

# **BAK 3.7V 3C 2600 MAH LITHIUM ION CELL DATASHEET**



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## 1 Preface 前言

This specification describes the type and dimension, performance, technical characteristics, warning and caution of the lithium ion rechargeable cell. The specification only applies to H18650CH cell supplied by Shenzhen BAK Power Battery Co., Ltd and Zhengzhou BAK Battery Co., Ltd.

本标准描述了圆柱型锂离子电芯的外型尺寸、特性、技术要求及注意事项。本标准适用于深圳市比克动力电池有限公司及郑州比克电池有限公司生产的圆柱型H18650CH 锂离子电芯。

## 2 Definition 定义

### Rated capacity:

#### 标称容量:

Rated capacity  $Cap=2600mAh$ . Under  $25\pm 2^{\circ}C$ , the capacity obtained when a cell is discharged at 5-hours rate to voltage 2.75 V, which is signed Cap, the unit is mAh.

标称容量 $Cap=2600mAh$ , 指在  $25\pm 2^{\circ}C$  环境下, 以 5 小时率放电至终止电压 2.75V 时的容量, 以 Cap 表示, 单位为毫安培时(mAh)。

### Standard charge method

#### 标准充电方式:

Under  $25\pm 2.5^{\circ}C$ , it can be charged to 4.2V with constant current of 0.5C (1250mA), and then, charged continuously with constant voltage of 4.2V until the charged current is 0.01C (25mA).

指在  $25\pm 2^{\circ}C$  环境下, 以 0.5C (1250mA) 的电流恒流充电至单体电芯电压 4.2 V 后, 转为恒压 4.2 V 充电, 至充电电流小于 0.01C (25mA) 时, 停止充电。

### Standard discharge method:

#### 标准放电方式:

Under  $25\pm 2^{\circ}C$ , it can be discharged to 2.75 V with constant current of 0.2C (500mA).

指在  $25\pm 2^{\circ}C$  环境下, 以 0.2C (500mA) 的电流恒流放电至单体电芯电压 2.75 V。

## 3 Cell type and dimension 电芯型号及尺寸

### Description and model 电芯说明及型号

**Description:** Cylindrical Li-ion rechargeable cell

**Model:** H18650CH-2600mAh

**H18650CH** 型号的圆柱锂离子二次电芯

### Cell dimension 电芯尺寸

Cell physical dimension listed in Figure 3(unit: mm).

电芯尺寸示意图如图 3 所示 (单位: mm)。

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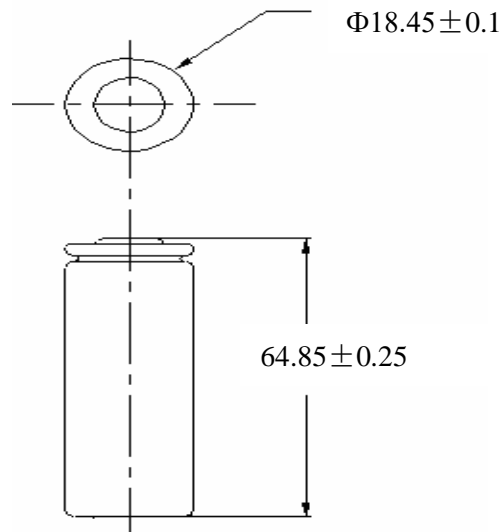


Figure 3/ 图 3

**4 Cell characteristics fresh cell tested at  $25 \pm 2$  °C, standard charge and discharge unless otherwise specified**

