

VER: 1.0

DATE: 2014.1.8

Super Li-ion Battery Specification

MODEL: HTC40120-1S

(2.4V/10000mAh)

Prepared By/Date	Checked By/Date	Approved By/Date
2014.1.8	2014/1/8	

Customer Approval	Signature/Date
	Company Name
	Company Stamp

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1 Scope

This specification is applied to the reference battery in this Specification and manufactured by HUA HUI NEW POWER TECHNOLOGY CO.,LTD

2 Product Specification**2.1 Characteristic**

Table 1

No.	Item	General Parameter		Remark
1	Rated Capacity	Typical)	10000mAh	Standard discharge (1.0C) after Standard charge
		Minimum	9500mAh	
2	Nominal Voltage	2.4V		Mean Operation Voltage
3	Internal Impedance	$\leq 10\text{m}\Omega$		Charged to about 70% of capacity
4	Standard charge	Constant Current 5000mA (0.5C) end Voltage 2.80V 2mA cut-off		Charge time : Approx 2.6h
5	Standard discharge	Constant current 10000mA (1.0C) end voltage 1.6V		
6	Fast charge (快速充电)	Constant Current 30000mA (3C) end Voltage 2.80V 2mA cut-off		Charge time : Approx 0.6h
7	Maximum Continuous Discharge Current	60A		瞬间脉冲电流为>30A
8	Operation Temperature Range	Charge: 0~55°C		60±25%R.H. Bare Cell
		Discharge: -30~70°C		
9	Storage Temperature Range	Less than 2 year: -20~20°C		60±25%R.H. at the shipment state
		less than 6 months: -20~45°C		

2.2 Cycle Life

Table 2

No.	Item	Criteria	Test Conditions
1	Cycle Life (0.5 C)	Higher than 70% of the Initial Capacities of the Cells	Carry out 7000 cycle Charge: 0.5C to 2.80V Discharge: 0.5 C to 1.6 V Temperature: 25±3°C

2.3 Temperature Dependence of discharge capacity (放电温度特性)

Cells shall be charged per 3.3.1 and discharged @ 0.2C₅A to 3.0 volts. Except to be discharged at temperatures per Table 3. Cells shall be stored for 2 hours at the test temperature prior to discharging and then shall be discharged at the test temperature. The capacity of a cell at each temperature shall be compared to the capacity achieved at 25 °C and the percentage shall be calculated. Each cell shall meet or exceed the requirements of Table 3.

Table 3

Discharge Temperature	-25°C	-20°C	25°C	70°C
Discharge Capacity (0.5C ₅ A)	50%	80%	100%	95%

3 Protection circuit(保护电路)

HTC Li-ion battery is very safe, it can be in the overcharge and overdischarge without risk, so it can be used safely without PCM;

Although it can be used safely without PCM, but charging and discharging of the battery must ensure that under normal conditions (this is all cells are required), if not the battery performance will deteriorate or failure.

4. Note For Use Of Battery

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5. Cell Mechanical characteristics and Safety Test

Table 5

(Safety Test)

Item	Battery Condition	Test Method	Requirements
Vibration Test		After standard charging, fixed the cell to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between 10Hz an 55Hz, the excursion of the vibration is 1.6mm. The cell shall be vibrated for 30 minutes per axis of XYZ axes.	No leakage No fire
Crush	Fresh, Fully charged	Crush between two flat plates. Applied force is about 13kN(1.72Mpa) for 30min.	No explosion, No fire
Short Circuit (短路试验 20℃)	Fresh, Fully charged	Each test sample battery, in turn, is to be short circuited by connecting the (+) and (-) terminals of the battery with a Cu wire having a maximum resistance load of 0.05 Ω .Tests ae to be conducted at room temperature(20±2℃).	No explosion,No fire hetempera- ture of the surface of the Cells are lower than 150℃
Impact	Fresh, Fully charged	A 56mm diameter bar is inlayed into the bottom of a 10kg weight. And the weight is to be dropped from a height of 1m onto a sample battery and then the bar will be across the center of the sample.	No explosion, No fire
Over Charge)	Fresh, Fully charged	Charging voltage: 2.4*4=9.6V; charging current: 2C; end current: 0.02C	No explosion, No fire
Forced Discharge	Fresh, Fully charged	Discharge at a current of 1 C ₅ A for 2.5h.	No explosion, No fire

6. Handling of Cells

6.1 Cell fixing

The cell should be fixed to the battery pack by its large surface area.

