
	Akku Tronics New Energy Technology Co., Limited	Type: 103045D-PL
	TEL:0086-755-85290393 FAX:0086-755-86578846	REV: 1.0
		Date: 2024-05-24

Specification Approval Sheet

Model : 103045D-PL
Type : Li-polymer battery
Specification : 3.7V/1400mAh


signed by client	
Confirmed	
Checked	
Approved	

signed by manufacturer	
Prepared :	Alex Wang
Checked :	Howell Zhu
Approved :	Xueming Zhao

	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

Revision Record

REV	ISSUE	CONTENT OF AMENDMENT	PRE.	CHE.	APP.
1.0	May 24, 2024	New release	Alex Wang	Howell Zhu	Xueming Zhao
END					

	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

Content

1. Battery type and scope -----4

2. Basic characteristic and components of the battery-----4

 2.1: Basic performance parameter of the battery -----4

 2.2: Discharge Performance@-40°C-----5

 2.3: Performance and reliability test -----6


 2.5: Dimension of the battery-----7

3. Specification of PCM-----8

 3.1: General electric characteristic -----8

 3.2: Electric schematic diagram of battery (for reference only)-----8

Attentions -----9-10

	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

1. Battery type and scope


This Specification Approval Sheet is for rechargeable Li-polymer battery provided by Akku Tronics New Energy Tech. Co., Ltd.

