Technical Specification of ER34615H+HPC1520

1. Overviews

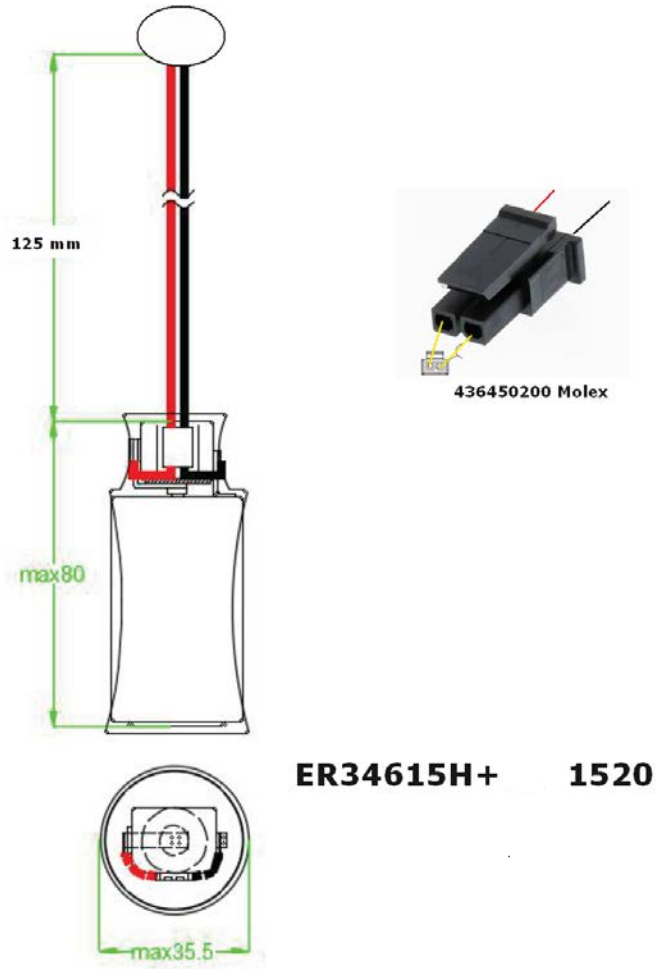
   This product can be used in various fields, mainly used in smart meters (water meters, electricity meters, gas meters), computer support power supplies, medical equipment, wireless communications, oil drilling, portable communications equipment, scientific research instruments, remote data acquisition systems, military applications and other electric equipment.

2. Structure and appearance

   2.1 Structure: Composed of ER34615H battery and HPC1520 capacitor in parallel.

   2.2 Appearance condition: Visually inspect the surface of the product without rust or leakage, and the mark is clear.

   2.3 Schematic diagram of product appearance:



3. Basic features

Item	Subject	Features

3.1	Specification	ER34615H+HPC1520
3.2	Norminal voltage	3.6V
3.3	norminal capacity	19000mAh(2mA, 25±3℃, cut off at 2.0V) Note: The capacity of the battery varies with the discharge current, ambient temperature and termination voltage.
3.4	Max. continuous discharge current	500mA (Can provide higher current, consult Akyga company for details)
3.5	Max. available pulse current	2000mA (It varies according to the pulse performance (frequency, duration), temperature, battery condition and the minimum voltage acceptable to the applied equipment) Pulse current discharge is provided by HPC1520. The main performance of HPC1520 is as follows: Voltage range: 2.5~3.67V Norminal capacity: 140As Max. Dimensions: φ15.1mm x h 21.0mm Norminal weight: About 10g Max. continuous discharge current: 500mA Max. available pulse current: 2000mA
3.6	Operating temperature	-40℃~+85℃（When the operating temperature is higher than normal temperature, it may result in a decrease in the capacity at the beginning of the pulse and a low voltage reading）
3.7	Standard weight	Max. 120g

