深圳市驰普电子科技有限公司 Shenzhen CTECHI Electronic Technology Ltd.
深圳市驰普科达科技有限公司 Shenzhen CPKD Technology Ltd.
深圳市南山区南山大道 1088 号南园枫叶大厦 7L
7L, Maple Plaza, #1088, Nanshan Avenue, Nanshan District, Shenzhen, PRC
深圳市宝安区燕罗街道燕川社区红湖东路嘉达工业园 5 栋 6-8 层
F6-8, Building 5, Jiada Industrial Park, Honghu East Road, Yanchuan Community, Yanluo Street, Baoan, Shenzhen City, PRC
全国客服热线：400-90-18650　Oversea Call：+86 755-8258-1455
网址/Web：www.ctechibattery.com/　www.ctechigroup.com/　www.ctechigroup.cn/　www.szcpkd.com/

CT-1P1S18500 Battery Pack Spec
电池包规格书

Model：
型 号: CT-1P1S18500

Cell Configuration:
客户代码: C10029

Customer P/N:
客户型号：

Nominal Voltage:
标称电压: 3.7V

Capacity:
容量: 2000mAh

Draft 起草	Checking 审核	Approved 批准	Customer Confirmation 客户确认
Helen			

Revision History 版本记录

Revision 版本	Date 日期	Editor 编著	Contents 内容
A0	2021-07-09	Helen	Draft
A1	2021-07-19	Helen	修改放电截止电压、快速充放电电流。

目录

1. Application 应用

T.B.D.

2. Basic Information 基本信息

Description 描述: Rechargeable Lithium ion battery pack 可充锂离子电池包
Cell Type 电芯: 18500
Chemistry 化学成份: Lithium ion 锂离子
Cell configuration 电芯配置: 1P1S

3. Specification 产品规格

NO. 序号	Item 项目	Specifications 规格要求
1	Typical Capacity 典型容量	2000mAh @ 0.2C Discharge (0.2C 放电)
	Minimum capacity 最小容量	1970mAh @ 0.2C Discharge (0.2C 放电)
2	Nominal voltage 标称电压	3.7V
3	Standard Charge 标准充电	CC/CV,0.2C5A, 4.20V
4	Standard Discharge 标准放电	CC,0.2C5A, 3.00V
5	End-of-charge Voltage 充电截止电压	4.20V±0.05V
6	End-of-charge Current 充电截止电流	0.02C5A （At CV mode）
7	End-of-discharge Voltage 放电截止电压	2.75V
8	Charging Time 充电时间	8.0hours（standard charge） 8 小时
9	Quick Charge Current 快速充电电流	1000mA （0.5.0C5rate） 0.5C 充电
10	Quick Discharge Current 快速放电电流	2000mA （1.0C5rate） 1C 放电
11	Maximum instantaneous pulse discharge current 最大瞬间脉冲放电电流	6000mA （3.0C5rate） 3C 放电
12	Initial Impedance 初始内阻	Max:55mΩ
13	Weight 重量	Approx(约)：35.5±2g
14	Operating temperature 工作温度	Charging(充电)： 0℃~45℃ Discharging(放电)：-20~60℃
15	Storage temperature 储存温度	-5℃~35℃
16	Storage Humidity 储存湿度	≤75% RH
17	Appearance 外观	Without scratch, distortion, contamination and leakage(无划痕、变形、污迹、电解液泄露)

18	Standard environmental condition 标准环境	Temperature(温度) ： 25±2℃ Humidity（湿度） ： 45-75%RH Atmospheric Pressure（大气压） ： 86-106 KPA
19	Temperature Dependence of Discharge Capacity 放电容量与温度的相互关系 @ 0.2C Discharge (0.2C 放电)	

Charge temperature	Discharge temperature				
25℃	-10℃	0℃	15℃	25℃	40℃
Relative Capacity	50%	80%	90%	100%	100%

