Li-ion Polymer Battery Pack Specification

锂离子聚合物电池组合规格书

电池属性：□高温电池□☑低温电池□倍率电池□高压电池□常规电池

PACK TYPE 装配类型	CELL+PCM+WIRE 电芯+保护板+导线
CELL MODEL 型号	735272
CELL CAPACITY 标称容量：mAh	3400
TOTAL PAGE 文件页数	13
File NO：文件编号	JZ-QW-RED-10134
Customer number 客户代码	RIoT Secure
Business code：业务代码	
Date 日期	2020.09-016

Registered 编 制	Checked 审 核	Approved 批 准	Customer Approve 客户确认
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Content
目　　录

1. MODIFIED LIST

修订履历产品变更履历表

Product Modified Record List

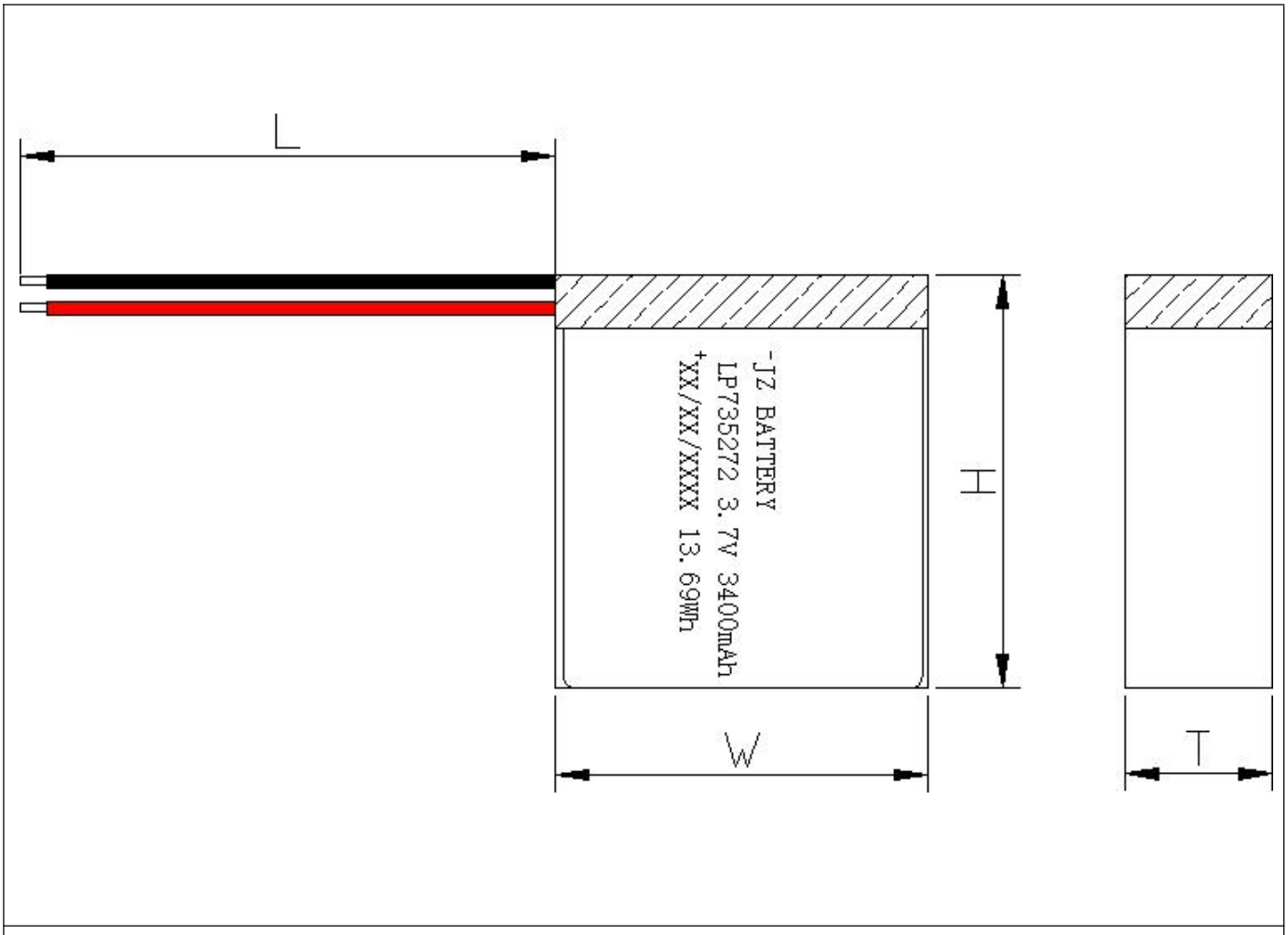
Revision 版 本	Date 日 期	Mark 标 记	Modified content 变更内容	Approved by 批 准
A0	2020.09.16		首次发行	

