

FEATURES

- Lithium-ion chemical composition for stability, voltage capacity and charge retention
- Rechargeable multiple times
- Pre-wired with bare wire terminal
- Four cells, 7.4 V 5.2Ah
- Battery pack size of 78 x 68 x19 mm
- Minimum operating temperature of -20°C
- Maximum operating temperature of +60°C

RS PRO 7.4V Lithium-Ion Rechargeable Battery Pack, 5.2Ah-C4

RS Stock No.: 144-9412



RS Professionally Approved Products bring to your professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Product Description

The RS PRO 7.4 V Lithium-Ion rechargeable battery pack with four cells will help streamline your battery usage. This product is designed for commercial as well as domestic settings. You can use the batteries in products such as toys, as well as with appliances like emergency power sources and memory backup units.

General Specifications

| | |
|------------------------|--|
| Chemistry | Lithium-Ion |
| Number Of Cells | 4 |
| Terminal Type | Wire Lead |
| Size | 78 x 68 x 19 mm |
| Application | Emergency Lighting; Commercial; Industrial |

Electrical Specifications

| | |
|--|-------------|
| Nominal Voltage | 7.4V |
| Capacity | 5.2Ah |
| Maximum Charge Voltage | 8.40±0.05V |
| Standard Charge | 0.5C |
| Fast Charge | 1C |
| Maximum Discharge Current | 3A |
| Continuous output discharging current | 3A |
| Over-Charge detect voltage | 4.25±25mV |
| Over-Charge recovery voltage | 4.10±50mV |
| Over-Discharge detect voltage | 3.00±100mV |
| Over-Discharge recovery voltage | 3.00±100mV |
| Overcurrent protection | 7A~12A |
| Short detection delay time | 224us~336us |

Rechargeable Battery Packs

| | |
|---------------|-------|
| IR resistance | ≤65mΩ |
|---------------|-------|

Mechanical Specifications

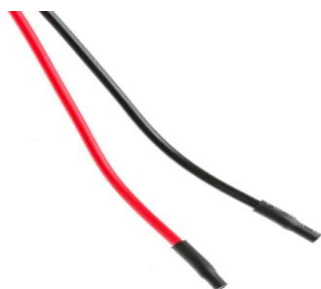
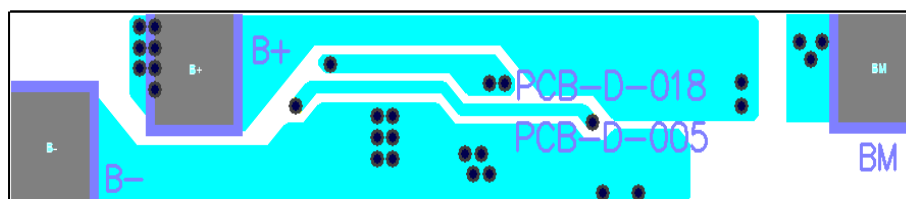
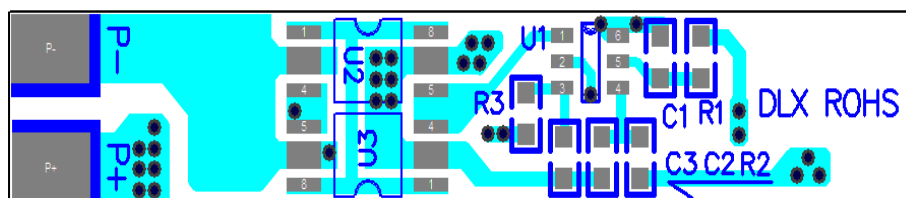
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| Length | 78mm |
| Width | 68mm |
| Height | 19mm |
| Weight | 184g |
| Length Of Wire | 120 ±10mm |

