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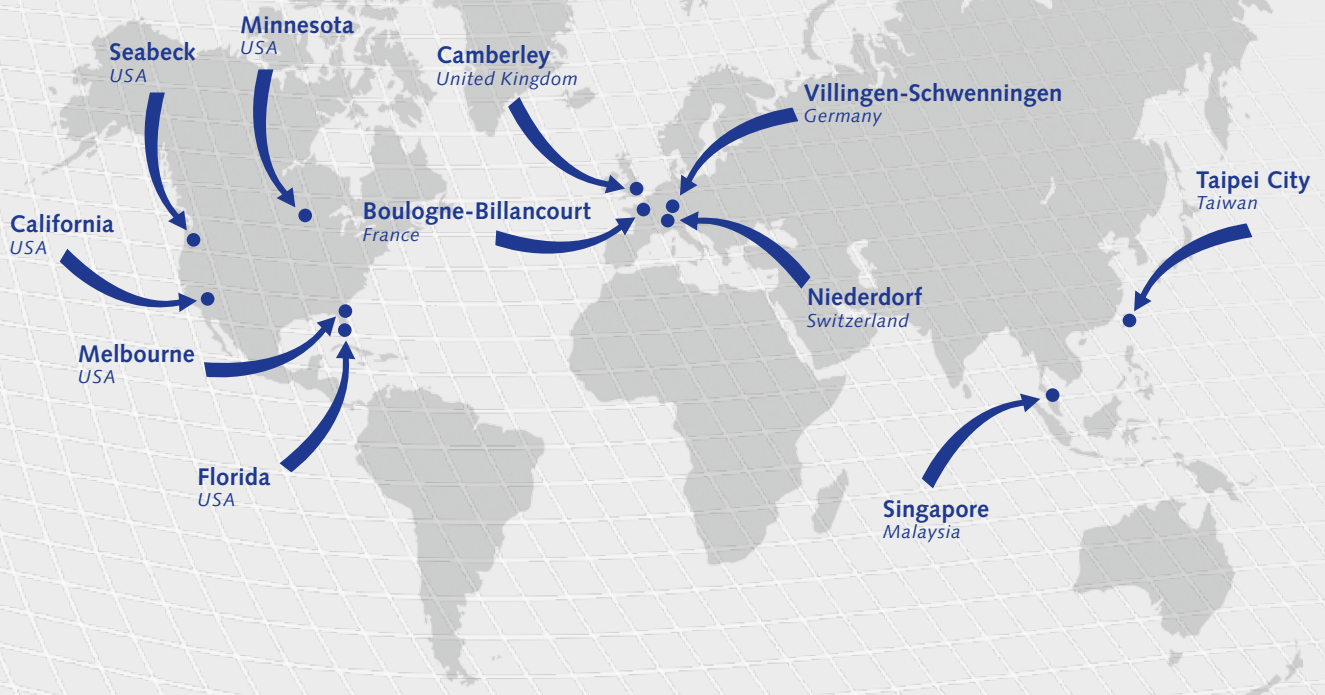
E-Mail california@jauchusa.com



The specialists for batteries since 1976
Innovation – Quality – Capability



“We are represented worldwide with offices in major electronic locations, all of whom follow the same ground principals.”



Dear Customers,

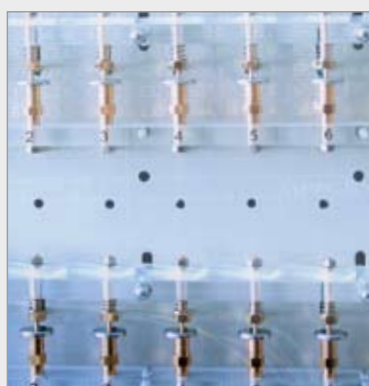
JAUCH has been a global partner of industry and retail for battery products for more than 30 years now: From the smallest button cell to lead rechargeable batteries or larger recharger packs – its comprehensive portfolio combines standard products from most renowned manufacturers with individual application-specific solutions – tailored precisely to you and your requirements.

Irrespective of whether you require specially packed industry cells or would like your own logo on blister packs – we would be pleased to advise you and implement your ideas. Why not see for yourself! You will find comprehensive information in our catalog.

We look forward to hearing from you.

Yours sincerely

Daniel Panzini



"We are international"



Service partner with great energy potential

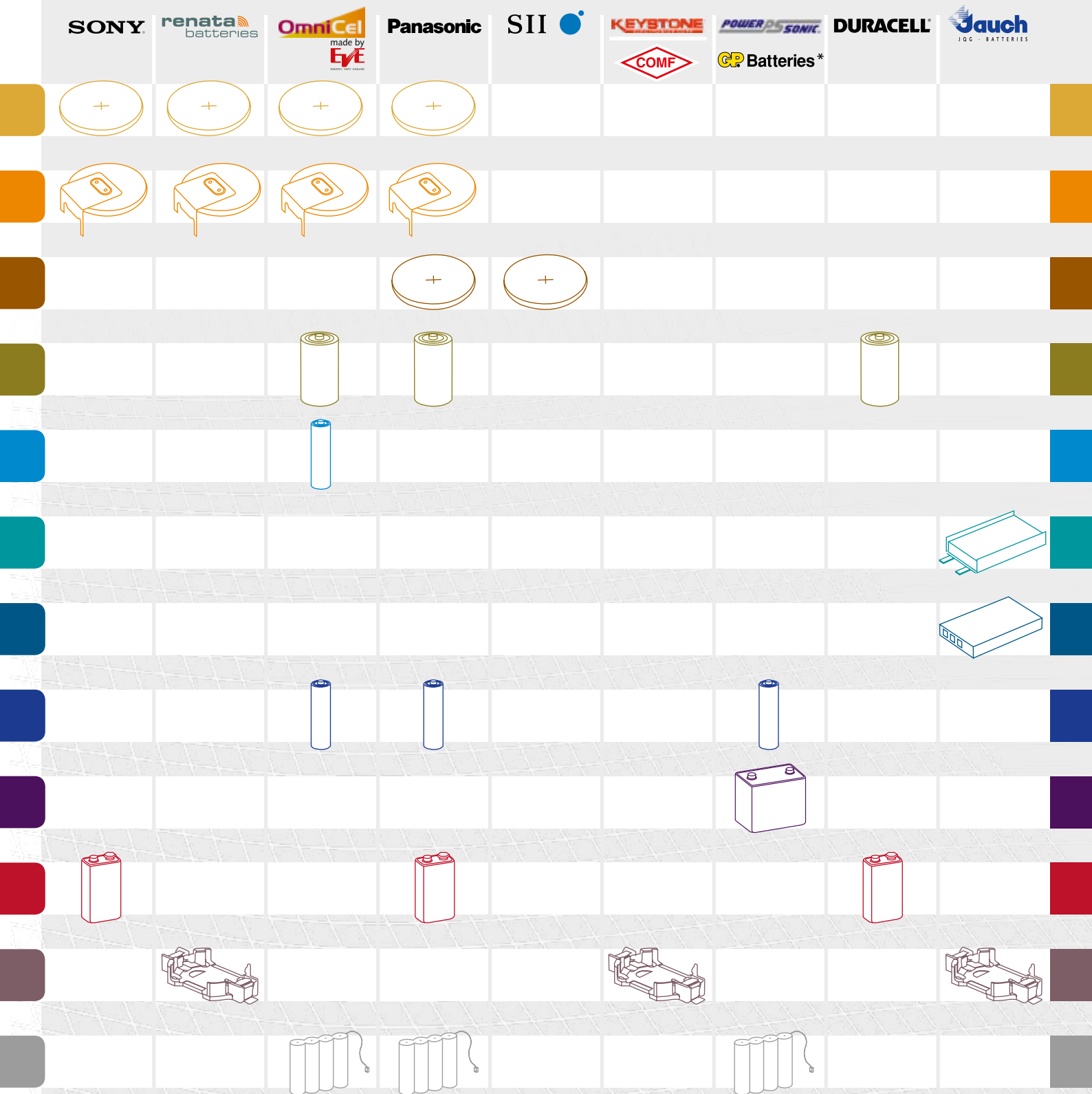
JAUCH QUARTZ GmbH, which was founded in 1954, is one of the world's leading producers of quartz Crystals & Oscillators. Furthermore, the company, whom are from the Black Forest has been a competent battery partner of trade and industry since 1976. Renowned clients from all over the world put their faith in JAUCH BATTERIES. As a direct distributor of virtually all major battery brands, JAUCH BATTERIES also puts its faith in quality, delivery speed, efficiency and adherence to deadlines. These characteristics contribute to the continuing success of the Batteries business unit.

JAUCH is a modern company that can look back at more than 55 years of success. Since it was established in 1954, quality, innovation, progress and partnership have continued to form the cornerstone of the company. These are supplemented by certified top quality, high delivery capacity, thorough consulting and comprehensive service – characteristics that make JAUCH BATTERIES an ideal partner for the electronics industry.















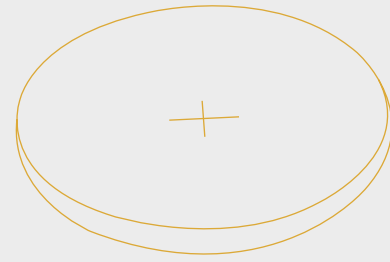
All products at a glance

As a specialist for batteries, JAUCH BATTERIES supplies industry at international level. The company convinces its partners here with a comprehensive scope of supply. From the small button cell to the heavy lead recharger, it provides high-quality products for every requirement.



* Ni-MH Batteries: Coin Cells

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Lithium Coin Cells, 3 V – Li/MnO₂

1. High Energy Density

It is about 3 to 10 times more energy density than any other battery. The energy density of Li/MnO₂ battery is up to 370Wh/kg and above.

2. High and Stable Operating Voltage

CR Series >3.0V

3. Wide Operating Current Range

To ensure the ten years service life, the cell operating current is merely at a few microamperes. On the other hand, JAUCH also offers a wide range of options for varied needs; we can also provide the cells with pulse current up to several mAh.

4. Wide Operating Temperature Range

For different cell types and under different operating current and applications, the operating temperature endures from -40°C to +85°C.

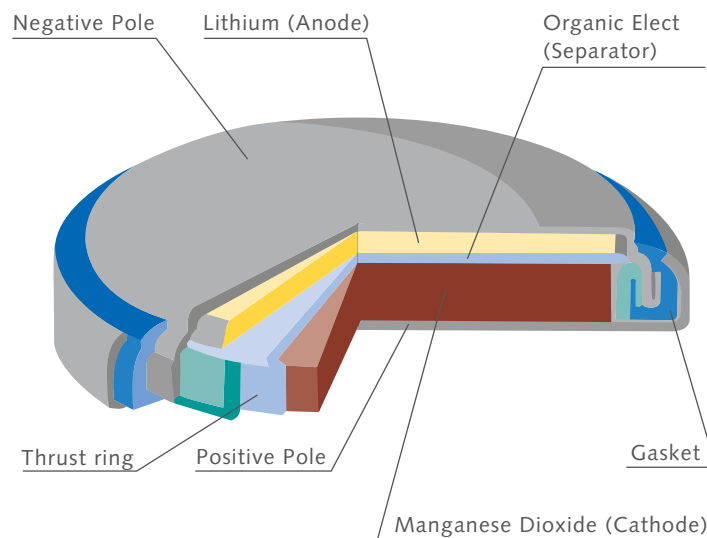
5. Shelf Life

Low self discharge of less than 1 % per year at 25°C and up to 10 years at 25°C shelf life.

Range of applications:

- Remote controlled car keys
- Electric thermometers
- Electric medical equipment
- Keyless entry systems
- Back-up for Computers
- Clocks and watches

Construction of Li/MnO₂-Coin Cell



Lithium Coin Cells, 3V

SONY

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -30 °C to +70 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



Product	Type	Voltage	Capacity	Diameter	Height	Weight
CR1216	Li/MnO ₂	3V	30mAh	12.5 mm	1.6 mm	0.7 g
CR1220	Li/MnO ₂	3V	40mAh	12.5 mm	1.6 mm	1.2 g
CR1616	Li/MnO ₂	3V	60mAh	16.0 mm	1.6 mm	1.1 g
CR1620	Li/MnO ₂	3V	78mAh	16.0 mm	2.0 mm	1.2 g
CR2016	Li/MnO ₂	3V	90mAh	20.0 mm	1.6 mm	1.7 g
CR2025	Li/MnO ₂	3V	160mAh	20.0 mm	2.5 mm	2.4 g
CR2032	Li/MnO ₂	3V	220mAh	20.0 mm	3.2 mm	3.2 g
CR2430	Li/MnO ₂	3V	300mAh	24.5 mm	3.0 mm	4.6 g
CR2450	Li/MnO ₂	3V	610mAh	24.5 mm	5.0 mm	6.8 g
CR2477	Li/MnO ₂	3V	1,000mAh	24.5 mm	7.7 mm	10.0 g

Lithium Coin Cells, 3V

OmniCel

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -20 °C to +70 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Li/MnO₂:** off-load voltage 3.5 to 3.0 Volt. Typical load voltage 2.9 Volt.

made by
EVE
ENERGY VERY ENDURE



Product	Type	Voltage	Capacity	Diameter	Height	Weight
CR1025	Li/MnO ₂	3V	30mAh	10.0 mm	2.5 mm	0.7 g
CR1130	Li/MnO ₂	3V	40mAh	11.6 mm	3.0 mm	0.7 g
CR1216	Li/MnO ₂	3V	25mAh	12.5 mm	1.6 mm	0.7 g
CR1220	Li/MnO ₂	3V	40mAh	12.5 mm	2.0 mm	1.2 g
CR1225	Li/MnO ₂	3V	48mAh	12.5 mm	2.5 mm	1.0 g
CR1616	Li/MnO ₂	3V	50mAh	16.0 mm	1.6 mm	1.2 g
CR1620	Li/MnO ₂	3V	68mAh	16.0 mm	2.0 mm	1.3 g
CR1625	Li/MnO ₂	3V	90mAh	16.0 mm	2.5 mm	1.4 g
CR1632	Li/MnO ₂	3V	125mAh	16.0 mm	3.2 mm	1.8 g
CR2016	Li/MnO ₂	3V	80mAh	20.0 mm	1.6 mm	1.6 g
CR2025	Li/MnO ₂	3V	140mAh	20.0 mm	2.5 mm	2.5 g
CR2032	Li/MnO ₂	3V	225mAh	20.0 mm	3.2 mm	3.1 g
CR2320	Li/MnO ₂	3V	150mAh	23.0 mm	2.0 mm	3.0 g
CR2330	Li/MnO ₂	3V	250mAh	23.0 mm	3.0 mm	4.0 g
CR2430	Li/MnO ₂	3V	280mAh	24.5 mm	3.0 mm	4.5 g
CR2450	Li/MnO ₂	3V	600mAh	24.5 mm	5.0 mm	6.3 g
CR2477	Li/MnO ₂	3V	850mAh	24.5 mm	7.7 mm	10.5 g
CR3032	Li/MnO ₂	3V	500mAh	30.0 mm	3.2 mm	7.1 g

Lithium Coin Cells, 3V



- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40 °C to +85 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Li/MnO₂:** off-load voltage 3.5 to 3.0 Volt. Typical load voltage 2.9 Volt.



Product	Type	Voltage	Capacity	Diameter	Height	Weight
CR1025	Li/MnO ₂	3V	30 mAh	10.0 mm	2.5 mm	0.6 g
CR1216	Li/MnO ₂	3V	25 mAh	12.5 mm	1.6 mm	0.7 g
CR1220	Li/MnO ₂	3V	38 mAh	12.5 mm	2.0 mm	0.8 g
CR1225	Li/MnO ₂	3V	48 mAh	12.5 mm	2.5 mm	0.9 g
CR1616	Li/MnO ₂	3V	50 mAh	16.0 mm	1.6 mm	1.1 g
CR1620	Li/MnO ₂	3V	68 mAh	16.0 mm	2.0 mm	1.2 g
CR1632	Li/MnO ₂	3V	125 mAh	16.0 mm	3.2 mm	1.8 g
CR2016	Li/MnO ₂	3V	80 mAh	20.0 mm	1.6 mm	1.7 g
CR2016MFR*	Li/MnO ₂	3V	90 mAh	20.0 mm	1.6 mm	1.7 g
CR2025	Li/MnO ₂	3V	170 mAh	20.0 mm	2.5 mm	2.3 g
CR2025MFR*	Li/MnO ₂	3V	165 mAh	20.0 mm	2.5 mm	2.3 g
CR2032	Li/MnO ₂	3V	235 mAh	20.0 mm	3.2 mm	2.8 g
CR2032MFR*	Li/MnO ₂	3V	225 mAh	20.0 mm	3.2 mm	2.8 g
CR2320	Li/MnO ₂	3V	170 mAh	23.0 mm	2.0 mm	2.7 g
CR2325	Li/MnO ₂	3V	190 mAh	23.0 mm	2.5 mm	3.0 g
CR2430	Li/MnO ₂	3V	285 mAh	24.5 mm	3.0 mm	4.1 g
CR2450N	Li/MnO ₂	3V	540 mAh	24.5 mm	5.0 mm	5.9 g
CR2477N	Li/MnO ₂	3V	950 mAh	24.5 mm	7.7 mm	8.2 g

*MFR = Operating Temperature -30/+60 °C

In applications where the battery is exposed to temperatures above 70 °C, please contact JAUCH for consultancy.

Lithium Coin Cells, 3V

Panasonic
Panasonic CR

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -30°C to +60°C
- **Self Discharge:** at 25°C less than 1% per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 to 3.0 Volt. Typical load voltage 2.9 Volt.



Product	Type	Voltage	Capacity	Diameter	Height	Weight
CR1025	Li/MnO ₂	3V	30 mAh	10.0 mm	2.5 mm	0.7 g
CR1216	Li/MnO ₂	3V	25 mAh	12.5 mm	1.6 mm	0.7 g
CR1220	Li/MnO ₂	3V	35 mAh	12.5 mm	2.0 mm	1.2 g
CR1612	Li/MnO ₂	3V	40 mAh	16.0 mm	1.2 mm	0.8 g
CR1616	Li/MnO ₂	3V	55 mAh	16.0 mm	1.6 mm	1.2 g
CR1620	Li/MnO ₂	3V	75 mAh	16.0 mm	2.0 mm	1.3 g
CR1632	Li/MnO ₂	3V	125 mAh	16.0 mm	3.2 mm	1.8 g
CR2012	Li/MnO ₂	3V	55 mAh	20.0 mm	1.2 mm	1.4 g
CR2016	Li/MnO ₂	3V	90 mAh	20.0 mm	1.6 mm	1.6 g
CR2025	Li/MnO ₂	3V	165 mAh	20.0 mm	2.5 mm	2.5 g
CR2032	Li/MnO ₂	3V	220 mAh	20.0 mm	3.2 mm	3.1 g
CR2320	Li/MnO ₂	3V	130 mAh	23.0 mm	2.0 mm	3.0 g
CR2330	Li/MnO ₂	3V	265 mAh	23.0 mm	3.0 mm	4.0 g
CR2354	Li/MnO ₂	3V	560 mAh	23.0 mm	5.4 mm	5.9 g
CR2412	Li/MnO ₂	3V	100 mAh	24.5 mm	1.2 mm	2.0 g
CR2450	Li/MnO ₂	3V	620 mAh	24.5 mm	5.0 mm	6.3 g
CR2477	Li/MnO ₂	3V	1,000 mAh	24.5 mm	7.7 mm	10.5 g
CR3032	Li/MnO ₂	3V	500 mAh	30.0 mm	3.2 mm	7.1 g

Lithium Coin Cells, 3V

Panasonic
Panasonic BR

- **Chemical System:** Poly Carbonmonofluoride
- **Temperature Range:** -30°C bis +80°C
- **Self Discharge:** at 25°C less than 1% per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.2–3.0 Volt. Typical load voltage 3.1–2.5 Volt.



