Technical Specification

Li-SOCL2 Battery+SPC

Model：ER34615H+SPC1550

	Position	Signature	Date
Edit	Product Engineer		
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1. Scope

This technical specification applies to ER34615H+SPC1550 (Li-SOCL2) battery pack produced by Wuhan Fanso Technology Co., Ltd.

2. Battery type

Lithium Thionyl Chloridebattery (3.6V Li-SOCL2 Battery) + Super Lion-Capacitor

3. General characteristics

Table 1

No.	Item	Characteristic	Remarks
3.1	Model	ER34615H+SPC1550	Bobbin type (ER34615H), Li-ion battery capacitor
3.2	Nominal Voltage	3.6V	Tested with 36KΩ/0.1mA load at +20±5℃
3.3	Nominal Capacity	19Ah	1.8KΩ/2mA load，2.0V cut off, +20±5℃(the actual measured capacity value will be changed by discharge current, temperature and cut-off voltage
3.4	OperatingTemperature range	-40~+85℃	Operation under higher temperature than ambient temperature may lead to capacity reduction and lower voltage reading at the beginning of pulse period. If continuous high temperature over +40℃ or low temperature down to -20℃ usage conditions, please consult FANSO.
3.5	Dimension	\	Refer to the drawing
3.6	Weight	Approx.120g	

4. Appearance

4.1 Appearance

The battery is intact, no scratches, swelling, deformation, corrosion, electrolyte leakage and other defects.

4.2 Mark

Except basic information, the battery label contains Model, Voltage, Capacity, YYMM and more information.

5. Typical electrical performances

Table 2

Item	Characteristic	Remarks
Max. Pulse current /mA	2000	@23±5℃,1s open/1s close
Pulse discharge voltage	3.2V	2.0A, discharge 1s, 20±5℃
Leakage current @RT	< 5μA	< 30℃
Leakage current @HT	< 15μA	60 ~ 80℃

6. Inspection

6.1 Inspection items and sampling method

Table 3

No.	Item	Sampling (GB2828.1.2012)	
		QC level	AQL
6.1	Open Circuit voltage	Ⅱ	0.065
6.2	Load voltage	Ⅱ	0.065
6.3	Appearance	Ⅱ	1.0
6.4	Dimension	S-1	1.0
6.5	Capacity	As destructive testing, the customer can determine on the basis of the actual situation.	

Note: Unless other specified, the above items should be tested within 45 days since receipt of the battery

6.2 Capacity judgment

6.2.1 If the average capacity is not less than the standard value specified in Table 2, and no battery below 90% of the value, the battery capacity is qualified.

6.2.2 If the average capacity is lower than the standard value specified in Table 2, and some battery below

90% of the value, do re-sample test, If the average capacity is not less than the standard value specified in Table 2, and no battery below 90% of the value, the battery capacity is qualified.

6.2.3 If the average capacity of second test is lower than the standard value specified in Table 2 and some battery below 90% of the value during the second test, the battery capacity is unqualified.

7. Safety and environmental performance

7.1 Environmental performance

7.1.1 Heating cycle test

Batteries are to be placed in a test chamber and subjected to the following cycles:

a = 30min raise to 70±3℃, maintaining 4h。

b = 30mindrop to 20±3℃, maintaining 2h。

c = 30mindrop to -40±3℃, maintaining 4h。

d = 30mindrop to 20±3℃。

e = Repeating above 9 cycles.

f = after 10 cycles, battery shall be static placed 7 days before inspected.

Pass/Fail criteria: No explode, no fire, no leakage.

7.1.2 Altitude Simulation

Samples shall be stored for 6hours at an absolute pressure of 11.6KPa(1.68psi) for 6h at temperature 20±3℃ (68±5°F)

Pass/Fail criteria: No explode, no fire, no leakage.

7.1.3 Drop test

The battery is droped from 1.9m height onto floor 10 times

Pass/Fail criteria: No explode, no fire, no leakage.

7.1.4 Vibration test

The vibration frequency of the battery changes at a rate of 1 Hz/min in the range of 10 to 55 Hz for 90 to 100 minutes, and the batteries vibrate in three mutually perpendicular directions.

Pass/Fail criteria: No explode, no fire, no leakage.

7.2 Safety test

7.2.1 Heating

The battery is heated to 130 ° C at 5 ± 3 ° C / min in an oven for 10 min.

Pass/Fail criteria: No explode, no fire, no venting.

7.2.2 Shock

The batteryis placed on a flat surface. A (15.8 mm) diameter steel bar was placed across the center of the sample. A 9.1 kgweight was dropped from a height of 610 ±25 mmon to the sample.

