



SHENZHEN DATA POWER TECHNOLOGY LIMITED

编号/NO.:
版本/VER. : A/1

产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

方形动力锂离子电池规格书

Specification For Li-ion Prismatic Power Cell

电芯型号 : IFP23140160-50Ah

Cell Type: IFP23140160-50Ah

编制/日期 Prepared/ Date	审核/日期 Checked/ Date	批准/日期 Approved/ Date	生效日期 Effective date
周焘	GLORIA LI		



SHENZHEN DATA POWER TECHNOLOGY LIMITED

产品规格书—IFP23140160-50 Ah
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A0	新版本发行	陈淑青	



SHENZHEN DATA POWER TECHNOLOGY LIMITED

产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

编号/NO.:
版本/VER. : A/1

Contents 目录

- 1 Preface 前言
- 2 Definition 定义
 - 2.1 Rated capacity 额定容量
 - 2.2 Standard charge method 标准充电方式
 - 2.3 Standard discharge method 标准放电方式
 - 2.4 End of life 寿命终止
- 3 Executive standard 执行标准
- 4 Cell type, size and performance 电芯型号、尺寸及性能
 - 4.1 Description and model 电芯说明及型号
 - 4.2 Cell size (Including blue film) 电芯尺寸 (包括蓝膜)
- 5 Cell parameters 电芯参数
 - 5.1 Basic parameters 1 基本参数1
 - 5.2 Basic parameters 2 基本参数2
 - 5.3 SOC-OCV SOC-OCV
- 6 Charging and Discharging Strategy 充放电策略
- 7 Package picture 包装图片
- 8 Storage, quality guarantee period 存储, 保质期
- 9 Warning and cautions in handling the lithium-ion cell 电芯使用时警告事项及注意事项
- 10 Contact information 联系方式



SHENZHEN DATA POWER TECHNOLOGY LIMITED

产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

编号/NO.:
版本/VER.: A/1

1 Preface 前言

This specification describes the type and size, performance, technical characteristics, warning and caution of the prismatic power cell. The specification only applies to IFP23140160-55Ah cell supplied by SHENZHEN DATA POWER TECHNOLOGY LTD

本标准描述了方形动力电芯的外型尺寸、特性、技术要求及注意事项。本标准适用于深圳市德泰能源有限公司生产的IFP23140160-55Ah电芯。

2 Definition 定义

2.1 Rated capacity:

额定容量:

Rated capacity=55.0Ah: The capacity obtained when a cell is discharged at 1C to 2.5 volts at $25 \pm 2.5^\circ\text{C}$

额定容量 Cap=55.0Ah，指在 $25 \pm 2.5^\circ\text{C}$ 环境下，以1C放电至终止电压为2.5V 时的容量。

2.2 Standard charge method:

标准充电方式:

At $25 \pm 2.5^\circ\text{C}$, charge to 3.65V at a constant current of 1C, and then, charge continuously with constant voltage of 3.65V until the charge current drops below 0.05C.

在 $25 \pm 2.5^\circ\text{C}$ 环境下，以 1C 的电流恒流充电至单体电芯电压 3.65 V 后，转为恒压 3.65 V 充电，至充电电流小于 0.05C 时，停止充电。

2.3 Standard discharge method:

标准放电方式:

At $25 \pm 2.5^\circ\text{C}$, discharge to 2.5 V at a constant current of 1C.

在 $25 \pm 2.5^\circ\text{C}$ 环境下，以 1C 的电流恒流放电至电压 2.5V

2.4 Standard discharge method:

寿命终止:

From the date of production to the time when the capacity decreases to 80% of the initial capacity

从生产之日起到容量衰减到初始容量80%的时间，

3 Executive standard 执行标准

GB/T 31467.3-2015 Lithium-ion power battery packs and systems for electric vehicles Part 3: Safety requirements and test methods

GB/T 31467.3-2015 电动汽车用锂离子动力蓄电池包和系统第3部分：安全性要求与测试方法

GB/T 31484-2015 Cyclic Life Requirements and Test Method of Power Batteries for Electric Vehicles

