

深圳市德朗能电池有限公司

SHEN ZHEN DLG BATTERY CO., LTD

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产品型号	DBM3710-U1100(806)	版本	A0	页数	1/11	发行日期	2010-09-20
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Product Specification

承认书

Type : Li-ion Rechargeable Battery Pack

锂离子可充电电池组

DLG 型号

DLG Model: 3710-U1100(806)

客户型号

Customers Model: 063450AR

文件编号

Document No: RD- SP-0222 A/0

制作 日期

Prepared by: 王志云 Date: 2010-09-20

审核 日期

Checked by: _____ Date: _____

批准 日期

Approved by: _____ Date: _____

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客户确认:
Customer approval:

1、范围 SCOPE

本规格书将适用于深圳市德朗能电池有限公司生产的3710可循环充电锂离子电池。
This specification shall be applied to 3710 Li-ion Rechargeable Battery Pack, which is manufactured by Shenzhen DLG Battery Co., Ltd.

2、型号 MODEL

- 2.1、电池组型号 : DBM3710/1100 mAh & Battery Pack Model : DBM3710/1100mAh
- 2.2、实际容量 : $\geq 1100\text{mAh}$ & Nominal Capacity: More than 1100mAh
- 2.3、电芯型号 : 063450AR & Cell Model: 063450AR

3、电性能 ELECTRICAL PERFORMANCE

- 3.1、基本电压 : 3.7V & Nominal Voltage : 3.7V;
- 3.2、过充检测电压 : $4.300\pm 0.025\text{V}$ & Over Charge Detection Voltage : $4.300\pm 0.025\text{V}$;
- 3.3、充电电流 : 0.5C rate (550mA) & Charging Current: 0.5C rate (550mA);
- 3.4、过放检测电压 : $2.40\pm 0.05\text{V}$ & Over Discharge Detection Voltage : $2.40\pm 0.05\text{V}$;
- 3.5、最大放电电流 1C rate (1100mA) & Maximum Discharge Current : 1C rate (1100mA);
- 3.6、充电模式 : 恒流恒压 & Charging Mode : Constant Current and Constant Voltage (CC/CV):
- 3.7、适合的温度 : 充电 : $0^{\circ}\text{C} \sim +45^{\circ}\text{C}$; 放电 : $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$

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Operating Temperature : Charging : 0°C ~ +45°C ; Discharge : -20°C ~ +60°C

3.8、储存温度 : -20°C ~ +45°C & Storage Temperature: -20°C ~ +45°C

4、主要的原材料如下 MAIN RAW MATERIALS AS FOLLOWS

4.1、电芯 : 063450AR & Semi-manufactured cell : 063450AR

4.2、PCM : NP60 & PCM : NP60

5、组装方式 Assy Method :

