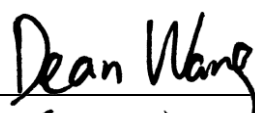
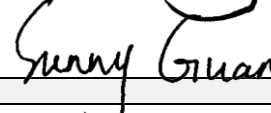




Test Report issued under the responsibility of:



<b>TEST REPORT</b> <b>IEC 62133-2</b> <b>Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications –</b> <b>Part 2: Lithium systems</b>	
Report Number.....	SZES210100028301
Date of issue.....	2021-02-24
Total number of pages .....	24 Pages
Name of Testing Laboratory preparing the Report .....	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Applicant's name .....	Shenzhen Glida Electronics Co., Ltd.
Address.....	501, Building C2, Xinqiao Industrial park, Tongfuyu industrial zone, Xinhe Avenue, Gonghe community, shajing Street, Baoan, Shenzhen, Guangdong, China
<b>Test specification:</b>	
Standard .....	IEC 62133-2:2017
Test procedure .....	CB Scheme
Non-standard test method .....	N/A
Test Report Form No. ....	IEC62133_2A
Test Report Form(s) Originator ....	DEKRA
Master TRF .....	Dated 2017-08-10
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<b>General disclaimer:</b>	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

<b>Test item description</b> ..... :	Rechargeable Li-ion Battery (Product name: Rechargeable Li-polymer battery)	
<b>Trade Mark</b> ..... :	--	
<b>Manufacturer</b> .....	Same as applicant	
<b>Model/Type reference</b> .....	GLIDA-INP523450-2S1P	
<b>Ratings</b> .....	Rated Voltage: 7,4 V d.c. Rated Capacity: 1000 mAh	
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
<b>Testing location/ address</b> ..... :	No.2, Jianghao Industrial Factory Area, No.430, Jihua Road, Bantian Street, Longgang District, Shenzhen, Guangdong, China	
<b>Tested by (name, function, signature)</b> ..... :	Dean Wang / Project Engineer	
<b>Approved by (name, function, signature)</b> ... :	Sunny Guan/ Report Reviewer	
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 1:</b>	N/A
<b>Testing location/ address</b> ..... :		
<b>Tested by (name, function, signature)</b> ..... :		
<b>Approved by (name, function, signature)</b> ... :		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 2:</b>	N/A
<b>Testing location/ address</b> ..... :		
<b>Tested by (name + signature)</b> .....		
<b>Witnessed by (name, function, signature) . :</b>		
<b>Approved by (name, function, signature)</b> ... :		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 3:</b>	N/A
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 4:</b>	N/A
<b>Testing location/ address</b> ..... :		
<b>Tested by (name, function, signature)</b> ..... :		
<b>Witnessed by (name, function, signature) . :</b>		
<b>Approved by (name, function, signature)</b> ... :		
<b>Supervised by (name, function, signature) :</b>		

<p><b>List of Attachments (including a total number of pages in each attachment):</b>  Attachment 1: 4 pages of Photos;  Attachment 2: 1 page of Information for safety;  Attachment 3: 1 page of Packaging;  Attachment 4: 2 pages of Product specification.</p>	
<p><b>Summary of testing:</b>  The sample(s) tested complies with the requirements of IEC 62133-2: 2017.</p> <p>When determining the test conclusion, the Measurement Uncertainty of test has been considered.</p> <p>Remark: Battery and cell were considered and tested according to standard in this report.</p>	
<p><b>Tests performed (name of test and test clause):</b></p> <p><input type="checkbox"/> 5.2 Insulation resistance</p> <p><input checked="" type="checkbox"/> 7.2.1 Continuous charging at constant voltage (cells)</p> <p><input type="checkbox"/> 7.2.2 Case stress at high ambient temperature (battery)</p> <p><input checked="" type="checkbox"/> 7.3.1 External short circuit (cell)</p> <p><input checked="" type="checkbox"/> 7.3.2 External short circuit (battery)</p> <p><input checked="" type="checkbox"/> 7.3.3 Free fall</p> <p><input checked="" type="checkbox"/> 7.3.4 Thermal abuse (cells)</p> <p><input checked="" type="checkbox"/> 7.3.5 Crush (cells)</p> <p><input checked="" type="checkbox"/> 7.3.6 Over-charging of battery</p> <p><input checked="" type="checkbox"/> 7.3.7 Forced discharge (cells)</p> <p><input checked="" type="checkbox"/> 7.3.8 Mechanical tests (batteries)</p> <p><input checked="" type="checkbox"/> 7.3.9 Design evaluation – Forced internal short circuit (cells)</p> <p><input type="checkbox"/> Annex D Measurement of the internal AC resistance for coin cells</p>	<p><b>Testing location:</b>  SGS-CSTC Standards Technical Services Co., Ltd.  Shenzhen Branch  No.2, Jianghao Industrial Factory Area, No.430,  Jihua Road, Bantian Street, Longgang District,  Shenzhen, Guangdong, China</p>
<p><b>Summary of compliance with National Differences (List of countries addressed): none.</b></p> <p><input checked="" type="checkbox"/> <b>The product fulfils the requirements of EN 62133-2: 2017.</b></p>	

**Copy of marking plate:**

**The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.**

Rechargeable Li-polymer battery  
GLIDA-INP523450-2S1P 7.4V 1000mAh 7.4Wh  
2INP6/34/50  
Shenzhen Glida EElectronics Co., Ltd.  
20201223 Made in China  
Warning:  
Use a specified charger(by the manufacturer) Red wire(+)  
Do not continue to use if there is severe swelling Black wire(-)  
Do not put in high temperature environment  
Do not disassemble the battery,impact,squeeze or put it into fire  
Heat above 60°C or incinerate, follow manufacturer's instruction

**Remark:**

“20201223” is the date of manufacture, “2020” for year 2020, “12” is the month, December, “23” is the date.

<b>Test item particulars</b> .....	--
<b>Classification of installation and use</b> .....	--
<b>Supply Connection</b> .....	--
<b>Recommend charging method declared by the manufacturer</b> .....	CC/CV
<b>Discharge current (0,2 It A)</b> .....	Pack: 200 mA; Cell: 200 mA
<b>Specified final voltage</b> .....	Pack: 6,0 V; Cell: 3,0 V
<b>Upper limit charging voltage per cell</b> .....	4,2 V
<b>Maximum charging current</b> .....	Pack: 500 mA; Cell: 500 mA
<b>Charging temperature upper limit</b> .....	45 °C
<b>Charging temperature lower limit</b> .....	10 °C
<b>Polymer cell electrolyte type</b> .....	<input checked="" type="checkbox"/> gel polymer <input type="checkbox"/> solid polymer <input type="checkbox"/> N/A
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement.....	P (Pass)
- test object does not meet the requirement.....	F (Fail)
<b>Testing</b> .....	
<b>Date of receipt of test item</b> .....	2021-01-12
<b>Date (s) of performance of tests</b> .....	2021-01-12 to 2021-01-25
<b>General remarks:</b>	
<p>"(See Enclosure #)" refers to additional information appended to the report.  "(See appended table)" refers to a table appended to the report.</p> <p><b>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</b></p> <p>This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.</p>	

<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC60086-2:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....	<input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies) .....</b> : GUANGDONG ZHAONENG TECHNOLOGY CO., LTD. No.8 Nanda Road, Jinsha Chengnan Industrial Zone, Danzao Town, Nanhai, Foshan, Guangdong, China	
<b>General product information and other remarks:</b>	
Product description:	Rechargeable Li-ion Battery (Product name: Rechargeable Li-polymer battery)
Model of pack:	GLIDA-INP523450-2S1P
Designation of pack:	2INP6/34/50
Rated voltage:	7,4 V
Rated capacity:	1000 mAh
Maximum charge current:	500 mA
Number of cells in battery pack:	2 cells in series
Model of cell:	523450
Designation of cell:	INP6/34/50
Rated voltage of cell:	3,7 V
Rated capacity of cell:	1000 mAh
Maximum charge current of cell:	500 mA
Remark: See Attachment 4 for more detailed product specification.	

