



APPROVAL SHEET

DATE : 7-Aug-07

TO : MR. ONOZAWA

ATTN : UNIDEN

FROM : MR. PATRICK LEE

SAMPLE REQUEST NO. :
仕様書番号

CUSTOMER MODEL NO. : BT-658

GP MODEL NO. : GP91AAALH2BXZ-2+8516

SPECIFICATION NO. :

DRAWING NO. : PPD8516

ATTACHMENT : PRODUCT SPEC, DATA SHEET, MSDS, DRAWING,
POLYSWITCH SPEC, PACKING

TOTAL NO. OF PAGED : 19 PAGES(INCLUDEING THIS PAGE)

REMARKS : COUNTRY OF ORIGIN: CHINA
RoHS compliance

GL/GD	技	管	ソフト	メ	カ	電	気
07.12.20	高橋	大屋	柳澤	安藤	加藤	野村	江橋

Approved by

Presented by

GPI INTERNATIONAL LIMITED

DELETED: 4 PORTION(S)
Please sign and return one copy to us

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6th January 2005

TO WHOM IT MAY CONCERN

GP Batteries would like to take this opportunity to clarify the issue with regard to RoHS Directive and WEEE Directive for batteries.

It is confirmed and mentioned in recital 9 of the RoHS Directive saying that it applies without prejudice to the Battery Directive. This means Battery Directive 1991/157/EEC remains applicable to batteries even when used in applications falling within the scope of the RoHS Directive. More specifically, RoHS Directive 2002/95/EC on new equipment does not apply to batteries used with or incorporated in electrical and electronic equipment

As for the WEEE Directive, Electronic equipment when spent is required to be collected under the WEEE directive and if fitted with batteries, require their removal and separation for collection. Once removed, spent batteries are governed by the Battery Directive as outlined in 1991/157/EEC and/or its successors.

To summarise, primary and rechargeable batteries containing lead or cadmium, as well as button cells, provided they comply with Battery Directive 1991/157/EEC, can be used in electrical and electronic equipment after 1 July 2006. This applies to single cell, battery pack or batteries attached or soldered to the equipment.

For and on behalf of
GPI INTERNATIONAL LIMITED

Richard Ku
Managing Director

GP Batteries

Document Title: Product Specification of NiMH GP91AAALH2BXZ (BT-658) Stack Up Batteries for
Customer Uniden

Document Number: PQS3824 -

Revision: 0

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1. SCOPE

This specification governs the performance of the following GP Nickel-Metal Hydride Cylindrical Cell and its stack-up batteries.

GP Model: GP91AAALH2BXZ

Cell Size: AAALH

The data involving nominal voltage and the approximate weight of stack-up batteries shall be equal to the value of the unit cell multiplied by the number of unit cells in the battery. For example, a stack-up battery consists of two unit cells:

Nominal Voltage of unit cell = 1.2V

Thus, nominal voltage of stack-up battery = $1.2V \times 2 = 2.4V$

2. RATINGS

Description	Unit	Specification	Conditions
Nominal Voltage	V	2.4	Battery pack
Typical Capacity	mAh	930	Standard Charge/ Discharge
Nominal Capacity	mAh	910	Standard Charge/ Discharge
Minimum Capacity	mAh	890	Standard Charge/ Discharge
Standard Charge	mA	91 (0.1C)	$T_a = 0 \sim 45^\circ\text{C}$ (see Note 1)
	hour	16	
Fast Charge	mA	910 (1C)	$dT/dt = 0.8 - 1^\circ\text{C/minute}$ $-\Delta V = 0 \sim 5\text{mV/cell}$ Timer CutOff = 105% input capacity (for ref. only) Temp. CutOff = $45 - 50^\circ\text{C}$ $T_a = 10 \sim 45^\circ\text{C}$
	hour	1.05 approx. (see Note 2)	
Trickle Charge	mA	$11.375(0.0125C) \sim 91(0.1C)$	$T_a = 0 \sim 45^\circ\text{C}$
Discharge Cut-off Voltage	V	2.0	Battery pack
Maximum Discharge Current	mA	2,730(3C)	$T_a = -20 \sim 50^\circ\text{C}$
Normal Discharge Current	mA	182(0.2C)	$T_a = -20 \sim 50^\circ\text{C}$
Storage Temperature	$^\circ\text{C}$	-20 ~ 35°C (Within 2 years)	Discharged state, Humidity: $65 \pm 20\%$
		-20 ~ 45°C (Within 6 months)	
		-20 ~ 55°C (Within one month)	
		-20 ~ 60°C (Within one week)	
Typical Weight	gram	32	Battery pack

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3. PERFORMANCE

Unless otherwise stated, tests should be done within one month after receipt under the following conditions :

Ambient Temperature, T_a : $20 \pm 5^\circ\text{C}$ and
Relative Humidity : $65 \pm 20\%$.

Notes : Standard Charge / Discharge Conditions:

Charge : 91mA (0.1C) x 16hrs

Discharge : 182mA (0.2C) to 2.0V / pack

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥ 890	Standard Charge/Discharge	Up to 3 cycles are allowed
Open Circuit Voltage (OCV)	V	≥ 2.5	Within 1hr after standard charge	Battery pack
Internal Impedance (Ri)	m Ω /pack	≤ 230	Upon fully charge (1kHz)	
High Rate Discharge (0.5C)	min	≥ 108	Standard Charge, 1hr rest before discharge	
High Rate Discharge (1C)	min	≥ 51	Standard Charge, 1hr rest before discharge	
Overcharge	N/A	No leakage nor explosion	91mA (0.1C) charge 1 year	
Charge Retention	mAh	≥ 534	Standard Charge, Storage: 28 days, Standard Discharge	
IEC Cycles Test	Cycle	> 500	IEC 61951-2	(see Note 3)
Accelerated Cycle Life	Cycle	≥ 250	Charge: 910mA (1C), Discharge: 910mA (1C) to 2.0V/pack, End - of - life: 80% nominal capacity. (Standard Charge / Discharge)	Cycling Charging CutOff condition: $-\Delta V = 0\text{mV/cell}$

GP Batteries

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Test	Unit	Specification	Conditions	Remarks
Leakage	N/A	No leakage nor deformation	Fully charged at 910mA (1C), stand for 14 days	
External Short Circuit	N/A	No fire and no explosion.	After standard charge, short circuit the cell(s) at 20+/-5°C until the cell(s) temperature returns to ambient temperature. (The resistance of the inter-connecting circuitry shall not exceed 0.1 ohm.)	
Welding Strength	kgf	≥ 2	180° direction	
Cord Pull Test	kgf	> 1.5	180° direction	
Vibration Resistance	N/A	Change of voltage should be under 0.02V/cell, Change of impedance should be under 5 milli-ohm/cell.	Charge the battery 0.1C 16hrs, then leave for 24hrs, check battery before / after vibration, Amplitude: 1.5mm Vibration: 3000CPM Any direction for 60mins.	
Impact Resistance	N/A	Change of voltage should be under 0.02V/cell, Change of impedance should be under 5 milli-ohm/cell.	Charge the battery 0.1C 16hrs, then leave for 24hrs, check battery before / after dropped, Height: 50cm Wooden board (thickness 30mm) Direction not specified, 3 times.	

4. CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing. DWG:PS7967

5. EXTERNAL APPEARANCE

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

6. WARRANTY

Two (2) year limited warranty against workmanship and material defects.

