



产品规格书  
PRODUCT SPECIFICATION

DOC NO.:

REV. :

A/0

Date :

2024/01/03

Customer's Name:

客户名称:

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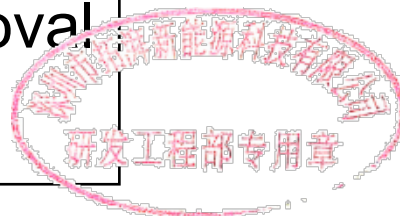
Date: 2024-01-03

TOPAK POWER TECHNOLOGY CO., LTD.

深圳市拓湃新能源科技有限公司

Specification For Approval

客户承认书



Model : YTX20L

型 号: YTX20L

Type : 12.8V8.0Ah

类 型: 12.8V8.0Ah

|                      |         |       |
|----------------------|---------|-------|
| Approval             | Checked | Draft |
|                      |         |       |
| Customer<br>Approval |         |       |

深圳市拓湃新能源科技有限公司  
TOPAK POWER TECHNOLOGY CO., LTD.

地址: 广东省东莞市大朗镇盈丰一路26号拓湃工业园  
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更新记录 Update record

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|-----------------------------------------------------------------------------------|--------------------------------|----------|------------|
|  | 产品规格书<br>PRODUCT SPECIFICATION | DOC NO.: |            |
|                                                                                   |                                | REV. :   | A/0        |
|                                                                                   |                                | Date :   | 2024/01/03 |

目录

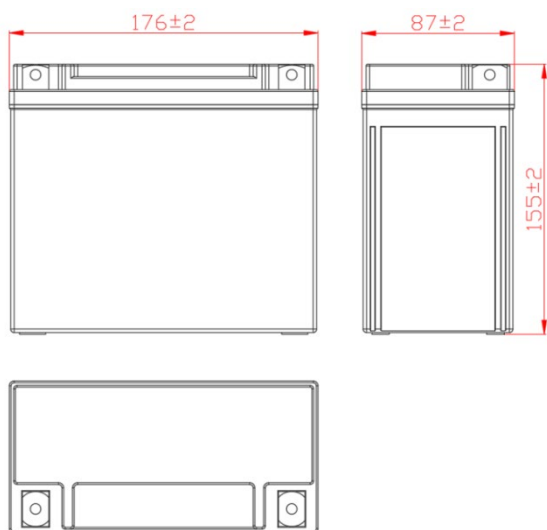
|                                                               |   |
|---------------------------------------------------------------|---|
| 1. 概述 / General Information .....                             | 4 |
| 2. 产品尺寸/Product dimension.....                                | 4 |
| 3. 电池技术规格 / Battery Specification （@ 25±5℃） .....             | 5 |
| 4. 电气性能及测试条件 Electrical Characteristics & Test Condition..... | 6 |
| 5. 保护电路规格参数 Circuit Protection.....                           | 7 |
| 6. 运输、存储注意 / Transport & Store .....                          | 9 |
| 7. 警示及注意事项 / Warning & Tips. ....                             | 9 |

## 1. 概述 / General Information

本规格书适用于深圳市拓湃新能源科技有限公司生产的 8068107-4S2P-12.8V8.0Ah 锂离子可充电电池。

The specification shall be applied to Li-ion rechargeable battery pack Of 8068107-4S2P-12.8V8.0Ah which is manufactured by TOPAK POWER TECHNOLOGY CO., LTD.

## 2. 产品尺寸/Product dimension



公差 2mm

端子极性:左负右正



备注: TP2023913001

TP ---- 深圳市拓湃新能源科技有限公司简写;