Operation Environment Specifications

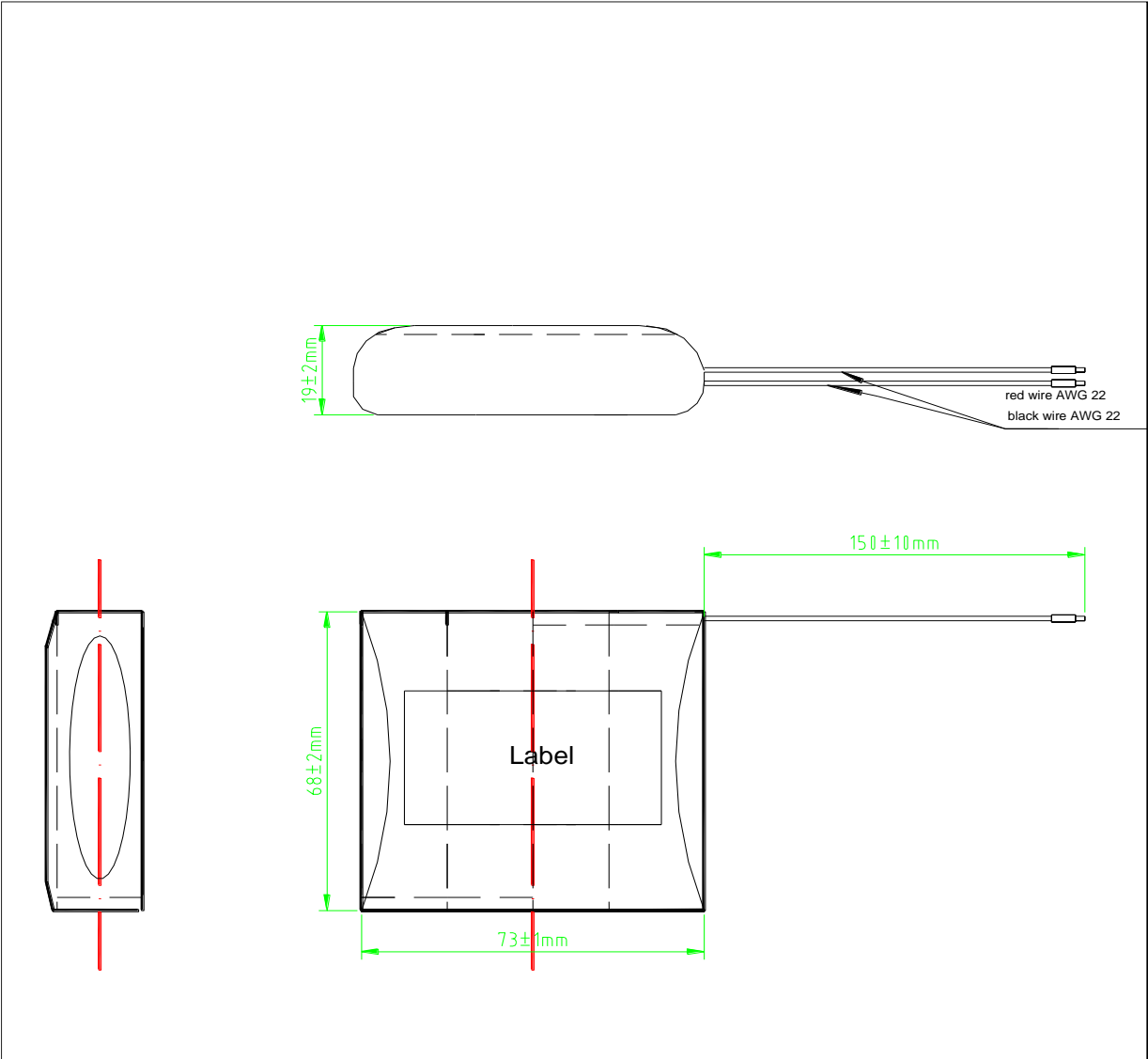
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|-----------------------------|---------------|
| Charge Temperature Range | 0°C to 52°C |
| Discharge Temperature Range | -20°C to 60°C |
| Storage Temperature Range | -20°C to 60°C |

Approvals

| | |
|---------------------------|-------------|
| Compliance/Certifications | Un38.3 ROHS |
|---------------------------|-------------|



- 1 Product and Model
 - 1.1 Products: RS Lithium-ion Battery Pack
 - 1.2 Model: RS ICR 18650-26H M(18650 2600mAh 7.4V 2S2P-C4)
 - 1.3 Picture and output wire (In order to prevail in kind)



| | | | | |
|----|----------|---------------------------|-------------------------|--------|
| 1. | Positive | Red one wire with 22AWG | Length: 120 ± 10 mm | UL1007 |
| 2. | Negative | Black one wire with 22AWG | Length: 120 ± 10 mm | |