GB/T 31484-2015 电动汽车用动力蓄电池循环寿命要求及试验方法

GB/T 31485-2015 Safety Requirements and Test Method of Power Batteries for Electric Vehicles

GB/T 31485-2015 电动汽车用动力蓄电池安全要求及试验方法

GB/T 31486-2015 Electrical Performance Requirements and Test Method of Power Batteries for Electric Vehicles

GB/T 31486-2015 电动汽车用动力蓄电池电性能要求及试验方法



SHENZHEN DATA POWER TECHNOLOGY LIMITED

编号/NO.:
版本/VER. : A/1

产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

4 Cell type , bar code and size 电芯型号及尺寸

4.1 Description and model 电芯说明及型号

Description: Square Li-ion rechargeable cell

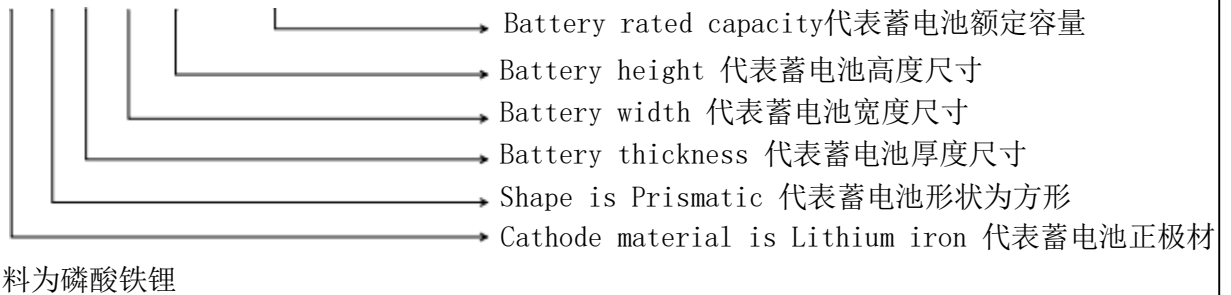
Model: IFP23140160-55Ah

IFP23140160-55Ah 型号的方形锂离子二次电芯

Product Model Meaning 产品型号含义:

IFP23140160-55Ah

IF P XX XX XX - 55Ah



4.2 Cell size (Including blue film) 电芯尺寸 (包括蓝膜)

ITEM 电池项目	Parameter 参数
Battery width 电池宽度W (mm)	140.2±0.5
Battery height 电池高度H1 (No Pole 不包含极柱, mm)	157.2±0.5
Battery height 电池高度H2 (Including Pole 包含极柱, mm)	160.0±0.5
Battery thickness 电池厚度T (Free state 自由状态mm)	24.0±0.5
Positive plate edge to shell edge 正极板边缘到壳体边缘D1	12.3±0.5
Plate length 极板长度D2	35±0.5
Plate spacing 极板间距D3	80±0.5
Plate width 极板宽度D4	15±0.5