4. General Performance 常规性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
1	0.2C Capacity 0.2C 容量	After standard charging, rest battery for 10min, then discharging at 0.2C to voltage 2.75V, recording the dischargingtime. 标准充饱电后,搁置 10 分钟,然后用 0.2C 电流放电至 2.75V, 所记录放电时间	≥300min
2	Cycle Life 循环寿命	Constant current 0.5C charge to 4.2V, then constant voltage charge to current declines to 0.01C, rest 10min ， constant current 0.5C discharge to 2.75V ， rest 10min. Repeat above steps till continuously discharging capacity Higher than 80% of the Initial Capacities of the Cells 先用 0.5 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 0.5C 电流放电至 2.75V;又搁置 10 分钟,重复以上步骤,直到放电容量是初始容量的 80%	≥300 times(次)
3	Capability of keeping electricity 荷电保持能力	20±5℃, After standard charging, rest the battery 28days, discharging at 0.2C to voltage 2.75V, recording the dischargingtime. 在 20±5℃状态下,标准充饱电后,电芯搁置 28 天,然后用 0.2C 放电至 2.75V,所记录放电时间.	≥240min

5. Environment Performance 环境性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
1	Discharge at high temperature 高温放电	After standard charging, rest the cells 4h at 60 ± 2 ℃ , then discharging at 1C to voltage 2.75V, recording the discharging time. 标准充电后，在 60±2℃条件下贮存 4h，然后用 1C 放电至 2.75V,所记录放电时间.	≥54min
2	Discharge at low temperature 低温放电	After standard charging, rest the cells for 16h at -20±2℃, then discharging at 0.2C to voltage 2.75V, recording the discharging time. 标准充电后，在-20±2℃条件下贮存 16h，然后用 0.2C 放电至 2.75V,所记录放电时间.	≥210min
3	Thermal shock 热冲击	Put the cells in the oven. The temperature of the oven is to be raised at 5±2℃ per minute to a temperature of 130±2℃ and remains 30 minutes. 将电池放进烘箱内， 以 5±2℃/min 速度升高烘箱内温度至 130±2℃后,恒温 30min.	No fire or explosion 不起火,不爆炸

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
1	Over charge testing 过充测试	At 20 ± 5 ℃, charging cells with constant current 2C to voltage 5.0V, Stop test till cells temperature 10 ℃ lower than max temperature. 在 20±5℃状态下,电池用2C 电流充电至5.0V,监视电池温度变化,当电池温度下降一峰值低约 10℃时,停止实验.	No fire or explosion 不起火,不爆炸
2	Over discharge testing 过放测试	At 20 ± 5 ℃, According to the requirements of standard charge, the cells will be discharge to cut-off voltage, then The discharged cell is then subjected to a forced discharge at constant current 1C to -4.2V. The total duration for the forced discharge testing is 90 min. 在 20±5℃状态下， 按标准放电的要求放电至终止电压后，然后以 1C 电流强制放电至-4.2V,持续强制放电 90 分钟	No fire or explosion 不起火,不爆炸
	Short-circuit	At 55±5℃, After standard charging, connect cells anode and cathode by wire which impedance less than 80±20mΩ, The cell remains on test for 24 h or until the surface	

3	testing 短路测试	temperature declines by 20 % of the maximum temperature rise, whichever is the sooner. 在55±5℃状态下,标准充电后,将电池的正负极用一根小于80±20mΩ的导线连接,放置 24 小时或电池显示温度是最高温升的 20%。	No fire or explosion 不起火,不爆炸