20230913 ---- 生产日期/年、月、日

001 ----- 生产批次

## 3. 电池技术规格 / Battery Specification (@ 25±5℃)

| 序号<br>NO. | 项目<br>Items                                   |                       | 特性<br>Characteristics |
|-----------|-----------------------------------------------|-----------------------|-----------------------|
| 3.1       | 额定容量 Nominal capacity                         |                       | 8.0Ah@0.2C            |
| 3.2       | 最小容量 Mix. capacity                            |                       | 8.0Ah@0.2C            |
| 3.3       | 额定能量 Nominal energy                           |                       | 102.4Wh               |
| 3.3       | 电池组电芯组合结构<br>Combination structure of battery |                       | 4S2P                  |
| 3.4       | 额定电压 Nominal voltage                          |                       | 12.8V                 |
| 3.5       | 放电终止电压 End of discharge voltage               |                       | 9.6V                  |
| 3.6       | 标准充电电压 Standard charge voltage                |                       | 14.6±0.2V             |
| 3.7       | 最大充电电压 Allowed Max. charge voltage            |                       | 15.0V                 |
| 3.8       | 标准充电电流 Standard charge current                |                       | 4.0A                  |
| 3.9       | 最大持续充电电流 Allowed Max. charge current          |                       | 24.0A                 |
| 3.10      | 标准放电电流 Standard discharge current             |                       | 8.0A                  |
| 3.11      | 峰值放电电流 Peak discharge current 1               |                       | 30C(240A) ≥ 30S       |
| 3.12      | 峰值放电电流 Peak discharge current 2               |                       | 600A ≥ 2.0S           |
| 3.13      | 内阻 Internal Resistance                        |                       | ≤14.0mΩ               |
| 3.14      | 重量 Weight                                     |                       | Approx. 2.7kg         |
| 3.15      | 出货电量 Ex-factory capacity                      |                       | Approx.80% SOC        |
| 3.16      | 工作温度                                          | 放电 Discharge          | -20℃~60℃              |
|           | Operation temperature                         | 充电 Charge             | 0℃~45℃                |
| 3.19      | 储存环境<br>Storage environment                   | ≤1Month               | 0~+35℃、5~75%RH        |
|           |                                               | ≤6Month               | 10~+25℃、5~75%RH       |
|           |                                               | Recommend environment | 15~+25℃、5~75%RH       |

#### 4. 电气性能及测试条件 Electrical Characteristics & Test Condition

测试条件 Testing Conditions: Ambient Temperature: 25±5℃; Humidity:45%~75%.

标准充电: 在 CC(0.2C)/CV(14.4V)模式下充电至电流减小至 0.02C, 然后静置 1h.

Normal charge: Charge battery under CC(0.2C)/CV(14.4V) mode until the charge current reduce to 0.02C, and then rest for 1h.

| 序号<br>No. | 项目<br>Items                                           | 标准<br>Standard                                                 | 测试方法<br>Test condition                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------|-------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1       | 额定容量<br>Normal capacity                               | ≥8.0Ah                                                         | 电池经标准充电后, 以 0.2C 电流放电至截止电压。<br>After Normal charge, discharge @0.2C current to the end of discharge voltage.                                                                                                                                                                                                                                                                                             |
| 4.2       | 初始内阻<br>Internal Impedance                            | ≤14mΩ                                                          | 在 50%SOC 条件下用 1kHz AC 的交流内阻测试仪。<br>@50% SOC @1kHz AC internal resistance test Instrument.                                                                                                                                                                                                                                                                                                                |
| 4.3       | 放电温度特性<br>Discharge temperature Characteristic        | -20℃/25℃≥45%                                                   | 电池按标准规定充电, 按 0.5C 的电流放电至 10.0V。电池必需先在不同的试验温度中放置 4 个小时后放电, 百分比按放电容量比最小容量计算。<br>Battery shall be charged according to standard charge, discharged at 0.5C to 10.0V. Battery shall be stored for 4 hours at the test temperature prior to discharging and then shall be discharged at the test temperature, The percentage shall be calculated using discharging capacity compared to the minimum capacity. |
|           |                                                       | -10℃/25℃≥65%                                                   |                                                                                                                                                                                                                                                                                                                                                                                                          |
|           |                                                       | 0℃/25℃≥70%                                                     |                                                                                                                                                                                                                                                                                                                                                                                                          |
|           |                                                       | 25℃/25℃≥100%                                                   |                                                                                                                                                                                                                                                                                                                                                                                                          |
|           |                                                       | 55℃/25℃≥95%                                                    |                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4.4       | 常温放电性能<br>Discharge performance in normal temperature | 放电容量<br>Discharge capacity<br>0.2C ≥100%<br>1C ≥98%<br>2C ≥95% | 在 25℃±2℃环境中, 电池标准充电后, 搁置 10min, 然后以 0.2C、1C、2C 放电至 10.0V。计算各倍率下的放电容量与额定容量的比值。<br>When the battery is in the environment of 25℃ ± 2℃, after standard charging, rest for 10min, and then discharge to 10.0V with 0.2C, 1C, 2C. Calculate the ratio of discharge capacity to rated capacity at each multiple.                                                                                               |
| 4.5       | 循环寿命<br>Cycle life@DOD100%                            | ≥2000 cycles                                                   | 电池标准充电后以 0.5C 电流放电至截止电压, 静置 1h; 重复上述步骤直至放电容量小于初始容量的 80%。<br>After Normal charge, discharge @0.5C current to the end of discharge voltage. Repeat above process until discharge capacity reduce to 80% of initial value.                                                                                                                                                                                  |