4. Technical requirement

Item	**Test items**	**Test Conditions**	**Performance test within one year of storage**
4.1	Open circuit voltage	≥3.64V	≥3.64V
		room temperature(25±3℃)	3.64~3.68V
4.2	Load voltage	room temperature(25±3℃), 8.2Ω	3S≥3.15V
	Standard discharge	Standard discharge: 2mA/1.8kΩ, cut-off voltage 2.0V	
		room temperature(25±3℃)	≥19000mAh/9500h
	Regular discharge	Regular discharge: 100mA/33Ω, cut-off voltage 2.0V	
		room temperature(25±3℃)	≥13000mAh/130h
4.3	Leak resistance	Under the above test	No electrolyte leakage
4.4	Deformation	Under the above test	The battery size does not exceed the

			standard

5. Packing and Transportation
   5.1 Negotiate with customer to determine the packing method
   5.2 Transportation
      5.2.1 During transportation, the battery should be protected from sunlight, fire, rain, water and corrosive substances.
      5.2.2 Shock and vibration during transportation, loading and unloading should be limited to a minimum extent.
      5.2.3 For paper packaging boxes, the stacking height should not exceed 1.5m, and wooden boxes should not exceed 3m.
      5.2.4 When the lithium battery is transported for a long distance, it should be placed far away from the principle ship engine, and cannot be left in an unventilated metal boxcar.

6. Safety precautions for using lithium batteries
   6.1 No short circuit, no recharging
   6.2 It is strictly forbidden for users to assemble batteries by themselves
   6.3 Do not over-discharge, squeeze, burn or disassemble
   6.4 It is strictly forbidden to use or heat outside the allowable temperature range
   6.5 Strictly check the outer packaging before use, find out the reason when the packaging is damaged, and do not use it lightly
   6.6 Check the open circuit voltage, load voltage and expiration date of the battery before installing the battery
   6.7 It is strictly forbidden to use different series and different specifications of batteries in series
   6.8 Do not continue to use the battery after discharging to the cut-off voltage
   6.9 Disposal of discarded batteries: Soak the battery in 5% Nacl solution in time, put the remaining voltage to 0V, and then dispose it in accordance with local environmental protection regulations, and bury it in the ground or put it in deep water

   The above precautions should be strictly observed to avoid improper operation or use of the battery, which may cause the battery to swell, leak, or even catch fire or explode

7. Lithium battery storage
   7.1 Lithium batteries should be stored in a cool, clean and dry environment. The recommended temperature is 10-25℃ and the relative humidity is 45-75%.
   7.2 Avoid contact with corrosive substances, keep away from fire and heat sources, and do not place the battery in direct sunlight or rain
   7.3 The battery should be kept in the original packaging
   7.4 The stacking height of batteries depends on the packaging strength. Generally, the stacking height of paper packaging boxes should not exceed 1.5m, and the stacking height of wooden boxes should not exceed 3m.

8. ER34615H+EPC1520 Finished product inspection standards

   The supplier conducts a 100% inspection of the open circuit voltage, load voltage, appearance,

and size of the battery before delievry. The capacity of battery is for spot check.

8.1 Appearance

8.1.1 The steel shell at the bottom of the battery does not bulge, and no leakage of the battery

8.1.2 No sag at the bottom of the steel shell

8.1.3 No rust, scratches or welding marks on the bottom of the steel shell

8.1.4 Product identification is clear, no ghosting or blurred writing

8.2 Battery performance test

The battery's electrical performance test indicators are measured with a four-and-a-half-digit multimeter, referring to the following standards

8.2.1 Open circuit voltage ⩾3.64V

8.2.2 Load voltage: Detect with a load resistance with a resistance of 8.2Ω and a power of 2.0W, the load voltage is no less than 3.15V within 3s.

8.3 Discharge capacitance

8.3.1 The discharge capacity of the battery is discharged by a constant resistance discharge method, and a resistor is welded on the positive and negative electrodes of the battery to discharge, measured and recorded with a four and a half digital multimeter.