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>PARAMETER MEASUREMENT TOLERANCES</b>		P
	Parameter measurement tolerances		P
<b>5</b>	<b>GENERAL SAFETY CONSIDERATIONS</b>		P
<b>5.1</b>	<b>General</b>		P
	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse		P
<b>5.2</b>	<b>Insulation and wiring</b>		P
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ	No exposed metal surface	N/A
	Insulation resistance (MΩ) ..... :	--	—
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements		P
	Orientation of wiring maintains adequate clearance and creepage distances between conductors		P
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse		P
<b>5.3</b>	<b>Venting</b>		P
	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition	Cell: Seal the seam around the aluminium foil as the venting mechanism. Pack: PVC film wrapping 2 cells.	P
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief	PVC film was used as encapsulation to wrap cells, will not cause the battery to overheat during normal operation nor inhibit pressure relief.	P
<b>5.4</b>	<b>Temperature, voltage and current management</b>		P
	Batteries are designed such that abnormal temperature rise conditions are prevented	Protection circuit was used.	P
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer	Protection circuit was used.	P
	Batteries are provided with specifications and charging instructions for equipment manufacturers so that specified chargers are designed to maintain charging within the temperature, voltage and current limits specified	Charge and discharge instructions were provided.	P
<b>5.5</b>	<b>Terminal contacts</b>		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current		P
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance		P
	Terminal contacts are arranged to minimize the risk of short-circuit		P
<b>5.6</b>	<b>Assembly of cells into batteries</b>		P
5.6.1	General		P
	Each battery have an independent control and protection for current, voltage, temperature and any other parameter required for safety and to maintain the cells within their operating region		P
	This protection may be provided external to the battery such as within the charger or the end devices	The protection is within the battery	N/A
	If protection is external to the battery, the manufacturer of the battery provide this safety relevant information to the external device manufacturer for implementation		N/A
	If there is more than one battery housed in a single battery case, each battery have protective circuitry that can maintain the cells within their operating regions	Single battery pack without separate case	N/A
	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly		P
	Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer		N/A
	Protective circuit components added as appropriate and consideration given to the end-device application		N/A
	The manufacturer of the battery provide a safety analysis of the battery safety circuitry with a test report including a fault analysis of the protection circuit under both charging and discharging conditions confirming the compliance		N/A
5.6.2	Design recommendation		P
	For the battery consisting of a single cell or a single cellblock, it is recommended that the charging voltage of the cell does not exceed the upper limit of the charging voltage specified in Table 2		N/A



IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks	2 cells in series. Upper limit of charging voltage of each single cell is not exceeded 4,2 V	P
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks		P
	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage not be counted as an overcharge protection		P
	For batteries consisting of series-connected cells or cell blocks, cells have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer		P
	It is recommended that the cells and cell blocks not discharged beyond the cell manufacturer's specified final voltage		P
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry incorporated into the battery management system		N/A
5.6.3	Mechanical protection for cells and components of batteries		P
	Mechanical protection for cells, cell connections and control circuits within the battery provided to prevent damage as a result of intended use and reasonably foreseeable misuse		P
	The mechanical protection can be provided by the battery case or it can be provided by the end product enclosure for those batteries intended for building into an end product	Should be considered in end product.	N/A
	The battery case and compartments housing cells designed to accommodate cell dimensional tolerances during charging and discharging as recommended by the cell manufacturer		N/A
	For batteries intended for building into a portable end product, testing with the battery installed within the end product considered when conducting mechanical tests	Should be considered in end product.	N/A
<b>5.7</b>	<b>Quality plan</b>		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery	Self-declaration of conformance was submitted.	P
<b>5.8</b>	<b>Battery safety components</b>		P
	According annex F		P
<b>6</b>	<b>TYPE TEST AND SAMPLE SIZE</b>		P
	Tests are made with the number of cells or batteries specified in Table 1 using cells or batteries that are not more than six months old	Tests are performed according to test items specified in table 2 of the standard The samples are not more than 6 months old. Manufactured date: Dec. 2020.	P
	Coin cells with resistance $\leq 3 \Omega$ (measured according annex D) are tested according table 1	Not coin cell	N/A
	Unless otherwise specified, tests are carried out in an ambient temperature of $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$		P
	The safety analysis of 5.6.1 identify those components of the protection circuit that are critical for short-circuit, overcharge and overdischarge protection		P
	When conducting the short-circuit test, consideration given to the simulation of any single fault condition that is likely to occur in the protecting circuit that would affect the short-circuit test		P
<b>7</b>	<b>SPECIFIC REQUIREMENTS AND TESTS</b>		P
<b>7.1</b>	<b>Charging procedure for test purposes</b>		P
7.1.1	First procedure		P
	This charging procedure applies to subclauses other than those specified in 7.1.2		P
	Unless otherwise stated in this document, the charging procedure for test purposes is carried out in an ambient temperature of $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ , using the method declared by the manufacturer		P
	Prior to charging, the battery have been discharged at $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ at a constant current of 0,2 It A down to a specified final voltage		P
7.1.2	Second procedure		P
	This charging procedure applies only to 7.3.1, 7.3.4, 7.3.5, and 7.3.9		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	After stabilization for 1 h and 4 h, respectively, at ambient temperature of highest test temperature and lowest test temperature, as specified in Table 2, cells are charged by using the upper limit charging voltage and maximum charging current, until the charging current is reduced to 0,05 It A, using a constant voltage charging method		P
<b>7.2</b>	<b>Intended use</b>		P
7.2.1	Continuous charging at constant voltage (cells)		P
	Fully charged cells are subjected for 7 days to a charge using the charging method for current and standard voltage specified by the cell manufacturer		P
	Results: No fire. No explosion. No leakage .....	(See appended table 7.2.1)	P
7.2.2	Case stress at high ambient temperature (battery)	No moulded case	N/A
	Oven temperature (°C) .....	--	—
	Results: No physical distortion of the battery case resulting in exposure of internal protective components and cells		N/A
<b>7.3</b>	<b>Reasonably foreseeable misuse</b>		P
7.3.1	External short-circuit (cell)		P
	The cells were tested until one of the following occurred:		P
	- 24 hours elapsed; or		N/A
	- The case temperature declined by 20 % of the maximum temperature rise		P
	Results: No fire. No explosion.....	(See appended table 7.3.1)	P
7.3.2	External short-circuit (battery)		P
	The batteries were tested until one of the following occurred:		P
	- 24 hours elapsed; or	Rapid decline in short circuit current, protective electronic circuit operated Applied to normal and single fault condition.	P
	- The case temperature declined by 20 % of the maximum temperature rise		N/A
	In case of rapid decline in short circuit current, the battery pack remained on test for an additional one hour after the current reached a low end steady state condition		N/A
	A single fault in the discharge protection circuit conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	A single fault applies to protective component parts such as MOSFET, fuse, thermostat or positive temperature coefficient (PTC) thermistor	Single fault applies to MOS (U2).	P
	Results: No fire. No explosion..... :	(See appended table 7.3.2)	P
7.3.3	Free fall		P
	Results: No fire. No explosion		P
7.3.4	Thermal abuse (cells)		P
	Oven temperature (°C)..... :	130°C, remain at this temperature for 30 min.	—
	Results: No fire. No explosion		P
7.3.5	Crush (cells)		P
	The crushing force was released upon:		P
	- The maximum force of 13 kN ± 0,78 kN has been applied; or		P
	- An abrupt voltage drop of one-third of the original voltage has been obtained		N/A
	Results: No fire. No explosion..... :	(See appended table 7.3.5)	P
7.3.6	Over-charging of battery		P
	The supply voltage which is:		P
	- 1,4 times the upper limit charging voltage presented in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or		N/A
	- 1,2 times the upper limit charging voltage resented in Table A.1 per cell for series connected multi-cell batteries, and		P
	- Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached		P
	Test was continued until the temperature of the outer casing:		P
	- Reached steady state conditions (less than 10 °C change in 30-minute period); or		N/A
	- Returned to ambient		P
	Results: No fire. No explosion..... :	(See appended table 7.3.6)	P
7.3.7	Forced discharge (cells)		P
	If the discharge voltage reaches the negative value of upper limit charging voltage within the testing duration, the voltage is maintained at the negative value of the upper limit charging voltage by reducing the current for the remainder of the testing duration		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If the discharge voltage does not reach the negative value of upper limit charging voltage within the testing duration, the test is terminated at the end of the testing duration		P
	Results: No fire. No explosion..... :	(See appended table 7.3.7)	P
7.3.8	Mechanical tests (batteries)		P
7.3.8.1	Vibration		P
	Results: No fire, no explosion, no rupture, no leakage or venting. .... :	(See appended table 7.3.8.1)	P
7.3.8.2	Mechanical shock		P
	Results: No leakage, no venting, no rupture, no explosion and no fire ..... :	(See appended table 7.3.8.2)	P
7.3.9	Design evaluation – Forced internal short-circuit (cells)		P
	The cells complied with national requirement for ..... :	Korea, Japan, France, Switzerland	—
	The pressing was stopped upon:		P
	- A voltage drop of 50 mV has been detected; or		N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	Prismatic cell: 400N	P
	Results: No fire ..... :	(See appended table 7.3.9)	P
<b>8</b>	<b>INFORMATION FOR SAFETY</b>		P
<b>8.1</b>	<b>General</b>		P
	Manufacturers of secondary cells ensure that information is provided about current, voltage and temperature limits of their products	See Attachment 4 for detail.	P
	Manufacturers of batteries ensure that equipment manufacturers and, in the case of direct sales, end-users are provided with information to minimize and mitigate hazards	See Attachment 2 for detail.	P
	Systems analyses performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product		N/A
	As appropriate, any information relating to hazard avoidance resulting from a system analysis provided to the end user		N/A
	Do not allow children to replace batteries without adult supervision		N/A
<b>8.2</b>	<b>Small cell and battery safety information</b>	Not small cell or battery	N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:		N/A
	- Keep small cells and batteries which are considered swallowable out of the reach of children		N/A
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion		N/A
	- In case of ingestion of a cell or battery, seek medical assistance promptly		N/A
<b>9</b>	<b>MARKING</b>		P
<b>9.1</b>	<b>Cell marking</b>	Only battery will be marked.	N/A
	Cells marked as specified in IEC 61960, except coin cells		N/A
	Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity		N/A
	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked		N/A
<b>9.2</b>	<b>Battery marking</b>		P
	Batteries marked as specified in IEC 61960, except for coin batteries	See marking plate for detail. Batteries marked with caution statement.	P
	Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity. Batteries also marked with an appropriate caution statement	Not coin batteries	N/A
	Terminals have clear polarity marking on the external surface of the battery		P
	Batteries with keyed external connectors designed for connection to specific end products need not be marked with polarity markings if the design of the external connector prevents reverse polarity connections		P
<b>9.3</b>	<b>Caution for ingestion of small cells and batteries</b>	Not small cell and batteries	N/A
	Coin cells and batteries identified as small batteries according to 8.2 include a caution statement regarding the hazards of ingestion in accordance with 8.2		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

	When small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion given on the immediate package		N/A
<b>9.4</b>	<b>Other information</b>		P
	Storage and disposal instructions	Storage and disposal instructions were supplied with the battery. See Attachment 2 for detail.	P
	Recommended charging instructions	Recommended charging instructions were supplied with the battery. See Attachment 4 for detail.	P

<b>10</b>	<b>PACKAGING AND TRANSPORT</b>		P
	Packaging for coin cells not small enough to fit within the limits of the ingestion gauge of Figure 3	Not coin cells	N/A
	The materials and packaging design are chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of environmental contaminants	See Attachment 3 for detail.	P

<b>ANNEX A</b>	<b>CHARGING AND DISCHARGING RANGE OF SECONDARY LITHIUM ION CELLS FOR SAFE USE</b>		P
<b>A.1</b>	<b>General</b>		P
<b>A.2</b>	<b>Safety of lithium ion secondary battery</b>		P
<b>A.3</b>	<b>Consideration on charging voltage</b>		P
A.3.1	General		P
A.3.2	Upper limit charging voltage		P
A.3.2.1	General		P
A.3.2.2	Explanation of safety viewpoint		P
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied	The upper limit charging voltage is 4,2 V during test.	P
<b>A.4</b>	<b>Consideration of temperature and charging current</b>		P
A.4.1	General		P
A.4.2	Recommended temperature range		P
A.4.2.1	General		P
A.4.2.2	Safety consideration when a different recommended temperature range is applied	The recommended temperature range: 10°C to 45°C	P
A.4.3	High temperature range	The upper charging temperature is 45°C	P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.4.3.1	General		P
A.4.3.2	Explanation of safety viewpoint		P
A.4.3.3	Safety considerations when specifying charging conditions in the high temperature range		P
A.4.3.4	Safety considerations when specifying a new upper limit in the high temperature range		N/A
A.4.4	Low temperature range	The lower charging temperature is 10°C	P
A.4.4.1	General		P
A.4.4.2	Explanation of safety viewpoint		P
A.4.4.3	Safety considerations, when specifying charging conditions in the low temperature range		P
A.4.4.4	Safety considerations when specifying a new lower limit in the low temperature range		N/A
A.4.5	Scope of the application of charging current		P
A.4.6	Consideration of discharge		P
A.4.6.1	General		P
A.4.6.2	Final discharge voltage and explanation of safety viewpoint		P
A.4.6.3	Discharge current and temperature range		P
A.4.6.4	Scope of application of the discharging current		P
<b>A.5</b>	<b>Sample preparation</b>		P
A.5.1	General		P
A.5.2	Insertion procedure for nickel particle to generate internal short		P
A.5.3	Disassembly of charged cell		P
A.5.4	Shape of nickel particle		P
A.5.5	Insertion of nickel particle in cylindrical cell		N/A
A.5.5.1	Insertion of nickel particle in winding core		N/A
A.5.5.2	Marking the position of the nickel particle on both ends of the winding core of the separator		N/A
A.5.6	Insertion of nickel particle in prismatic cell		P
<b>A.6</b>	<b>Experimental procedure of the forced internal short-circuit test</b>		P
A.6.1	Material and tools for preparation of nickel particle		P
A.6.2	Example of a nickel particle preparation procedure		P
A.6.3	Positioning (or placement) of a nickel particle		P
A.6.4	Damaged separator precaution		P
A.6.5	Caution for rewinding separator and electrode		P



IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.6.6	Insulation film for preventing short-circuit		P
A.6.7	Caution when disassembling a cell		P
A.6.8	Protective equipment for safety		P
A.6.9	Caution in the case of fire during disassembling		P
A.6.10	Caution for the disassembling process and pressing the electrode core		P
A.6.11	Recommended specifications for the pressing device		P
<b>ANNEX B</b>	<b>RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY ASSEMBLERS</b>		<b>P</b>
<b>ANNEX C</b>	<b>RECOMMENDATIONS TO THE END-USERS</b>		<b>N/A</b>
<b>ANNEX D</b>	<b>MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS</b>		<b>N/A</b>
<b>D.1</b>	<b>General</b>		<b>N/A</b>
<b>D.2</b>	<b>Method</b>		<b>N/A</b>
	A sample size of three coin cells is required for this measurement..... :		<b>N/A</b>
	Coin cells with an internal resistance of less than or equal to 3 $\Omega$ are subjected to the testing according to Clause 6 and Table 1		<b>N/A</b>
	Coin cells with an internal resistance greater than 3 $\Omega$ require no further testing		<b>N/A</b>
<b>ANNEX E</b>	<b>PACKAGING AND TRANSPORT</b>		<b>P</b>
<b>ANNEX F</b>	<b>COMPONENT STANDARDS REFERENCES</b>		<b>P</b>

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

TABLE: Critical components information					P
Object / part No.	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Cell	Guangdong Zhaoneng Technology Co., Ltd.	523450	3,7 V1000 mAh	IEC 62133-2: 2017 EN 62133-2: 2017	Tested with appliance
- Electrolyte	Anhui Xingli New Energy Co., Ltd.	ZN-29	LiPF <sub>6</sub> +EC+DEC	--	--
- Separator	ShenZhen Xuran Electronic Co., Ltd.	45.0mm*12um	PE +AL <sub>2</sub> O <sub>3</sub> , Thickness: 12 um, Shut down temperature: 135~140°C	--	--
- Positive electrode	HUNAN KINGFULI NEW ENERGY CO., LTD.	KP-05C	LiNiCoMnO <sub>2</sub> Ni: Co: Mn=5: 2: 3	--	--
- Negative electrode	Dongguan XinMao New Energy Tech Co., Ltd.	Q20	Graphite	--	--
Control IC (U1)	ABLIC Inc.	S8252AAH	Over charge Protection Voltage: 4,25±0,025 V Over discharge Protection Voltage: 3,0±0,05 V Topr: -40 ~+85°C	--	--
MOSFET (U2)	ShenZhen Puolop Electronics co.,Ltd.	8205	V <sub>DS</sub> =20 V I <sub>D</sub> : 6 A I <sub>DM</sub> : 20 A	--	--
PCB	SHENZHEN XING BAO SHUN ELECTRONICS SCIENTIFIC CO LTD	XBS-9	V-0,130°C	UL 796	UL (E361977)
Lead wires (charge & discharge)	DONGGUAN YUE ZHEN WIRE & CABLE CO LTD	3239	24 AWG, VW-1 150°C, 3000V	UL 758	UL (E354338)
NTC (R4)	SHENZHEN SUNLORD ELECTRONICS CO LTD	SDNT1608X103	10k, 125°C	UL 1434	UL (E352242)

IEC 62133-2					
Clause	Requirement + Test			Result - Remark	Verdict
Fuse(F1)	ADVANCED SURGETECH MATERIALS LTD	12 110.2.5	2,5 A, 72 V	UL 248-1 UL 248-14	UL (E355868)
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.2.1	TABLE: Continuous charging at constant voltage (cells)				P
Sample no.	Recommended charging voltage V <sub>c</sub> (Vdc)	Recommended charging current I <sub>rec</sub> (A)	OCV before test (Vdc)	Results	
Cell: 523450 (#1)	4,20	0,5	4,19	Pass	
Cell: 523450 (#2)	4,20	0,5	4,19	Pass	
Cell: 523450 (#3)	4,20	0,5	4,19	Pass	
Cell: 523450 (#4)	4,20	0,5	4,19	Pass	
Cell: 523450 (#5)	4,20	0,5	4,19	Pass	
<b>Supplementary information:</b>					
- No fire or explosion - No leakage					

7.3.1	TABLE: External short-circuit (cell)					P
Sample no.	Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ΔT (K)	Results	
<b>Samples charged at charging temperature upper limit<sup>1)</sup></b>						
Cell: 523450 (#6)	54,7	4,19	88	66,0	Pass	
Cell: 523450 (#7)	54,7	4,19	90	64,6	Pass	
Cell: 523450 (#8)	54,8	4,19	89	65,4	Pass	
Cell: 523450 (#9)	54,7	4,19	91	62,5	Pass	
Cell: 523450 (#10)	54,8	4,19	86	61,9	Pass	
<b>Samples charged at charging temperature lower limit<sup>2)</sup></b>						
Cell: 523450 (#11)	54,7	4,17	90	56,0	Pass	
Cell: 523450 (#12)	54,8	4,16	86	58,8	Pass	
Cell: 523450 (#13)	54,7	4,17	88	60,2	Pass	
Cell: 523450 (#14)	54,8	4,17	87	59,5	Pass	
Cell: 523450 (#15)	54,7	4,17	89	61,2	Pass	
<b>Supplementary information:</b>						
- No fire or explosion						
1) Cells charged at 45°C by using 4,2 V and 500 mA until the charging current reduced to 50 mA;						
2) Cells charged at 10°C by using 4,2 V and 500 mA until the charging current reduced to 50 mA.						