2 Battery Pack Specifications

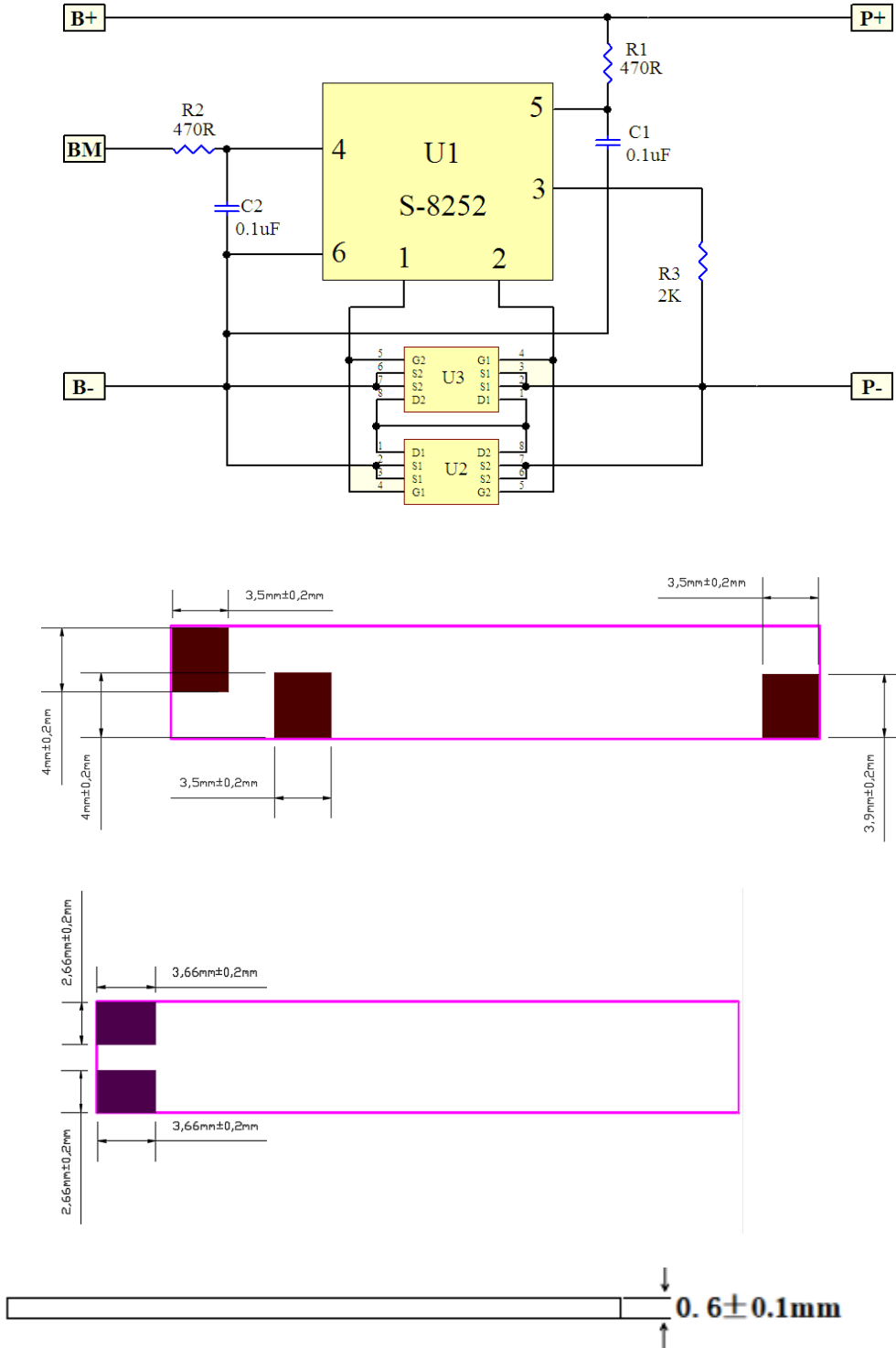
| Item | | Parameters |
|--|---|---|
| Nominal Voltage | | 7.4V |
| Typical capacity | | 5.2Ah (At 0.2C, 5.5V discharge) |
| Discharge | Maximum Discharge Current | <3A (ambient temperature 25°C) (Continuous output discharging current 3A) |
| | Cut-off voltage | 6.00±0.1V |
| Charge | Voltage | 8.40±0.05V |
| | Current | Standard Charge:0.5C Maximum Charge:1C |
| | Maximum Current | 3A (ambient temperature 25°C) |
| | Charge mode | CC/CV, please use special lithium charger |
| Operation temperature / humidity range | Charge | 0°C ~ +52°C / (65±20) % RH |
| | Discharge | -20°C ~ +60°C / (65±20) % RH |
| | | When the environment temperature is higher than 45°C, please pay attention to ventilation and heat rejection. |
| Storage temperature/ humidity range | (65±20) % RH | One year: -20~20°C Three months: -20~45°C ONE month: -20~60°C |
| Protection function | Over charge protection, Over discharge protection | Please refer as below PCB function instruction |
| Shell material | PVC | |
| Weight | 182g | |
| Size (L* W*H) mm | 78 x 68 x19± (1-2-2mm) | |

