GP Model No	: BILP180402
Project No	: NTA2716
Cap No	:/
Customer	: GP General model
Customer Model No	: /
Product Description	: Rechargeable Lithium Ion Battery

Approved by

(with company chop)

Date:

Presented by
GPI International Ltd.

Date:

Note of Revision

Rev	Page	Date	Description	Initiator	Authority
0		29Jan2010	New issue	JW Liu	Brian Lam

Contents

1. Scope

This specification describes the physical, functional and electrical characteristics of a rechargeable Lithium Ion battery pack supplied by GP Batteries. Battery packs produced will meet this specification. However, the information is descriptive only. No representation, guarantee or warranty of merchantability or fitness for purpose is made or implied. Specifications are subject to change without any prior notice.

2. Specification

Model no	:	
Application	:	/
Battery Type	:	Lithium Ion
Battery Configuration	:	3S1P
Nominal Voltage	:	11.1V
Maximum Charge Voltage	:	12.6+/-0.05V
Discharge Cut-off Voltage	:	9V
Typical Capacity	:	4400 mAh at 0.2C *
Standard Charge	:	Constant current at 3A with maximum voltage of 4.2V
Standard Discharge	:	Constant current at 880mA(0.2C) to 9V
Maximum charging current	:	5A
Maximum discharging current (peak)	:	8.6A
Maximum discharging current (Conti.)	:	5A
Operating Temperature	:	-10℃ - 60℃ (Charging) -10℃ - 60℃ (Discharging)
Storage Temperature	:	-20℃ - 60℃
Safety Regulation	:	UL1642

*** Under standard charge and discharge**

3. Cell Mark (Ref.)

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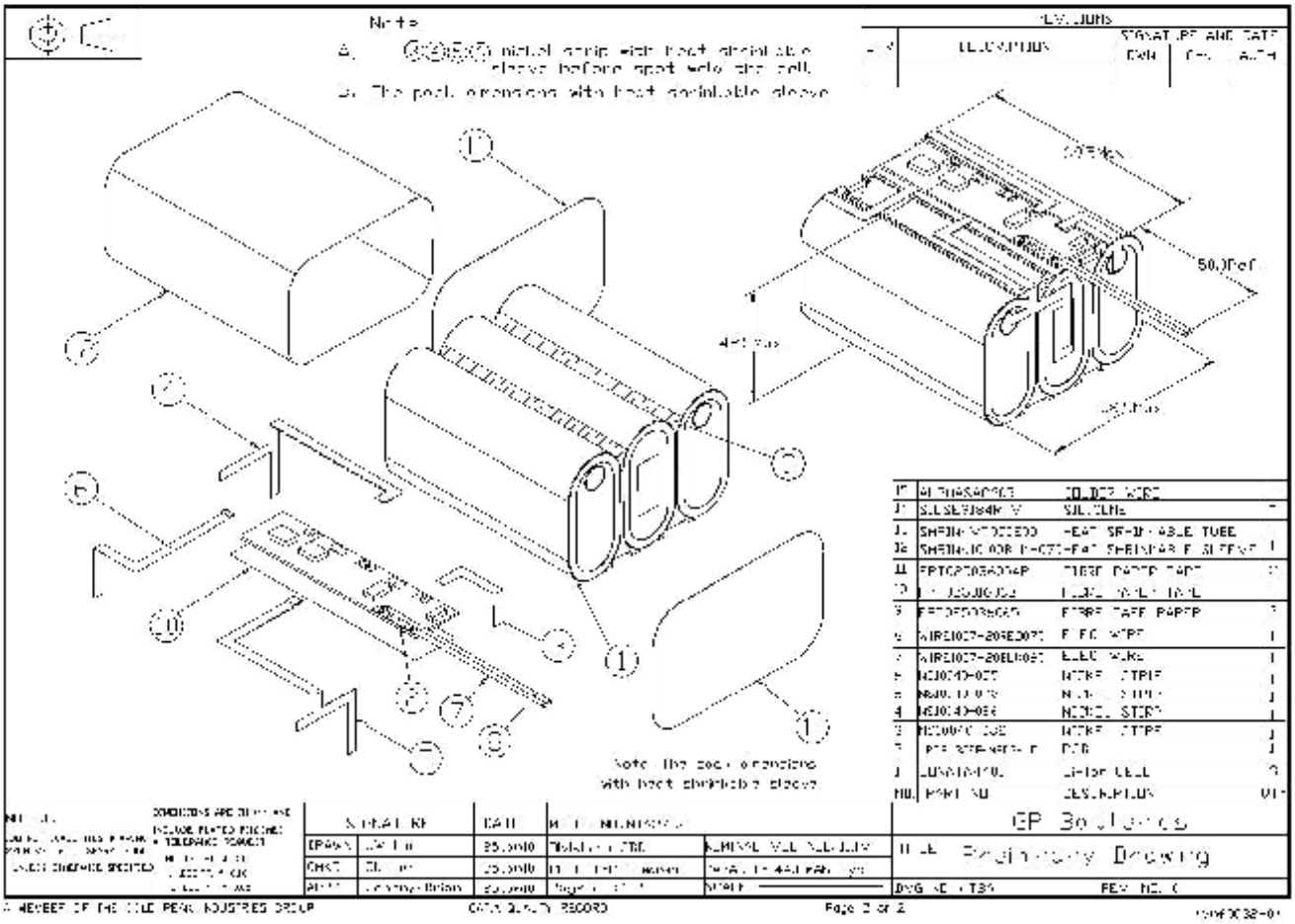
4. Mechanical drawing



