CHEAPE TECHNOLOGY INTERNATIONAL LTD

$LiSOCL_2$ Battery Specification

MODEL/型号: ER18505 S

1 Scope（适用范围）

This specification is applied to the reference battery in this Specification that manufactured by Cheape Technology International Ltd.

本说明书适用于本书中所提及的深圳驰普电子有限有限公司制造的电池。

2 roduct Specification（产品技术规格）

Table 1 (表 1)

No. (序号)	Item （项目）	General Parameter (常规参数)	Remark （备注）
1	Rated Capacity （额定容量）	3200mAh	Discharge to 2.0V 3mA （3mA 放电至 2.0V）
2	Nominal Voltage （正常电压）	3.6V	Mean Operation Voltage （即工作电压）
3	Voltage at end of Discharge （放电终止电压）	2.0V	Discharge Cut-off Voltage （放电截止电压）
4	Max dimension (最大尺寸)	ϕ18.5mm×H50.5mm	
5	Max weight (最大重量)	30g	
4	Standard discharge （标准放电）	Discharge to 2.0V 3mA （持续电流：3mA 截止电压：2.0V）	
5	Max constant discharge current (最大恒流放电电流)	80mA	

6	Max. pulse current (最大脉冲放电)	150mA	
7	Ambient temperature range (环境温度范围)	-20~ +125℃	
8	Storage life (贮存寿命)	≥10 year (≥10 年)	Yearly self-discharge ≤ 1% (年自放电≤1%)

3 Performance And Test Conditions (电池性能及测试条件)

3.1 Standard Test Conditions（标准测试条件）

Test should be conducted with new batteries within one week Unless otherwise specified, test and measurement shall be done under temperature of 20±5℃ 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℃ and humidity 25~85%RH.

3.2 Measuring Instrument or Apparatus（测量器具及设备）

3.2.1 Dimension Measuring Instrument（尺寸测量器具）

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.

3.2.2 Voltmeter（伏特计）

Standard class specified in the national standard or more sensitive class having inner impedance more than 10kΩ/V

3.2.3 Ammeter（安培计）

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω.

3.3.Standard Discharge（标准放电）：Cells shall be discharged at a constant current of 3mA to 2.0 volts @ 20º ± 5C（电池以 3mA 恒流放电至 2.0V @ 20º ± 5C）

3.4 Appearance（外观）：There shall be no such defect as flaw, crack, rust, leakage, which may adversely affect commercial value of battery.（电池外观应没有划伤、破裂、污渍、生锈、漏液等影响市场价值的缺陷存在）。

3.5 Initial Performance Test（初始性能测试）

Table 2（表 2）

Item （项目）	Test Method and Condition （测试方法及条件）	Requirements （要求）
(1) Open-Circuit Voltage （开路电压）	用直流电压表测量.	≥3.65V
(2) Minimal Rated Capacity (最小额定容量)	Discharge to 2.0V 3mA （3mA 放电至 2.0V）	Discharge Capacity （放电容量） ≥3200mAh
（3）Quickly Discharge Capacity （快速放电）	Discharge to 2.0V 33mA （33mA 放电至 2.0V）	Discharge Capacity （放电容量） ≥2300mAh

3.6 Temperature Dependence of discharge capacity（放电温度特性）

Cells shall be discharged per 3.3and discharged @3mA to 2.0 volts. Except to be discharged at temperatures per Table 3. Cells shall be stored for 2 hours at the test temperature prior to discharging and then shall be discharged at the test temperature. The capacity of a cell at each temperature shall be compared to the capacity achieved at 23 ºC and the percentage shall be calculated. Each cell shall meet or exceed the requirements of Table 3.

