

CKAA60140 Lithium ion battery pack & fast charge solution



1. Introduction

This specification describes the properties, testing methods and notice of the 60140 Flash Charge Lithium ion capacitors developed by Jinpei Electronics Co., Ltd.

2. General Features

2.1 Features and Advantages

- ❖ Fast charge and discharge
- ❖ Long cycle life
- ❖ Good low temperature performance
- ❖ High energy density



2.2 Typical Applications

Using at Energy storage, Start and stop system, smart grid, harbor machinery UPS and other power system.

3. Product Appearance & Dimensions

3.1 Structure & Appearance



4. Product Technical Index

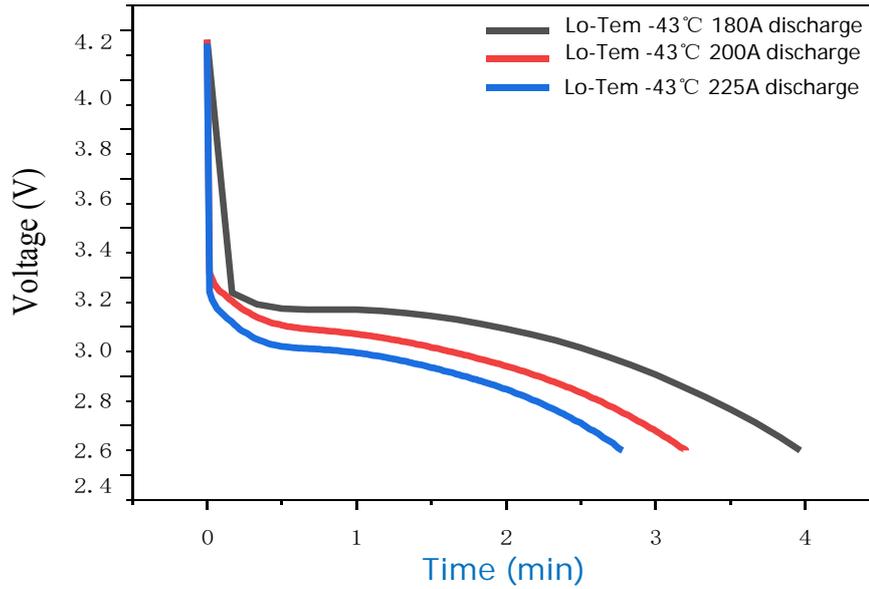
4.1 Main Parameters

Series	Merits	Values
1	Capacitance	15Ah±5%
2	Volt-HI	4.2V
3	Volt-LO	2.5V
4	DC internal resistan (10ms)	0.6m
5	Standard charging current	45A(3C)
6	Quick charging current	150A(10C)
7	Rated discharge current	45A(3C)
8	Max continuous discharge current	300A(20C)
9	Max continuous discharge time	90S
10	Max Temperature increasing	50±5°C
11	Safety	GB/T 31485-2015 《 Electricvehicle Safety requirements and test methods for power accumulators》
12	Charge&discharge temperature range	-40-85°C
13	Storage temperature range	-40-55°C
14	Fast charging cycle life (@25±2°C, Forced cooling)	30,000 times(5C)
15	Slow charging cycle life	30,000 times (1C)
16	Weight	850g
17	Demension(D× H)	60mm×140mm