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7. CAUTION

1. Reverse charging is not acceptable.
2. Charge before use. The cells / batteries are delivered in an uncharged state.
3. Do not charge / discharge with more than the specified current.
4. Do not short circuit the cell / battery. Permanent damage to the cell / battery may result.
5. Do not incinerate or mutilate the cell / battery.
6. Do not solder directly to the cell / battery.
7. The life expectancy may be reduced if the cell / battery is subjected to adverse conditions like: extreme temperature, deep cycling, excessive overcharge / overdischarge.
8. Store the cell / battery uncharged in a cool dry place. Always discharge batteries before bulk storage or shipment.
9. For storage of cells / batteries over one year, in order to prevent the degrading of the function of cells, cells / batteries should be at least charged and discharged once a year.
10. Keep away from children. If swallowed, contact a physician at once.
11. Air ventilation should be provided in the plastic case of batteries, otherwise it may have a risk of accumulating gas (oxygen gas, hydrogen gas) generated inside the cell resulting in explosion triggered by fire sources (motors or switches). Airtight battery compartments are strongly discouraged.

- Notes : 1. T_a : Ambient Temperature
2. Approximate charge time from discharged state, for reference only.
3. IEC 61951-2 Cycle Life Test :

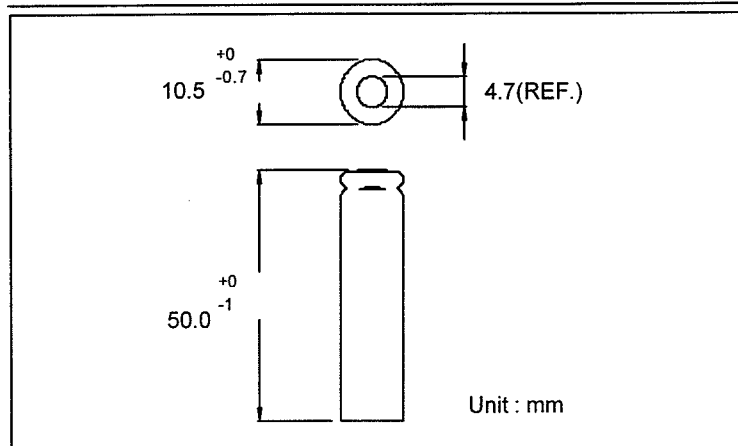
Cycle No.	Charge	Rest	Discharge
1	0.1C x 16hrs	none	0.25C x 2hrs20mins
2 - 48	0.25C x 3hrs10mins	none	0.25C x 2hrs20mins
49	0.25C x 3hrs10mins	none	0.25C to 1.0V / cell
50	0.1C x 16hrs	1- 4hr(s)	0.2C to 1.0V / cell
Cycles 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3hrs			

GP Batteries

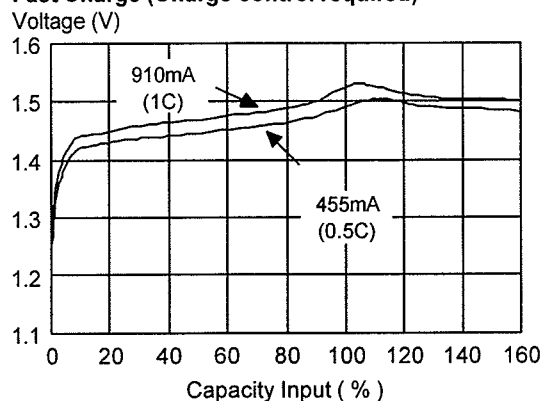
Data Sheet

Model No.: GP91AAALH

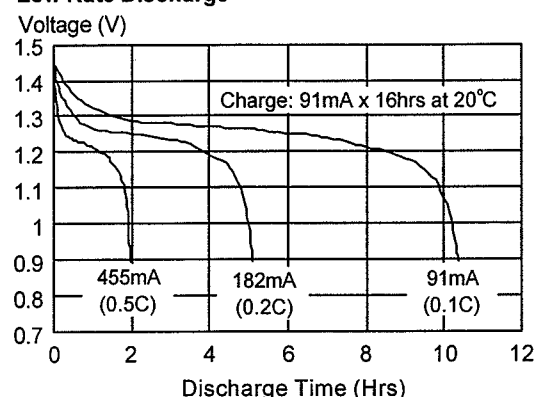
Type	: Rechargeable Nickel Metal Hydride Cylindrical Cell
Nominal Dimension (with Sleeve)	: $\Phi=10.5\text{mm}$ H=50.0mm
Applications	: Recommended discharge current 91 to 2730mA
Nominal Voltage	: 1.2V
Capacity	: Nominal: 910mAh Minimum: 910mAh Typical: 930mAh when discharged at 182mA to 1.0V at 20°C
Charging Condition	: 91mA for 16hrs at 20°C
Fast Charge	: 455mA to 910mA (0.5 to 1C) charge termination control recommended control parameters: - ΔV : 0 - 5mV DT/dt : 0.8°C/min (0.5 to 0.9C) : 0.8 - 1°C/min (1C) TCO : 45 - 50°C Timer : 105% nominal input
Service Life	: >500 cycles (IEC standard)
Continuous Overcharge	: 910mA maximum current for 1 year No conspicuous deformation and/or leakage
Weight	: 15.1g
Internal Resistance	: Average 25m Ω upon fully charged (Range 18-36m Ω) at 1000Hz
Max. Charging Voltage	: 1.5V at 91mA charging
Ambient Temperature Range	: Standard Charging : 0 to 45°C Fast Charging : 10 to 45°C Discharging : -20 to 50°C Storage : -20 to 35°C



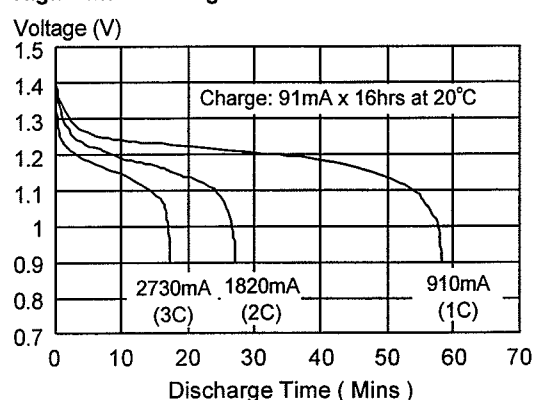
Fast Charge (Charge control required)



