



Specification Approval Sheet

Name: Li-ion Battery

Model: 34426

SPEC:Li-21700-3.6V 5000mAh-PCM-Cap

Approved By	Checkup	Make
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2021-11-10	2021-11-10	2021-11-10

Customer Confirmation	Signature	Date
	Company Name :	
	Stamp :	

Please sign back specification before bulk order

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1 Scope

This document describes the performance characteristics and testing methods for Li-ion battery produced by Tenergy Corporation.

2 Product type and model number

2.1 Product type

Li-ion Battery

3 Rated performance

Form 1: Battery rated performance

No	Item	Rated performance	Remark
1	Rated capacity	Nominal 5000mAh Min 4750mAh	Standard discharge after standard charge
2	Nominal voltage	3.6V	Mean operation voltage during standard discharge after standard charge
3	Voltage at end of discharge	2.8V	Discharge cut-off voltage
4	Charging voltage	4.2V	
5	Shipments voltage	3.5-3.65V	SOC ≤ 30%
6	Impedance	≤ 120 mΩ	
7	Standard charge	Constant current 0.2 C ₅ A Constant voltage 4.2V Cut-off current ≤ 0.02C ₅ A	Under the condition of the ambient temperature of 25±2°C
8	Standard discharge	Constant current 0.2 C ₅ A End voltage 2.8V	
9	Maximum Charge Current	Constant current 0.5 C ₅ A Constant voltage 4.2V Cut-off current ≤ 0.02C ₅ A	
11	Maximum continuous discharge current	≤ 5A	
12	Operation temperature range	Charge: 10~45°C Discharge: -20~60°C	60±25%R.H
13	Cycle life	>300cycles	Charging/discharging in the below condition: Charge: standard charge Discharge: 0.2 C ₅ A to 2.8V Rest time between charge/discharge:30min Until the discharge capacity <80% of NC
14	Storage temperature	≤1 month: -20 ~ 45°C ≤3 months: -10 ~ 30°C ≤1 year: 0 ~ 30°C	60±25%R.H, Best 10~25°C for long-time storage
15	Weight	Approx: ≈90g	
16	Dimension(mm)	Thickness*Width*Height(Max)	Φ22±0.3*75.8±0.3mm
17	output wire length (mm)	Excluding the connector	/



4 Electrical performances

Form 2: Battery electrical performances

No	Items	Test procedure	Requirements
1	Nominal voltage	The average value of the working voltage during the whole discharge process.	3.7V
2	Discharge performance	The discharge capacity of the battery, measured with 0.2 C ₅ A down to 2.8V within 1 hour after a standard charge at 25±5°C	Discharge ≥Minimum capacity
3	Capacity retention	After 28 days storage at 25±5°C, after having been standard charged and discharged at 0.2 C ₅ A to 2.8V (the residual capacity is above 85% of nominal capacity)	Discharge time ≥4.25h
4	Cycle life	Charging/discharging in the below condition: Charge: standard charge at 25±5°C Discharge: 0.2C ₅ A to 2.8V Rest time between charge/discharge:30min Until the discharge capacity <80% of NC	>300cycles
5	Storage	(Within 3 months after manufactured) The battery is charged with 0.2C ₅ A to 20-50% capacity and stored at ambient temperature 25±5°C, 65±20%RH for 12 months. After the 12 months storage period the cell is fully charged and discharged to 2.8V with 0.2 C ₅ A	Discharge time ≥4h

5 Standard test conditions

Test should be conducted with new batteries within one week after shipment from our factory and the batteries shall not be cycled more than five times before the test. Unless otherwise defined, test and measurement shall be done under temperature of 20±5°C and relative humidity of 45~85%. If it is judged that the test results are not affected by such conditions, the tests may be conducted at temperature 15~30°C and humidity 25~85%RH.

6 Cautions in use

To ensure proper use of the battery please read the manual carefully before using it.

6.1 Handling

Do not expose to, dispose of the battery in fire.

Do not put the battery in a charger or equipment with wrong terminals connected.

Avoid shorting the battery.

Avoid excessive physical shock or vibration.

Do not disassemble or deform the battery.

Do not immerse in water.

Do not use the battery mixed with other different make, type, or model batteries.

