

## PRIMARY LITHIUM BATTERIES



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### HCB Battery Co., Ltd.

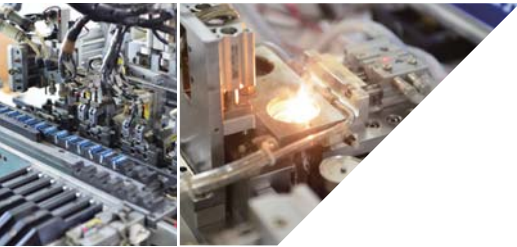
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WE POWER YOUR TECHNOLOGY





# Company Profile

HAOCHENG Group was founded in 1995. It is a solution provider for the R&D, production and sales of backup power sources. HAOCHENG Group operates 3 different subsidiaries in China:

- Beijing Chengxunda Telecommunication Equipment Co., Ltd.
- Beijing Nandu Haocheng Power Equipment Co., Ltd.
- HCB Battery Co., Ltd.

HCB Battery Co., Ltd. was founded in 2001. As a leading primary lithium battery manufacturer and solution provider in China, HCB remains dedicated to leading the R&D and manufacturing of various types of primary lithium batteries.

With every improvement that is made, HCB continues to pursue perfection. Technological development & innovation are of great importance to HCB. We have been focusing on providing reliable products & services to the customers worldwides for more than 22 years.



# Our Vision

The World Will See China Through HCB

With Experience of 22 years  
And Wisdom of 600 Persons  
We Do only One Thing

## Applications

### Security

Smoke detectors, security alarms, seismometers, digital door lock system, etc.

### Marine & Lifesaving

Life jacket, signal light, buoy, etc.

### Internet of Things

Asset tracking, toll-gate transponders, smart home, bike-sharing, IC cards, GPS, TPMS, RFID, etc.

### Oil & Gas

Well pressure meters, float meters, logging while drilling(LWD), measure while drilling(MWD), etc.

### Monitoring

Animal health monitoring system, forest fire alert, smart irrigation system, etc.

### Military & Defence

Portable radio communications, night vision equipment & thermal images, torches & lamps, etc.

### Utility Metering

Automatic meter reading(AMR), advanced metering infrastructure(AMI), electricity meters, gas meters, water meters, heat meters, etc.

### Medical Devices

Cardiac pacemaker, respirator, oxygenator, inspection devices, monitoring devices, infusion pump, etc.



# Li-SOCl<sub>2</sub> Cylindrical Batteries

## Features

### High Voltage

- Nominal voltage up to 3.6 V

### High Energy Density

- Energy density up to 590 Wh/kg

### Stable Operating Voltage

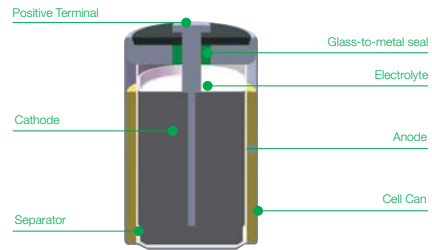
- More than 90% of the capacity could be output at a stable voltage

### Wide Operating Temperature Range

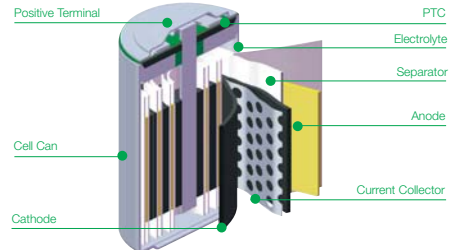
- 55°C to +85°C

### Long Shelf Life

- Self discharge rate is less than 2% per year at room temperature
- Glass-to-metal seal
- Bobbin and spiral structure is available for different applications



Bobbin



Spiral

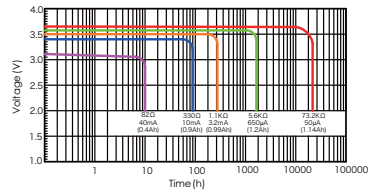
# Li-SOCl<sub>2</sub> Cylindrical Batteries