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编号/NO.:
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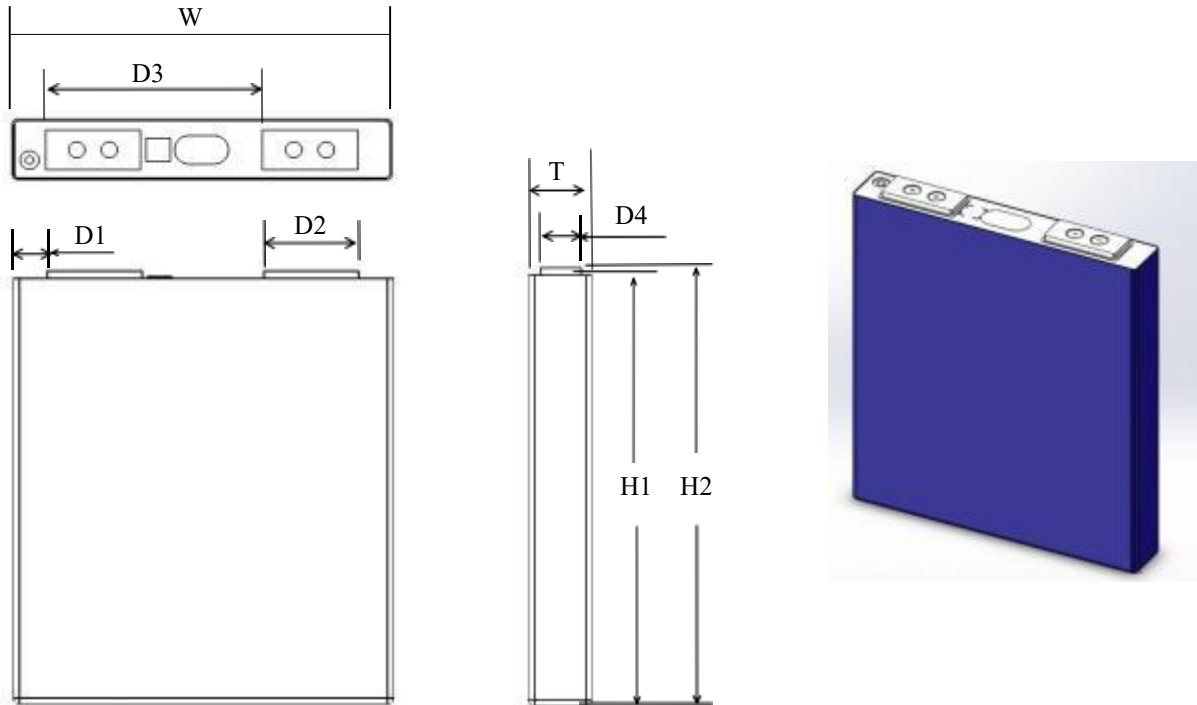


Figure 1/图1

5 Cell parameters 电芯参数

5.1 Basic parameters 1 基本参数1

ITEM 项目	SPECIFICATION 规格
Rated capacity 额定容量 (Ah)	55.0
voltage platform. 电压平台 (V)	3.2V
Initial capacity 初始容量 (Ah)	≥55
Limited voltage in charge 最大充电电压	3.65 V
Final voltage in discharge 放电终止电压(温度>0℃)	2.50 V
Final voltage in discharge 放电终止电压(温度≤0℃)	2.00 V
Discharge temperature 放电温度	-30 ~60
Charge temperature 充电温度	0 ~60



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ITEM 项目	SPECIFICATION 规格
Charging and discharging current 充放电电流	Refer to Article 6, Charging and Discharging Strategies 参考第 6 条, 充放电策略
ACR 交流内阻 (25°C, 100% SOC) mΩ	≤0.65
DCR 直流内阻 (25°C, 100% SOC) mΩ	≤3.0
Capacity retention 25°C, 100%SOC, 30days 荷电保持 25°C, 100%SOC, 1 个月	≥96%
Capacity retention 60°C, 100%SOC, 7days 荷电保持 60°C, 100%SOC, 7 天	≥96%
Cycle life@25°C, 1C 电池寿命@25°C, 1C	≥2000 次
Calendar life 日历寿命 (25°C)	≥10 年
Cell safety performance 电芯安全性能	Extrusion, needling, overshoot, overshoot, heating, drop and so on meet the requirements of the national standard. 挤压, 针刺, 过冲, 过放, 加热, 跌落等符合国标要求
Opening pressure of explosion-proof valve 防爆阀开启压力	0.8±0.2Mpa
Battery weight 电池重量 (Kg)	1.15±0.05
Appearance 外观	No deformation or cracks, no burrs, no drying, no trauma, no dirt, clear and correct marks. 不得有变形、及裂纹, 表面无毛刺、干燥、无外伤、无污物, 有清晰、正确的标志
Humidity range 湿度范围	0 ~ 90 % RH (non-condensing 不冷凝)
Atmosphere 大气压	70kPa~106kPa