3. Protection Parameters (for individual cell) ;(DLX-D-018-005)

| Item | Min | Type | Max | Unit |
|--|-------------|-------|-------|------|
| Over-Charge voltage protection (OVP) | 4.225 | 4.25 | 4.275 | V |
| Over Charge voltage protection release (OVPR) | 4.05 | 4.100 | 4.15 | V |
| Over Charge detection delay time | 0.8 | | 1.2 | s |
| Over discharge voltage protection (UVP) | 2.90 | 3.00 | 3.10 | V |
| Over discharge voltage protection release (UVPR) | 2.90 | 3.00 | 3.10 | V |
| Over current discharge protection (OCDP) | 7 | | 12 | A |
| Over current protection delay time (OCPDT) | 5.6 | | 8.6 | ms |
| Short detection delay time | 224 | | 336 | us |
| Normal current consumption of PCM | Maximum 8uA | | | |

Rechargeable Battery Packs

| | |
|---|-------------------------|
| Allowed 0V charge | YES |
| Maximum continuous charge/discharge current | 3A |
| IR resistance of PCM | $\leq 65\text{m}\Omega$ |

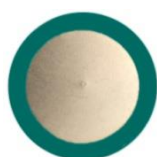


RS 18650 2600 mAh Single cell Datasheet

1. Model

ICR18650-2600mAh-3.6V

2. Appearance and Dimension



| | Item | Dimension(mm) |
|--|------|---------------|
| | H | 65.2±0.3 |
| | Φ1 | 8.2±0.15 |
| | Φ2 | 18.45±0.1 |
| | Φ3 | 18.30±0.1 |