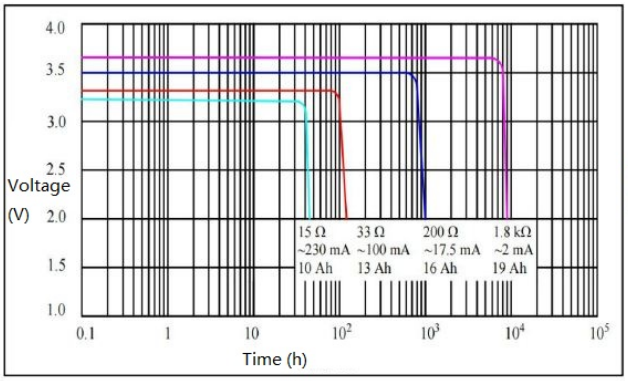
8.3.2 Capacity calculation: The discharge capacity adopts a stepwise summation method. Assuming that the discharge resistance is R, the first time is T1, the voltage is V1, the next recording time is t2, and the voltage is V2, then the discharge capacitance during this period is

$$\frac{(V2+V1) * (t2 - t1)}{2R}$$

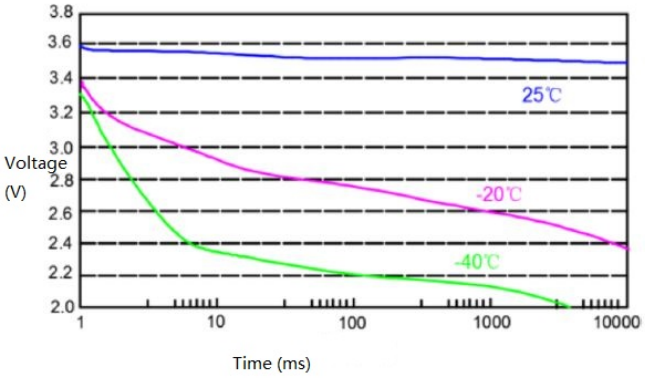
Adding the capacitance of all time periods in the discharge record is the discharge capacitance of the battery

8.3.3 Discharge capacitance standard: In the environment of room temperature 25±3℃, test with load resistance with resistance value of 1.8kΩ, cut-off voltage of 2.0V, and discharge time ⩾9500 hours

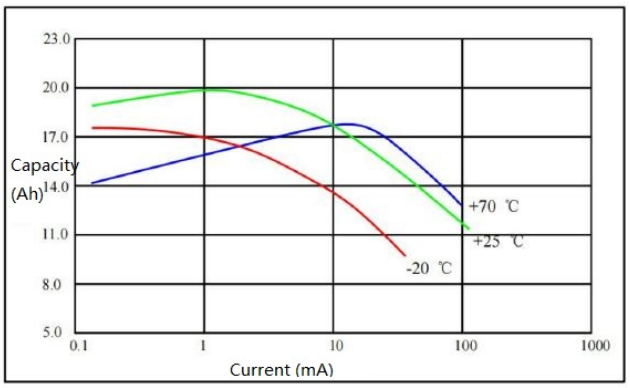
9. Electrical performance graph



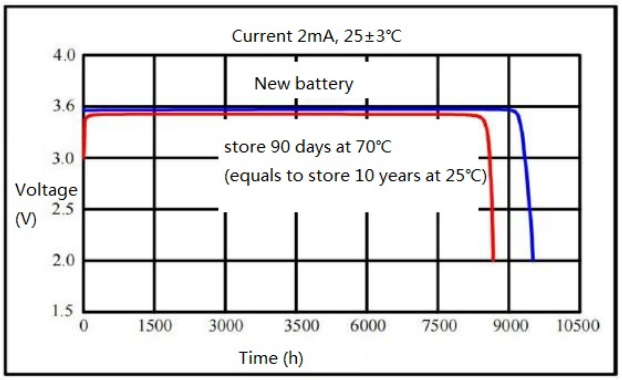
25℃ discharge curve



ER34615H+ 1520 350mA discharge curve



Capacity and current relation curve



Storage characteristic curve