

# 产品规格书

## Product Specification

名称/Name: 镉镍电池/Cd-Ni Battery

型号/Model: C2500T

用途/Application: \_\_\_\_\_

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日期/Date: 2023/01/08

Item	Signature 签名	Date 日期
Customer Signature 客户确认		

**1、 APPLICATION/描述**

This specification governs the performance of the following Nickel-Cadmium Cylindrical cell and its 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 /电池型号: C2500T

Cell Size /单体尺寸: C ( $\phi 26.0^{1.0} \times 50.0^{1.5}$ )

**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 $\times$ 3=3.6V /电池组的额定电压=1.2V $\times$ 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 V/只	1.2V	Unit cell
Nominal Capacity/ 额定容量	mAh	2500	Standard Charge/Discharge/标准充放
Standard Charge/ 标准充电	mA	250(0.1C)	Ambient Temperature/环境温度: Ta= 20 $\pm$ 5 $^{\circ}$ C
	Hour	16	
Trickle Charge/涓充		(0.03C)~(0.05C)	Ta = 0~45 $^{\circ}$ C
Standard discharge/ 标准放电	mA	500(0.2C)	Ambient Temperature/环境温度: Ta = 20 $\pm$ 5 $^{\circ}$ C Humidity: Max /最大湿度: 85%
Discharge Cut-off Voltage /放电截止电压	V/Cell	1.0	
Operating temperature range/工作温度	$^{\circ}$ C	0~70 $^{\circ}$ C	Humidity: Max /最大湿度: 85%
Storage Temperature 贮存温度	$^{\circ}$ C	-20~35 $^{\circ}$ C	一年 Fully charged state、Humidity、Max.60% 满电状态下，最高环境湿度 60%
		0~60 $^{\circ}$ C	一周 Fully charged state、Humidity、Max.80% 满电状态下，最高环境湿度 80%
Typical Weight/ 单体电池重量	g	Approx. 66.0	

#### 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, T: 20±5°C

Relative Humidity/相对湿度: 65±20%

Test/测试项目	Unit/单位	Specification/指标	Other Condition/其它条件	Remarks/备注
Capacity/容量	mAh	2500	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 1 hour after standard Charge 在标准充电后 1 小时内测量	
Internal Impedance/交流内阻	m Ω/Cell	≤20	Upon fully charge (1 KHz)/ 充满电后(1KHZ 的交流频率)	
High Rate Discharge(0.5C)/0.5 C 放电时间	minute	≥96	Standard Charge, 1 hour rest Before Discharge by 0.5C to 1.0 V/cell 标准充电后搁置 1 小时, 0C 放电至 1.0V/只	up to 3 cycles are allowed/允许最多三次充放
Charge efficiency (55°C) / 55°C/充电效率	mAh	≥2125	<b>Cycle1:</b> 0.05C Charge 48 hrs, Discharge by 0.2C to 1.0 V/cell, 0.05C 充电 48 小时,0.2C 放电至 1.0V <b>Cycle2~3:</b> 0.05C Charge 24 hrs, Discharge by 0.2C to 1.0 V/cell, 0.05C 充电 24 小时, 0.2C 放电至 1.0V	Cycle2/cycle3 Capacity Discharge≥85% Nominal Capacity/ 第 2 次、第 3 次 放电容量≥85% 额定容量
Overcharge/过充		No leakage nor explosion 无漏液或变形	0.1C Charge 14 days 0.1C 充电 14 天	
Charge Retention/荷电保持能力	mAh	≥1625(65%)	Standard Charge, Storage: 45°C Ambient Temperature, Standard Discharge/标准充电后存放 45°C 环境温度中, 标准制度放电	
IEC Cycle Life/ IEC 循环寿命	Cycle	≥50	IEC61951-1(2003)7.4.1.1	(See Note) / (参见 Note)
Leakage Test/ 泄漏测试		No leakage nor deformation 无漏液或变形	Fully charged at 0.5C for 2.5 hour stand for 14 days. 0.5C 充电 2.5 小时, 存放 14 天后检查	
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 m Ω Impedance short circuit for 1hour 将电池 0.1C 充电 16 小时。将 ≤100 m Ω 的电阻短路 1 小时。	Ambient Temperature/ 环境温度: T=20±5°C

(续上表)

Impact Resistance/ 抗撞击		Change of voltage should be under 0.02V/ Cell Change of impedance should be under 5 m Ω / Cell/电压变化 <20mV/只, 内阻变化 <5 m Ω /只	Charge the cell 0.1C 16hrs Then leave for 1~4hrs,check battery before/after dropped, Height 50cm Wooden board (thickness 30mm) Direction not specified,3 times. 将电池用 0.1C 电流充 16 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=20±5℃
Vibration Resistance 抗振动		Change of voltage should be under 0.02V/cell, Change of impedance should be under 5 milliohm/cell/电压变化 <0.02V/只, 内阻变化 <5 m Ω /只	Charge the battery 0.1C 16hrs, 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 16 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=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./ 电池应贮存于凉爽阴凉处；组合电池或装定前应将电池放电。

**Notes: /备注**

- 1) 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) We recommend cells or batteries are charged and discharged at least once every 6 months./ 我们建议电池或电池组至少每六个月进行一次充放电。
- 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。			

**8、Other/其他**

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