2. Scope 适用范围

This specification describes the basic performance, technical requirement, testing method ,warning and caution of the Li-ion Polymer rechargeable battery pack, the pack defined in this documentation is an assembly which include battery, PCM and wire, the specification only applies to Foshan Jiezhen Technology Co., Ltd.

本标准规定了锂聚合物可充电池的基本性能、技术要求、测试方法及注意事项，电池组合定义的是包括电芯，保护板和连接线的组合，本标准只适用于佛山市捷臻科技有限公司所生产的锂聚合物电池。

3. Finished Size 成品尺寸



Unit 单位（mm）

T (厚度)	7.3±0.3	W（宽度）	Max：52±0.3	H（高度）	72±3
L(引线长)	60±5	WIRE（引线）	1571-26#（红黑）	端子头	

4. Specification 产品规格

NO.	Item 项目	Specifications 规格要求		Notes备注
4.1	Nominal capacity 标称容量	3400mAh		After the standard charge, 0.2C discharge to 2.5V 标准充电后，0.2C 放电至2.5V
	Minimum capacity 最小容量	3350mAh		
4.2	Initial Impedance 初始内阻	Pack ≤200mΩ		After standard charge,AC1KHz test标准充电后，AC 1KHz 测试
4.3	Weight 重量	Approx(约)：70g		成品电池重量
4.4	Nominal voltage 标称电压	3.7V		标准电压
4.5	Charge limit voltage 充电限制电压	4.2V		最高电压（参考 7.1 保护参数）
4.6	Discharge cut-off voltage 放电截止电压	2.5V		保护电压（参考 7.1 保护参数）
4.7	Standard charge current 标准充电电流	1000mA		Ambient temperature 环境温度 0~+45℃
4.8	Maximum charge current 最大充电电流	2000mA		Ambient temperature 环境温度 0~+45℃
4.9	Standard discharge current 标准放电电流	500mA		Ambient temperature 环境温度-40~+55℃
4.10	Maximum discharge current 最大放电电流	3000mA		Ambient temperature 环境温度 0~+50℃
4.11	Charging time 充电时间 （此参数为建议值，实际时间取决终端得充电电流）	6.0～8.0 hours(Ref.) 6.0～8.0小时（参考值）		Standard Charging 标准充电
		3.5 至4.5hours(Ref.) 3.5 至4.5小时（参考值）		Rapid charge 快速充电
4.12	Operating temperature 工作温度	0℃~45℃	Charging 充电	
		-40℃~50℃	Discharging放电	
	Storage temperature 储存温度	0℃~ +45℃	less than 1 month 小于 1 个月	Recommended storage temperature: 25℃,at the shipment state 建议的储存温度：25℃
		0℃~ +35℃	less than 6 months 小于 6 个月	

4.13	Recoverable capacity 恢复容量	Constant current 0.2C charge to 4.2V, then constant voltage 4.2Vcharge to current declines to 0.01C, rest for 10min， constan current 0.2C discharge to 3.0V，rest for 10min.Repeat above steps 3 times, recording the maximum capacity 先用 0.2 C 恒流充电至 4.2V，再恒压 4.2V 充电直至充电电流≤0.01C,搁置 10 分钟,再用 0.2C 电流放电至 3.0V;又搁置 10 分钟,重复以上步骤 3 次,记录容量最大值
4.14	Storage Humidity 储存湿度	≤75% RH
4.15	Appearance 外观	Without distortion and leakage 无变形、电解液泄露
4.16	Standard testing condition 标准测试环境	Temperature(温度)： 25±2℃ Humidity（湿度）：≤75%RH Atmospheric Pressure（大气压）： 86-106 Kpa

※Our product specifications from 4.1 to 4.12, according to the 4.16 performance test environment (standard test environment), such as a special product requirements described separately.