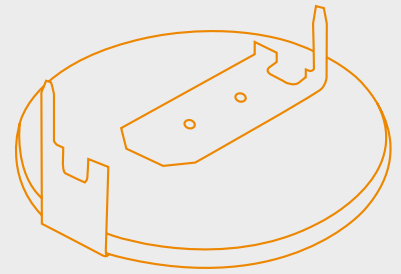
Product	Type	Voltage	Capacity	Diameter	Height	Weight
BR1220	Li/(CF)n	3V	35 mAh	12.5 mm	2.5 mm	0.8 g
BR1225	Li/(CF)n	3V	48 mAh	12.5 mm	2.5 mm	0.8 g
BR1632	Li/(CF)n	3V	120 mAh	16.0 mm	3.2 mm	1.5 g
BR2032	Li/(CF)n	3V	190 mAh	20.0 mm	3.2 mm	2.5 g
BR2325	Li/(CF)n	3V	165 mAh	23.0 mm	2.5 mm	3.2 g
BR2330	Li/(CF)n	3V	255 mAh	23.0 mm	3.0 mm	3.2 g
BR3032	Li/(CF)n	3V	500 mAh	30.0 mm	3.2 mm	5.5 g

Lithium Coin Cells with solder tabs

JAUCH BATTERIES offers you a wide range of options for your individual battery.

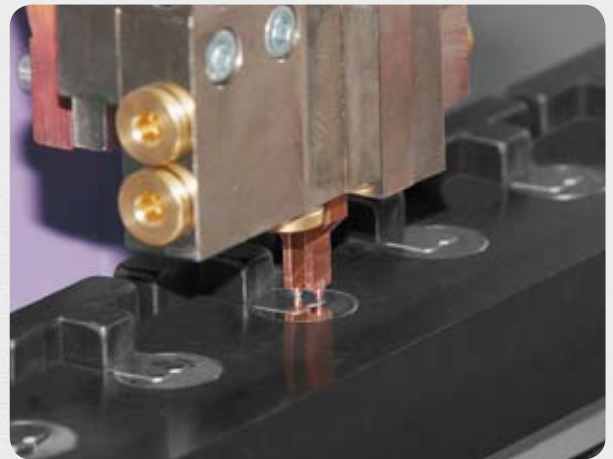
On coin cells, soldering tags can be mounted horizontal as well as vertical. The complete Lithium coin cell range can be fitted with soldering tabs, also with the development of special packs.

Fast delivery times and highest flexibility. JAUCH reacts to the technical requirements. Of today and tomorrow.

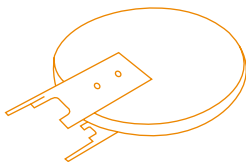


Range of applications:

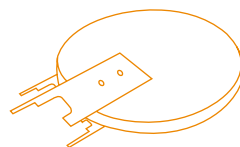
- Remote controlled car keys
- Electric thermometers
- Electric medical equipment
- Keyless entry systems
- Back-up for Computers
- Clocks and watches



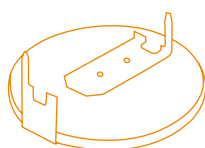
vertical 2 Pins



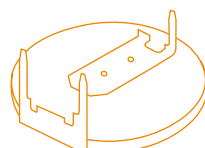
vertical 3 Pins



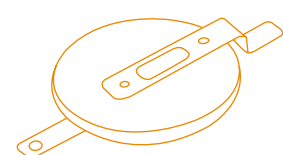
horizontal 2 Pins



horizontal 3 Pins



horizontal SMD



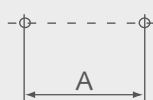
Lithium Coin Cells with Tabs, 3V

SONY®

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -30 °C to +70 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



horizontal 2 Pins

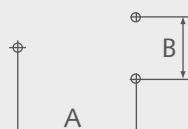


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
CR2025-T02Y	Li/MnO ₂	3 V	160 mAh	20.0 mm	5.4 mm	2.6 g	27.1 mm	
CR2032-H01Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	9.9 mm	3.2 g	20.5 mm	Insulation Wrap
CR2032-HC2HY	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.8 mm	3.2 g	15.2 mm	Insulation Wrap
CR2032-HC3HY	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.8 mm	3.2 g	20.5 mm	Insulation Wrap
CR2032-HO3Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.8 mm	3.2 g	18.5 mm	
CR2032-HO4Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.7 mm	3.2 g	20.5 mm	Insulation Wrap
CR2032-HO8Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.7 mm	3.2 g	18.5 mm	
CR2032-HO9Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.7 mm	3.2 g	17.8 mm	
CR2450-HJ3Y	Li/MnO ₂	3 V	610 mAh	24.5 mm	6.5 mm	6.1 g	20.5 mm	
CR2450-HO1Y	Li/MnO ₂	3 V	610 mAh	24.5 mm	7.1 mm	6.1 g	20.5 mm	
CR2450-HO3Y	Li/MnO ₂	3 V	610 mAh	24.5 mm	9.6 mm	6.1 g	20.5 mm	
CR2477-HO1Y	Li/MnO ₂	3 V	1,000 mAh	24.5 mm	9.6 mm	8.4 g	20.5 mm	



horizontal 3 Pins

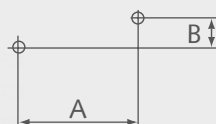


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR2032-HE2Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.7 mm	3.0 g	15.2 mm	10.1 mm
CR2032-HE4Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	4.7 mm	3.2 g	17.8 mm	10.1 mm
CR2430-HE4Y	Li/MnO ₂	3 V	300 mAh	24.5 mm	4.75 mm	4.3 g	17.8 mm	10.1 mm
CR2450-HE3Y	Li/MnO ₂	3 V	610 mAh	24.5 mm	6.5 mm	6.1 g	20.5 mm	10.1 mm
CR2450-HE4Y	Li/MnO ₂	3 V	610 mAh	24.5 mm	6.5 mm	6.1 g	17.8 mm	10.1 mm
CR2477-HE5Y	Li/MnO ₂	3 V	1,000 mAh	24.5 mm	9.5 mm	8.4 g	20.5 mm	10.1 mm



vertical 2 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
CR1220-VJ2HY	Li/MnO ₂	3 V	40 mAh	13.0 mm	14.0 mm	1.2 g	3.8 mm	0.0 mm	Insulation Wrap
CR2032-VO4Y	Li/MnO ₂	3 V	220 mAh	20.0 mm	21.0 mm	3.2 g	10.2 mm	3.5 mm	Insulation Wrap
CR2032-VJ2H	Li/MnO ₂	3 V	220 mAh	20.0 mm	21.0 mm	3.2 g	10.0 mm	3.5 mm	Insulation Wrap
CR2450-VO1Y	Li/MnO ₂	3 V	610 mAh	24.5 mm	26.0 mm	6.1 g	9.2 mm	5.5 mm	

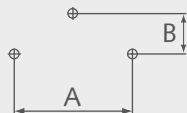
Lithium Coin Cells with Tabs, 3V

SONY

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -30°C to +70°C
- **Self Discharge:** at 25°C less than 1% per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



vertical 3 Pins

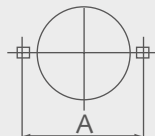


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
CR2032-VE1HY	Li/MnO ₂	3 V	220 mAh	21.0 mm	21.0 mm	3.2 g	10.2 mm	3.5 mm	Insulation Wrap
CR2450-VE1Y	Li/MnO ₂	3 V	610 mAh	24.5 mm	28.5 mm	6.1 g	10.2 mm	5.3 mm	



horizontal SMD



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
CR1616-TO1Y	Li/MnO ₂	3 V	60 mAh	16.0 mm	2.2 mm	1.2 g	20.0 mm	
CR2032-TO3Y	Li/MnO ₂	3 V	220 mAh	21.0 mm	3.85 mm	3.2 g	26.0 mm	Insulation Wrap
CR2032-TO4Y	Li/MnO ₂	3 V	220 mAh	21.0 mm	3.85 mm	3.2 g	7.45 mm	Insulation Wrap

Lithium Coin Cells with Tabs, 3 V

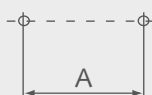
OmniCel

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EVE
ENERGY VERY ENDURE

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -20 °C to +70 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



horizontal 2 Pins

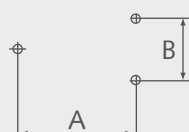


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
CR1220/CW	Li/MnO ₂	3 V	40 mAh	12.5 mm	3.7 mm	1.0 g	10.0 mm	Insulation Wrap
CR1225/EW	Li/MnO ₂	3 V	48 mAh	12.5 mm	4.7 mm	1.1 g	10.0 mm	
CR1632/AW	Li/MnO ₂	3 V	125 mAh	16.0 mm	6.0 mm	2.0 g	15.2 mm	
CR1632/AWX	Li/MnO ₂	3 V	125 mAh	16.0 mm	4.4 mm	2.0 g	15.2 mm	Insulation Wrap
CR2016/CW3	Li/MnO ₂	3 V	80 mAh	20.0 mm	2.0 mm	1.9 g	4.0 mm	
CR2032/AKW	Li/MnO ₂	3 V	225 mAh	20.0 mm	5.1 mm	3.0 g	20.5 mm	Insulation Wrap
CR2032/AW	Li/MnO ₂	3 V	225 mAh	20.0 mm	5.1 mm	3.0 g	15.2 mm	Insulation Wrap
CR2032/BW	Li/MnO ₂	3 V	225 mAh	20.0 mm	10.8 mm	3.0 g	20.5 mm	Insulation Wrap
CR2032/DW	Li/MnO ₂	3 V	225 mAh	20.0 mm	4.8 mm	3.0 g	18.5 mm	
CR2325/EGW2	Li/MnO ₂	3 V	190 mAh	23.0 mm	7.4 mm	3.2 g	20.5 mm	Insulation Wrap
CR2325/EW2	Li/MnO ₂	3 V	190 mAh	23.0 mm	4.9 mm	3.2 g	20.5 mm	Insulation Wrap
CR2330/BW	Li/MnO ₂	3 V	250 mAh	23.0 mm	6.5 mm	3.8 g	20.5 mm	Insulation Wrap
CR2354/DW	Li/MnO ₂	3 V	500 mAh	23.0 mm	9.5 mm	5.9 g	20.5 mm	Insulation Wrap
CR2450/DWX	Li/MnO ₂	3 V	600 mAh	24.5 mm	5.0 mm	6.1 g	20.5 mm	Insulation Wrap
CR2477/DW	Li/MnO ₂	3 V	850 mAh	24.5 mm	7.0 mm	8.4 g	20.5 mm	Insulation Wrap



horizontal 3 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR2032/CKW	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.2 mm	3.0 g	17.8 mm	10.16 mm
CR2032/HW	Li/MnO ₂	3 V	225 mAh	20.0 mm	5.1 mm	3.0 g	20.5 mm	7.5 mm
CR2325/HW	Li/MnO ₂	3 V	190 mAh	23.0 mm	4.4 mm	3.2 g	20.5 mm	7.5 mm
CR2330/CKW	Li/MnO ₂	3 V	250 mAh	23.0 mm	6.0 mm	3.8 g	17.8 mm	10.16 mm
CR2354/CKW	Li/MnO ₂	3 V	500 mAh	23.0 mm	7.0 mm	5.9 g	17.8 mm	10.16 mm
CR2450/CKWX	Li/MnO ₂	3 V	600 mAh	24.5 mm	7.0 mm	6.1 g	17.8 mm	10.16 mm

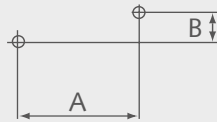
Lithium Coin Cells with Tabs, 3 V



- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -20°C to +70°C
- **Self Discharge:** at 25°C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



vertical 2 Pins

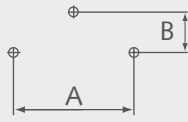


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
CR1220/OP	Li/MnO ₂	3 V	40 mAh	12.5 mm	14.0 mm	1.0 g	3.25 mm	2.5 mm	Insulation Wrap
CR1225/OP	Li/MnO ₂	3 V	48 mAh	12.5 mm	14.0 mm	1.1 g	3.25 mm	3.0 mm	Insulation Wrap
CR2032/EP1	Li/MnO ₂	3 V	235 mAh	20.0 mm	21.5 mm	3.0 g	10.7 mm	3.9 mm	
CR2330/EP1	Li/MnO ₂	3 V	250 mAh	23.0 mm	24.5 mm	3.8 g	9.7 mm	3.9 mm	
CR2330/EP1W	Li/MnO ₂	3 V	250 mAh	23.0 mm	24.5 mm	3.8 g	9.7 mm	0.0 mm	Insulation Wrap
CR2354/VP1	Li/MnO ₂	3 V	560 mAh	23.0 mm	24.5 mm	5.9 g	9.2 mm	6.1 mm	Insulation Wrap
CR2450/VP1	Li/MnO ₂	3 V	550 mAh	24.5 mm	5.0 mm	6.1 g	8.0 mm	5.7 mm	Insulation Wrap
CR2477/VP1	Li/MnO ₂	3 V	850 mAh	24.5 mm	25.5 mm	8.4 g	9.2 mm	8.4 mm	Insulation Wrap
CR3032/VP1	Li/MnO ₂	3 V	500 mAh	30.0 mm	31.5 mm	7.1 g	9.2 mm	3.9 mm	Insulation Wrap



vertical 3 Pins

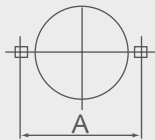


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR2032/CKP	Li/MnO ₂	3 V	235 mAh	20.0 mm	24.0 mm	3.0 g	10.16 mm	3.9 mm
CR2325/GP	Li/MnO ₂	3 V	190 mAh	23.0 mm	26.0 mm	3.2 g	15.24 mm	5.1 mm
CR2330/CKP	Li/MnO ₂	3 V	250 mAh	23.0 mm	24.5 mm	3.8 g	10.16 mm	3.7 mm



horizontal SMD



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
CR1616/LW1	Li/MnO ₂	3 V	50 mAh	16.0 mm	1.9 mm	1.3 g	27.5 mm	Insulation Wrap
CR2016/LW1	Li/MnO ₂	3 V	80 mAh	20.0 mm	1.95 mm	1.9 g	28.2 mm	Insulation Wrap
CR2025/LW1X	Li/MnO ₂	3 V	170 mAh	20.0 mm	3.2 mm	2.5 g	28.2 mm	Insulation Wrap
CR2032/LP1W1	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.8 mm	3.0 g	7.45 mm	
CR2032/LW1	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.8 mm	3.0 g	26.9 mm	Insulation Wrap
CR2330/LW1	Li/MnO ₂	3 V	250 mAh	23.0 mm	3.35 mm	4.0 g	29.3 mm	Insulation Wrap
CR3032/LW1	Li/MnO ₂	3 V	500 mAh	30.0 mm	3.8 mm	7.1 g	35.0 mm	Insulation Wrap

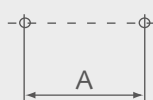
Lithium Coin Cells with Tabs, 3 V



- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40 °C to +85 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



horizontal 2 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A
CR1216FH-LF	Li/MnO ₂	3 V	25 mAh	12.5 mm	1.75 mm	0.9 g	11.0 mm
CR1220FH-LF	Li/MnO ₂	3 V	38 mAh	12.5 mm	2.15 mm	1.0 g	11.0 mm
CR1225FH-LF	Li/MnO ₂	3 V	48 mAh	12.5 mm	2.65 mm	1.1 g	11.0 mm
CR1616FH-LF	Li/MnO ₂	3 V	50 mAh	16.0 mm	1.75 mm	1.3 g	12.7 mm
CR1620FH-LF	Li/MnO ₂	3 V	68 mAh	16.0 mm	2.15 mm	1.4 g	12.7 mm
CR1632FH-LF	Li/MnO ₂	3 V	125 mAh	16.0 mm	3.25 mm	2.0 g	11.0 mm
CR1632FH1-LF	Li/MnO ₂	3 V	125 mAh	16.0 mm	3.25 mm	2.0 g	15.2 mm
CR2016FH MFR	Li/MnO ₂	3 V	90 mAh	20.0 mm	1.75 mm	1.9 g	15.2 mm
CR2016FH-LF	Li/MnO ₂	3 V	80 mAh	20.0 mm	1.75 mm	1.9 g	15.2 mm
CR2016FH1 MFR	Li/MnO ₂	3 V	90 mAh	20.0 mm	1.75 mm	1.9 g	20.4 mm
CR2016FH1-LF	Li/MnO ₂	3 V	80 mAh	20.0 mm	1.75 mm	1.9 g	20.4 mm
CR2025FH MFR	Li/MnO ₂	3 V	165 mAh	20.0 mm	2.65 mm	2.7 g	15.2 mm
CR2025FH-LF	Li/MnO ₂	3 V	170 mAh	20.0 mm	2.65 mm	2.5 g	15.2 mm
CR2025FH1 MFR	Li/MnO ₂	3 V	165 mAh	20.0 mm	2.65 mm	2.7 g	20.4 mm
CR2025FH1-LF	Li/MnO ₂	3 V	170 mAh	20.0 mm	2.65 mm	2.5 g	20.4 mm
CR2032FH MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.25 mm	3.0 g	15.2 mm
CR2032FH-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.25 mm	3.0 g	15.2 mm
CR2032FH0 MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.25 mm	3.0 g	10.35 mm
CR2032FH0-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.25 mm	3.0 g	10.35 mm
CR2032FH1 MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.25 mm	3.0 g	20.4 mm
CR2032FH1-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.25 mm	3.0 g	20.4 mm
CR2032FH2 MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.25 mm	3.0 g	22.5 mm
CR2032FH2-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.25 mm	3.0 g	22.5 mm
CR2325FH-LF	Li/MnO ₂	3 V	190 mAh	23.0 mm	2.65 mm	3.2 g	20.4 mm
CR2430FH-LF	Li/MnO ₂	3 V	285 mAh	24.5 mm	3.25 mm	4.3 g	20.4 mm
CR2430FH1-LF	Li/MnO ₂	3 V	285 mAh	24.5 mm	3.25 mm	4.3 g	15.2 mm
CR2450NFH-LF	Li/MnO ₂	3 V	540 mAh	24.5 mm	5.15 mm	6.1 g	20.4 mm
CR2477NFH-LF	Li/MnO ₂	3 V	950 mAh	24.5 mm	7.85 mm	8.4 g	20.4 mm

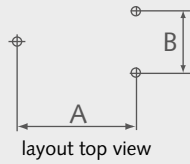
In applications where the battery is exposed to temperatures above 70 °C, please contact JAUCH for consultancy.