**电芯特性（除非有特殊说明，否则所有测试要求为：温度在  $25 \pm 2$  °C条件下，样品为新电池，充放电制度为标准充电和标准放电）**

ITEM 项目	SPECIFICATION 规格
Nominal capacity 标称容量	2600 mAh By Standard Charge/Discharge Method
Minimum capacity 最小容量	2500 mAh By Standard Charge/Discharge Method
Nominal voltage 标称电压	3.6 V
Charge voltage 充电电压	$4.2V \pm 0.05V$ (>4.2V 时不保证循环)
Energy density 能量密度	200Wh/Kg
Discharge ending voltage 放电终止电压	2.75 V
Max charge current 最大充电电流	For cycle life: 0.5C (1250mA) $45^\circ C > T \geq 20^\circ C$ 0.33C (830mA) $20^\circ C > T \geq 10^\circ C$ 0.2C (500mA) $10^\circ C > T \geq 5^\circ C$ 0.15C (375mA) $5^\circ C > T \geq 0^\circ C$ Not for cycle life: 1C (2500mA) $45^\circ C \geq T \geq 25^\circ C$
Max discharge current 最大放电电流	For cycle life: 0.5C (1250mA) $-10^\circ C > T \geq -20^\circ C$

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	1C (2500mA) 60°C > T ≥ -10°C Not for cycle life: 4C (10000mA) 40°C > T ≥ 20°C 3C (7500mA) 20°C > T ≥ 10°C 2C (5000mA) 10°C > T ≥ 0°C, 50°C > T ≥ 40°C 1C (2500mA) -10°C > T ≥ -20°C
Storage temperature and time 存储温度和时间	45~60°C: 1month (1个月) 25~45°C: 3month (3个月) -20~25°C: 12month (12个月)
Internal resistance 内阻	≤30 mΩ(AC Impedance, 1000 Hz)
Cell dimension 电芯尺寸	Height: 64.85 ± 0.25 mm 高度: 64.85 ± 0.25 mm Diameter: 18.45 ± 0.1 mm 直径: 18.45 ± 0.1 mm
Weight 重量	≤ 48g

## 5 Technical requirements 技术要求

### Cell usage conditions 电芯使用环境

Temperature of charge 充电温度: 0~45°C

Temperature of discharge (Cell surface limit temperature) 放电温度 (电芯表面极限温度): -20~65°C

### Cell testing conditions 电芯试验环境

Unless otherwise specified, all tests stated according to following:

除非有特殊说明, 所有测试的环境条件要求如下:

Temperature 温度: 25±2°C

### Requirement of the testing equipment 测量仪表要求

Voltage meter: The voltage tester internal resistance is ≥ 10 KΩ/V

电压仪表要求: 测量电压的仪表内阻不小于 10KΩ/V

Temperature meter: The precision is ≤0.5°C

温度仪表要求: 测量温度的仪表精度不低于 0.5°C

### Electrochemical Characteristics 电化学特性

(Fresh cells, tested at 25±2 °C, standard charge and discharge unless otherwise specified.

(除非有特殊说明, 否则所有测试要求为: 温度在 25±2

°C条件下, 样品为新电池, 充放电制度为标准充电和标准放电)

NO. 序号	ITEM 测试项目	CRITERION 性能标准
5.4.1	Discharge rate capability 倍率放电性能	Test condition: Temperature : 25±2 °C Charge: Standard charge method Discharge: CC variable values; End-of-discharge Voltage: 2.75V  $\frac{\text{discharge capacity at } 0.5C}{\text{discharge capacity at } 0.2C} \geq 96\%$ ; $\frac{0.5C \text{ 放电容量}}{0.2C \text{ 放电容量}} \geq 96\%$ ;