2. Basic characteristic and components of the battery

2.1 Basic performance parameter of the battery

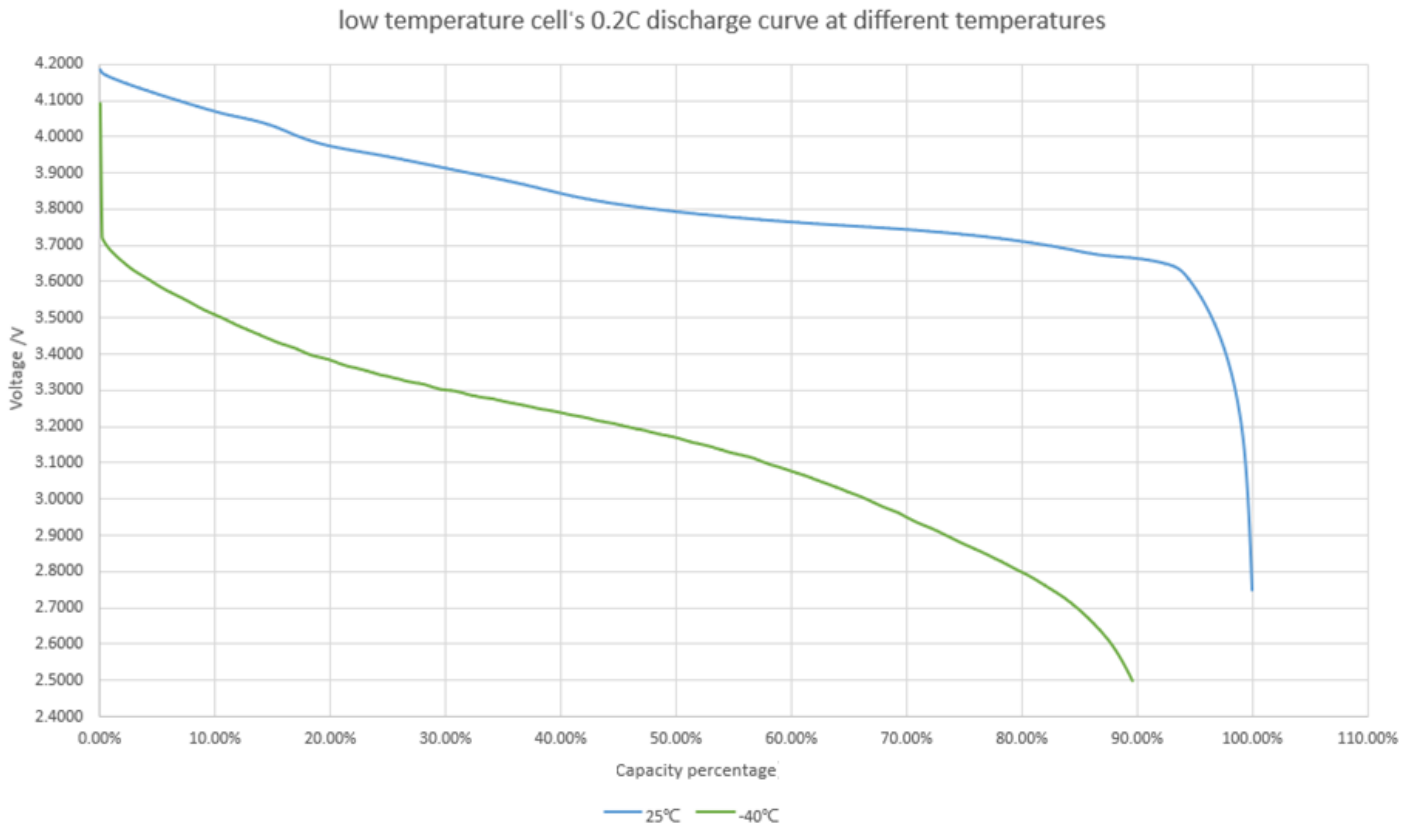
S/N	Details	Parameters		Remarks
1	Rated voltage	3.7V		
2	Rated capacity	1450mAh		discharge with 0.2C to 2.75V/cell after fully charge within 1h, measuring the discharge time.
	Minimum capacity	1400mAh		
3	Limited charge voltage	4.2V		
4	Internal resistance	≤40mΩ		
5	charge mode	C.C/C.V. to 0.01C		
6	Charge time	Standard charging 0.2C 280mA		6h
7	Max Charge Current	1400mA		1.5~2.5 hours
8	Max discharge current	Continuous: 280mA Max.: 1400mA		To 2.75V
9	Working temperature	charging	0 ~ 45°C	0~10°C, Charge @ 0.2C Max. 10~45°C, Charge @ 1.0C Max.
		discharging	-40 ~ 55°C	
10	Storage temperature	1 Month	-20~35°C	Charge to 40%~50% of capacity when storage
		6 months	-20~30°C	
11	Storage humidity	45% ~ 75%		relative humidity
12	Weight (pack)	Approx. 26.5g		
13	ESD ability	Touch discharge ≥ 6000V		

Add.:Rm 529, Huichao Bldg, Yintian Industrial Area, 4008 Bao'an Rd, Shenzhen, China.
 Website: <http://www.akkutronics.com>


	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

		Air discharge≥6500V	
14	Cycle life	500 times	Rate 0.5C, capacity≥80%

2.2 Discharge Performance@-40°C




-40°C 0.2C Discharge Parameter			
End Voltage	2.75V	3.0V	3.2V
Discharge Capacity	>75%	>55%	>40%