Lithium Coin Cells with Tabs, 3V

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40°C to +85°C
- **Self Discharge:** at 25°C less than 1% per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



horizontal 3 Pins



Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR1632RH-LF	Li/MnO ₂	3 V	125 mAh	16.0 mm	3.25 mm	2.0 g	15.2 mm	10.15 mm
CR2016RH MFR	Li/MnO ₂	3 V	90 mAh	20.0 mm	1.75 mm	2.0 g	15.2 mm	10.15 mm
CR2016RH-LF	Li/MnO ₂	3 V	80 mAh	20.0 mm	1.75 mm	2.0 g	15.2 mm	10.15 mm
CR2025RH MFR	Li/MnO ₂	3 V	165 mAh	20.0 mm	2.65 mm	2.6 g	15.2 mm	10.15 mm
CR2025RH -LF	Li/MnO ₂	3 V	170 mAh	20.0 mm	2.65 mm	2.6 g	15.2 mm	10.15 mm
CR2032RH MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.25 mm	3.1 g	15.2 mm	10.15 mm
CR2032RH-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.25 mm	3.1 g	15.2 mm	10.15 mm
CR2032RH1 MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.25 mm	3.1 g	17.8 mm	10.15 mm
CR2032RH1-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.25 mm	3.1 g	17.8 mm	10.15 mm
CR2032RH2 MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	3.25 mm	3.0 g	20.4 mm	10.15 mm
CR2032RH2-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	3.25 mm	3.0 g	20.4 mm	10.15 mm
CR2325RH-LF	Li/MnO ₂	3 V	190 mAh	23.0 mm	2.65 mm	3.3 g	17.8 mm	10.15 mm
CR2430RH-LF	Li/MnO ₂	3 V	285 mAh	24.5 mm	3.25 mm	4.4 g	17.8 mm	10.15 mm
CR2430RH1-LF	Li/MnO ₂	3 V	285 mAh	24.5 mm	3.25 mm	4.4 g	20.4 mm	10.15 mm
CR2450NRH-LF	Li/MnO ₂	3 V	540 mAh	24.5 mm	5.15 mm	6.2 g	17.8 mm	10.15 mm
CR2450NRH1-LF	Li/MnO ₂	3 V	540 mAh	24.5 mm	5.15 mm	6.2 g	20.4 mm	10.15 mm
CR2477NRH-LF	Li/MnO ₂	3 V	950 mAh	24.5 mm	7.85 mm	8.5 g	17.8 mm	10.15 mm

In applications where the battery is exposed to temperatures above 70°C, please contact JAUCH for consultancy.

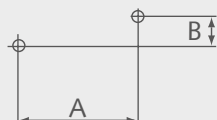
Lithium Coin Cells with Tabs, 3 V



- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40 °C to +85 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



vertical 2 Pins

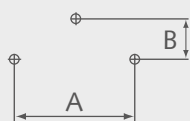


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR1025FV-LF	Li/MnO ₂	3 V	30 mAh	10.0 mm	11.0 mm	0.8 g	5.08 mm	2.8 mm
CR1025FV1-LF	Li/MnO ₂	3 V	30 mAh	10.0 mm	11.0 mm	0.8 g	5.08 mm	2.8 mm
CR1216FV-LF	Li/MnO ₂	3 V	25 mAh	12.5 mm	13.6 mm	0.9 g	5.08 mm	1.9 mm
CR1220FV-LF	Li/MnO ₂	3 V	38 mAh	12.5 mm	13.5 mm	1.0 g	5.08 mm	2.3 mm
CR1225FV-LF	Li/MnO ₂	3 V	48 mAh	12.5 mm	13.5 mm	1.1 g	5.08 mm	2.8 mm
CR1616FV-LF	Li/MnO ₂	3 V	50 mAh	16.0 mm	17.0 mm	1.3 g	5.08 mm	1.9 mm
CR1620FV-LF	Li/MnO ₂	3 V	68 mAh	16.0 mm	17.0 mm	1.4 g	5.08 mm	2.3 mm
CR1632FV-LF	Li/MnO ₂	3 V	125 mAh	16.0 mm	17.0 mm	2.0 g	5.08 mm	3.5 mm
CR2016FV MFR	Li/MnO ₂	3 V	90 mAh	20.0 mm	21.1 mm	2.0 g	10.5 mm	1.6 mm
CR2016FV-LF	Li/MnO ₂	3 V	80 mAh	20.0 mm	21.1 mm	2.0 g	10.5 mm	1.6 mm
CR2032FV MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	21.0 mm	3.0 g	10.5 mm	3.5 mm
CR2032FV-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	21.0 mm	3.0 g	10.5 mm	3.5 mm
CR2320FV-LF	Li/MnO ₂	3 V	150 mAh	23.0 mm	24.0 mm	2.9 g	10.5 mm	2.3 mm
CR2325FV-LF	Li/MnO ₂	3 V	190 mAh	23.0 mm	24.0 mm	3.2 g	10.5 mm	2.8 mm
CR2430FV-LF	Li/MnO ₂	3 V	285 mAh	24.5 mm	25.5 mm	4.3 g	10.5 mm	3.3 mm
CR2450NFV-LF	Li/MnO ₂	3 V	540 mAh	24.5 mm	25.5 mm	6.1 g	10.5 mm	5.8 mm
CR2477NFV-LF	Li/MnO ₂	3 V	950 mAh	24.5 mm	25.5 mm	8.4 g	10.5 mm	8.0 mm



vertical 3 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR2025RV MFR	Li/MnO ₂	3 V	165 mAh	20.0 mm	21.0 mm	2.8 g	10.15 mm	2.8 mm
CR2025RV-LF	Li/MnO ₂	3 V	170 mAh	20.0 mm	21.0 mm	2.6 g	10.15 mm	2.8 mm
CR2032RV MFR	Li/MnO ₂	3 V	225 mAh	20.0 mm	21.0 mm	3.1 g	10.15 mm	3.5 mm
CR2032RV-LF	Li/MnO ₂	3 V	235 mAh	20.0 mm	21.0 mm	3.1 g	10.15 mm	3.5 mm
CR2325RV-LF	Li/MnO ₂	3 V	190 mAh	23.0 mm	24.0 mm	3.3 g	10.15 mm	2.8 mm
CR2430RV-LF	Li/MnO ₂	3 V	285 mAh	24.5 mm	25.5 mm	4.4 g	10.15 mm	3.3 mm
CR2450NRV-LF	Li/MnO ₂	3 V	540 mAh	24.5 mm	25.5 mm	6.2 g	10.15 mm	5.3 mm
CR2477NRV-LF	Li/MnO ₂	3 V	950 mAh	24.5 mm	25.5 mm	8.5 g	10.15 mm	8.0 mm

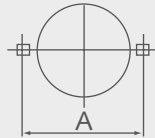
In applications where the battery is exposed to temperatures above 70 °C, please contact JAUCH for consultancy.

Lithium Coin Cells with Tabs, 3V

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40°C to +85°C
- **Self Discharge:** at 25°C less than 1% per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



horizontal SMD



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A
CR1025SM	Li/MnO ₂	3V	30mAh	10.0 mm	2.8 mm	0.8 g	14.0 mm
CR1216SM	Li/MnO ₂	3V	25mAh	12.5 mm	1.9 mm	0.9 g	17.0 mm
CR1220SM	Li/MnO ₂	3V	38mAh	12.5 mm	2.3 mm	1.0 g	17.0 mm
CR1225SM	Li/MnO ₂	3V	48mAh	12.5 mm	2.8 mm	1.1 g	17.0 mm
CR1616SM	Li/MnO ₂	3V	50mAh	16.0 mm	1.9 mm	1.3 g	21.0 mm
CR1620SM	Li/MnO ₂	3V	68mAh	16.0 mm	2.3 mm	1.4 g	21.0 mm
CR1632SM	Li/MnO ₂	3V	125mAh	16.0 mm	3.5 mm	2.0 g	21.0 mm
CR2016SM MFR	Li/MnO ₂	3V	90mAh	20.0 mm	1.9 mm	2.0 g	25.0 mm
CR2016SM	Li/MnO ₂	3V	80mAh	20.0 mm	1.9 mm	2.0 g	25.0 mm
CR2025SM MFR	Li/MnO ₂	3V	165mAh	20.0 mm	2.8 mm	2.5 g	25.0 mm
CR2025SM	Li/MnO ₂	3V	170mAh	20.0 mm	2.8 mm	2.5 g	25.0 mm
CR2032SM MFR	Li/MnO ₂	3V	225mAh	20.0 mm	3.5 mm	3.0 g	25.0 mm
CR2032SM	Li/MnO ₂	3V	235mAh	20.0 mm	3.5 mm	3.0 g	25.0 mm
CR2320SM	Li/MnO ₂	3V	150mAh	23.0 mm	2.3 mm	2.9 g	29.0 mm
CR2325SM	Li/MnO ₂	3V	190mAh	23.0 mm	2.8 mm	3.2 g	29.0 mm
CR2430SM	Li/MnO ₂	3V	285mAh	24.5 mm	3.3 mm	4.3 g	30.5 mm
CR2450SM	Li/MnO ₂	3V	540mAh	24.5 mm	5.3 mm	6.1 g	30.5 mm
CR2477SM	Li/MnO ₂	3V	950mAh	24.5 mm	8.0 mm	8.4 g	30.5 mm

In applications where the battery is exposed to temperatures above 70°C, please contact JAUCH for consultancy.

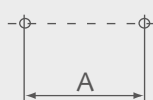
High Temperature Lithium Coin Cells with Tabs, 3 V



- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40 °C to +125 °C
- **Self Discharge:** less than 1 % per year at 23 °C
- **Storage Capability:** up to 100 °C
- **Shelf life:** up to 10 years at max. 23 °C, stable voltage during shelf life
- **Superior leakage resistance • Contains no heavy metals**



horizontal 2 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	
CR2450HTFH-LF	Li/MnO ₂	3 V	490 mAh	24.5 mm	5.15 mm	6.1 g	20.4 mm	



horizontal 3 Pins

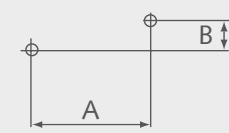


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR2450HTRH-LF	Li/MnO ₂	3 V	490 mAh	24.5 mm	5.15 mm	6.2 g	17.8 mm	10.15 mm
CR2450HTRH1-LF	Li/MnO ₂	3 V	490 mAh	24.5 mm	5.15 mm	6.2 g	20.4 mm	10.15 mm



vertical 2 Pins

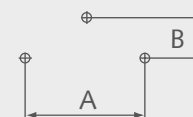


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR2450HTFV-LF	Li/MnO ₂	3 V	490 mAh	24.5 mm	25.6 mm	6.1 g	10.5 mm	5.3 mm



vertical 3 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B
CR2450HTRV-LF	Li/MnO ₂	3 V	490 mAh	24.5 mm	25.5 mm	6.2 g	10.15 mm	5.3 mm

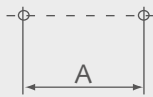
Lithium Coin Cells with Tabs, 3V

Panasonic
Panasonic CR

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -30 °C to +60 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Tabs:** SUS304/430=0.20 mm nickel plated, tin plated, lead free
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



horizontal 2 Pins

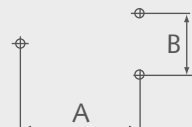


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
CR1220/1HE	Li/MnO ₂	3 V	35 mAh	12.5 mm	4.2 mm	1.0 g	10.0 mm	
CR1220/1HF	Li/MnO ₂	3 V	35 mAh	12.5 mm	4.2 mm	1.0 g	10.0 mm	Insulation Wrap
CR1632/1HF	Li/MnO ₂	3 V	125 mAh	16.0 mm	5.3 mm	2.0 g	15.2 mm	
CR2032/1HE	Li/MnO ₂	3 V	220 mAh	20.5 mm	5.6 mm	3.0 g	20.5 mm	
CR2032/1HF	Li/MnO ₂	3 V	220 mAh	20.5 mm	5.6 mm	3.0 g	20.5 mm	Insulation Wrap
CR2032/1HS	Li/MnO ₂	3 V	220 mAh	20.0 mm	5.6 mm	3.0 g	15.2 mm	Insulation Wrap
CR2032/1HSE	Li/MnO ₂	3 V	220 mAh	20.0 mm	5.6 mm	3.0 g	15.2 mm	
CR2330/1HE	Li/MnO ₂	3 V	265 mAh	23.0 mm	5.4 mm	3.8 g	20.5 mm	
CR2330/1HF	Li/MnO ₂	3 V	265 mAh	23.0 mm	5.4 mm	3.8 g	20.5 mm	Insulation Wrap
CR2354/1HE	Li/MnO ₂	3 V	560 mAh	23.0 mm	7.3 mm	5.8 g	20.5 mm	
CR2354/1HF	Li/MnO ₂	3 V	560 mAh	23.0 mm	7.3 mm	5.8 g	20.5 mm	Insulation Wrap
CR2450/H1A	Li/MnO ₂	3 V	620 mAh	24.5 mm	6.7 mm	5.9 g	20.5 mm	Insulation Wrap
CR2477/1HE	Li/MnO ₂	3 V	1,000 mAh	24.5 mm	9.6 mm	8.4 g	20.5 mm	
CR2477/1HF	Li/MnO ₂	3 V	1,000 mAh	24.0 mm	9.6 mm	8.4 g	20.5 mm	Insulation Wrap



horizontal 3 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
CR2032/1GU	Li/MnO ₂	3 V	220 mAh	20.0 mm	5.6 mm	3.1 g	17.8 mm	10.16 mm	
CR2032/1GUF	Li/MnO ₂	3 V	220 mAh	20.0 mm	5.6 mm	3.1 g	17.8 mm	10.16 mm	Insulation Wrap
CR2032/1HG	Li/MnO ₂	3 V	220 mAh	20.0 mm	5.6 mm	3.0 g	20.5 mm	7.5 mm	
CR2330/1GUF	Li/MnO ₂	3 V	265 mAh	23.0 mm	5.4 mm	3.8 g	17.8 mm	10.16 mm	Insulation Wrap
CR2354/1GU	Li/MnO ₂	3 V	560 mAh	23.0 mm	6.8 mm	5.9 g	17.8 mm	10.16 mm	
CR2354/1GUF	Li/MnO ₂	3 V	560 mAh	23.0 mm	6.8 mm	5.9 g	17.8 mm	10.16 mm	Insulation Wrap
CR2450/G1A	Li/MnO ₂	3 V	620 mAh	24.5 mm	7.2 mm	5.9 g	17.8 mm	10.2 mm	Insulation Wrap

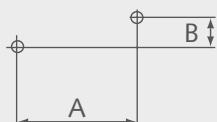
Lithium Coin Cells with Tabs, 3 V

Panasonic
Panasonic CR

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -30 °C to +60 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Tabs:** SUS304/430=0.20 mm nickel plated, tin plated, lead free
- **Li/MnO₂:** off-load voltage 3.5 Volt to 3.0 Volt. Typical load voltage 2.9 Volt.



vertical 2 Pins

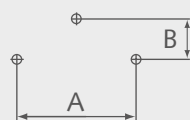


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
CR1220/1VB	Li/MnO ₂	3 V	35 mAh	12.5 mm	16.0 mm	1.0 g	3.25 mm	2.5 mm	
CR1220/1VC	Li/MnO ₂	3 V	35 mAh	12.5 mm	16.0 mm	1.0 g	3.25 mm	2.5 mm	Insulation Wrap
CR2032/1VB	Li/MnO ₂	3 V	220 mAh	20.0 mm	21.5 mm	3.0 g	10.7 mm	3.9 mm	
CR2032/1VS1	Li/MnO ₂	3 V	220 mAh	20.0 mm	20.5 mm	3.0 g	10.2 mm	3.9 mm	Insulation Wrap
CR2330/1F4C	Li/MnO ₂	3 V	265 mAh	23.0 mm	23.5 mm	3.8 g	9.65 mm	0.0 mm	Insulation Wrap
CR2330/1VB	Li/MnO ₂	3 V	265 mAh	23.1 mm	23.3 mm	3.8 g	9.65 mm	3.9 mm	
CR2330/1VC	Li/MnO ₂	3 V	265 mAh	23.1 mm	23.3 mm	3.8 g	9.65 mm	3.9 mm	Insulation Wrap
CR2354/1VB	Li/MnO ₂	3 V	560 mAh	23.0 mm	24.5 mm	5.8 g	9.2 mm	6.1 mm	
CR2354/1VC	Li/MnO ₂	3 V	560 mAh	23.0 mm	24.5 mm	5.8 g	9.2 mm	6.1 mm	Insulation Wrap
CR2477/1VB	Li/MnO ₂	3 V	1,000 mAh	24.5 mm	25.5 mm	8.4 g	9.2 mm	8.4 mm	
CR2477/1VC	Li/MnO ₂	3 V	1,000 mAh	24.5 mm	25.5 mm	8.4 g	9.2 mm	8.4 mm	Insulation Wrap
CR3032/1VC	Li/MnO ₂	3 V	500 mAh	30.0 mm	31.5 mm	7.1 g	9.2 mm	3.9 mm	Insulation Wrap



vertical 3 Pins

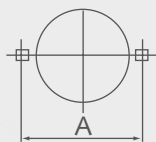


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
CR2032/1GV	Li/MnO ₂	3 V	220 mAh	20.0 mm	23.0 mm	3.1 g	10.16 mm	3.9 mm	
CR2032/1GVF	Li/MnO ₂	3 V	220 mAh	20.0 mm	23.0 mm	3.1 g	10.16 mm	3.9 mm	Insulation Wrap
CR2330/1GV	Li/MnO ₂	3 V	265 mAh	23.0 mm	24.5 mm	3.8 g	10.16 mm	3.7 mm	
CR2330/1GVF	Li/MnO ₂	3 V	220 mAh	23.0 mm	24.5 mm	3.8 g	10.16 mm	3.7 mm	Insulation Wrap



horizontal SMD



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
CR1616/1F2	Li/MnO ₂	3 V	55 mAh	16.0 mm	1.6 mm	1.1 g	22.0 mm	Insulation Wrap
CR2016/1F2	Li/MnO ₂	3 V	90 mAh	20.0 mm	2.0 mm	1.3 g	36.8 mm	Insulation Wrap
CR2025/1F2	Li/MnO ₂	3 V	165 mAh	20.0 mm	3.2 mm	2.5 g	34.8 mm	Insulation Wrap
CR2032/1F2	Li/MnO ₂	3 V	220 mAh	20.0 mm	3.8 mm	3.0 g	34.0 mm	Insulation Wrap
CR2330/1F3	Li/MnO ₂	3 V	265 mAh	23.0 mm	3.35 mm	3.8 g	35.6 mm	Insulation Wrap
CR3032/1F2	Li/MnO ₂	3 V	500 mAh	30.0 mm	3.8 mm	7.1 g	40.0 mm	Insulation Wrap

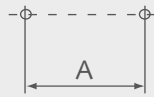
Lithium Coin Cells with Tabs, 3 V

Panasonic
Panasonic BR

- **Chemical System:** Poly Carbonmonofluoride (Li/(CF)n)
- **Temperature Range:** -30°C bis +80°C
- **Self Discharge:** at 25°C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Tabs:** SUS304/430=0.20 mm Nickel plated, tin plated, lead free
- **Li/(CF)n:** off-load voltage 3.2 –3.0 Volt. Typical load voltage 3.1 –2.5 Volt.



