

## PRODUCT SPECIFICATION XCell Akku 26650 -3400 LFP

### 1. Description

- 1.1 Product: Rechargeable battery
- 1.2 Model (Type): IFR26650-3400mAh 3.2V

### 2. Cell Size

For details, please refer to Figure A.

| Item | Description          | Dimensions  |
|------|----------------------|-------------|
| H    | Height (Bare Cell)   | 65.3 mm max |
| D    | Diameter (Bare Cell) | 26.3 mm max |

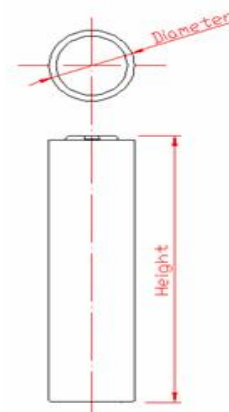
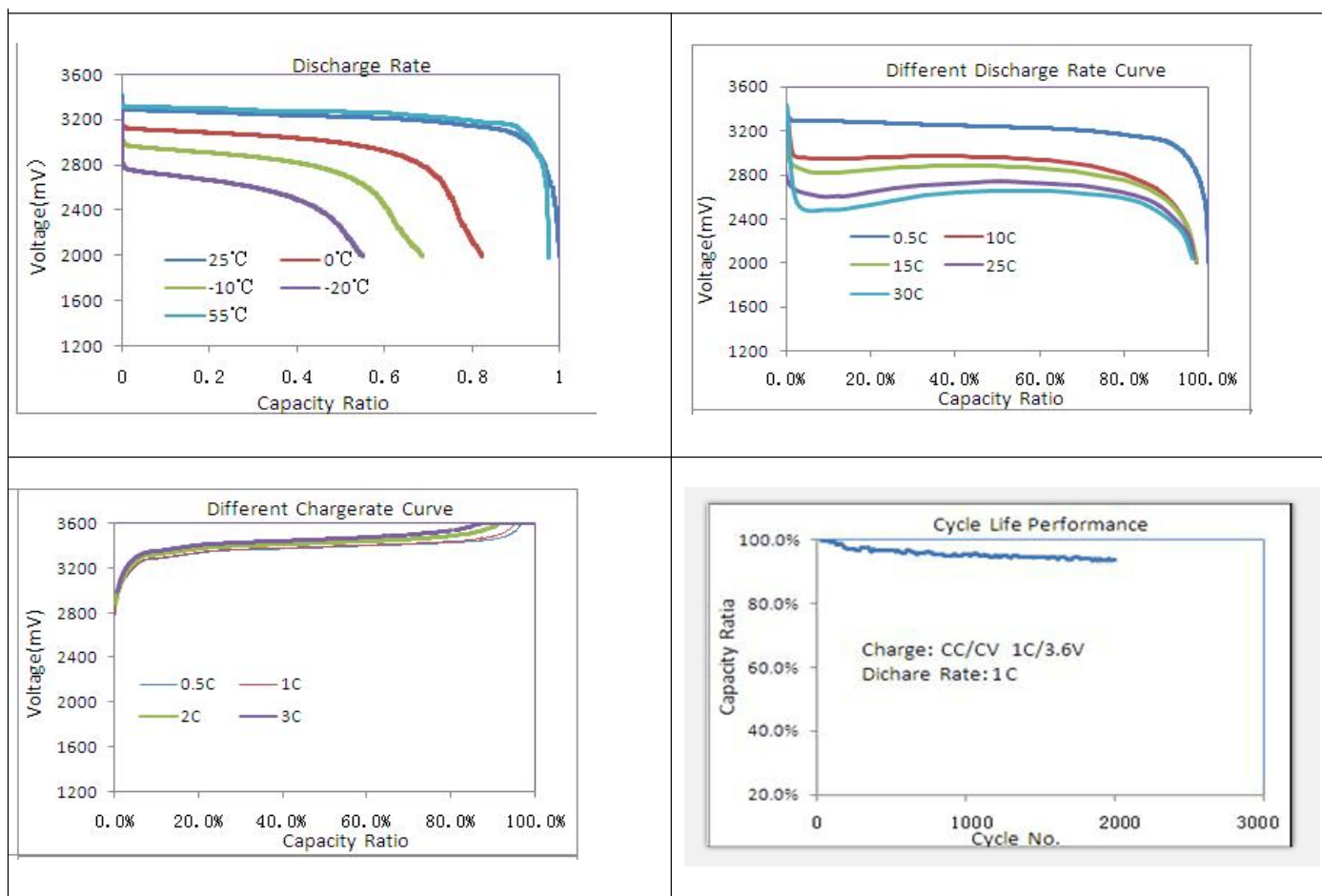