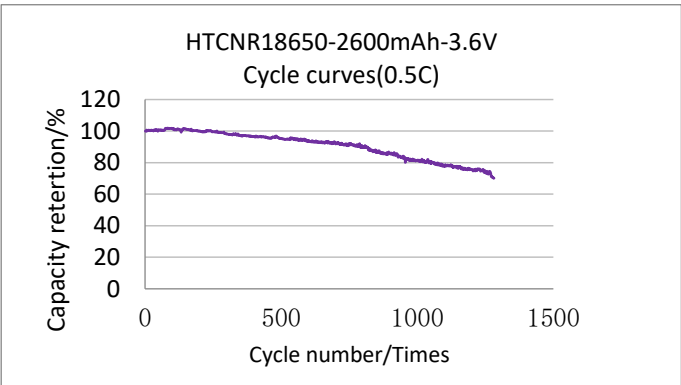
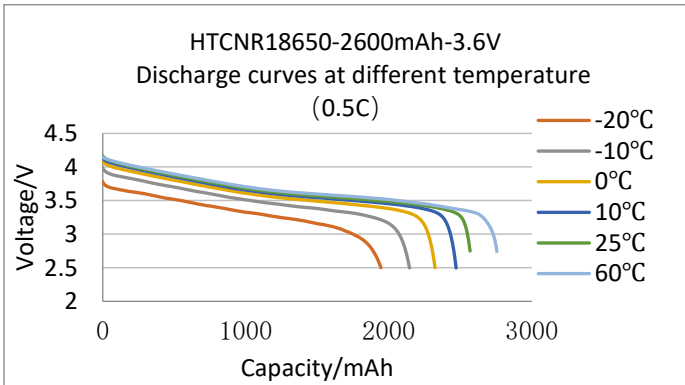
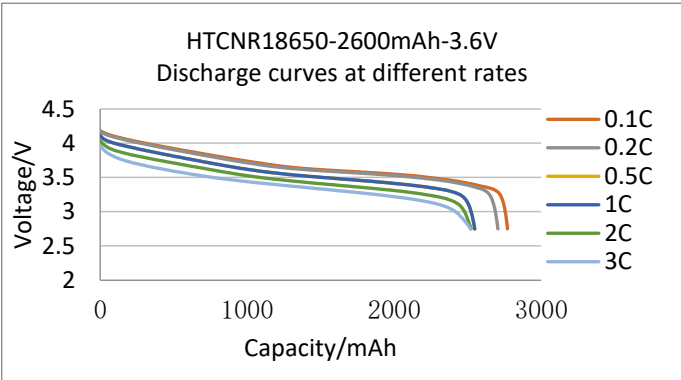
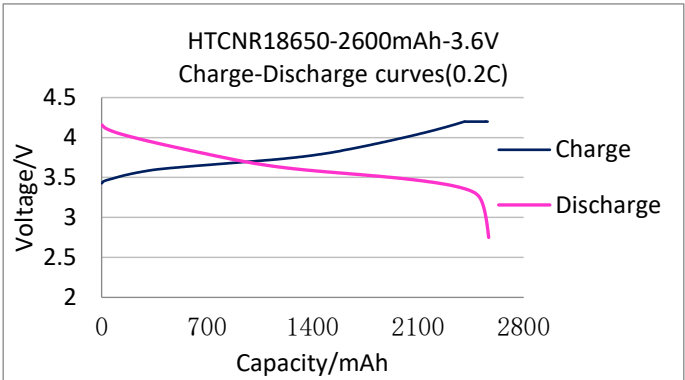
3. 3. Major Technical Parameters

| NO. | Item | | Standard | Note |
|-----|-----------------------------------|-----------------|----------------------|---|
| 1 | Standard Capacity | | 2600mAh | 0.5C discharge |
| 2 | Minimum Capacity | | 2550mAh | 0.5C discharge |
| 3 | Standard Voltage | | 3.6 V | |
| 4 | Alternating Internal Resistance | | ≤25mΩ | |
| 5 | Charge Conditions | Cut-off Voltage | 4.2±0.05V | |
| | | Cut-off Current | 0.02C | |
| 5 | Standard charging current | | 1300mA | 0.5C |
| 6 | Maximum Charging Current | | 2600mA | 1C |
| 7 | Discharge Cut-off Voltage | | 2.75±0.05V | |
| 8 | Standard Discharge Current | | 2600mA | 1C |
| 9 | Max. Continuous Discharge Current | | 7.8A | 3C |
| 10 | Cycle Characteristic | | 1000 times (100%DOD) | the residual capacity is no less than 80% of rated capacity at 0.5C/ 1C rate. |
| | | | 1500 times (80%DOD) | |
| | | | 2000 times (50%DOD) | |
| 11 | Working Temperature | | Charge: 0°C ~ 55°C | |

Rechargeable Battery Packs

| | | | |
|----|---------------------|---------------------|---------------------------------|
| | | Discharge-20℃ ~ 60℃ | |
| 12 | Storage Temperature | -20℃ ~ 55℃ | Short-term storage (< 3 months) |
| 13 | Cell Weight | Approx 48g | |