Pass/Fail criteria: No explode, no fire.

7.2.3 Crush test

A cell is to be crushed with a 32mm diameter hydraulic piston between two flat surfaces.The crushing is to be continued until pressure up to 17.2Mpa,the applied force reached 13kN, the pressure shall be released once obtained the maximum pressure.

Pass/Fail criteria: No explode, no fire,allowedventing.

7.2.4 Forced discharging

Afully discharged cell is to be force-discharged by connecting it in series with fully charged cells of the same kind. The number of fully charged cells to be connected in series with the discharged cell is to equal the maximum number less one of the cells to be covered for series use, the circuit load resistance less than0.1Ω. The sample is to discharge until a fire or explosion is obtained, or until it has reached a fully discharge state of less than 0.2V and battery case temperature has returned to ±10℃(+18ºF) of ambient temperature.

Pass/Fail criteria: No explode, no fire,allowedventing.

7.2.5 External Short-circuit

Connect the battery positive and negative terminal with Cu wire(internal resistance < 0.1 ohm), battery was discharged until on fire or explosion, or until fully discharged, then the cell case temperature return to ambient temperature.

Pass/Fail criteria: No explode, no fire,allowedventing.

7.2.6 Forced charging

Tested battery is subjected to a charging current of three times of the current specified by the manufacturer by connecting dc-power. The specified charging current is to be obtained by connecting a resistor of specified size and value.

The test time is calculated from the formula: $T_c=2.5*C/(3*I_c)$

In which

T_c——charge time (h);

C——Nominal capacity (Ah);

I_c——Max. charging current

Pass/Fail criteria: No Fire, no explode, venting allowed.

8. Safety terms

8.1 Before use, do not remove the battery from the original packaging.

8.2 Do not scattered placed the battery together in order to avoid accidental short circuit.

8.3 Do not heat the battery above 100 ℃ or incinerated.

8.4 Do not recharge the battery.

8.5 Do not mixed with different brand, model or type batteries.

8.6 Do not mix the new and used batteries.

8.7 Do not disassembly or open battery.

8.8 Do not short circuit the battery or reversely contact the positive and negative terminals.

8.9 Do not solder on the battery surface.

8.10 Do not test environment and safety under extrusion without any protection.

8.11 Do not use or store batteries under wet conditions without protection.

8.12 Batteries are not allowed to be used excessively in the equipment without setting the cut-off voltage. After reaching the cut-off voltage, it should be removed from the equipment immediately to stop working.

8.13 Stop using if the battery is found to have heat, odor, discoloration, deformation, or other abnormalities during using or storage.

8.14 Batteries used should be handled in accordance with local environmental regulations and buried deep underground or into brine.

8.15 If the liquid is splashed on the skin, eyes and clothes, rinse immediately with plenty of water, and then seek medical care immediately.

9. Storage

9.1 Batteries should be used and stored away from static electricity

9.2 Batteries shall be stored not exceeding 30 ℃ and relative humidity of 45% - 75%.

9.3 Keep the battery away from the heat source, away from corrosive gas, avoid direct sunlight, and make sure the storage area is clean, cool, dry and ventilated.

9.4 The battery packing carton height shall not exceed 1.5 meters, and the wooden box shall not exceed 3 meters.

9.5 Batteries should keep the original storage state when not using, after removing the packaging, the battery should not be piled up irregularly.

10. Transportation

10.1 Batterymeets the tests and criteria requirements of UN Manual, Part III, subsection 38.3.

10.2 Battery should be protected against sunlight, fire, rain, immersion, and corrosive substances in transportation.

10.3 Handling and loading should be with care.

10.4 For long transportation, such as shipping, should be kept away from the engine. And in summer should not be prolonged in an airless environment.

11. Effective

11.1 Because the voltage passivation is the basic feature of lithium thionyl chloride battery, if the batteries will not install within 3 months, we suggest to activate the battery before using. please consult the FANSO for activation scheme.

11.2 In practical applications, customer should be responsible for the compatibility and reliability of the battery and the device.

11.3 In any of the following circumstances, FANSO will not take any responsibility: the client' s fails of appropriate treatment, operation, installation, testing, maintenance and inspection of the battery, or do not follow the instructions provided in the specification, notes, terms, and other FANSO instructions.

11.4 This specification is accepted after 6 months from the date of issues if not be refunded.

12. Statement

If you have any questions on the product specifications, please contact with Wuhan Fanso Technology Co. ltd. Wuhan Fanso Technology Co. Ltd. Reserves the right to amend the product technical specification.

13. Battery dimension