



Guangzhou Markyn Battery CO.,Ltd

可充電鋰離子扣式電池

Lithium-ion Rechargeable Cell Battery

Model No. : LIR1220

承認書Specs Approval

客戶名稱:

供應商:

Name of Customer :

Name of Supplier:

Guangzhou Markyn Battery Co., Ltd.

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1. 適用範圍 Applicable Scope

This specs approval is applied only for the lithium-ion rechargeable cell battery produced by GMB

2. 產品類型 Type of Products

- Type : Lithium-ion rechargeable cell battery
- Model : LIR1220

3. 主要特點 General Features

Long Cycle Life

Under normal usage, the cycle life of the battery can be ≥ 500 circles while with capacity $\geq 80\%$

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 3.6V, 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 : $\leq 7\%$ /month

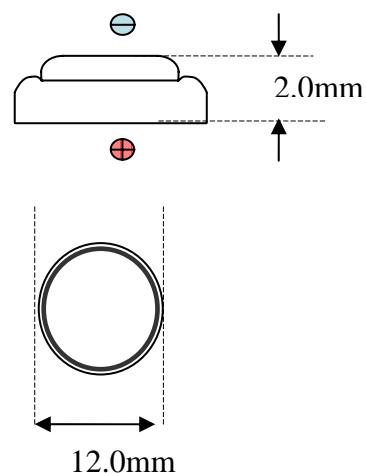
Good Consistency

Good consistency is showed in battery capacity, internal resistance, discharge platform and capacity retention. A strict complete internal quality control is subject to the ISO9000 system in the company's production.

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4. 规格特性表 Spec Chart

Item	标准特性	
Model	LIR1220	
Nominal Voltatag (V)	3.60	
Nominal Capacit (mAh)	8±2	
Resistance (Ω)	≤2.5Ω	
Size	Diameter (mm)	12.0+/-0.15
	Hight (mm)	2.0±0.2
Weight (g)	0.7	



Internal resistance test standard:

CC charge 0.5mA / voltage up to 4.25V; Then CV charge.

Terminate charging when the charging current value is less than 0.05CmA.

Rest for 60 minutes, then test the battery by 1000Hz internal resistance tester.

5. Battery Characteristics

5.1 Test Conditions

Temperature : 20°C ±1

Relative Humidity : ≤75% ±5

Atmosphere pressure : 1atm

5.2 Discharge Characteristics

The test should be conducted under the condition below:

In a temperature of 20±5°C, CC charge 0.5CmA / voltage up to 4.25V; Then CV charge.

Terminate charging when the charging current value is less than 0.05CmA.

Rest for no more than 60 minutes,

Discharge CC at 0.5CmA to 2.75V.

5.3 Charge Characteristics

The battery can be charged by one of the following methods:

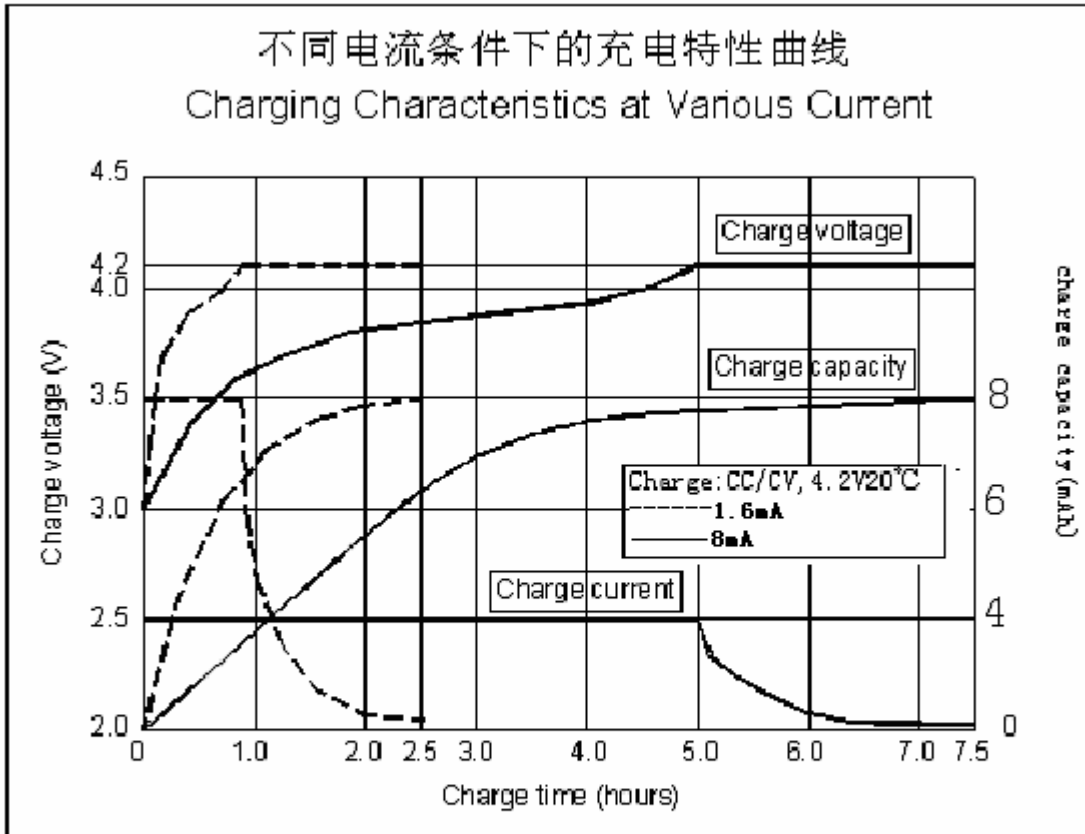
Standard Charge : Temperature 20±1°C, CC charge at 0.5CmA to 4.25V; turn to CV charge; Terminate charging when the charging current value is less than 0.05CmA.