Low Rate Discharge



High Rate Discharge

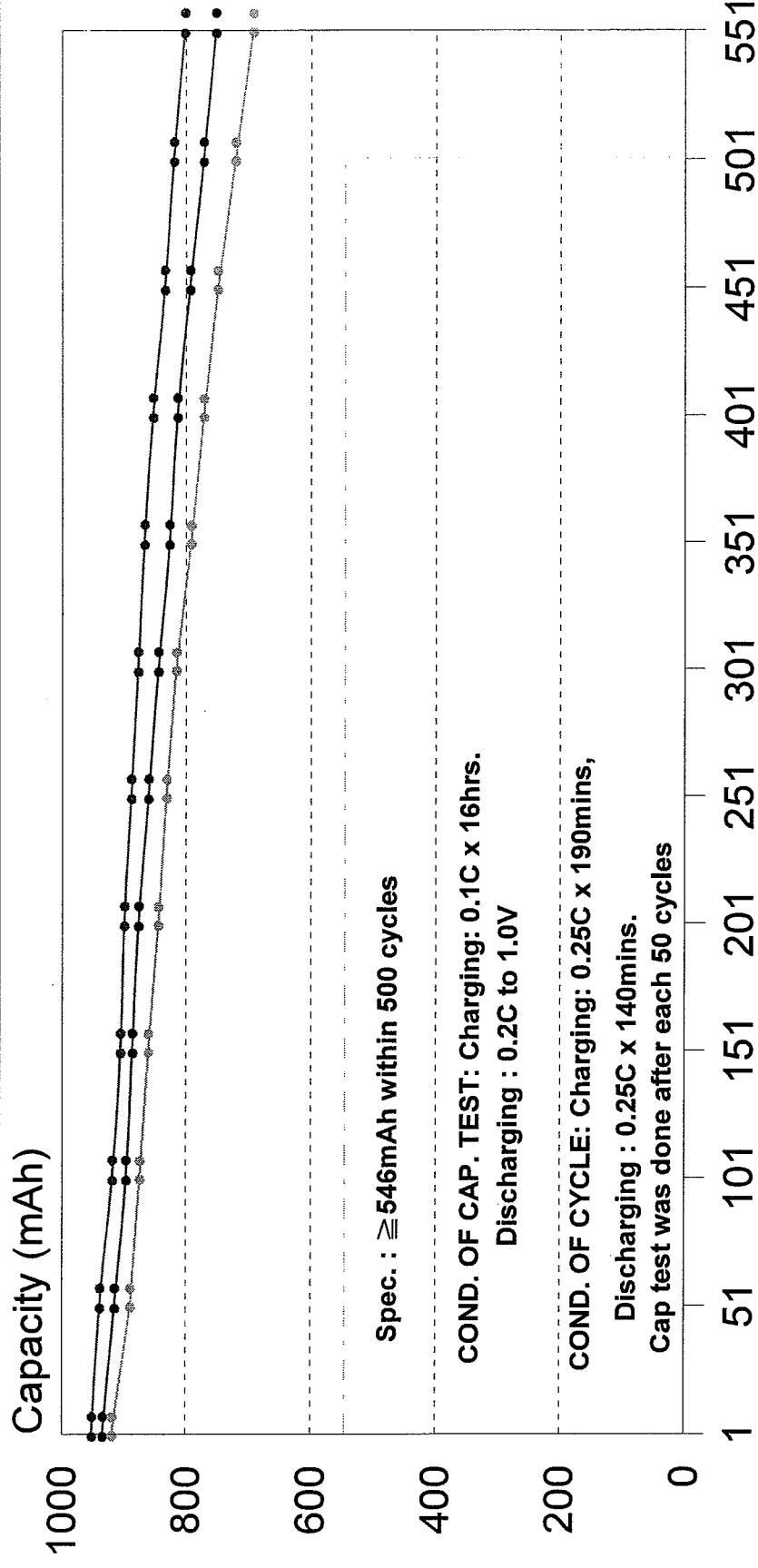


* The information (subject to change without prior notice) contained in this document is for reference only and should not be used as a basis for product guarantee or warranty. For applications other than those described here, please consult your nearest GP Sales and Marketing Office or Distributors.

GP91AAALH

IEC cycle life test

Capacity of 30pcs cells Vs No. of cycle



Remark: Sample sizes = 30 pcs

JUL.07

Ambient temp. 20degC

GP Batteries

Material Safety Data Sheet

Model No.: GP91AAALH

Document Number: CRS3793

Revision: 00

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IDENTITY (As Used on Label and List) GP91AAALH	Note: Blank spaces are not permitted if any item is not applicable or no information is available, the space must be marked to indicate that.	
Section I – Information of Manufacturer		
Manufacturer's Name GPI International Ltd.	Emergency Telephone Number	
Address (Number, Street, City State, and ZIP Code) 8/F GP Building, 30 Kwai Wing Road,	Telephone Number for information	852-2484-3333
Kwai Chung, N.T. H.K.	Date of prepared and revision Aug., 26, 2004	
	Signature of Preparer (optional)	

Section II - Hazardous Ingredients / Identity Information

Hazardous Components:

Description:	Approximate % of total weight	
Mercury	<5ppm	
Lead	Nil	
Cadmium	Nil	
Ni(OH) ₂ (Nickel Hydroxide)	7	Wt%
30% KOH Solution (Potassium Hydroxide)	2	Wt%

Section III - Physical / Chemical Characteristics

Boiling Point N.A.	Specific Gravity (H ₂ O=1)	N.A.
Vapor Pressure (mm Hg) N.A.	Melting Point	N.A.
Vapor Density (AIR=1) N.A.	Evaporation Rate (Butyl Acetate)	N.A.
Solubility in Water N.A.		
Appearance and Odor	Cylindrical Shape, odorless	

Section IV – Hazard Classification

Classification

N.A.



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

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Section V – Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI - Health Hazard Data

Route(s) of Entry	Inhalation?	Skin?	Ingestion?
		N.A.	N.A.

Health Hazard (Acute and Chronic) / Toxicological information

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause severe irritation and chemical burns.

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

Section VII – First Aid Measures

First Aid Procedures

If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately.

If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.

If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

Section VIII - Fire and Explosion Hazard Data

Flash Point (Method Used)	Ignition Temp.	Flammable Limits	LEL	UEL
N.A.	N.A.	N.A.	N.A.	N.A.

Extinguishing Media

Carbon Dioxide, Dry Chemical or Foam extinguishers

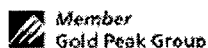
Special Fire Fighting Procedures

N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire - may explode.

Do not short-circuit battery - may cause burns.



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GP Batteries

Material Safety Data Sheet

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Section IX – Accidental Release or Spillage

Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

Section X – Handling and Storage

Safe handling and storage advice

Batteries should be handled and stored carefully to avoid short circuits.

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.

Never disassemble a battery.

Do not breathe cell vapors or touch internal material with bare hands.

Keep batteries between -30°C and 35°C for prolong storage.

Section XI – Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP

STEP

N.A.

N.A.

Respiratory Protection (Specify Type)

N.A.

Ventilation

Local Exhausts

Special

N.A.

N.A.

Mechanical (General)

Other

N.A.

N.A.

Protective Gloves

Eye Protection

N.A.

N.A.

Other Protective Clothing or Equipment

N.A.

Work / Hygienic Practices

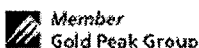
N.A.

Section XII – Ecological Information

N.A.

Section XIII – Disposal Method

Dispose of batteries according to government regulations.



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Section XIV – Transportation Information

GP batteries are considered to be "Dry cell" batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special provision 130 which states: "Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (For example, by the effective insulation of exposed terminals). As of 1/1/97 IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting."

Section XV – Regulatory Information

Special requirement be according to the local regulations.

Section XVI – Other Information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.

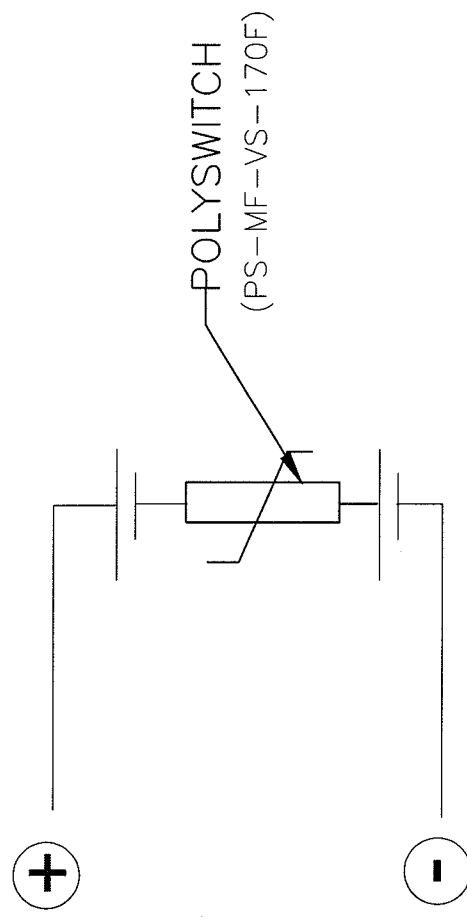
Section XVII – Measures for fire extinction

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.

