Specification Approval Sheet

Name：Battery Lithium-Ion Battery

Model： AKYGA INR18650-1S2P

SPEC：3.7V / 4400mAh

Specification Modification Records

Modification Time	Descriptions	Issued Date	Approved By
	Release 1	2023-07-10	

Content

Any copies are invalid without our company's approval

1、Revision History

NO.	Date	Revision	Items		
1	2023 / 7/10	A0		DFT.	
				CHK.	
				APP.	
				DFT.	
				CHK.	
				APP.	
				DFT.	
				CHK.	
				APP.	

2、Application Scope

This document describes the product specification of the rechargeable lithium battery cells supplied by **Akyga.**

3、Technology parameters

3.1 The main technical parameters of the battery

NO.	Items	Units	Specifications	Remark
1	Nominal voltage	V	3.6	Average Voltage At 0.2C_5A discharge
2	Nominal capacity	mAh	4400	0.2 C_5A discharge

3	Minimum capacity		mAh	4200	0.2 C_5A discharge
4	Internal resistance		mΩ	≤150	
5	Max. charge voltage		V	4.2±0.015V	
6	Cut-off voltage		V	3.00V	
7	Max. continuous charge current		mA	≤4400mA	
8	Max. continuous discharge current		mA	≤4400mA	
9	Storage Temperature	3 month	℃	-20~45℃	
		1 Year	℃	-20~20℃	
10	Operating temperature	Charging	℃	0~45℃	
		Discharging	℃	-10~50℃	
11	Charging time	Standard charge	H	6.0H	0.2 C_5A 880mA
		quick charge	H	3.5H	0.5 C_5A 2200mA
12	weight		g	≤100g	

3.2 Performance inspection and testing

NO.	Items	Content	Requirement
1	Standard charge	Charging the cell initially with constant current at 0.5C and then with constant voltage at 4.2V till charge currentdeclines to 0.01C	CC/CV
2	Normal capacity	The capacity means the discharge capacity of the cell, which is measured with discharge current of 0.2C with 3.0 V cut-off voltage after standard charge.	Type.4400mAh
3	Cycle life	Test condition： Charge: 0.2C to4.2 V Discharge: 0.2C to 3.0V 80% or more of 1st cycle capacity at 0.2C discharge of Operation.	≥300 times
4	Temperature Characteristics	1. According to item Standard Charge. 2. Capacity comparison at each temperature, measured with constant discharge current 0.2C with 3.0V cut-off. Percentage as an index of the capacity compared with 100% at 25℃.	-10℃: ≥50% 25℃: 100% 60℃: ≥85%