horizontal 2 Pins

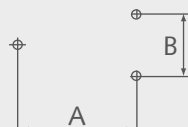


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
BR1220/1HE	Li/(CF)n	3 V	35 mAh	12.5 mm	4.2 mm	1.0 g	10.0 mm	
BR1220/1HF	Li/(CF)n	3 V	35 mAh	12.5 mm	4.2 mm	1.0 g	10.0 mm	Insulation Wrap
BR1225/1HB	Li/(CF)n	3 V	48 mAh	12.5 mm	4.7 mm	1.1 g	10.0 mm	
BR1225/1HC	Li/(CF)n	3 V	48 mAh	12.5 mm	4.7 mm	1.1 g	10.0 mm	Insulation Wrap
BR1632/1HF	Li/(CF)n	3 V	120 mAh	16.0 mm	5,3 mm	2.0 g	15.2 mm	
BR2032/1HE	Li/(CF)n	3 V	190 mAh	20.0 mm	5.6 mm	3.0 g	20.5 mm	
BR2032/1HF	Li/(CF)n	3 V	190 mAh	20.0 mm	5.6 mm	3.0 g	20.5 mm	Insulation Wrap
BR2032/1HM	Li/(CF)n	3 V	190 mAh	20.0 mm	10.8 mm	3.0 g	20.5 mm	Insulation Wrap
BR2032/1HS	Li/(CF)n	3 V	190 mAh	20.0 mm	5.6 mm	3.0 g	15.2 mm	Insulation Wrap
BR2032/1HSE	Li/(CF)n	3 V	190 mAh	20.0 mm	5.6 mm	3.0 g	15.2 mm	
BR2325/1HB	Li/(CF)n	3 V	165 mAh	23.0 mm	4.9 mm	3.2 g	20.5 mm	
BR2325/1HC	Li/(CF)n	3 V	165 mAh	23.0 mm	4.9 mm	3.0 g	20.5 mm	Insulation Wrap
BR2325/1VC	Li/(CF)n	3 V	165 mAh	23.0 mm	24.5 mm	3.2 g	11.45 mm	
BR2325/2HC	Li/(CF)n	3 V	165 mAh	23.0 mm	7.4 mm	3.2 g	20.5 mm	Insulation Wrap
BR2330/1HE	Li/(CF)n	3 V	255 mAh	23.0 mm	5.4 mm	3.8 g	20.5 mm	
BR2330/1HF	Li/(CF)n	3 V	255 mAh	23.0 mm	5.4 mm	3.8 g	20.5 mm	Insulation Wrap



horizontal 3 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
BR2032/1GU	Li/(CF)n	3 V	190 mAh	20.0 mm	5.6 mm	3.0 g	17.8 mm	10.16 mm	
BR2032/1GUF	Li/(CF)n	3 V	190 mAh	20.0 mm	5.6 mm	3.0 g	17.8 mm	10.16 mm	Insulation Wrap
BR2032/1HG	Li/(CF)n	3 V	190 mAh	20.0 mm	5.6 mm	3.0 g	20.5 mm	7.5 mm	
BR2325/1HG	Li/(CF)n	3 V	165 mAh	23.0 mm	4.9 mm	3.2 g	20.5 mm	7.5 mm	
BR2330/1GU	Li/(CF)n	3 V	255 mAh	23.0 mm	5.4 mm	3.8 g	17.8 mm	10.16 mm	
BR2330/1GUF	Li/(CF)n	3 V	255 mAh	23.0 mm	5.4 mm	3.8 g	17.8 mm	10.16 mm	Insulation Wrap

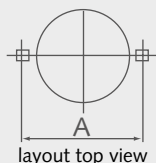
Lithium Coin Cells with Tabs, 3 V

Panasonic
Panasonic BR

- **Chemical System:** Poly Carbonmonofluoride (Li/(CF)n)
- **Temperature Range:** -30 °C bis +80 °C
- **Self Discharge:** at 25 °C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25 °C
- **Tabs:** SUS304/430=0.20 mm Nickel plated, tin plated, lead free
- **Li/(CF)n:** off-load voltage 3.2–3.0 Volt. Typical load voltage 3.1–2.5 Volt.



horizontal SMD

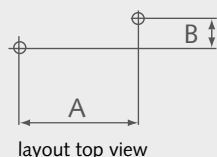


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
BR2032/1F2	Li/(CF)n	3 V	190 mAh	20.0 mm	3.8 mm	3.0 g	34.0 mm	Insulation Wrap
BR2032/1F4	Li/(CF)n	3 V	190 mAh	20.0 mm	3.8 mm	3.0 g	7.45 mm	Insulation Wrap
BR2330/1F3	Li/(CF)n	3 V	255 mAh	23.0 mm	3.35 mm	3.8 g	35.6 mm	Insulation Wrap
BR3032/1F2	Li/(CF)n	3 V	500 mAh	30.0 mm	3.8 mm	7.1 g	40.0 mm	Insulation Wrap



vertical 2 Pins

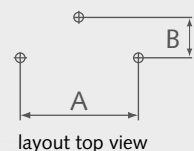


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
BR1220/1VB	Li/(CF)n	3 V	35 mAh	12.5 mm	16.0 mm	1.0 g	3.25 mm	2.5 mm	
BR1220/1VC	Li/(CF)n	3 V	35 mAh	12.5 mm	16.0 mm	1.0 g	3.25 mm	2.5 mm	Insulation Wrap
BR1225/1VC	Li/(CF)n	3 V	48 mAh	12.5 mm	14.0 mm	1.1 g	3.25 mm	3.0 mm	Insulation Wrap
BR2032/1VB	Li/(CF)n	3 V	190 mAh	20.0 mm	21.5 mm	3.0 g	10.7 mm	3.9 mm	
BR2325/1VC	Li/(CF)n	3 V	165 mAh	23.0 mm	24.5 mm	3.3 g	10.7 mm	3.0 mm	
BR2330/1F4C	Li/(CF)n	3 V	255 mAh	23.0 mm	23.5 mm	3.8 g	9.65 mm	0.0 mm	Insulation Wrap
BR2330/1VB	Li/(CF)n	3 V	255 mAh	23.1 mm	23.3 mm	3.8 g	9.65 mm	3.9 mm	
BR2330/1VC	Li/(CF)n	3 V	255 mAh	23.1 mm	23.3 mm	3.8 g	9.65 mm	3.9 mm	Insulation Wrap
BR3032/1VC	Li/(CF)n	3 V	500 mAh	30.0 mm	31.5 mm	7.1 g	9.2 mm	3.9 mm	Insulation Wrap



vertical 3 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
BR2032/1GVF	Li/(CF)n	3 V	190 mAh	20.0 mm	23.0 mm	3.0 g	10.16 mm	3.9 mm	Insulation Wrap
BR2325/1VG	Li/(CF)n	3 V	165 mAh	23.0 mm	26.0 mm	3.2 g	15.24 mm	5.1 mm	
BR2330/1GV	Li/(CF)n	3 V	255 mAh	23.0 mm	24.5 mm	3.8 g	10.16 mm	3.7 mm	
BR2330/1GVF	Li/(CF)n	3 V	255 mAh	23.0 mm	24.5 mm	3.8 g	10.16 mm	3.7 mm	Insulation Wrap

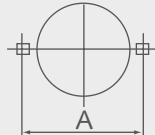
Lithium Coin Cells with Tabs, 3 V

Panasonic
Panasonic BR

- **Chemical System:** Poly Carbonmonofluoride (Li/(CF)n)
- **A wide operational temperature range:** -40 °C to +125 °C
- **Good storage stability** (max. 0.5 % loss at ambient T°)
- **Constant operating voltage**
- **Excellent leakage resistance**
- **Available with tab terminals for PCB mounting**



horizontal SMD

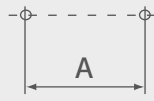


layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
BR1225A/FA	Li/(CF)n	3 V	48 mAh	12.5 mm	3.1 mm	0.8 g	3.8 mm	Insulation Wrap
BR1632A/FA	Li/(CF)n	3 V	120 mAh	16.0 mm	3.8 mm	1.5 g	23.2 mm	Insulation Wrap
BR2330A/FA	Li/(CF)n	3 V	255 mAh	23.0 mm	3.35 mm	3.2 g	35.0 mm	Insulation Wrap
BR2450A/FA	Li/(CF)n	3 V	550 mAh	24.5 mm	5.7 mm	5.0 g	35.5 mm	Insulation Wrap
BR2477A/FB	Li/(CF)n	3 V	1,000 mAh	24.5 mm	8.4 mm	8.0 g	20.5 mm	Insulation Wrap



horizontal 2 Pins



layout top view

Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	Remark
BR1225A/HB	Li/(CF)n	3 V	48 mAh	12.5 mm	4.7 mm	0.8 g	10.0 mm	Insulation Wrap
BR1632A/HA	Li/(CF)n	3 V	120 mAh	16.0 mm	5.3 mm	1.5 g	15.2 mm	Insulation Wrap
BR1632A/HB	Li/(CF)n	3 V	120 mAh	16.0 mm	5.3 mm	1.5 g	15.2 mm	
BR2330A/HD	Li/(CF)n	3 V	255 mAh	23.0 mm	5.4 mm	3.2 g	20.5 mm	Insulation Wrap
BR2477A/HB	Li/(CF)n	3 V	1,000 mAh	24.5 mm	9.6 mm	8.0 g	20.5 mm	Insulation Wrap
BR2477A/HC	Li/(CF)n	3 V	1,000 mAh	24.5 mm	9.6 mm	8.0 g	20.5 mm	

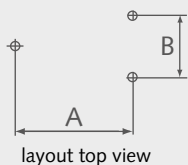
Lithium Coin Cells with Tabs, 3 V

Panasonic
Panasonic BR

- **Chemical System:** Poly Carbonmonofluoride (Li/(CF)n)
- **A wide operational temperature range:** -40 °C to +125 °C
- **Good storage stability** (max. 0.5 % loss at ambient T°)
- **Constant operating voltage**
- **Excellent leakage resistance**
- **Available with tab terminals for PCB mounting**



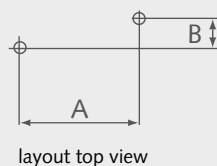
horizontal 3 Pins



Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
BR1632A/GA	Li/(CF)n	3 V	120 mAh	16.0 mm	6.1 mm	2.0 g	15.2 mm	10.2 mm	
BR2330A/GA	Li/(CF)n	3 V	255 mAh	23.0 mm	5.4 mm	3.7 g	17.8 mm	10.16 mm	
BR2450A/GA	Li/(CF)n	3 V	550 mAh	24.5 mm	7.2 mm	6.4 g	17.8 mm	10.2 mm	Insulation Wrap
BR2477A/GA	Li/(CF)n	3 V	1,000 mAh	24.5 mm	9.6 mm	8.5 g	25.5 mm	10.2 mm	Insulation Wrap

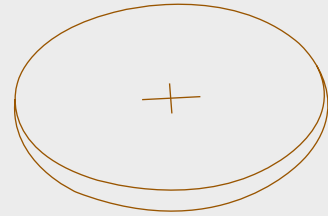


vertical 2 Pins



Product	Type	Voltage	Capacity	Diameter	Height	Weight	A	B	Remark
BR1632A/VA	Li/(CF)n	3 V	120 mAh	16.0 mm	17.5 mm	1.5 g	4.0 mm	3.1 mm	Insulation Wrap
BR2330A/VA	Li/(CF)n	3 V	255 mAh	23.0 mm	24.5 mm	3.2 g	10.2 mm	3.7 mm	Insulation Wrap
BR2477A/VA	Li/(CF)n	3 V	1,000 mAh	24.5 mm	25.5 mm	8.0 g	9.2 mm	8.4 mm	Insulation Wrap

Lithium Coin Cells rechargeable



1. Superior leakage resistance

Even a slight leakage from a battery may interfere with the connections made by the battery terminals, resulting in unstable device operations. We offer micro batteries that are highly leak-resistant due to special sealing materials and processing technologies.

2. Large capacity

In order to extend the operating time of devices with limited battery space, the market demands high volumetric efficiency. We offer large-capacity microbatteries developed with proprietary technology utilizing high-purity materials.

3. Stable operating voltage

Carefully compounded ingredients allow each of our micro batteries to have a stable operating voltage over both a wide temperature range and depth of discharge.

4. High reliability

The micro batteries are manufactured under an integrated system featuring strict quality control, which starts with component manufacturing, through assembly and on to rigorous out-going inspection.

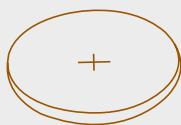
Range of applications:

- Toll gates
- Radio-communication
- Night vision equipment
- Tracking and positioning system
- CMOS memory back-up
- RTC real time clock
- Computer data back-up
- Electricity meter
- Gas meter
- Heat meters
- Smoke alarm system

Vanadium Rechargeable Pentoxide Lithium (VL Series), 3 V

Panasonic

- One high-voltage battery can serve your back-up needs
- Can provide the voltage equivalent of two or three 1.2V Ni-Cd's or two capacitors
- Months of continuous use as a back-up
- Self discharge rate less than 2 % a year
- Superior reliability; with stands overcharging and discharging



Model number	Nominal Voltage	Nominal Capacity	Continuous Standard Drain	Diameter	Height	Weight
VL-621	3 V	1.5mAh	0.10 mA	6.8 mm	2.1 mm	0.27 g
VL-1220	3 V	7.0mAh	0.03 mA	12.5 mm	2.0 mm	0.8 g
VL-2020	3 V	20.0mAh	0.07 mA	20.0 mm	2.0 mm	2.2 g
VL-2320	3 V	30.0mAh	0.10 mA	23.0 mm	2.0 mm	2.7 g
VL-2330	3 V	50.0mAh	0.10 mA	23.0 mm	3.0 mm	3.5 g
VL-3032	3 V	100.0mAh	0.20 mA	30.0 mm	3.2 mm	6.2 g

Manganese Rechargeable Lithium (ML Series), 3 V

Panasonic

- Charge at voltage levels even under 3 V
- Large capacity for hour-after-hour back-up
- Excellent with stand voltage, overcharge and overdischarge with standing characteristics

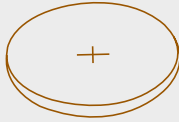


Model number	Nominal Voltage	Nominal Capacity	Continuous Standard Drain	Diameter	Height	Weight
ML-414	3 V	1.2mAh	0.005 mA	4.8 mm	1.4 mm	0.09 g
ML-421	3 V	2.3mAh	0.003 mA	4.8 mm	2.1 mm	0.10 g
ML-612	3 V	2.6mAh	0.010 mA	6.8 mm	1.2 mm	0.15 g
ML-614	3 V	3.4mAh	0.010 mA	6.8 mm	1.4 mm	0.17 g
ML-616	3 V	2.9mAh	0.010 mA	6.8 mm	1.6 mm	0.20 g
ML-621	3 V	5.0mAh	0.010 mA	6.8 mm	2.1 mm	0.23 g
ML-920	3 V	11.0mAh	0.030 mA	9.5 mm	2.0 mm	0.40 g
ML-1220	3 V	17.0mAh	0.030 mA	12.5 mm	2.0 mm	0.80 g
ML-2020	3 V	45.0mAh	0.130 mA	20.0 mm	2.0 mm	2.20 g

Niobium Rechargeable Lithium (NBL Series), 2V

Panasonic

- Large capacity in a miniature size comparable to chip components
- Superior charge characteristics
- Charging/discharging over a long period is possible
- Excellent voltage and overdischarge with standing characteristics

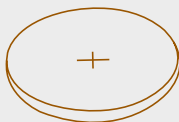


Model number	Nominal Voltage	Nominal Capacity	Continuous Standard Drain	Diameter	Height	Weight
NBL-414	2V	1.0mAh	0.008 mA	4.8 mm	1.4 mm	0.10 g
NBL-621	2V	4.0mAh	0.010 mA	6.8 mm	2.1 mm	0.22 g

Manganese Rechargeable Titanium Lithium (MT Series), 1.5V

Panasonic

- Excellent at with standing overdischarge and overcharge
- Low self-discharge rate
- Maintains higher capacity at lower voltages
- Ideal for new technology using low voltage IC's
- Super compact design for back-up applications



Model number	Nominal Voltage	Nominal Capacity	Continuous Standard Drain	Diameter	Height	Weight
MT-516	1.5V	1.15mAh	0.05 mA	5.8 mm	1.6 mm	0.15 g
MT-616	1.5V	1.05mAh	0.05 mA	6.8 mm	1.6 mm	0.20 g
MT-621	1.5V	2.50mAh	0.05 mA	6.8 mm	2.1 mm	0.25 g
MT-920	1.5V	5.00mAh	0.10 mA	9.5 mm	2.0 mm	0.45 g

Rechargeable Manganese Silicon Lithium Batteries (MS Series), 3 V



- Large discharge capacity: For high operational voltage range of 3.3V to 2.0V
- Long cycle life: Cycle life of over 100 cycles under charge/discharge conditions of 3.3V to 2.0V (D.O.D.100%).
- Operation over a wide temperature range: Operating temperature range: -20°C to +60°C. Consult us for using the battery at a temperature beyond the above temperature range.



Model number	Nominal Voltage	Nominal Capacity	Continuous Standard Drain	Diameter	Height	Weight
MS412FE	3 V	1.0mAh	0.10 mA	4.8 mm	1.2 mm	0.07 g
MS518SE	3 V	3.4mAh	0.15 mA	5.8 mm	1.8 mm	0.13 g
MS614SE	3 V	3.4mAh	0.25 mA	6.8 mm	1.4 mm	0.17 g
MS621FE	3 V	5.5mAh	0.25 mA	6.8 mm	2.1 mm	0.23 g
MS920SE	3 V	11.0mAh	0.80 mA	9.5 mm	2.1 mm	0.47 g

Rechargeable HB Lithium Batteries, 3 V



- Pb-free reflowable: Superior heat resistance (260°C peak) allows reflow mounting by Pb-free solder.
- Wide charging voltage range: Wide charging voltage range allows use with various applications. (2.5 V to 3.3 V)
- High Capacity: 0.3 mAh typ. (charging voltage: 3 V, cut off: 1.2 V)
- Long cycle life: 1,000 cycles or more (10 % D.O.D.)
- Excellent overdischarge characteristics



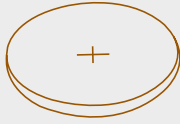
Model number	Nominal Voltage	Nominal Capacity	Continuous Standard Drain	Diameter	Height	Weight
HB414	3 V	0.3 mAh (3.0 to 1.2) 0.2 mAh (2.5 to 1.2) 0.14 mAh (3.3 to 2.0)	0.005 mA	4.8 mm	1.4 mm	0.07 g

Rechargeable TS Lithium Batteries, 1.5 V



TS lithium rechargeable batteries are high capacity 1.5 V type non-reflowable recharge-able batteries that provide sufficient discharge capacity with a charge voltage of less than 2.0 V, and are intended for support of recent low-operating-voltage mobile devices.

- Low-voltage chargeable
- High capacity
- Long cycle life: at least 1,000 cycles (20 % D.O.D.)

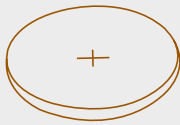


Model number	Nominal Voltage	Nominal Capacity	Continuous Standard Drain	Diameter	Height	Weight
TS581FE	1.5 V	1.5 mAh (1.5 to 1.0) 2.5 mAh (1.8 to 1.0)	0.015 mA	5.8 mm	1.8 mm	0.12 g
TS621FE	1.5 V	4.2 mAh (2.3 to 1.0)	0.015 mA	6.8 mm	2.1 mm	0.22 g

XH-HG Capacitor, 3.3 V



- Pb-free reflowable: Superior heat resistance (260°C peak) allows reflow soldering by Pb-free solder
- Wide operating voltage range from 0V to 3.3 V
- High capacity: 0.08F with "414" size
- Long Cycle Life: At least 10,000 times of charge/discharge
- Simple charging circuit (constant voltage charging)
- Wide operating temperature range: Oper. temperature range: -20°C to +60°C



Model number	Nominal Voltage	Nominal Capacity	Internal Impedance	Diameter	Height	Weight
XH311HG	3.3 V	0.02 F	300Ω	3.8 mm	1.1 mm	0.04 g
XH409HG	3.3 V	0.04 F	100Ω	4.8 mm	0.9 mm	0.05 g
XH414HG	3.3 V	0.08 F	100Ω	4.8 mm	1.4 mm	0.06 g

Chip-type electric double layer capacitor “CP3225A”



P/N	Max. Charging Voltage	Capacity (Voltage Range) Capacitance	Internal Impedance	Dimension D*W*H*	Weight
CP3225A	2.6V	4.5 μAh (2.6 – 1.4 V) 0.014 F	80 Ω	3.2 mm x 2.5 mm x 0.9 mm	0.024 g

Recently, the demand for smaller and thinner sized portable electronic communication devices, such as mobile and “Smart” phones, has increased significantly. As such, the electronic components used in these products need to be smaller and thinner to facilitate these more compact packages.