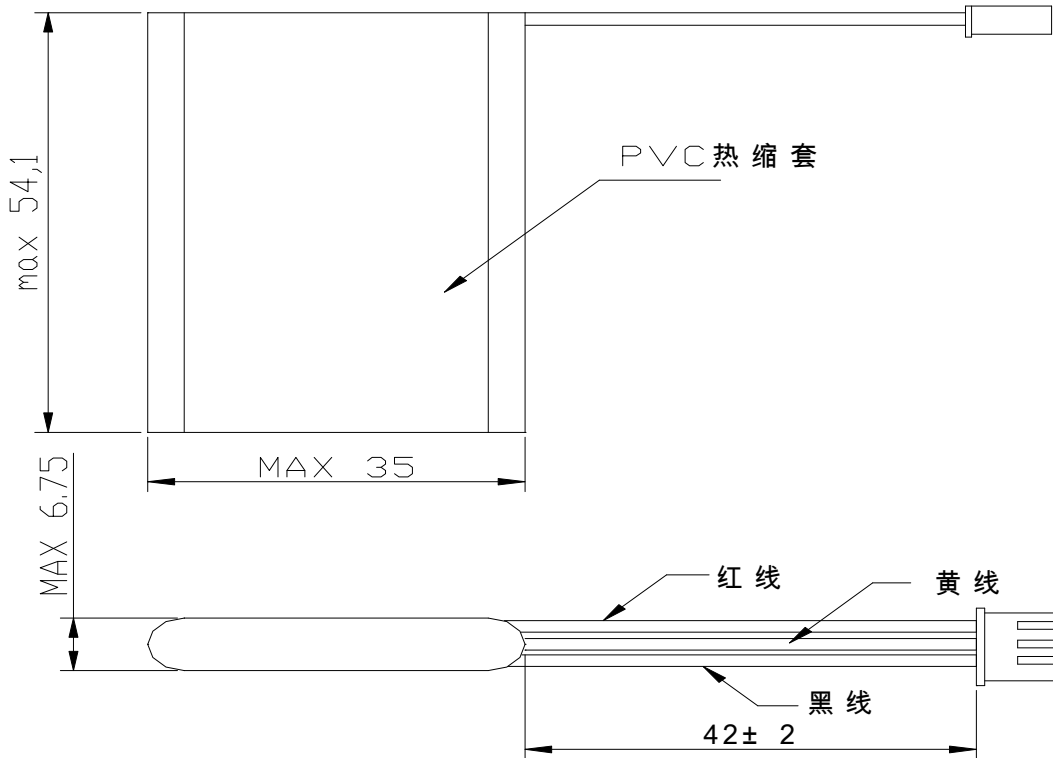
5.1、单节 1S1P

6、电池组尺寸 DIMENSIONS OF BATTERY PACK

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7、电池组技术参数 SPECIFICATION OF BATTERY PACK

No	Items	Specification	Remarks
7.1	容量 Typical Capacity	$\geq 1100\text{mAh}$	
7.2	内阻 Internal Impedance	$\leq 200\text{m}\Omega$	
7.3	基本电压 Nominal Voltage	3.7V	
7.4	充电保护电压 Overcharge Voltage	$4.300 \pm 0.025\text{V}$	
7.5	放电保护电压 Overdischarge Voltage	$2.40 \pm 0.05\text{V}$	

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7.6	过流保护 Overcurrent protection	1.5-5.0A	
7.7	NTC	10K5%	
7.8	短路保护 Short Circuit protection	OK	
7.9	尺寸 Dimensions(mm)	47.5*42*4.7mm	公差见图纸
7.10	工作温度 Operating Temp	0°C ~ +45°C	充电 Charging
		-20°C ~ +60°C	放电 Discharging
7.11	储存温度 Storage Temp	-20°C ~ +45°C	小于一个月 Less than 1 month
		-20°C ~ +35°C	小于三个月 Less than 3 months
7.12	湿度 Storage humidity	65±20%RH	

8、充放电性能 ELECTRICAL PERFORMANCE TESTING

No	Items	Test method and condition	Remark
8.1	标准充电 Standard Charging	<p>先将电池在20°C±5°C环境下用0.2C5A充电至4.2V，然后恒压充电直至电流减小到0.01C5A为止</p> <p>In the standard temperature of 20°C±5°C, at first, the battery charger for 0.2C5A constant current to the battery voltage up to 4.2V, and then constant voltage at 4.2V till charge current declines to 0.01C5A.</p>	

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8.2	快速充电 Quick Charging	<p>先将电池在20°C±5°C环境下用1C5A充电至4.2V，然后恒压充电直至电流减小到0.01C5A为止</p> <p>In the standard temperature of 20°C±5°C, at first, the battery charger for 1C5A constant current to the battery voltage up to 4.2V, and then constant voltage at 4.2V till charge current declines to 0.01C5A.</p>	
8.3	初始容量 Rated Capacity	<p>电池标准充电后，然后用1C的电流放电至3.0V时所放出的容量即为初始容量</p> <p>The capacity means the discharge capacity of the cell, which is measured with discharge current of 1C with 3.0V cut-off voltage after standard charge.</p>	
8.4	循环寿命 Cycle Life	<p>测试条件 Test conditions:</p> <p>当放电容量降至初始容量的80%时，该电池从第一次使用至这个时候所完成全部循环次数即为该电池的循环寿命</p> <p>80% of more of 1st cycle capacity at 1C discharge of operation.</p>	≥ 300 times
8.5	内阻 Internal Impedance	<p>标准充电24h后测试其内阻</p> <p>After standard chargeable 24 hours testing the internal impedance of the battery</p>	Initial internal impedance ≤ 200mΩ
8.6	电压 Voltage	<p>测量电池的电压</p> <p>Measuring the battery pack voltage</p>	3.85-4.00V