※我司产品规格书从 4.1 至 4.12 项目，测试环境按 4.16项执行（标准测试环境），如有特制产品要求另行描述。

5. General Performance 常规性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
5.1	Standard Charge 标准充电	Charging the cell initially with constant current at 0.2C and then with constant voltage at 4.2V till charge current declines to 0.01C 先用0.2C恒流充电至4.2V，再恒压4.2V充电直至充电电流≤0.01C	
5.2	Rated Capacity 初始容量	The capacity means the discharge capacity of the cell, which is measured with discharge current of 0.2C with Protection Board over discharge protection after standard charge. 该容量是指标准充电后，0.2C放电至保护板过放保护所放出的容量。	≥3400mAh
5.3	Cycle Life 循环寿命	Test condition： Charge:0.2C to 4.2V，then stored for 10 minutes Discharge:0.2C to Protection Board over discharge protection，then stored for 10 minutes ； 80% or more of 1st cycle capacity at 0.2C discharge of Operation 测试条件： 充电：0.2C 充电到 4.2V，搁置 10 分钟； 放电：0.2C 放电到保护板过放保护，搁置 10 分钟； 当放电容量降至初始容量的80%时，所完成的循环次数定义为该电芯的循环寿命	≥300次

5.4	Storage Characteristics 储存特性	After the standard charging, storied the cells under the condition as 25±2℃ for 30 days, then measured the capacity with 0.2C till cut-off voltage 标准充电后，在室温（25±2℃）条件下贮存 30 天，再以 0.2C 放电至护板过放保护所放出的容量。	Residual capacity ≥85% 剩余容量 ≥85%
5.5	Finished battery 成品电池	As of shipment. 出货状态	3.85v~4.05V
5.6	Temperature Characteristics 温度特性	1. According to item 5.1, at 25±2℃. 2. Capacity comparison at each temperature, measured with constant discharge current 0.2C with Protection Board over discharge protection . Percentage as an index of the capacity compared with100% at 25℃ 1. 在25±2℃条件下，用 5.1 方法将电池充电。 2. 在不同温度条件下，用 0.2C 的电流恒流放电至保护板过放保护。以25℃时放电容量为基准计算百分比。	-40°：≥40% 0℃: ≥50% 25℃: 100% 55℃: ≥70%

6. Safe Characteristic 安全性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
6.1	Overcharge testing （NO PCM） 过充测试 （无保护板）	At standard testing condition ， charging cell with constant current 2.0A to voltage 4.6V, then with constant voltage 4.6V till current decline to 0. Stop test till cells temperature 10℃ lower than max temperature. 在标准测试环境下，电池用 2.0A 电流充电至 4.6V,然后恒压4.6V 让电流下降接近为 0A,监视电池温度变化,当电池温度下降至低于峰值 10℃时,停止实验.	No smoke , No fire 不起火,不冒烟
6.2	Forced discharge 强制放电 （无保护板）	After the standard discharge of the electric core, the 1.0A current to its reverse charging, 90min 将标准放电后的电芯，以 1.0C 的电流对其进行反向充电，时间 90min	No fire, no explosion 不起火，不爆炸
6.3	Short-circuit testing （NO PCM） 短路测试 （无保护板）	At standard testing condition， after standard charging, connect pack anode and cathode by wire which impedance less than 80±20mΩ, keep 24h. 在标准测试环境下，标准充电后,将电池组合的正负极用一根小于 80±20mΩ 的导线连接,放置 24 小时.或外部温度降低到最大温升的 20%	No smoke no fire 不起火,不冒烟
6.4	Drop Test 跌落测试	After the charge of the electric core from 1.0meters height fell to the ground each surface of the concrete fell 1 times a total of 6 tests 充电后的电芯从1.0米高度跌落至混凝土地面每个面各跌落1次共 试验6次	Open circuit voltage should be no less than 90% initial voltageNo fire,no leakage. 开路电压应不低于 90%初始电压，无起火、无泄漏