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		$\frac{\text{discharge capacity at 1.0C}}{\text{discharge capacity at 0.2C}} \geq 94\% ;$ $\frac{\text{discharge capacity at 2.0C}}{\text{discharge capacity at 0.2C}} \geq 94\% ;$ $\frac{\text{discharge capacity at 3.0C}}{\text{discharge capacity at 0.2C}} \geq 96\% ;$ $\frac{\text{discharge capacity at 4.0C}}{\text{discharge capacity at 0.2C}} \geq 96\% ;$	$\frac{1.0\text{C放电容量}}{0.2\text{C放电容量}} \geq 94\% ;$ $\frac{2.0\text{C放电容量}}{0.2\text{C放电容量}} \geq 94\%$ $\frac{3.0\text{C放电容量}}{0.2\text{C放电容量}} \geq 96\%$ $\frac{4.0\text{C放电容量}}{0.2\text{C放电容量}} \geq 96\%$
5.4.2	Cycle life 循环寿命	<p>Test condition 1: Temperature : 25±2 °C Charge: CC/CV 0.5C (1250mA) 4.2V cut off current: 0.05C (125mA) Discharge: CC 1C (2500mA) ; End-of-discharge Voltage: 2.75V 801th: Charge: CC/CV 0.5C (1250mA) 4.2V cut off current: 0.01C (25mA) Discharge: CC 0.2C (500mA) ; End-of-discharge Voltage: 2.75V</p> $\frac{\text{discharge capacity of 801th cycle}}{\text{minimum capacity}} \geq 80\% ;$ <p>Test condition 2: Temperature : 25±2 °C Charge: CC/CV 0.5C (1250mA) 4.15V cut off current: 0.05C (125mA) Discharge: CC 1C (2500mA) ; End-of-discharge Voltage: 3V 1001th: Charge: CC/CV 0.5C (1250mA) 4.2V cut off current: 0.01C (25mA) Discharge: CC 0.2C (500mA) ; End-of-discharge Voltage: 3V</p> $\frac{\text{discharge capacity of 1001th cycle}}{\text{minimum capacity}} \geq 80\% ;$ <p>Test condition 3: Temperature: 45±2 °C Charge: CC/CV 0.5C (1250mA) 4.2V cut off current: 0.05C (125mA) Discharge: CC 1C (2500mA) ; End-of-discharge Voltage: 2.75V 1001th: Test temperature : 25±2 °C Charge: CC/CV 0.5C (1250mA) 4.2V cut off current: 0.01C (25mA) Discharge: CC 0.2C (500mA) ; End-of-discharge Voltage: 2.75V</p> $\frac{\text{discharge capacity of 1001th cycle}}{\text{minimum capacity}} \geq 75\% ;$	$\frac{\text{第801次循环的放电容量}}{\text{标称最低容量}} \geq 80\%$ $\frac{\text{第1001次循环的放电容量}}{\text{标称最低容量}} \geq 80\%$ $\frac{\text{第1001次循环的放电容量}}{\text{标称最低容量}} \geq 75\%$

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		<p>Test condition 4:                  Temperature: 55±2 °C                  Charge: CC/CV 0.5C (1250mA) 4.2V cut off current: 0.05C (125mA)                  Discharge: CC 1C (2500mA) ; End-of-discharge Voltage: 2.75V                  601th: Test temperature : 25±2 °C                  Charge: CC/CV 0.5C (1250mA) 4.2V cut off current: 0.01C (25mA)                  Discharge: CC 0.2C (500mA) ; End-of-discharge Voltage: 2.75V</p> <p><math>\frac{\text{discharge capacity of 601th cycle}}{\text{minimum capacity}} \geq 80\%</math>;      <math>\frac{\text{第601次循环的放电容量}}{\text{标称最低容量}} \geq 80\%</math></p>
5.4.3	High-Low temperature discharge performance 高低温放电性能	<p>Test condition:                  Charge: Standard charge method                  Discharge: Standard discharge method at variable temperature</p> <p><math>\frac{\text{discharge capacity at } -20^{\circ}\text{C}}{\text{discharge capacity at } 25^{\circ}\text{C}} \geq 70\%</math>      <math>\frac{-20^{\circ}\text{C 放电容量}}{25^{\circ}\text{C 放电容量}} \geq 70\%</math> ;</p> <p><math>\frac{\text{discharge capacity at } -10^{\circ}\text{C}}{\text{discharge capacity at } 25^{\circ}\text{C}} \geq 80\%</math> ;      <math>\frac{-10^{\circ}\text{C 放电容量}}{25^{\circ}\text{C 放电容量}} \geq 80\%</math></p> <p><math>\frac{\text{discharge capacity at } 0^{\circ}\text{C}}{\text{discharge capacity at } 25^{\circ}\text{C}} \geq 85\%</math> ;      <math>\frac{0^{\circ}\text{C 放电容量}}{25^{\circ}\text{C 放电容量}} \geq 85\%</math></p> <p><math>\frac{\text{discharge capacity at } 45^{\circ}\text{C}}{\text{discharge capacity at } 25^{\circ}\text{C}} \geq 100\%</math> ;      <math>\frac{45^{\circ}\text{C 放电容量}}{25^{\circ}\text{C 放电容量}} \geq 100\%</math></p> <p><math>\frac{\text{discharge capacity at } 60^{\circ}\text{C}}{\text{discharge capacity at } 25^{\circ}\text{C}} \geq 100\%</math> ;      <math>\frac{60^{\circ}\text{C 放电容量}}{25^{\circ}\text{C 放电容量}} \geq 100\%</math></p>
5.4.4	Storage performance 存储性能	<p>Test condition:                  Charge: Standard charge method                  stored at 25 °C for 30 days                  Discharge: Standard discharge method</p> <p><math>\frac{\text{residual capacity after 30 days storage}}{\text{minimum capacity}} \geq 95\%</math> ;      <math>\frac{\text{存储30天后残余容量}}{\text{标称最低容量}} \geq 95\%</math></p> <p><math>\frac{\text{recover capacity after 30 days storage}}{\text{minimum capacity}} \geq 97\%</math> ;      <math>\frac{\text{存储30天后恢复容量}}{\text{标称最低容量}} \geq 97\%</math></p>