Keep out of the reach of children. **Do not allow children to replace batteries without adult supervision.**

6.2 Charge and discharge

Battery must be charged in appropriate charger only.



Never use a modified or damaged charger.

Do not leave battery in charge over 24 hours.

6.3 Storage

Store the battery in a cool, dry and well-ventilated area.

6.4 Disposal

Regulations vary for different countries, Dispose of in accordance with local regulations.

7 Battery operation instruction

7.1 Charging

Charging current: Cannot surpass the biggest charging current which in this specification book stipulated.

Charging voltage: Does not have to surpass the highest amount which in this specification book stipulated to decide the voltage.

Charging temperature: The battery must charge in the ambient temperature scope which this specification book stipulated. Use the constant electric current and constant voltage to charge. Do not reverse charge. When the positive electrode and the cathode meet together, damage can be made for the battery.

7.2 Discharging current

The discharging current does not have to surpass this specification book stipulation the biggest discharging current, the oversized electric current electric discharge can cause the battery capacity play to reduce and to cause the battery heat.

7.3 Electric discharge temperature

The battery discharge must carry on in the ambient temperature scope which this specification book stipulated.

7.4 Over-discharges

Short time of excessively discharge will not affect the usage. But the long time excess discharge can damage the battery performance and cause the function losing. When the battery is not used for a long time, because of its automatic flashover characteristic, it may excessively discharges. To prevent excessively discharge occur, the battery should maintain certain electric quantity.

7.5 Storing the batteries

The battery should store in the product specification book stipulation temperature range. If has surpasses above for three months the long time storage, suggested you should carry on additional charge to the battery.

8 Other the chemical reaction

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 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.

9 Note

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



10 PCM performance

10.1 Electrical characteristics

Form 3: PCB electrical characteristics

Item	Content	Criterion
Over charge Protection	Over charge detection voltage	4.250±0.025V
	Detection delay time	1.2±0.3S
	Over charge release voltage	4.075±0.025V
Over discharge protection	Over discharge detection voltage	2.700±0.050V
	Detection delay time	144±29mS
	Over discharge release voltage	2.900±0.050V
	Rated operational current	≤5A
Over current protection	Over current detection current	10±2A
	Release condition	Cut load
	Detection delay time	9±2mS
Short protection	Detection condition	Exterior short circuit
	Release condition	Cut short circuit
Interior resistance	Main loop electrify resistance	≤45mΩ
Current consumption	Current consume in normal operation	≤7μA
NTC	NTC: /	/
PCB Dimension(L*W*H)mm	Φ19*0.8	

10.2 PCB Parts list

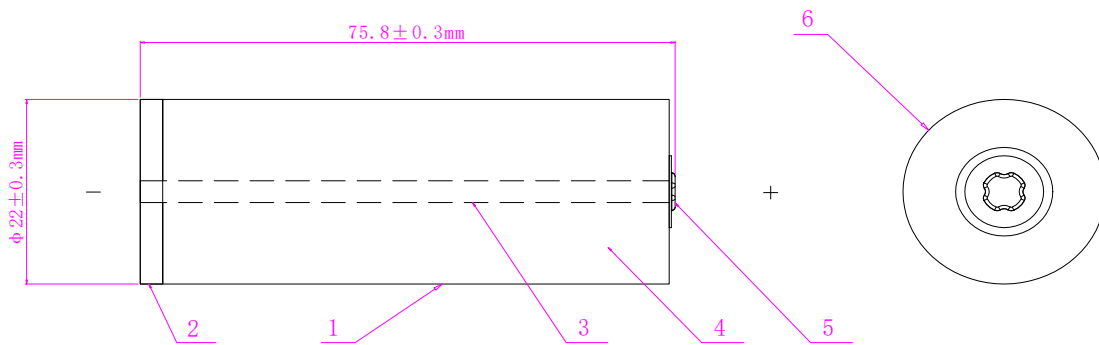
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10.3 Application Circuit

