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SHENZHEN TCBEST BATTERY INDUSTRY Co.,Ltd

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总页数/Page: 7

# USB充电电池规格书

## Specification of USB rechargeable battery

型号/Model: AA

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# Specification of AA battery

型号 Model Number		AA	
材质 Material		Lithium-Polymer	
标称电压 Nominal Voltage		1.5V	
额定容量 Rated Capacity	标称容量 Typical	1400mAh	
	公差 tolerance	± 5%	
尺寸 Dimension	直径 Diameter (d)	Min 13.7mm, Max 14.5mm	
	高度 Height (h)	Min 49.5mm, Max 50.5mm	
重量 Weight		17.2±0.5g	
充电 Charge	充电方式 Charging Method	Type-C cable 线	
	充电电压 Charging Voltage	5V	
	充电电流 Charging Current	330mA (0~370mA)	
	充电时间 Charging Time	2 hours ±0.5	
	LED指示灯 LED Indicators	充电闪烁, 充满常亮 Blink when charging, Stay on when full charged	
放电 Discharge	放电电流 Discharging Current	140mA	
	放电截至电压 Cutoff Voltage	1.1V (±0.05v)	
工作温度 Working Temperature	充电 Charge	0~35℃	
	放电 Discharge	0~40℃	
最大放电电流 Maximum Discharge Current		1400mA	
保护 Protection	短路保护 short-circuited	Yes	短路时电池停止输出, 不短路时自动恢复 battery stops working when short circuited and resume when not short circuited
	过流保护 over-flowed	Yes	设置了最大充电电流不超过370mA, 不论充电器电流多大 Max charging current is 370mA, no matter power adaptor
	过压保护 over-voltage	Yes	充电电压超过6V时电池停止充电, 恢复5V时电池恢复充电, 充电电压超过20V时, 电池坏掉并不能恢复 battery stops recharging if charger voltage over 6V, battery resumes recharging if charger voltage resume 5V Battery die if charger voltage over 20V
	温控保护 over temperature	Yes	电池温度超过45度, 电池停止工作 Battery stop work if temperature over 45℃
	过充保护 over-charged	Yes	电池即将充满时, 降低充电电流直到完全充满 Charging current will decline when battery nearly full recharged
	过放保护 over-discharged	Yes	电池电压低于1.1V会停止放电 Battery stops outputting if voltage less than 1.1V



## Specification of Cell inside

型号 Model Number		13430PL
材质 Material		Lithium 锂离子
标称电压 Norminal Voltage		3.7V (Min 2.8V, Max 4.2V)
额定容量 Rated Capacity	标称容量 Typical	650mAh / 2400mWh
	公差 tolerance	±5%
尺寸 Dimension	直径 Diameter	13.1±0.1mm
	高度 Height	43.0±0.2mm
重量 Weight		13.5±0.5g
电池内阻 Internal Impedance at 1000Hz		≤50mΩ (满电状态下 full charge)
充电 Charge	标准充电 Standard	0.5C(325mA)@4.20V
	快速充电 Rapid	1C(650mA)@4.20V
放电 Discharge	标准放电 Standard	0.5C(325mA)@2.8V
	快速放电 Rapid	1C(650mA)@2.8V
最大放电电流 Maximum Discharge Current		3C(1950mA)@2.8V
工作温度范围 Operation Temperature Range	充电 Charge	0~35℃
	放电 Discharge	0~40℃

## 1 应用范围 Scope

本规格书适用于深圳天诚巨能科技有限公司生产的AA型USB充电锂离子电池；同时本规格书提供的产品符合 UL/CE/Rohs/FCC 等各项要求。

This specification is applicable to the AA USB rechargeable Battery manufactured by SHENZHEN TCBEST BATTERY INDUSTRY Co.,Ltd. The products supplied in this specification are in conformity with the requirements of UL/CE/Rohs/FCC.

## 2 外观 Appearance

产品表面不能有严重的外观缺陷(破损、漏液、变形等现象)，如有发现请勿使用。

The surface of the product cannot have serious appearance defects (breakage ,leakage,deformation etc).

Please do not use it if serious apperance defects found.