4.2 Other Technical Information

❖ Low temperature discharge performance

Low temperature discharge curves

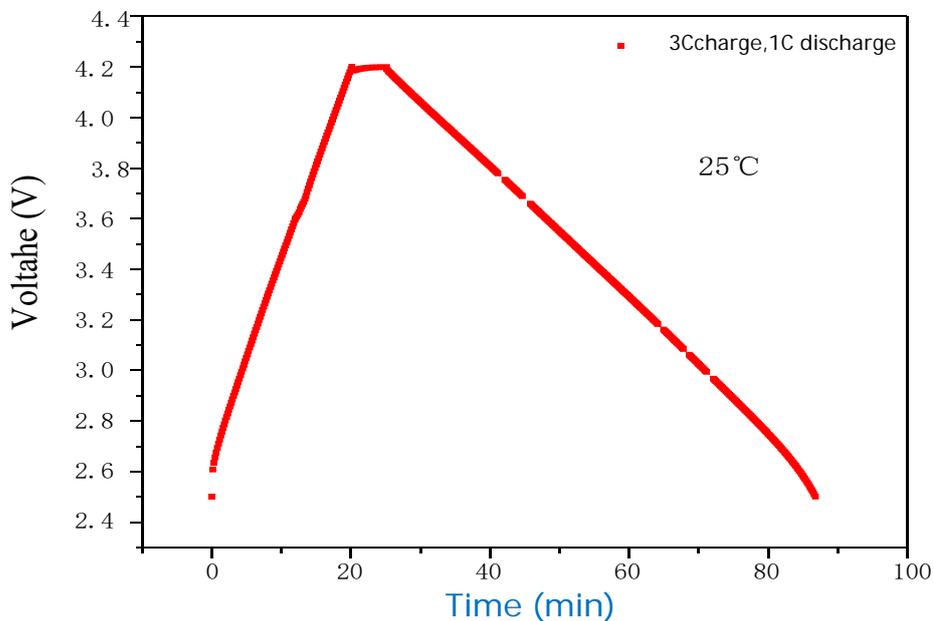


discharge current (A)	discharge time	Discharge capacitance (mAh)
180	3min58s	11.89
200	3min12s	10.66
225	2min47s	10.44

Test method: at room temperature, 3C constant current charge to 4.2V, constant voltage to 0.05c cutoff, put in the low-temperature -43°C environment for 3h, discharge to 2.5V cutoff with different current.

❖ Charge/discharge

charge/discharge curves

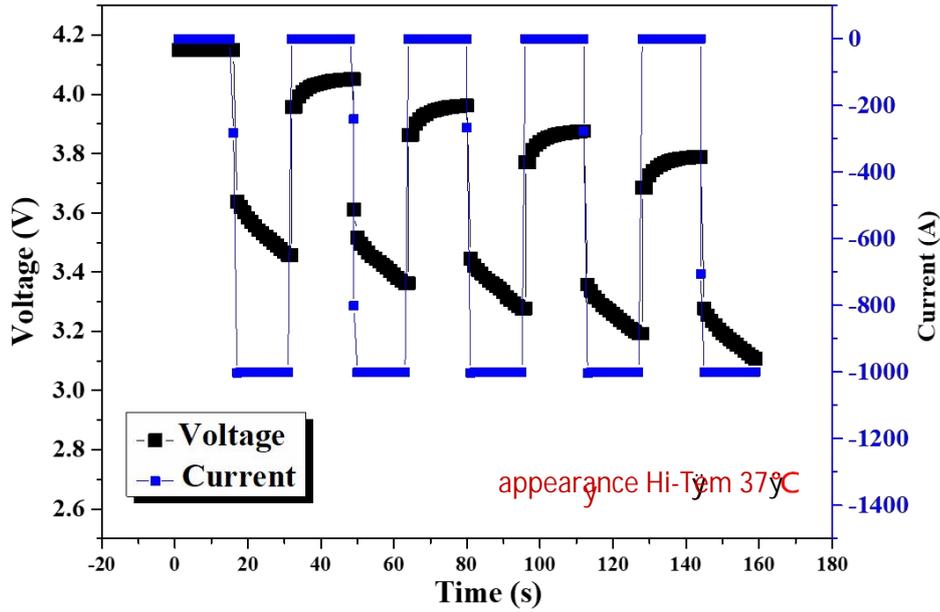




Test method: at room temperature, 3C constant current charge to 4.2V, constant voltage to 0.1c cut-off, use 2min, discharge current 1C to 2.5V cut-off.

