

GREAT POWER BATTERY

产品规格书

Product Specification

3-PH-D-D4500HT

NI-CD D SIZE 6V 4500mAh

名称/ Name:	<u>镍镉电池/ Ni-Cd Battery</u>
型号/ Model:	<u>PC-D4500HT High Temperature</u>
编制/Author:	<u>夏忠云 / Xia ZhongYun</u>
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1、 APPLICATION/描述

This specification governs the performance of the following Nickel-Cadmium Cylindrical stack-up battery. /此规格书包括下述圆柱型镍镉单体及组合电池全部性能指标。

Model /电池标称: D-4500HT

Cell Size /单体尺寸: D($\phi 32.5^{+0}_{-1.0} \times 60.0^{+0}_{-2.0}$)

2、 DATA OF STACK UP BATTERIES/组合电池的指标

All data involves voltage and weight to stack-up battery are equal to the value of unit cell times the number of unit cell which consisted in the stack-up batteries /组合电池的电压、重量等数据，近似等于组成其单体电池数与对应值之乘积。

Example/例如:

Stack-up battery consisting three unit cells/电池组包括三个单体电池

Nominal voltage of unit cell=1.2V/单体电池的额定电压=1.2V

Nominal voltage of stack-up batteries=1.2V×3=3.6V /电池组的额定电压=1.2V×3=3.6V

3、 RATINGS/额定性能

Description/项目	Unit/单位	Specification/指标	Conditions/条件
Nominal Voltage/额定电压	V/ Cell	1.2	
Nominal Capacity/额定容量	mAh	4500	
Standard Charge/ 标准充电	mA	4500(0.1C)	Ambient Temperature/环境温度: Ta= 0~70°C
	Hour	16	
Trickle Charge/涓充		(0.03C)~(0.05C)	Ta = 0~70°C
Standard discharge/ 标准放电	mA	900(0.2C)	Ambient Temperature/环境温度: Ta = 0~70°C Humidity: Max /最大湿度: 85%
Discharge Cut-off Voltage /放电截止电压	V/ Cell	1.0	
Storage Temperature 贮存温度	°C		charged state of 30%、Humidity、Max.85% 充电 30%状态下，最高环境湿度 85% See note(3)
Typical Weight/单体电池重量	Gram	Approx. 106	Unit cell

4、 PERFORMANCE/电池性能

Unless otherwise stated, tests should be done within one month of delivery under the following conditions:/

除非另有说明，测试须在发货后一个月内在下述条件下进行：

Ambient Temperature/环境温度, Ta: 20±5°C

Relative Humidity/相对湿度: 50±15%

Test/测试项目	Unit/单位	Specification/指标	Other Condition/其它条件	Remarks/备注
Capacity/容量	mAh	≥4500	Standard Charge Discharge/标准充放	up to 3 cycles are allowed/ 允许 最多三次充放
Open Circuit Voltage(OCV)/ 开路电压	V/ Cell	≥1.25	Within 2 weeks after standard Charge/在标准充电后 2 周内测量	

