文受件控

SUNWODA 欣旺达

SPECIFICATION

电池规格书

记录代码：F-SUN0-10.2.7/A2

CONFIDENTIAL

Model Name：	**N618**
Sunwoda Part No.	**1001000019291**
Description：	OSL-525575P 2460mAh

欣旺达电子股份有限公司
Sunwoda Electronic CO.,LTD.

Address： Building C，Tongfukang Shuitian Industrual Zone，Shuitian Community，Shiyan Street，Baoan District，Shenzhen

地址: 深圳市宝安区石岩街道水田社区同富康水田工业区 C 栋

TEL:+86-755-27623775 FAX:+86-755-29517078

E.E	Checked	Approval
研发中心 2011.11.21 沈云	电池研发部 2011.11.22 毛立文	研发中心 2011.11.22 李武岐

Table of Content

目录

1. Revision History／版本更改记录

No./序号	Date/日期	Revision/版本	Remark/备注
1	2011-11-21	A0	最初版本
2			
3			
4			

2. Application Scope／适用范围

The specification describes the requirements for lithium-ion battery pack supplied by Sunwoda Electronic CO.LTD.
本规范适用于欣旺达电子股份有限公司设计的锂电池技术规范。

3. Typical Parameters/主要参数

3.1 Cell Main Characteristics/电芯特性

Label Model /商标型号	Nominal Voltage /额定电压	Cell Maker /电芯制造商	Cell Model /电芯型号	Cell Nominal Capacity /电芯标称容量
N618	3.7V	海太阳	OSL-525575P	2460mAh

3.2 Battery Pack Electrical Characteristics/电池特性

NO./序号	Items/事项	Specification/参数规格	Remarks/备注
1	Charge voltage /充电电压	4.20V	
2	Nominal voltage /标称电压	3.70V	
3	Nominal capacity /电池标称容量	2350mAh	
4	Internal resistance of battery /电池内阻	≤180mΩ	
5	Cycle life /循环寿命	≥300 Cycles(Retention: ≥80%)	
6	Standard charge current /标准充电电流	0.2C	
7	Maximum charge current /最大充电电流	0.5C	
8	Standard discharge current /标准放电电流	0.2C	
9	Maximum discharge current /最大放电电流	0.5C	

10	Discharge cut-off voltage /放电截止电压	3.0V		
11	ESD static test /静电测试	air discharge ±15KV contact discharge ±8KV		
12	Storage temperature /存储温度	Less than 1 month	-20°C ~ 45°C	
		Less than 6 month	-20°C ~ 35°C	
13	Operation temperature /工作温度	Charge	15°C ~50°C	
		Discharge	-20°C ~60°C	