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.2	TABLE: External short-circuit (battery)					P
Sample no.	Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ΔT (K)	Component single fault condition	Results
Pack: GLIDA- INP523450-2S1P (#54)	22,7	8,38	89	--*	Normal	Pass
Pack: GLIDA- INP523450-2S1P (#55)	22,9	8,38	91	--**	SC U2 pin 1-2	Pass
Pack: GLIDA- INP523450-2S1P (#56)	22,7	8,38	86	--**	SC U2 pin 1-2	Pass
Pack: GLIDA- INP523450-2S1P (#57)	22,8	8,38	89	--**	SC U2 pin 1-2	Pass
Pack: GLIDA- INP523450-2S1P (#58)	22,7	8,38	87	--**	SC U2 pin 1-2	Pass
<b>Supplementary information:</b>						
- No fire or explosion						
--* Shut down immediately, and tested for 24 hours, no max. temperature was noted;						
--** FUSE(F1) Open and test for 24 hours. No max. temperature was noted.						
- SC = Short circuit						

7.3.5	TABLE: Crush (cells)			P
Sample no.	OCV before test (Vdc)	OCV at removal of crushing force (Vdc)	Maximum force applied to the cell during crush (kN)	Results
<b>Samples charged at charging temperature upper limit<sup>1)</sup></b>				
Cell: 523450 (#29)	4,19	4,19	13,02	Pass
Cell: 523450 (#30)	4,19	4,18	13,01	Pass
Cell: 523450 (#31)	4,19	4,19	13,02	Pass
Cell: 523450 (#32)	4,19	4,19	13,02	Pass
Cell: 523450 (#33)	4,19	4,19	13,02	Pass
<b>Samples charged at charging temperature lower limit<sup>2)</sup></b>				
Cell: 523450 (#34)	4,17	4,16	13,03	Pass
Cell: 523450 (#35)	4,17	4,17	13,01	Pass
Cell: 523450 (#36)	4,16	4,16	13,02	Pass
Cell: 523450 (#37)	4,17	4,17	13,03	Pass
Cell: 523450 (#38)	4,17	4,17	13,01	Pass

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

**Supplementary information:**

- No fire or explosion

-The maximum force of 13 KN  $\pm$  0,78 KN has been applied, the force was released.

1) Cells charged at 45°C by using 4,2 V and 500 mA until the charging current reduced to 50 mA;

2) Cells charged at 10°C by using 4,2 V and 500 mA until the charging current reduced to 50 mA.

7.3.6	TABLE: Over-charging of battery				P
Constant charging current (A) .....		2,0		—	
Supply voltage (Vdc) .....		5,88		—	
Sample no.	OCV before charging (Vdc)	Total charging time (minute)	Maximum outer case temperature (°C)	Results	
Pack: GLIDA- INP523450-2S1P (#62)	6,91	65	37,7	Pass	
Pack: GLIDA- INP523450-2S1P (#63)	6,93	65	35,9	Pass	
Pack: GLIDA- INP523450-2S1P (#64)	6,91	65	35,4	Pass	
Pack: GLIDA- INP523450-2S1P (#65)	6,92	65	36,7	Pass	
Pack: GLIDA- INP523450-2S1P (#66)	6,93	65	36,8	Pass	
<b>Supplementary information:</b>					
- No fire or explosion					
- Ambient temperature was 22,0°C.					

7.3.7	TABLE: Forced discharge (cells)				P
Sample no.	OCV before application of reverse charge (Vdc)	Measured reverse charge $I_t$ (A)	Lower limit discharge voltage (Vdc)	Results	
Cell: 523450 (#39)	3,34	1,0	3,0	Pass	
Cell: 523450 (#40)	3,35	1,0	3,0	Pass	
Cell: 523450 (#41)	3,34	1,0	3,0	Pass	
Cell: 523450 (#42)	3,35	1,0	3,0	Pass	
Cell: 523450 (#43)	3,34	1,0	3,0	Pass	
<b>Supplementary information:</b>					
- No fire or explosion					

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.8.1	TABLE: Vibration				P
Sample no.	OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test (g)	Results
Pack: GLIDA-INP523450-2S1P (#67)	8,38	8,38	37,393	37,393	Pass
Pack: GLIDA-INP523450-2S1P (#68)	8,38	8,38	37,703	37,702	Pass
Pack: GLIDA-INP523450-2S1P (#69)	8,38	8,38	37,793	37,793	Pass
<b>Supplementary information:</b>					
<ul style="list-style-type: none"> <li>- No fire or explosion</li> <li>- No rupture</li> <li>- No leakage</li> <li>- No venting</li> </ul>					

7.3.8.2	TABLE: Mechanical shock				P
Sample no.	OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test (g)	Results
Pack: GLIDA-INP523450-2S1P (#70)	8,38	8,37	37,641	37,641	Pass
Pack: GLIDA-INP523450-2S1P (#71)	8,38	8,38	37,717	37,717	Pass
Pack: GLIDA-INP523450-2S1P (#72)	8,38	8,38	37,507	37,506	Pass
<b>Supplementary information:</b>					
<ul style="list-style-type: none"> <li>- No fire or explosion</li> <li>- No rupture</li> <li>- No leakage</li> <li>- No venting</li> </ul>					

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.9	TABLE: Forced internal short circuit (cells)					P
Sample no.	Chamber ambient T (°C)	OCV before test (Vdc)	Particle location <sup>1)</sup>	Maximum applied pressure (N)	Results	
<b>Samples charged at charging temperature upper limit <sup>2)</sup></b>						
Cell: 523450 (#44)	45	4,19	1	400	Pass	
Cell: 523450 (#45)	45	4,19	1	400	Pass	
Cell: 523450 (#46)	45	4,19	1	400	Pass	
Cell: 523450 (#47)	45	4,19	1	400	Pass	
Cell: 523450 (#48)	45	4,19	1	400	Pass	
<b>Samples charged at charging temperature lower limit <sup>3)</sup></b>						
Cell: 523450 (#49)	10	4,17	1	400	Pass	
Cell: 523450 (#50)	10	4,16	1	400	Pass	
Cell: 523450 (#51)	10	4,16	1	400	Pass	
Cell: 523450 (#52)	10	4,17	1	400	Pass	
Cell: 523450 (#53)	10	4,17	1	400	Pass	
<b>Supplementary information:</b>						
1) Identify one of the following:						
1: Nickel particle inserted between positive and negative (active material) coated area.						
2: Nickel particle inserted between positive aluminium foil and negative active material coated area.						
2) Cells charged at 45°C by using 4,2 V and 500 mA until the charging current reduced to 50 mA;						
3) Cells charged at 10°C by using 4,2 V and 500 mA until the charging current reduced to 50 mA.						
- No fire.						

D.2	TABLE: Internal AC resistance for coin cells				N/A
Sample no.	Ambient T (°C)	Store time (h)	Resistance Rac (Ω)	Results <sup>1)</sup>	
--	--	--	--	--	
<b>Supplementary information:</b>					
--					