The SII Electric Double-Layer Capacitor (EDLC) functions as a rechargeable electrical storage device, and is commonly used for mobile-phone memory and clock back-up during the primary battery’s run out or replacement.

Somewhat different than the coin cell battery that may often be used in these applications, this new device contains activated carbon, which has large surface area in its electrode, while using organic solvent in the electrolyte.

Current EDLC packages are typically “coin” shaped, and don’t completely utilize the board space allocated to them due to the round shape. Also, metal solder tabs are always required for surface mounting, which increases size thickness.

The new CP3225A product is “chip” shaped in an industry-standard rectangular package, effectively increasing volumetric efficiency by 50 %. In addition, by integrating tabs into the package itself, the CP3225A achieves a 20 % reduction in mounting height – at only 0.9 mm – the thinnest in the industry.

Main Characteristics

1. Chip-type/Smallest size: 3.2 x 2.5 x 0.9 mm

Compared with a standard coin-type EDLC (D: 4.8 H:1.7 mm), the new product realized a 1/5 reduction in mounting area. It is most suitable for smaller and thinner applications.

2. High capacity: 14 mF

Compared with a similar sized tantalum capacitor, a chip-type EDLC contains over 30 times more electric capacity.

3. Max. charge voltage: 2.6V

Organic solvent in electrolyte allows for a wider voltage range, from 0 to 2.6 V. Therefore, over-charge/over-discharge prevention circuitry is no longer necessary.

4. Quick charge characteristics

A 1 minute charge stores approximately 90 % of full capacity. Also, with load current of 1–100 μA, discharge capacity exceeds 90 %. Furthermore, charge-discharge cycle is rated at more than 50,000.

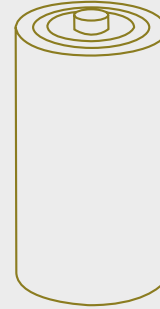
5. Pb-Free Reflowable

Heat-resistant design allows for Pb-free reflowable SMT board attachment.

Application

Back-up for memory, clock function and power management ICs for mobile-phones and most other portable electronic devices.

Lithium Cylindrical Batteries



1. High and Stable Operating Voltage

CR Series > 3.0 V

2. Wide Operating Current Range

To ensure the ten year service life, the cell operating current is merely at a few microamperes. On the other hand, JAUCH also offers a wide range of options for varied needs; we can also provide the cells with pulse current up to several amperes.

3. Wide Operating Temperature Range

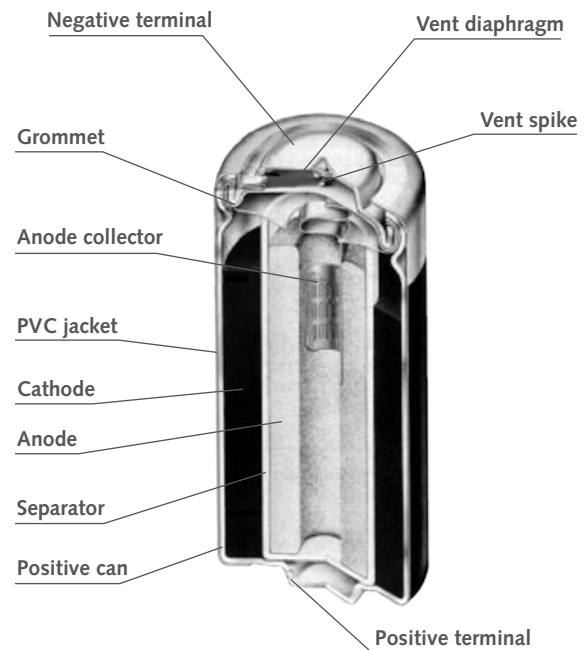
For different cell types and under different operating current and applications, the operating temperature endures from -40°C to +85°C.

4. Shelf Life

Low self discharge of less than 1 % per year at 25°C and up to 10 years at 25°C shelf life.

Range of applications:

- Toll gates
- Radio-communication
- Night vision equipment
- Tracking and positioning system
- CMOS memory back-up
- RTC real time clock
- Computer data back-up
- Electricity meter
- Gas meter
- Heat meters
- Smoke alarm system



DURACELL® MicroLithium™ bobbin cell



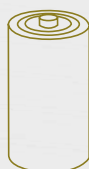
Lithium Cylindrical Batteries, 3V–9V



made by
EVE
ENERGY VERY ENDURE

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40°C to +70°C
- **Self Discharge:** at 25°C less than 1% per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 to 3.0 Volt. Typical load voltage 2.9 Volt.

Product	Type	Voltage	Capacity	Diameter	Height	Weight
CR14250	Li/MnO ₂	3V	650 mAh	14.5 mm	25.0 mm	11.0 g
CR14335	Li/MnO ₂	3V	800 mAh	14.5 mm	33.5 mm	14.0 g
CR14505	Li/MnO ₂	3V	1,600 mAh	14.5 mm	50.0 mm	21.0 g
CR2/CR15270	Li/MnO ₂	3V	850 mAh	15.6 mm	27.0 mm	13.0 g
CR17250	Li/MnO ₂	3V	750 mAh	17.0 mm	25.0 mm	14.0 g
CR17335	Li/MnO ₂	3V	1,450 mAh	17.0 mm	33.5 mm	20.0 g
CR123A/CR17345	Li/MnO ₂	3V	1,450 mAh	17.0 mm	34.5 mm	20.0 g
CR17450	Li/MnO ₂	3V	2,300 mAh	17.0 mm	45.0 mm	26.0 g
CR17505	Li/MnO ₂	3V	2,400 mAh	17.0 mm	50.0 mm	30.0 g
CR18505	Li/MnO ₂	3V	2,800 mAh	18.5 mm	50.5 mm	35.0 g
CR26500	Li/MnO ₂	3V	5,000 mAh	26.0 mm	50.5 mm	62.0 g
CR34615	Li/MnO ₂	3V	10,000 mAh	31.0 mm	61.5 mm	125.0 g
2CR5	Li/MnO ₂	6V	1,400 mAh	34.0 x 17.0 x 45.0 mm		42.0 g
CR-P2	Li/MnO ₂	6V	1,400 mAh	35.0 x 19.5 x 36.0 mm		42.0 g
CR14250SE	Li/MnO ₂	3V	950 mAh	14.5 mm	25.0 mm	11.0 g
CR9V-P	Li/MnO ₂	9V	1,200 mAh	26.5 x 17.5 x 49.5 mm		50.5 g
CR9V-U	Li/MnO ₂	9V	1,200 mAh	26.5 x 17.5 x 49.0 mm		36.5 g
CR9V-S	Li/MnO ₂	9V	600 mAh	26.5 x 17.5 x 49.0 mm		38.0 g
CR9V-N	Li/MnO ₂	9V	900 mAh	26.5 x 17.5 x 49.0 mm		40.0 g

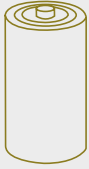


Lithium Cylindrical Batteries, 3V–6V



- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40°C to +70°C
- **Self Discharge:** at 25°C less than 1% per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 to 3.0 Volt. Typical load voltage 2.9 Volt.

Product	Type	Voltage	Capacity	Diameter	Height	Weight
DL123	Li/MnO ₂	3V	1,550 mAh	17.0 mm	34.2 mm	17.0 g
CR2	Li/MnO ₂	3V	850 mAh	15.6 mm	27.0 mm	11.0 g
2CR5	Li/MnO ₂	6V	1,400 mAh	17.0 mm	34.0 mm	38.0 g
CR-P2	Li/MnO ₂	6V	1,400 mAh	19.5 mm	35.0 mm	37.0 g
CR-V3	Li/MnO ₂	3V	3,300 mAh	29.0 mm	14.5 mm	39.0 g



Lithium Cylindrical Batteries, 3V – 6V

Panasonic
Panasonic CR

- **Chemical System:** Lithium Manganese Dioxide (Li/MnO₂)
- **Temperature Range:** -40°C to +70°C
- **Self Discharge:** at 25°C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.5 to 3.0 Volt. Typical load voltage 2.9 Volt.

Product	Type	Voltage	Capacity	Diameter	Height	Weight
CR123A	Li/MnO ₂	3 V	1,550 mAh	17.0 mm	34.2 mm	17.0 g
CR2	Li/MnO ₂	3 V	850 mAh	15.6 mm	27.0 mm	11.0 g
2CR5	Li/MnO ₂	6 V	1,400 mAh	17.0 mm	34.0 mm	38.0 g
CR-P2	Li/MnO ₂	6 V	1,400 mAh	19.5 mm	35.0 mm	37.0 g
CR-V3P	Li/MnO ₂	3 V	3,300 mAh	29.0 mm	14.5 mm	39.0 g



Lithium Cylindrical Batteries, 3V

Panasonic
Panasonic BR

- **Chemical System:** Poly Carbonmonofluoride (Li/(CF)n)
- **Temperature Range:** -40°C to +85°C
- **Self Discharge:** at 25°C less than 1 % per year
- **Storage Capability:** up to 10 years at maximum 25°C
- **Li/MnO₂:** off-load voltage 3.2–3.0 Volt. Typical load voltage 3.1–2.5 Volt.

Product	Type	Voltage	Capacity	Diameter	Height	Weight
BR-2/3A	Li/(CF)n	3 V	1,200 mAh	17.0 mm	35.5 mm	13.5 g
BR-2/3AG	Li/(CF)n	3 V	1,450 mAh	17.0 mm	35.5 mm	13.5 g
BR-2/3AH	Li/(CF)n	3 V	1,350 mAh	17.0 mm	35.5 mm	13.5 g
BR-A	Li/(CF)n	3 V	1,800 mAh	17.0 mm	45.5 mm	18.0 g
BR-AG	Li/(CF)n	3 V	2,200 mAh	17.0 mm	45.5 mm	18.0 g
BR-AH	Li/(CF)n	3 V	2,000 mAh	17.0 mm	45.5 mm	18.0 g
BR-C	Li/(CF)n	3 V	5,000 mAh	26.0 mm	50.5 mm	42.0 g



Lithium Thionyl Chloride Batteries, 3.6V

ER Batteries' shapes

Button, cylindrical and square shapes are available for your choice.

Feature

1. High energy density up to 420WH/Kg (800WH/dm³).
2. High operation voltage, 3.3V ~ 3.6V upon loading resistance.
3. Long storage life, less than 2 % of self-discharging rate per year, could be stored for 10 ~ 15 year at room temperature.
4. Non-magnetic stainless steel case, hermetically sealed. Be safe for transportation and general shock. No leakage problem.

Range of applications:

- CMOS memory chips for PC
- Office automation devices
- Remote data logging
- Data acquisition systems
- Medical instruments
- Water or gas gauges
- Security and alarm systems
- Pulse-/event-counters
- Various industrial clocks
- High temperature systems



Lithium Thionyl Chloride Batteries, 3.6V



- **Chemical System:** Lithium Thionyl Chloride (Li/SOCl₂)
- **Temperature Range:** -55 °C to +85 °C / -40 °C to +150 °C
- **Self Discharge:** less than 1 % per year at 25 °C
- **Storage Capability:** up to 10 years at max. 25 °C
- **Li – SOCl₂:** off-load voltage 3.7 Volt. Typical load voltage 3.4 Volt.
- Non-flammable electrolyte

Cylindrical Cells (Bobbin Type)

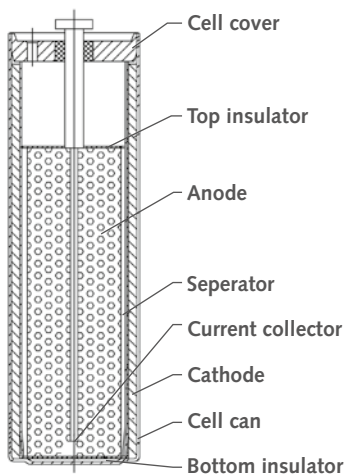
Product	Type	Voltage	Capacity	Diameter	Height	Weight
ER14250	1/2AA	3.6V	1,200 mAh	14.5 mm	25.2 mm	10.0 g
ER14250C	1/2AA	3.6V	1,200 mAh	14.5 mm	25.2 mm	10.0 g
ER14250/W	1/2AA	3.6V	1,200 mAh	17.0 mm	28.6 mm	10.0 g
ER14335	2/3AA	3.6V	1,650 mAh	14.5 mm	33.5 mm	12.0 g
ER14505	AA	3.6V	2,600 mAh	14.5 mm	50.5 mm	19.0 g
ER14505C	AA	3.6V	2,700 mAh	14.5 mm	50.5 mm	19.0 g
ER17335	2/3A	3.6V	2,100 mAh	17.5 mm	33.5 mm	18.0 g
ER18505	A	3.6V	4,000 mAh	18.5 mm	50.5 mm	28.0 g
ER26500	C	3.6V	8,500 mAh	26.2 mm	50.0 mm	52.0 g
ER34615	D	3.6V	19,000 mAh	32.9 mm	61.5 mm	100.0 g
ER341245	DD	3.6V	35,000 mAh	32.9 mm	124.5 mm	195.0 g

Wafer Cells

Product	Type	Voltage	Capacity	Diameter	Height	Weight
ER22G68	BEL	3.6V	400 mAh	22.5 mm	7.5 mm	6.0 g
ER32L65	1/10D	3.6V	1,000 mAh	32.9 mm	7.1 mm	19.0 g
ER32L100	1/6D	3.6V	1,700 mAh	32.9 mm	10.5 mm	24.0 g
ER49L65	1/10D	3.6V	2,600 mAh	49.5 mm	6.8 mm	44.0 g

Prismatic Cells

Product	Type	Voltage	Capacity	Dimension	Weight
EF651615	LTC-3PN	3.6V	400 mAh	16.8 x 15.8 x 6.8 mm	5.0 g
ES651625	LTC-7PN	3.6V	750 mAh	16.8 x 25.8 x 6.8 mm	8.0 g



Bobbin Type

This type has a small common surface area between the anode and the cathode. Basically it consists of one cylinder of cathode surrounded by one cylinder of anode material. The low common surface area results in low rate discharge capability.

The advantages of this type of cell are its low manufacturing cost, low self discharge rate, and no safety fuse requirement. These cells' limited current capability and the resulting effect of passivation may limit their use in high current applications.



Lithium Thionyl Chloride Batteries, 3.6V



- **Chemical System:** Lithium Thionyl Chloride (Li/SOCl₂)
- **Temperature Range:** -55 °C to +85 °C / -40 °C to +150 °C
- **Self Discharge:** less than 1 % per year at 25 °C
- **Storage Capability:** up to 10 years at max. 25 °C
- **Li – SOCl₂:** off-load voltage 3.7 Volt. Typical load voltage 3.4 Volt.

Cylindrical Cells (Spiral Type, High Drain)

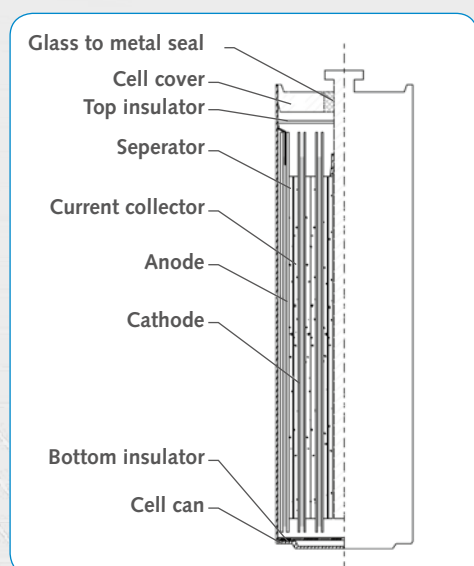
Product	Type	Voltage	Capacity	Diameter	Height	Weight
ER14250HD	1/2AA	3.6V	800 mAh	14.5 mm	25.4 mm	10.0 g
ER14335HD	2/3AA	3.6V	1,350 mAh	14.5 mm	33.5 mm	13.0 g
ER14505HD	AA	3.6V	2,200 mAh	14.5 mm	50.5 mm	19.0 g
ER18505HD	A	3.6V	3,500 mAh	18.5 mm	50.5 mm	28.0 g
ER26500HD	C	3.6V	6,500 mAh	26.2 mm	50.0 mm	52.0 g
ER34615HD	D	3.6V	13,000 mAh	32.9 mm	61.5 mm	100.0 g

Cylindrical Cells (Spiral Type, Safe Plus)

Product	Type	Voltage	Capacity	Diameter	Height	Weight	Remark
ER14250SP	1/2AA	3.6V	750 mAh	20.0 mm	27.5 mm	12.0 g	Safe-Plus batteries
ER14335SP	2/3AA	3.6V	1,350 mAh	20.0 mm	36.0 mm	15.0 g	Safe-Plus batteries
ER14505SP	AA	3.6V	2,100 mAh	20.0 mm	51.0 mm	21.0 g	Safe-Plus batteries
ER18505SP	A	3.6V	3,400 mAh	24.0 mm	51.0 mm	28.0 g	Safe-Plus batteries
ER26500SP	C	3.6V	6,300 mAh	31.0 mm	52.0 mm	57.0 g	Safe-Plus batteries
ER34615SP	D	3.6V	13,000 mAh	37.0 mm	63.0 mm	100.0 g	Safe-Plus batteries

Cylindrical Cells (High Temperature)

Product	Type	Voltage	Capacity	Diameter	Height	Weight	Remark
ER14250HT	1/2AA	3.6V	800 mAh	14.5 mm	25.2 mm	12.0 g	-40°C to +150°C
ER14505HT	AA	3.6V	1,600 mAh	14.5 mm	50.5 mm	15.0 g	-40°C to +150°C
ER18505HT	A	3.6V	2,800 mAh	18.5 mm	50.5 mm	21.0 g	-40°C to +150°C
ER26500HT	C	3.6V	6,000 mAh	26.2 mm	50.0 mm	28.0 g	-40°C to +150°C
ER34615HT	D	3.6V	13,000 mAh	32.9 mm	61.5 mm	57.0 g	-40°C to +150°C
ER341245HT	DD	3.6V	25,000mAh	32.9 mm	124.5 mm	100.0 g	-40°C to +150°C

