

**SPECIFICATIONS OF Li-POLYMER
BATTERY PACK**

MODEL NO.: 7548168*4 14.8V 6400mAh



AA Portable Power Corp.

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1. APPLICATION

The applicable range: This specification is available only for the testing within one month since receipt of batteries. It's not a standard for stored goods.

Model: 7548168*4 14.8V 6400mAh

2. RATINGS

NO.	ITEM	RATED PERFORMANCE	REMARK
1	Typical capacity	6400mAh	Discharge at 0.2C to 11.0V
2	Nominal voltage	14.8V	
3	standard charging	Constant voltage: 16.8V Constant current : 0.5C Time: 5 hours	
4	standard discharging	Constant current: 0.2C Cut off voltage: 11.0V	
5	Maximum continuous charge current	1.2C	
6	Maximum continues discharge current	1.2C	
7	Operation temperature and humidity range	Charge: 0-45°C 45-85%RH Discharge: -20-60°C 45-85%RH	
8	Storage temperature and humidity range 80%, Recoverable Capacity	Storage: -20-60°C 45-85RH	within 1 month
		Long time storage: -20-45°C 45-85%RH	within 3 month
		Long time storage: -20-25°C 45-85%RH	within 1 year
9	Pack weight	Below g	

*1. All rapid charge systems should be discussed with our engineer.

*2. We suggest batch batteries be charged 30% of it's capacity during transportation, if the customer request capacity exceed 30% during transportation, the danger is exist under the abnormal condition, Batterspace.com won't responsible for this kind of responsibility.

*3. Battery quality guarantee period: 6 months.

*4. Batteries should be charged 30% of its capacity during storage. If store the battery more than 3 months, we suggest charging 30% capacity of the battery each 3 months.

When operation falls outside these parameters please contact our engineer.

3. Protection function

Batterspace.com/AAPortable Power Corp

NO.	ITEM	RATED ERFERMANCE	REMARK
1	Overcharge protection	Circuit current break down if single cell voltage become above $4.35 \pm 0.025V$ momentary or continuously	Cell voltage below $4.15 \pm 0.05V$,protected release
2	Over-discharge protection	Circuit current break down if single cell voltage become below $2.75 \pm 0.1V$ Momentary or continuously	Cell voltage over $3.0 \pm 0.1V$,protected release
3	Over current protection1	Circuit current break down if discharge current over $13 \pm 2A$	Charge release
4	Over current protection2	Poly switch Raychem 730	recoverable
5	Short current protection1	Circuit current break down if terminal ---- short	Auto recovery if remove load
6	Short current protection2	Poly switch Raychem 730	recoverable

*1. All parameters are based on single cell performance.

U4.PERFORMANCE

4-1. TEST CONDITIONS

All tests are carried out on new cell or batteries. (Within one month after delivery)

Ambient conditions:

Temperature $+20^{\circ}C \pm 5^{\circ}C$

Humidity $+65\% \pm 20\%$

4-2. TEST APPLIANCES

4-2-1. Voltage meter:

0.5 level or higher as required in IEC51/IEC485. Internal impedance exceeds $10K\Omega/V$.

4-2-2. Current meter:

0.5 level or higher as required in IEC51/IEC485. Internal impedance should be less than $0.01\Omega/V$ (including wires).

4-2-3. Micrometer caliper:

With precision of 0.02mm.

4-2-4. Internal impedance meter:

Alternating current of 1000HZ, connector measuring equipment with sin wave of 4.

4-2-5: Impedance loaded meter:

Value of impedance is with $\pm 5\%$ error allowed (including external wires).

4-4. TEST METHOD & PERFORMANCE

4-4-1. Outer appearance:

Cells and batteries shall be free from any stains; scratches or deformations, which may reduce the commercial value of the product when visually inspected.

4-4-2. Size:

The size shall comply with the specified value in the attached drawing when measured by micrometer caliper.

4-4-3. Insulate impedance:

Checked by $M\Omega$ meter, value of insulation between electrode and outer sleeve shall exceed 10 $M\Omega$.

4-4-4. Weight:

The cell weights approx 270 g measured by scale.

4-4-5. Charge Voltage:

Following a period of discharge at 1CmA down to a terminal voltage of 11.0V, standard charge, the cell or battery shall be checked at 5 minutes before finish charging, The voltage shall be 16.8 $\pm 1\%$ V.

4-4-6. Open circuit voltage: (O.C.V.)

Following a standard charge period, the open circuit voltage of the cell or battery shall be checked within 1 hour. The O.C.V. shall exceed 16.4V per cell.

4-4-7. Closed circuit voltage: (C.C.V.)

Following a standard charge period, the closed circuit voltage of the cell or battery shall be checked with a 0.86 Ω per cell load within 1 hour. The C.C.V. shall exceed 16.4 V per cell within 1 sec.