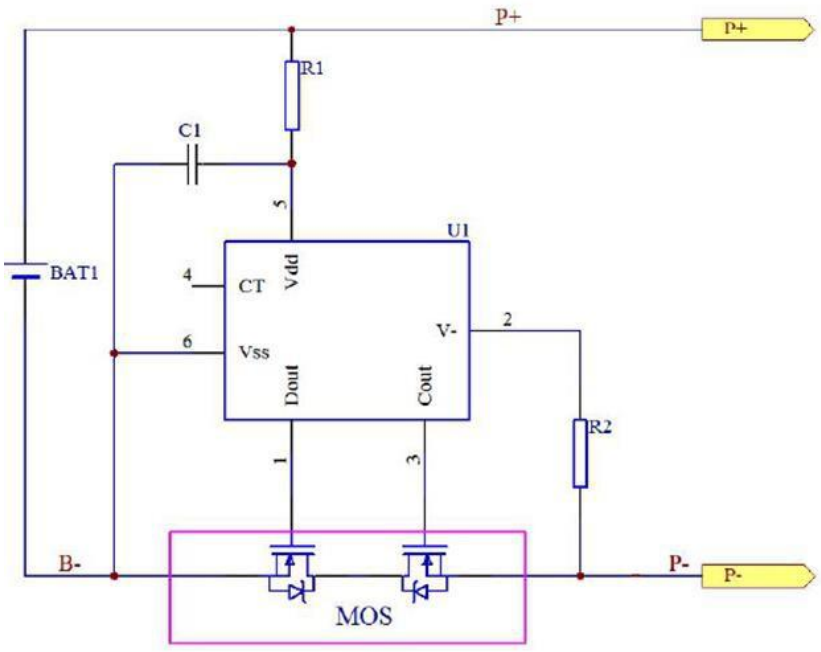
※ Above testing of safe characteristic must be with protective equipment.(安全性能测试应在有保护措施下进行)

7. Protection circuit 保护电路

7.1 PCM Standard（保护板标准）

Symbol（符号）	Name（名称）	MIN.（最小值）	Typical.（典型值）	MAX.（最大值）	Unit（单位）
VDET1	Over-Charge detect voltage（过充电保护电压）	4.15	4.25	4.3	V
VDET2	Over-discharge detect voltage（过放电保护电压）	2.4v	2.5v	2.65v	V
IEC	Discharge over current protection（放电过电流保护）	3	3.4	4	A
IDD	Supply current（自耗电流）	4/	/	10.0	μA
RD	Internal resistance in normal operation（导通内阻）	25	50	65	mΩ

7.2 Schematic diagram（原理图）



7.3 PCM-BOM (保护板主要物料清单)

REMARK	NAME	SPEC	QTY
U1	CONTROL IC（控制芯片）	DW01	1
U2	MOSFAT（MOS 管）	8205 TSSOP-8	1
R1	RESISTANCE（电阻）	350Ω±5% 1/10W	1
R2	RESISTANCE（电阻）	1KΩ±5% 1/18W	1
R3	RESISTANCE（热敏电阻）	10k NTC ± 1% 3435（无）	0
C1	CAPACITOR（电容）	0.1uF+80%-20% 50V	1
PCB	Print circuit board	30*2.8*1	1

8.Warning 警告

Load circuit may cause voltage and current, and the voltage or current may add to pack, the voltage or current must be controlled as lower than RWV and RWI, larger voltage or current may damage the PCM of pack.

☆负载可能产生电压和电流,该电压和电流会反加在电池组合（含 PCM）上，该电压和电流不能超过保护板自身反向耐压耐流值，过高电压或电流会损坏电池组合中的保护板。

To prevent the possibility of the pack from leaking, heating, fire .please observe the following precautions:

☆为防止电池组合可能发生的泄漏,发热,起火,请注意以下预防措施:

The soft aluminum packing foil is very easily damaged by sharp edge parts such as Ni-tabs, pins and needles .Don't strike at pack with any sharp edge parts.

☆ 电池组合外包装膜易被镍片,尖针等尖锐部件损伤,禁止用尖锐部件碰伤电池.

Do not immerse the pack in water and seawater

☆ 严禁将电池组合浸入海水或水中.

Do not use and leave the pack near a heat source as fire or heater

☆ 禁止将电池组合在热高温源旁,如火,加热器等使用设备

When recharging, use the battery charger specifically for that purpose
☆ 充电时请选用锂离子电池专用充电器.
Do not reverse the position and negative terminals
☆ 禁止颠倒正负极使用电池组合

Do not connect the pack to an electrical outlet
☆ 禁止将电池组合直接接入电源插座

Do not discard the pack in fire or heat it
☆ 禁止将电池组合丢入火或加热器中

Do not short-circuit the pack by directly connecting the positive and negative terminal with metal object such wire
☆ 禁止用金属直接将电池组合的正负极进行短路连接.

Do not transport and store the battery together with metal objects such as necklaces, hairpins etc.
☆ 禁止将电池组合与金属,如发夹,项链等一起运输或贮存.