4、PCM parameter

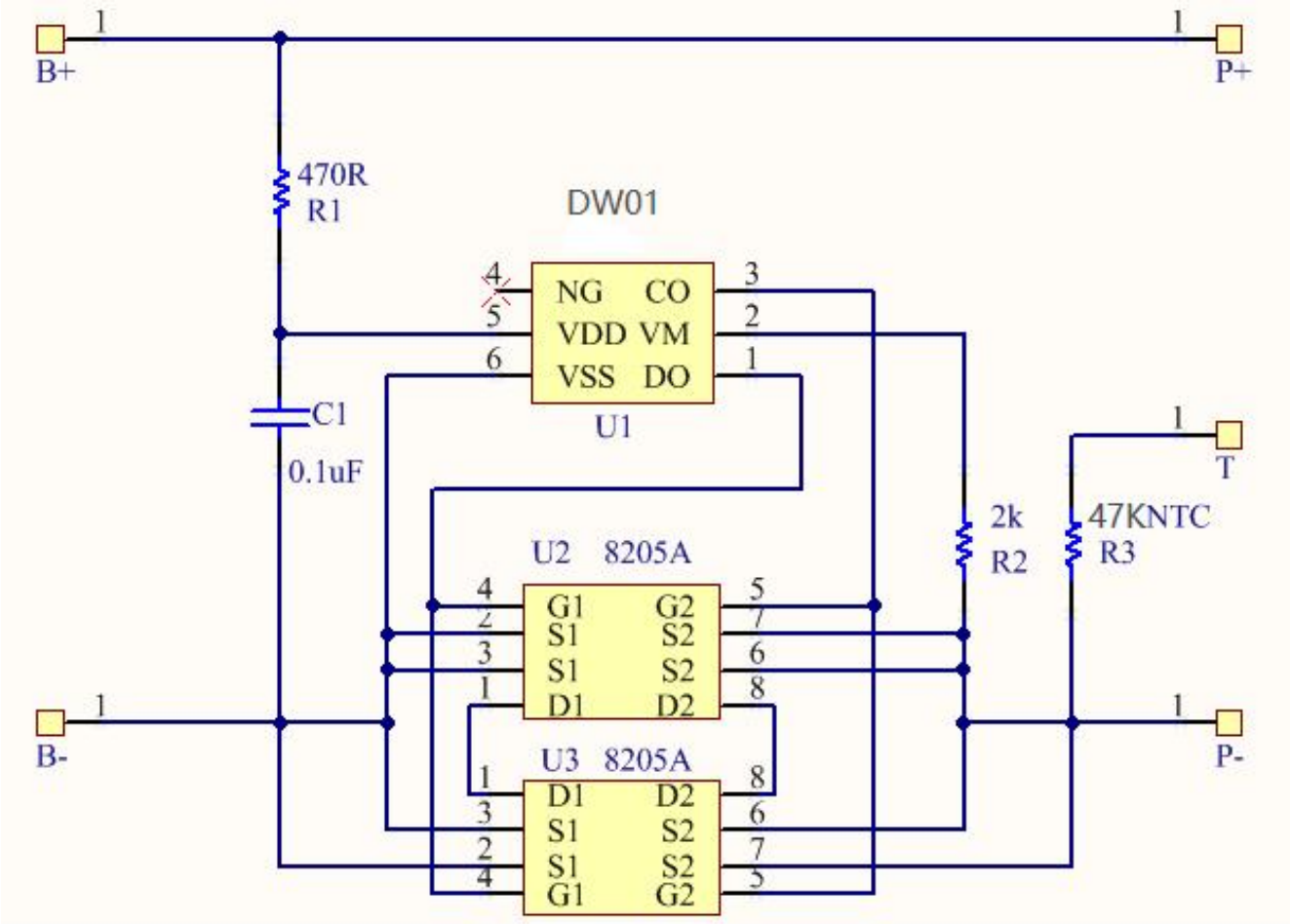
4.1、PCM Electrical Characteristics

ITEM	Min	Typ	Max	Unit
INPUT VOLTAGE(From B+ to B-)	1.5		10	V
Over charge detection voltage	4.255	4.28	4.305	V
Over charge release voltage	4.055	4.08	4.105	V
Over charge detection delay time	960	1200	1400	ms
Over charge release voltage	2.95	3.00	3.05	V
Over discharge detection voltage	2.95	3.00	3.05	V
Over discharge detection delay time	115	144	173	ms
Over current detection current	5.5		7.5	A
Over current detection delay time	7.2	9	11	ms
Current Consumption			7	uA
Interior Resistance			60	mΩ
Short Protection	Yes			
Shot circuit detection delay time	220	320	380	us
Working Temperature	-40		+85	℃

4.2、PCB main components

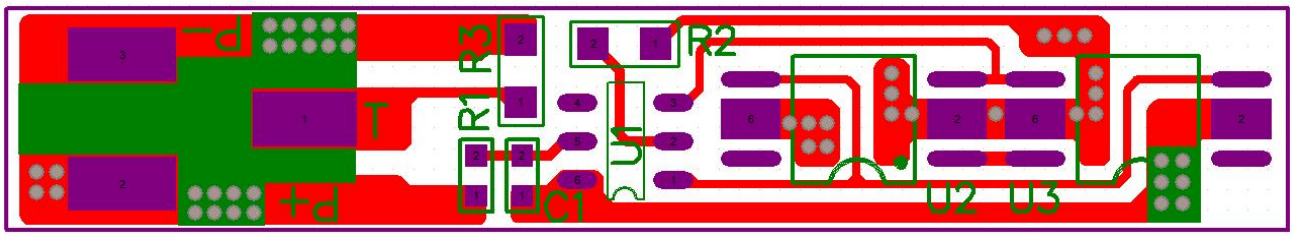
NO.	Location	Part Name	Sepecification	Supplier	QTY
1	U1	IC	DW01 SOT-23-6		1
2	U2 U3	MOSFET	8205A TSSOP-8		2
3	C1		0.1uF 20% 16V 0402		1
4	R1		330Ω 5% 1/16W 0402		1
5	R2		2KΩ 5% 1/10W 0603		1
6	R3	NTC	47KNTC 1% B=3435 0603		1
7	B- B+		4*3**0.3		2
8	PCB	**LST-3255-2MT**	32*5.5*0.6±0.1(mm)		1