CIRCUIT DIAGRAM

(UNIDEN BT-658/GP91AALH2BXZ-2+8516)



Features

- Axial leaded
- Fully compatible with current industry standards
- Weldable nickel terminals
- Very low internal resistance
- Low switching temperature
- RoHS compliant*

Applications

- Any application that requires protection at low resistances
- Rechargeable battery packs; designed for NiMH and Li-Ion chemical characteristics
- Cellular phones
- Laptop computers

BOURNS®

MF-VS Series - PTC Resettable Fuses

Electrical Characteristics

Model	V max. Volts	I max. Amps	I _{hold}	I _{trip}	Initial Resistance			1 Hour (R ₁) Post-Trip Resistance	Max. Time To Trip		Tripped Power Dissipation
			Amperes At 23 °C		Ohms At 23 °C			Ohms At 23 °C	Amperes At 23 °C	Seconds At 23 °C	Watts At 23 °C
			Hold	Trip	Min.	Max.	Typ.	Max.			Typ.
MF-VS170	16	100	1.7	3.4	0.030	0.052	0.040	0.105	8.5	3.0	1.4
MF-VS210	16	100	2.1	4.7	0.018	0.030	0.022	0.060	10.0	5.0	1.5
MF-VS240	16	100	2.4	5.9	0.014	0.026	0.020	0.052	12.0	6.0	1.9

Environmental Characteristics

Operating/Storage Temperature-40 °C to +85 °C

Maximum Device Surface Temperature

Maximum Device Surface Temperature
in Tripped State125 °C

Passive Aging.....	+60 °C, 1000 hours	±10 % typical resistance change
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Humidity Aging.....+60 °C, 85 % R.H.1000 hours±10 % typical resistance change

Thermal ShockMIL-STD-202F, Method 107G±5 % typical resistance change

Vibration	+85 °C to -40 °C, 10 times MIL-STD-883C, Condition A	No change
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Test Procedures And Requirements For Model MF-VS Series

Test

Test Conditions

Accept/Reject Criteria

Visual/Mech. Verify dimensions and materials..... Per MF physical description

ResistanceIn still air @ 23 °C $R_{min} \leq R \leq R_{1max}$

Time to TripAt specified current, V_{max} , 23 °CT ≤ max. time to trip (seconds)

Hold Current30 min. at Ihold.....No trip

Trip Cycle Life **Vmax, Imax, 100 cycles** **No arcing or burning**

Trip Endurance.....Vmax, 48 hoursNo arcing or burning

UL File NumberE 174545S

CSA File NumberCA 110338

TÜV File Number R2057213

Thermal Derating Chart - I_{hold} (Amps)

Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-VS170	3.2	2.7	2.2	1.7	1.3	1.1	0.8	0.6	0.1
MF-VS210	4.1	3.5	2.9	2.1	1.6	1.3	1.0	0.7	0.1
MF-VS240	4.2	3.6	3.0	2.4	1.9	1.5	1.2	0.8	0.1

* I_{trip} is approximately two times I_{hold} .

Additional Features

- Patents pending

MF-VS Series - PTC Resettable Fuses

BOURNS®

Product Dimensions

Model	A		B		C		D		F		Pkg. Style
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
MF-VS170	16.0 (0.630)	18.0 (0.709)	4.9 (0.193)	5.5 (0.217)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)	Std.
MF-VS170S	16.0 (0.630)	18.0 (0.709)	4.9 (0.193)	5.5 (0.217)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)	Std.
MF-VS210	20.9 (0.823)	23.1 (0.909)	4.9 (0.193)	5.5 (0.217)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)	Std.
MF-VS210L	24.0 (0.945)	26.5 (1.043)	4.9 (0.193)	5.5 (0.217)	0.6 (0.024)	0.9 (0.035)	5.0 (0.197)	7.1 (0.280)	3.9 (0.154)	4.1 (0.161)	Std.
MF-VS210S	20.9 (0.823)	23.1 (0.909)	4.9 (0.193)	5.5 (0.217)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)	S
MF-VS240	24.0 (0.945)	26.2 (1.031)	4.9 (0.193)	5.5 (0.217)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)	Std.
MF-VS240S	24.0 (0.945)	26.2 (1.031)	4.9 (0.193)	5.5 (0.217)	0.6 (0.024)	0.9 (0.035)	4.1 (0.161)	5.8 (0.228)	3.9 (0.154)	4.1 (0.161)	S

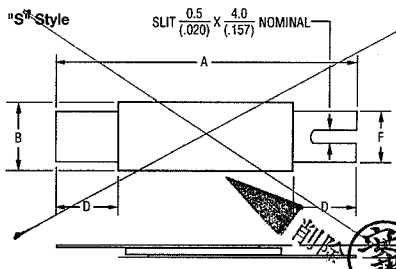
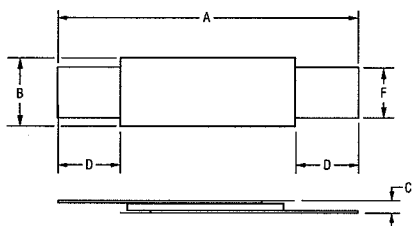
Packaging: Bulk - 500 pcs. per bag. Tape and Reel - Consult factory.

Leads: 1/4 Hardened Nickel 0.125 mm (.005 ") nom.

NOTE: All "S" style models available with 1 or 2 slots. The dimensions and shape of the leads can be modified to suit the battery pack design. All models are available without insulation wrapping.

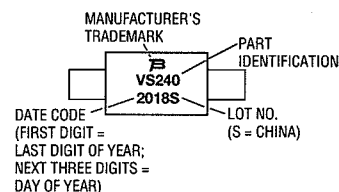
DIMENSIONS = $\frac{\text{MM}}{(\text{INCHES})}$

Standard Style

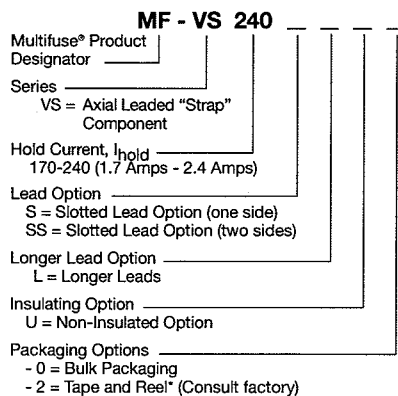


Typical Part Marking

Represents total content. Layout may vary.