Fast Charge: Temperature 20±5°C, CC charge at 1.0CmA to 4.25V; turn to CV charge; Terminate charging when the charging current value is less than 0.05CmA.

- 充放電曲線請參閱圖 1 和圖 2 ;
For charging/discharging characteristics at various currents see fig 1 or 2.
- 不同溫度放電曲線請參閱圖 3 ;
For discharging characteristics at various temperatures see fig 3 or 4.
- 自放電曲線請參閱圖 4 ;
For Storage characteristics see fig 4.
- 迴圈壽命曲線請參閱圖 5 。
For cycle life characteristics see fig 5.

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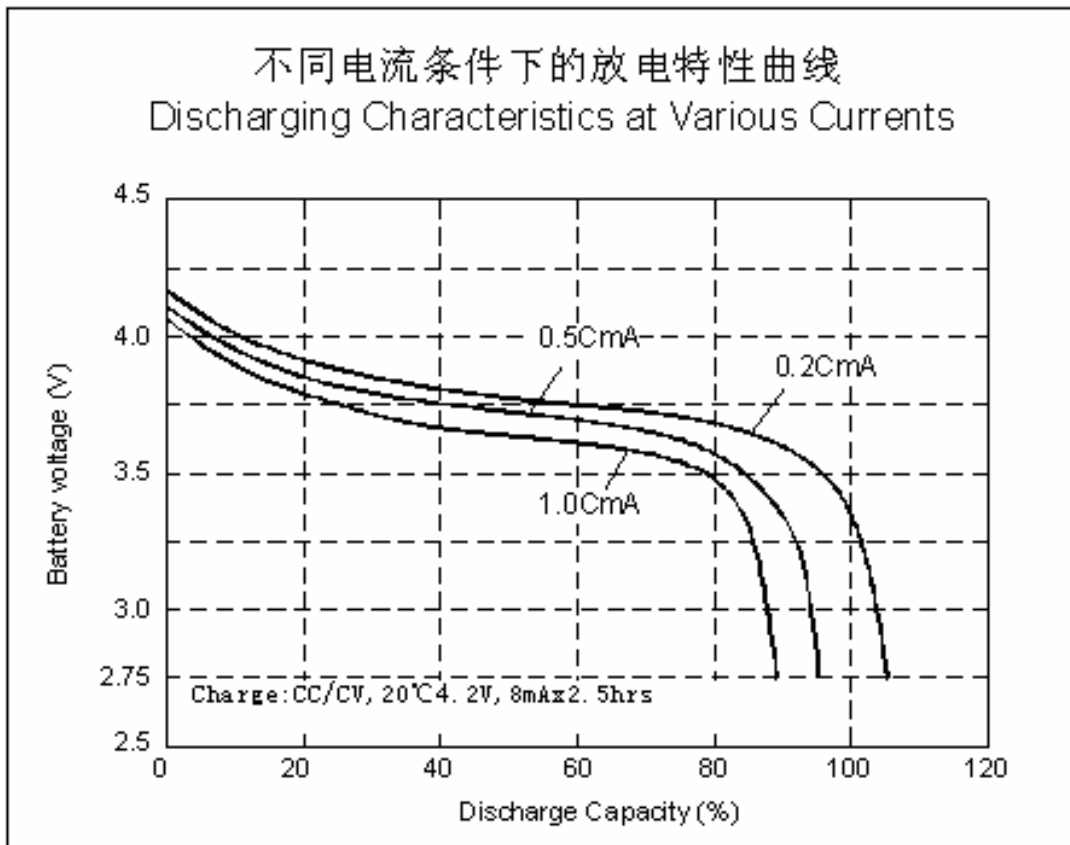
圖 1. 不同電流條件下的充電特性
 Fig.1 Charging Characteristics at various currents



