

Specification Approval sheet



Data Sheet

Coin Type Lithium-Ion Rechargeable Battery

Model: LIR1220

1. Applicable Scope

This data sheet is applied only to the lithium-ion rechargeable coin battery produced by Akyga Battery.

2. Type of Products

Type: Lithium-ion rechargeable coin battery

Model: LIR1220

General Features

Long Cycle Life

Under normal usage, the cycle life of the battery can be ≥300 circles while with capacity ≥80%

High Power Density

High power density makes the battery light in weight and small in dimension. It can be used in small devices.

Safe and Reliable

No floating metal lithium assures a safer usage.

High working voltage

Working voltage is up to 3.7V, approx. 3 times of the voltage of NI-MH or NI-CD, which reduces the quantity of the battery needed in certain application.

No memory effect

No memory effect assures a constant maximum application.

Low self-discharge rate : ≤3%/month

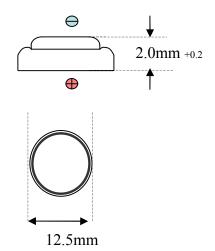
Good Consistency

Good consistency is shown in battery capacity, internal resistance, discharge platform and capacity retention. A strict internal quality control system is implemented in the company's production.



4. Spec Chart

Item		Standard features	
Model		LIR1220	
Nominal Voltage (V)		3. 7	
Rated Capacity (mAh)		9	
Size	Diameter (mm)	12.5 (max)	
	Height (mm)	2.0 +0.2	
Weight (g)		0.82	



5. Battery Characteristics

5.1 Test Conditions

Temperature: 20°C±1

Relative Humidity: ≤75%±5 Atmosphere pressure: 1atm

5.2 Standard Charge/Discharge Characteristics

The test should be conducted under the condition below:

In a temperature of 20° C, CC charge 0.2CmA / voltage up to 4.20V; Then CV charge. Terminate charging when the charging current value is less than 0.05CmA. Rest for 5 minutes, discharge CC at 0.2CmA to 2.75V.

5.3 Fast Charge/Discharge:

Temperature 20°C, CC charge at 1.0CmA to 4.20V; turn to CV charge; Terminate charging when the charging current value is less than 0.05CmA, rest for 5 minutes, then at 1.0CmA CC discharge to 2.75V.

5.4 Temperature Characteristics : Working temperature range: - 20 ℃—60 ℃ .

Storage temperature: 20°C±5



Fig. 1 Charging Characteristics at various currents

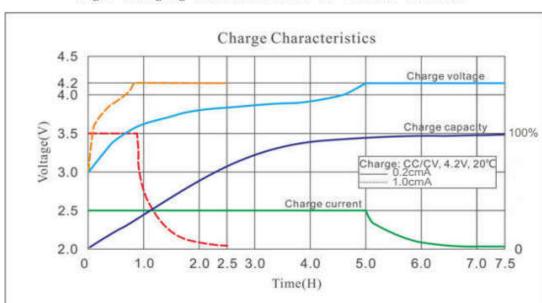


Fig. 1 Charging Characteristics at various currents



Fig. 2 Discharge Characteristics at various currents

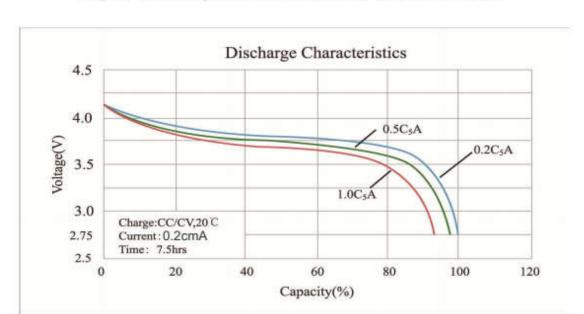


Fig. 2 Discharge Characteristics at various currents

Remarks:

Discharge rate	0.2C	0.5C	1C
Effective capacity	100%	95%	90%



Fig. 3 Discharging Characteristics at various Temperatures

Temperatures Characteristics 4.5 4.0 60°C Voltage(V) 20°C -10°C Charge: CC/CV,20°C 3.0 4.2V,0.2CmA x 7.5hrs Discharge: Constant current 0.2cmA 2.75 2.5 0 20 40 60 80 100 120 Capacity(%)

Fig. 3 Discharging Characteristics at various Temperatures



Fig. 4 Storage Characteristics

Fig. 4 Storage Characteristics

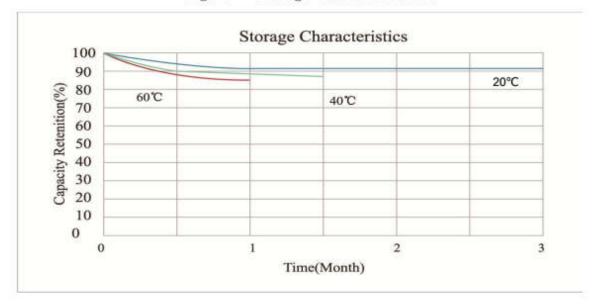
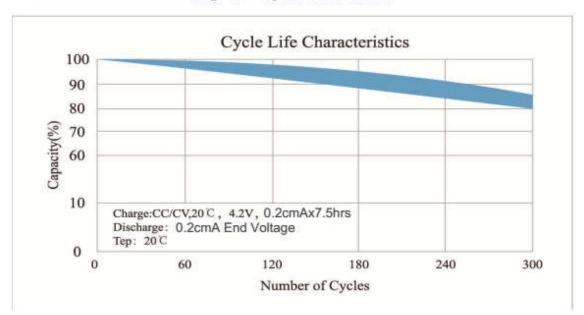




Fig. 5 Cycle Life Chart







6 Important Notes

Keep away from source of fire and/or heat.

Do not disassemble battery and/or battery pack.

Do not connect the positive and negative pole directly using conductive metal; avoid short circuit.

Do not put the battery into water or damp it.

Do not cut the battery.

Do not strike or needle the battery.

Charge the battery using specified chargers.

Do not solder the battery directly.

Observe the correct polarity (+/-)

Do not use the battery in un-specified application.

Do not mix the battery in usage with other types of battery.

Read the instruction manual carefully before use.

When the battery is used on load, it is recommended to design a charge/discharge protection circuit for the battery.

When the battery is stored and not used under room temperature for over 6 months, it needs to be recharged by the procedure below: Discharge by CC mode at 0.2CmA to 2.75V, then rest for 5 minutes, charge by CC mode at 0.2CmA to 4.20V limit, then change to CV charge mode. Cut off the charge when the charging current is less than 0.05CmA.

Quality Warranty: Twelve (12) months limited warranty.



7. Notes for Coin Battery Application

Charge Section: It is recommended to use a charging management IC to control the charging current within 1C so as to ensure the safety of charge.

Protection Section: A protective circuit should be added to the PCM of the battery. It is recommended to use the Seiko IC (Number: S8261-G3J), with a discharge cut-off voltage at 3.0V.

Off-load current

Off-load current is a critical element in the electrical device. When in a condition where the device is off-loaded and there is no external charging power while the battery has to keep the IC in a working status, the off-load current of the whole device should be measured. It is suggested to keep the off-load current of the whole device within ≤5uA.

The application notes should be taken into consideration in design of a device.	A well-wired PCBA
and a quality battery is an integral part to maintain the whole quality of the device	e.

Specifications are subject to change without prior notice.