## Technical Specifications

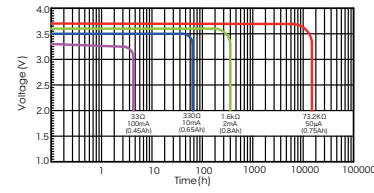
Model		Dimensions (mm)	Weight (g)	Nominal Voltage (v)	Nominal Capacity (mAh)	Standard Discharge Current (mA)	Max. Current (mA)	
National Standard	International Standard						Continuous	Pulse
<b>Cylindrical Battery (Bobbin)</b>								
ER14250	1/2AA	Φ14.5×25.0	10	3.6	1200	0.65	40	80
ER14505	AA	Φ14.5×50.5	20	3.6	2500	1.35	100	200
ER17505	A	Φ17.0×50.5	25	3.6	3600	1.7	100	250
ER18505	Fat A	Φ18.8×50.5	31	3.6	4000	2.0	150	300
ER26500	C	Φ26.2×50.0	53	3.6	8500	3.3	200	400
ER261020	CC	Φ26.2×102.0	100	3.6	15000	5.0	250	500
ER34615	D	Φ34.2×61.5	105	3.6	19000	2.0	300	600
ER341245	DD	Φ34.2×124.5	200	3.6	36000	4.0	400	800
<b>Cylindrical Battery (Spiral)</b>								
ER14250M	1/2AA	Φ14.5×25.0	10	3.6	800	2.0	100	200
ER14505M	AA	Φ14.5×50.5	22	3.6	2100	4.0	400	800
ER26500M	C	Φ26.2×50.0	53	3.6	7000	10.0	1000	2000
ER34615M	D	Φ34.2×61.5	108	3.6	14000	20.0	2000	4000

## Discharge Curves of Typical Models (23±2°C)

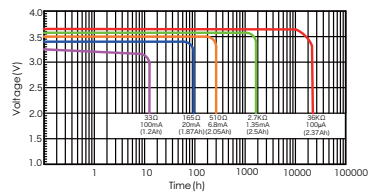
ER14250



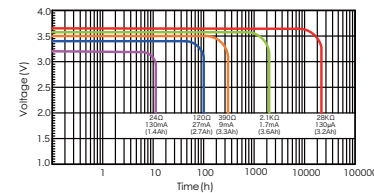
ER14250M



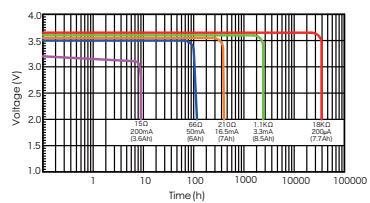
ER14505



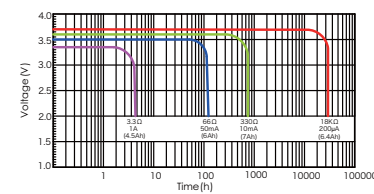
ER17505



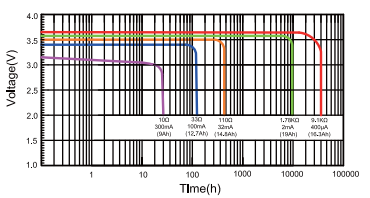
ER26500



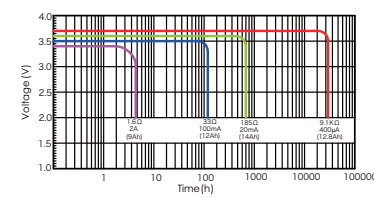
ER26500M



ER34615



ER34615M



## Ultra Pulse Capacitors

### Features

#### Wide Operating Temperature Range

- -40°C to +85°C

#### High Pulse Capability

- Up to 5A pulse

#### High Reliability

- The UPC is parallel connected with a battery or several batteries to eliminate voltage delay and to increase the pulse current capability
- Low leak current 1–15µA