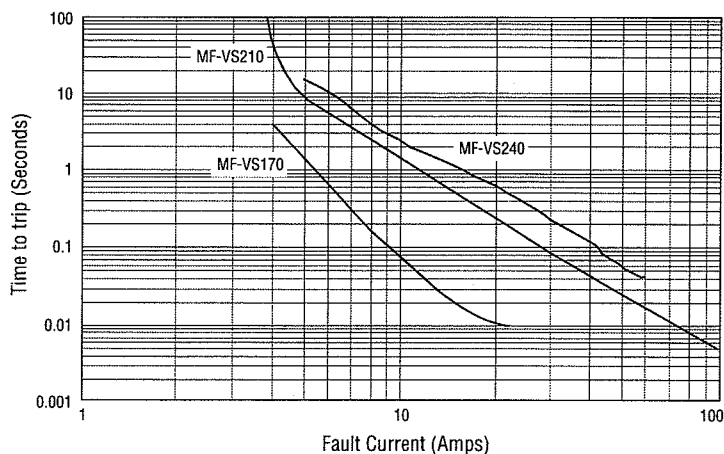


How To Order



*Packaged per EIA 486-B

Typical Time to Trip at 23 °C

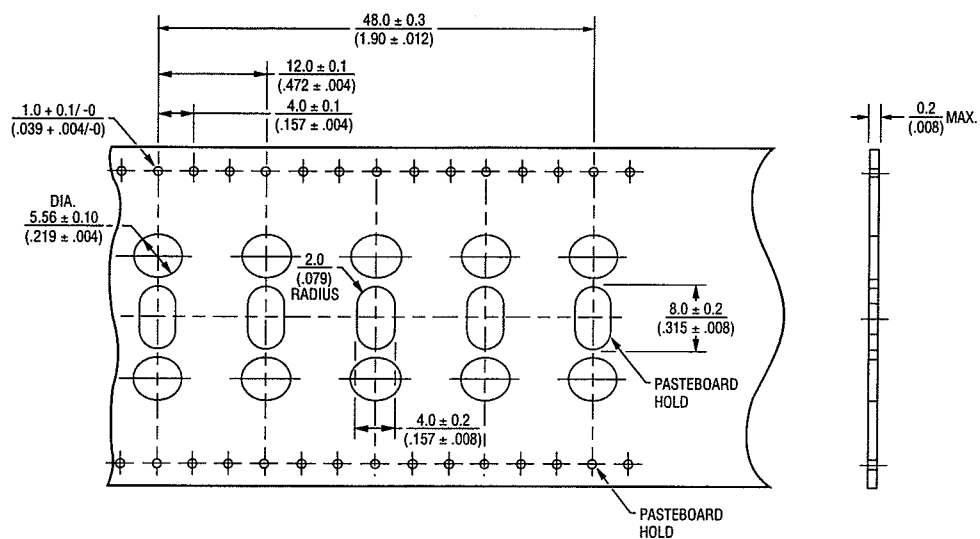


MF-VS SERIES, REV. J, 11/04

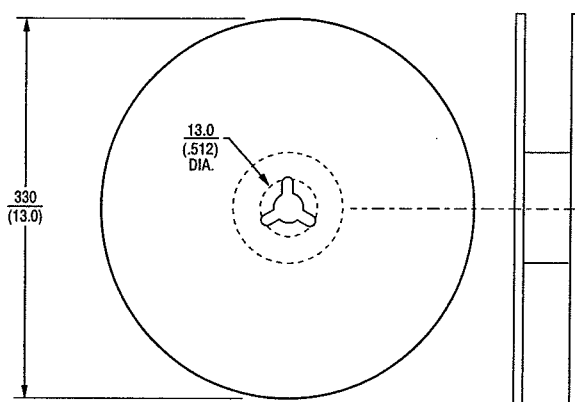
Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