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圖 2. 不同電流條件下的放電特性

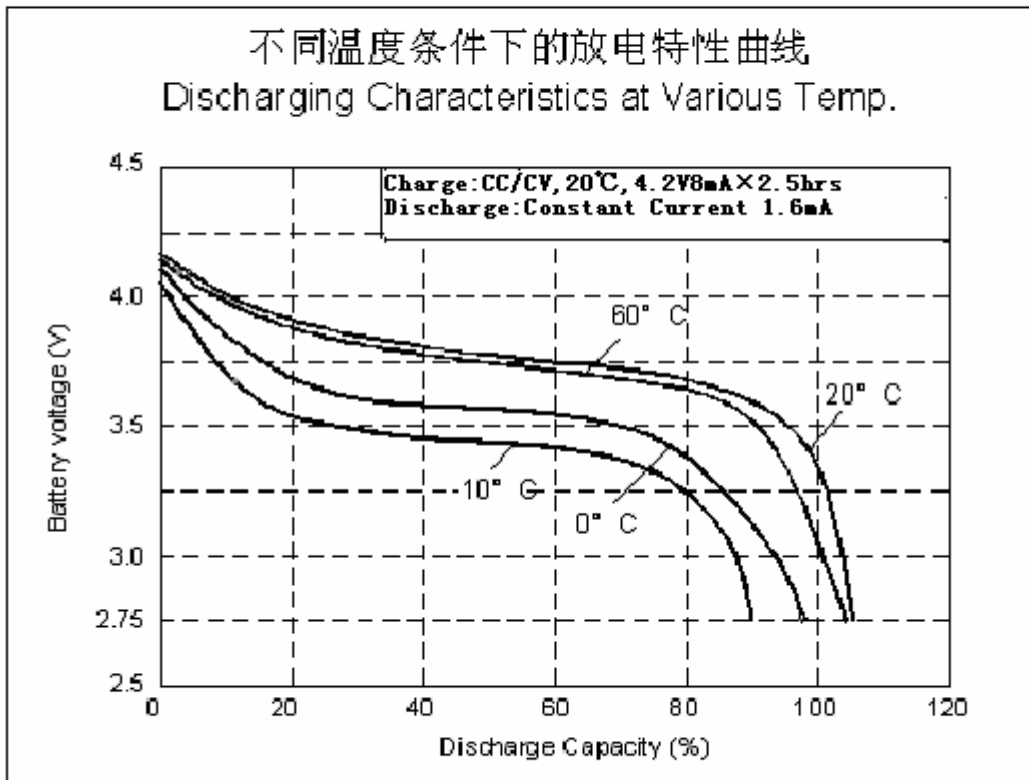
Fig. 2 Discharge Characteristics at various currents