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5.4.5	High temperature storage performance (100% SOC) 高温满电存储性能	<p>Test condition: Charge: Standard charge method stored at 60°C for 7 days Discharge: Standard discharge method</p> $\frac{\text{residual capacity after 7 days storage}}{\text{minimum capacity}} \geq 95\% ; \quad \frac{\text{存储7天后残余容量}}{\text{标称最低容量}} \geq 95\%$ $\frac{\text{recover capacity after 7 days storage}}{\text{minimum capacity}} \geq 97\% ; \quad \frac{\text{存储7天后恢复容量}}{\text{标称最低容量}} \geq 97\%$
5.4.6	Long term storage performance 长期存储性能	<p>Test condition: Charge: Standard charge method Discharge: 1 C (2500mA) constant current discharge for 30 minutes Stored at 25°C for 1 year Charge: Standard charge method Discharge: Standard discharge method</p> $\frac{\text{recover capacity after 1 year storage}}{\text{minimum capacity}} \geq 95\% ; \quad \frac{\text{存储1年后恢复容量}}{\text{标称最低容量}} \geq 95\%$

**Environmental characteristics and safety characteristics 环境适应性能和安全性能**

No. 序号	Item 测试项目	Testing method 测试条件与方法	Criterion 性能标准
5.5.1	Overcharge test 过充测试	<p>After fully charged according to the standard charge method, the cell is charged at 1 C till the ending conditions: the cell voltage reaches 1.5 times of the cut-off voltage of standard charge or the 1 C charge time reaches 60 min. The cell is observed for 60 min afterwards.</p> <p>电芯以标准充电方式充满电，然后以 1 C 充电至电压达到充电终止电压的 1.5 倍或充电时间达 60 min 后停止充电，观察 60 min。</p>	No fire, no explosion 电芯不起火、不爆炸
5.5.2	130 °C hot oven test 130 °C 热箱测试	<p>After fully charged according to the standard charge method, the cell is put in a oven at a heating speed of 5 °C per minute until the temperatures of both the cell and the oven reach 130 °C. The cell shall be maintained at 130 °C for 30 min or until a fire or explosion is obtained.</p> <p>电芯按照标准充电方式充满电后，将电芯放进热箱里，然后将热箱按 5 °C/min 升温到 130 °C，当电芯的温度也达到 130 °C 时，电芯在热箱 130 °C 环境下保持 30 min 或者电芯起火爆炸为止。</p>	No fire, no explosion 电芯不起火、不爆炸



