



Alkaline Zinc-Manganese Dry Battery

Specification

碱性锌锰干电池规格书

Model: 23A/L1028(12V)

产品型号: 23A/L1028(12V)

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If manufacturer want to modify the product technology specification, we won't inform you additionally



1 Scope 范围

This specification defines the technical requirements for 23A/L1028 Alkaline battery distributed by HJBP power. If not other wise specified,the technical requirement sand dimensions for cells should meet or exceed the requirements of GB/T8897.1-2013,GB8897.2-2013.

该份规格书规定了北京华聚新能科技发展有限公司 23A/L1028 碱性锌锰干电池组的技术要求.如果没有列出其它详细要求, 电池技术要求和尺寸应该满足或高于 GB/T8897.1-2013 和 GB8897.2-2013。

2 Reference documents 引用标准

GB8897.1-2013(IEC60086-1:2011,MOD) Primary batteries-Part 1:General 原电池第 1 部分：总则

GB8897.2-2013(IEC60086-2:2011,MOD) Primary batteries-Part 2:Physical and technological specifications 原电池第 2 部分：外形尺寸和技术要求

GB8897.5-2013(IEC60086-5:2011,IDT)Primary batteries-Part5:Safety of batteries with aqueous electrolyte 原电池第 5 部分：水溶液电解质电池的安全要求

3 Chemical systems, voltages and designation

电化学体系，电压和命名

3.1 Chemical systems 电化学体系:

Alkaline manganese battery 碱锰电池

Zinc-Manganese dioxide (Alkali metal hydroxide) battery pack 锌-二氧化锰(碱性电解质溶液)

Chemical System 化学成分 Zn/KOH-H₂O/MnO₂

3.2 Nominal voltage 标称电压:12V

3.3 Designation 命名

IEC&GB(China): 23A/L1028; ; ANSI Number: ; JIS Number:

IEC 及 GB (中国) 命名: 23A/L1028; 美国通俗命名: 日本命名:

Heavy Metal Contents 重金属含量

Metal name	Hg	Cd	Pb
Limited contents	0.0005%(5ppm)	0.0020%(20ppm)	-
Contents	without	without	without

4 Battery Weight and Service output 电池重量和放电容量

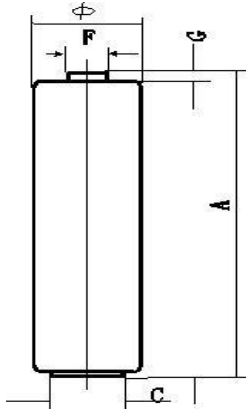
4.1 Battery Weight 电池平均重量:7.9g±0.5g(Average)

4.2 Service output 放电容量: 58mAh (min 53mAh)

(Test conditions 测试条件 20±2°C,RH60±15%,22kΩ,24h/d,EPV=6.0V)

5 Battery Dimensions 电池尺寸

The batteries meet dimensions of the attached drawing 电池符合简图要求



Model	23A/L1028	
Measure No. A	Max (Unit:mm)	Min (Unit:mm)
A	28.2	27.8
C	-	5.0
F	4.8	-
G	-	1.0
Ø	10.1	9.8

6 Voltage and Short current 开路电压, 闭路电压和短路电流

Item项目	OCV 开路电压(V)	CCV 闭路电压(V)	SCC 短路电流(A)	Sample voltage
Initial初始期 (3个月内)	$12.20 \leq OCV \leq 12.7$	≥ 11.6	\geq	GB28281-2003, One sampling AQL=1.0
12 M Storage 贮存12个月	≥ 12.00	≥ 6.5	$\geq -$	

OCV measurement: The inner resistance of Voltage Metre is above 1MΩ, 开路电压测试: 准确度应不低于±0.25%, 精度应不低于最后一位有效数值的 50%, 内阻应不小于 1MΩ。

C.C.V. measurement: After 0.2±0.01sec by R=22kΩ 闭路电压测试: 负载电阻 22kΩ, 负载时间 0.2±0.01 秒。

SCC measurement: 短路电流测试, 指针式安培表, 精度±0.5%

7 Service output 放电条件及时间:

Discharge conditions 放电条件			Requirement of IEC60086-2:2011 & GB8897.2-2013	MAD 最小平均放电时间 Delayed discharge performance	
Load 电阻	Discharge method	EPV 终止		Initial 初始期	After 12months 常温贮存 12 个月
22k	24h/d	6.0	-	125h	118h