4. PCM Specification/PCM 规格

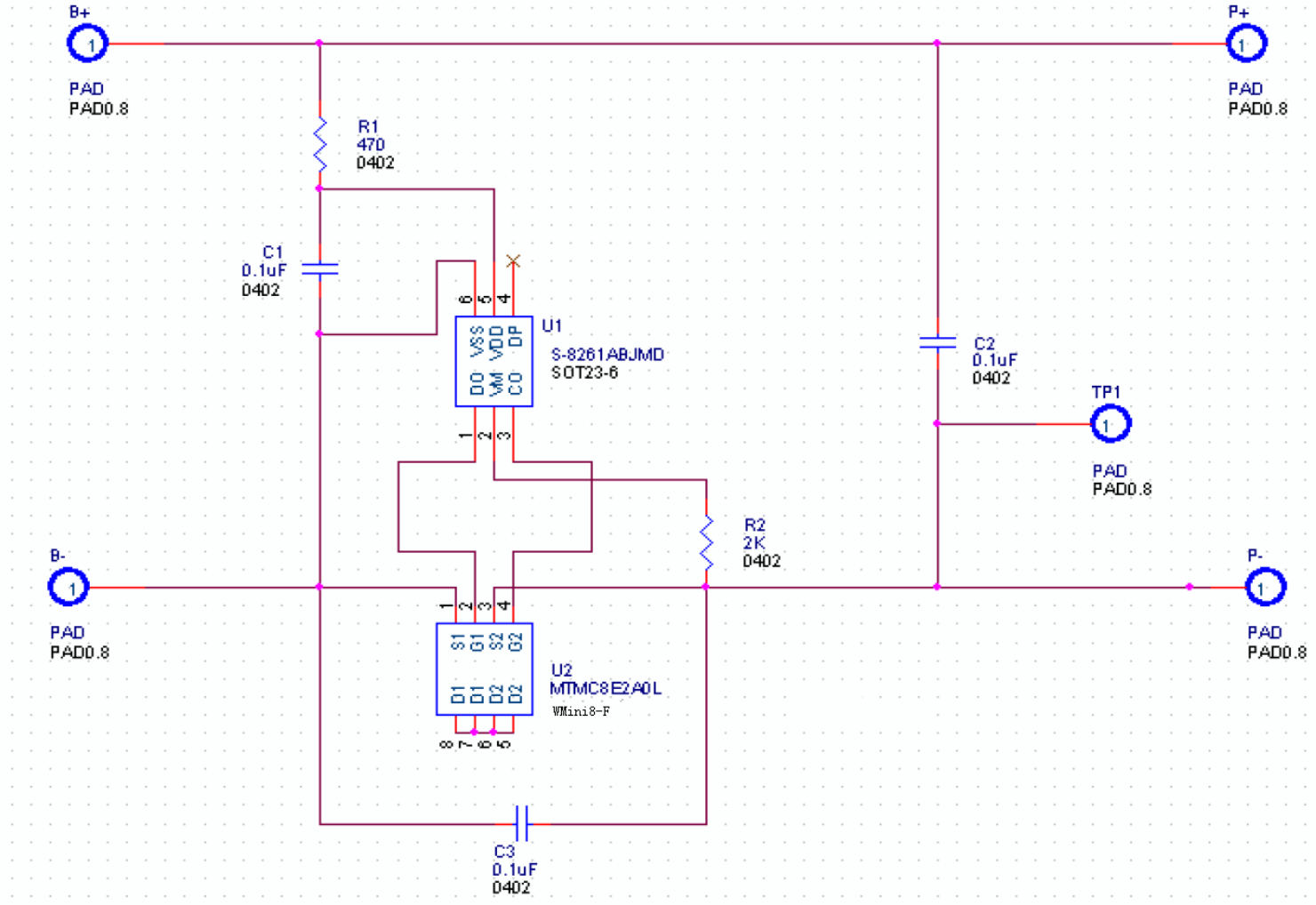
4.1 PCM Electrical Characteristics（at 25℃）/保护板电气性能（at 25℃）

NO./序号	Items/事项		Unit. /单位	Min. /最小值	Typ. /典型值	Max. /最大值	Remarks/备注
1	Over charge protection voltage /过充保护电压		V	4.23	4.28	4.33	
2	Over charge release voltage /过充恢复电压		V	4.05	4.10	4.15	
3	Over discharge protection voltage /过放保护电压		V	2.90	3.0	3.10	
4	Over discharge release voltage /过放恢复电压		V	2.90	3.0	3.10	
5	Over current protection testing values /过流保护测试值		A	1.0		3.0	
6	Delay time for over charge protection /过充电保护延时		ms	960	1200	1400	
7	Delay time for over discharge protection /过放电保护延时		ms	115	144	173	
8	Delay time for over current protection /过电流保护延时		ms	7.2	9	11	
9	Delay time for short circuit protection /短路保护延时		us	220	320	380	
10	Power consumption of protection circuit /保护电路功率消耗	Power down /休眠模式	uA			0.1	
		Operation /动作模式	uA	1.0	3.5	7.0	
11	NTC thermistor value / NTC 电阻值		Ω	/			
12	ID 电阻 ID resistance value		Ω	/			