Figure A

### 3. Characteristics diagram



## 4. Cell Specification

| Item                                 | Specification                                               | Remark                               |          |                                                                |
|--------------------------------------|-------------------------------------------------------------|--------------------------------------|----------|----------------------------------------------------------------|
| 4.1 Typical capacity                 | 3400mAh                                                     | 0.2C rate discharge capacity         |          |                                                                |
| 4.2 Minimum capacity                 | 3300mAh                                                     |                                      |          |                                                                |
| 4.3 Internal impedance               | ≤25mΩ                                                       | By 1kHz AC                           |          |                                                                |
| 4.4 Nominal voltage                  | 3.2V                                                        |                                      |          |                                                                |
| 4.5 Cell weight                      | 80g±2g                                                      |                                      |          |                                                                |
| 4.8 Standard discharge conditions    | Constant current                                            | 1700mA                               |          |                                                                |
|                                      | End-of-charge voltage                                       | 2.0V                                 |          |                                                                |
| 4.6 Standard charge method           | Constant current                                            | 1700mA                               |          |                                                                |
|                                      | Charge voltage                                              | 3.65V                                |          |                                                                |
|                                      | Cut-off current                                             | 68 mA                                |          |                                                                |
| 4.7 Fast charge method               | Constant current                                            | 3400mA                               |          |                                                                |
|                                      | Charge voltage                                              | 3.65V                                |          |                                                                |
|                                      | Cut-off current                                             | 68mA                                 |          |                                                                |
| 4.9 Max continuous discharge current | 10200mA                                                     | 3C                                   |          |                                                                |
| 4.10 Pulse discharge at 10 Sec       | 15000mA                                                     | 5C                                   |          |                                                                |
| 4.11 Cycle life                      | over 2000 cycles                                            | 0.1C continual discharge ( 100% DOD) |          |                                                                |
| 4.12 Operating temperature           | Charging ambient temperature                                | 0~45°C                               |          | Cell skin temperature should not exceed 65°C.                  |
|                                      | Discharging ambient temperature                             | -20~45°C                             |          | Cell skin temperature should not exceed 80°C                   |
|                                      | Storage temperature                                         | 1 year                               | 0~30°C   | Note:If the cell is kept as ex-factory status (50 % of charge) |
|                                      |                                                             | 3 months                             | -20~35°C |                                                                |
|                                      |                                                             | 1 month                              | -20~45°C |                                                                |
| 4.13 Appearance                      | Without break, scratch, distortion, contamination, leakage. |                                      |          |                                                                |

## 5. Cell Electrical Characteristics

| Test Item                         | Test Method                                                                                                                                                                                                                                                               | Remark                                                                        |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 5.1 1C Discharge performance (1C) | A cell is charged using standard charge method (spec. 5.6), stored at 23°C±2°C for 0.5h, and then 1C constant current discharged to 2.0V.                                                                                                                                 | 57min. the discharging time is not less than 1h.                              |
| 5.2 High temperature performance  | A cell is charged using standard charge method (spec. 5.6), stored at 55°C±2°C for 2h, then 1C constant current discharged to 2.0V. After that, fetch out the cell and place it in the ambient temperature of 20°C±5°C for 2h, then check its appearance.                 | 1. the discharging time is not less than 51min; 2. no distortion, no rupture. |
| 5.3 Low temperature performance   | A cell is charged using standard charge method (spec. 5.6), stored at -20°C±2°C for 16h~24h, then discharged to 2.0V at a constant current of 0.2C. After that, fetch out the cell and place it in the ambient temperature of 20°C±5°C for 2h, then check its appearance. | 1.the discharging time is not less than 2h; 2.no distortion, no rupture       |
| 5.4 Charge(Capacity) retention    | A cell is charged using standard charge method (spec. 5.6), and stored at 20°C±5°C for 28days, then discharged to 2.0V at a constant current of 0.2C.                                                                                                                     | Capacity retention:85%Ch                                                      |
| 5.5 Cycle life                    | A cell is charged using standard charge method (spec. 5.6), and stored for 0.5h~1h, then discharged to cut-off voltage, after that, stored 0.5h~1h prior to next charge-discharge cycle. The cell shall be continuously charged and discharged for 2000 times             | Capacity retention≥80%                                                        |