Initial 初始期: 60 days after production 生产后 60 天内

Test condition: 20°C±2°C and 60±15%RH 测试条件: +20°C±2°C 相对湿度 60±15%



8 Leakage Resistance 防漏液性能要求

Item 项目	Test conditions 测试条件	Sample size 测试数量	Requirements 要求	Acceptance 合格标准
Over discharge 过放电	22kΩ 4h/d for 48h at 20°C±2°C, 22kΩ 连放 48 小时	N=9pcs	No leakage, Max of 0.35mm height increase 不漏液, 电池变形高度不超过 0.35mm	Ac=0, Re=1
High temperature, high humidity storage 高温高湿	Exposed to a temperature of 60°C±2°C and RH90±5% for a period of 3 weeks. 在 60°C±2°C, 相对湿度 90±5% 的环境下, 放置 3 周	N=20pcs	No leakage 不漏液	Ac=0, Re=1
45°C dry storage 45°C 高温干储存	Stored for 12 weeks at 45°C 在 45°C 存储 12 周	N=20pcs	No leakage 不漏液	Ac=0, Re=1

9 Safety Requirement 安全性能要求

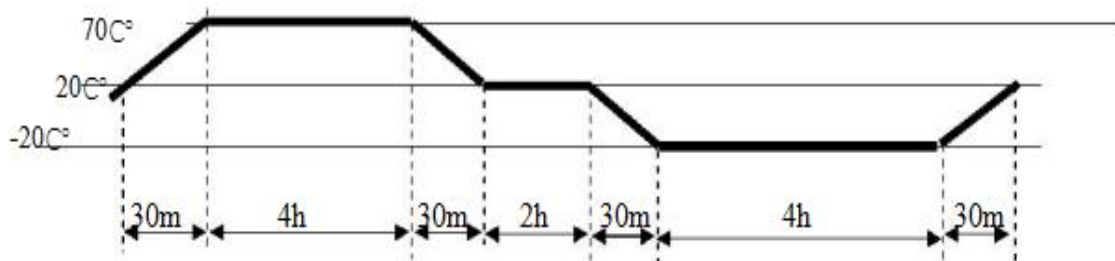
Item 项目	Test conditions 测试条件	Sample quantity 测试数量	Requirements 要求 IEC60086-5:2011 GB8897.5-2013	Acceptance 合格标准
Partial use 部分使用后贮存	Stored at 45°C±2°C for 30 days after undischarged batteries were test discharged 3.9Ω 24h/d EPV=1.0V 在 3.9 欧连续放电至终止电压 1v 后, 再在 45°C 下贮存 30 天	N=5pcs	No leakage, no explosion 不漏液, 不爆炸	Ac=0, Re=1
Thermal shock 气候-温度循环	See the following note 1. Total 10 cycles 按备注 1 进行升降温, 共 10 次	N=5pcs	No explosion 不爆炸	Ac=0, Re=1
Incorrect installation 不正确的安装 (3+1 反充测试)	Place three undischarged and unconditioned batteries in a series with one test sample battery reversed, Complete the circuit until vent activation or until the temperature of the reversed battery returns to ambient. 4 只来源相同的电池串联, 其中一只反接, 接通电池, 直到反向链接电池漏液或电池外壳温度降至常温。	N=5pcs	No explosion 不爆炸	Ac=0, Re=1
Item 项目	Test conditions 测试条件	Sample quantity 测试数量	Requirements 要求 IEC60086-5:2011	Acceptance 合格标准



HJBP[®] BATTERY Model: 23A/L1028

		测试数量	GB8897.5-2013	
Free fall 自由跌落	Drop each undischarged battery two times, oriented in each of three mutually perpendicular face(six total) from a height 1 meter, onto a concrete surface, see the note 2. 未放过电的电池从 1 米高度跌落在混泥土表面上, 每个被测电池应跌落 6 次, 如注 2 所示, 在 3 个轴向上各 2 次, 然后将被测电池放置 1h,	N=5pcs	No explosion 不爆炸	Ac=0,Re=1
Over discharge 过放电	Discharge one test sample battery(C1) with 43Ω resistance load until EPV is 0.6V, Connect three undischarged batteries and the sample battery in series with a 7.5Ω resistance load(R1) as shown in note 3, Maintain the circuit until the CCV of the series string reaches 2.4V. 将一个未经放电的电池 (C1)43Ω 放电至 EPV=0.6v,然后将放过电的电池(C1)和 3 个来源相同但未放过电的电池及 7.5Ω 电阻 (R1) 按注 3 所示串联连接, 接通回路, 至总的负荷电压降至 2.4V	N=5pcs	No explosion 不爆炸	Ac=0,Re=1