	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

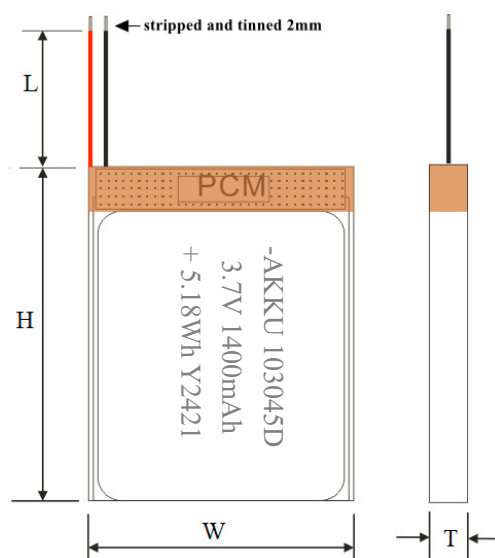
2.3 Performance and reliability test

S/N	Inspection item	Standard	Testing Method
1	0.2C discharging capacity	Discharging capacity is not less than normal capacity	After Standard Charging, rest 5 minutes, then 0.2C discharge to cut-off voltage
2	1.0C discharging capacity	Discharging capacity is not less than 95% of normal capacity	After Standard Charging, rest 5 minutes, then 1.0C discharge to cut-off voltage
3	Cycle life	The cycle times is not less than 500	Charge: 0.5C CC-CV charge to 4.2 V, then current declines to 0.02C Discharge: 0.5C CC discharge to 2.75 V When the discharge capacity reduced to 80% of rated capacity, stop testing, and record the cycle times.
4	Self-discharge	Discharging capacity is not less than 85% of initial capacity	After Standard Charging, rest the cell for 28 days in the condition of $20 \pm 5^{\circ}\text{C}$, then 0.2C discharge to cut-off voltage, and record the capacity.
5	Constant temperature and constant humidity test	No explosion, no fire, no leakage, Discharging capacity is not less than 60% of initial capacity	After Standard Charging, rest the cell for 48 hours in the conditions of $40 \pm 5^{\circ}\text{C}$ and 90~95%RH, then 0.5C discharge to cut-off voltage, and record the capacity.
6	Vibration test	No explosion, no fire, no leakage.	After Standard Charging, fixed the cell to vibration table, then subjected to vibration test for 30 minutes per axis of XYZ axes. Frequency rate: 1oct/min Vibration frequency: 10Hz~30Hz Excursion(single amplitude): 0.38mm Vibration frequency: 30Hz~55Hz Excursion(single amplitude): 0.19mm
7	Shock test	No explosion, no fire, no leakage.	After Standard Charging, test condition: Acceleration: 100m/s ² Pulse lasting time: <16ms Shock times: 1000±10 times

	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

8	Overcharge Protection	No explosion, no fire, no smoke or leakage	After standard discharging, charging by 3C current to 4.6V, lastting for 7h or when cell's temperature is lower than 80% of the peak value, Stop testing.
9	Short-circuit test	No explosion, no fire	After Standard Charging, Short circuit the positive and negative tabs with the copper wire, and the resistance of it is not more than 80m Ω , When the temperature falls 10 °C lower than the peak, Stop testing.
10	Thermal Shock	No fire, No explosion	Battery is heated in a circulating air oven at a rate of (5±2)°C per minute to 130°C, and then placed for 30 minutes at 130°C.

2.4 Dimension of the battery



Dimension

- T: 10.3mm max.
- W: 29.5mm max.
- H: 47mm max.
- L: 50mm

Material

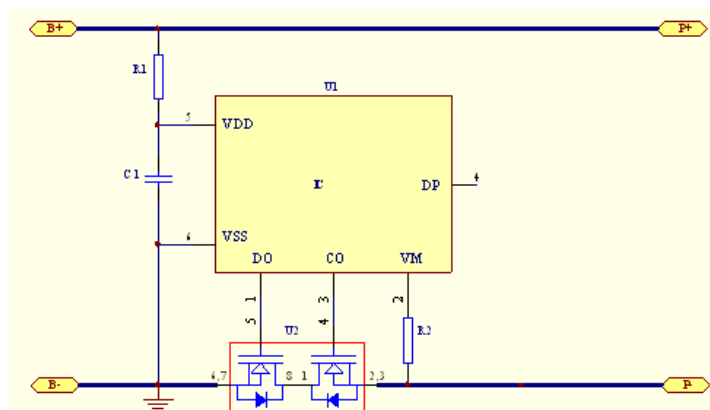
1. Cell: 103045D 1400mAh
2. PCM
3. Wire Red
UL1571 AWG24
4. Wire Black
UL1571 AWG24