## Technical Specifications

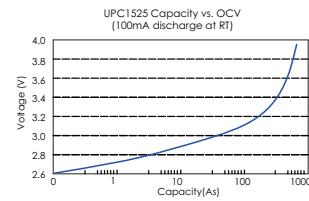
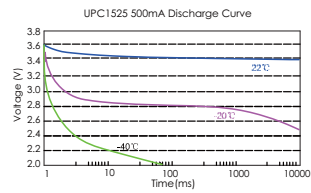
Model	Dimensions (mm)	Max. Charging Voltage (V)	Capacity (3.6V) (As)	Max. Current (mA)		Discharge Cut-off Voltage (V)	Max. Internal Resistance (mΩ)
				Continuous	Pulse		
UPC1520	Φ15.1x21.0	3.95	140	500	2000	2.5	200
UPC1525	Φ15.1x26.0	3.95	190	1000	3000	2.5	150
UPC1550	Φ15.1x50.5	3.95	560	2000	5000	2.5	100



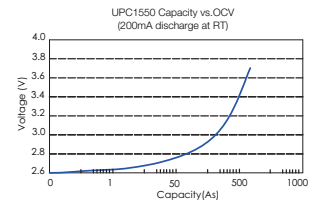
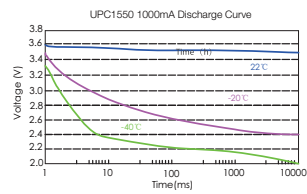
## Ultra Pulse Capacitors

### Discharge Curves of Typical Models

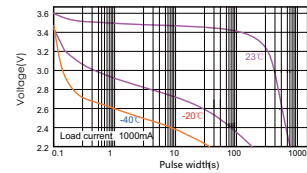
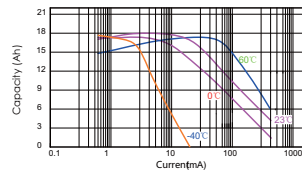
#### UPC1525



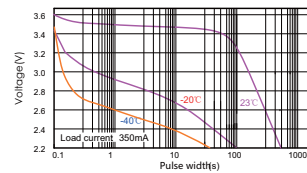
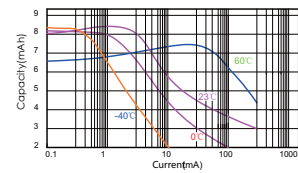
#### UPC1550



#### ER34615 +UPC1550



#### ER26500 +UPC1525



## Li-MnO<sub>2</sub> Cylindrical Batteries

### Features

#### High Voltage

- Nominal voltage up to 3.0 V

#### High Energy Density

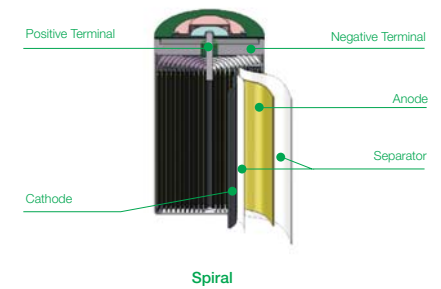
- Specific energy density up to 260 Wh/kg

#### Wide Operating Temperature Range

- 40°C to +85°C

#### Long Shelf Life

- Self discharge rate is less than 2% per year at room temperature
- High capacity, stable performance, no passivation effect
- Glass-to-metal seal
- Bobbin and spiral structure is available for different applications



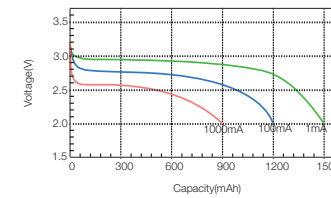
# Li-MnO<sub>2</sub> Cylindrical Batteries