BOURNS®

Taped Component Dimensions



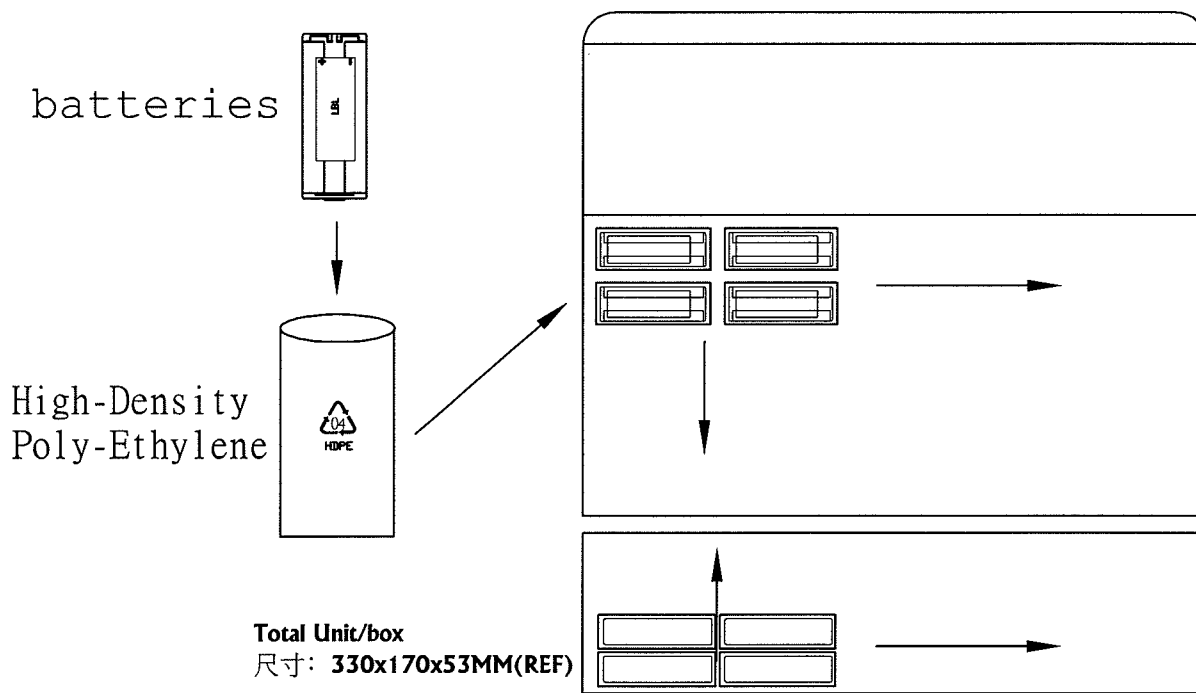
Reel Dimensions



Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

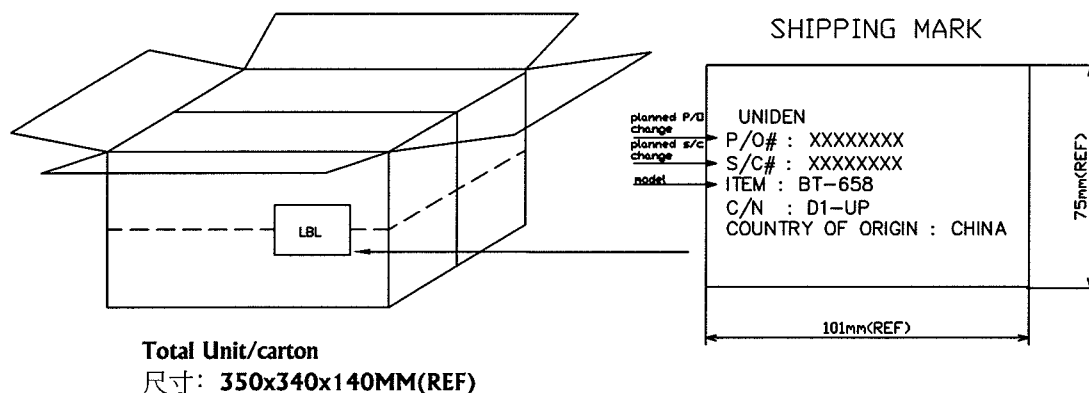


PRODUCT ORIENTATION



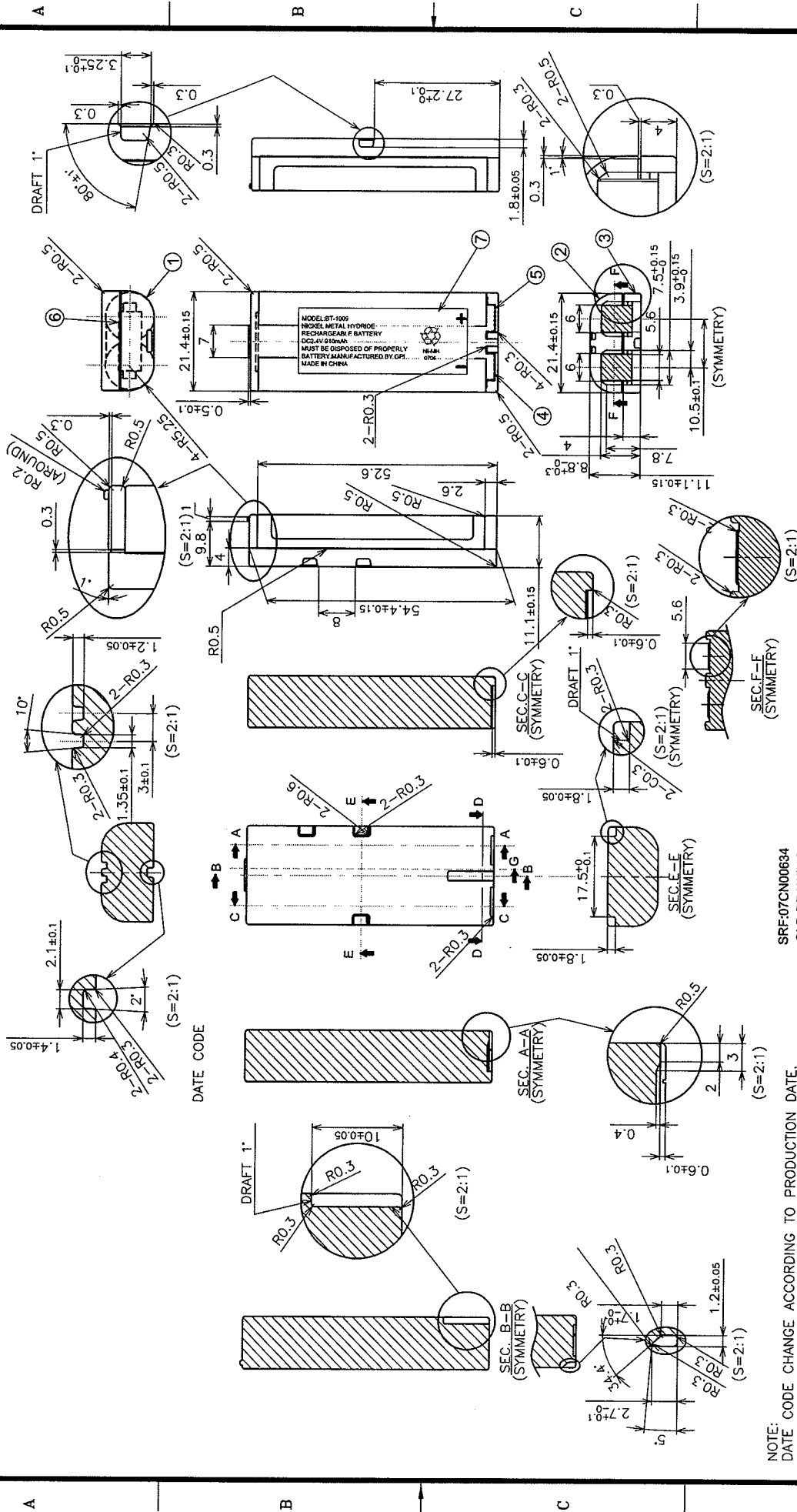
Total Unit/box : 140 pcs.

PACKING ARRANGEMENT



Total Unit/carton : 4 box/carton.

REMARK : 中盒內每個電池請用膠袋套置好, 若有多余空間, 請用發泡膠或紙皮填滿。

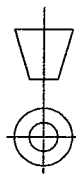


SRF-07CN00634
OLD DRAWING:

NOTE:
DATE CODE CHANGE ACCORDING TO PRODUCTION DATE.

NOTICE: 1.DO NOT SCALE THIS DRAWING 2.REMOVE ALL SHARP EDGE UNLESS OTHERWISE SPECIFIED	DIMENSIONS ARE IN mm AND INCLUDE PLATED FINISHES TOLERANCE REQUEST: NO DEC. PT. ± 0.50 1 DEC. PT. ± 0.10 2 DEC. PT. ± 0.05	SIGNATURE		DATE	MODEL NO.: 91AAALH2BXZ		SYLVA INDUSTRIES LTD.	
		DRAWN	SUNNY	28/08/2007				
		CHKD	SK CHEUNG	28/08/2007	NOMINAL VOLTAGE: 2.4V		TITLE: 91AAALH STACK UP BATTERY	
		APPD	WB YU	28/08/2007	CELL TYPE: NiMH	CAPACITY: 910mAh	DWG NO.: PPD8516	REV: 0

(PGF0034)

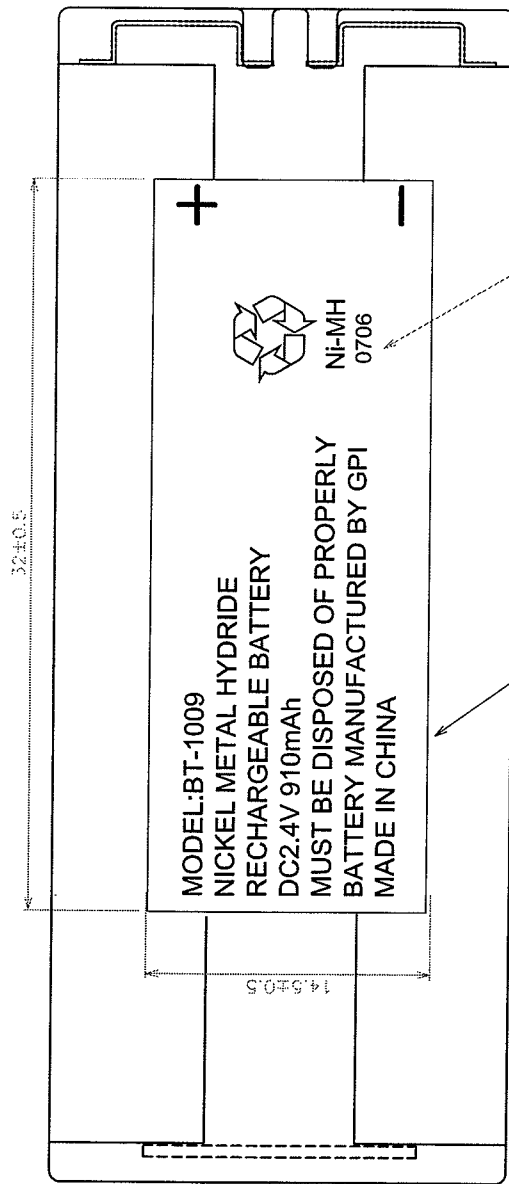


A

B

C

D



NOTE:
DATE CODE CHANGE ACCORDING TO PRODUCTION DATE.