9、机械特性 MECHANICAL CHARACTERISTICS

NO	Items	Test method and condition	Remarks
9.1	振动测试 Mechanical Vibration	<p>标准充电后，电池在以下条件下进行测试：</p> <p>振幅：10Hz~30Hz 为0.38mm ;30Hz~55Hz为0.19mm</p> <p>振动频率：10-55HZ，每分钟变化为1HZ</p> <p>方向：X/Y/Z三个互相垂直方向往复振动30Min</p> <p>After standard charging, the battery is to be tested as following condition:</p> <p>Amplitude : 10Hz~30Hz for 0.38mm ;30Hz~55Hz for 0.19mm</p>	<p>无泄漏、不起火、不爆炸、不冒烟</p> <p>No leakage, no fire, no explosion, no smoking is obtained.</p>

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		Frequency : 10-55HZ (sweep : 1HZ/Min) Direction : X/Y/Z axis for 30Min, The battery pack is to be tested in three mutually perpendicular to each axis.	
9.2	跌落测试 Drop test	电池标准充电后，将电池从1m高度跌落至18~20mm木板3次。 The pack is to be dropped from a height of 1m three times onto 18~20mm thickness board.	无泄漏、不起火、不爆炸、不冒烟 No leakage, no fire, no explosion, no smoking is obtained.

10、安全性能 SAFETY PERFORMANCE

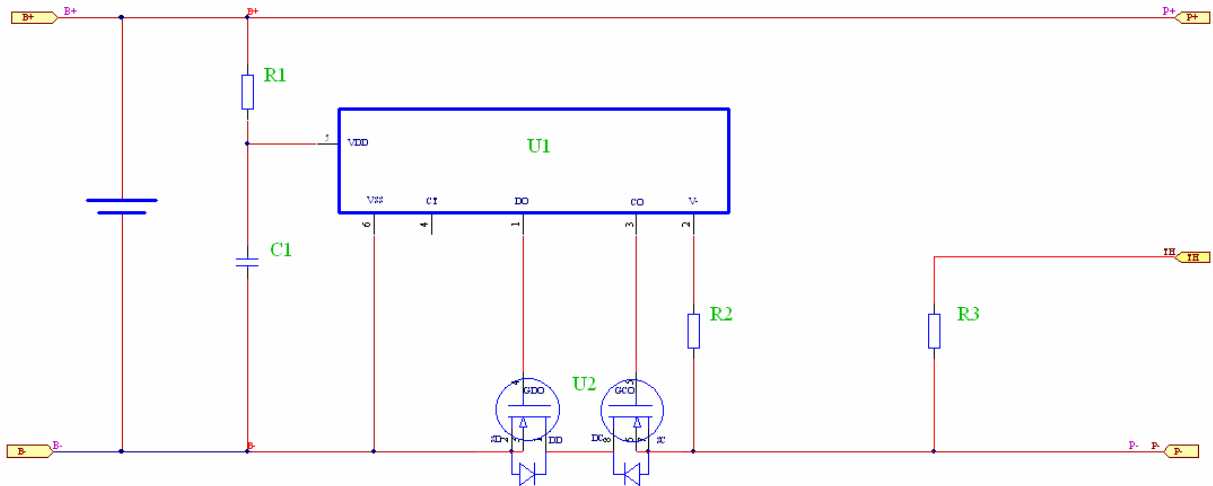
NO	Items	Test method and condition	Remarks
10.1	过充保护测试 Over-charge protection	标准充电后，用恒流源2C电流，电压4.6V一直充8个小时 After standard charge, with source of constant current which is setted to 2C5A and constant voltage which is setted to 4.6V for the batteries loaded 8h	无泄漏、不起火、不爆炸、不冒烟 No leakage, no fire, no explosion, no smoking is obtained.
10.2	过放保护测试 Over-discharge protection	放电至截止电压后，放电用小于(30*n) Ω 电阻一直放电24小时 after discharges to the suspending voltage, outer(30*n) Ω load discharges for 24h	无泄漏、不起火、不爆炸、不冒烟 No leakage, no fire, no explosion, no smoking is obtained.
10.3	短路测试 External Short-circuiting protection	标准充电后，用0.1 Ω 电阻短路电池的正负输出端子1小时 After standard charge, use 0.1 Ω resistance short circuit the positive and negative electrodes for 1h	无泄漏、不起火、不爆炸、不冒烟 No leakage, no fire, no explosion, no smoking is obtained.
10.4	热冲击 Heating test	电池放于热箱中，温度以5 \pm 2 $^{\circ}$ C/min的速率升至130 \pm 2 $^{\circ}$ C并保温30分钟 A battery pack is to be heated in a gravity convection or circulating air oven, the temp of the oven is to be raised of 5 \pm 2 $^{\circ}$ C/min to a temp of 130 \pm 2 $^{\circ}$ C at which temp the oven is to remain for 30mins before the test is discontinued.	电池不起火、不爆炸 No explosion, no fire