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5.5.3	Crush test 挤压测试	After standard charge, cell is crushed between two flat surfaces until an applied force of 13kN±1kN is reached. 标准充电后, 将电芯放在两个平板内进行挤压, 当压力达到13kN±1kN时结束测试。	No fire, no explosion 电芯不起火、不爆炸
5.5.4	Short circuit test 短路测试	After fully charged according to the standard charge method, the cell is short-circuited by connecting the positive and negative terminals with a copper wire for 10 min. The wire resistance shall be less than 5 mΩ. The cell is observed for 1 h after test. 以标准充电方式充满电后, 用内阻小于 5 mΩ 的电线将电芯正、负极外部短路 10 min, 观察 1 h。	No fire, no explosion 电芯不起火、不爆炸
5.5.5	Over discharge test 过放测试	After fully charged according to the standard charge method, the cell is discharged at 1 C for 90 min and then observed for 1 h. 电芯按标准充电后以1 C 电流放电90 min, 观察1 h。	No fire, no explosion, no leak 电芯不起火、不爆炸、不漏液
5.5.6	Drop test 跌落测试	After fully charged according to the standard charge method, the cell is dropped with both ends from a height of 1.5 m onto the cement floor. Afterwards, the cell is observed for 1 h. 电芯按标准充电后分别以正负端子两个方向从1.5 m 高度处自由跌落到水泥地面上。	No fire, no explosion, no leak 电芯不起火、不爆炸、不漏液
5.5.7	Seawater immersion 海水浸泡	After fully charged according to the standard charge method, the cell is immersed in sea water (3.5wt% of NaCl) for 2 h. Afterwards, the cell is observed for 1 h. 电芯按标准充电后完全浸入 3.5% NaCl 溶液 (质量百分比, 模拟常温下的海水成分) 中 2 h, 并观察1 h。	No fire, no explosion, no leak 电芯不起火、不爆炸
5.5.8	Thermal cycling 温度循环	After fully charged according to the standard charge method, the cell is put in an oven. Then set the oven temperature as follows: (1) Decrease the chamber temperature from RT to -40 °C within 60 min and keep the cell under -40 °C for 90 min; (2) Raise the chamber temperature from -40 °C to 25 °C within 60 min; (3) Raise the chamber temperature from 25 °C to 85 °C within 90 min and keep the cell under 85 °C for 110 min; (4) Decrease the chamber temperature from 85 °C to 25 °C within 70 min; (5) Repeat the sequence for a further 4 cycles. Afterwards, the cell is observed for 1 h. 电芯按标准充电方式充电后放入温度箱中, 然后按以下步骤调节温度箱温度: (1) 在 60 min 内由25 °C降温至-40 °C, 保持90 min; (2) 在 60 min 内温度升至 25 °C; (3) 在 90 min 内温度升至 85 °C, 保持110 min; (4) 在 70 min 内降温至25 °C;	No fire, no explosion, no leak 电芯不起火、不爆炸、不漏液

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		(5) 循环以上步骤4次。 结束后观察1 h。	
5.5.9	Low pressure 低气压	After fully charged according to the standard charge method, the cell is put at the pressure of 11.6 kPa for 6 h. Afterwards, the cell is observed for 1 h. 电芯以标准充电方式充满电后将其放入低气压箱中，调节试验箱中气压为 11.6 kPa，温度为室温，静置 6 h，之后观察 1 h。	No fire, no explosion, no leak 电芯不起火、不爆炸、不漏液
<b>Note</b> <b>备注</b>	Unless otherwise specified, all safety tests above shall be conducted in ventilated environment at $25 \pm 2$ °C and under protective equipment. 除特殊说明，以上所有安全测试均应在 $25 \pm 2$ °C通风橱中，且附带有保护装置的环境下进行。		

## 6 Package picture 包装图片



Small box

big box

pallet

(100pcs cells in a small box, 2 small boxes in a big box)

## 7 Shipment 出货

The Cell shall be shipped in voltage range of 3.6 ~ 3.9 V or in accordance with customers' requirement. The remaining capacity before charging shall be changed depending on the storage time and conditions.