SRF:07CND0634

OLD DRAWING:

NOTICE:		SIGNATURE		DATE		MODEL NO.: 91AAALH2BXZ		SYLVA INDUSTRIES LTD.	
1.DO NOT SCALE THIS DRAWING 2.REMOVE ALL SHARP EDGE UNLESS OTHERWISE SPECIFIED	DIMENSIONS ARE IN mm AND INCLUDE PLATED FINISHES * TOLERANCE REQUEST: NO DEC. FT. ± 0.50 1 DEC. FT. ± 0.10 2 DEC. FT. ± 0.05	DRAWN	SUNNY	28/06/2007		TITLE: 91AAALH STACK UP BATTERY		DWG NO.: PPD8516	
		CHKD	SK CHEUNG	28/06/2007		NOMINAL VOLTAGE: 2.4V		REV: 0	
		APPD	WB YU	28/06/2007		CELL TYPE: NIMH CAPACITY: 910mAh		SCALE: NONE	

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(PGF0034)

7	LABEL	1	POLY SWITCH
6	PS-MF-VS-170F	1	Ni PLATE
5	TERMINAL PLATE(+)	1	Ni PLATE
4	TERMINAL PLATE(-)	1	Ni PLATE
3	CASE B	1	ABS
2	CASE A	1	ABS
1	UNIT CELL	2	NIMH
NO.	DESCRIPTION	QTY	NOTE

Certification that Environmentally Hazardous Substances are not Used

To : Uniden Corporation _____

2007(year) 10 (month) 10 (day)

Company Name: GPI International Limited _____

Person Responsible: Patrick Lee _____ (signature)

We certify the products comply with Directive 2002/95/EC(RoHS)
on the restriction of the use of certain hazardous substances in electrical and
electronic equipment

Concentration value of each substances is less than maximum concentration value
by weight in homogeneous materials as below chart

substance	maximum concentration value
(1) Cadmium and Cadmium Compounds	1 0 0 ppm
(2) Hexavalent Chromium Compounds	1 0 0 0 ppm
(3) Lead and Lead Compounds	1 0 0 0 ppm
(4) Mercury and Mercury Compounds	1 0 0 0 ppm
(5) Polybrominated Biphenyls (PBBs)	1 0 0 0 ppm
(6) Polybrominated Diphenyl ethers (PBDEs)	1 0 0 0 ppm



Test Report

No. 2018599/EC

Date : Apr 11 2005

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HUIZHOU POWER PACK BATTERY CO., LTD
DASHULING XIAOJINKOU
HUIZHOU CITY GUANGDONG

Report on the submitted sample said to be BATTERY.

SGS Job No. : 1733416
SGS Ref. No. : SZECO050304876EC-5.1
Style / Item / Ref. No. : CHARGE 91AAALH
Supplier / Manufacture : GP
Sample Receiving Date : APR 01 2005
Testing Period : APR 02-08 2005

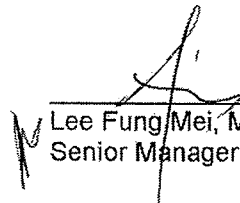
Test Requested : To determine Lead, Cadmium and Mercury Content in the submitted samples in accordance with 98/101/EC & 91/157/EEC Directives.

Test Method : Acid digestion, and then analyzed by Atomic Absorption or Inductively Coupled Argon Plasma Spectrometry.

Test Results : Please refer to next page

Conclusion : The submitted battery samples meet the Lead, Cadmium and Mercury content requirements of 98/101/EC & 91/157/EEC Directives.

Signed for and on behalf of
SGS Hong Kong Ltd


Lee Fung Mei, Miranda
Senior Manager

This Test Report is issued by the Company subject to its General Conditions of Service printed overleaf. Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full, without prior written permission of the Company.



Test Report

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Test Results :

<u>Element</u>	<u>Battery (91AAALH)</u>	<u>Limit (except button cell)</u>
Lead (Pb)	< 0.001%	0.4%
Cadmium (Cd)	< 0.001%	0.025%
Mercury (Hg)	N D	0.0005%

(Results shown are of total weight of the battery sample)

Note : 1) N.D. = Not Detected
2) The Detection Limit of Mercury (Hg) = 0.1 ppm
3) 0.01% = 100 ppm

*** End of Report ***

This Test Report is issued by the Company subject to its General Conditions of Service printed overleaf. Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full, without prior written permission of the Company.

H11709548

SGS Hong Kong Ltd. 5/F - 8/F & 28/F - 29/F, Metropole Square, 2 On Yiu Street, Siu Lek Yuen, Shatin, N.T., Hong Kong. t (852) 2334 4481 f (852) 2764 3126 www.hk.sgs.com

Member of the SGS Group (SGS SA)



TEST REPORT

Client : Sylva Industries Limited 時暉實業有限公司

Address : 5/F., Gold Peak Building, 30 Kwai Wing Rd., Kwai Chung, N.T. Hong Kong.
香港新界葵涌葵榮路30號金山工業中心5樓

The following sample was submitted and identified on behalf of the client as:

組合電池 91AAALH2BXZ.

Sample Information

Sample Name: NiMH Battery.

Part No.: 91AAALH2BXZ.

Lab. sample No.: SN200708044.

Material: Metal / Plastic.

Manufacturer: HuiZhou Power Pack Co., Ltd.

Status Description: Normal

Sample Received Date: August 15, 2007.

Test Period: August 15, 2007 - August 20, 2007

Test Requested: Assessment to Measures for Administration of the Pollution Control of Electronic Information Products of the People's Republic of China and EU RoHS on the Submitted Sample.

Testing Items	Lead (Pb) mg/kg	Cadmium (Cd) mg/kg	Mercury (Hg) mg/kg	Chromium (CrVI) mg/kg	Polybrominated Biphenyls (PBBs) mg/kg	Polybrominated Diphenyl Ethers (PBDEs) mg/kg
Limit of EU RoHS(2002/95/EC)	1000	100	1000	1000	1000	1000
Limit of China RoHS(SJ/T11363:2006)	1000	100	1000	1000	1000	1000

Test Results

Sample No.	Sample Name	Cd (mg/kg)	Pb (mg/kg)	Hg (mg/kg)	Cr (mg/kg)	Br (mg/kg)	Conclusion
1	絕緣纖維 PP025012BLK	N.D	N.D	N.D	N.D	N.D	Pass
2	膠殼 PCGP2BBLK-A	N.D	N.D	N.D	N.D	N.D	Pass
3	膠殼 PCGP2BBLK-B	N.D	N.D	N.D	N.D	N.D	Pass
4	金屬片 CONNTPA0608	N.D	N.D	N.D	N.D	N.A	Pass
5-1	PS-MF-VS170F 藍色膠佈	N.D	N.D	59	N.D	58972 **N.D(PPBs&PBDEs)	Pass
5-2	PS-MF-VS170F 電阻材料	N.D	N.D	N.D	N.D	N.D	Pass
5-3	PS-MF-VS170F 金屬片	42	N.D	N.D	N.D	N.A	Pass
5-4	PS-MF-VS170F 導片	N.D	N.D	N.D	N.D	N.A	Pass
6	負極粉 Negative electrode powder	N.D	51	N.D	5887	N.A	Pass

Address: No. 144 Zhongxing Road, Shenzhen, China TEL: (86)-755-82172089 Ext 346 E-mail: ww_king@GoldPeak.com