Do not strike or throw the pack.
☆ 禁止敲击或抛掷,踩踏电池组合等.

Do not directly solder the pack or battery and pierce the battery with a nail or other sharp object.
☆ 禁止直接焊接电池组合或电芯，禁止用钉子或其它利器刺穿电池组合或电芯.

9. Cautions 注意

Do not use or leave the pack at very high temperature (for example, at strong direct sunlight or a vehicle in extremely hot conditions).Otherwise, it can overheat or fire or its performance will be degenerate and its service life will be decreased.
△ 禁止在高温下(直热的阳光下或很热的汽车中)使用或放置电池组合,否则可能会引起电池过热,起火或功能失效,从而导致电池组合寿命减短.

Do not use it in a location where static electricity is great, otherwise, the safety devices in the pack may be damaged, which will cause hidden trouble of safety.
△ 禁止在强静电和强磁场的地方使用,否则易破坏电池组合的安全保护装置,带来不安全隐患.

If the pack leaks and the electrolyte get into the eyes, do not rub eyes, instead, rinse the eyes, with clean running water, and immediately seek medical attention. Otherwise, eye injury can result.
△ 如果电池发生泄漏,电解液进入眼睛,请不要揉擦,应用清水冲洗眼睛,并立即送医院治疗,否则会伤害眼睛.

If the pack takes off an odor, generates heat, becomes discolored or deformed, or in any way appear abnormal during use, recharging or storage, immediately remove it from the device or battery charge and stop using it.
△ 如果电池组合在使用或贮存中发出异味,发热,变色,变形,或者是在充电过程中出现任何异常现象,立即将电池从充电器或装置中移开,并停止使用.
In case the pack terminals are dirt, clean the terminals with a dry cloth before use. Otherwise power failure or charge failure may

occur due to the poor connection with the instrument.

△ 如果电池组合的连接点弄脏,使用前应用干布抹净,否则可能会因接触不良而影响性能失效.

Be aware discharged battery may cause fire or smoke, tape the terminals to insulate them.

△ 废弃之电池应用绝缘纸包住电极,以防起火, 冒烟.

The pack should be stored at room temperature, charged to about 40% to 60% of capacity. In case of over-discharge, pack should be charged for one time every 3 months while storing and batteries should be discharge and charge after being stored more than a year in order to activate it and restore energy.

△电池组合应当在室温下存放，应充到 40%至 60%的电量。为防止电池过放，建议每 3 个月进行一次充电，如储存时间超过一年，建议每年进行一次充、放电以激活电池。

10. Handling of Cells 电池操作注意事项

10.1 Soft Aluminium foil（铝箔软包装）

Easily damaged by sharp edge parts such as pins and needles, Ni-tabs, comparing with metal- can-cased LIB.
相对于金属壳的方形电池，铝箔软包装比较容易被锐利部件刺损，如针尖、镍带。

△Don't strike battery with any sharp edge parts 勿用尖锐处撞击电池。

△Trim your nail or wear glove before taking battery 剪掉指甲，或者戴手套。

△Clean worktable to make sure no any sharp particle 清理工作台，避免尖锐零部件。

10.2 Sealed edge may be damaged by heat above 100°C, bend or fo ld sealed edge.
封边被加热到 100°C 以上以及弯折封边都容易使封边受损。

10.3 Prohibition short circuit（禁止电池短路）

Never make short pack circuit. It generates very high current which causes heating of the cells and may cause electrolyte leakage, gassing or explosion that are very dangerous. The LIP tabs may be easily short-circuited by putting them on conductive surface. Such outer short circuit may lead to heat generation and damage of the cell.

避免电池短路。短路会产生很高的电流而使电池发热以及电解液泄漏，产生气体或爆炸是非常危险的。极片连接在导电物体表面很容易短路，外部短路会导致发热及损害电池。

10.4 Mechanical shock（机械撞击）

△LIP cells have less mechanical endurance than metal-can-cased LIB.