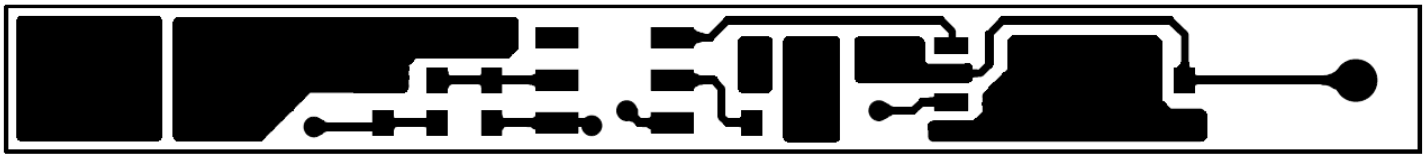
4.2 Parts List /元器件清单

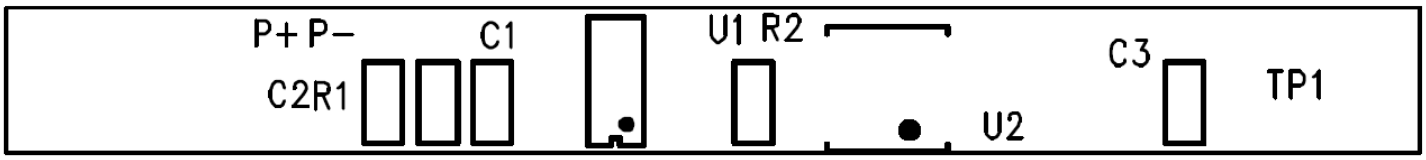
Symbol/代码	Parts name/部件名称	Description/描述	Qty/数量	Manufacturer/制造商
R1	电阻	470Ω±5% 1/16W 0402SMD 无卤 环保	1PCS	国巨
R2	电阻	电阻 2KΩ 1/16W ±5% 0402 环保	1 PCS	国巨
C1/C2/C3	电容	电容 X7R 0.1UF 16V ±10% 0402 环保/无卤/村田/UL	3 PCS	村田
U1	IC	IC S-8261ABJMD SOT-23-6 环保/精工	1 PCS	精工
U2	MOS	MTMC8E2A0LBF WMini8-F 无卤 环保	1 PCS	Panasonic
U2	MOS 替代料	ECH8601M 环保 无卤 SANYO	1 PCS	SANYO
	PCB	汉王 N618-MARS PCB A 2L ≥0.015um 绿油环保	1 PCS	
	PCB 半成品	汉王 N618-MARS PCB 半成品 环保	1 PCS	
	锡膏	同方锡膏 每罐 500 克环保无卤	0.03g	