11、原理图 SCHEMATIC DIAGRAM

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11.1 PCM BOM

序号	名称	位号	规格	用量	供应商	单价	备注
1	保护 IC	U1	DW01+, SOT-23-6	1			
2	MOS	U2	8205, TSSOP-8	1			
3	电阻	R1	SMD 100R, ±5% 0402	1			
4	电阻	R2	SMD 1K, ±5% 0402	1			
5	电阻	NTC	SMD 10K, ±5% 0603	1			
6	电容	C1	SMD 0.1uF 16V 0402	1			
7	线路板	PCB	33.44*5.7 * (0.5-0.6) mm	1			X2830-C 厚金 绿油, FR-4

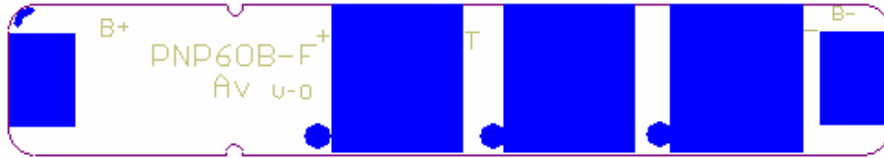
11.2 PCB LAYOUT



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12. 贮存、包装、运输 STORAGE ,PACKING, SHIPMENT

12.1 长时间储存 Long Time Storage

如果电池组储存在一个长的时间，这个电池组的电压应该是3.6-3.9V，电池组的储存请参照NO.7.10,11。

If the battery pack is stored for a long time, the pack's voltage should be 3.6-3.9V and the pack is to be stored in a condition as NO.7.10and 7.11。

12.2 包装 PACKING

包装是为了电池组防止短路等现象发生。

Proper packing is necessary in order to prevent the battery pack from short-circuit of external damage.

12.3 运输 SHIPMENT

运输的时候，电池组应避免受振动、碰撞、日晒、湿透等，且电池运输前应将电池电量保持在半充电状态。

During transportation, keep the battery from acutely vibration、impacting、solarization、drenching, and in half charged condition.

13. 警告 Warning

不可短路电池

Short-circuit is not allowed.

不可用金属物直接短路电池组的正极和负极端子。

Don't short-circuit positive (+) and negative (-) terminals. Keep away from metal or other conductive materials.

避免电池组在热的环境下使用，电池组应该远离热源。

To avoid degradation of battery performance by heat, a battery should set the place apart from heat generating

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不要将电池组浸入水中或将其弄湿。

Do not immerse the battery pack in water or allow it to get wet.

不要接反正负极端子。

Do not reverse the POS and NEG terminals.

不可用导线或其它金属线短路电池组的正负极端子。

Do not short circuit the battery pack by connecting wires or others metal objects to the POS or NEG terminals.

禁止用钉子或其它尖锐物体刺穿电池壳体，禁止锤击或脚踏电池。

Do not pierce the battery pack casing with a nail or other sharp object, break it open with a hammer, or step on it.

禁止用铬铁直接在正负端子上焊接。

Do not directly solder the terminals of the pack with iron.

禁止撞击，投掷或使电池受到振动。

Do not strike, throw or subject the battery pack to sever physical shock.

不要试图分解或解剖电池。

Do not attempt to disassemble or anatomise the battery pack.

14、注意事项 CAUTION

不要使电池处于一个热的环境，或阳光直接暴晒或将电池放于热的车箱内，否则，电池可能会发热，着火，甚至影响电池的使用寿命。

Do not use or store the battery where is exposed to extremely hot, such as under window of a car direct sunlight in a hot day, otherwise, the battery may be overheated, this can also reduce battery pack performance or shorten service life.

如果电池漏液并且液体进入了你的眼睛时，请不要揉擦，应用水立即冲洗并寻求医疗救助，否则，将会眼睛将会受到伤害。

If the battery pack leaks electrolyte gets in your eyes, do not rub them, instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.

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Use the battery pack in as follows

工作环境 operating environment

充电 & Charging : 0-45°C

放电 & Discharging : -20-60°C

储存 : -20°C ~ +45°C (小于一个月) & Storage : -20°C ~ +45°C (less than 1 month)

储存 : -20°C ~ +35°C (小于三个月) & Storage : -20°C ~ +35°C (less than 3 months)

15、其它 OTHER

本规格书未提及的事项，须经双方协商确定。

Any matters that this specification doesn't cover should be conferred between the customer and DRN Company.