---End report---



**Attachment 1 Photo documentation**

Whole unit



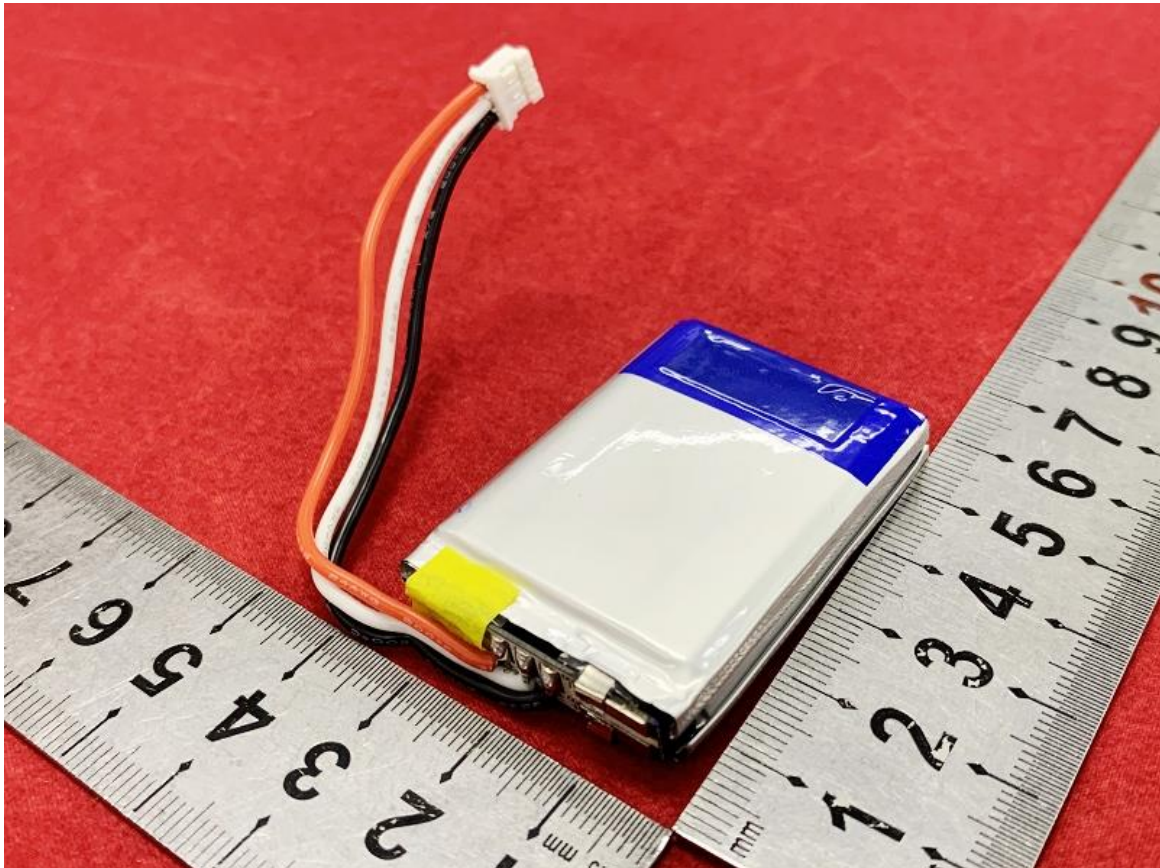


Attachment 1 Photo documentation

Internal view



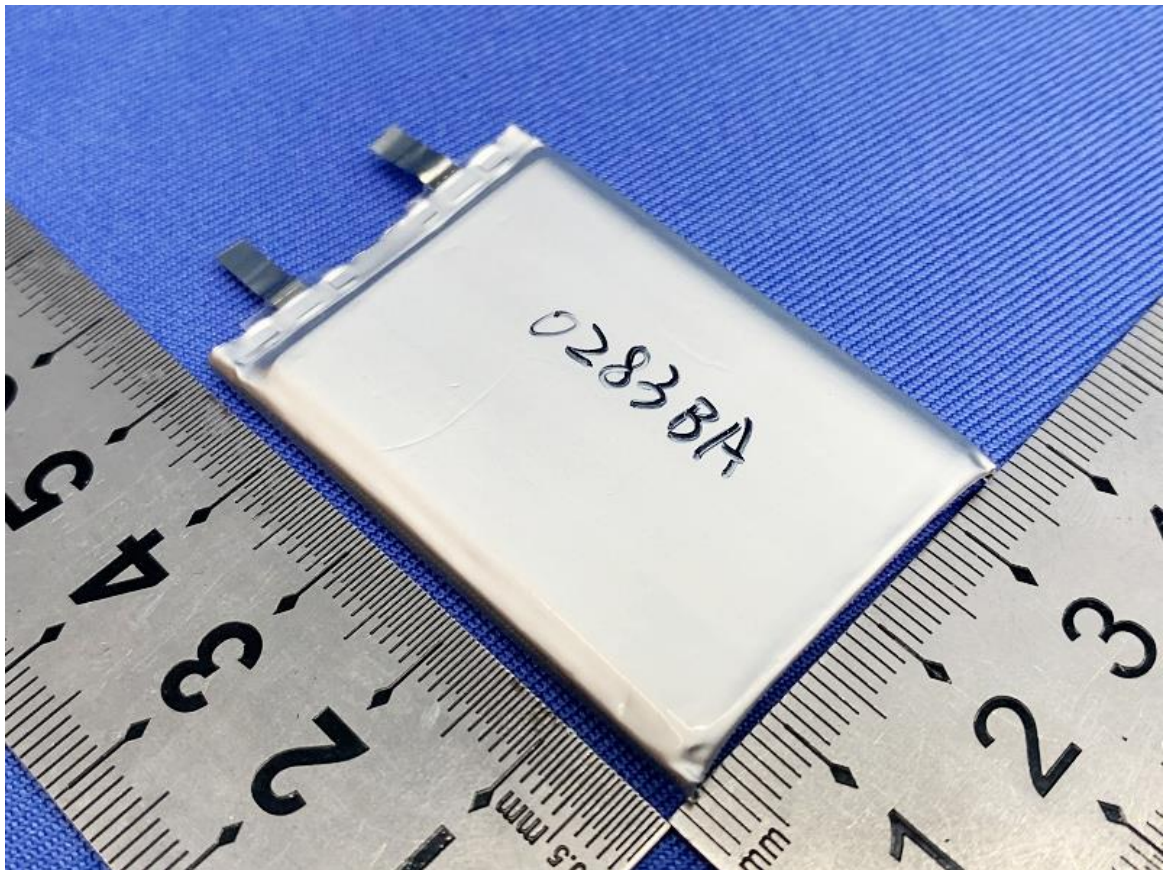
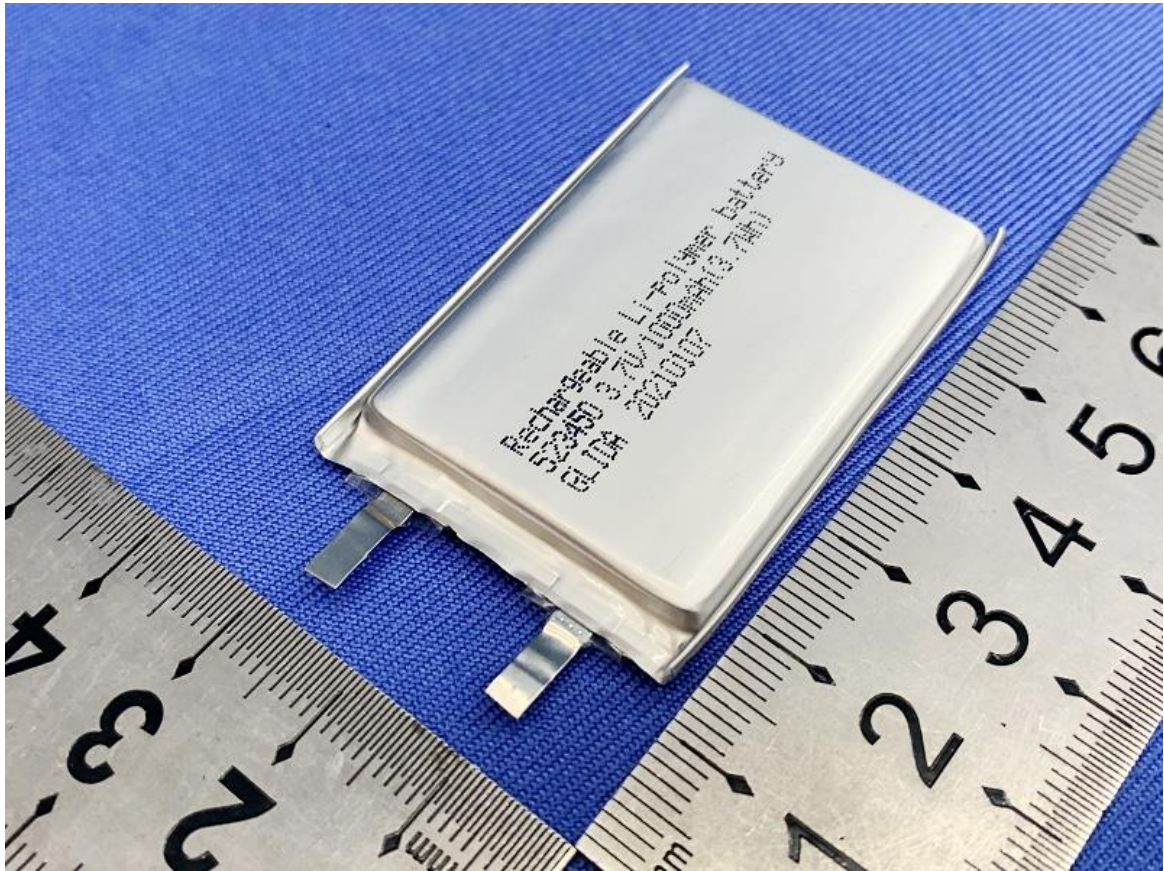
Internal view