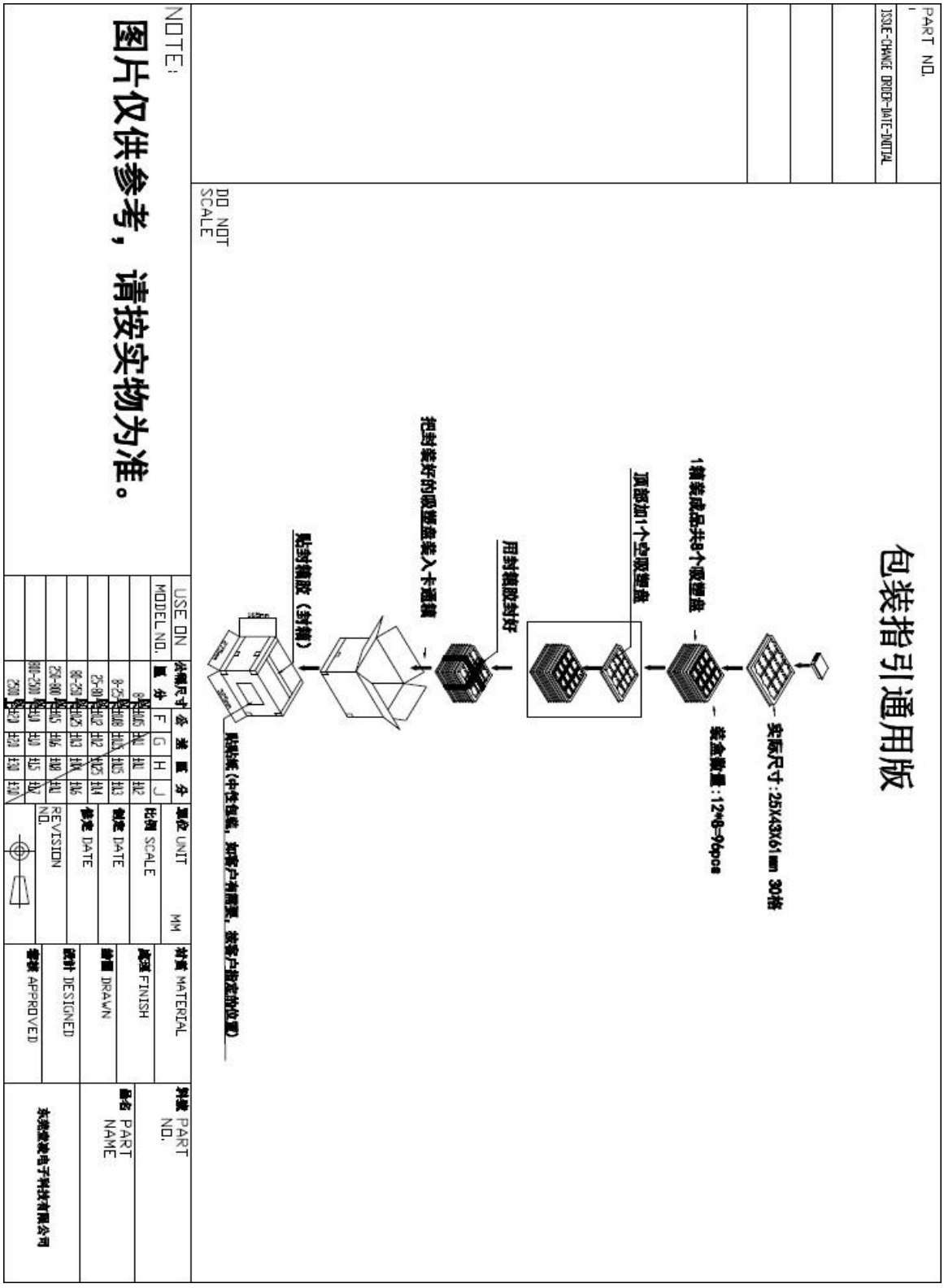
△Falling, hitting, bending, etc. may cause degradation of LIP characteristics.
聚合物电池比金属壳方形电池的机械耐久性更小。
跌落、碰撞、弯曲等等都可能会降低聚合物电池的性能。

11. Period of Warranty 保质期

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

电池的保质期从出货之日算起为一年。如果证明电池的缺陷是在我们公司制造过程中造成的而不是客户滥用或错误使用造成，本公司负责退换电池。

12. PACK (包装方式)


包装指引通用版
实际尺寸:25X43X61mm 30格
装盒数量:12*8=96pcs
1格装成品共8个吸塑盘
顶部加1个空吸塑盘
用封箱胶封好
把封装好的吸塑盘装入卡通箱
贴封箱胶（封箱）
NOTE:
图片仅供参考，请按实物为准。
DO NOT SCALE
USE ON
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PART NO.
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