No cell movement in the battery pack should be allowed.

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6.2 Inside design

No sharp edge components should be insides the pack containing the LIP cell.

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7. Others

7.1 Prohibition of disassembly

1) Never disassemble the cells

The disassembling may generate internal short circuit in the cell, which may cause gassing, firing, explosion, or other problems.

2) Electrolyte is harmful

LIP battery should not have liquid from electrolyte flowing, but in case the electrolyte come into contact with the skin, or eyes, physicians shall flush the electrolyte immediately with fresh water and medical advice is to be sought.

7.2 Prohibition of dumping of cells into fire

Never incinerate nor dispose the cells in fire. These may cause explosion of the cells, which is very dangerous and is prohibited.

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7.3 Battery cells replacement

The battery replacement shall be done only by either cells supplier or device supplier and never be done by the user.

7.4 Please do not exceed the specification range using the battery.

8. Period of Warranty

The period of warranty is 1 year from the date of shipment. Great Power guarantees to give a replacement in case of cells with defects proven due to manufacturing process instead of the customer abuse and misuse.

9. Storing the Batteries

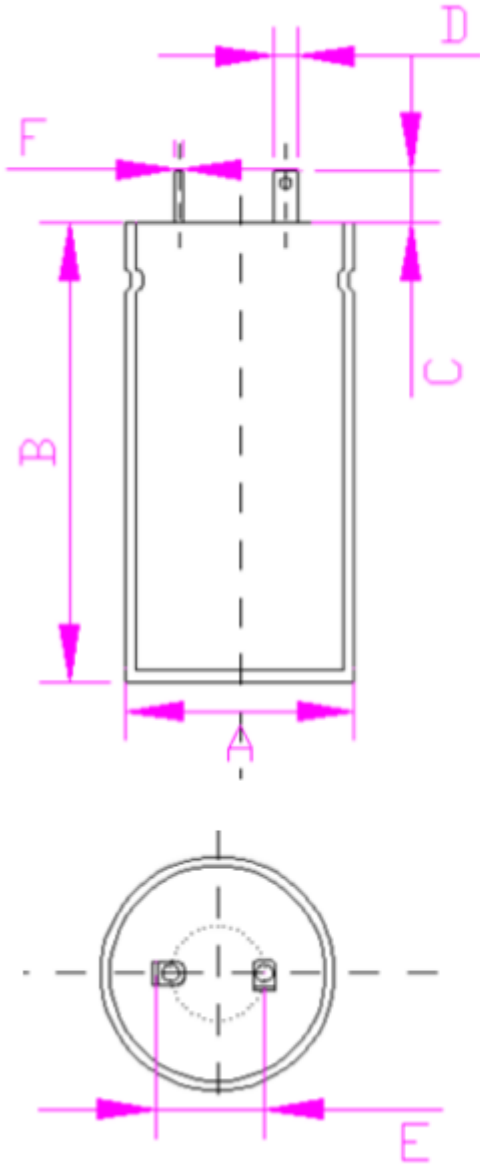
The batteries should be stored at room temperature, charged to about 30% to 50% of capacity.

We recommend that batteries be charged about once per half a year to prevent over discharge.

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10. Initial Dimension:



单位: mm 公差: ±0.2

项目	参数
A(直径)	40.2
B(长度)	120.0
C(引脚高度)	7.10
D(引脚宽度)	5.1
E(引脚间距)	13
F(引脚厚度)	0.9

Units	mm		PCM		
Connector	无				
Wire	无		L		
T	Max.	R (直径)	Max.	H (B 高度)	Max.
Drawer (绘图)		Checked (审核)		Approved	Date
			HTC40120-1S DRAWING		
			Drawing ID		