Attachment 1 Photo documentation

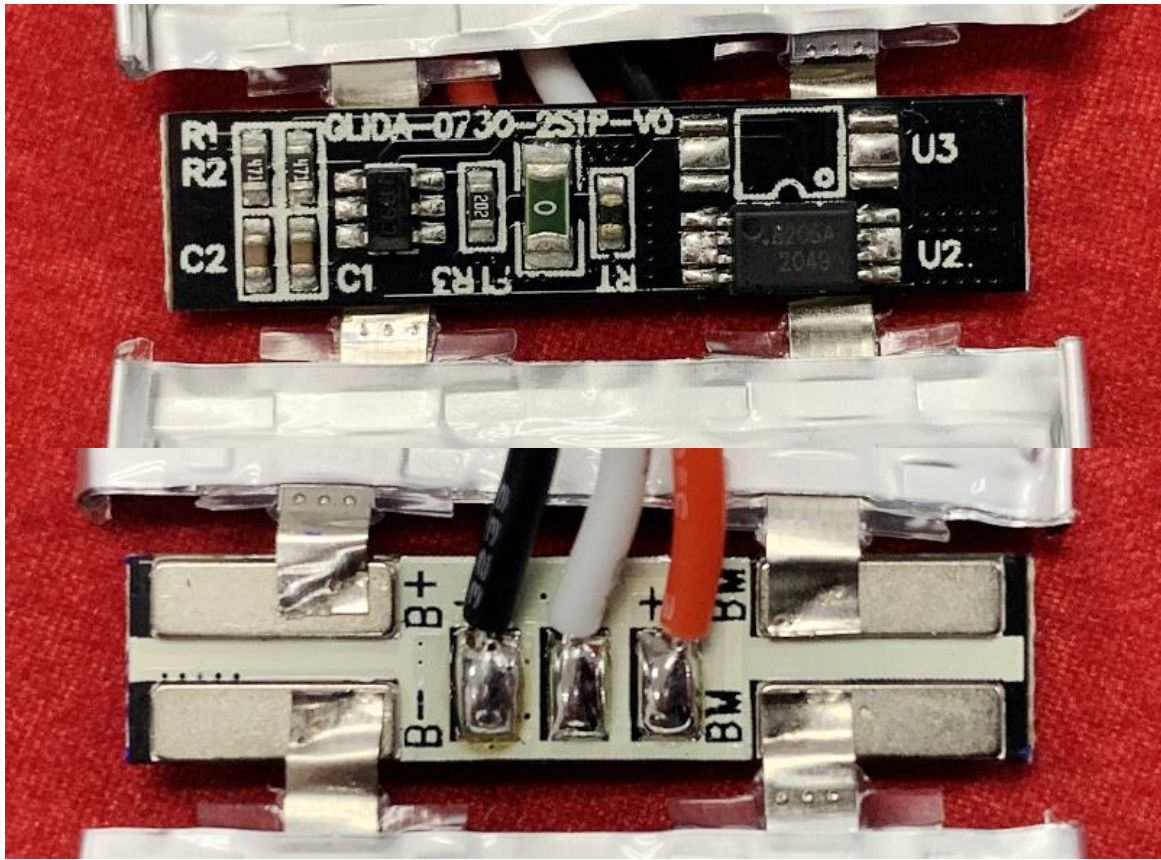
Cell





Attachment 1 Photo documentation

PCB



\*\*\*\*\*End of Attachment 1\*\*\*\*\*

## Attachment 2 Information for safety

### 14. Warnings 警告

- 14.1 Don't throw the cell in fire or heat it or store it in high temperature place ;  
请勿将电池放入火中，或对电池加热，请勿在高温下储存电池；
- 14.2 Don't operate or use the cell under high temperature or next to the heating material. Don't throw the cell in fire or heat it;  
禁止在高温环境下或热源旁操作或者使用电池,禁止将电池加热或者投入火中；
- 14.3. Don't fix the positive and negative of the cell reversely to the electrical equipment ;  
安装电池时请勿将正负极反接；
- 14.4 Don't connect the positive and negative polarities by metallic conductor such as a metallic wire;  
请勿将电池正负极用金属物体（如导线）直接连接等方式造成电池短路；

### 15. Attention 注意

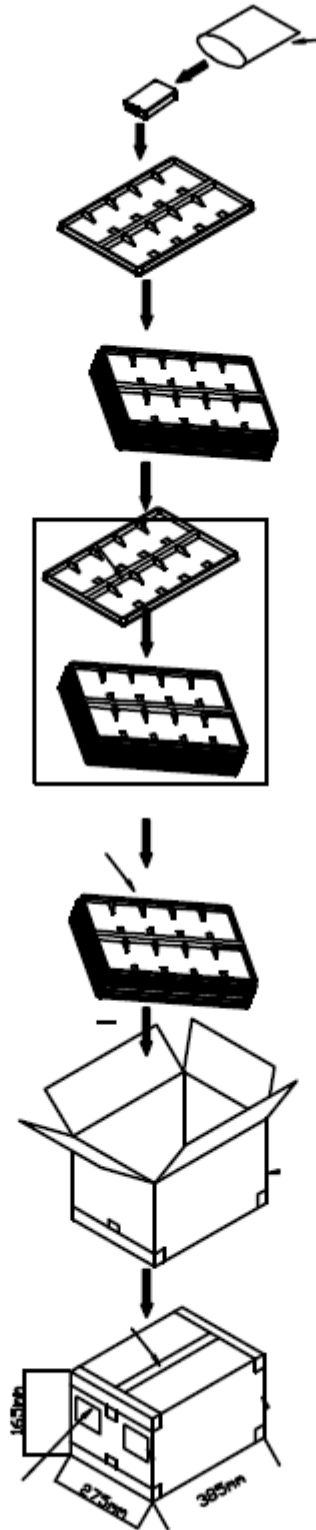
- 15.1 Please use the qualified equipment for charging and recharging the cell;  
充放电时请勿用不合格设备，并遵循正确的使用说明；
- 15.2 Don't use different type of cells supplied by different manufacturer together;  
请勿将不同厂家或不同种类、型号的电池以及新旧电池混用；
- 15.3 Don't charge the heating or modification cell;  
请勿将发热、气鼓、变形或漏液电池放入设备中充放电；
- 15.4 Don't let the cell over-discharge.  
在充放电时，不能超出本规格书规定的电压、电流范围。