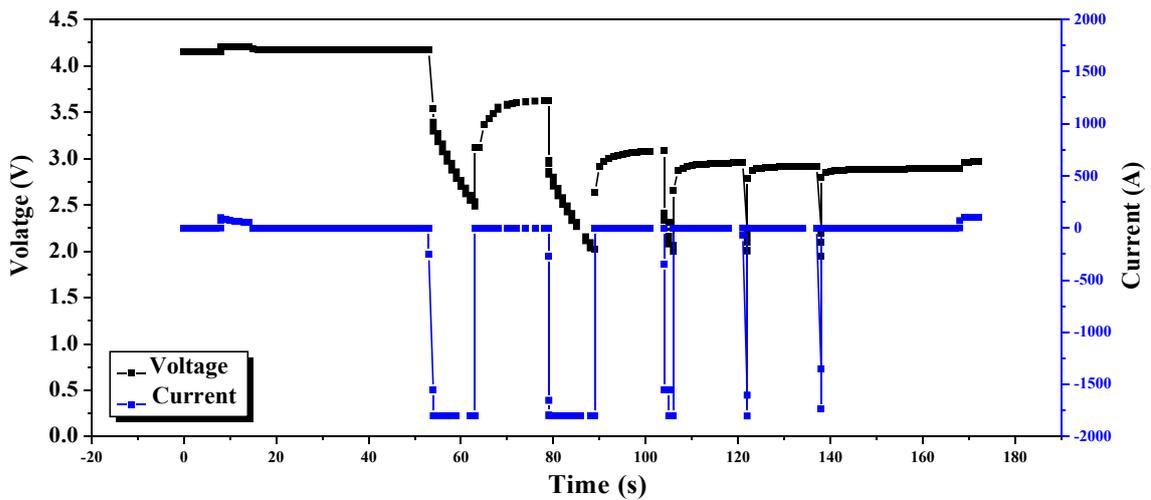
❖ Charge/discharge

@1000A Discharge curves at large current



Test method: charge 3C to 4.15V at normal temperature, constant voltage to 0.1c, discharge for 10s at 1000A, discharge again after 15s interval, record test data.

@1800A Discharge curves at large current



Test conditions: 3C charging to 4.2V at normal temperature, constant voltage to 0.2a cut-off, 1800A discharge for 10s, 15s interval after discharge again, recording test data.



5 Testing Methods

5.1 Testing Conditions

This specification followed the standard testing criteria: 1 atm, 25 ± 2 °C and a relative humidity < 65%.

5.2 Test for Capacitance/Internal resistance

Capacitance Test: Charge the cell to 4.2V by 1C current and the charge it by constant voltage until the current reached 0.1C. And then, discharge the cell to 2.5V at 1C current. After rested 30s, repeated the last processes and regarded the second capacitance as cell' s capacitance.

Resistance test: Charge the cell to 4.2V by 3C current and charge until 0.1C current by constant voltage, test it' s ACR at 1kHz Ac impedance meter. By the way, once test its capacitance, recorded its 10ms voltage difference during the discharge process, and the calculated its DCR by $R=\Delta U/I$. Note: the mix record time is 1s during the "Capacitance and resistance test "proces

Test for Low Temperature

Under the ordered temperature, constant charge the cell to 4.2V and then end it at 0.1C by constant voltage. After this, remove the cell to different temperature condition (keep 2h) and discharge it to 2.5V at 1C current, record its discharge capacitance. Cycle life test Under $25\pm 5^{\circ}\text{C}$, test the cell' s original performance by "Capacitance/resistance method" , and then charge it to 4.0V by 5C current, discharge it to 2.5V at 2C constant current, after this rest 5min, cycle this processes 2000. Regarded the testing process at one cycle, and repeated it 15 times, until it reached 30000 times.

6 Notice

6.1 During Operation

- ❖ Working temperature of LIB should not exceed the upper and lower limits of the rated temperature.
- ❖ LIB should be used at rated voltage.

Check the polarity of LIB before power on. No reverse connecting.

Keep LIB away from heat. The temperature has a big influence on the working life of LIB(LIC).



No direct contacting with water, oil, acid or alkaline.

No crushing, nail penetrating or disassembling LIB.

No discarding. Dispose LIB based on the State Environmental-protection Standard.

The cell embraced constant voltage before shipment, therefore, the short circuit should be extremely forbidden.

5.3 Storage

- ❖ No storage in a condition with a relative humidity exceeding 85% or with toxic gases. It is easy to cause the damage and corrosion of the terminals and case, resulting in disconnection.
- ❖ For Long-term storage, place FCB in a well-ventilated condition at -20 to 55°C, with a relative humidity below 60%. Forbidden to sun directly