

GP Batteries

PRODUCT SPECIFICATION

Rechargeable Nickel Metal Hydride Battery Model: GPTC206

Revision History

Revision	Date	Initiator	Reason for Change
00	4 May 2006	AW Peng	New Issue

Prepared By	Approved By
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Date: 4 May 2006	Date: 8 May 2006

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Manufacturer reserves the right to alter or amend the design, model and specification without prior notice.

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Model No.: GPTC206

Document Number : ZQS7014

Revision : 00

Page 1 of 4

1. SCOPE

This specification governs the performance of the following GP Nickel Metal Hydride Cylindrical Cell Pack Batteries constitute 6 unit cells.

GP Model : GP390SCH6SMX

Cell Size : SC

Nominal voltage of pack battery = 1.2 V ×6 = 7.2V

2. RATINGS

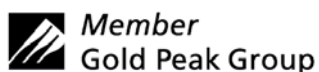
Description	Unit	Specification	Conditions
Nominal Voltage	V	7.2	6 cell
Nominal Capacity	mAh	3800	Standard charge / discharge
Typical Capacity	mAh	3900	Standard charge / discharge
Minimum Capacity	mAh	3800	Standard charge / discharge
Standard Charge	mA	380 (0.1C)	$T_a = 0 \sim 40^\circ\text{C}$ (see Note 1)
	hr	16	
Fast Charge	mA	1900(0.5C)~3800(1C) with charge termination control	$-\Delta V=0\sim 30\text{mV/Pack}$ Timer cutoff=105% input capacity Temp. cutoff=45~50°C $dT/dt=0.8^\circ\text{C/min}$ (0.5C to 0.9C), 0.8~1°C/min (1C)
	hr	1.05 approx.(1C) 2.1 approx. (0.5C) (see Note 2)	
Maximum Discharging Current	A	30 (Continuous)	
Storage Temperature	°C	-20 ~60 (within 1wk) -20 ~35	Discharge state, open circuit
Typical Weight	g	400	pack

3. PERFORMANCE

Before proceed the following tests, the cells should be discharged at 0.2C to 6.0V cut-off. Unless otherwise stated, tests should be done within one month of delivery under the following conditions:

Ambient Temperature, T_a : 20 ±5 °C

Relative Humidity : 65 ±20%RH



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Product Specification

Model No.: GPTC206

Document Number : ZQS7014

Revision : 00

Page 2 of 4

Notes : Standard Charge / Discharge Condition
 Charge : 380mA (0.1C) ×16hrs
 Discharge : 760mA (0.2C) to 6.0V/pack

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥ 3700	Standard Charge / discharge	Up to 3 cycles are allowed
Open Circuit Voltage (OCV)	V/Pack	≥ 7.5	Within 1hr after standard charge	6 cell
Internal Impedance (Ri)	mΩ/pack	Average:36 Range:24~48	Upon fully charged at 1kHz	6 cell
High Rate Discharge (1C)	mAh	3300	Standard charge,rest within 1 hr,discharge to 6.0V	
Overcharge	N/A	No conspicuous deformation and/or leakage	380mA(0.1C) maximum current charge for 1 year	
Charge Retention	mAh	≥ 2660	Standard charge Storage: 28 days Standard discharge	
IEC Cycle Life Test	cycle	≥ 500	IEC61951-2 (2003) 7.4.1.1	see Note 3
Leakage	N/A	No leakage	Fully charged at 3800mA(1C), Stand for 14 days.	
External Short Circuit	N/A	No fire and no explosion	After standard charge, short-circuit the cell at 20+/-5 °C until the cell temperature returns to ambient temperature.(The resistance of the inter-connecting circuitry shall not exceed 0.1 ohm).	
Vibration Resistance	N/A	ΔV < 0.12V/Pack ΔRi (Internal Impedance) < 30mΩ/Pack	Charge at 0.1C for 16 hrs,and then leave for 24hrs,check battery before / after vibration Amplitude:1.5mm Vibration:3000CPM (any direction for 60mins)	6 cell
Impact Resistance	N/A	ΔV < 0.12V/ Pack ΔRi (Internal Impedance) < 30mΩ/ Pack	Charge at 0.1C for 16 hrs,and then leave for 24hrs,check battery before / after drop Height:50cm Thickness of wooden board : 30mm Direction is not specified Test for 3 times	6 cell

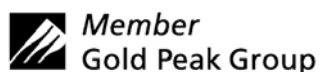
4. CONFIGURATIONS, DIMENSIONS AND MARKING

Please refer to its Data Sheet.

5. EXTERNAL APPEARANCE

The cell / battery shall be free from crack,scars,breakage,rust,discoloration,leakage and deformation.

6. WARRANTY



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One year limited warranty against workmanship and material defects.

7. CAUTION

1. Batteries should be charged prior to use.
2. When using a new battery for the first time or after long term storage, please fully charge the battery before use.
3. For charging methods please referred to our technical handbook.
4. Use the correct charger for Ni-Cd or Ni-MH batteries.
5. Do not reverse charge batteries.
6. Do not short circuit batteries, permanent damage to batteries may result.
7. Do not incinerate or mutilate batteries, may burst or release toxic material.
8. Do not solder directly to cells or batteries.
9. Do not subject batteries to adverse condition such as extreme temperature, deep cycling and excessive over charge/over discharge.
10. Store batteries in a cool dry place.
11. Do not mix GP batteries with other battery brands or batteries of a different chemistry such as alkaline and zinc carbon.
12. Do not mix new batteries in use with semi-used batteries, over-discharge may occur.
13. Avoid batteries being used in an airtight compartment. Ventilation should be provided inside the battery compartment; otherwise batteries may generate hydrogen gas, which could cause an explosion if exposed to an ignition source.
14. When connecting a battery pack to a charger, ensure correct polarity.
15. If find any noise, excessive temperature or leakage from a battery, please stop its use.
16. When the battery is hot, please do not touch it and handle it, until it has cooled down.
17. Do not remove the outer sleeve from a battery pack nor cut into its housing.
18. When find battery power down during use, please switch off the device to avoid over discharge.
19. When not using a battery, disconnect it from the device.
20. Unplug a battery by holding the connector itself and not by pulling at its cord.
21. After use, if the battery is hot, before recharging it, allow it to cool in a well-ventilated place out of direct sunlight.
22. Never put a battery into water or seawater.
23. During long term storage, battery should be charged and discharged once every half a year.
24. Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated or fire may result. The alkaline electrolyte is harmful to eyes and skin, and it may damage clothing upon contact.
25. Keep away from children. If swallowed, contact a physician at once.

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Product Specification

Model No.: GPTC206

Document Number : ZQS7014

Revision : 00

Page 4 of 4

Notes:1. T_a : Ambient Temperature

2. Approximate charge time from discharged state,for reference only.

3. IEC61951-2 (2003) 7.4.1.1 Cycle Life Test

Cycle No.	Charge	Rest	Discharge
1	0.1C ×16hrs	None	0.25C ×2hrs20mins
2-48	0.25C ×3hrs10mins	None	0.25C ×2hrs20mins
49	0.25C ×3hrs10mins	None	0.25C to 6.0V/Pack
50	0.1C ×16hrs	1-4hr(s)	0.2C to 6.0V/Pack
Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle become less than 3hrs			