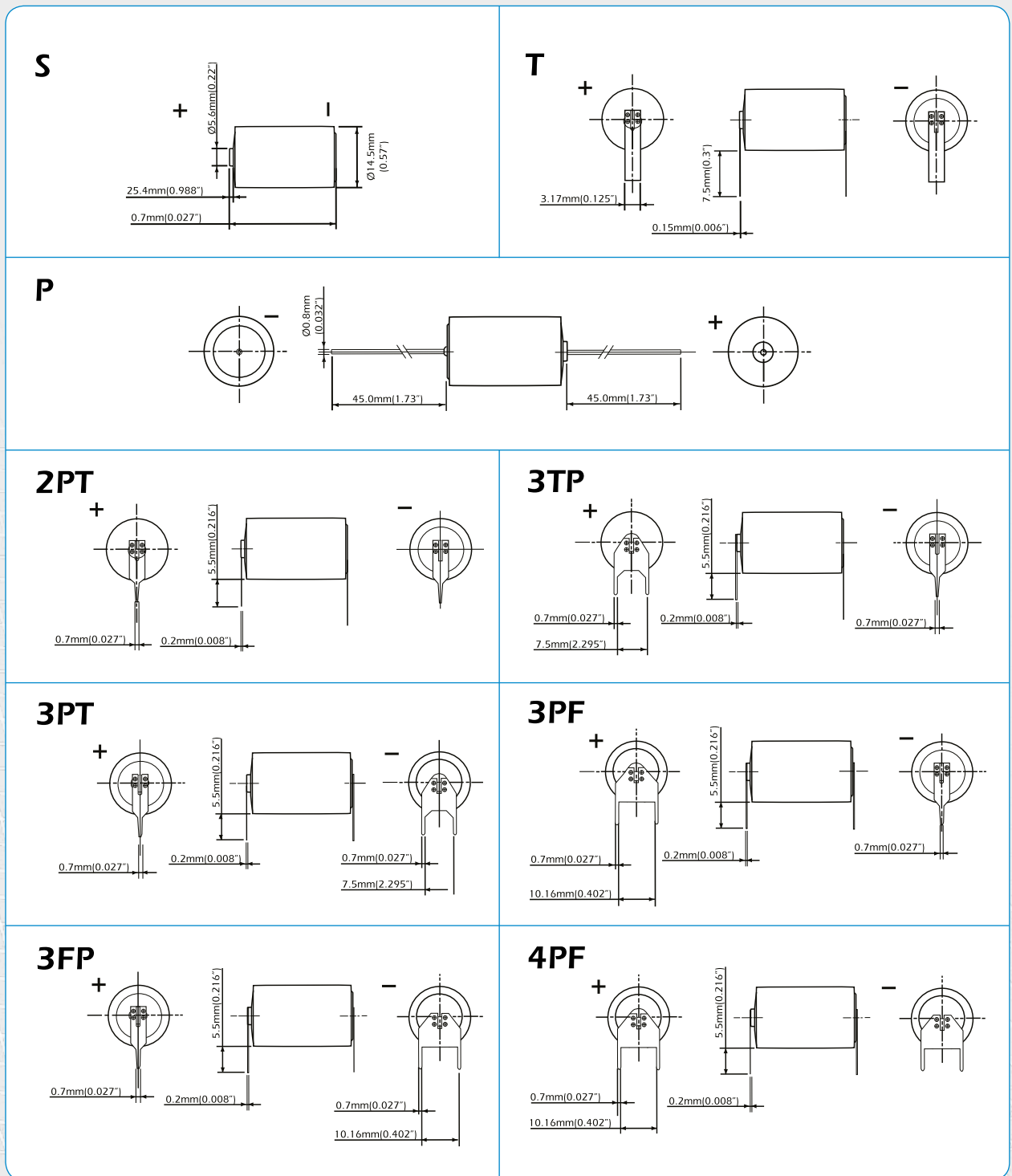


Spiral Type

Also known as jelly roll construction, spiral cells have a very large common surface area between the anode and the cathode; thus the current capability of these cells is very high.

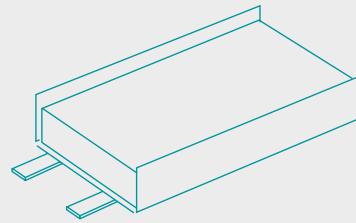
Although high rate cells require safety fuses, they are able to produce enough current to satisfy most downhole tool requirements without the effects of passivation.

Examples of standard individual cell tabbing arrangements



Other cell terminations are available upon request.
Check availability and dimensions of tabbing arrangement for considered cell.

Lithium Polymer Batteries



Lithium Polymer batteries (LiPo) offer several advantages. It has a greater energy density in terms of weight than Lithium Ion. In very thin cells (under 5 mm) LiPo also provides higher volumetric energy density. Additionally, there is more flexibility in cell sizes and shape with LiPo and a wider margin of safety, with superior stability in over-voltage and high temperature conditions.

To date, most LiPo applications are for widely used consumer items like cell phones, MP3 players and many Bluetooth enabled devices where low weight and small size are essential.

1. High Safety
2. Small Volume
3. Light Weight
4. High Capacity
5. Low Internal Resistance
6. Flexible Appearance
7. Good Discharge Performance
8. Simple Design of Protective Circuit

Miniature battery (<0.2 Ah)
Designed for Bluetooth

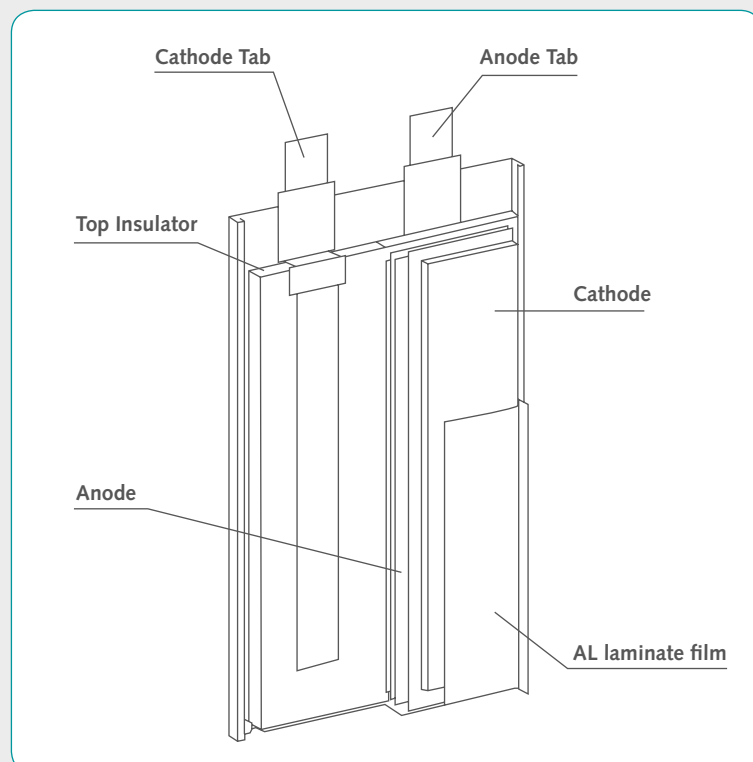
Small battery (0.5 – 1 Ah)
Designed for mobile industry

Medium battery (2 – 10 Ah)
Designed for portable DVD and Computer

Large battery (> 12 Ah)
Designed for electric vehicle, electronic robot, Telstar and martial equipment

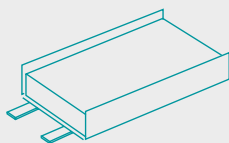
Range of applications:

- Cellular Phones
- PHS
- PDAs
- Notebook Computers
- Personal Transceivers
- Camcorders
- Digital Cameras
- Portable CD players



Lithium Polymer Batteries

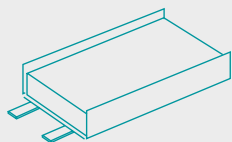
- **Chemical System:** Lithium Polymer (Li Po)
- **Temperature Range:** -20°C to +60°C / 70°C
- **Self Discharge:** at 25°C less than 5 % per month
- **All Types assembled with protection circuit modules**



Product	Voltage	Capacity	Thickness	Width	Height	Weight
JP301030	3.7 V	50 mAh	3.0 mm	10.0 mm	30.0 mm	1.0 g
JP451220	3.7 V	70 mAh	4.5 mm	12.0 mm	20.0 mm	1.0 g
JP501220	3.7 V	75 mAh	5.0 mm	12.0 mm	20.0 mm	1.0 g
JP451225	3.7 V	90 mAh	4.5 mm	12.0 mm	25.0 mm	2.0 g
JP501230	3.7 V	140 mAh	5.0 mm	12.0 mm	30.0 mm	3.0 g
JP401235	3.7 V	110 mAh	4.0 mm	12.0 mm	35.0 mm	2.0 g
JP431235	3.7 V	130 mAh	4.3 mm	12.0 mm	35.0 mm	2.9 g
JP451235	3.7 V	130 mAh	4.5 mm	12.0 mm	35.0 mm	3.5 g
JP501235	3.7 V	170 mAh	5.0 mm	12.0 mm	35.0 mm	3.8 g
JP601235	3.7 V	170 mAh	6.0 mm	12.0 mm	35.0 mm	4.2 g
JP601245	3.7 V	250 mAh	6.0 mm	12.0 mm	45.0 mm	5.4 g
JP401515	3.7 V	50 mAh	4.0 mm	15.0 mm	15.0 mm	1.0 g
JP401528	3.7 V	110 mAh	4.0 mm	15.0 mm	28.0 mm	2.4 g
JP501528	3.7 V	130 mAh	5.0 mm	15.0 mm	28.0 mm	3.0 g
JP651939h	3.7 V	400 mA	6.5 mm	19.0 mm	39.0 mm	8.0 g
JP701922	3.7 V	180 mAh	7.0 mm	19.0 mm	22.0 mm	4.0 g
JP402223	3.7 V	140 mAh	4.0 mm	22.0 mm	23.0 mm	3.1 g
JP502223	3.7 V	160 mAh	5.0 mm	22.0 mm	23.0 mm	3.6 g
JP502236	3.7 V	365 mAh	5.0 mm	22.0 mm	36.0 mm	7.4 g
JP552236	3.7 V	38 mAh	5.5 mm	22.0 mm	36.0 mm	7.5 g
JP602236	3.7 V	400 mAh	6.0 mm	22.0 mm	36.0 mm	8.3 g
JP382239	3.7 V	275 mAh	3.8 mm	22.0 mm	39.0 mm	6.1 g
JP402239	3.7 V	300 mAh	4.0 mm	22.0 mm	39.0 mm	6.6 g
JP482239	3.7 V	350 mAh	4.8 mm	22.0 mm	39.0 mm	7.3 g
JP352248	3.7 V	300 mAh	3.5 mm	22.0 mm	48.0 mm	6.5 g
JP402248	3.7 V	350 mAh	4.0 mm	22.0 mm	48.0 mm	8.0 g
JP452248	3.7 V	400 mAh	4.5 mm	22.0 mm	48.0 mm	9.0 g
JP502248	3.7 V	470 mAh	5.0 mm	22.0 mm	48.0 mm	10.0 g
JP542248	3.7 V	520 mAh	5.0 mm	22.0 mm	48.0 mm	10.0 g
JP502527	3.7 V	250 mAh	5.0 mm	25.0 mm	27.0 mm	5.3 g
JP402533	3.7 V	260 mAh	4.0 mm	25.0 mm	33.0 mm	5.7 g
JP452533	3.7 V	300 mAh	4.5 mm	25.0 mm	33.0 mm	6.6 g
JP302535	3.7 V	180 mAh	3.0 mm	25.0 mm	35.0 mm	4.0 g
JP402535	3.7 V	280 mAh	4.0 mm	25.0 mm	35.0 mm	6.0 g
JP302540	3.7 V	220 mAh	3.0 mm	25.0 mm	40.0 mm	5.0 g
JP603436	3.7 V	630 mAh	6.0 mm	34.0 mm	36.0 mm	12.8 g
JP473438	3.7 V	500 mAh	4.7 mm	34.0 mm	38.0 mm	10.6 g
JP403442	3.7 V	500 mAh	4.0 mm	34.0 mm	42.0 mm	11.2 g
JP443442	3.7 V	600 mAh	4.4 mm	34.0 mm	42.0 mm	12.0 g
JP553442	3.7 V	720 mAh	5.5 mm	34.0 mm	42.0 mm	15.9 g
JP613442	3.7 V	800 mAh	6.1 mm	34.0 mm	42.0 mm	17.7 g
JP953443	3.7 V	1,300 mAh	9.5 mm	34.0 mm	43.0 mm	26.0 g
JP533446	3.7 V	820 mAh	5.3 mm	34.0 mm	46.0 mm	16.0 g
JP443448	3.7 V	700 mAh	4.4 mm	34.0 mm	48.0 mm	12.6 g
JP523448	3.7 V	850 mAh	5.2 mm	34.0 mm	48.0 mm	17.0 g
JP603448	3.7 V	950 mAh	6.0 mm	34.0 mm	48.0 mm	18.9 g

Lithium Polymer Batteries

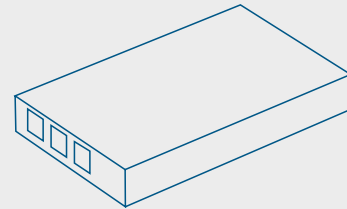
- **Chemical System:** Lithium Polymer (LiPo)
- **Temperature Range:** -20°C to +60°C / 70°C
- **Self Discharge:** at 25°C less than 5% per month
- **All Types assembled with protection circuit modules**



Product	Voltage	Capacity	Thickness	Width	Height	Weight
JP783448	3.7V	1,300 mAh	7.8 mm	34.0 mm	48.0 mm	24.5 g
JP293450	3.7V	400 mAh	2.9 mm	34.0 mm	50.0 mm	10.7 g
JP323450	3.7V	550 mAh	3.2 mm	34.0 mm	50.0 mm	11.0 g
JP383450	3.7V	650 mAh	3.8 mm	34.0 mm	50.0 mm	13.0 g
JP403450	3.7V	680 mAh	4.0 mm	34.0 mm	50.0 mm	14.2 g
JP423450	3.7V	650 mAh	4.2 mm	34.0 mm	50.0 mm	14.0 g
JP433450	3.7V	750 mAh	4.3 mm	34.0 mm	50.0 mm	15.3 g
JP483450	3.7V	820 mAh	4.8 mm	34.0 mm	50.0 mm	16.3 g
JP523450	3.7V	850 mAh	5.2 mm	34.0 mm	50.0 mm	17.7 g
JP533450	3.7V	860 mAh	5.3 mm	34.0 mm	50.0 mm	17.8 g
JP553450	3.7V	950 mAh	5.5 mm	34.0 mm	50.0 mm	19.0 g
JP603450	3.7V	1,000 mAh	6.0 mm	34.0 mm	50.0 mm	19.5 g
JP653450	3.7V	1,100 mAh	6.5 mm	34.0 mm	50.0 mm	20.0 g
JP713450	3.7V	1,200 mAh	7.1 mm	34.0 mm	50.0 mm	24.0 g
JP753450	3.7V	1,300 mAh	7.5 mm	34.0 mm	50.0 mm	24.0 g
JP323452	3.7V	530 mAh	3.2 mm	34.0 mm	52.0 mm	11.0 g
JP293455	3.7V	520 mAh	2.9 mm	34.0 mm	55.0 mm	10.9 g
JP293455H	3.7V	550 mAh	2.9 mm	34.0 mm	55.0 mm	11.3 g
JP393455	3.7V	700 mAh	3.8 mm	34.0 mm	55.0 mm	14.7 g
JP423455	3.7V	780 mAh	4.2 mm	34.0 mm	55.0 mm	15.2 g
JP523455	3.7V	1,050 mAh	5.2 mm	34.0 mm	55.0 mm	19.6 g
JP623455	3.7V	1,250 mAh	6.2 mm	34.0 mm	55.0 mm	24.3 g
JP383458	3.7V	750 mAh	3.8 mm	34.0 mm	58.0 mm	14.8 g
JP483458	3.7V	1,000 mAh	4.8 mm	34.0 mm	58.0 mm	19.3 g
JP503458	3.7V	1,000 mAh	5.0 mm	34.0 mm	58.0 mm	19.8 g
JP523458	3.7V	1,050 mAh	5.2 mm	34.0 mm	58.0 mm	21.6 g
JP383480	3.7V	1,000 mAh	3.8 mm	34.0 mm	80.0 mm	19.0 g
JP603480	3.7V	1,550 mAh	6.0 mm	34.0 mm	80.0 mm	28.4 g
JP703496	3.7V	2,100 mAh	7.0 mm	34.0 mm	96.0 mm	50.0 g
JP405152	3.7V	1,100 mAh	4.0 mm	51.0 mm	52.0 mm	22.0 g
JP505152	3.7V	1,400 mAh	5.0 mm	51.0 mm	52.0 mm	28.0 g
JP555152	3.7V	1,550 mAh	5.5 mm	51.0 mm	52.0 mm	30.0 g
JP385165	3.7V	1,300 mAh	3.8 mm	51.0 mm	65.0 mm	26.2 g
JP505165	3.7V	1,750 mAh	5.0 mm	51.0 mm	65.0 mm	34.2 g
JP555165	3.7V	2,000 mAh	5.5 mm	51.0 mm	65.0 mm	38.0 g
JP655165	3.7V	2,400 mAh	6.5 mm	51.0 mm	65.0 mm	45.0 g

Apart from the standard program of Lithium Polymer Batteries, JAUCH BATTERIES offers the possibility of customized solutions.

Lithium Ion Batteries



1. High Energy Density

The weight of a Lithium Ion battery (Li-ion) is approximately one half compared to a NiCD or NiMH battery of similar capacity. Moreover, the volume of the Li-ion battery is 40 to 50 % smaller than that of a NiCD battery and 20 to 30 % smaller than that of a NiMH battery.

2. High Voltage

A single Li-ion cell has a voltage of 3.7 V (mean value), which is equal to either three NiCD or NiMH cells connected in series.

3. Pollution-free

The Li-ion battery does not contain any polluting substances such as Cadmium, Lead, Mercury, etc.

4. Long Cycle Life

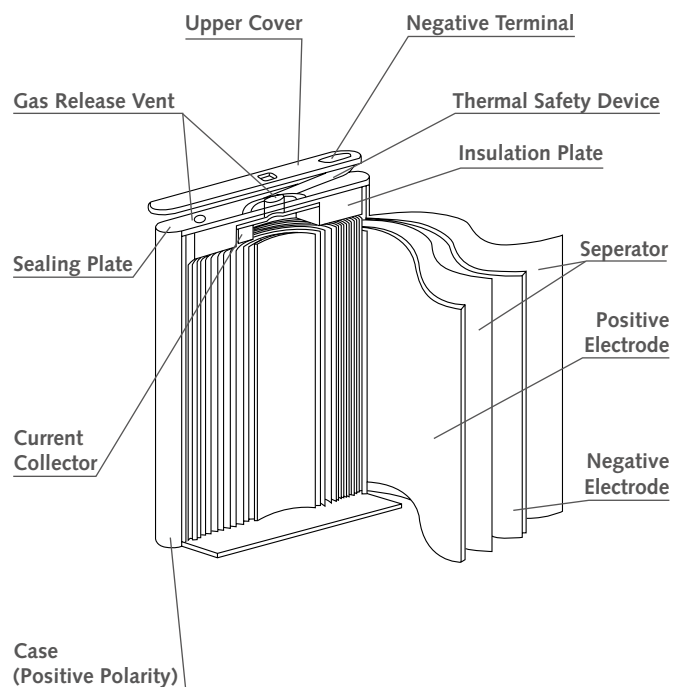
Under normal conditions, the Li-ion battery has a life of more than 500 charge /discharge cycles.

5. No Memory Effect

The Li-ion battery is free from the so-called memory effect, a phenomenon seen in NiCD in which the apparent battery capacity decreases when shallow charge and discharge cycles are repeated.