※ 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. Certification 认证

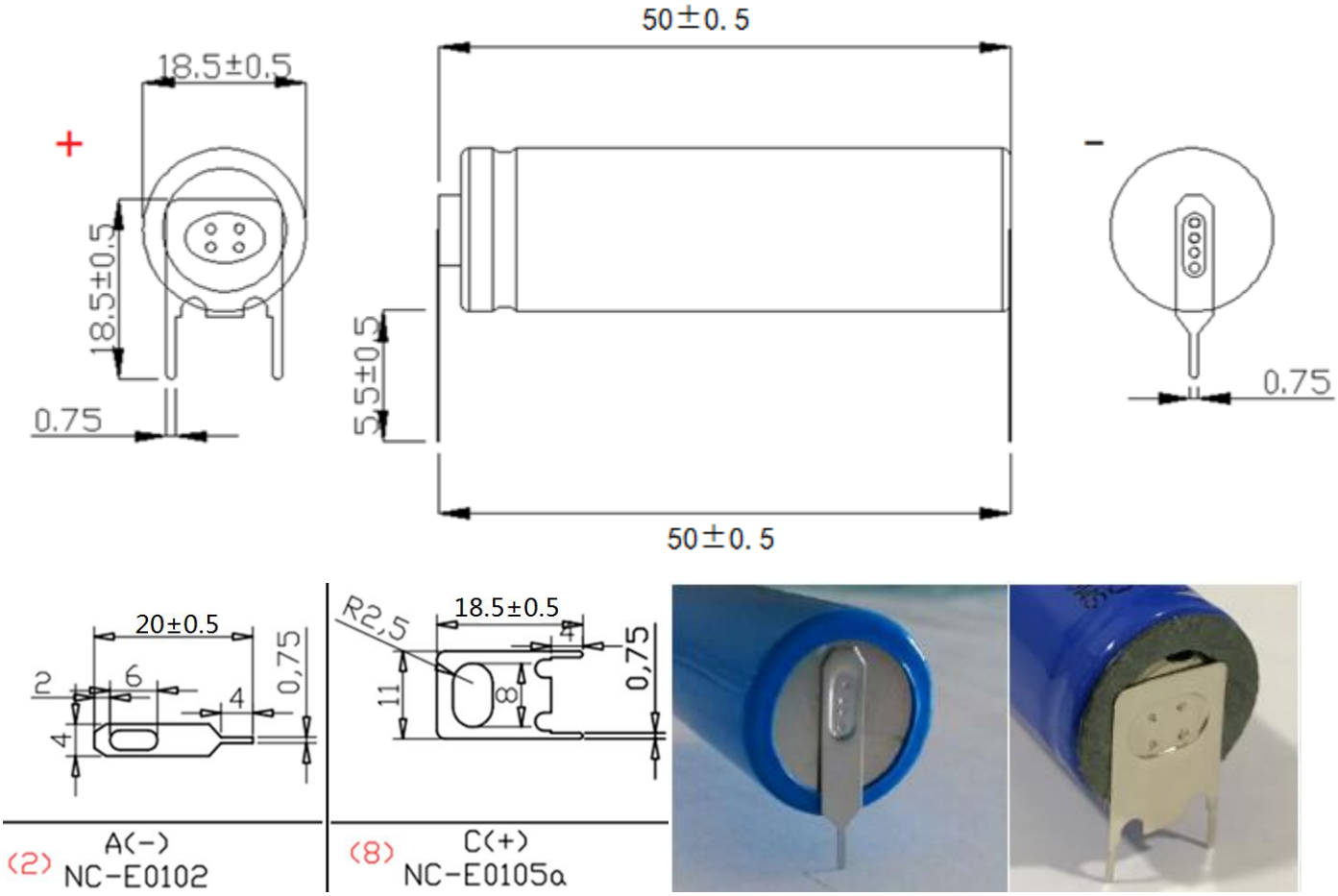
T.B.D.

8. Mechanical Information 结构信息

8.1. Sample Picture 样品照

T.B.D.

8.2. Outline 外框信息



8.3. Pack Assemble 电池包组装要求

正极加青稞纸，外包蓝色 PVC，正负极各 4 个焊点。

Positive with insulation paper; Shrink with blue PVC; 4 welding spots on each pin.

8.4. Drawing of Label 标签图

印字方式：丝印。（特别留意：印字一面与出片方向相反）

印字内容如下：

SMART WATER TECHNOLOGY

+ CODE:CT-1P1S18500 2000MAH–

DATE:YY-MM BATCH:XXXXXXXX

日期根据出货时间更改，YY 为年，MM 为月，如 21-07（2021 年 07 月）

订单号随客户订单号更改，如 AB004771

8.5. Packing 包装信息

泡沫包装，单独卡槽

外箱硬朗、无切割、无不相关标签（如快递单）

每箱标签注明型号、数量、重量、PI、箱号/总箱数，贴于纸箱右上角

每箱不超 10KG

9. Caution and prohibition 注意事项

Before using and handling the pack, see carefully attached “Handling Instruction for Rechargeable Lithium ion battery Pack”. 在使用和处理包装之前，请参阅“可充电锂离子电池包的处理说明书”。

For safety reasons rechargeable batteries are not shipped in a low remaining capacity state. Charge before using.

为了安全起见，可充电电池禁止在低剩余容量状态下运输。 使用前请充电。

Do not connect multiple battery packs as parallel or serials for using. This might damage the battery pack, even your equipment’s.

请勿将多个电池组并联或串联使用。这可能会损坏电池组，甚至您的设备。

10. Warranty 保修

Manufacturer will be responsible for replacing the battery pack against defects or poor workmanship for 12 months from the date of shipping. Any other problem caused by malfunction of the equipment or misuse of the battery is battery is not covered under this warranty.