4. Characteristics Curves



5. Electrical Characteristics

| NO. | Item | Test Method | Standard |
|-----|--|---|----------|
| 1 | discharge capacity at normal temperature | After full charge, the experiment can be put on hold for 10 minutes; 0.2C discharge to 2.75V allows five repetitions. When the range of three consecutive experiments is less than 3% of the rated capacity, the experiment can be completed ahead of time and the maximum value of the test results can be obtained. | ≥2550mAh |

| | | | |
|---|---|---|--|
| 2 | Discharge performance at different temperatures | After standard charging of normal batteries, it should be stored at least 12 hours in the constant temperature environment of - 20 °C, - 10°C, 0°C, 10 °C and 25 °C, respectively, and 5 hours of 60 °C. Then discharge with 0.5C current to the corresponding termination voltage. When the ambient temperature is more than 15 °C, the termination voltage is 2.75V, if less than 15 °C, which is 2.5V. | discharge capacity /initial capacity *100% -20°C≥60%; 10°C≥85%; -10°C≥70%; 25°C≥100%. 0°C≥75%; 60°C≥99%; |
| 3 | Discharge performance at normal temperature different rate | After standard charging of normal batteries, it should be placed for 10 minutes at the prescribed ambient temperature. Then discharged to 2.75V at different rates of 0.2C, 0.5C, 1C, 2C and 3C, respectively. The capacity of batteries with different discharge rates was recorded, and the temperature rise T of batteries with different discharge rates was recorded synchronously. | discharge capacity / initial capacity *100% 0.1C: ≥100% T: ≤5°C 0.2C: ≥100% T: ≤5°C 0.5C: ≥100% T: ≤10°C 1C: ≥95% T: ≤15°C 2C: ≥90% T: ≤25°C 3C: ≥85% T: ≤35°C |
| 4 | Charge retention at normal temperature | Normal batteries are charged according to the standard. They are placed in open circuit for 28 days at room temperature, and then discharged to 2.75V at 0.5C. The recovery capacity of the battery was tested according to the charging and discharging standards. | storage capacity ≥ initial capacity *90% recovery capacity ≥ initial capacity *95% |
| 5 | Charge retention and capacity recovery capability at high temperature | After standard charging, normal batteries are placed open circuit for 7 days in the environment of 55±2°C. After the storage period expires, they are placed for 5 hours at room temperature, and then discharged to 2.75V at 0.5C. The recovery capacity of the battery was tested according to the charging and discharging standards | storage capacity ≥ initial capacity *90% recovery capacity ≥ initial capacity *95% |
| 6 | Cycle characteristic | After filling up the battery, stand for 10 minutes, then charge and discharge according to 0.5C. It is counted as a cycle. The interval between each cycle should not be less than 10 minutes, and the discharge capacity should end when it is less than 70% of the rated capacity. | ≥1000 times |

6. Safety Characteristics

| NO. | Item | Test Method | Standard |
|-----|------|-------------|----------|
|-----|------|-------------|----------|

| | | | |
|---|------------------------|---|------------------------|
| 1 | Overcharge | Normal batteries are charged at 1C constant current until the charging termination voltage is 1.5 times or after charging time reaches 1h, then stop charging and the appearance changes of the batteries are observed for 1h. | No explosion, No fire. |
| 2 | Over Discharge | After normal charge, test the batteries' initial state. When the batteries are normal, discharge to 0V at 0.5C. Observe cell's variation of appearance. | No explosion, No fire. |
| 3 | External Short-circuit | After standard charging of normal batteries, direct short circuit positive and negative poles for 10 minutes, external line resistance should be less than 5 mΩ. When the temperature of batteries drops to 10 °C, the test is completed and the appearance changes of batteries are observed for 1 hour. | No explosion, No fire. |
| 4 | Thermal Abuse | The initial state of the normal battery was measured. After standard charging, the battery was placed in the oven. The temperature was increased to 130±2°C at a rate of (5±2°C)/min and kept for 30 minutes. Then the appearance of the battery was observed for one hour. | No explosion, No fire. |
| 5 | Drop | After standard charging of normal batteries, the initial state of the batteries was measured, and the test batteries were freely dropped from 1.5m height to flat cement ground, once in each direction. | No explosion, No fire. |

