APS24-LIR22650-2Ah Series

2Ah, 3.2V Rechargeable Lithium-ion(Li-ion) Battery

RoHS Compliant

Features

- Rechargeable Lithium-Ion(Li-ion)
- Nominal capacity 2000mAh
- Nominal voltage: 3.2V
- Standard Charge 5 hours
- Charge Temp. 0-45˚C
- Discharge Temp. -20˚C to 60˚C
- Over Charge/Discharge Protection
- Short Circuit Protection
- Dimensions: ϕ22x65.3mm(cell)
- 5-year Warranty

*Product images are for illustrative purposes only and may vary from actual design.

Applications

- Small portable electronics

Model List*(See part number scheme for model number details)

Model Number	Nominal Capacity	Nominal Voltage	Standard Charge Time	Cell Internal Impedance
APS24-LIR22650-2Ah	2Ah	3.2V	5 hours	≤50mΩ

Charging Table

C-rate	Time
$1C_1$	1h
$0.5C_1$ or C/2	2h
$0.2C_1$ or C/5	5h
$0.1C_1$ or C/10	10h
$0.05C_1$ or C/20	20h

Table 1: C-rate and service times when charging and discharging batteries of 1Ah (1,000mAh)

Technical Data

Nominal Capacity	2000mAh 0.2C Standard discharge
Minimum Capacity	1950mAh 0.2C Standard discharge
Nominal Voltage	3.2V Mean Operation Voltage
Delivery voltage	3.2~3.4V Within 10 days from Factory
Charge Voltage	3.65V±0.03V By standard charge method
Standard charging method	0.2C constant current, 3.65V constant voltage charge to 3.65V, continue charging till current decline to ≤0.01C
Standard discharging method	0.2C constant current discharge to 2.0V
Cell Internal Impedance	≤50mΩ, Internal resistance measured at AC 1KHz after 50%charge
Maximum charge current	0.5C 1000mA, for continuous charging mode
Maximum discharge current	2C 4000mA, for continuous charging mode

Technical Sales / Customer Service: +1-818-338-7788 • Email: sales@autec.com
31328 Via Colinas Suite 102 • Westlake Village, CA 91362 USA • **www.autec.com**

■ Technical Data(cont.)

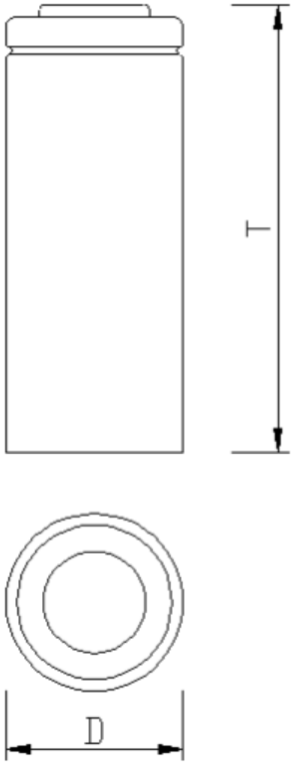
Operation Temperature and relative humidity Range	Charge: 0~45℃ 60±25%R.H Discharge: 20~60℃ 60±25%R.H. Charging at a very low temperature such as below 0℃, will lower capacity and reduce cycle life of the battery
Storage temperature for a long time	-10~35℃ 65±25% R.H Do not store for longer than 6 months. Must charge when stored for 6 months. Charging will protect the circuit when stored for 3 months.
Rated Capacity at 0.2C(Min.)	After standard charge, the capacity shall be measured at 0.2C discharge until the voltage discharge reaches 2V, ≥1950mAh
Cycle Life	Charging and discharging the battery below conditions of 0.2C standard charge to 3.65V end-off 0.2C standard discharge to 2.0V cut-off Continuous charge and discharge for 1500 cycles , the capacity will be measured after the 1500th cycle, ≥80%of initial capacity
Capacity retention	The battery should be charged in accordance with standard charge condition at 20~25℃,then store the battery at an ambient temperature 20~25℃ for 28 days. Measure the capacity after 30 days with 0.2C at 20~25℃. Retention capacity ≥85%
Temperature Dependence of discharge capacity	Cells shall be charged and discharged @0.2 C5A to 2.0 volts. Except to be discharged at temperatures shown below. The cells are stored for 3 hours at the test temperature prior to being discharged and then will be discharged at the test temperature. The capacity of a cell at each temperature shall be compared to the capacity achieved at 23ºC and the percentage shall be calculated.
Discharge Temperature/Discharge Capacity (0.2 C5A)	-20℃(30%), -10℃(40%), 0℃(80%), 23℃(100%), 60℃(95%)
Free fall test	The battery should be charged in accordance with standard charge condition, then drop the battery three times from a height of 1.0 m onto a concrete floor. The batteries are dropped on random sides, No Fire, No explosion
Vibration test	After standard charge, the cell is fastened to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between 10 Hz and 55 Hz, the excursion of the vibration is 1.6mm. The cell shall be vibrated for 30 minutes per axis of X, Y,Z axes. No leakage, No fire, No explosion
Thermal exposure test	Each fully charged cell, stabilized at room temperature, is placed in a circulating air-convection oven. The oven temperature is raised at a rate of 5°C/min ± 2°C/min to a temperature of 130°C±2°C. The cell remains at this temperature for 10min before the test is discontinued. No Fire, No explosion
Short test(25±5℃)	The fully charged battery is to be short-circuited by connecting the positive and negative terminals of the battery with a resistant load that does not exceed 100mΩ. Tests are to be conducted at room temperature 25±5℃. No Fire, no explosion The Temperature of the Battery surface does not exceed more than 150℃
Short test(55±5℃)	The fully charged battery is to be short-circuited by connecting the positive and negative terminals of the battery with a resistant load that does not exceed 100mΩ. Tests are to be conducted at temperature about 55±5℃. No Fire, no explosion The Temperature of the Battery surface does not exceed more than 150℃