单体电芯按 3.6~3.9V

的充电电压或客户要求出货,电芯出货后充电前的剩余容量取决于储存时间和条件。

## 8 Warranty 质量保证

The Warranty period of cell is made according to business contract. However, even though the problem occurs within this period, BAK Power won't replace a new cell for free as long as the problem is not due to the failure of BAK Power manufacturing process or is due to customer's abuse or misuse.

自出货之日起,电芯的保质期限依合同而定.但是,在此期限内,如果非比克动力的制程原因，而是客户的误用造成的电芯质量问题,比克动力不承诺免费更换。

BAK Power will not be responsible for trouble occurred by handling outside of the precautions in instructions.

比克动力对违反安全守则操作所产生的问题不承担任何责任。

BAK Power will not be responsible for trouble occurred by matching electric circuit, cell pack and charger.

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比克动力对与电路,电池组,充电器搭配使用所产生的问题不承担任何责任。

BAK Power will be exempt from warrantee any defect cells during assembling after acceptance.

出货后客户在电芯组装过程中产生的不良电芯不在比克动力质量保证的范围之列。

## 9 Storage and Shipment Requirement 存储及运输要求

	<b>Item 项目</b>	<b>Permissible time 可存储时间</b>
Storage environment 储存环境	45 °C ~ 60 °C, 60% RH Max	Less than 1 month 少于 1 个月
	25 °C ~ 45 °C, 60% RH Max	Less than 3 months 少于 3 个月
	-20 °C ~ 25 °C, 60% RH Max	Less than 1 year 少于 1 年
About long time storage: If the cell needs to be stored for a long time, the cell's storage voltage should be 3.6 ~ 3.9 V. Also, it is recommended to charge the cell every six months. 关于长期存储: 若电芯需长期存储, 电芯的存储电压应该为 3.6 ~ 3.9 V。同时, 建议每 6 个月对电芯进行充电。		

## 10 Warning and cautions in handling the lithium-ion cell

### 电芯使用时警告事项及注意事项

Lithium-Ion rechargeable batteries subject to abusive conditions can cause damage to the cell and/or personal injury. Please read and observe the standard cell precautions below before using utilization.

滥用锂离子充电电芯可能会造成电芯的损害或人身的伤害.在使用锂离子充电电芯以前,请仔细阅读以下的安全守则:

Note 1. The customer is required to contact BAK POWER in advance, if and when the customer needs other applications or operating conditions than those described in this document.

注释 1. 如果客户需要其它应用程序或本档中描述之外的操作条件, 客户需要提前联系比克动力。

Note 2. BAK POWER will take no responsibility for any accident when the cell is used under other conditions than those described in this Document.

注释 2.在该文件说明的条件之外使用该电芯而产生的事故, 比克动力不承担任何责任。

### Warning 警告

Danger warning (it should be described in manual or instruction for users, indicated especially) to prevent the possibility of the battery from leaking, heating, explosion. Please observe the following precautions:

**危险警告:** (应在使用说明手册或说明书中, 特别注明) 为防止电池可能发生泄漏, 发热, 爆炸, 请注意以下预防措施:

- » Don't immerse the battery in water and seawater. Please put it in cool and dry environment if no using.
- » 严禁将电池浸入海水或水中, 保存不用时, 应放置在阴凉干燥的环境中。
- » Don't use and leave the cell near a heat source such as fire or heater.
- » 禁止将电芯在热高温源旁, 如火, 加热器等旁边使用和留置。
- » Do not use or leave the cell under the blazing sun (or in heated car by sunshine).