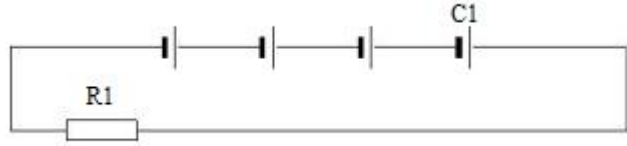
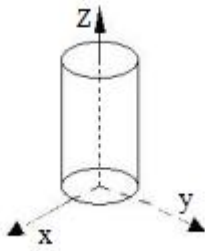
Note 1 注 1: Thermal shock 气候-温度循环





Note 2 注 2: Free fall 自由跌落

Note 3 注 3: Over discharge 过放电



10 Inspection rules 检验规则

Deliver inspection: Depending on GB2828.1-2012 交收检验: 依据 GB2828.1-2012

Item	Test 试验项目	Item 条款	IL	AQL
1	Dimension 外形尺寸	5	S-2	0.4
2	Appearance 外观	--	II	1.0
3	Discharge capacity 放电容量	7	--	--
4	Open-circuit voltage 开路电压	6	II	1.0

Routine inspection: Depending on GB2829 and QB/T2389 例行检验: 依据 GB2829 和 QB/T2389。

11 Inspection for service output 容量检验:

11.1 9 samples shall be tested for service output 样品数为 9 只。

11.2 If the average value is equal to or more than the value of table 1, and if the number of batteries showing a value less than 80% of the value of table 1 is 1 or less. The batteries are considered to conform to the requirement. 当平均放电容量不低于表 1 所规定的标准值,且低于标准值 80%的电池数不大于 1 时,判定电池容量合格。

11.3 If the average value is less than the value of table 1, or if the number of batteries showing a value less than 80% is 2 or more, the test shall be repeated with other 9 pieces. At the second test, if the average value is equal to or more than the value of table 1, and if the number of batteries showing a value less than 80% of the value of table 1 is 1 or less, these batteries are considered to conform to the requirement. 当平均放电容量低于表 1 所规定的标准值,或低于标准值 80%的电池数大于 1 时,重新取 9 只样品进行试验,若平均放电容量不低于表 1 所规定的标准值,且低于标准值 80%的电池数不大于 1 时,判定电池容量合格。

11.4 At above second test, if the average value is less than the value of table 1, or if the number of batteries showing a value less than 80% of the value of table 1 is 2 or more, the batteries are considered not to conform to the requirement. third test shall not be performed. 若第二次试验中平均放电容量低于表 1 所规定的标准值,或低于标准值 80%的电池数大于 1 时,判定电池容量不合格,不再进行第三次试验。

12 Instructions for use 使用说明

12.1 Always select correct size and grade of battery most suitable for intended use. 选择最合适的电池(尺寸和型号)用于某种指定的用途。



12.2 Replace all batteries of a set at the same time 同时更换一组电池中的所有电池。

12.3 Clean the battery contacts and also those of the equipment prior to battery installation. 电池装入器具前应清洁电池和电器具的电接触件。

12.4 Ensure that batteries are installed correctly with regard polarity(+ and -)确保按极性(+和-)正确装入电池。

12.5 Remove batteries from equipment which is not be used for an extend period of time 长时间不使用电池时应取出电池。

12.6 Remove exhausted batteries promptly 及时从电器具中取出电量已耗尽的电池。

13. Display and storage 陈列和贮存

13.1 Batteries shall be stored in well-ventilated dry and cool conditions 电池应贮存在通风良好,阴凉干燥处。

13.2 Battery cartons should not be piled up in several layers,or should not exceed a specified height. 电池箱不应层叠,或不应超过规定的高度。

13.3 Batteries should not be exposed to direct sun ray for a long time or placed in areas where they get wet by rain. 电池不应当长时间暴露在阳光直射处或放于雨淋之处。

13.4 Do not mix unpacked batteries so as to avoid mechanical damage and/or short circuit among each other 不要将去掉包装的电池混堆在一起。

14 Storage life 保存期限

Storage life of batteries are two years long at 20°C±2°C and RH 60±15% 在 20°C±2°C,相对湿度 60±15%贮存条件下,保存期限为 2 年。

15 Marks 标识

15.1 Designation 型号;

15.2 Year and month of manufacture,which maybe in code, or the expiration of a guarantee period in clear 保质期的截止期限或制造年月。

15.3 Polarity of terminals 正极和负极;

15.4 Nominal voltage 标称电压;

15.5 Mercury content 含汞量(适用时);

15.6 Name or trade mark , manufacturer or supplier 商标,制造商名称;

15.7 Cautionary advice 安全使用注意事项

16 Typical Discharge Characteristics Marks 典型放电特征图



23A 12V discharge curve(22kohm)

