Name: Lithium-Ion Rechargeable Battery
Model: AKYGA INR18650-28M-3S1P
SPEC: 11.1V / 2800mAh

Specification Approval sheet

1. Scope

This specification describes the Product Specification of chargeable Polymer Lithium-Ion Battery produced by AKYGA BATTERY.

2. Battery Model: AKYGA INR18650-28M-3S1P

3. Product Specification

No.	Item	General Parameter	Remark
1	Rated Capacity	(Typ.) 2800MAH (Min.) 2750mAH	Standard charge and Standard discharge
2	Nominal Voltage	11.1	
3	End of Charge Voltage	12.6	
4	Charge mode	CC，CV	
5	Charging current	0.2C	Charger charging current
6	Charging cut-off current	0.02	
7	Charging time	5～6H	
8	Over-Charge Voltage Protection（cell）	4.25±0.05V	
9	Standard Discharging Current	0.5C	-10～60℃ 0.5C CC(constant current) discharged to2.75V
10	Maximum Continuous Discharging Current	2.9A	

Continuous the table 1

No.	Item	General Parameter	Remark

11	Discharge of Peak current	---------	
12	Over-discharge Voltage Protection（cell）	2.7±0.1V	
13	Over-Current Discharge Protection	4～6A	
14	Short circuit protection	With protection	
15	Short circuit protection Release	Cut off Load	
16	Temperature protection	Charge	55±5℃
		Discharge	55±5℃
17	Cell Dimension	Long MAX56	
		Width MAX21	
		Height MAX75	
18	Weight	≈210±2g	
19	Operation Temperature Range	Charge ： 0~45℃	60±25%R.H. Bare Cell
		Discharge ： -10~60℃	
20	Storage Temperature Range	1 month -20℃ ~ 45℃ 3 month -20℃ ~ 45℃ 1 year -20℃ ~ 20℃	60±25%R.H. at the shipment state
21	Cycle Life	1. Charge:0.2c to4.2V 2.Constant voltage to 0.01c Rest time : 10 min 3. Discharge: 0.2c to 2.75V 4. Rest Time between Charge and Discharge: 10min 5. Temperature:25±5℃	Higher than 80% of the Initial Capacities of the Cells 300

4. Performance And Test Conditions

●Standard Test Conditions

test and measurement shall be done under temperature of 25±5℃ and relative humidity of 45~48%.

●Measuring Instrument or Apparatus

①Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.1mm.

②Voltmeter

Standard class specified in the national standard or more sensitive class having inner impedance more than 10kΩ/V.

③Ammeter

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω.

④Impedance Meter

Impedance shall be measured by a sinusoidal alternating current method (1kHz LCR meter)

●Standard Charge/Discharge

①Standard charge：Test procedure and its criteria are referred as follows：

0.2 C=Charging shall consist of charging at a 0.2 C constant current rate until the cell reaches 4.2The cell shall then be charged at constant voltage 0f 4.2hen the charging current has tapered to 0.02 C. Charge time：Approx 5~6h.

②Standard Discharge

0.2C=Cells shall be discharged at a constant current of 0.2C to 3.0 volts ⓐ25℃±5℃.

③If no otherwise specified, the rest time between Charge and Discharge amount to 30min.

●Appearance

There shall be no such defect as flaw, crack, rust, leakage, which may adversely affect commercial value of battery.

5. Warning

● Prohibition short circuit

●Notice for Designing Battery Pack

Pack toughness

Battery pack should have sufficient strength and the Li- cell inside should be protected from mechanical shocks.

Cell fixing

The Li-Fe cell should be fixed to the battery pack by its large surface area.

No cell movement in the battery pack should be allowed.

Tab connection

Spot welding is recommended for Li-Fe tab connection method.

Battery pack should be designed that shear force are not applied to the Li-Fe tabs.

●Prohibition of disassembly

1）Never disassemble the cells

The disassembling may generate internal short circuit in the cell, which may cause gassing, firing, explosion, or other problems.

2) Electrolyte is harmful

Li-Fe battery should not have liquid from electrolyte flowing, but in case the electrolyte come into contact with the skin, or eyes, physicians shall slush the electrolyte immediately with fresh water and medical advice is to be sought.

●Prohibition of dumping of cells into Water

Do not soak the battery in which the liquid, like water, sea water and non-alcoholic drinks, fruit juice, coffee or other drinks.

●Battery cells replacement

The battery replacement shall be done only by either cells supplier or device supplier and never be done by the user.

●Prohibition of use of damaged cells

The cells might be damaged during shipping by shock. If any abnormal features of the cells are found such as damages in a plastic envelop of the cell, deformation of the cell package, smelling of an electrolyte ,an electrolyte leakage and others, the cells shall never be used any more.

The cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid firing or explosion.

●Period of Warranty

The period of warranty is half a year from the date of shipment. Mottcell guarantees to give a replacement in case of cells with defects proven due to manufacturing process instead of the customer abuse and misuse.

●Storing the Batteries

The batteries should be stored at room temperature, charged to about 30% to 50% of capacity.
We recommend that batteries be charged about once per half a year to or event over discharge.

●Other The Chemical Reaction

Because batteries utilize a chemical reaction, battery performance over time even if stored for a long period of time without being used. In addition, if the various usage conditions such as charge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage. if the batteries cannot maintain a charge for long periods of time, even when they are charged correctly, this may indicate it is time to change the battery.

●Note：

Any other items which are not covered in this speciation shall be agreed by both parties.

Annex 1 (The product structure)