5. PCB Spec.

Parameters of protection circuit (@25°C)

No	Item	Specification	Unit
1	Over-charge detection voltage	4.250±0.025	V
2	Over-charge release voltage	4.150±0.050	V
3	Over-discharge detection voltage	2.700±0.080	V
4	Over-discharge release voltage	3.000±0.100	V
5	Over-current detection voltage	0.200±0.025	V
6	Over-current	8.75-11.25	A
7	Charge/Discharge continue current	5	A
8	Over-charge detection delay time	500~1500	msec
9	Over-discharge detection delay time	50~150	msec
10	Over current detection delay time	5~15	msec
11	Short circuit detection delay time	100 ~ 600	usec
12	Supply current (Normal mode)	50 (max)	μA

Requirement of protection functions (@25°C)

No.	Item	Criteria
1	Over-charge inhibition	4.250+0.025 (from cell terminal)
2	Over-charge protection recovery method	When the battery is connected to the cellular phone. the protective condition is released.
3	Over-discharge inhibition	2.700±0.080 (from cell terminal)
4	Over-discharge protection recovery method	When the battery is charged. the protective condition is released.

Specification of PCB

Material	FR-4
Dimension	L: 62.00 +0.20/-0.20mm W: 15.00 +0.20/-0.20mm
Thickness	0.8 +0.10/-0.10 mm (overall)
UL	94V-0

(1) Material 1 oz copper double sided bonded to FR-4 base material.
(2) 2 layers with through hole.
(3) All through hole connections to have solder resist applied
(4) Gold Finger Plating 3u".

6. Test Conditions

Unless otherwise specified, all tests should be conducted within 1 month of delivery under the following conditions:

Ambient Temperature : 23℃ ± 5℃
Relative Humidity : 65 ± 20%

7. Charge state of battery shipment

Battery is charged to 30% before shipment.

8. Liability

Customer is kindly requested to use the battery delivered from GP Batteries in strict accordance with the specification in this document. Improper usage of the battery may cause fire or even explosion. GP Batteries will not guarantee against any accidents occurring due to use outside those written in this specification. GP Batteries shall not responsible against any accident caused by matters which is not written in this specification.

9. Limited Warranty

GP Batteries will be responsible for replacing the battery pack against defects in workmanship and materials for a period of 12 months from manufacture code that GP Batteries can confirm such defects are coming from manufacturing abnormality. Any other problem is not under this limited warranty.

GP Batteries makes no warranties against any accidents occurring due to use outside scope and application written in this document.

GP Batteries makes no warranties against any losses or lost earnings incurred by the customer or third parties arising from any usage of the battery.

GP Batteries makes no other warranties expressed or implied except as provided in this limited warranty.

10. Precautions

10.1. Handling & Usage

Never short-circuit the battery.
Never immerse in water.
Never expose to, or dispose of the battery in fire.
Avoid excessive physical shock or vibration.
Keep out of reach of children
Never use a battery that appears to have suffered abuse

10.2. Charging

Battery must be charged with an appropriate charger only.
Never use a modified or damaged charger.
Never connect the battery directly to an electric outlet or cigarette heater socket in a car.
Never charge the battery near fire or in a car under the blazing sun.
Never use a battery in a potentially hazardous environment.
Discontinue charging after specified charging time even if the charging is not completed.

10.3. Discharging

Specified product use only. Never use the battery with any equipment other than specified.
Never use a battery in a potentially hazardous environment.
Never use the battery in a place near fire, heaters, or high temperature sources.

10.4. Storage

Never store the battery in hot and/or humid environment.
Never store the battery in a potentially hazardous environment.
Never store the battery as fully charge state.
Never store the battery as a load is connected.
Never put the battery in a microwave oven or a pressure cooker.
Store in a cool, dry and well-ventilated area.

10.5. Disposal

Regulations vary for different countries. Dispose of in accordance with local regulations.

11. Air-sea-road transport

The stated battery is complied with UN manual tests of Criteria ST/SG/AC.10/11/Rev.4, Part III, Section 38.3, where the published "Model Regulations" and "Manual of Tests and Criteria" are the basis for most international shipping regulations. These include:

IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ADR	ECE Inland Transport Committee (Europe Road)
DOT	US Dept of Transportation

12. Green Policy

The stated battery supplied to your company contains the hazard substances that are all below the threshold concentration levels mentioned in Battery Directive 2006/66/EC.