|                                                                                   |                                |          |            |
|-----------------------------------------------------------------------------------|--------------------------------|----------|------------|
|  | 产品规格书<br>PRODUCT SPECIFICATION | DOC NO.: |            |
|                                                                                   |                                | REV. :   | A/0        |
|                                                                                   |                                | Date :   | 2024/01/03 |

5. 保护电路规格参数 **Circuit Protection**

本电池内部包含磷酸铁锂电池保护板，能实时监控电池充电状态，提供过充保护，必要时切断动力电池的输入进行保护。

The batteries are supplied with a LiFePO4 Battery Management System (PCB)that can monitor and optimized each single prismatic cell during charge , to protect the battery pack overcharge. the BMS helps to ensure safe and accurate running.

|         |          |            |        |      |    |
|---------|----------|------------|--------|------|----|
| 电池类型    | 磷酸铁锂     | 组合方式       | 4S     |      |    |
| 标准充电电压  | 14. 6V   | 放电截止电压     | 9. 2V  |      |    |
| 可持续充电电流 | 100A     | 可持续放电电流    | 100A   |      |    |
| 接口类型    | 充放电同口    | 电池容量       | 10AH   |      |    |
| 工作环境    | 工作温度     |            | -20—75 | ℃    |    |
|         | 工作湿度     |            | 0%—90% | RH   |    |
| 存储环境    | 存储温度     |            | -40—85 | ℃    |    |
|         | 存储湿度     |            | 0%—90% | RH   |    |
| 项目      |          | 最小值        | 典型值    | 最大值  | 单位 |
| 单节过充保护  | 过充保护电压   | 3800       | 3850   | 3900 | mV |
|         | 过充保护延时   | 500        | 1000   | 1500 | mS |
|         | 过充恢复电压   | 3600       | 3650   | 3700 | mV |
| 单体过放保护  | 过放电保护电压  | 2200       | 2300   | 2400 | mV |
|         | 过放电保护延时  | 500        | 1000   | 1500 | mS |
|         | 过放电恢复电压  | 2400       | 2500   | 2600 | mV |
| 充电过流保护  | 充电过流保护电流 | \\         | \\     | \\   | A  |
|         | 充电过流保护延时 | \\         | \\     | \\   | mS |
|         | 充电过流保护恢复 | 充电机移除/放电恢复 |        |      |    |

|                                                                                   |                                |         |          |       |            |  |
|-----------------------------------------------------------------------------------|--------------------------------|---------|----------|-------|------------|--|
|  | 产品规格书<br>PRODUCT SPECIFICATION |         | DOC NO.: |       |            |  |
|                                                                                   |                                |         | REV. :   |       | A/0        |  |
|                                                                                   |                                |         | Date :   |       | 2024/01/03 |  |
| 放电过流保护                                                                            | 一级放电过流保护电流                     | 350     | 400      | 450   | A          |  |
|                                                                                   | 一级放电过流保护延时                     | 70      | 100      | 130   | S          |  |
|                                                                                   | 二级放电过流保护电流                     | 700     | 800      | 900   | A          |  |
|                                                                                   | 二级放电过流保护延时                     | 7       | 10       | 13    | S          |  |
|                                                                                   | 放电过流保护恢复                       | 移除负载/充电 |          |       |            |  |
| 短路保护                                                                              | 短路保护电流                         | -       | 1600     | -     | A          |  |
|                                                                                   | 短路保护延时                         | ≤500    |          |       | uS         |  |
|                                                                                   | 短路保护恢复                         | 移除负载/充电 |          |       |            |  |
| 温度保护                                                                              | MOS 高温保护                       | 105     | 110      | 115   | ℃          |  |
|                                                                                   | MOS 高温恢复                       | 95      | 100      | 105   | ℃          |  |
|                                                                                   | 放电高温保护                         | 70      | 70       | 75    | ℃          |  |
|                                                                                   | 放电高温恢复                         | 60      | 60       | 65    | ℃          |  |
|                                                                                   | 放电低温保护                         | -20     | -25      | -30   | ℃          |  |
|                                                                                   | 放电低温恢复                         | -15     | -20      | -25   | ℃          |  |
|                                                                                   | 充电高温温度                         | 50      | 55       | 60    | ℃          |  |
|                                                                                   | 充电高温恢复                         | 45      | 50       | 55    | ℃          |  |
|                                                                                   | 充电低温保护                         | 0       | -5       | -10   | ℃          |  |
|                                                                                   | 充电低温恢复                         | -5      | 0        | 5     | ℃          |  |
| 均衡电压                                                                              | 均衡开启电压                         | 3.575   | 3.625    | 3.675 | mV         |  |
|                                                                                   | 均衡电流                           | 35-80   |          |       | mA         |  |
|                                                                                   | 均衡方式                           | 充电均衡    |          |       |            |  |
| 功耗                                                                                | 普通休眠                           | ≤150    |          |       | uA         |  |
|                                                                                   | 欠压休眠                           | ≤50     |          |       | uA         |  |
| 最大持续电流                                                                            | 最大持续充电电流                       | -       | 100      |       | A          |  |
|                                                                                   | 最大持续放电电流                       | -       | 100      |       | A          |  |



