1. Preface

The purpose of this product specification is to provide technical information for the rechargeable Lithium-ion Polymer battery GMB052030, manufactured and supplied by Guagnzhou Markyn Battery Co., Ltd.

2. Description and Model

2.1 Description	Rechargeable Lithium-ion Polymer battery
2.2 Model	GMB 052030

3. Specification

3.1 Capacity	Typical	240mAh
	Minimum	200mAh
3.2 Charging Voltage		4.20V
3.3 Nominal Voltage		3.7V at 0.2C mA
3.4 Standard Charging Method		Constant current:0.5C_5mA Constant voltage 4.20V
3.5 Cut-off Discharge Voltage		3.00V
3.6 Max.Discharge Current		1.5C_5mA
3.7 Max.Charge Current		1C_5mA
3.8 Cycle Life		>500 cycles
3.9 Ambient Temperature		
for Standard Charge		0℃~ 45℃
for Discharge		-20℃~ 60℃
3.10 Storage		
for within the temperature		-20℃~ 60℃
for within the humidity		≤75%
3.11 Energy Density		
Wh/L		~350
Wh/Kg		~180
3.12 Weight of Bare Cell		~5g
3.13 Charge State Internal Impedance		<150mΩ

4.Appearance

Appearance shall be free from any remarkable scratch,flaws, rust, discoloration or electrolyte leakage(visible or by smell)

5.Standard Test condition

5.1 Environment Conditions

Unless otherwise specified,all test stated in this Product Specification are conducted within the temperature 15~25℃ and the humidity 45~85%RH.

5.2 Test Equipment

(1) Impedance meter

The impedance meter with AC 1kHz should be used

6.Test Procedure and Its Standard

Item	Measureing Procedure	Standard
6.1 Appearance	Visual	No Defect and Leak
6.2 Dimension	Caliper	As item 8
6.3 Weight	Scale	As item 3.12
6.4 Maximum Charge Current	CCCV(Constant Current Constant Voltage)	1C_5mA
6. 5 Full charge	CCCV	CC-0.5C_5mA CV- 4.2V End-Current 0.01C_5mA
6.6 Open Circuit Voltage	Within 1hr after full charge,measure Open circuit voltage	>4.10V
6.7 Internal Impedance	Measure the battery with 1kHz AC	<150m Ω
6.8 Discharge Capacity	Within 1hr after full charge,discharge until final discharge,at 0.2C_5mA and measure the capacity	>240mAh
6.9 Maximum Discharge Current	Until final discharge voltage	1.5C_5mA
6.10 Charge/Discharge Cycle Life	Charge:CCCV,CC- 0.5C_5mA,CV-4.2V End-Current 0.01C_5mA Discharge:0.5C_5mA to 3.00V,This charge/discharge shall be repeated 500 times	Discharge capacity should be >70% of item 6.8
6.11 Leakage Proof	After full charging,the battery shall be stored at 40±2℃ and humidity 80±5%for 21 days	No leakage should be observed by visual inspection
6.12 Temperature Characteristics	1)After full charge at 20±5℃ ,stand at -20±2℃ for 18h,then discharge at 0.2C_5mA and measure the capacity 2)After full charge at 20±5℃ ,stand at 55±2℃ for 2hrs ,then discharge at 1C_5mA and measure the capacity	Discharge capacity should be>60% of item 6.8 and no abnormality on its appearance and stucture
6.13 Charge Retension	After full charging,stand at 20±5℃ for 28 days,measure the discharge capacity according to item 6.8	Discharge capacity should be>85% of item 6.8

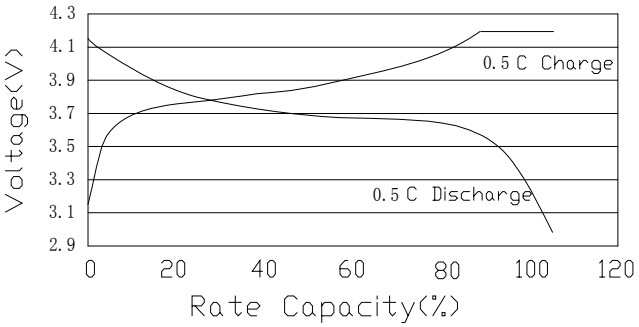
7.1 Charge/Discharge Characteristics

Charge:CC/CV 4.2V, 0.5C_5mA,

End- current 0.01C_5mA

Discharge:0.5C_5mA Cut-off at 3.00V

Temperature:25℃



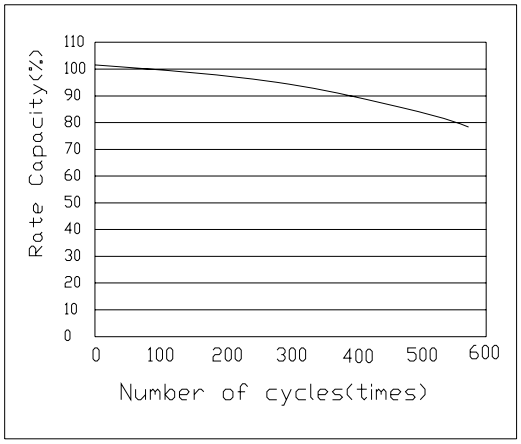
7.2 Charge/Discharge Cycle Life

Charge:CC/CV 4.2V，0.5C_5mA,

End-Current 0.01C_5mA

Discharge:0.5C_5mA,Cut-off at 3.00V

Temperature:25℃

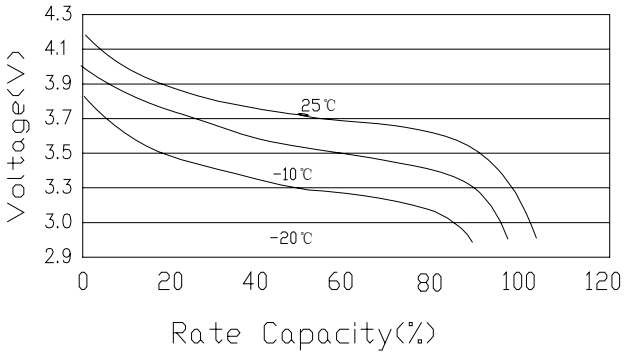


7.3 Temperature Characteristics

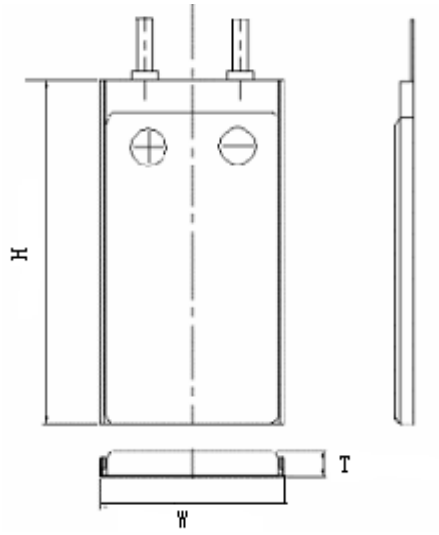
Charge: CC/CV 4.2V 0.5C_5mA,

End-Current 0.01C_5mA

Discharge:As item 6.10



8. Dimension(Bare cell) mm



Unit	Thickness(t)	width(w)	Hight(H)
mm	5.0±0.2	20±0.5	30±1