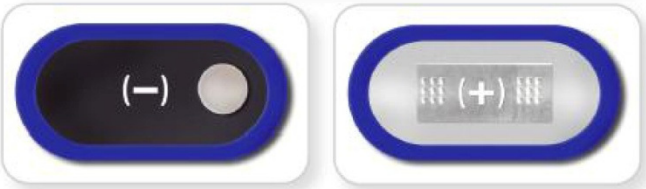
Controlled Substances	**Declaration threshold (mg/kg)**
Lead (Pb)	<20
Mercury (Hg)	<40
Cadmium (Cd)	<5

13. Cell Specification

Rechargeable Lithium-ion Cell

High performance lithium-ion rechargeable cell, exceptional energy density, industry-leading cycle life, and fast capability make this an ideal solution for notebook and portable power applications.

Specifications

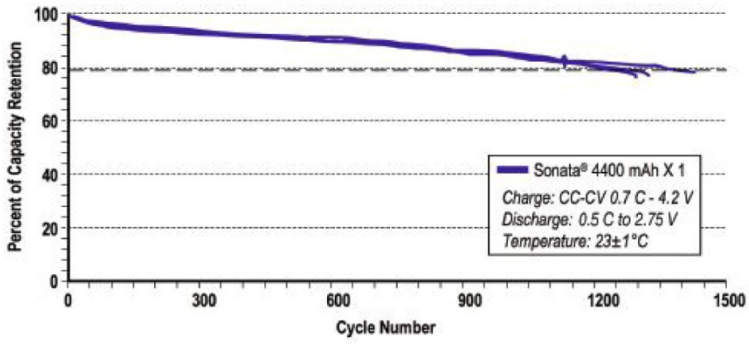


Nominal capacity		4400 mAh
Nominal voltage		3.7 V
Nominal cell impedance (1 kHz, AC)		25 mΩ
Cycle life to 80% capacity (0.5C discharge current, 23 °C)		>800 cycles
Standard charging method	Constant current (CC)	3.1 A (0.7C) to 4.2 V
	Constant voltage (CV)	4.2 V to 50 mA
Recommended fast charge		6.6A (1.5C) to 4.2V
Cell weight		92 g (typical)
Recommended temperature range	Operating	-10 to +45 °C*
	Storage	-20 to +45 °C*

Certifications

UL 1642, UN 38.3, ROHS 2002/95/EC directive, Nordic Ecolabel license 330 011, China Environmental United Certification Center CEC-EL(II)-080-2008, CTIA mobile devices

Cycle life



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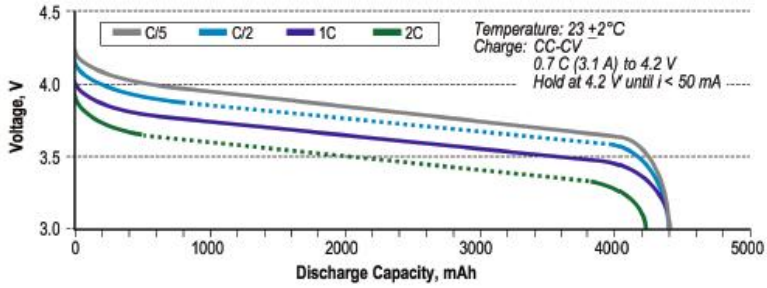
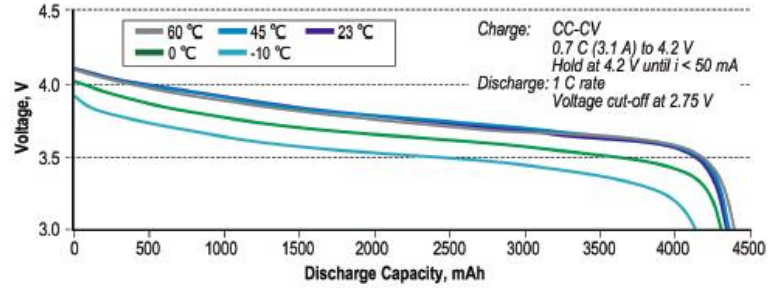
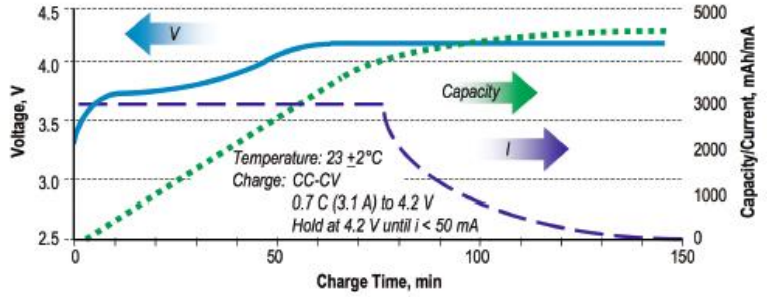
Discharge capacity



Temperature discharge curve (1C)



Charge curve (0.7C)



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14. Packing spec.

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