■ Technical Data(cont.)

Forced discharge test	A discharged cell is subjected to a reverse charge at 0.5C for 150 min., No Fire, No explosion
Over charge test	After standard charge, continue to charge with a constant voltage 3C/5.0V per cell, holding 8h., No Fire, No explosion

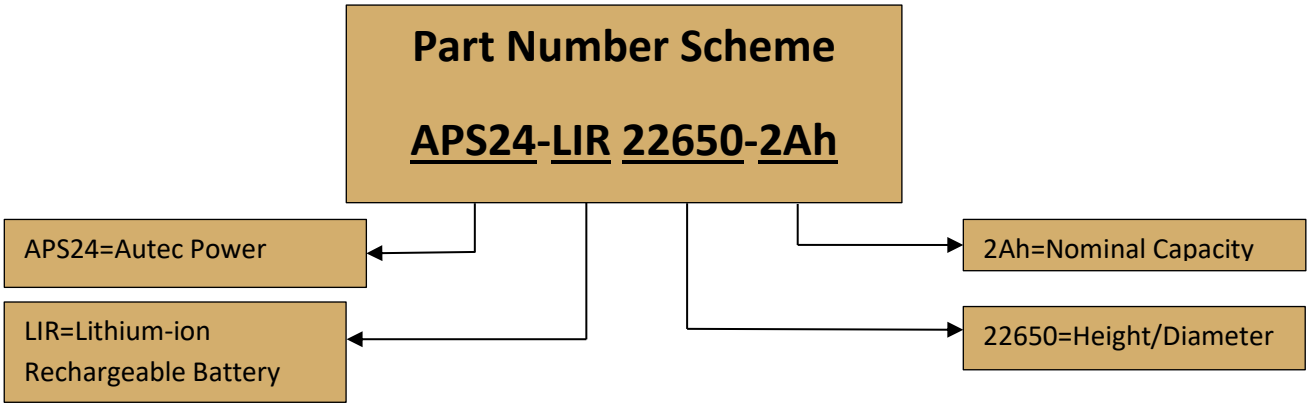
■ Mechanical Diagram

Items	Unit
Diameter(D)	22.0±0.3
Height(T)	65.3±0.3



■ Warnings

1. **Install batteries correctly.**
2. **Ensure the contact points are clean and conducive.**
3. **Do not mix different types or brands of batteries in any application.**
4. **Do not expose the batteries to heat or fire.**
5. **Keep away from small children.**
6. **Please check the manufacturing date code.**



***Product images are for illustrative purposes only and may vary from actual design.**
***Specifications are subject to change without notice. Autec is not responsible for issues arising from errors or omissions.**