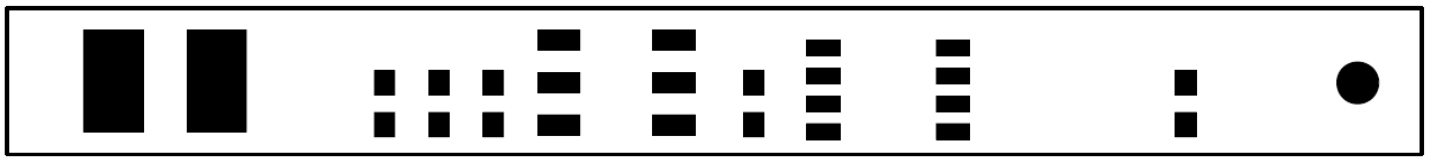
4.3 Circuit Diagram /电路原理图



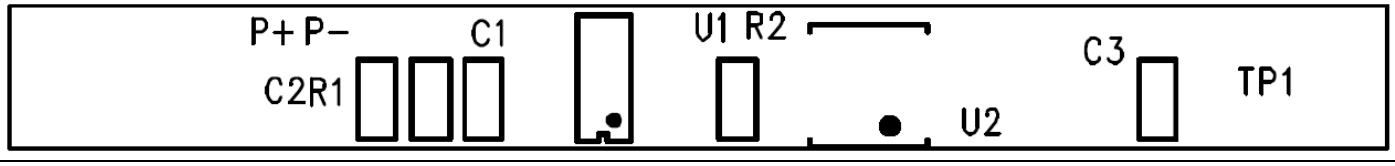
4.4 PCB Layout /PCB 层面图







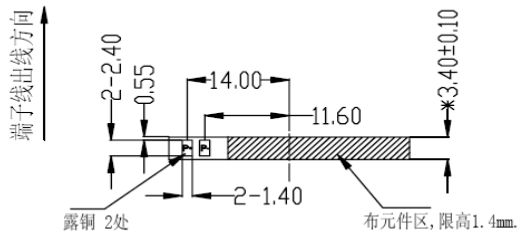
4.5 Component Assembly Diagram /元器件安装图

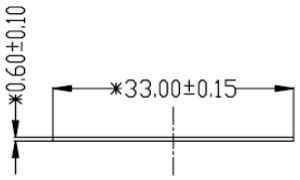


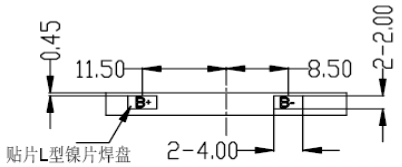
4.6 Appearance And Dimension Figure Of The PCB (Unit: mm)/PCB 外观和尺寸图(单位:毫米)

NOTE:
1、带*尺寸量产管控尺寸，要求CPK>1.33;
2、产品符合HSF要求;

VER.	MARK	DESCRIPTION	SIGNATURE	DATE
A0		FIRST DESIGN RELEASE		







此面除镍片外，禁止摆放其它元件.

		N618 (Mars)	PART NAME PCB DRAWING	TOOL CODE	MOLD CAV.	PART CODE		
		DRAWING			CAD FILE NAME			
		DESIGN			QUANTITY	1	UNIT	mm
		AUDIT			WEIGHT	XXXXX	PAPER	A4
		APPROVAL			SCALE	1:1	SHEET	1 of 1
		MATERIAL		SUNWODA Electronic Co.,Ltd.				
DIM SCOPE	TOLERANCE	TEXTURE						