4.3、Application Schematic

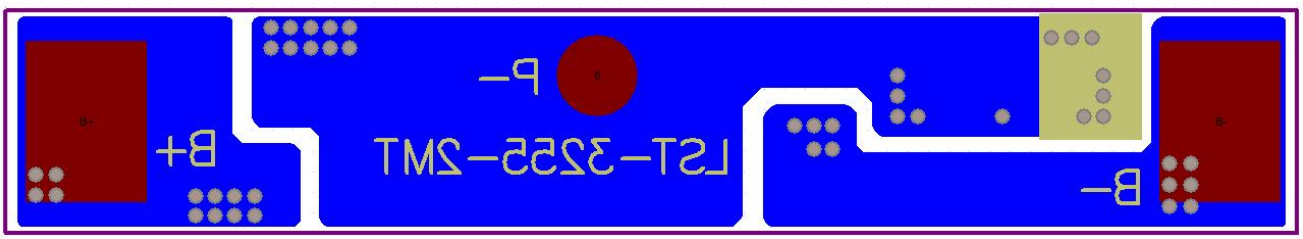


4.4 PCB Layout

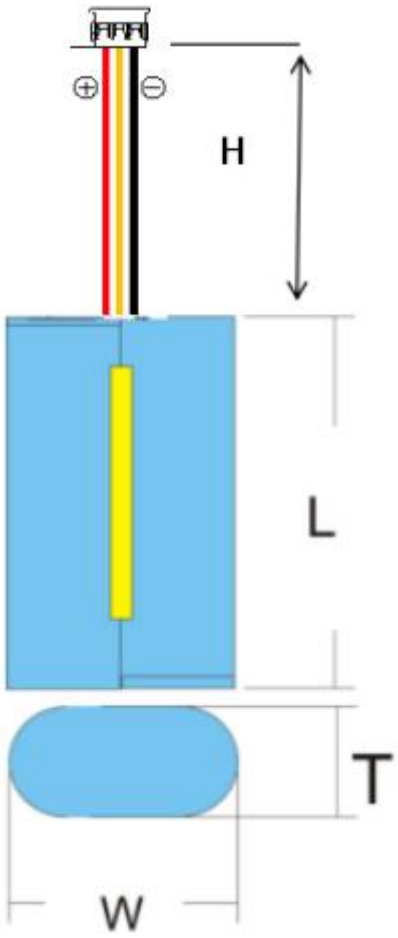
Top layer



Bottom layer



5、Dimensions of battery pack



Item	Description	Dimension (mm)
T	Thickness	20.0(MAX)
W	Width	38.0(MAX)
L	Length	68.5(MAX)
H	Wire Height	30±3
The model of lead wire :		1571AWG#26
The model of connector :		JST-XHP-3
Polarity of connector		NORMAL

6、Maintainance and transportation 贮

6.1 Storage

●If the battery need to be stored for a long time, charge the battery for 40%-70% electric quantity .

●Battery and the charger should be stored in clean, dry and ventilating place, and should not be together with corrosive material, keep the battery away from fire and heat source.

6.2 Transportation

●Battery should be transported after packaging, and should avoid severe vibrating, impacting , extrusion, and direct light and rain. They can be transported by train, ship and plane, etc.

6.3 Maintainance

●If the battery won't be used for a long period, charge it every 3 months, and each time 2~3h.

7、Battery Handling Precautions

●Forbid to immerse battery in water or allow it to get wet!

●Don't charge, use and store battery near a heat source such as fire and heater! If the battery leaks or releases strange odor, pls remove it from place near fire place immediately.

●Forbid to reverse the positive and negative pole!

●Forbid to throw the battery into fire or heat it!

●Forbid to short-circuit battery with wire or other metal objects!

●Forbid to nail, knock or trample battery!

●Forbid to disassemble the battery in any way!

●If the battery gives off odor, gets heat, deformation, discoloration or appears any abnormal phenomenon, stop using it; please remove the battery from electrical appliances and stop using it, when the battery is being used or charged!

●If the battery leaks and electrolyte leakage enters into the eyes, do not rub, rinse with water

immediately and seek immediate medical assistance. If not in time, eyes will be hurt!

●During charging or discharging, if there is odor and unusual noise, immediately stop charging and discharging.

●Because batteries utilize a chemical reaction, battery performance will deteriorate over time even if stored for a long period of time without being used .In addition ,if the various usage conditions such as charge ,discharge ,ambient temperature ,etc are not maintained with in 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 charge the battery .

●Lipolymer battery cells have less mechanical endurance than metal-can-cased Lithium battery.Falling , hitting ,bending ,etc may cause degradation of soft Lipolymer types characteristics.

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