5.2 Basic parameters 2 基本参数2

Different Temperature Capacity, Energy Retention Rate 不同温度容量, 能量保持率

ITEM 项目	-20°C	-10°C	0°C	10°C	25°C	35°C	45°C	55°C
Capacity rate 容量保持率	≥80%	≥85%	≥90%	≥90%	≥100%	≥100	≥100	≥100
Capacity rate 能量保持率	≥65%	≥70%	≥75%	≥80%	≥100%	≥100	≥100	≥100



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Product Specification For IFP23140160-55 Ah

编号/NO.:
 版本/VER. : A/1

5.3 SOC-OCV SOC-OCV

SOC \ 温度	放电 SOC-OCV							
	-20℃	-10℃	0℃	10℃	25℃	35℃	45℃	55℃
100	3.347	3.346	3.353	3.350	3.364	3.347	3.338	3.337
90	3.294	3.304	3.314	3.321	3.327	3.329	3.331	3.331
80	3.287	3.303	3.314	3.321	3.327	3.328	3.330	3.330
70	3.278	3.293	3.310	3.320	3.326	3.328	3.330	3.330
60	3.273	3.283	3.293	3.306	3.321	3.324	3.327	3.327
50	3.268	3.277	3.282	3.286	3.292	3.294	3.295	3.297
40	3.266	3.273	3.276	3.280	3.286	3.290	3.293	3.296
30	3.265	3.270	3.275	3.279	3.284	3.287	3.287	3.286
20	3.260	3.269	3.273	3.276	3.273	3.259	3.252	3.249
10	3.257	3.264	3.259	3.245	3.225	3.207	3.205	3.205
0	3.251	3.255	3.237	3.203	3.182	2.906	2.693	2.609



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Product Specification For IFP23140160-55Ah

编号/NO.:
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6 Charging and Discharging Strategy 充放电策略

Continuous Charging current

表 5: 持续充电电流表

温度 SOC	T≤0℃	0<T≤5 ℃	5<T≤10 ℃	10<T≤15 ℃	15<T≤30 ℃	35<T≤40 ℃	40<T≤45 ℃	45<T≤50 ℃	50<T≤55 ℃	55<T≤60 ℃	>60℃
100%	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C
95%	0C	0.33C	0.33C	0.5C	0.5C	0.5C	0.33C	0.2C	0.1C	0C	0C
90%	0C	0.33C	0.5C	0.5C	0.5C	0.5C	0.33C	0.2C	0.1C	0C	0C
80%	0C	0.33C	0.5C	0.75C	0.75C	0.75C	0.5C	0.2C	0.1C	0C	0C
70%	0C	0.33C	0.5C	1C	1C	0.75C	0.5C	0.33C	0.2C	0C	0C
60%	0C	0.33C	0.5C	1C	1C	0.75C	0.5C	0.33C	0.2C	0C	0C
50%	0C	0.33C	0.5C	1C	1C	0.75C	0.5C	0.33C	0.2C	0C	0C
40%	0C	0.33C	0.5C	1C	1C	0.75C	0.5C	0.33C	0.2C	0C	0C
30%	0C	0.33C	0.5C	1C	1C	0.75C	0.5C	0.5C	0.2C	0C	0C
20%	0C	0.33C	0.5C	1C	1C	0.75C	0.75C	0.5C	0.5C	0C	0C
10%	0C	0.33C	0.5C	1C	1C	0.75C	0.75C	0.5C	0.5C	0C	0C
5%	0C	0.33C	0.5C	1C	1C	0.75C	0.75C	0.5C	0.5C	0C	0C
0%	0C	0.33C	0.5C	1C	1C	0.75C	0.75C	0.5C	0.5C	0C	0C



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编号/NO.:
版本/VER. : A/1

产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

表6: Maximum pulse charging current

允许最大脉冲充电/制动回馈电流IBmax (SOC, T, 30s)