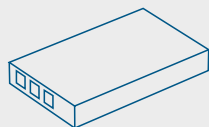
Range of applications:

- Video cameras, digital cameras
- Cellular phones
- Laptop computers
- Power tools
- Various portable equipment



Lithium Ion Batteries

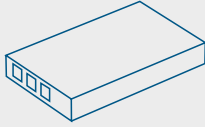
- High energy density
- High capacity
- Light weight
- High power (wide temperature range)
- Over 500 cycles
- Cylindrical and prismatic styles



Product	Voltage	Capacity	Thickness	Width	Height	Weight
JP032035A	3.7 V	180 mAh	3.9 mm	20.0 mm	35.0 mm	6.0 g
JP032328A	3.7 V	150 mAh	3.9 mm	22.7 mm	35.0 mm	5.0 g
JP033048A	3.7 V	400 mAh	3.9 mm	29.8 mm	48.0 mm	12.0 g
JP033450A	3.7 V	600 mAh	3.9 mm	34.0 mm	50.0 mm	15.0 g
JP033482A	3.7 V	900 mAh	3.9 mm	34.5 mm	82.5 mm	24.0 g
JP033555A2	3.7 V	600 mAh	3.9 mm	35.5 mm	55.5 mm	16.5 g
JP043048A	3.7 V	600 mAh	4.6 mm	30.0 mm	48.0 mm	14.0 g
JP043048AH	3.7 V	650 mAh	4.6 mm	30.0 mm	48.0 mm	15.0 g
JP043450A	3.7 V	750 mAh	4.5 mm	34.0 mm	50.0 mm	17.5 g
JP053040A	3.7 V	550 mAh	5.5 mm	30.1 mm	40.0 mm	14.0 g
JP053048A	3.7 V	670 mAh	5.5 mm	30.1 mm	48.0 mm	17.0 g
JP053048AH	3.7 V	750 mAh	5.5 mm	30.1 mm	48.0 mm	17.0 g
JP053450A	3.7 V	860 mAh	5.5 mm	34.0 mm	50.0 mm	19.5 g
JP053465A	3.7 V	900 mAh	5.3 mm	34.1 mm	65.0 mm	23.5 g
JP062248A	3.7 V	520 mAh	5.8 mm	22.0 mm	47.5 mm	13.0 g
JP062265A	3.7 V	800 mAh	6.6 mm	22.0 mm	65.0 mm	20.0 g
JP063048A	3.7 V	800 mAh	6.6 mm	29.8 mm	48.0 mm	20.0 g
JP063048AH	3.7 V	850 mAh	6.6 mm	29.8 mm	48.0 mm	20.5 g
JP063048S	3.7 V	750 mAh	6.2 mm	30.0 mm	48.0 mm	24.0 g
JP063067AR	3.7 V	1,100 mAh	6.6 mm	30.1 mm	67.0 mm	27.0 g
JP063448AR	3.7 V	900 mAh	6.4 mm	34.1 mm	47.5 mm	22.0 g
JP063450AR	3.7 V	950 mAh	6.6 mm	34.1 mm	50.0 mm	23.5 g
JP063450ARH	3.7 V	1,050 mAh	6.6 mm	34.1 mm	50.0 mm	24.5 g
JP063465S	3.7 V	1,250 mAh	6.5 mm	34.0 mm	65.0 mm	42.0 g
JP083048A	3.7 V	1,000 mAh	7.9 mm	29.8 mm	47.5 mm	23.0 g
JP083447AR	3.7 V	1,000 mAh	7.9 mm	33.8 mm	47.0 mm	25.0 g
JP083448SH	3.7 V	1,250 mAh	8.8 mm	33.8 mm	47.5 mm	40.5 g
JP083467AR	3.7 V	1,500 mAh	8.2 mm	33.8 mm	67.0 mm	38.0 g
JP102248A	3.7 V	900 mAh	10.2 mm	22.0 mm	48.0 mm	22.0 g
JP103450AR	3.7 V	1,550 mAh	10.5 mm	23.8 mm	50.0 mm	36.0 g
JP103450ARH	3.7 V	1,800 mAh	10.5 mm	23.8 mm	50.0 mm	37.0 g
JP103450SR	3.7 V	1,700 mAh	10.5 mm	23.8 mm	50.0 mm	47.0 g

Lithium Ion Batteries

- High energy density
- High capacity
- Light weight
- High power (wide temperature range)
- Over 500 cycles
- Cylindrical and prismatic styles



Product	Voltage	Capacity	Diameter	Height	Weight
JC0840	3.7V	150 mAh	8.4 mm	40.5 mm	6.0 g
JC0865	3.7V	250 mAh	8.4 mm	65.5 mm	9.0 g
JC1443	3.7V	550 mAh	14.3 mm	42.8 mm	17.0 g
JC1450	3.7V	720 mAh	14.3 mm	49.8 mm	19.0 g
JC1465	3.7V	1,000 mAh	14.3 mm	64.8 mm	25.0 g
JC1750	3.7V	950 mAh	16.8 mm	49.8 mm	25.5 g
JC1750	3.7V	1,400 mAh	16.8 mm	66.8 mm	35.5 g
JC1850	3.7V	1,400 mAh	18.3 mm	49.8 mm	32.0 g
JC1865	3.7V	2,000 mAh	18.3 mm	64.8 mm	45.5 g
JC1865PR	3.7V	1,200 mAh	18.3 mm	64.8 mm	40.0 g

Product	Voltage	Capacity	Diameter	Height	Weight
ICR18650	3.7V	2,000 mAh	18.25 mm	65.0 mm	44.0 g
ICR18650	3.7V	2,200 mAh	18.25 mm	65.0 mm	46.0 g
ICR18650	3.7V	2,400 mAh	18.25 mm	65.0 mm	48.0 g

Apart from the standard program of Lithium Ion Batteries, JAUCH BATTERIES offers the possibility of customized solutions.

Ni-MH Batteries



Nickel metal-hydride (Ni-MH) technology has been used commercially since the early 1990's, mainly with consumer applications. At the time, Nickel Cadmium (NiCd) was the mainstream technology to which Ni-MHs were often compared. Even in the early days, it was recognised that Ni-MH batteries are not only able to achieve higher energy density than NiCds, they are also more environmentally friendly.

Since both systems employed 1.2V in nominal voltage and also share many performance characteristics, it was relatively easy to adapt NiCd applications for use with Ni-MH.

Subtle differences between the two chemical systems made direct substitution of NiCd by Ni-MH a difficult process. Differences in the charging curve profiles meant that modification was required for fast charging of Ni-MH batteries. The early Ni-MH batteries were generally considered weaker in charge retention performance, and were not deemed suitable for high-drain applications.

Regular inspection

Periodic visual inspection of the battery is recommended. It is also advisable to store the battery at room temperature, with low humidity, when the battery is not expected to be used for a long period of time; the aim of which is to prevent cell leakage and rust.

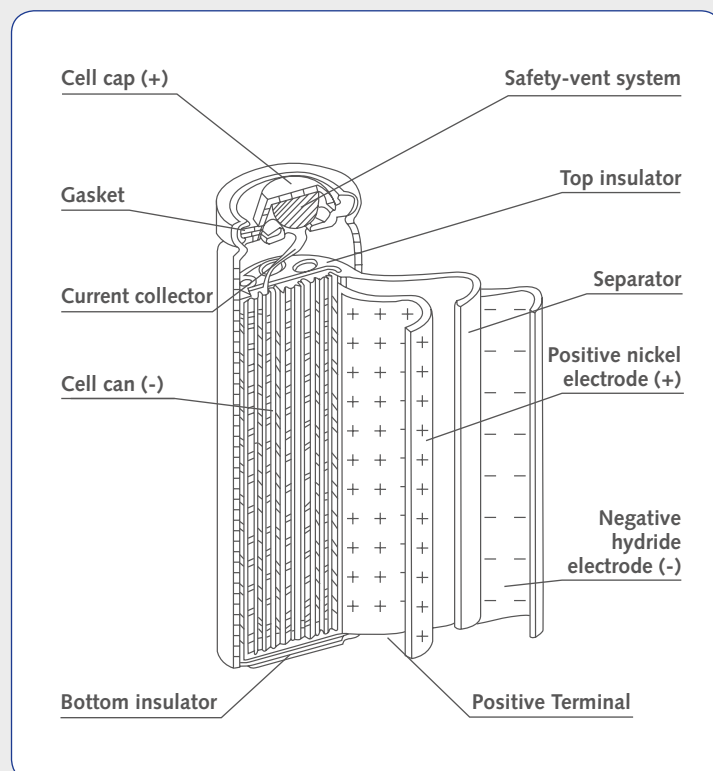
Storage

Bear in mind that self-discharge has to be taken into consideration when storing a charged battery. The remaining battery capacity should be at least 50% after a month of storage at room temperature for a fully charged battery. High storage temperatures will accelerate the self-discharge and reduce the remaining capacity.

In order to maintain battery performance when being stored for an extended period of time, cycling (charging and discharging) of the battery within a 6 to 9 month period is recommended. This procedure is recommended to maximize performance of the battery and prevent low OCV in long-term storage conditions.

Range of applications:

- Fire & Security
- UPS / Stand-by Power
- Emergency Lighting
- Renewable Energy
- Mobility
- General Electronics





Ni-MH Batteries

Panasonic

- Standard Ni-MH battery technology for nearly every application
- High quality and reliability
- Good balanced batteries in terms of capacity and cycle life
- Excellent discharge characteristics

Standard Ni-MH Batteries

Product	Type	Voltage	Capacity	Diameter	Height	Weight
HHR-70AAA/FT	Ni-MH	1.2 V	730 mAh	10.5 + 0/-0.7 mm	44.5 + 0/-1.0 mm	12.0 g
HHR-75AAA/HT*3	Ni-MH	1.2 V	730 mAh	10.5 + 0/-0.7 mm	44.5 + 0/-1.0 mm	12.0 g
HHR-80AAA/HT*3	Ni-MH	1.2 V	780 mAh	10.5 + 0/-0.7 mm	44.5 + 0/-1.0 mm	13.0 g
HHR-35AA/FT	Ni-MH	1.2 V	390 mAh	14.5 + 0/-0.7 mm	28.5 + 0/-1.0 mm	10.5 g
HHR-120AA/FT	Ni-MH	1.2 V	1,220 mAh	14.5 + 0/-0.7 mm	43.0 + 0/-1.0 mm	23.0 g
HHR-70AA/FT	Ni-MH	1.2 V	780 mAh	14.5 + 0/-0.7 mm	48.8 + 0/-1.5 mm	21.0 g
HHR-70AA/HT*4	Ni-MH	1.2 V	780 mAh	14.5 + 0/-0.7 mm	50.5 + 0/-1.5 mm	21.0 g
HHR-110AA/FT	Ni-MH	1.2 V	1,180 mAh	14.5 + 0/-0.7 mm	50.0 + 0/-1.0 mm	24.0 g
HHR-150AA/FT	Ni-MH	1.2 V	1,580 mAh	14.5 + 0/-0.7 mm	50.0 + 0/-1.0 mm	26.0 g
HHR-210AA/HT*4	Ni-MH	1.2 V	2,080 mAh	14.5 + 0/-0.7 mm	50.5 + 0/-1.0 mm	29.0 g
HHR-260AA/HT*4	Ni-MH	1.2 V	2,500 mAh	14.5 + 0/-0.7 mm	50.5 + 0/-1.0 mm	30.0 g
HHR-200A/FT	Ni-MH	1.2 V	2,040 mAh	17.0 + 0/-0.7 mm	43.0 + 0/-1.5 mm	32.0 g
HHR-210A/FT	Ni-MH	1.2 V	2,200 mAh	17.0 + 0/-0.7 mm	50.0 + 0/-1.5 mm	38.0 g
HHR-380A/FT*5	Ni-MH	1.2 V	3,800 mAh	17.0 + 0/-0.7 mm	67.0 + 0/-1.5 mm	53.0 g
HHR-450A/FT*5	Ni-MH	1.2 V	4,500 mAh	18.2 + 0/-0.7 mm	67.0 + 0/-1.5 mm	60.0 g
HHR-200SCP/FT*6	Ni-MH	1.2 V	2,100 mAh	23.0 + 0/-1.0 mm	34.0 + 0/-1.5 mm	43.0 g
HHR-200SCR/FT*6	Ni-MH	1.2 V	2,100 mAh	23.0 + 0/-1.0 mm	43.0 + 0/-1.5 mm	48.0 g
HHR-260SCP/FT*6	Ni-MH	1.2 V	2,600 mAh	23.0 + 0/-1.0 mm	43.0 + 0/-1.5 mm	55.0 g
HHR-300SCP/FT*6	Ni-MH	1.2 V	3,050 mAh	23.0 + 0/-1.0 mm	43.0 + 0/-1.5 mm	57.0 g
HHR-650D/FT*6	Ni-MH	1.2 V	6,800 mAh	33.0 + 0/-1.0 mm	60.8 + 0/-2.0 mm	170.0 g
HHR-900D/FT*6	Ni-MH	1.2 V	9,000 mAh	33.0 + 0/-1.0 mm	61.0 + 0/-1.5 mm	170.0 g

*1 After charging at 0.1 CmA for 16 hours, discharging at 0.2 CmA.

*2 For reference only.

*3 Compatible with consumer AAA size.

*4 Compatible with consumer AA size.

*5 Mainly for PC applications.

*6 For high power use applications such as Powertools.

Trickle Charge Technology

Product	Type	Voltage	Capacity	Diameter	Height	Weight
HHR-60AAAH/FT	Ni-MH	1.2 V	550 mAh	10.5 + 0/-0.7 mm	44.5 + 0/-1.0 mm	13.0 g
HHR-60AAAH/FT	Ni-MH	1.2 V	750 mAh	14.5 + 0/-0.7 mm	48.3 + 0/-1.0 mm	18.0 g
HHR-210AH/FT	Ni-MH	1.2 V	2,050 mAh	17.0 + 0/-0.7 mm	50.0 + 0/-1.5 mm	37.0 g
HHR-330APH/FT*4	Ni-MH	1.2 V	3,300 mAh	18.2 + 0/-0.7 mm	67.0 + 0/-1.5 mm	60.0 g
HHR-370AH/FT	Ni-MH	1.2 V	3,700 mAh	18.2 + 0/-0.7 mm	67.0 + 0/-1.5 mm	60.0 g
HHR-250SCH/FT*4	Ni-MH	1.2 V	2,650 mAh	23.0 + 0/-1.0 mm	43.0 + 0/-1.5 mm	55.0 g
HHR-300CH/FT*4	Ni-MH	1.2 V	3,300 mAh	26.0 + 0/-1.0 mm	50.0 + 0/-2.0 mm	80.0 g
HHR-1100FH/FT*4	Ni-MH	1.2 V	12,000 mAh	33.0 + 0/-1.0 mm	91.0 + 0/-1.5 mm	240.0 g
HHR-10000VH/FT*3,4	Ni-MH	1.2 V	95,000 mAh	62.0 + 0/-1.0 mm	173.5 + 0/-1.5 mm	1,650.0 g

*1 After charging at 0.1 CmA for 16 hours, discharging at 0.2 CmA.

*2 For reference only.

*3 Customer specification is required. Development concluded but large-scale production not started yet.

*4 For high power use applications.



Ni-MH Batteries

- Standard Ni-MH battery technology for nearly every application
- High quality and reliability
- Good balanced batteries in terms of capacity and cycle life
- Excellent discharge characteristics



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EVE
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Product	Type	Voltage	Capacity	Diameter	Height	Weight
H-AAA65	Ni-MH	1.2 V	650 mAh	10.5 mm	44.0 mm	13.0 g
H-AAA70	Ni-MH	1.2 V	700 mAh	10.5 mm	44.0 mm	13.0 g
H-AAA75	Ni-MH	1.2 V	750 mAh	10.5 mm	45.0 mm	14.0 g
H-2/3AA70	Ni-MH	1.2 V	700 mAh	14.5 mm	29.0 mm	15.5 g
H-4/5AA120	Ni-MH	1.2 V	1,200 mAh	14.5 mm	43.0 mm	23.0 g
H-AA130	Ni-MH	1.2 V	1,300 mAh	14.5 mm	49.0 mm	25.0 g
H-AA150	Ni-MH	1.2 V	1,500 mAh	14.5 mm	50.5 mm	26.0 g
H-AA180	Ni-MH	1.2 V	1,800 mAh	14.5 mm	50.5 mm	28.0 g
H-AA200	Ni-MH	1.2 V	2,000 mAh	14.5 mm	50.5 mm	29.0 g
H-AA210	Ni-MH	1.2 V	2,100 mAh	14.5 mm	50.5 mm	30.0 g
H-AA220	Ni-MH	1.2 V	2,200 mAh	14.5 mm	50.5 mm	30.0 g
H-AA230	Ni-MH	1.2 V	2,300 mAh	14.5 mm	50.5 mm	31.0 g
H-4/3A280	Ni-MH	1.2 V	2,800 mAh	17.0 mm	67.0 mm	44.0 g
H-4/3A300	Ni-MH	1.2 V	3,000 mAh	17.0 mm	67.0 mm	47.0 g
H-4/3A340	Ni-MH	1.2 V	3,400 mAh	17.0 mm	67.0 mm	52.0 g
H-1865	Ni-MH	1.2 V	4,000 mAh	18.5 mm	65.0 mm	66.0 g
H-1865	Ni-MH	1.2 V	4,200 mAh	18.5 mm	67.0 mm	69.0 g
H-SC250	Ni-MH	1.2 V	2,500 mAh	23.0 mm	43.0 mm	56.0 g
H-SC300	Ni-MH	1.2 V	3,000 mAh	23.0 mm	43.0 mm	60.0 g
H-C300	Ni-MH	1.2 V	3,000 mAh	26.0 mm	50.5 mm	75.0 g
H-C400	Ni-MH	1.2 V	4,000 mAh	26.0 mm	50.5 mm	80.0 g
H-C450	Ni-MH	1.2 V	4,500 mAh	26.0 mm	50.5 mm	84.0 g
H-D800	Ni-MH	1.2 V	8,000 mAh	33.0 mm	60.5 mm	155.0 g
H-D900	Ni-MH	1.2 V	9,000 mAh	33.0 mm	60.5 mm	155.0 g



Ni-MH Batteries



- Standard Ni-MH battery technology for nearly every application
- High quality and reliability
- Good balanced batteries in terms of capacity and cycle life
- Excellent discharge characteristics

Product	Type	Voltage	Capacity	Diameter	Height	Weight
NH-600AAA	Ni-MH	1.2 V	600 mAh	10.5 mm	44.5 mm	10.0 g
NH-1250AA	Ni-MH	1.2 V	1,250 mAh	14.5 mm	48.0 mm	25.0 g
NH-1250AAL	Ni-MH	1.2 V	1,250 mAh	14.5 mm	50.0 mm	25.0 g
NH-1500AA	Ni-MH	1.2 V	1,500 mAh	14.5 mm	48.0 mm	26.0 g
NH-1500AAL	Ni-MH	1.2 V	1,500 mAh	14.5 mm	50.0 mm	26.0 g
NH-1600A	Ni-MH	1.2 V	1,600 mAh	17.0 mm	42.4 mm	33.0 g
NH-2100A	Ni-MH	1.2 V	2,100 mAh	17.0 mm	50.0 mm	37.0 g
NH-3000SC	Ni-MH	1.2 V	3,000 mAh	23.0 mm	43.0 mm	59.0 g
NH-3700A	Ni-MH	1.2 V	3,700 mAh	17.0 mm	67.0 mm	53.0 g
NH-7000D	Ni-MH	1.2 V	7,000 mAh	33.0 mm	58.5 mm	160.0 g
NH-7000DL	Ni-MH	1.2 V	7,000 mAh	33.0 mm	61.0 mm	160.0 g
NH-8000D	Ni-MH	1.2 V	7,000 mAh	33.0 mm	58.0 mm	160.0 g