电池按 3.3.规定放电。按表 3 的温度中放电，电池必须先在该试验温度中放置 2 个小时。在每一个温度中的放电容量应不小于表 3 的要求。

Table 3 （表 3）

Discharge Temperature （放电温度）	-20℃	0 ℃	25℃	125℃
Discharge to 2.0V 3mA （3mA 放电至 2.0V）	35%	80%	100%	95%

4. Mechanical characteristics and Safety Test（安全测试及机械特性）

Table 5（表 5） (Mechanical characteristics)

No. (序号)	Items （项目）	Test Method and Condition （测试方法及条件）	Criteria （标准）
1	Vibration Test 振动测试	After standard charging, fixed the cell to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between 10Hz an 55Hz, the excursion of the vibration is 1.6mm. The cell shall be vibrated for 30 minutes per axis of XYZ axes. 将标准充电后的电芯固定在振动台上，沿 X、Y、Z 三个方向各振动 30 分钟，振幅 1.6mm，振动频率为 10Hz~55Hz，每分钟变化 1Hz。	No leakage 无泄漏 no weight loss 无失重 no short circuit 无短路 No fire 不起火 No explosion, 无爆炸
2	Altitude Simulation Test 高空摸拟	The batteries should be stored at the pressure of 11.6 K Pa or less for at least six hours at ambient temperature 20 ℃±2 ℃.	No leakage 无泄漏 no weight loss 无失重 no short circuit 无短路 No fire 不起火 No explosion, 无爆炸

Table 6（表 5 续） (Mechanical characteristics)

No. (序号)	Items （项目）	Test Method and Condition （测试方法及条件）	Criteria （标准）
3	Short Circuit （短路试验 20℃）	Each test sample battery, in turn, is to be short-circuited by connecting the (+) and (-) terminals of the battery with a Cu wire having a maximum resistance load of 0.1 Ω.Tests are to be conducted at room temperature(20±2℃). （在常温下约 20±2℃依次把每个样品电池的正负极用铜线连接起来使电池外部短路--线路总电阻不超过 0.1Ω）	No explosion 无爆炸 No fire 无起火

Impact （冲击试验）	A 56mm diameter bar is inlayed into the bottom of a 10kg weight. And the weight is to be dropped from a height of 1m onto a sample battery and then the bar will be across the center of the sample.（用一条直径为 56mm 的圆棒放置在电池中央，将一 10Kg 的重锤从 1m 的高度垂直落下在电池的中心位置）	No leakage 无泄漏 no short circuit 无短路 No fire 不起火 No explosion, 无爆炸
Free fall (跌落测试)	Fresh batteries; Height: 1m, 6 times; Each direction two times; Concrete floor(每个样品电池从 1.2 米高处自由落体测试 6 次。)	No leakage 无泄漏 no short circuit 无短路 No fire 不起火 No explosion, 无爆炸
Abnormal charging (异常充电)	Each test sample battery charge at a charging current of three times of the current I, specified by the manufacturer by connecting it in opposition to a dc-power supply. The test charging time is to be calculated using the formula:t=2.5C/3I. The minimum charging time is to be 7 hours. (在室温 20±5℃下进行，每个电池样品遭受的充电电流为 3 倍的制造商普通指定的充电电流，将电池连接于一直流电电源上。特殊充电电流的获得是通过串联一特殊尺寸和规格的电阻后获得的。试验时间通过下式计算：tc=2.5C/3Ic（tc—充电时间（h）；C—容量（Ah）；Ic—制造商一般指定的充电电流（A））最小测试时间应为 6h。	No explosion 无爆炸 No fire 无起火
Over discharge (过放电)	Complete discharged battery, connected in series with two fresh cells and resistive load 3ohm for 36h or cell temperature returned to ambient. (一个完全放电的电芯被强制性串联同型号的新电芯，串联的新电芯数目=串联应用的最大数目-1。当完全放电的电芯与特定数目的新电芯串接好后，连接 1 个 3 欧姆负载 36 小时。)	No explosion 无爆炸 No fire 无起火

5. **Environment requirement(环保)**

The product does not contain controlled substances of level 1.

6. P**roducing standard and certification(生产标准)**

The batteries are produced according with the IEC standard.

7. Transportation(运输):

－The Batteries should be stored away from solarization, fire, rain, water, and never put together with corrosive during transportation.

－Vibration and shock during transportation and load-and-unload should be restrict to a minimum level.

－The height should not exceed 1.5m for cardboard packages.

－The batteries if transported by sea should be stored away from ship engines during prolonged transit, and not left for long periods in unventilated environment during summer.

8. Information for safety(注意事项)

！ **Danger(危险)**

－Do not overheat batteries or dispose of batteries in fire.

－Do not put batteries together with metalwork such as necklace, coins, etc. in one bag，or store them together.

－Do not short-circuit batteries.

－Do not inset batteries in reverse. Observe the + and – markings on battery and equipment.