VERSION A0

5. Description Of Mechanical Characteristics /机械特性描述

5.1 Weight /重量: (TBD)g

5.2 Battery Assembly Diagram /电池装配图

TBD

5.4. Appearance Requirements And Dimension Figure(Unit: mm)/外观要求和尺寸描绘(单位:毫米)

TBD

5.5 Label Figure /商标图

TBD

5.6 Packaging Diagram And Plastic Tray Dimension. /包装图和尺寸

TBD

6. Test Protocol /测试协议

6.1 General Test /常规测试

Items/项目	Conditions/测试条件	Criteria/判定标准
0.2C Capacity / 0.2C 放电容量	Discharge with 0.2C at (20℃±5℃) down to 3.0V, rest of 30 minutes， then charge at 0.5C/4.2V CC/CV mode until I≤0.01C. After rest of 30 minutes, discharge at 0.2C down to 3.0V. /以 0.2C 放电至 3.0V,然后静置 30 分钟，以 0.5C/4.2V 恒流恒压模式直至充电电流 0.01C。静置 30 分钟后，以 0.2C 放电至 3.0V。	The test may be repeated 5 times, if the discharge time ≥300mins in any time, then the capacity of the battery is ensured. /上述试验可以重复循环 5 次，当循环过程中有一次电池放电时间不小于 300 分钟，试验时取该次放电容量。
Storage Characteristic /荷电保持	Discharge at 0.2C down to 3.0V, rest of 30 minutes, then charge at 0.2C/4.2V CC/CV mode until I≤0.01C. Store the battery at（20±5）℃, 28 days, then discharge at 0.2C down to 3.0V. /以 0.2C 放电至 3.0V。静置 30 分钟。以 0.2C/4.2V 恒流恒压模式直至充电电流≤/0.01C。在+25°C 下,将电池开路搁置 28 天,以 0.2C 放电至 3.0V。	The discharge time must≥255mins. /其放电时间应不低于 255 分钟。
Discharge Behavior Under Low Temperature/低温放电试验	Charge in this way under (20±5)℃: charge at 0.2C until the voltage reaches 4.20V, then charge under a constant 4.20V, until the current ≤0.01C. Then let the battery stay at (-10±2)℃ for 24h and then discharge at 0.2C until the voltage drops to 3.0V, then stay at (20±5)℃ for 2h. /在环境温度为(20±5)℃的条件下，充电电源以 0.2C 电流恒流充电，直至电池电压达到 4.20V，然后改为恒压充电式充电直至电流低于 0.01C 终止。再将电池放入(-10±2)℃的低温箱中恒温 24h，然后以 0.2C 电流恒流放电至 3.0V，将电池取出放在(20±5)℃环温下搁置 2h。	The discharge time must ≥210min, and the battery must have no distortion, no explosion. /放电时间应不少于 210 分钟，外观应无变形、无爆裂。
Internal Resistance Testing /内阻值测定	Using a AC 1KHZ meter whose precision must be less than 0.5%, detect the resistance between the battery's positive and negative terminals. The result value can not include any external conductor's resistance. The maximum and the minimum need to be recorded. /使用 AC 1KHz 检测方法及准确度不低于 0.5 级的仪表，测量电池接口处正负极之间的内阻值，若检测仪表在检测过程中使用附加的电池固定夹具和引线，可以视情况减去固定引线的电阻值，且记录最大与最小之差值。	The internal resistance ≤180 mΩ。/电池内阻值小于 180mΩ.
Cycle Life／循环寿命	Charge at 0.5C at (20±5)℃ until the battery's voltage up to 4.20v, then charge under this constant voltage until the current ≤20mA. Rest of 0.5h ~ 1h. Then discharge at 0.5C, until the battery's voltage drops to 3.0V. Rest of 0.5h ~ 1h. Then begin with next cycle. /在(20±5)℃的条件下，以 0.5C 恒流充电，当电池端电压达到(4.2V)时，改为恒电压充电，直到充电电流小于或等于 20mA，停止充电，搁置 0.5h ~ 1h，然后以 0.5C 电流恒流放电至终止电压 3.0V。放电结束后，搁置 0.5h ~ 1h，再进行下一个充	Cycle life must ≥300cycles. retention capacity ≥80% of the initial. /循环寿命不少于 300 次,剩余容量≥80%初始容量。

	放电循环。	

6.2 Safety Performance Test／安全性能试验(20℃±5℃)

Items/项目	Conditions/测试条件	Criteria/判定标准
Over Charge Protection/过充电保护性能	Charge in this way under (20±5)℃: charge at 1C until the voltage reaches 4.20V, then charge under a constant 4.20V, until the current ≤0.01C. Then charge the battery for 8h with a power which can provide two times nominal voltage of the battery and 2C current. The over charge protection function should work. /在环境温度为(20±5)℃的条件下，充电电源以 1C 电流恒流充电，直至电池电压达到 4.20V，然后改为恒压充电式充电直至电流低于 0.01C 终止。再用电压为 2 倍标称电压，可输出电流为 2C 的电流的外接电源持续给电池加载 8h，电池应启动过充电保护功能。	The battery must has no explosion, no fire , no smoking and no leakage. /电池应不爆炸、不起火、不冒烟或漏液。
Over Discharge Protection/过放电保护性能	Discharge in this way under (20±5)℃: Discharge at 0.2C at（20±5）℃ until the battery voltage drops to the over discharge voltage , then discharge through a 30Ω resister for 24h. The over discharge protection function should work. /在环境温度（20±5）℃的条件下，以 0.2C 恒流放电至过放电保护电压后，外接 30Ω 负载放电 24h，电池应启动过放电保护功能。	The battery must has no explosion, no fire , no smoking and no leakage. /电池应不爆炸、不起火、不冒烟或漏液。
Short Circuit Protection/短路保护性能	Fully charging the battery, discharge through a 0.1Ω resistor for 8h. Then charge at 0.5C for 5s, observe the battery's appearance. /电池按规定充电结束后，将正负极用 0.1Ω 电阻短路 1h 后,目测电池外观。将正负极连接电阻断开,电池以 0.5C 恒流瞬时充电 5S 后用电压表测量电池开路电压。	The battery has no explosion, no fire, no smoking and no leakage. And the voltage of the battery should be ≥3.6V./电池应不爆炸、不起火、不冒烟或不漏液；电池电压应不小 3.6V。
Drop Impact /重物冲击	Place the battery on a flat surface. A diameter bar is to be placed across the center of the battery. Drop a10kg weight from a height of 1m onto the sample. /电池放置于冲击台上，将 10kg 重锤自 1m 高度自由落下，冲击已固定在夹具中的电池（电池的面积最大的面应与台面垂直）	The battery has no fire, no explode. /电池不起火，不爆炸。
Thermal Shock /热冲击	After fully charged，the battery be placed into the thermostatic oven. Then the temperature will raise to 130±2℃ at the speed of (5±2℃)/min for 30 minutes. /完全充电后，将电池放于热箱中，温度以（5±2℃）/min 的速率升至 130±2℃并保温 30min。	The battery has no explosion, no fire. /电池不爆炸，不起火。