Internal Impedance/ 交流内阻	mΩ / Cell	≤28	Upon fully charge(1KHz)/ 充满电后(1KHZ 的交流频率)	
Charge efficiency (55℃) / (55℃) 充电效率	mAh	≥90%额定容量	Cycle1 : 0.05C Charge 48 hrs, Discharge by 0.2C to 1.0V, 0.05C 充 电 48 小时, 0.2C 放电至 1.0V Cycle2 : 0.05C Charge 24 hrs, Discharge by 0.2C to 1.0V, 0.05C 充 电 24 小时, 0.2C 放电至 1.0v Cycle3 : 0.05C Charge 24 hrs, Discharge by 0.2C to 1.0V, 0.05C 充 电 24 小时, 0.2C 放电至 1.0V	Cycle2/cycle3 Capacity Discharge ≥ 90% Nominal Capacity/ 第 2 次、第 3 次放 电容量 ≥ 90% 额 定容量
Charge Retention/荷 电保持能力	mAh	≥3150 (70%)	Standard Charge, Storage for 7days at 45Ambient Temperature , Standard Discharge/标准充电后 45℃环境温度 中存放 7 天, 标准制度放电	
Permeanent Charge Endurance/ 持续充电耐久性	mAh	For A	IEC61951-1(2003) 7. 4. 2. 3	Permeanent Charge Endurance/ 持续充电耐久性
05C Cycle Life/ 0.5C 循环寿命	Cycle	≥500	0.5C Charge 2.4hrs,Dischargeby 0.5C to 1.0V/cell, 0.5C 充电 2.4 小时, 0.5C 放电至 1.0V	
Leakage Test/ 泄漏测试		No leakage nor deformation/无漏液或 变形	Fully charged at 0.5C for 2.5hours and storage for 14days/ 0.5C 充电 2.5 小时, 存放 14 天后检 查	
Vibration Resistance/抗振动		Change of voltage should be under 0.02V/ Cell, Change of impedance should be under 5milli-ohm/ Cell / 电压变化<0.02V/只, 内阻变化<5mΩ/只	Charge the battery 0.1C 14hrs,then leave for 24hrs,check Battery before/after vibration, Amplitude 1.5mm Vibration 3000 CPM Any direction for 60mins./将电池用 0.1C 充电 14 小时, 开路 24 小时, 检 查振动前后电池状况, 振动幅度 1.5mm 振动 3000 次, 任意方向振动 60 分钟。	Ambient Temperature/ 环境温度: T _a =20±5℃
Impact Resistance/抗撞击		Change of voltage should be under 0.02V/Cell, Change of impedance should be under 5 milli-ohm/ Cell / 电压变化<0.02V/只, 内阻变化<5mΩ/只	Charge the cell 0.1C 14hrs Then leave for 1~4hrs,check bat-before/after dropped, Height 50cm Wooden board (thickness 30 mm) Direction not specified.3 times./ 将电 池用 0.1C 电流充 14 小时, 开路 1~4 小时, 检查掉落前后电池状况, 落体 高度 50cm, 30mm 厚的木板, 3 次	Ambient Temperature/ 环境温度: T _a =20±5℃
Security Test/ 安全测试		No explosion , but leakage or deformation is allowed /无破裂或爆炸, 但允 许漏液或变形	Charge the cell 0.1C 16hrs , Then ≤ 100 mΩ Impedance short circuit for 1hour/将电池 0.1C 充电 16 小时。用≤100 mΩ 的电阻短路 1 小 时。	Ambient Temperature/ 环 境 温度: T=20±5℃

5、 CONFIGURATION,DIMENSIONS AND PACKINGS/电池结构、尺寸、包装物

Please refer to the attached drawing./ 参见附图

6、 EXTERNAL APPEARANCE/外观

The cell/battery shall be free from cracks, scars, breakage, rust, discoloration, leakage nor deformation.

无裂缝、疤痕、破裂、锈蚀、脏污、漏液、变形

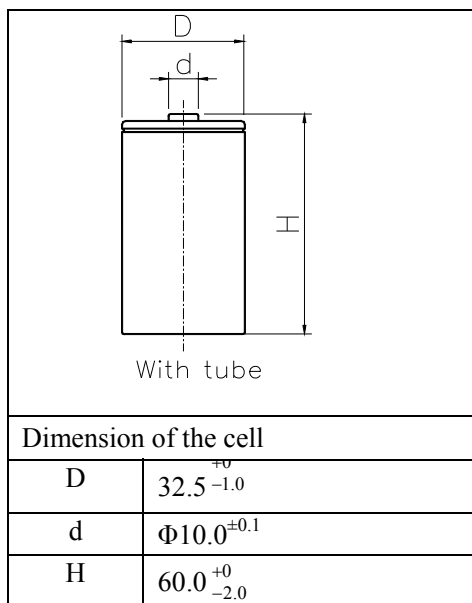
7、 CAUTION/使用注意事项

- (1) Reverse charging is not acceptable./ 勿将电池反极充电
- (2) Charge before use. The cells/batteries are delivered in an uncharged state./ 初次用前先充电，所提供的电池为未充电态
- (3) Do not charge/discharge with more than our specified current./ 避免以高于指定的电流充放电
- (4) Do not short circuit the cell/battery Permanent damage to the cell/battery may result./ 防止电池短路，以免造成可能的损坏
- (5) Do not incinerate or mutilate the cell/battery./ 勿拆解或焚烧电池
- (6) Do not solder directly to the cell/battery./ 勿在电池上直接焊接
- (7)The life expectancy may be reduced if the cell/battery is subjected adverse conditions like: extreme temperature, deep cycling, excessive overcharge/ over-discharge./ 如超高温、深度循环、过量的过充、过放电，电池的使用寿命可能会下降
- (8) Store the cell/battery uncharged in a cool dry place. Always discharge batteries before bulk storage or shipment./ 电池应贮存于凉爽干燥处；组合电池或装定前应将电池放电。