## Technical Specifications

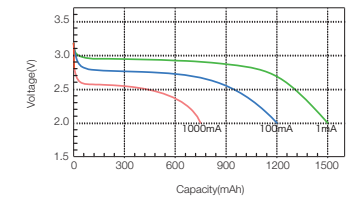
Model		Dimensions (mm)	Weight (g)	Nominal Voltage (v)	Nominal Capacity (mAh)	Standard Discharge Current (mA)	Max. Current (mA)	
National Standard	International Standard						Continuous	Pulse
<b>Cylindrical Battery (Spiral)</b>								
CR14250	1/2AA	Φ 14.5×25.0	10	3.0	600	1.0	500	1000
CR14505	AA	Φ 14.5×50.5	21	3.0	1500	1.0	1000	2000
CR15270	CR2	Φ 15.5×27.0	13	3.0	800	1.0	800	1500
CR123A	123A	Φ 17.0×34.5	20	3.0	1500	1.0	1500	3000
CR17450	4/5A	Φ 17.0×45.0	26	3.0	2200	1.0	1500	3000
CR26500	C	Φ 26.2×50.0	62	3.0	5000	10.0	2000	3000
CR34615	D	Φ 34.2×61.5	125	3.0	12000	10.0	2000	3000
CR341245	DD	Φ 34.2×124.5	270	3.0	23000	20.0	2000	3000
<b>Cylindrical Battery (Bobbin)</b>								
CR14250SE	1/2AA	Φ 14.5×25.0	11	3.0	900	0.5	7	70
CR14505SE	AA	Φ 14.5×50.5	22	3.0	1800	1.0	10	100
CR123ASE	123A	Φ 17.0×34.5	22	3.0	1800	1.0	10	100
CR123ASC	123A	Φ 17.0×34.5	20	3.0	2100	1.0	25	100
CR14250SC	1/2AA	Φ 14.5×25.0	10	3.0	1050	1.0	20	100
CR14505SC	AA	Φ 14.5×50.5	19.5	3.0	2350	1.0	50	200

## Discharge Curves of Typical Models (23±2°C)

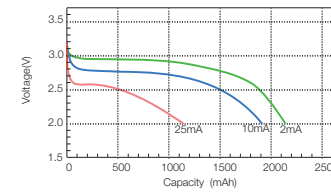
CR123A



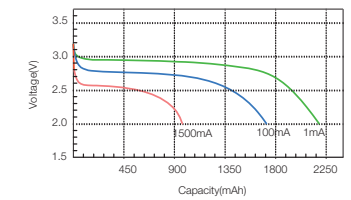
CR14505



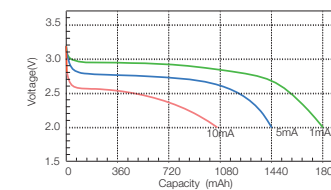
CR123ASC



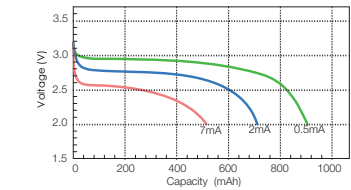
CR17450



CR123ASE



CR14250SE



## Li-MnO<sub>2</sub> Soft Batteries

### Features

#### High Voltage

- Nominal voltage up to 3.0 V

#### High Energy Density

- Energy density up to 450Wh/kg

#### Wide Operating Temperature Range

- 40°C to +70°C

#### Long Shelf Life

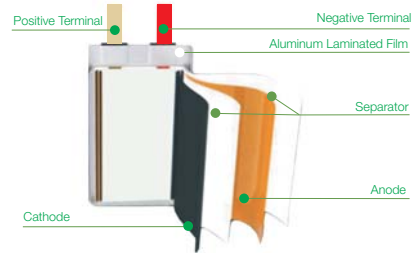
- Self discharge rate is less than 2% per year at room temperature
- No passivation effect, instant install-and-use, maintenance free
- Ultra thin

#### Variable Design

- Battery of variable dimensions can be selected to fit in the customer's design
- Custom batteries and battery packs are also available

#### Greater Safety

- The structure of the battery offers greater safety to meet customer's requirement for special applications



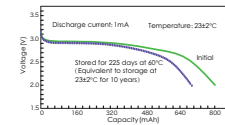
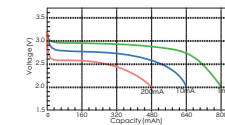
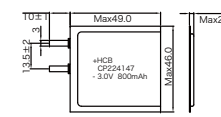
## Li-MnO<sub>2</sub> Soft Batteries