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圖 3. 不同溫度條件下的放電特性

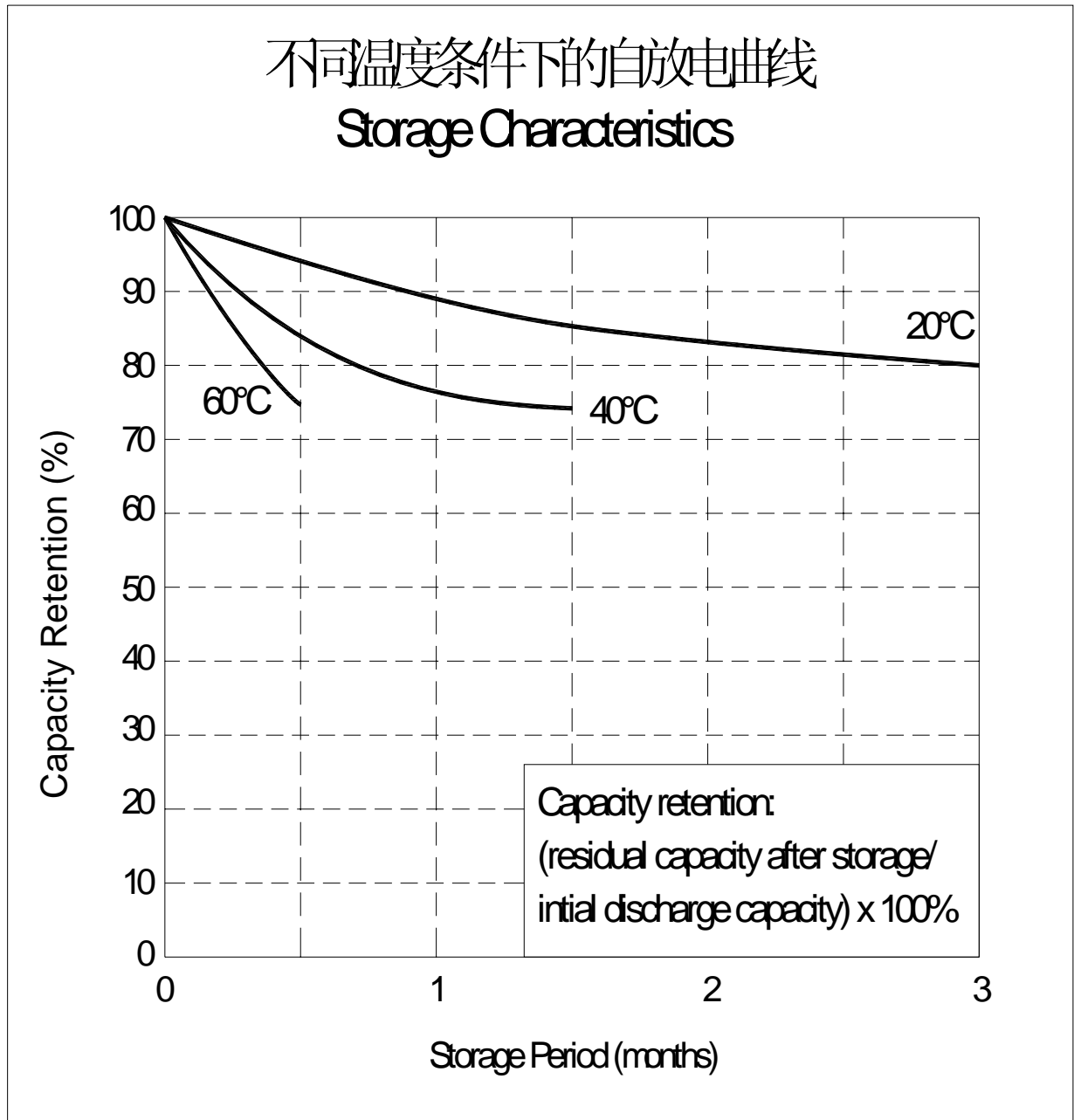
Fig. 3 Discharging Characteristics at various Temperatures



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圖 4. 自放電保持特性

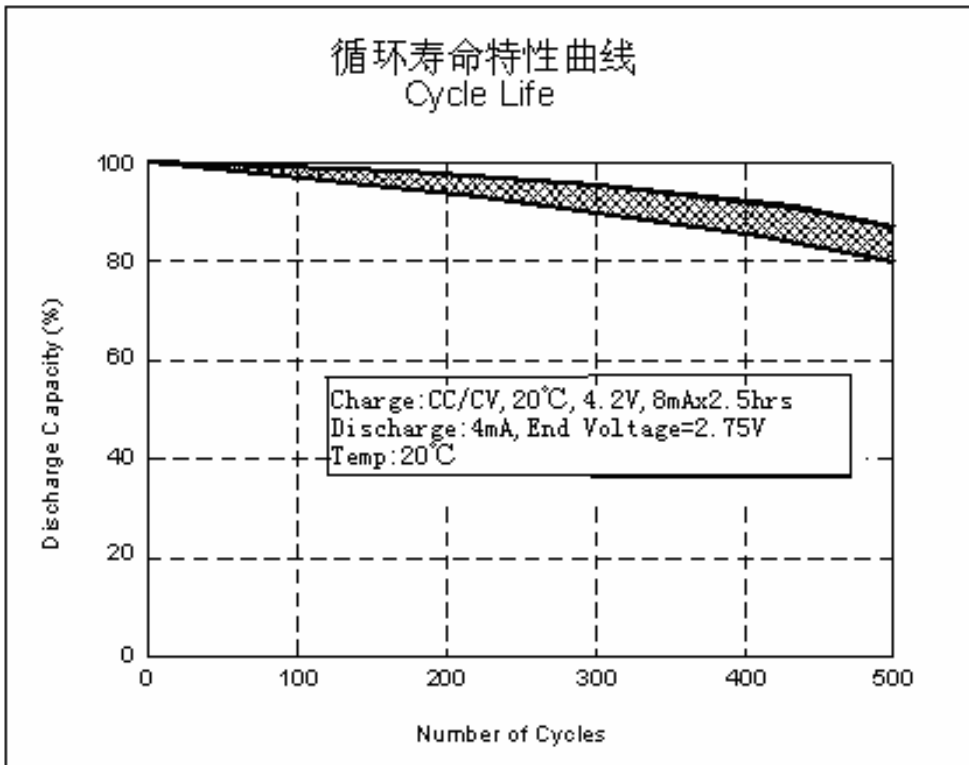
Fig. 4 Storage Characteristics



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圖 5. 迴圈壽命曲線

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.