4-4-8. Internal impedance:

Following a standard charge period, the internal impedance of the cell or battery shall be checked at 1000Hz within 1 hour. The internal impedance shall not be more than 100 m Ω per cell.

4-4-9. capacity:

Following a standard charge period, the cell shall be stored for a period of 1 hour. The capacity shall be equal or more than minimum capacity when discharged at 0.2C mA down to a terminal voltage of 10.0V. The capacity returned might not initially attain the specified value following the first charge-discharge cycle. In this event, the test may be repeated a further two or three times to attain the minimum capacity.

4-4-10. High rate discharge:

Following a standard charge period, the cell or battery shall be stored for 1 hour. The discharge duration shall exceed 54 min(s) when discharged at 1C mA.

4-4-11. Self discharge:

Following a period of discharge at 0.2C mA down to a terminal voltage of 11.0V, standard charge and then the cell or battery shall be stored on open circuit for 28 days. The subsequent capacity shall not be less than 60% of rated capacity when discharged at 0.2C mA.

4-4-12. Over-charge:

Following a period of discharge at 0.2C mA down to a terminal voltage of 11.0V, standard charge and then charge for 48hrs at 0.1C mA. The capacity of the cell or battery shall not be less than the rated capacity when discharged at 0.2C mA. It shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed.

4-4-13. Over-discharge:

Following a period of discharge at 0.2C mA down to a terminal voltage of 11.0V, combine the cells with a 0.86 Ω per cell load. After stored for a period of 24 hours, standard charged and then discharge at 0.2C mA, the cell or battery shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed, and the subsequent capacity shall not be less than 80% of rated capacity

4-4-14. . Life time (Based on clause 4.4, IEC61436 1998):

The charge-discharge cycles shall exceed 300 times.

4-4-15. Humidity:

No leakage of electrolyte in liquid form shall be observed during 14 days of storage (cell is in standard charged state) under the following storage conditions:

$33^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($91.4^{\circ}\text{F} \pm 5.4^{\circ}\text{F}$)

Relative humidity of $80\% \pm 5\%$. (Salting is permitted).

4-4-16. Vibration:

Store the cell or battery more than 24 hours after standard charge, following vibration tests over an amplitude of 4 mm (0.1575 inches) at a frequency of 16.7 Hz(1000 cycles per minute) and repeated through any axes during 60mins, the subsequent fluctuation of open circuit voltage and internal impedance shall be less than 0.20 V and 50 m Ω respectively, and the cell or battery shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed.

4-4-17. Free falling: (Drop)

Store the cell or battery more than 24 hours after standard charge, following a drop test from 450mm (17.717 inches) on to a hard-wood board in a vertical axis 2 times on each of 2 mutually perpendicular axes, the subsequent fluctuation of open circuit voltage and internal impedance shall be less than 0.20 V and 50 m Ω respectively, and the cell or battery shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed.

4-4-18. Short:

Store the cell or battery for 1 hour after standard charge, it shall not explode during or at the end of a 1 hour short-circuit test. However, leakage of electrolyte, external deformation or outer sleeve cracking is permitted. (cross section of the wire should be more than 0.75mm², length should be the shortest distance between 2 polarities)

4-4-19. Safty Valve Capability (Over discharging):

The cell or battery shall not explode during or at the end of a 5-hour period of incorrect polarity dis-charging at 1C mA. However, leakage of electrolyte, external deformation or outer sleeve cracking is permitted. The Safety Valve can start up naturally.

4-4-20. Safety Valve Capability (over-charging):

The cell or battery shall not explode during or at the end of a 5-hour period of incorrect polarity over-charging at 1C mA. However, leakage of electrolyte, external deformation or outer sleeve cracking is permitted. The Safety Valve can start up naturally.

4-4-21. Low temperature discharge:

Following a standard charge period, the cell or battery shall be stored for 24 hours at $0^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The discharge duration shall exceed 3 hour(s) 30 min(s) when discharged at 0.2C mA at ambient temperature of $0^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

5. The transportation and storage

- 5-1 During the transportation of battery, should prevent fierce vibration, impact ,extrusion, insulating or drenching. Applicable in transportation by automobile, train, steamboat and airplane.
- 5-2. The batteries should be stored in the ambient temperature $-5\text{ }^{\circ}\text{C} \sim 35\text{ }^{\circ}\text{C}$, Should be put in the clean, dry and well ventilated room , with relative humidity not bigger than 75%. Should avoid the corrodent contact. Should be far away from fire hazard and heat source.

6. Others:

- 6-1.The manufacture has the right to revise the specification without notifying the customers.
- 6-2. For the points not mentioned in the specifications, the manufacture should discuss with the customers to find a mutual favorable solution.
- 6-3. The manufacture does not undertake any responsibility for the accidents caused by actions not matching with specifications.