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### 6. 运输、存储注意 / Transport & Store

长期储存时，电池带电量一般在 30%~50%，高的带电量储存会加快电池容量衰减。

按规格书规定的方式每 6 个月需充放电循环一次。

运输过程装卸电池时请注意不要摔落，请勿超过 5 层堆积、翻转放置，保证正面朝上。

When long-time storage, the battery SOC is 30% ~ 50% , if high-SOC storage will accelerate the battery capacity degradation.

The battery need to be charged every 6 months if out of use

No fall down, no pile up over 5 layers, and keep face up.

### 7. 警示及注意事项 / Warning & Tips.

使用电池前请仔细阅读规格书和电池箱表面的警示标志。不当的使用电池可能会引起电池过热损坏，对于未按规格书操作造成的任何意外事故，深圳市拓湃新能源科技有限公司不负担任何责任，为了使电池安全的使用及处理请在使用前认真的阅读操作说明：

Please read and follow the handling instructions before use. Improper use may cause heat, fire,rupture, damage or capacity deterioration of the battery. TOPAK POWER TECHNOLOGY CO., LTD. Describes is not responsible for any accidents caused by the usage without following our handling instructions.

#### 警告 Warning

- 电池请远离热源、高压场所、并避免长时间的日光暴晒；
- 不能将电池投入水或火中；
- 不要接反电池的正负极；
- 不要用金属短接电池正负极；
- 避免过分的物理震动和冲击电池，不要撞击、摔落、踩踏电池；
- 未经厂家许可和指导，严禁私自拆卸或组装电池；
- 不能将其它不同厂家，类型，型号的电池混合使用；
- Battery must be far away from heat source, high voltage, and no exposed in sunshine for long time.
- Never throw the battery into water or fire;
- Never reverse two electrodes when use the battery;
- Never connect the positive and negative of battery with metal;
- Never knock, throw or trample the battery;
- Never disassemble the battery without manufacturer's permission and guidance.
- Never use mixed with other type of battery;

#### 注意 Attention

- 请不要高温环境下使用或储存，否则会引起电池发热、起火或使用寿命降低；
- 电池用完电后，请及时(15 天内)充电；
- 请使用配套或者推荐的专业锂电池充电器；
- 电池有异味、变色、噪音、漏液、严重变形等异常情形时，请停止使用；



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PRODUCT SPECIFICATION

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REV. :

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Date :

2024/01/03

- 电解液泄露溅入皮肤、眼睛时，请用清水冲洗并立即找医生诊治；
- 请将电池放置在宠物和儿童接触不到的位置，禁止小孩接触电池；
- Keep the battery against high temperature. Otherwise it will cause battery heat, get into fire or lose some function and reduce the life.
- When battery run out of power, please charge your battery timely ( $\leq 15$ day).
- Please use the matched or suggested charger for this battery.
- If battery emit peculiar smell, heating, distortion or appear any abnormality, please stop using.
- If the battery leaks and get into the eyes or skin, do not wipe, instead, rinse it with clean water and see doctor immediately.
- Please far away from children or pets.