1 Scope

This specification applies to lithium-ion rechargeable battery.

2 Based on written

a: GB/T 18287—2000《General specifications of cellular phone lithium-ion battery》;
b: GB/T 3873---1983《General technical specifications of communication equipment product packaging》;
c: GB6388—1986 《Transport package shipping and receiving mark》;
d: GB5296.1—1997 《General consumer use》;

3 Product

a: Product model---------- SKT605068P
b: Battery specifications ----------605068P
c: Nominal capacity----------≥2000mAh
d: Nominal resistance----------≤150mΩ
e: Weight----------≤45g
f: Dimension----------6.0±0.3×50.0±0.5×68.0±0.5 mm (L×W×H)

4 Parameters Index

4.1 Battery specifications

No.	Item		Unit	Parameter required	Note
1	Rated capacity		mAh	2000	Capacity measured by standard charge and discharge.
2	Nominal voltage		V	3.7	Average voltage during discharge after standard charge.
3	Voltage out of box		V	≥3.75	
4	Charge method			Constant current/voltage	
5	Maximum charging voltage		V	4.2	
6	Discharge termination voltage		V	3.0	
7	Maximum continuous charge current		mA	1C	
8	Maximum continuous discharge current		mA	1C	
9	Operating	charge	℃	0~45	

	Temperature	discharge	℃	－10~50	

4.2 Safety testing of batteries

1	Impact	Put the battery on a impaction platform, let a 10Kg hammer fall from a height of 1m to the battery which is fixed on the platform(The largest surface area of the battery, should be perpendicular to the table).	No explosion, no smoke, no fire
2	Short-circuit	Short the battery positive and negative with the 0.1Ω resistor for 1h.	No explosion, no smoke, no fire, no leakage
3	Overcharge	Charge at 1C5A till the voltage of battery reach 4.8V.	No explosion, no smoke, no fire, no leakage
4	Over-discharge	Discharge at 1C5A till the voltage reaches 2.75V,then external load(30*N) discharge for 24hours	No explosion, no smoke, no fire, no leakage

4.3 Battery performance test

<table>
<tr><th>No.</th><th>Item</th><th colspan="5">Content</th><th>Requirement</th></tr>
<tr><td>1</td><td>Standard charge</td><td colspan="5">Standard charge is charge at 1C5A constant current till the voltage reach 4.2V,constant voltage charging till current less than 0.01C5A</td><td></td></tr>
<tr><td>2</td><td>Rated capacity</td><td colspan="5">Rated capacity is after standard charge ,then discharge at 0.2C5A constant current till cut-off voltage 2.75V</td><td>C≥2000mAh</td></tr>
<tr><td>3</td><td>Cycle life</td><td colspan="5">After standard charge, then discharge at 0.5C5A till cut-off voltage 2.75V.Repeat the test until two consecutive discharge capacity is less than rated capacity 80%.</td><td>≥300 times</td></tr>
<tr><td>4</td><td>Resistance</td><td colspan="5">The internal resistance when charge in 40-50% capacity</td><td>≤180mΩ</td></tr>
<tr><td rowspan="4">5</td><td rowspan="4">Temperature</td><td colspan="6">After standard charge at 20℃, discharge constant current at 1C5A to termination voltage 2.75V then compare battery capacity with experimental results at different temperatures 25 ℃.(After the temperature change more than three hours)</td></tr>
<tr><td colspan="2">Charging temperature</td><td colspan="4">Discharge temperature</td></tr>
<tr><td rowspan="2">25℃</td><td>-10℃</td><td>0℃</td><td>25℃</td><td>50℃</td></tr>
<tr><td>30%</td><td>85%</td><td>100%</td><td>102%</td></tr>
<tr><td>6</td><td>Charge retention</td><td colspan="6">After standard charge,20 ±5 ℃ storage in 30 days later. Battery capacity is greater than 90% of rated capacity with 0.2C5A discharge.</td></tr>
</table>

4.4 Battery environment performance testing

No.	Item	Test method	Test requirement
1	Vibration	After the battery standard charge, put the battery installed in the X, Y, Z three perpendicular directions. Vibration frequency from 10 Hz to 55 Hz for 30 minutes of recycling. Sweep rate is 1Hz/min.	Appearance of the battery should be no significant damage, leakage, smoke, or explosion. Battery voltage ≥ 3.6V
2	Collision	After according to the provisions of the battery vibration test, the battery installed in the X, Y, Z three mutually perpendicular axis solid platform for experiments. Collisions pulse peak acceleration 100m / S, the pulse duration of 16ms, the number of collisions per minute to 40-80 times, a total of 1000 ± 10 collision.	Appearance of the battery should be no significant damage, leakage, smoke, or explosion. Battery voltage ≥ 3.6V

5 Storage requirements

Battery should charge at least 30% of rated capacity. Packed into boxes as required, stored in a good environment without acid, alkali or other corrosive gases, relative humidity less than 75% of the warehouse to storage. Storage temperature, time and loss of capacity should meet the requirements under the table.