### Technical Specifications

Model	Dimensions T×W×H (mm)	Weight (g)	Nominal Voltage (V)	Nominal Capacity (mAh)	Standard Discharge Current(mA)	Max. Current (mA)	
						Continuous	Pulse
CP2012120	2.0×12×125	5.0	3.0	480	1	50	80
CP224147	2.4×46×49	6.5	3.0	800	1	200	400
CP223565	2.5×36×66	6.5	3.0	750	5	300	500
CP223830	2.4×36×31	3.5	3.0	400	1	100	150
CP502525	5.2×26×26	4.5	3.0	550	1	200	400
CP502440	5.2×24×42	9.0	3.0	1200	1	300	500
CP503742	5.2×38×43	16.0	3.0	1900	5	800	1000
CP505050	5.2×50×51	23.0	3.0	3000	10	1500	2000
CP603146	6.2×31×46	16.0	3.0	1950	5	800	1000
CP705050	7.2×50×51	32.0	3.0	4000	10	1500	3000
CP752425	7.7×25×26	7.5	3.0	900	5	300	500
CP783970	8.0×40×71	37.0	3.0	5500	10	2000	3000
CP7839109	8.0×40×110	63.0	3.0	10000	5	3000	5000
CP952434	9.5×25×35	13.0	3.0	1500	5	600	1000
CP9V	17.5×26.5×48.5	39.0	9.0	1200	1	300	500

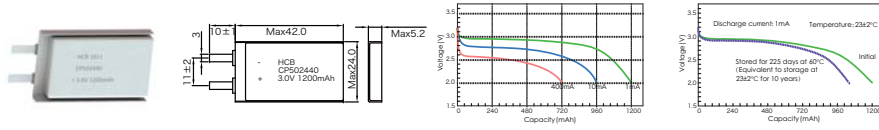
### Discharge Curves of Typical Models (23±2°C)

CP224147

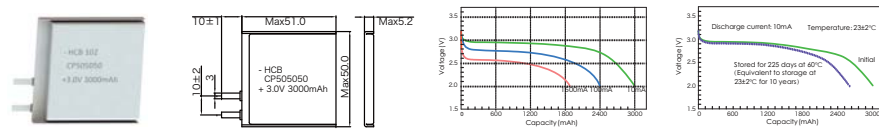




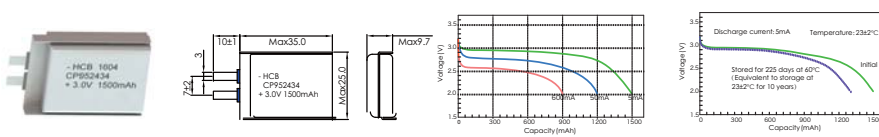
CP502440



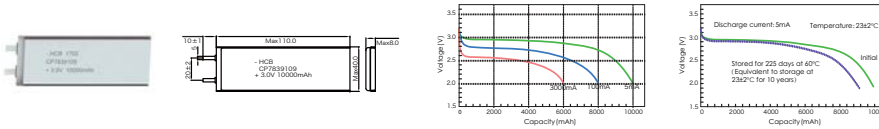
CP505050



CP952434



CP7839109



## Li-MnO<sub>2</sub> Soft Batteries

### CP9V Parameters

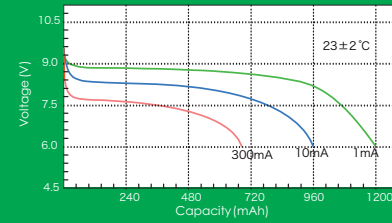


#### Features

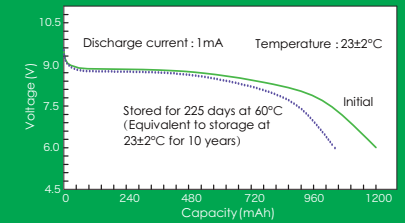
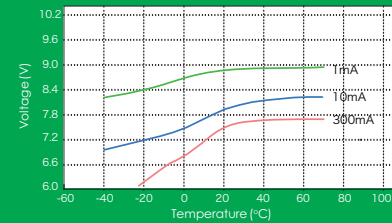
- Consisting of 3 Li-MnO<sub>2</sub> soft batteries
- The capacity is 5 times higher than 6F22 batteries
- High discharge current

