

## Rechargeable Lithium AA battery

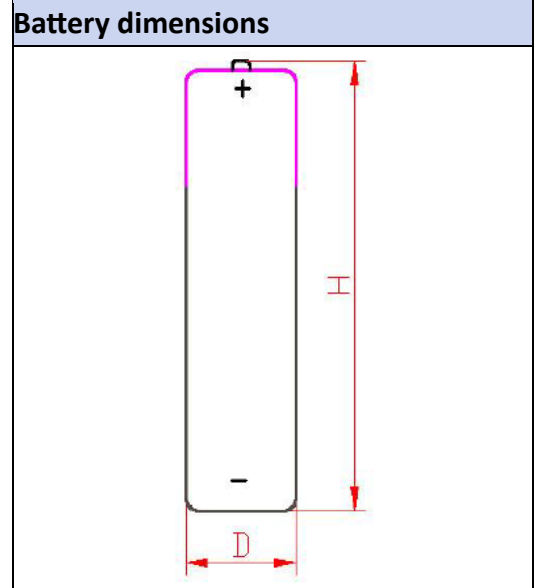
Primary characteristics		
Parameter	Value	Unit
Nominal voltage	1.5	V
Rated capacity	1650	mAh

### Scope

The purpose of this product specification is to provide technical information for USB C rechargeable lithium AA batteries.

The test shall be conducted in strict accordance with the method specified in this specification.

If you have any objection to the test items or test methods, please contact Akyga Battery.



Specification table		
Parameter	Value	
Model	AA-USB	
Typical voltage	1.5V	
Rated capacity	1650mAh	
USB charging voltage	DC5.0 / USB input DC/5V $\pm$ 0.2	
USB charging current	380mA / USB input DC5V / >0.5A	
Standard charging time	90min	
Fast charging time	60min	
Discharging current	Standard: 200mA (Max: 2000mA)	
Discharge time	Standard: 160min	
Discharge cut-off voltage	0.9V	
Cycle life	300+	
Operating temperature	-20~60°C	
Storage ambient temperature	-10~45°C	
Storage environment humidity	$\leq$ 85%	
Annual self-discharge rate	10~15%	
Charging temperature rise	16K	
Quiescent current	<8uA	
Led status: Green LED	Flashing at 1Hz during charging, keeping on at full charge, turning off when discharging, flashing at 10Hz at high speed when discharge short circuit	
Size	Diameter	14.0 $\pm$ 0.2 mm
	Height	50.5 $\pm$ 0.2 mm
Weight Approx	17.6g	

**Notes:**

Operating voltage: The battery is at 80% state of charge with a load of 0.5A.

Indicator status: The green LED indicator blinks when charging and the indicator keeps on when fully charged.

Cycle life: 1C standard charge and discharge use Recovery initial capacity  $\geq 70\%$  (Refers to the standard charge and discharge of battery cells).

Storage:  $-10\sim 60^{\circ}\text{C}\leq 30$  days,  $-10\sim 45^{\circ}\text{C}\leq 90$  days,  $-10\sim 20^{\circ}\text{C}\leq 360$  days, and the recovery capacity is not less than 70% of the initial capacity.