Storage temperature	Storage time	Allow maximum capacity loss
-10℃-- +50℃	1 week	10%
-10℃-- +20℃	3 month	5%
-10℃-- +20℃	1 year	10%

6 Protection plate Specifications

6.1 Protection plate performance

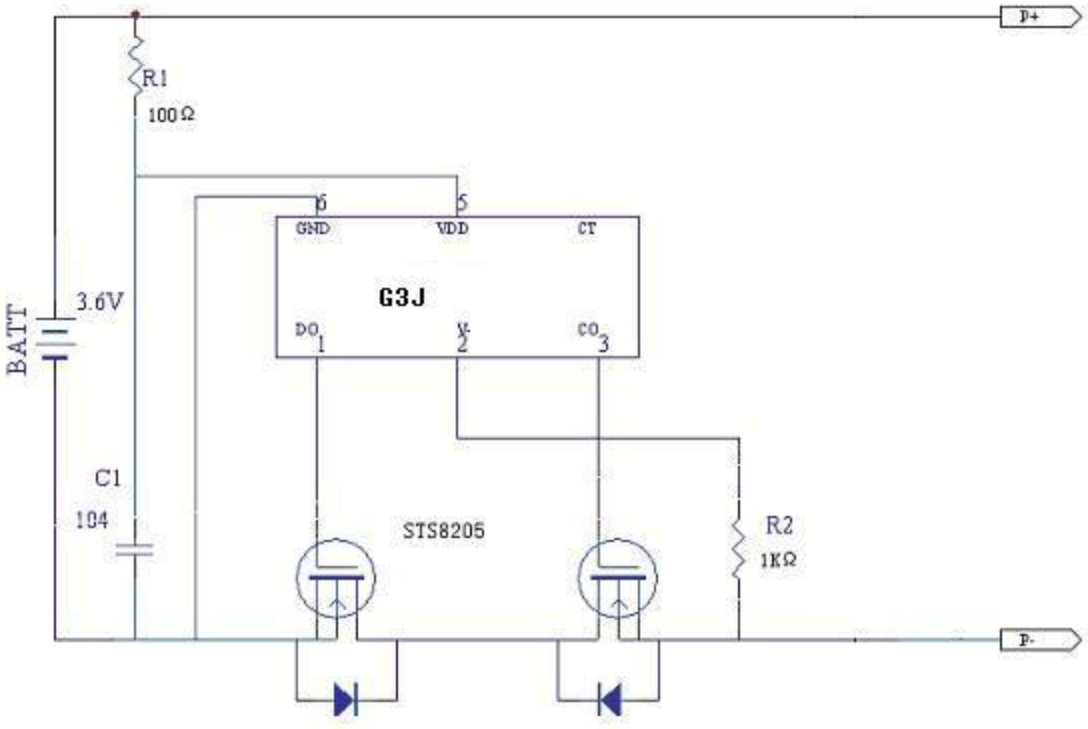
No.	Item		Test			Unit
			Maximum	Typical	Minimum	
1	Overcharge protection	Overcharge detection voltage	4.35	4.30	4.25	V
		Overcharge detection delay time	300		50	ms
		Overcharge release voltage	4.15	4.10	4.05	V
2	Over-discharge protection	Over-discharge detection voltage	2.50	2.40	2.30	V
		Over-discharge detection delay time	60	20		ms

		Over-discharge release voltage	3.10	3.00	2.90	V
3	Over-current protection	Over-current detection voltage	180	150	120	mV
		Over-current protection current	4.5	3	2	A
		Detection delay time	20	10		ms
		Protection release conditions	Disconnect the external load			
4	Short circuit protection	Detection delay time	50	5		μS
		Protection release conditions	Charge recovery			
5	Internal resistance	On-state resistance of main circuit	70	50	40	mΩ
6	Current consumption	Current consumption in normal operation	6.0	3.0		μA
7	Quiescent Current	Current consumption in hibernation	0.1			μA