THE LABORATORY OF SHENZHEN JETPOWER BATTERIES LIMITED

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					* 20(Cr)		
7	負極底材 Punch metal	N.D	N.D	N.D	51	N.A	Pass
8	正極 Positive electrode	N.D	N.D	N.D	N.D	N.A	Pass
9	蓋 Can	N.D	N.D	N.D	424	N.A	Pass
10	下頂 Lower cap	N.D	55	N.D	220	N.A	Pass
11	上頂 Upper cap	N.D	N.D	N.D	121	N.A	Pass
12	正極導片 Positive current collector	N.D	N.D	N.D	N.D	N.A	Pass
13	膠粒 Rubber disk	N.D	N.D	N.D	N.D	N.D	Pass
14	負極墊片 Paper washer (Negative electrode)	N.D	N.D	N.D	N.D	N.D	Pass
15	上介子 Top position washer	N.D	N.D	N.D	N.D	N.D	Pass
16	膠圈 Gasket	N.D	N.D	N.D	N.D	N.D	Pass
17	棕色膠佈 Adhesive tap	N.D	N.D	N.D	N.D	N.D	Pass
18	隔膜紙 Separator	N.D	N.D	N.D	102	N.D	Pass
19	膠腸 Sleeve	N.D	N.D	N.D	N.D	N.D	Pass
20	頂墊片 Paper washer(top)	N.D	N.D	N.D	N.D	N.D	Pass

Note : 1) N.D = Not Detected(Report Limit)

2) 0.01% = 100mg/kg

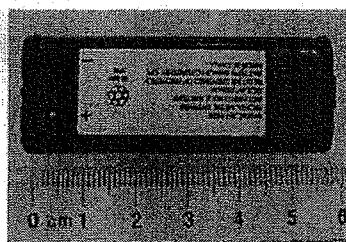
3) N.A = not applicable

4) Br = Bromine ; Pb = Lead ; Hg = Mercury ; Cd = Cadmium ; Cr = Chromium ;

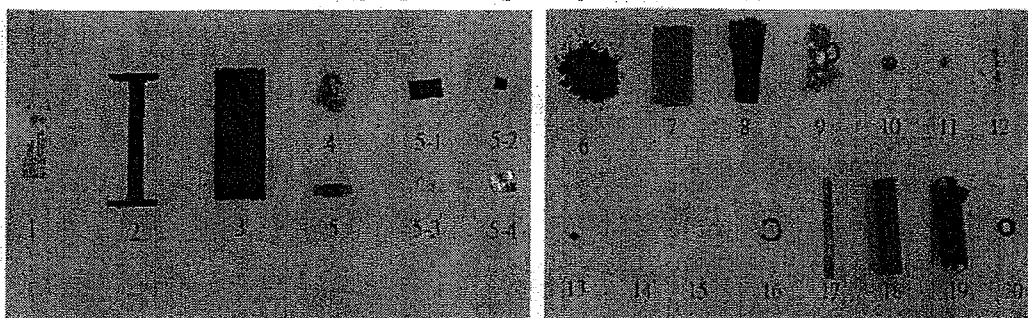
PBBs = Polybrominated Biphenyls ; PBDEs = Polybrominated Diphenyl Ethers.

5) Operation Environment: Temperature: 23.6°C Humidity: 55 %RH

Photo of the Submitted Sample



Photograph(s) depicting tested item(s)



Test Method : Screening of Elements by Energy Dispersive X-Ray Fluorescence (EDXRF)

Spectrometry on the submitted sample.

Address: No. 144 Zhongxing Road, Shenzhen, China TEL: (86)-755-82172089 Ext 346 E-mail: ww_king@GoldPeak.com

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CAT. B RECORD

(ZRF0006)



THE LABORATORY OF SHENZHEN JETPOWER BATTERIES LIMITED

Report No.: JPCL708-023

Date: 20-08-2007

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1. XRF Screening – Reference to SJ/T 11365-2006, "Testing methods for hazardous substances in electronic information products" (Chapter 5)
2. Wet Chemistry Tests – Reference to SJ/T 11365-2006, "Testing methods for hazardous substances in electronic information products"
 - i. Lead (Pb) and Cadmium (Cd): The sample is comminuted and digested with acid mixtures. Pb and Cd contents are determined with AAS
 - ii. Mercury (Hg): The sample is comminuted and digested with acid mixtures. Hg content is determined with AAS-VGA technique.
 - iii. Chromium (VI) (Cr VI):
 - a. Metallic material : Qualitative method for the presence of hexavalent chromium on metal plating. The sample is further verified by colorimetric method if the spot test result is uncertain.
 - b. Polymeric, Metallic, Inorganic non-metallic & Electronic materials : The sample is comminuted and digested with alkaline mixtures. Chromium VI content is determined with UV-VIS spectroscopic technique.
3. The testing approach reference to "Procedures for the Determination of Levels of Six Regulated Substances (Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers) in Electrotechnical Products" by IEC TC111 Working Group 3 62321 54/CDV.
4. Note: Detection limits of XRF and wet chemistry method for selected substances in various matrices (in mg/kg).

Selected substances	Detection Limit (mg/kg)			
	XRF			Wet Chemistry
	Polymeric Materials	Metallic / Inorganic Non-metallic Materials E	Electronic Materials	All Materials
Lead(Pb) mg/kg	50	50	50	5
Cadmium(Cd) mg/kg	30	30	30	2
Mercury(Hg) mg/kg	50	50	50	2
Chromium (CrVI) mg/kg	50	50	50	2(Cr) 2(Cr VI)
Polybrominated Biphenyls (PBBs) mg/kg	50(Br)	50(Br)	50(Br)	--
Polybrominated Diphenyl Ethers (PBDEs) mg/kg				--

Remark:

1. Test results marked with * are determined by wet chemistry. Others are screened by XRF. The

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(ZRF0006)





THE LABORATORY OF SHENZHEN JETPOWER BATTERIES LIMITED

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- reported CrVI result is determined as total chromium, and PBBs and PBDEs results are determined as total bromine. The test results of PBBs and PBDEs marked with ** are determined by GC-MS from SMQ testing laboratory(WT071016664).
2. The result relates only to the tested item. The report shall not be reproduced except full without the written approval of the testing laboratory. Parameters which are not covered by the lab's testing scope are subcontracted to laboratories with government approval. The accreditation relates to competences given in the accreditation certificate.
 3. The XRF results of this assessment may be different to the actual content based on various factors including, but not limit to, sample size, thickness, area, non-uniformity composition, surface flatness.
 4. Only selected example(s) is/ are indicated on the above photograph.

*****End of Report*****

Written by: 蔡水意

Tested by : 陈萍

Approved by: Gib

Date : 2007.9.8

Inspected by: 刘向阳

Position : Lab Supervisor

Important Declaration

1. The test report is valid only for the samples tested in case of delivered samples by clients. And not taking account of source of the samples.
2. It is prohibited to copy part of the report except in full without the written permission of our laboratory.
3. Any report without the signatures of the tester, inspector or approver, or altered, or without the Special Testing Seal of our laboratory, will be taken as being of no effect.
4. If there are any objections to the test report, please submit them to our laboratory within fifteen days since the issuing of the report.
5. Our laboratory has passed the accreditation of China National Accreditation Service for Conformity Assessment(CNAS)(idt:ISO/IEC17025:2005) with the certificate No.L2411.
6. Our laboratory guarantees the scientificity, fairness and accuracy of all testing, is responsible for the tested data and keeps confidential the samples and technical materials provided by the clients.