7. Environmental Adaptability

| NO. | Item | Test Method | Standard |
|-----|-----------------|---|--|
| 1 | Thermal Cycle | Store the cell for 48 hours at 75±2°C after standard charge, then store the cell at -20°C for 6 hours, and at room temperature for 24 hours. Observe the batteries' appearance. | No leakage, No smoke, No fire, No explosion. |
| 2 | Static Humidity | Put the cell at 40°C±5°C and 95%RH chamber for 48h, then get it out and store it for 2h at room temperature. Observe the appearance and discharge at 0.5C to 2.5V, then test the final capacity. | Discharge capacity after storage is more than 90% of rated capacity. No obvious outside damage, No corrosion, No smoke, No explosion |
| 3 | Vibration | Standard charge. Equip it to the vibration platform, prepare the test equipment according to following vibration frequency and relevant swing, doing frequency sweeping from X, Y, Z three directions, each from 10Hz to 55Hz for 30 minutes of recycling, rating of which is 1oct/min: A)vibration frequency:10Hz ~ 30Hz Displacement breadth (single swing): 0.38mm B)vibration frequency:30Hz ~ 55Hz Displacement breadth (single swing): 0.19mm. Observe the final state after scanning. | Residual Capacity≥90% Rated Capacity Voltage Decrease Rate ≤0.5% No obvious outside damage, No leakage, No smoke, No explosion. |

8. Standard Test Environment

Unless especially specified, all tests stated in this Product Specification are conducted at below condition:

Temperature: $25 \pm 2^{\circ}\text{C}$

Humidity: $(65 \pm 20) \% \text{ RH}$

9. Storage and Others

9.1 Long Time Storage

It should be stored in dry and cool place if the cell is stored for a long time (more than three months), Storage ambient temperature is required to be $25 \pm 5^{\circ}\text{C}$, humidity is required to be less than 85% RH. And in order to ensure that the environmental control under this condition cannot make the surface of the cell appear condensate droplets, while the surface of the storage cell cannot appear moisture phenomenon. The batteries' storage voltage should be 3.3~3.4V and the cell should be stored in a condition as NO.8.

9.2 Other considerations

Any matters that this specification does not cover should be consulted between the customer and RS PRO.

10. Notice in Using Cell

Abuse of cell may cause accidents such as damage to cores or personal injury. So please read the following safety codes and precautions carefully before used:

- Do not immerse the cell in water or seawater, and keep the cell in a cool dry surrounding if it stands by.
- Do not use or leave the cell at high temperature as fire or heater. Otherwise, it can overheat or fire or its performance will be degenerate and its service life will be decreased.
- Do not reverse the position and negative terminals.
- Do not connect the cell electrodes to an electrical outlet.
- Do not short circuit. Otherwise, it will cause serious damage of the cell.
- Do not transport or store the cell together with metal objects such as hairpins, necklaces, etc.
- Do not strike, trample, throw, fall and shock the cell.
- Do not directly solder the cell and pierce the cell with a nail or other sharp objects.
- Do not use the cell in a location where static electricity and magnetic field is great, otherwise, the safety devices may be damaged, causing hidden trouble of safety.
- Use the cell charger specifically when recharging.
- If the cell leaks and the electrolyte get into the eyes, do not rub the eyes, instead, rinse the eyes with clean water, and immediately seek medical attention. Otherwise, it may injure eyes.
- If the cell gives off strange odor, generates heat, becomes discoloured or deformed, or in any way appears abnormal during use, recharging or storage, immediately stop charging, using, and remove it from the device.
- In case the cell terminals are dirty, clean the terminals with a dry cloth before use. Otherwise, poor performance may occur due to the poor connection with the instrument.
- Tape the discarded cell terminals to insulate them.
- **Never put batteries in your pockets or a bag together with metal objects such as necklaces, Hairpins, coins, or screws. Do not store or transport batteries with such objects.**

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11. Disclaimer

Quality assurance does not include normal wear and tear, as well as problems caused by improper maintenance, handling and storage. Failure to follow the use and installation specified in this product specification, including but not limited to the following:

- Damage during transportation or storage.
- Problems arising from the combination of circuit, batteries and chargers.
- Incorrect battery installation or maintenance.
- Use cell or cell pack in inappropriate environments.
- Used improper or incorrect charging and discharging methods which is not included in this specification.
- Failure to comply with operational precautions.
- Bad battery cells generated in the process of assembling by the customer after shipment.
- In case of force majeure, such as lightning, storm, flood, fire, earthquake, etc.

The Company shall not be responsible for any direct or indirect damage caused by or related to the product not being assembled or used as required.