### 16.1 Reminding 提醒

- 16.1 Don't use the damaged cells (the sealing edge was damaged, the pack was damaged, the electrolyte leakage, etc.). If the cell heating when using, go far away from the cell, it may avoid unnecessary damage;  
禁止使用已损坏的电芯(电芯封口封边损坏,外壳破损,闻到电解液,电解液泄漏等). 操作电池时,如果发现电池发热,要立即远离该电池以免造成不必要的伤害；
- 16.2 Theoretically, there is not flowing electrolyte in the cell, but if the leakage of electrolyte happen, or the electrolyte splash down to the skin, eyes or other parts of the body, wash with water and go to hospital immediately;  
聚合物锂离子电池理论上不存在流动的电解液,但万一有电解液泄漏而接触到皮肤、眼睛或身体其它部位,应立即用清水冲洗并就医；
- 16.3 The cells supplied by GUANGDONG ZHAONENG Technology Co., Ltd. had passed the QC before sales, if there is any abnormal problem such as unidentified heating, expansion and peculiar smell, please contact with us;  
电池出货前已由QC严格检查，如客户发现所购电池有发热、气鼓或异味现象，请与我司联系；
- 16.4 The Pack stored beyond half year should be charged to 7.4~7.8V/cell with constant current at 0.5C .  
电池储存超过半年，请客户对电池用0.5C电流充电至单个电池电压7.4~7.8V。

— When disposing of secondary cells or batteries, keep cells or batteries of different electrochemical systems separate from each other.(电池处置信息)

**Attachment 3 Packaging**



--- End of Attachment 3 ---

### Attachment 4 Product specification

#### Specification of Pack

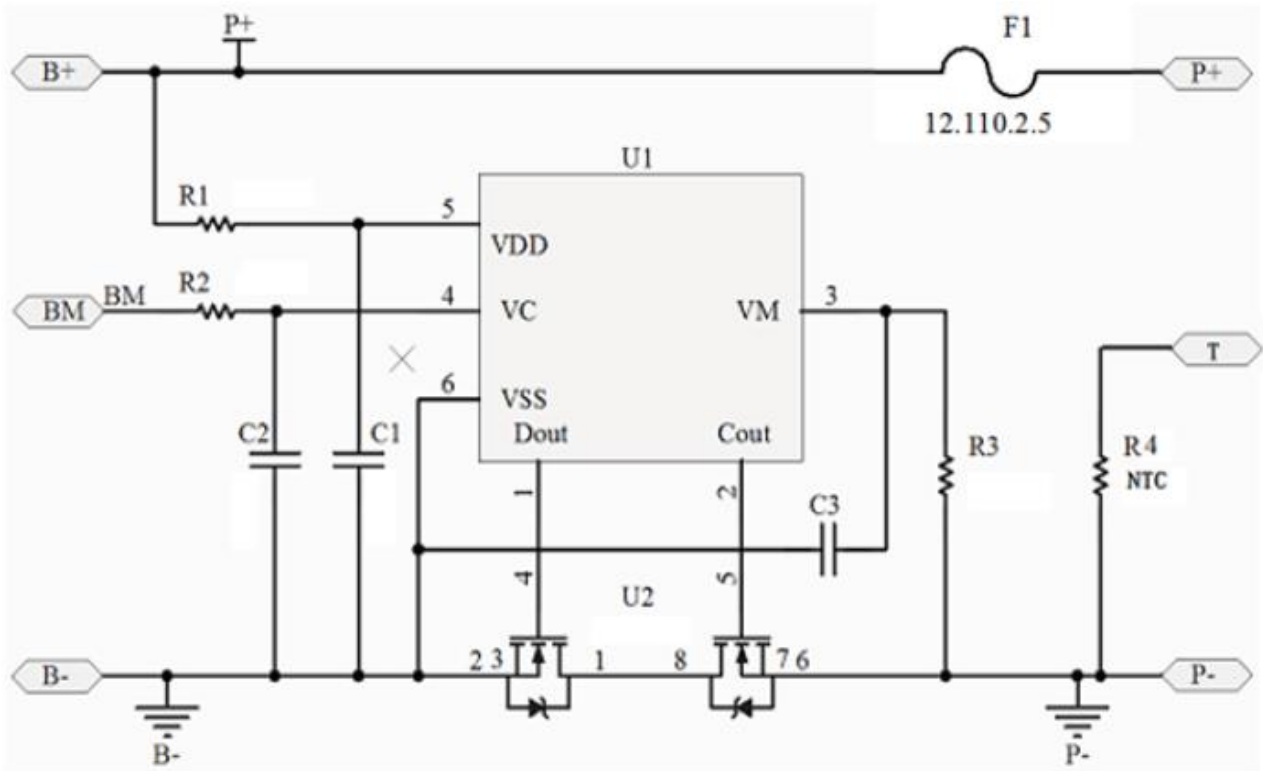
Item 项目	Specification 规格	
3.1 Nominal voltage 标称电压	7.4	V
3.2 Minimal capacity 最小容量	1000	mAh discharge from 8.4V to 6.0V at 0.2C mA 由 8.4V放电至6.0V截止, 放电电流0.2CmA
3.3 Initial impedance 电池内阻	≤ 280	mΩ The Specifications included cell;PCM;wire 此参数包含电芯、保护板、导线
3.4 Full charge voltage 满充电压	8.40	V
3.7 Max charge current 最大充电电流	500	mA 电芯允许充电电流
3.9 Discharge cut-off voltage 放电截止电压	6.00	V
3.10 Operating environment: 工作环境	Charging 充电	10°C ~ 45°C ; 65±20%RH
	Discharging 放电	-10°C~60°C ; 65±20%RH

#### Specification of Cell

Item 项目	Specification 规格	
3.1 Nominal voltage 标称电压	3.7	V
3.2 Minimal capacity 最小容量	1000	mAh discharge from 4.2V to 3.0V at 0.2C mA 由 4.2V放电至3.0V截止, 放电电流0.2CmA
3.3 Initial impedance 初始内阻	≤ 70	mΩ cell impedance 电芯内阻
3.4 Full charge voltage 满充电压	4.20±0.05	V
3.7 Max charge current 最大充电电流	500	mA 电芯允许充电电流
3.11 Discharge cut-off voltage 放电截止电压	3.0	V
3.12 Operating environment: 工作环境	Charging 充电	10°C ~ 45°C ; 65±20%RH
	Discharging 放电	-10°C~60°C ; 65±20%RH

**Attachment 4 Product specification**

**Circuit diagram**



--- End of Attachment 4 ---