6.3 Environmental Test /环境测试

Items/项目	Conditions/测试条件	Criteria/判定标准
Vibration Test /振动测试	Procedure: Fix the fully charged battery on the vibration table. Adjust the instrument as follows. There are 3 directions: X, Y, Z. In each direction, the battery should be vibrated for 30min	The battery has no distortion, no leakage, no smoking and no explosion. And the voltage

	from 10Hz to 55Hz. Frequency sweeping rate:1Hz/min; Vibrating frequency: 10Hz ~ 30 Hz; Movement amplitude(mono- amplitude): 0.38mm; Vibrating frequency: 30Hz ~ 55 Hz; Movement amplitude(mono- amplitude): 0.19mm. /程序：完全充电结束后，将电池固定在振动台上，按下面的振动频率和对应的振幅调整好试验设备，X、Y、Z 三个方向每个方向上从(10-55)Hz 循环扫频振动 30min 扫频速度：1Hz/min; 振动频率：10Hz ~ 30 Hz　位移幅值（单振幅）：0.38mm 振动频率：30Hz ~ 55 Hz　位移幅值（单振幅）：0.19mm	shall be ≥3.60V. /电池外观应无明显损伤、漏液、冒烟或爆炸，电池开路电压应不小于 3.60V。
Impact test／碰撞测试	The battery is impacted 1000±10 times at x/y/z direction on fixed table, with acceleration 100m/s*2 40-80 per minute and the pulse time 16ms. /将电池平均按 X、Y、Z 三个互相垂直轴向直接或通过夹具坚固在台面上，按下述要求调好加速度、脉冲持续时间进行碰撞实验。脉冲峰值加速度：100m/s*2；每分钟碰撞次数 40—80；脉冲持续时间：16ms；碰撞次数：1000±10。	The battery has no rupture, no leakage, no smoking and no explosion. And the voltage shall be ≥3.60V. /电池外观应无明显损伤、漏液、冒烟或爆炸，电池开路电压应不小于 3.60V。
Storage /存储	Procedure: (1)The battery production date is no more than 3 months and is charged 1/2 of fully capacity ,the voltage is (3.75 ~ 3.85)V ;(2)storage temperature is（20±5）℃,and the relative humidity is 45% ~ 85%.(3) The storage life is 12 months. After the expiry of the storage life, discharge the fully charged battery with 0.2C to 3.0V. /进行存储试验的电池生产日期不大于 3 个月,存储前充电至半满状态(电压：3.75V ~ 3.85V),环境温度为（20±5）℃,相对湿度为 45% ~ 85%,存储期为 12 个月。储存期满后，经完全充电后，0.2C5 放电至 3.0V。	Discharge time ≥4h 放电时间不小于 4 小时
ESD Testing / 静电测试	ESD testing shall be performed as per IEC 61000-4-2. Battery shall be subjected to ±8kV contact discharge at each of the contacts and ±15kV air discharge at each pack corner, up to a maximum of 10 discharges per location. ESD 测试要参照 IEC 61000-4-2 完成.，将电池在±8kV 条件下接触放电和在±15kV 条件下空气中放电，10 次放电的最大值。	Manual intervention to reset function allowed but no permanent loss of any function and no catastrophic failures are allowed. 允许手动复位功能，但是不允许有任何功能永久的损坏。