## 3 技术要求 Technical requirement

### 3.1 标准环境条件(除非特别要求， 各项试验应在标准大气条件下进行)

Standard environmental conditions (unless specifically requested, trials should be conducted under standard atmospheric conditions).

标准温度 Standard temperature :  $25\pm 3^{\circ}\text{C}$ ;

大气压力 Atmospheric pressure : 86kPa~106 kPa;

标准湿度 Standard humidity :  $65\pm 20\%$

### 3.2 标准充电: 在标准环境条件下， 对产品以5V 330mA充电， 直至充电电流小于15mA。

Standard Charge : Under standard environmental conditions, the product is charged by 5V 330mA until charging current less than 15mA.

### 3.3 标准放电: 将产品以 140mA 电流恒流放电至终止电压1.05V。

Standard Discharge: the product is discharge to the termination voltage 1.05V by 140mA current.

## 4 性能测试 Performance Test

	项目/ Item	测试方法/ Testing method	技术标准/Standard
4.1	放电容量 Discharge Capacity	标准环境条件下，标准充电后140mA 放电。 Standard environmental conditions, standard discharge 140mA after Standard charge.	$\geq 1400\text{mAh}$
4.2	循环性能 Life cycle	温度: $25\pm 3^{\circ}\text{C}$ 充电: 330mA直至充电电流小于15mA, 放电: 140mA到 1.05 V, 放电容量大于初始容量的80% Temperature: $25\pm 3^{\circ}\text{C}$ Charge: 330mA to charging current less than 15mA. Discharge: 140mA to 1.1V higher than 80% of the Initial capacity.	$\geq 300\text{cycle}$
4.3	荷电保持 和贮存性能 Self discharge	完全充电后,在 $25\pm 3^{\circ}\text{C}$ 条件下, 将电开路搁置 28 天, 再 140mA 放电。 When the battery has completed standard charged, it shall be disconnected and put aside for 28 Days at $(25\pm 3)^{\circ}\text{C}$ , then discharged at 140mA.	$\geq 1300\text{mAh}$

## 5 保护电路 **Protection circuit**

尽管本电池内置了保护板，但是客户在使用时应有效的保护措施，避免出现过充、过放、过流、短路的情形。

The battery is equipped with a protection PCBA , but customers should have effective protective measures to prevent over-charged, over-discharged, over-flowed and short-circuited.

## 6 保质期 **Shelf-life**

电池的保质期从出货之日算起为 2 年；如证明电池的缺陷是在制造过程中形成的而不是由于用户滥用及错误使用造成，本公司负责更换新电池。

The period of warranty is 2 year from the date of shipment. If the defect of the battery is proved to be formed in the manufacturing process and not caused by misuse or misuse of the user, SHENZHEN TCBEST BATTERY INDUSTRY Co.,Ltd shall be responsible for the exchange.

## 7 电池的存放 **Storing the Batteries**

7.1 电池应当在室温下存放，应充到 30%至 50%的电量；如长时间储存，建议每半年充一次电以防止电池过放电。

The batteries should be stored at room temperature, charged to about 30% to 50% of capacity. We recommend that batteries be charged about once per half a year to prevent over discharge.

7.2 产品存放应避免与腐蚀性物质接触、并远离火源和热源。

Product storage should avoid contact with corrosive substances and keep away from fire and heat source.

## 8 包装、运输 **Packing and transportation**

8.1 产品在包装时应处于 50%电量状态，包装好的产品应放在干燥、防尘、防潮的包装箱内；包装箱外应标明产品批号、规格型号、标称电压、数量。

The product should be in the 50% capacity when packing. The packaged products should be kept in dry , dust-proof, moisture-proof packing cases. The product batch number, specification model, nominal voltage and quantity shall be marked outside the packing case.

8.2 产品应包装成箱进行运输，在运输过程中应防止剧烈振动、冲击或挤压、防止日晒雨淋；可使用汽车、火车、轮船、飞机等交通工具运输。

The products should be packed in boxes for transportation , During transportation , it should prevent vibration、impact or extrusion 、prevent sun and rain. Transported by vehicles, trains, ships, aircraft etc.