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- » 不要将电芯放置在太阳光直射的地方。
  - » Being charged, using the battery charger specifically for that purpose.
  - » 充电时请选用锂离子电芯专用充电器。
  - » Don't reverse the positive and negative terminals
  - » 严禁颠倒正负极后使用电芯。
  - » Do not disassemble or modify the cell.
  - » 不要拆卸或修整电芯。
  - » Do not use the cell with conspicuous damage or deformation..
  - » 不要使电芯受到明显的损害或变形。
  - » Don't connect the cell to an electrical outlet directly.
  - » 严禁将电芯直接插入电源插座。
  - » Don't discard the cell in fire or heater.
  - » 禁止将电芯丢入火或加热器中。
  - » Do not short circuit, over-charge or over-discharge the cell.
  - » 不要将电芯短路,过充或过放。
  - » Don't transport and store the cell together with metal objects such as necklaces, hairpins.
  - » 禁止将电芯与金属, 如发卡、项链等一起运输或存储。
  - » Do not use lithium ion battery and others different lithium battery model in mixture.
  - » 禁止与液态锂离子或不同型号的锂电池混合使用。
  - » Keep the battery away from babies.
  - » 电池应远离小孩。
  - » Don't strike, throw or trample the cell.
  - » 禁止敲击, 抛掷或踩踏电芯等。
  - » Prohibition of use of damaged cells.
  - » 禁止使用已损坏的电芯。
  - » Battery pack designing and packing Prohibition injury batteries.
  - » 电池外壳设计和包装禁止损伤电池。
  - » The battery replacement shall be done only by either cells supplier or device supplier and never be done by the user.
  - » 更换电芯应由电芯供应商或设备供应商完成, 用户不得自行更换。
  - » Be aware discharged batteries may cause fire; tape the terminals to insulate them..
  - » 废弃之电池应用绝缘纸包住电极, 以防起火, 爆炸。
  - » Do not use it in a location where is electrostatic and magnetic greatly, otherwise, the safety devices may be damaged, causing hidden trouble of safety.
  - » 禁止在强静电和强磁场的地方使用, 否则易破坏电池安全保护装置, 带来不安全的隐患。
  - » Do not directly solder the battery and pierce the battery with a nail or other sharp object.
  - » 禁止直接焊接电池和用钉子或其它利器刺穿电池。
  - » Do not recommend series and parallel connection (not cylinder battery), Otherwise, do that after grouping.
  - » 不建议串并联使用 (非圆柱产品), 串并联需经过配组后。
  - » When disposing of secondary cells, keep cells of different electrochemical systems separate from each other.
  - » 二次电池处理时, 请将电池和其他电化学体系的产品分开。
  - » Do not disassemble or reconstruct the cell
- 禁止拆解或重新组装电芯

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### Caution 小心

- » Do not use or leave the battery at very high temperature conditions (for example, 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，否则可能会引起电池过热，起火或功能失效，寿命减短。
- » If the cell leaks and the electrolyte get into the eyes, don't wipe eyes, instead, thoroughly rinse the eyes with clean running water for at least 15 minutes, and immediately seek medical attention. Otherwise, eyes injury can result.
- » 如果电芯发生泄露，电解液进入眼睛，请不要搓揉，应用清水冲洗眼睛不少于 15min，必要时请立即前往医院接受治疗，否则会伤害眼睛。
- » If the cell gives off an odor, generates heat, becomes discolored or deformed, or in any way appear abnormal during usage, recharging or storage, immediately remove it from the device or cell charger and stop using it.
- » 如果电芯发出异味，发热，变色，变形或使用、存储、充电过程中出现任何异常现象，立即将电芯从装置或充电器中移开并停用。
- » In case the battery 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. .
- » 如果电池弄脏，使用前应用干布抹净，否则可能会导致接触不良功能失效。

### 11 The restriction of the use of hazardous substances 有害物质控制要求

This model of lithium-ion cell is in accordance with our company's request of

"The hazardous substances and material management standard".