电池包从发货之日起 12 个月内出现缺陷或做工不佳等问题由厂商负责更换。 任何由于设备故障或使用不当造成的问题，不在本保修范围之内。

11. Handling Instruction Guide for Li-ion Battery Pack 锂离子电池包使用说明书

11.1. General 总括

Battery packs supplied by CTECHI or CPKD have to be handle carefully according to the specification. Here are some more to be followed.

CTECHI 或 CPKD 提供的电池包必须根据规格书正确使用。 如下：

11.2. Storage of pack 电池组的储存

The packs are requested to be stored under the following conditions: 电池包请按以下条件下储存：

a. Indoor storage in a cool circumstances without direct sun light on the packs or cartons.

存放在室内阴凉的处，禁止阳光暴晒。

b. Store batteries in a dry location with low humidity, and a temperature range of - 20 ℃ to +30 ℃. In case of the long term storage.

长期存放的情况下，需将电池放在干燥（湿度低）的地方，温度范围为-20° C 至+ 30°

c. As long-term storage can accelerate battery self-discharge and lead to the deactivation of the batteries. To minimize the deactivation effect, store battery packs in a temperature range of +10 ℃ to +30 ℃.

由于长期存储会加速电池自放电并导致电池的停用。 为了最大限度地减少电池消耗，请将电池包放在+ 10° C 至+ 30° C 的温度范围内。

d. When charging for the first time after long-term storage, deactivation of the packs may have led to decreased capacity. Recover such packs to original performance through repeating several cycles of full charging and discharging.

长时间储存后首次充电时，电池包的停用可能导致容量降低。 通过重复几次完全充电和放电循环，将这些电池包恢复到原始性能。

e. When store packs for more than 6 month, charge at least once charring require per 6 months to prevent leakage and deterioration in performance due to self-discharging.

当电池包长期储存时，每 6 个月至少需要补电一次，以防止由于自放电而造成的泄漏和性能下降。

11.3. Charging pack 电池包充电

a. Use suitable charger with the specified voltage and current. We strongly recommend CTECH and CPKD smart battery charger. We can recommend the usage or specification of the charger manufacturing. If you want to get the information about it, please contact us.

使用指定电压和电流的合适充电器。 我们强烈推荐使用 CTECH 和 CPKD 智能电池充电器。 我们可以推荐充电器制造的规格和使用。 如果您想获取有关信息，请与我们联系。

b. Never attempt reverse charging. Charring with polarity reversed can cause a reversal in battery polarity, causing gas pressure inside of the battery to rise, which can be lead to leakage of the batteries in the pack.

切勿尝试反向充电。 极性反转的充电可能导致电池极性反转，导致电池内部的气压升高，这可能导致电池中的电解液泄漏。

c. Avoid overcharging. Repeated overcharging can be lead to deterioration in pack performance. And Over-heat occurred.

避免过度充电。 重复过充可能导致包装性能下降。 导致电池过热。

d. Charging efficiency drops at temperatures above 40 ℃.

充电温度在 40° C 以上会导致充电效率下降。

11.4. Protection from unexpected damaged to pack 防止电池包意外损坏

a. (+) and/or (-) terminals must not be connected in metal wire, necklace, chains.

（+）正极和/或负极（ - ）端子不得连接在金属线，项链，链条中。

b. Do not drop packs from height in order to prevent them from possible malfunction or damage.

不要从高处抛掷电池包，以防止它们发生故障或损坏。

c. Do not twist or bend packs in order to prevent possible damage.

不要扭曲或弯曲电池包，以防止可能的损坏。

11.5. For Safety 安全条款

a. Do not disassemble packs. 不要拆卸电池包。

b. Do not use pack when something abnormal found such as smells, deformation, discoloration, and so on.

出现异常现象时，如气味，变形，变色等，请勿使用电池包。

d. Do not re-use Li-ion cells or other parts after removing from the packs.

从电池包中取出后，请勿重新使用锂离子电池或其他部件。

e. When the electrolyte leakage occurs, do not touch the liquid.

当发生电解液泄漏时，请勿接触液体。

f. Once watered, packs may have potential malfunctions. Do not use those packs.

一旦碰水，电池包可能有潜在的故障。 不要使用这些电池包。

g. Do not have packs in the hot-temperature (60℃ or more).

禁止在高温（60°C 或更高）下使用电池包。

h. Do not put packs into fire.

电池包禁止接触火源。

i. Do not crush/nail pack.

禁止碾压或钉子刺穿电池包

j. Do not apply solder directly to packs.

禁止将焊料直接焊在电池包上。