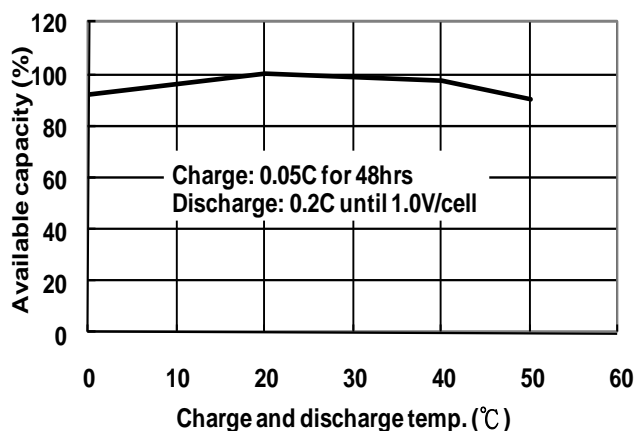
Notes:

- (1) T_a: Ambient Temperature./ 环境温度
- (2) Approximate charge time from discharged state is for reference only./ 以放电态为基准的大致充电时间仅供参考
- (3) If the battery or battery packs are subjected to storage for such a long term more than 3 months ,it is recommended to recharge the battery or battery packs periodically e.g. every 3 months or before the open circuit voltage (OCV) of the batteries comes down to 1.1 volts in order to obtain reasonably good capacity recovery and prevent battery performance degradation / 当电池或电池组贮存时间达到 3 个月，应对其进行周期性的充电，也就是说，每 3 个月或电池开路电压降到 1.1V/ 只以前，为了得到合理的容量以防止电池性能的下降，应对其进行充电。
- (4) IEC61951-1(2003)7.4.1.1 Cycle Life:/ 循环寿命

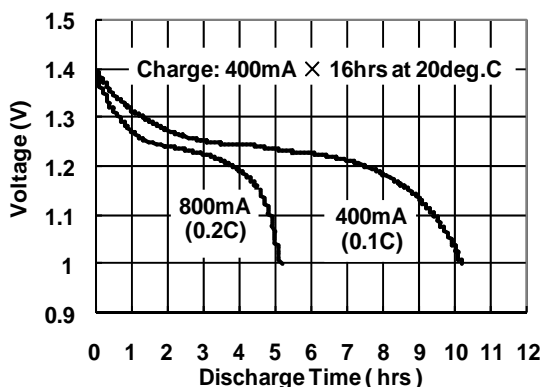
Cycle No./ 循环周次	Charge/充电	Rest/搁置	Discharge/放电
1	0.1C×16h	None	0.25C×2h20min
2-48	0.25C×3h10min	None	0.25C×2h20min
49	0.25C×3h10min	None	0.25C to 1.0V/ cell
50	0.1C×16h	1-4h	0.2C to 1.0V/ cell
Cycles 1 to 50 shall be repeated until the discharge duration on any 50th Cycle becomes less than 3 h/ 循环至任一第 50 次放电时间不足 3 小时为止。			



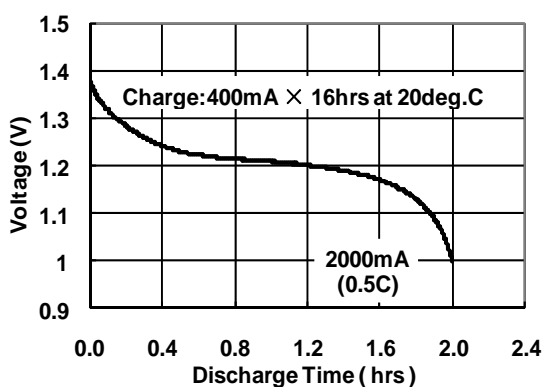
Charge & Discharge efficiency Vs. temp.