7. Applicable Standards/引用标准

"General specification of lithium-ion battery for cellular phone"　GB/T 18287—2000
蜂窝电话用锂离子电池总规范　GB/T 18287—2000

8. Cautions And Warnings/注意事项与警告

8.1 Cautions /注意事项

8.1.1 Before using the batteries, carefully read the service manual and the identification on the surface of the batteries.
使用电池前，请仔细阅读电池服务手册。

8.1.2 Children should not be allowed to play with them.
避免儿童玩弄电池。

8.1.3 The batteries should only be charged with a matching charger.
本电池只能使用配套充电器充电。

8.1.4 When the batteries are not be used for a long time, please store them safely so that they will stay in a half-charged state. Please wrap the batteries with non-conductive materials in order that metallic materials will not contact the batteries directly, which may result in damage to the batteries. Keep the batteries in a cool and dry place.
长期不用时，请将电池储存完好，让电池处于半荷电状态。请用不导电材料包裹电池，以避免金属直接接触电池，造成电池损坏，将电池保存阴凉干燥处。

8.1.5 The warranty period is half one year from the date of ex-factory. However, the manufacturer will not replace the battery free of charge even in the warranty period if the problem with the battery results from misuse rather than bad quality.
质保期是自出厂之日起半年内。属于使用不当而非质量问题的，即使在质保期内，生产厂家也不会无偿更换新电池。

8.2 Warnings /警告

8.2.1 During their use, the batteries should be kept away from heat sources and high voltages..
在使用过程中，电池应远离热源、高压。

8.2.2 Don't disassemble or assemble the batteries by yourself.
切勿私自拆装电池。

8.2.3 Do not short circuit the positive and negative poles of the battery with metal and do not store or move the batteries together with metal sheets either.
不要将电池的正负极用金属连接，也不要将电池与金属片放在一起存储和移动。

8.2.4 Do not heat and burn of the batteries, throwing them in fire.
严禁加热和焚烧电池，将电池投入火中。

8.2.5 Damping of the battery is prohibited
禁止弄湿电池。

8.2.6 Avoid to charge battery near a fire source or in direct sunlight
避免在火源附近或阳光直射下充电

8.2.7 The battery should not be damaged by means of methods like knocking metallic things into the battery, hammering the battery, knocking it violent or etc.
禁止用金属凿入电池、锤打或摔打电池或其他方法破坏电池。

8.2.8 Welding is not allowed to be conducted on the battery
禁止在电池上直接焊。

8.2.9 Don't directly contact with the leaking battery.
不要直接触及漏液电池。

9. Remarks/备注

9.1 What has been mentioned above can be regarded as the conventional framework between the supplying and requisitioning parties in respect to the product performance and examination rule of the battery.
上述内容可以作为供需双方对于电池产品性能和检验规则的约定框架

9.2 Use of the information described herein for other purposes and/or reproduction or copying without the express permission of Sunwoda is strictly prohibited.
本资料内容未经本公司许可，严禁以其他目的加以转载或复制等。

9.3 If a use of this product caused a dispute concerning the industrial property of a third party, we are not responsible for any disputes other than those which are directly concerned with the manufacturing and manufacturing of our

products.

如果使用本产品涉及第三方工业产权的纠纷，除直接与我司生产和制造方法相关产品外，其余概不负任何责任。

9.4 No responsibility is assumed by us for any consequence resulting from any wrong or improper use of operation, etc. of the product.

如因误操作或者不正当使用等造成的相关后果，我司不负任何责任。