## 6. Environment Characteristics

| Test Item                            | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Remark                                                                                            |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 6. Constant temperature and humidity | A cell is charged using standard charge method (spec. 5.6), and stored at 40°C±2°C(90~95%RH) for 48h, then placed in room temperature for 2h. After that, check its appearance prior to being discharged to cut-off voltage at a constant current of 1C.                                                                                                                                                                                                                                                                          | 1. No distortion, no rust, no fume, no explosion; 2. The discharging time is not less than 36min. |
| 6.2 Vibration test                   | A cell is charged using standard charge method (spec. 5.6), then installed onto the vibration desk with clamps. Equipment parameters of frequency and amplitude are as follows(the frequency is to be varied at the rate of 1oct/min between 10 and 55 Hz and repeat vibration for 30min. The cell is to be tested in three mutually perpendicular directions): frequency:10Hz~30Hz amplitude: 0.38mm frequency: 30Hz~55Hz amplitude: 0.19mm                                                                                      | 1. No scratch, no leakage, no fume, no explosion; 2. The min voltage is 3.2V.                     |
| 6.3 Shock test                       | A cell is charged using standard charge method (spec. 5.6), then secured to the testing machine by means of rigid mount which supports all mounting surfaces of the cell. Each cell shall be subjected to a total of three shocks of equal magnitude. The shocks are to be applied in each of three mutually perpendicular directions. The acceleration and impulse time are as follows: acceleration of impulse peak value:100m/s <sup>2</sup> , shock frequency:40~80times/min, impulse lasting time:16min, shock times:1000±10 | 1. No scratch, no leakage, no fume, no explosion; 2. The min voltage is 3.2V.                     |
| 6.4 Drop test                        | A cell is charged using standard charge method (spec. 5.6), then dropped from a height of 1000mm to a wooden board(18-20mm thick) which is placed on the concrete ground. Cells shall be dropped in each of three mutually perpendicular directions. Total drop times are 6. After that, the cell is discharged to cut-off voltage at CC of 1C, then repeat charge & discharge at a current of 1C until the discharge time is not less than 51min, the cycle times should be not more than 3.                                     | No leakage, no fume, no explosion.                                                                |

## 7. Safety test

All below tests are carried out on the equipments with forced ventilation and explosion-proof device. Before test all cells are charged using standard charge method (spec. 5.6), and stored 24h prior to testing.

| Test Item              | Test Method                                                                                                                                                                                                                                                                                                                    | Criteria                 |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 7.1 Heating test       | A cell is to be heated in a circulating air oven. The temperature of the oven is to be raised at a rate of 5°C±2°C per minute to a temperature of 130°C±2°C and remain for 30min at that temperature before the test is discontinued.                                                                                          | No fire, no explosion    |
| 7.2 Overcharge test    | A cell is discharged to cut-off voltage at CC of 0.2C. then it is to be subjected to CC/CV power by connecting its positive & negative terminal, then set the current as 2C, the voltage as 5V, after that, Charge the cell up to 5V at CC of 2C, until that last 7h at the voltage of 5V or the voltage is no more increased. | No fire, no explosion    |
| 7.3 Short-circuit test | A Cell is to be short-circuited by connecting the positive and negative terminals of the cell with copper wire having a maximum resistance load of 50m. Monitor its temperature while testing, the cell is to be discharged until the cell case temperature has returned to be 10°C less than peak temperature.                | 1. No fire, no explosion |

## **8. Shipment**

The Cell shall be shipped in voltage range of 3.30 ~ 3.45 V or in accordance with customers' requirement. The remaining capacity before charging shall be changed depending on the storage time and conditions.

## **9. Precautions and safety instructions**

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.

Note1. The customer is required to contact O V advance, if and when the customer needs other applications or operating conditions than those described in this document.

Note2. O V will take no responsibility for any accident when the cell is used under other conditions than those described in this Document.

### **9.1.0 Standard cell Precaution**

- 9.1.1 Do not expose the cell to extreme heat or flame.
- 9.1.2 Do not short circuit, over-charge or over-discharge the cell.
- 9.1.3 Do not subject the cell to strong mechanical shocks.
- 9.1.4 Do not immerse the cell in water or sea water, or get it wet.
- 9.1.5 Do not reverse the polarity of the cell for any reason.
- 9.1.6 Do not disassemble or modify the cell.
- 9.1.7 Do not handle or store with metallic like necklaces, coins or hairpins, etc.
- 9.1.8 Do not use the cell with conspicuous damage or deformation.
- 9.1.9 Do not connect cell to the plug socket or car-cigarette-plug.
- 9.1.10 Do not make the direct soldering onto a cell.
- 9.1.11 Do not touch a leaked cell directly.
- 9.1.12 Do not use for other equipment.
- 9.1.13 Do not use Lithium-ion cell in mixture.
- 9.1.14 Do not use or leave the cell under the blazing sun (or in heated car by sunshine).
- 9.1.15 Keep cell away from children.
- 9.1.16 Do not drive a nail into the cell, strike it by hammer or tread it.
- 9.1.17 Do not give cell impact or fling it.

### **9.2 / Cell operation instruction**

#### **9.2.1 Charging**

- \* Use a constant current, constant voltage (CC/CV) lithium-ion (Li+) cell charge controller.

#### **9.2.2 Storage recommendations**

##### **a. Storage Temperature and Humidity**

Storage the cell at 0 ~ 45°C, low humidity and no corrosive gas atmosphere.

No press on the cell

## **10. Requirement for safety assurance**

For the sake of safety assurance, please discuss the equipment design, its system and protection circuit of Lithium-ion cell with OV in advance. And consult about the high rate current, rapid charge and special application in the same way.