TBD

10.4 PCB Layout

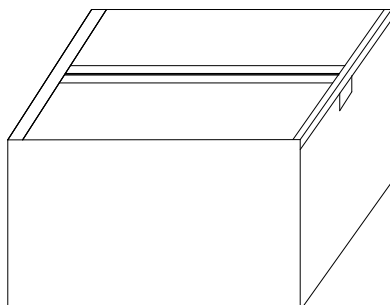
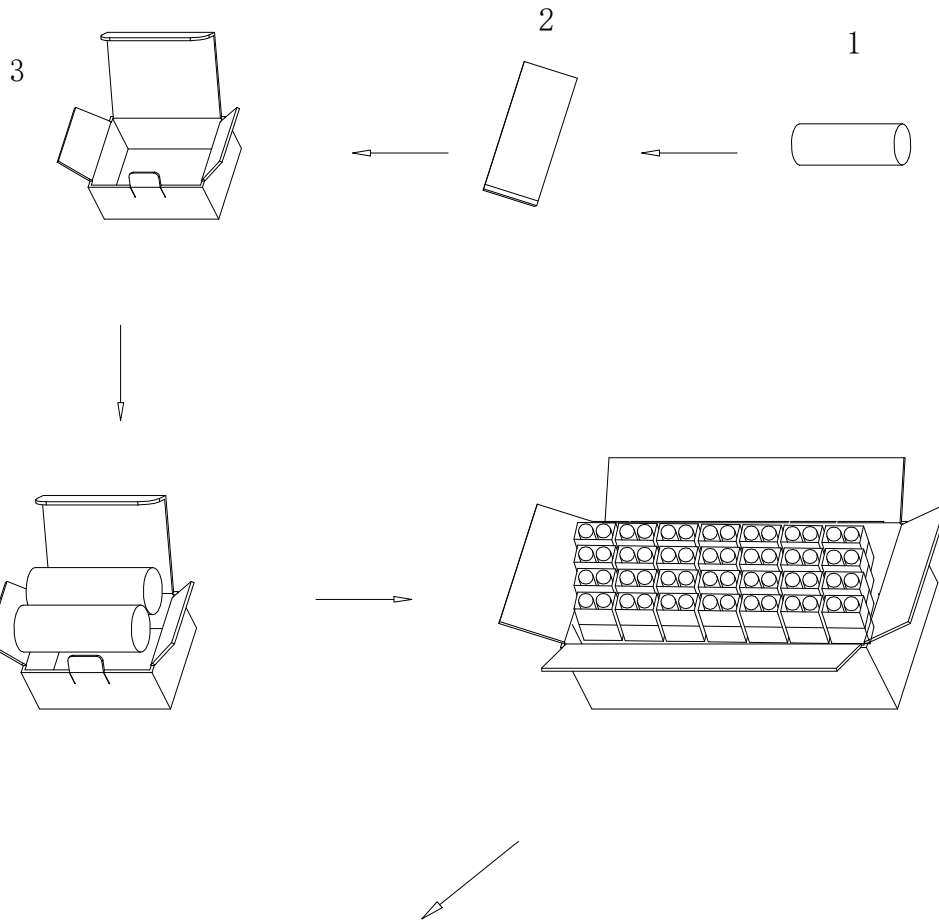
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11 Colorful shrink sleeve (PVC)
13 Battery pack drawings
Drawing 1: Battery pack drawings


6	White plastic	保护板底座21*19*2.5					
5	Cap	盖帽: MEP-Cap-Φ 16.3*1.8*Φ 6.0*0.3-不锈钢-(不带孔)			1		
4	PVC				1		
3	Nickel	镍镍带: Ni-E3*0.10			2		
2	PCM	PCM			1		
1	Cell	Li-21700-3.6V 5000			1		
No	Material	Description			Qty	Remark	
Item	Signature	Date	Remark		Tenergy Corporation		
Drw		2021-03-22			Li-21700-3.6V 5000mAh-PCM-Cap		
Chk		Page	1	Model			
App		Edition	A/0	Code		Unit	mm
Dimension :(Thickness*Width*Height)-Max(mm)					Φ 22 ± 0.3*75.8 ± 0.3mm	Angles	/

14 packaging

Schematic diagram of packing



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Schematic diagram of packing

5			
4	carton		56/层 2层 112/箱
3	Small box		2pcs/盒
2	PE bag		1pcs/Pack
1	Pack		
No.	Material	specification	Dosage