73][unreliable source?]and temperature of each cell and minimize the risk of short circuits.[74]

Shapes
See also: Lithium polymer battery

Nissan Leaf's lithium-ion battery pack.

Li-ion cells (as distinct from entire batteries) are available in various shapes, which can generally be divided into four groups:[75][full citation needed]

Small cylindrical (solid body without terminals, such as those used in laptop batteries)

Large cylindrical (solid body with large threaded terminals)
Pouch (soft, flat body, such as those used in cell phones; also referred to as li-ion polymer or lithium polymer batteries)
Prismatic (semi-hard plastic case with large threaded terminals, such as vehicles' traction packs)

Cells with a cylindrical shape are made in a characteristic "swiss roll" manner (known as a "jelly roll" in the US), which means it is a single long sandwich of positive electrode, separator, negative electrode and separator rolled into a single spool. The main disadvantage of this method of construction is that the cell will have a higher series inductance.

The absence of a case gives pouch cells the highest gravimetric energy density; however, for many practical applications they still require an external means of containment to prevent expansion when their state-of-charge (SOC) level is high,[76] and for general structural stability of the battery pack of which they are part.

Since 2011, several research groups have announced demonstrations of lithium-ion flow batteries that suspend the cathode or anode material in an aqueous or organic solution.[77]

In 2014, Panasonic created the smallest Li-ion battery. It is pin shaped. It has a diameter of 3.5mm and a weight of 0.6g.[78]

Electrochemistry
The reactants in the electrochemical reactions in a lithium-ion battery are the negative and positive electrodes and the electrolyte providing a conductive medium for lithium ions to move between the electrodes. Electrical energy flows out from or in to the battery when electrons flow through an external circuit during discharge or charge, respectively.

Both electrodes allow lithium ions to move in and out of their structures with a process called insertion (intercalation) or extraction (deintercalation), respectively. During discharge, the (positive) lithium ions move from the negative electrode (usually graphite = "{displaystyle mathrm {C_{6}} }" as below) to the positive electrode (forming a lithium compound) through the electrolyte while the electrons flow through the external circuit in the same direction.[79] When the cell is charging, the reverse occurs with the lithium ions and electrons moved back into the negative electrode in a net higher energy state. The following equations exemplify the chemistry.

The positive (cathode) electrode half-reaction in the lithium-doped cobalt oxide substrate is:[80][81]

{displaystyle mathrm {CoO_{2}} +mathrm {Li^{+}} +mathrm {e^{-}} leftrightarrows mathrm {LiCoO_{2}} }

The negative (anode) electrode half-reaction for the graphite is:

{displaystyle mathrm {LiC_{6}} leftrightarrows mathrm {C_{6}} +mathrm {Li^{+}} +mathrm {e^{-}} }

The full reaction (left: charged, right: discharged) being:

{displaystyle mathrm {LiC_{6}} +mathrm {CoO_{2}} leftrightarrows mathrm {C_{6}} +mathrm {LiCoO_{2}} }

The overall reaction has its limits. Overdischarge supersaturates lithium cobalt oxide, leading to the production of lithium oxide,[82] possibly by the following irreversible reaction:

{displaystyle mathrm {Li^{+}} +mathrm {e^{-}} +mathrm {LiCoO_{2}} rightarrow mathrm {Li_{2}O} +mathrm {CoO} }

Overcharge up to 5.2 volts leads to the synthesis of cobalt(IV) oxide, as evidenced by x-ray diffraction:[83]

{displaystyle mathrm {LiCoO_{2}} rightarrow mathrm {Li^{+}} +mathrm {CoO_{2}} +mathrm {e^{-}} }

In a lithium-ion battery the lithium ions are transported to and from the positive or negative electrodes by oxidizing the transition metal, cobalt (Co), in Li
1-xCoO
2 from Co3+
 to Co4+
 during charge, and reducing from Co4+
 to Co3+
 during discharge. The cobalt electrode reaction is only reversible for x < 0.5 (x in mole units), limiting the depth of discharge allowable. This chemistry was used in the Li-ion cells developed by Sony in 1990.[84]

The cell's energy is equal to the voltage times the charge. Each gram of lithium represents Faraday's constant/6.941 or 13,901 coulombs. At 3 V, this gives 41.7 kJ per gram of lithium, or 11.6 kWh per kg. This is a bit more than the heat of combustion of gasoline, but does not consider the other materials that go into a lithium battery and that make lithium batteries many times heavier per unit of energy.