## 9 电池使用时特别注意事项 **Special reminder when using battery**

9.1 充电器的选择 **Choose matched power charger**

用户应选择正规厂家生产的手机充电器（普通USB充电器或者QC快充都可以），移动电源，车充，电脑等给电池充电。禁止使用镍氢电池充电盒或者高于5V的电源为电池充电！

Users should choose certificated mobile phone adaptor (ordinary USB adaptor or QC adaptor is OK), power banks, car charging, computer to recharge the battery. Do not use Ni-MH battery charging box or power supply higher than 5V to recharge the battery!

## 9.2 不兼容的设备 Not Compatible devices

该电池兼容大部分使用AA电池的设备，但是两种设备会有问题：(1). 当用于收音机时，收音机会因为磁场干扰有杂音，(2). 当用于强光手电和闪光灯时，会因为大电流输出导致电池发热严重，严重降低使用时间甚至导致电池损坏。

The battery is compatible with most devices which use AA batteries, but there are some problems with two devices: 1 When used in radio, the radio has noise due to magnetic field interference, 2 When used in strong light flashlight and flash lamp, the battery will heat seriously due to high current output, which will seriously reduce the work time, even damage the battery.

## 10 免责条款 Disclaimer

10.1 对本规格书规则外，误操作导致的问题，本公司不承担任何责任。

SHENZHEN TCBEST BATTERY INDUSTRY Co.,Ltd does not take any responsibility for the problems caused by incorrect operation of this specification.

10.2 对超出保质期限的产品，本公司不承担任何责任。

SHENZHEN TCBEST BATTERY INDUSTRY Co.,Ltd shall not bear any responsibility for products beyond the warranty period.

10.3 客户已验收合格的产品，在客户端装配过程中导致的损坏，本公司不承担任何责任。

The customer has accepted the qualified products and SHENZHEN TCBEST BATTERY INDUSTRY Co.,Ltd is not responsible for any damage caused during the assembly of the client.

## 11 注意事项

11.1 在测试或使用产品之前，请仔细阅读本规格书，请不要超出本规格书范围使用电池；以防止不当操作引起产品功能失效、发热、漏液、起火甚至爆炸。

Please read the specification carefully before testing or using the product , Please do not exceed the specification range using the battery ; Prevent improper operation to cause product function failure, heat, leakage, fire and even explosion.

11.2 禁止拆卸 Prohibition of disassembly

1) 不要拆卸电池 Never disassemble the cells

拆卸电池会发生电池内部短路，会引起起火、爆炸、有害气体或者其它问题。

The disassembling may generate internal short circuit in the cell, which may cause gassing, firing, explosion, or other problems.

2) 电解液是有害的 Electrolyte is harmful

万一电解液沾到皮肤、进入眼睛，应立即用清水冲洗以及求助医生。

LIP battery should not have liquid from electrolyte flowing , but in case the electrolyte come into contact with the skin, or eyes, physicians shall flush the electrolyte immediately with fresh water and medical advice is to be sought.

11.3 严禁将电池倾倒在火中 Prohibition of dumping of cells into fire

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Never incinerate nor dispose the cells in fire. These may cause explosion of the cells ,which is very dangerous and is prohibited。

11.4 严禁将产品进行反向充电或者正负极直接短路。

It is strictly prohibited to direct the product in reverse charge or direct short circuit.

11.5 新产品使用或长时间贮存后，使用前请按要求将其充满电。

After the new product is used or stored for a long time,please fully charged before use.

11.6 对产品进行测试时， 请使用专用测试设备。

Use a special test device when testing the product.

11.7 禁止敲击、抛掷或踩踏产品； 严禁将产品放入洗衣机或高压容器内。

It is forbidden to knock、toss or stamp products； Do not put the product in the washing machine or high pressure vessel。

11.8 使用、测试或存放产品时， 如发现其有变热、散发气味、变色、变形或其它异常时，请立即停止使用或测试， 立即隔离并远离。

Use、test、or store products ， If it is found to have heat、odor、discoloration、deformation or other abnormalities ， Please stop using or testing immediately ， Immediately isolate and stay away.