－Do not disassemble batteries.

－Do not weld or solder directly to batteries.

－Do not use deformed batteries or batteries with serious scar.

－Do not throw the battery onto the ground or wall.

－Read the guide carefully before using batteries. Unsuitable operation will make batteries overheat，fire，explode，destroy or reduce battery's capacity.

！ **Warning (警告)**

－Do not place the battery in heater, washer or high-pressure container.

－Do not use the battery together with different kind of or different type of battery.

－Stop using when the battery become heat, emit smell or appear other abnormality during use, or storing.

! **Warning (警告)**

－Do not place the battery in heater, washer or high-pressure container.

－Do not use the battery together with different kind of or different type of battery.

－Stop using when the battery become heat, emit smell or appear other abnormality during use, or storing.

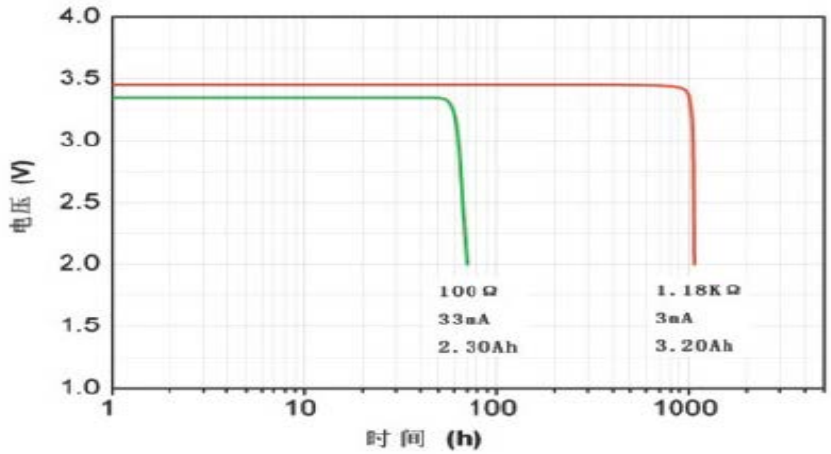
－Read the instrument guide carefully before installing the battery or uninstalling the battery from the instrument.

－Take out of the battery from the instrument if the on-load voltage of battery is less than 2V.

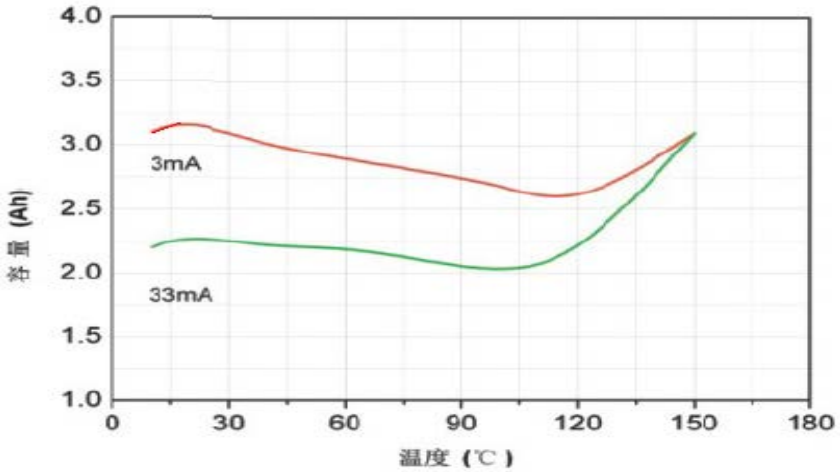
－Take out the battery and keep it under the condition of normal temperature and low humidity when the battery is not used in a long time.

－Clean the battery with dry cloth before use if the connection of the battery is dirty.

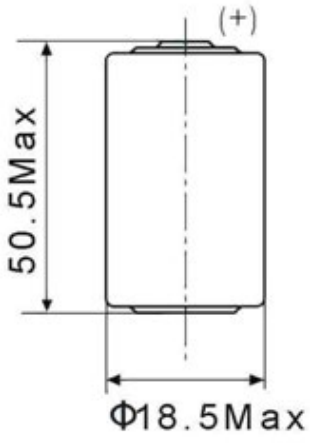
附图一 ：25℃电池放电曲线



附图二 ： 容量与电流、温度关系



附图三：尺寸



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