温度 SOC	T≤0 ℃	0<T≤5 ℃	5<T≤10 ℃	10<T≤15 ℃	15<T≤30 ℃	35<T≤40 ℃	40<T≤45 ℃	45<T≤50 ℃	50<T≤55 ℃	55<T≤60 ℃	>60℃
100%	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C
95%	0C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0C
90%	0C	0.33	0.33	0.5	0.5	0.5	0.5	0.5	0.33	0.33	0C
80%	0C	0.5C	0.75C	1C	1C	1C	1C	1C	0.75C	0.5C	0C
70%	0C	0.5C	0.75C	1C	1C	1C	1C	1C	0.75C	0.5C	0C
60%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.5C	0C
50%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.5C	0C
40%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.5C	0C
30%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.5C	0C
20%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.75C	0C
10%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.75C	0C
5%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.75C	0C
0%	0C	0.5C	0.75C	2C	2C	1C	1C	1C	0.75C	0.75C	0C



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产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

编号/NO.:
 版本/VER.: A/1

表 7: Maximum continuous discharge current
 最大允许持续放电电流 I' max (SOC, T)

温度 SOC	-30<T ≤-25 °C	-25<T ≤-20 °C	-20<T ≤-10 °C	-10<T ≤0 °C	0<T≤ 5°C	5<T≤ 10°C	10<T ≤15 °C	15<T ≤35 °C	35<T ≤40 °C	40<T ≤45 °C	45<T ≤50 °C	50<T ≤55 °C	55<T ≤60 °C	>60 °C
100%	0.33C	0.5C	0.5C	0.5C	1C	1C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
95%	0.33C	0.5C	0.5C	0.5C	1C	1C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
90%	0.33C	0.5C	0.5C	0.5C	1C	1C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
80%	0.33C	0.5C	0.5C	0.5C	1C	1C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
70%	0.33C	0.5C	0.5C	0.5C	1C	1C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
60%	0.33C	0.33C	0.33C	0.5C	0.75C	1C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
50%	0.33C	0.33C	0.33C	0.5C	0.75C	1C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
40%	0.33C	0.33C	0.33C	0.5C	0.75C	0.75C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
30%	0.33C	0.33C	0.33C	0.5C	0.75C	0.75C	1C	1C	1C	1C	0.75C	0.5C	0.33C	0C
20%	0.1C	0.33C	0.33C	0.5C	0.75C	0.75C	0.75C	0.75C	0.75C	0.75C	0.5C	0.33C	0.33C	0C
15%	0.1C	0.1C	0.33C	0.33C	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C	0.33C	0.2C	0C
10%	0C	0C	0.33C	0.33C	0.33C	0.33C	0.33C	0.33C	0.33C	0.33C	0.33C	0.2C	0.2C	0C
5%	0C	0C	0.1C	0.15C	0.2C	0.2C	0.2C	0.2C	0.2C	0.2C	0.2C	0.2C	0.2C	0C
0%	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C



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编号/NO.:
版本/VER.: A/1

产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

表 8: Maximum Pulse Discharge Current

允许脉冲放电电流 I'_{max} (SOC, T, 30s)