**Product safety test and mechanical characteristics:**

No.	Test item	Test method	Test requirements
1	Vibration test	At room temperature, place the 100% charged battery on the vibration platform and vibrate for 30 minutes according to the following parameters: Amplitude: 1.6(p-p) Frequency: 10-55Hz Directions: X,Y, Z	No rupture, no fire and no liquid leakage.
2	Short circuit	After the battery is fully charged, apply a short-circuit current of 500mA to the battery for 60 seconds.	No explosion, no fire
3	Heavy impact	After the battery is fully charged, place it on the impact table and drop freely from 0.61m height with a 10kg heavy hammer.	No explosion, no fire
4	Overcharge	At room temperature, the battery is discharged to 1.0V with 1C constant current, and then charged to 10V with 3C current, until the current approaches 0mA.	No explosion, no fire
5	Squeeze	Squeeze the battery when it is fully charged, clamp it between two metal plates and apply a force of 13KGF for 60 seconds	No explosion, no fire
6	High and low temperature	At room temperature, constant current and constant voltage 1C, 4.2V charging cutoff current 0.02C, respectively at $-20^{\circ}\text{C}\backslash -10^{\circ}\text{C}\backslash 0^{\circ}\text{C}\backslash 25^{\circ}\text{C}\backslash 60^{\circ}\text{C}$ (low temperature for 12h, high temperature for 2h), 0.5C discharge to 1.0V; Test the discharge capacity of the battery.	Discharge capacity $\geq$ initial capacity 70%
7	Charge retention rate Storage performance	The initial capacity of the battery was measured by standard charge and discharge conditions, and then the battery was stored at $25\pm 5^{\circ}\text{C}$ for 28 days after standard charge, The residual capacity of the battery was tested at 1C discharge to termination voltage. Then, the recoverable capacity of the battery is tested according to the standard charging and discharging conditions.	Remaining capacity $\geq$ initial capacity 85% Recovery capacity $\geq$ initial capacity 95%
8	Cell cycle test	Standard charge and discharge, cycle test, until the discharge capacity for two consecutive times is less than 70% of the initial capacity, that is, the cycle life is considered to be terminated.	More than 1000 times
9	Heat impact	The fully charged battery is heated in an oven with strong convection. The temperature of the oven rised from room temperature to $130\pm 2^{\circ}\text{C}$ at a rate of $5\pm 2^{\circ}\text{C}/\text{min}$ , and kept constant at this temperature for 10 mins.	No explosion, no fire
10	Fall / drop off	Drop the 100% charged battery from a height of 1.0m to a hardwood board with a thickness of 18-20mm placed on the concrete floor, and drop freely once in each direction.	No rupture, no fire and no liquid leakage.
11	Plugging test	Insertion force $\geq 1\text{kg}$ , pull-out force $\leq 3.5\text{kg}$ , plug-in speed 12.7mm/min	>1000 times
12	Insulation withstand voltage test	Apply a high voltage of 1200V/min to the product with a leakage current of 0.5mA	No breakdown

**Warranty period and product liability**

The warranty period is 12 months from the date of delivery. Our company shall not be responsible for any accident caused by failure to operate in accordance with the specifications. In case of any change in the specifications, the company will notify the buyers.

**Warnings and precautions when using the battery**

To prevent the battery from leaking, heating and explosion, please pay attention to the following preventive measures:

**Warning:**

- 1) Do not immerse the battery in seawater or water and it should be placed in a cool and dry environment when in idle.
- 2) Do not use and leave the battery beside hot and high temperature sources, such as fire and heater.
- 3) Do not reverse the positive and negative poles when using batteries.
- 4) Do not plug the battery into the power socket directly.
- 5) Do not throw the battery into the fire or heater.
- 6) Do not use metal to connect the positive and negative poles, in case of short circuit
- 7) Do not transport or store batteries together with metals such as hairpins and necklaces.
- 8) Do not knock or throw, trample on the batteries, etc.
- 9) Do not weld the battery and pierce the battery with nails or other sharp tools directly.

**Matters needing attention:**

- 1) Do not use or place the battery under high temperature (Under hot sun or in a hot car), otherwise it may cause the battery to overheat, malfunction or shorten its service life.
- 2) Do not use Batteries in places with strong static electricity and strong magnetic field, otherwise it will easily destroy the safety protection device and bring unsafe hidden dangers.
- 3) If the battery leaks and the electrolyte gets into your eyes, don't rub it, Rinse your eyes with water, and seek medical treatment immediately otherwise, your eyes will be hurt.
- 4) Remove the battery from the device or charger immediately and stop using it if it gives off an odor heats up discolors deforms or appears any abnormality during use storage or charging.
- 5) If the electrode is dirty, wipe it with a dry cloth before use, otherwise it may lead to poor contact or functional failure; Waste batteries should be wrapped with insulating paper to prevent short circuit and high temperature and fire!

## Disclaimer

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