- Lifetime up to 10 years
- Excellent safety

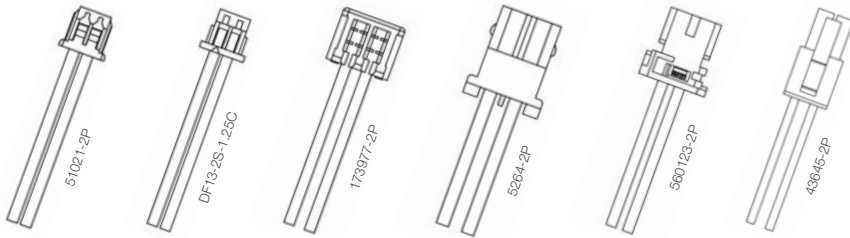
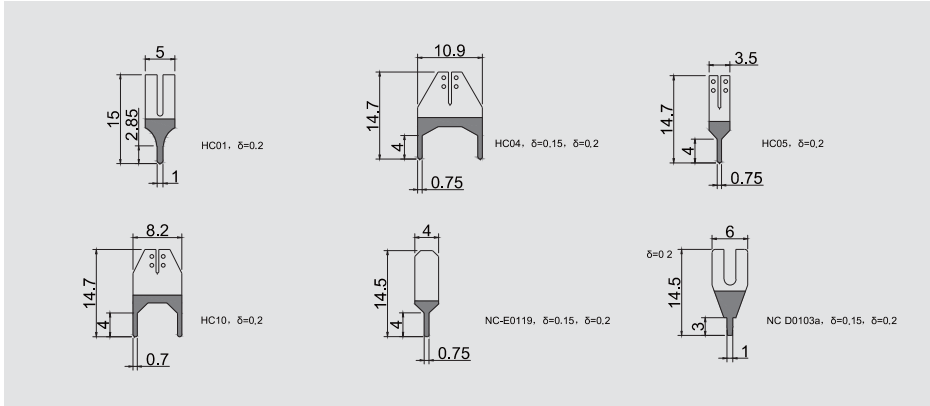
#### Discharge Curves



Nominal Voltage	9.0V
Nominal Capacity	1200mAh
Max Continuous Current	300mA
Max Pulse Current	500mA
Operating Temperature	-40°C to +70°C
Self-discharge Rate	2% / year



## Available Terminals



HCB offers different types of terminals for lithium primary batteries to meet customer's need.  
Custom terminals are also available.

## General Safety Instructions

### 1. Storage

- Store batteries in a cool (preferably < 30°C), dry and well-ventilated area.
- Keep away from moisture, source of heat, open flames.
- Keep batteries in their original packaging until use.
- Do not jumble batteries.
- Do not apply pressure that may deform the batteries.
- Appropriate fire extinguishing means should be available.
- Storage areas should be equipped with sprinklers.
- Appropriate personal protective equipment should be available (gloves, glasses, work coat...).

### 2. Handling

- Do not mix batteries of different types and brands.
- Do not mix new and used batteries.
- Do not directly heat or solder.
- Do not dismantle.

### 3. Installation and replacement

- Install only new unused batteries, bearing the same date code, coming from the same manufacturer and being of the same model.
- Observe polarities during installation.
- Follow HCB's recommendations regarding maximum deliverable currents and operating temperature range.
- Only use batteries of a type that has been homologated by the device manufacturers in which they are fitted.

### 4. Disposal

- Dispose of batteries in accordance with local regulations.
- Secure terminals to prevent short-circuiting.
- Package each cell or battery in a manner that prevents shorting with the container or another cell/battery.
- Package leaking cells/batteries in a manner that contains the leak and use specific equipment to handle these products (gloves, safety glasses, appropriated working clothing, respirator, sealable plastic bags).
- Use packaging material that is in compliance with local regulations.

## Acknowledgments

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