3. Specification of PCM


3.1 General electric characteristic

Items	Specification	Remarks
Over-charging Protection Voltage	4.28V±0.05V	
Over-charging Return Voltage	4.175V±0.025V	
Over-discharge Protection Voltage	2.3V±0.1V	
Over-discharge Return Voltage	2.4V±0.05V	
Over-current Protection	2~6A	
Over-current Protection Voltage	0.1±0.15V	
Detection Delay Time of Over-charging Protection	0.96s~1.40s	
Detection Delay Time of Over-discharging Protection	115ms~173ms	
Detection Delay Time of Over-current Protection	7.2ms~11.0ms	
Short circuit Protection condition	Exterior short circuit	
Short circuit Protection Release condition	Cut short circuit	
Internal Resistance of Proper Functioning	≤70mΩ	
Consume Current	3uA Type 7uA Max	

3.2 Electric schematic diagram of battery (for reference only)



Add.:Rm 529, Huichao Bldg, Yintian Industrial Area, 4008 Bao'an Rd, Shenzhen, China.
 Website: <http://www.akkutronics.com>

	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

Attentions

Danger

To prevent battery from weeping, fever, exploding, please obeys the rules as follows:

Do not immerse the battery into the water or the sea, Guard against Damp;

Do not approach the heat source, like fire or heater;

Please use the appointed charger when charging;

Do not transposition the +.- poles of the battery to charge;

Do not direct-connected the battery to alternating current power supply, or auto-ignition of the vehicle;

Do not discard the battery to the fire or hyperpyretic objects;

Do not use the conductor to lead the short circuit of the + -poles of the battery. Do not put the battery with metallic conductors to transport or store, like necklace, hairpin and so on;

Do not beat or throw the battery;

Do not impale the battery with needle or some other sharp things, do not strike it with weight;

As installed safety device in the battery, please do not resolve or change any other sections of the battery to protect the inherent safety functions.

Warnings

Do not put the battery to the microwave oven or pressure tank;

Do not use the battery with some chemical batteries (like dry battery) or different capacities and brands battery together, if the battery emits the smell, heat , changes color, be out of shape or appears any other abnormal phenomena during the charging or stored procedures, please get out the battery from the device or charger and stop using;

If can not recharge within the charging period, please not continue charging;

Put the battery to where the kids can not touch, if the kids swallow the battery, please seeing the doctor soon;


If the electrolyte of the battery into the eyes, do not rub, should wash the eyes first, then see the doctor.

Announcements

Do not put the battery under the high temperature places (like sunshine irradiation or car in the hot weather), or it will catch fire for the heat, reduce the performance and loss the life;

To insure the safety, the battery should install the safety device, please not use when the static electricity is more than we need when produce, or the safety device will lose efficacy and lead the overheating ,fracture, exploding and catching fire;

Please use the battery in normal as follows, or it will be overheating, caught fire, reduced performance and shorten the life;

	Akku Tronics New Energy Technology Co., Limited TEL:0086-755-85290393 FAX:0086-755-86578846	Type: 103045D-PL
		REV: 1.0
		Date: 2024-05-24

Environment condition

- (Temperature) Charging: 0~+45°C
- Discharging: -20~+60°C
- Store within 30 days: -20~+35°C
- Store within 90 days : -20~+30°C

If the kids use the battery, they should use as the operation instruction manual and guarantee that it must be use in normal at any time;

If the battery weeps, the electrolytes stick on the skin or cloth, use the water to wash or running water to wash To insure not install the battery wrong or wastage of the battery, please read the instruction carefully to install and dismounting;

If the battery will not be used for a long time ,please take out of the battery from the device and store in dry and shady places;

If there is sludge on the surface of the battery, please wipe up clean before using, or it will lead bad contact with the device.

! Special Notice

Keep the cells in **50% charged state** during long period storage. We recommend to charge the battery up to 50% of the total capacity every 3 months after receipt of the battery and maintain the voltage 3.7V~8.2V. And store the battery in cool and dry place.