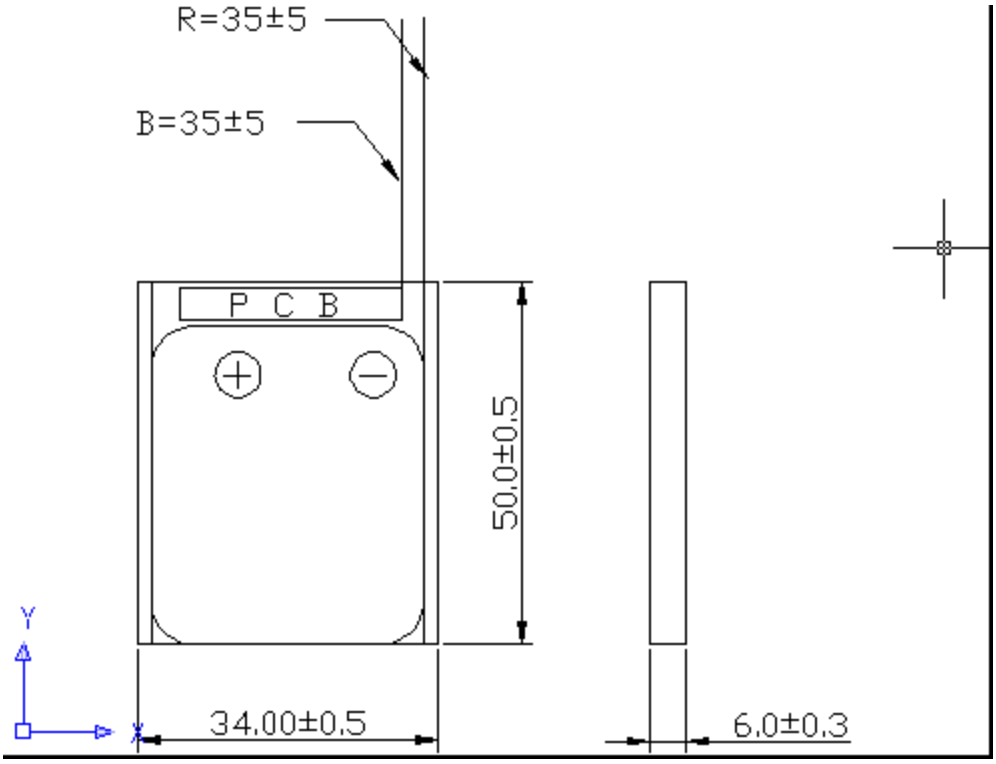
6.2、Main element inventory

NO.	Location	Part name	Specification	Package	Quantity
1	IC	Single lithium protection IC	G3J	SOT-23-6	1
2	D1	MOS tube	8205	SOT-23-8	1
3	R1	SMD Resistor	SMD 100Ω ±5%	0603	1
4	R2	SMD Resistor	SMD 1KΩ ±5%	0603	1
5	C1	MLCC	SMD 0.1μF/25V	0603	1
6	PCB	PCB	60*3.7*0.6mm		1

6.3、Schematic



7 Battery size chart



8、Appearance of the product requirements

Finished battery use blister packaging can not appear scratches, stains, deformation, discoloration, leakage; can not appear external thread of varying lengths and so on.

19、Warranty period

Warranty period begins from the delivery date of 12 month.

10、Products using declaration

Users should be strictly in accordance with instructions to use the product. If not proper to use, then result in heating, fire, smoke, cracking and other damage caused by accidents and fires. We does not guarantee the occurrence of any accident or responsible for any loss.

11、Description of change：

If the product specifications, materials, production processes and associated parameters are changed, advance notice in writing to change the instructions to the customer

12、**Please read the following instructions before use, incorrect use will cause the battery to heat, fire, breakage, damage and decay battery power.**

Caution!

1、 Do not discard the battery in fire or heater, do not store in high temperature environments（＞50℃）;

2、 Do not reverse the position and negative to connect the power charging;

3、 Do not use wire or metal object short-circuit the battery positive and negative;

4、 Do not use hammer a nail driven into the battery or hammering battery;

5、 Do not disassemble and break up or transformation internal and external structure with the battery;

6、 Do not immerse the battery in water or storage in wet;

7、 Should try to keep the battery away from children, avoid swallowing;

8、 If the battery is abnormal after purchase, such as burning, heating, etc. Please contact us promptly.

9、 If the battery is stored for a long time, please pre-charge at 0.2C for 2 hours.

Attention!

1、 Matching the correct charger for the battery to charge / discharge.

2、 Can not mix batteries with other manufacturers, such as different models and types of batteries, nickel metal high-energy batteries. Otherwise it will affect the battery life.

3、 If the battery is burnt, discoloration, leakage, or any other deformation, it can not be placed in the charger or charging.

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