本型号锂离子电芯符合本公司“有害物质和材料管理规范”要求。

### 12 Contact information 联系方式

If you have any questions regarding the cell, please contact the following address:

如有疑问，请按以下地址联系：

Headquarter: BAK POWER Industrial Park on Kuichong Road, Dapeng New District, Shenzhen. (518119)

厂址：深圳市大鹏新区葵涌街道比克动力工业园(518119)

Tel : +86-755-61886818-6719 (吴生)

Fax : +86-755-84208691

电话： +86-755-61886818-6719 (吴生)

传真： +86-755-84208691

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**13 Version change record 修订履历**

版次 Version	修改内容 Change Content	页码 Page	修改人 PIC	修改日期 Date
A/00	初版发行		胡江波	2013-12-5
A/01	增加PTC 规格	5	胡江波	2014-4-25
A/02	修正完善最大充电电流温度范围：从 1C (2500mAh) T $\geq 10^{\circ}\text{C}$ 修改为 1C (2500mAh) $10^{\circ}\text{C} \leq T \leq 45^{\circ}\text{C}$	4	胡江波	2014-5-16
A/03	1. 删除 3.2 电芯喷码及说明 2. 增加第 10 项中禁止“拆解或重新组装电芯”条例	3	李文娟	2014-11-10
A/05	公司抬头变更为“深圳市比克动力电池有限公司” 5.4.2 循环充电截止电流由 0.01C (25mA) 修改为 0.02C (50mA)	1 5	艾贤峰	2015-12-1
A/05	3.2, 4 电芯尺寸调整为带公差格式 最大充电电流 0-10 $^{\circ}\text{C}$ 由 0.2C 变为 0.1C, 10-20 $^{\circ}\text{C}$ 由 1C 变为 0.33C;最大放电电流改为 4C (25 $^{\circ}\text{C}$ continuous, not for cycle) 4 内阻由 $<70\text{m}\Omega$ 变更为 $<35\text{m}\Omega$ 5.4.2 循环寿命由 300 次 $\geq 70\%$ 变更为 500 次 $\geq 70\%$ 5.5 环境适应性和安全性能符合项中增加 UN38.3 和 GB 31241-2014 12 修改“联系方式”	2 2 3 4 4 8	滕晓波	2018-4-24
A/06	删除PTC 规格 4 充电电压增加公差 $\pm 0.05\text{V}$ ( $>4.2\text{V}$ 时不保证循环) 4 最大充电电流 0-10 $^{\circ}\text{C}$ 0.1C 变为 0-5 $^{\circ}\text{C}$ 0.1C, 5-10 $^{\circ}\text{C}$ 0.15C; 最大放电电流随不同温度区间不同 5.1 放电温度增加电芯表面极限温度描述 5.4.2 循环过程的放电电流由 0.5C 变为 1C	2 2 3 4	滕晓波	2018-7-3
A/07	规格书使用范围增加郑州比克电池有限公司; 常温条件测试的温度由 $22.5 \pm 2.5^{\circ}\text{C}$ 改为 $25 \pm 2^{\circ}\text{C}$ ; 电芯外径标准由 $18.35 \pm 0.15\text{mm}$ 改为 $18.45 \pm 0.1\text{mm}$ ; 最大充放电电流描述格式增加 For cycle life 和 Not for cycle life; 最大充电电流 0-5 $^{\circ}\text{C}$ 0.1C 改为 0.15C, 5-10 $^{\circ}\text{C}$ 0.15C 改为 0.2C; 内阻由 $\leq 35\text{m}\Omega$ 改为 $\leq 30\text{m}\Omega$ ;	1 全部 2、3 2、3 3	滕晓波	2019-4-17

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	5.4.1 倍率放电数值提升, 增加 3C 和 4C 数值	3、4		
	5.4.2 原循环保持率由500次70%增加为800次80%; 增加25℃ 4.15V 循环及 45℃、60℃循环制式	4、5		
	高低温放电数值增加, 增加-20℃、45℃数值	5		
	存储容量残余率和恢复率增加	5、6		
	增加 5.4.5 高温存储性能	6		
	增加 5.4.6 长期存储性能	6		
	5.5 环境适应性能和安全性能详细描述	6-8		