Low Rate Discharge



High Rate Discharge



- 1、 and should not be used as a basis for product guarantee or warranty. For applications other than those described here, please consult your nearest GREAT POWER sales and Marketing office or Distributors/
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供应商保留在不事先通知的情况下对设计、型号和规格修正和改进的权利。

变更记录表/ Modification Record Table

NO:	Date/日期	Modification description/修改描述	Modification Manager/修改者

Nickel Cadmium Rechargeable Battery Pack

Pack model : 3-PH-D-D4500HT

Cell Size : D

Nominal Voltage : 3.6V

Nominal Capacity : 4500mAh

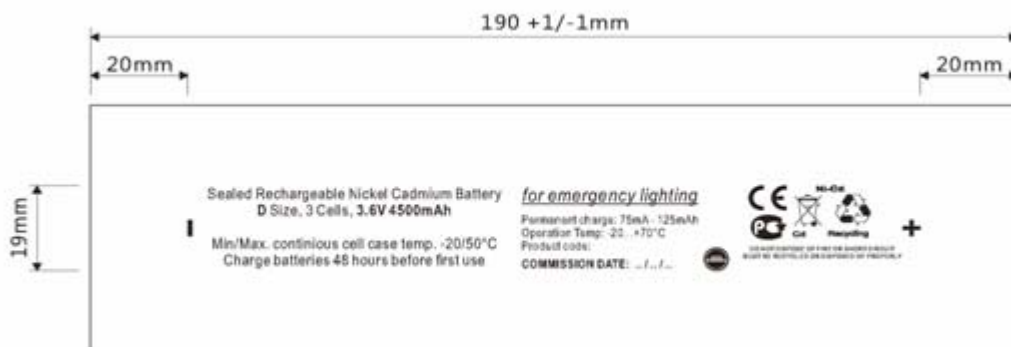
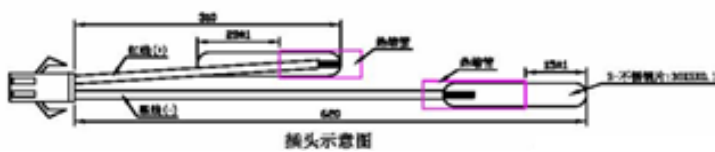
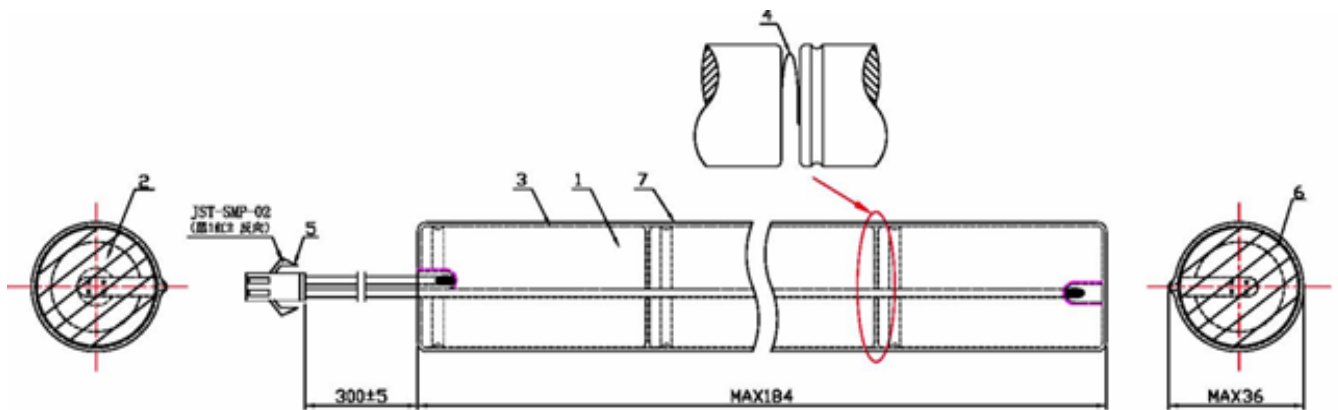
Dimensions : Length (mm) Max 184mm

: DIA. (mm) Max 36 mm

: Weight (g) 360g

UL1671 AWG18 Black =300mm / Red=300mm

Connector : JST-SMP-0200 (Reverse)



(1:1)