温度 SOC	-30<T ≤-25 ℃	-25<T ≤-20 ℃	-20<T ≤-10 ℃	-10<T ≤0 ℃	0<T≤ 5℃	5<T≤ 10℃	10<T ≤15 ℃	15<T ≤35 ℃	35<T ≤40 ℃	40<T ≤45 ℃	45<T ≤50 ℃	50<T ≤55 ℃	55<T ≤60 ℃	>60 ℃
100%	0.5C	0.5C	0.5C	0.75C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
95%	0.5C	0.5C	0.5C	0.75C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
90%	0.5C	0.5C	0.5C	0.75C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
80%	0.5C	0.5C	0.5C	0.75C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
70%	0.5C	0.5C	0.5C	0.75C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
60%	0.33C	0.33C	0.33C	0.5C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
50%	0.33C	0.33C	0.33C	0.5C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
40%	0.33C	0.33C	0.33C	0.5C	1C	1C	2C	2C	2C	2C	1.5C	0.75C	0.33C	0C
30%	0.33C	0.33C	0.33C	0.5C	1C	1C	2C	2C	2C	2C	1.5C	0.5C	0.33C	0C
20%	0.1C	0.33C	0.33C	0.5C	0.75C	0.75C	0.75C	1C	1C	1C	0.75C	0.5C	0.33C	0C
15%	0.1C	0.1C	0.33C	0.33C	0.5C	0.5C	0.75C	0.75C	0.75C	0.75C	0.75C	0.33C	0.2C	0C
10%	0C	0C	0.33C	0.33C	0.33C	0.33C	0.5C	0.5C	0.5C	0.5C	0.5C	0.33C	0.2C	0C
5%	0C	0C	0.1C	0.15C	0.2C	0.2C	0.33C	0.33C	0.33C	0.33C	0.33C	0.33C	0.2C	0C
0%	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C	0C



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产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

编号/NO.:
版本/VER. : A/1

7 Package picture

包装图片



8 Storage and quality guarantee period 存储，保质期

8.1 对于不同的存储环境下，建议存储条件参照下表：

Temperature 环境温度	Storage time 存储时间	SOC 荷电状态
-20~35℃	≤6 个月	30%≤SOC≤60%
35~45℃	≤3 个月	30%≤SOC≤60%

8.2 25℃条件下存储压降：

Storage time 存储时间	30days storage 存储 30 天	60days storage 存储 60 天	90days storage 存储 90 天	180days storage 存储 90 天
Voltage drop standard 压降标准/mV	≤5	≤8	≤10	≤20



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Shelf life: calendar life of 10 years or cycle life of 2000 times (based on first come)

保质期：日历寿命10年或循环寿命2000次 (以先到为准)

Regular maintenance

For storage cores that have been used for more than 6 months, the starting time is the delivery time of our cores; if regular maintenance is required, 0.5C current constant charging should be carried out to 3.6V, 3.6V constant voltage to 0.05C, 0.5C constant current discharging to 2.5V after 10 minutes, 0.5C constant current charging to 3.2V after 10 minutes, 3.2V constant voltage charging to 0.05C, and the process ends. If abnormal cores are found in the maintenance process, we should contact our company to deal with them in time.

定期维护

对于使用方库存超过6个月的电芯，起始时间为我司电芯出货时间；如需进行定期维护，需进行0.5C电流恒流充电至3.6V，3.6V恒压至0.05C，静置10min后使用0.5C恒流放电至2.5V，静置10min后再使用0.5C恒流充电到3.2V，3.2V恒压充电至0.05C，流程结束。如维护过程中发现有异常电芯，需及时联系我司进行处理。

9 Warning and cautions in handling the lithium-ion cell

电芯使用时警告事项及注意事项

To prevent the possibility of the cell from leaking, heating, explosion, please observe the following precautions:

为防止电芯可能发生泄露，发热，爆炸，请注意以下预防措施：

- Don't immerse the cell in water.
- 严禁将电芯浸入水中。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.
- 禁止将电芯在高温源旁使用和留置，如火，加热器等旁边。
- Don't discard the cell in fire or heater.
- 禁止将电芯丢入火或加热器中。
- Don't connect the positive and negative terminal directly with metal objects.
- 禁止用金属直接连接电芯正负极，造成短路。
- 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。
- strike, throw or trample the cell.
- 禁止敲击，抛掷或踩踏电芯等。
- Don't directly solder the cell.
- 禁止直接焊接电芯。
- Don't pierce the cell with a nail or other sharp object.
- 禁止用钉子或其它利器刺穿电芯。



SHENZHEN DATA POWER TECHNOLOGY LIMITED

产品规格书—IFP23140160-50Ah
Product Specification For IFP23140160-50Ah

编号/NO.:
版本/VER. : A/1

Caution 小心

- If the cell leaks and the electrolyte get into your 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, eye 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15分钟以上，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 appears 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。