Ni-MH Batteries

- Standard Ni-MH battery technology for nearly every application
- High quality and reliability
- Good balanced batteries in terms of capacity and cycle life
- Excellent discharge characteristics



High Capacity Series

Product	Type	Voltage	Capacity	Diameter	Height	Weight
GP15BNH 2**	Ni-MH	1.2 V	15 mAh	9.5 mm	2.6 mm	0.7 g
GP20BNH 2**	Ni-MH	1.2 V	20 mAh	11.5 mm	22.5 mm	1.0 g
GP25BNH 2	Ni-MH	1.2 V	25 mAh	11.6 mm	3.5 mm	1.4 g
GP40BVH 2**	Ni-MH	1.2 V	40 mAh	11.6 mm	5.5 mm	1.9 g
GP80BVH 1**	Ni-MH	1.2 V	80 mAh	15.5 mm	6.3 mm	3.7 g
GP150BVH 1	Ni-MH	1.2 V	120 mAh	15.5 mm	7.8 mm	4.8 g
GP250BVH 2	Ni-MH	1.2 V	250 mAh	25.0 mm	6.4 mm	10.9 g
GP320BVH 1	Ni-MH	1.2 V	320 mAh	25.0 mm	8.7 mm	14.1 g

Standard Series

GP60BVH 1	Ni-MH	1.2 V	60 mAh	15.5 mm	6.3 mm	3.6 g
GP170BVH 1	Ni-MH	1.2 V	170 mAh	25.0 mm	6.4 mm	9.8 g
GP280BVH 1	Ni-MH	1.2 V	280 mAh	25.0 mm	8.7 mm	12.6 g

Typical Ambient Temperature: ¹ Standard Charge / Discharge: 0°C to 45°C / Storage: -20°C to 45°C

² Standard Charge: 0°C to 65°C / Discharge: -20°C to 65°C / Storage: -40°C to 65°C

** With UL approval.

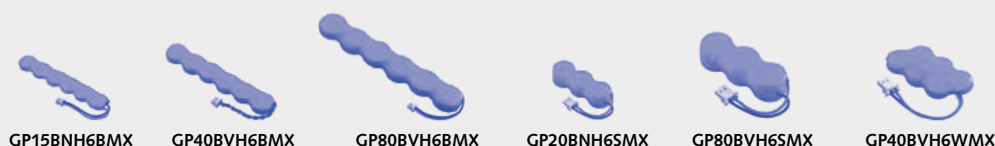
MBU Series

Product	Type	Voltage	Capacity	Length	Width	Height	Weight
GP15BNH3A2H	Ni-MH	3.6 V	16 mAh	9.8 mm	10.3 mm	10.3 mm	2.3 g
GP20BNH3B2H	Ni-MH	3.6 V	21 mAh	35.75 mm	12.8 mm	4.0 mm	3.0 g
GP40BVH2A2H	Ni-MH	2.4 V	48 mAh	11.7 mm	12.5 mm	12.5 mm	4.2 g
GP40BVH3A2H	Ni-MH	3.6 V	48 mAh	17.3 mm	12.5 mm	12.5 mm	6.1 g
GP40BVH3B3H	Ni-MH	3.6 V	48 mAh	36.0 mm	12.5 mm	7.0 mm	6.1 g
GP80BVH2A2H	Ni-MH	2.4 V	90 mAh	12.5 mm	16.5 mm	16.5 mm	7.7 g
GP80BVH2B2H	Ni-MH	2.4 V	90 mAh	31.5 mm	11.5 mm	7.0 mm	7.7 g
GP80BVH3A3H	Ni-MH	3.6 V	90 mAh	19.6 mm	16.5 mm	16.5 mm	11.7 g
GP80BVH3B2H	Ni-MH	3.6 V	90 mAh	43.0 mm	11.5 mm	7.0 mm	11.7 g

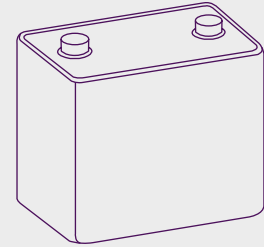


Bridging Series

GP15BNH6BMX	Ni-MH	7.2 V	16 mAh	59.0 mm	13.0 mm	3.4 mm	4.9 g
GP20BNH6BMX	Ni-MH	7.2 V	21 mAh	71.5 mm	14.5 mm	4.0 mm	7.0 g
GP20BNH6SMX	Ni-MH	7.2 V	21 mAh	36.7 mm	14.5 mm	7.0 mm	7.0 g
GP40BVH6BMX	Ni-MH	7.2 V	48 mAh	70.5 mm	13.5 mm	6.7 mm	12.5 g
GP40BVH6WMX	Ni-MH	7.2 V	48 mAh	42.5 mm	22.5 mm	7.5 mm	12.5 g
GP80BVH6BMX	Ni-MH	7.2 V	90 mAh	94.0 mm	17.8 mm	7.0 mm	23.1 g
GP80BVH6SMX	Ni-MH	7.2 V	90 mAh	48.0 mm	18.5 mm	13.2 mm	24.0 g



VRLA Batteries



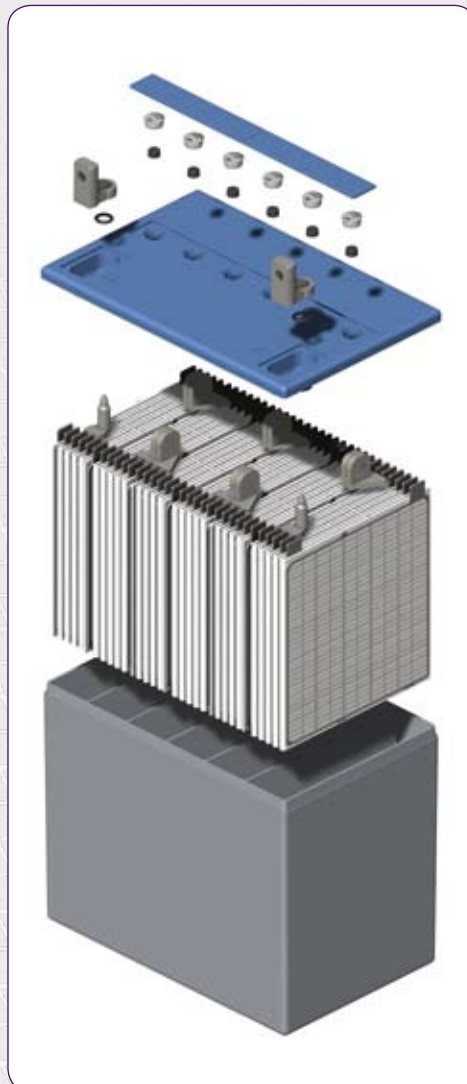
We sell a complete range of VRLA batteries.

A VRLA battery is a “recombinant” battery. This means that the oxygen normally produced on the positive plates of all lead-acid batteries is absorbed by the negative plate. This suppresses the production of hydrogen at the negative plate. Water (H₂O) is produced instead, retaining the moisture within the battery. It never needs watering and should never be opened.

If a battery is continually undercharged, a layer of sulphate will build up on the positive plate, which acts as a barrier to recharging. Premature plate shedding can also occur. Performance is reduced and life is shortened. Therefore it is critical that a charger must be used which limits voltage. The charger must be temperature-compensated to prevent under or overcharging due to ambient temperature changes.

Range of applications:

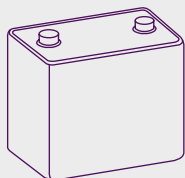
- Fire & Security
- UPS / Stand-by Power
- Emergency Lighting
- Renewable Energy
- Mobility
- General Electronics



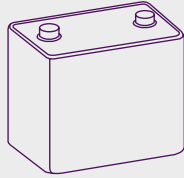
Standard Series

POWER PS SONIC

- **5/10 Year Design Life in Float Service**
- **Chemical System:** Sealed Lead Acid
- **Wide Operating Temperature Range:** Power-Sonic batteries may be discharged over a temperature range of -40°C to +60°C and charged at temperatures ranging from -20°C to +50°C
- **Long Shelf Life:** A low self-discharge rate permits storage of fully charged batteries for up to a year at room temperature before charging is required. Lower storage temperatures enhance shelf life characteristics even further.



Model No.	Nominal Voltage	Nominal Capacity	Length	Width	Height	TH	Terminal Type	Carton Quantity	Weight
PS-610	6V	1.0 Ah	50.0 mm	42.0 mm	51.0 mm	57.0 mm	F1	20	0.20 kg
PS-612	6V	1.3 Ah	97.0 mm	24.0 mm	51.5 mm	57.5 mm	F1	20	0.30 kg
PS-630	6V	3.4 Ah	134.0 mm	34.0 mm	60.0 mm	66.0 mm	F1	20	0.62 kg
PS-640	6V	4.5 Ah	70.0 mm	47.0 mm	100.0 mm	106.0 mm	F1	20	0.73 kg
PS-670	6V	7.0 Ah	151.0 mm	34.0 mm	94.0 mm	100.0 mm	F1	10	1.10 kg
PS-682	6V	8.0 Ah	98.0 mm	56.0 mm	118.0 mm	120.0 mm	F1	10	1.45 kg
PS-6100	6V	10.0 Ah	151.0 mm	51.0 mm	94.0 mm	100.0 mm	F1	10	1.95 kg
PS-1212	12V	1.2 Ah	97.0 mm	43.0 mm	52.0 mm	58.0 mm	F1	20	0.54 kg
PS-1221	12V	2.1 Ah	178.0 mm	35.0 mm	60.0 mm	66.0 mm	F1	20	0.59 kg
PS-1230	12V	3.4 Ah	134.0 mm	67.0 mm	60.5 mm	66.5 mm	F1	10	1.32 kg
PS-1242	12V	4.6 Ah	90.0 mm	70.0 mm	101.0 mm	107.0 mm	F1	10	1.59 kg
PS-1270	12V	7.0 Ah	151.0 mm	65.0 mm	94.0 mm	100.0 mm	F1	5	2.18 kg
PS-12120	12V	12.0 Ah	151.0 mm	98.0 mm	95.0 mm	101.0 mm	F1	4	3.59 kg
PS-12170	12V	17.0 Ah	181.5 mm	77.0 mm	167.5 mm	167.5 mm	T12	2	5.72 kg
PS-12240	12V	24.0 Ah	166.5 mm	176.0 mm	112.0 mm	125.0 mm	T12	2	7.71 kg
PS-12350	12V	35.0 Ah	195.0 mm	130.0 mm	164.0 mm	180.0 mm	T5	1	11.20 kg
PS-12380	12V	38.0 Ah	197.0 mm	165.0 mm	170.0 mm	170.0 mm	T6	1	13.80 kg
PS-12450	12V	45.0 Ah	197.0 mm	165.0 mm	170.0 mm	170.0 mm	T6	1	15.40 kg
PS-12550	12V	55.0 Ah	229.0 mm	138.0 mm	205.0 mm	226.0 mm	T6	1	16.33 kg
PS-12650	12V	65.0 Ah	348.0 mm	167.0 mm	178.0 mm	178.0 mm	T6	1	22.22 kg
PS-12750	12V	75.0 Ah	259.0 mm	168.0 mm	208.0 mm	212.0 mm	T6	1	22.95 kg
PS-121000	12V	100.0 Ah	305.0 mm	168.0 mm	206.0 mm	212.0 mm	T6	1	30.84 kg



Power-Guard Series



- **6–12 Year Design Life in Float Service**
- **Chemical System:** Sealed Lead Acid
- **Wide Operating Temperature Range:** Power-Sonic batteries may be discharged over a temperature range of -40°C to +60°C and charged at temperatures ranging from -20°C to +50°C
- **Long Shelf Life:** A low self-discharge rate permits storage of fully charged batteries for up to a year at room temperature before charging is required.
Lower storage temperatures enhance shelf life characteristics even further.

Model No.	Nominal Voltage	Nominal Capacity	Length	Width	Height	TH	Terminal Type	Carton Quantity	Weight
PG12V6 *	12V	6.0 Ah	90.0 mm	70.0 mm	101.0 mm	107.0 mm	F2	10	1.90 kg
PG12V7.6 *	12V	7.6 Ah	151.0 mm	65.0 mm	94.0 mm	100.0 mm	F2	5	2.60 kg
PG12V14 *	12V	14.0 Ah	151.0 mm	98.0 mm	95.0 mm	101.0 mm	F2	4	4.20 kg
PG12V21 *	12V	21.0 Ah	181.0 mm	77.0 mm	167.0 mm	167.0 mm	T12	2	6.00 kg
PG12V28 *	12V	26.0 Ah	165.0 mm	125.0 mm	175.0 mm	182.0 mm	T12	2	9.00 kg
PG12V30 *	12V	30.0 Ah	166.0 mm	176.0 mm	125.0 mm	125.0 mm	T12	1	8.60 kg
PG12V45 *	12V	45.0 Ah	197.0 mm	165.0 mm	170.0 mm	170.0 mm	T6	1	15.40 kg
PG12V60	12V	60.0 Ah	229.0 mm	138.0 mm	205.0 mm	216.0 mm	T6	1	19.00 kg
PG12V65 *	12V	65.0 Ah	259.0 mm	168.0 mm	208.0 mm	216.0 mm	T6	1	25.00 kg
PG12V80	12V	80.0 Ah	259.0 mm	168.0 mm	208.0 mm	216.0 mm	T6	1	25.00 kg
PG12V100H *	12V	98.0 Ah	305.0 mm	168.0 mm	210.0 mm	216.0 mm	T6	1	30.00 kg
PG12V110 *	12V	111.0 Ah	330.0 mm	173.0 mm	212.0 mm	220.0 mm	T6	1	32.00 kg
PG 12V130 *	12V	130.0 Ah	410.0 mm	177.0 mm	225.0 mm	225.0 mm	T6	1	37.60 kg
PG12V150	12V	154.0 Ah	344.0 mm	171.0 mm	274.0 mm	280.0 mm	T7	1	46.30 kg
PG12V160 *	12V	166.0 Ah	485.0 mm	170.0 mm	242.0 mm	242.0 mm	T7	1	48.20 kg
PG12V220	12V	226.0 Ah	522.0 mm	240.0 mm	218.0 mm	224.0 mm	T8	1	64.00 kg
PG6V220 *	6V	226.0 Ah	322.0 mm	178.0 mm	228.0 mm	234.0 mm	T8	1	32.50 kg

15 Year Design Life in Float Service

PG2V280 *	2V	294.0 Ah	170.0 mm	110.0 mm	328.0 mm	350.0 mm	T11	1	19.00 kg
PG2V340	2V	340.0 Ah	170.0 mm	150.0 mm	328.0 mm	350.0 mm	T11	1	19.30 kg
PG2V400 *	2V	398.0 Ah	170.0 mm	150.0 mm	328.0 mm	350.0 mm	T11	1	24.50 kg
PG2V470 *	2V	452.0 Ah	210.0 mm	175.0 mm	330.0 mm	350.0 mm	T11	1	27.00 kg
PG2V560	2V	564.0 Ah	240.0 mm	170.0 mm	330.0 mm	350.0 mm	T11	1	31.00 kg
PG2V680	2V	678.0 Ah	300.0 mm	175.0 mm	330.0 mm	350.0 mm	T11	1	40.00 kg
PG2V900	2V	904.0 Ah	410.0 mm	175.0 mm	330.0 mm	351.0 mm	T11	1	56.00 kg
PG2V1100H	2V	1,078.0 Ah	321.0 mm	188.0 mm	621.0 mm	651.0 mm	T11	1	66.00 kg
PG2V1350H	2V	1,356.0 Ah	321.0 mm	188.0 mm	621.0 mm	651.0 mm	T11	1	76.00 kg
PG2V1700H	2V	1,696.0 Ah	321.0 mm	188.0 mm	621.0 mm	651.0 mm	T11	1	123.50 kg
PG2V2250H	2V	2,260.0 Ah	328.0 mm	320.0 mm	621.0 mm	651.0 mm	T11	1	136.00 kg
PG2V3500H	2V	3,494.0 Ah	474.0 mm	323.0 mm	621.0 mm	651.0 mm	T11	1	212.00 kg

12 Year Design Life in Float Service

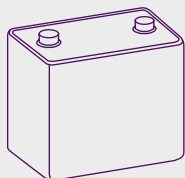
PGFT12V85	12V	85.0 Ah	564.0 mm	114.0 mm	187.0 mm	187.0 mm	T6	1	26.00 kg
PGFT12V110 *	12V	113.0 Ah	508.0 mm	110.0 mm	238.0 mm	238.0 mm	T13	1	35.60 kg
PGFT12V160 *	12V	170.0 Ah	551.0 mm	110.0 mm	286.0 mm	286.0 mm	T6	1	52.00 kg

*models held in European stocks

Flame Retardant V0 Series



- **Chemical System:** Sealed Lead Acid
- **Wide Operating Temperature Range:** Power-Sonic batteries may be discharged over a temperature range of -40°C to +60°C and charged at temperatures ranging from -20°C to +50°C
- **Long Shelf Life:** A low self-discharge rate permits storage of fully charged batteries for up to a year at room temperature before charging is required. Lower storage temperatures enhance shelf life characteristics even further.

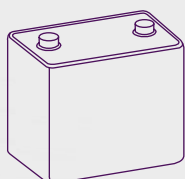


Model No.	Nominal Voltage	Nominal Capacity	Length	Width	Height	TH	Terminal Type	Carton Quantity	Weight
PS-6120	6V	12.0Ah	151.0mm	51.0mm	94.0mm	100.0mm	F1	10	1.95kg
PS-1208	12V	0.6Ah	96.0mm	25.0mm	62.0mm	62.0mm	WL	20	0.34kg
PS-1212	12V	1.2Ah	97.0mm	43.0mm	52.0mm	58.0mm	F1	20	0.60kg
PS-1221	12V	2.1Ah	178.0mm	35.0mm	60.0mm	66.0mm	F1	20	1.00kg
PS-1230	12V	3.4Ah	134.0mm	67.0mm	60.5mm	66.5mm	F1	10	1.35kg
PS-1270	12V	7.0Ah	151.0mm	65.0mm	94.0mm	100.0mm	F1	5	2.54kg
PS-12120	12V	12.0Ah	151.0mm	98.0mm	95.0mm	101.0mm	F1	4	3.85kg
PS-12180	12V	18.0Ah	181.5mm	77.0mm	167.5mm	167.5mm	T12	2	5.70kg
PS-12400	12V	40.0Ah	197.0mm	165.0mm	170.0mm	170.0mm	T6	1	13.80kg
PS-12700	12V	70.0Ah	348.0mm	167.0mm	178.0mm	178.0mm	T6	1	22.20kg

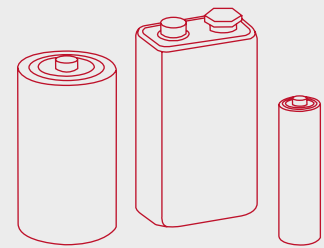
Gel Series



- **10 Year Design Life in Float Service**
- **Chemical System:** Sealed Lead Acid
- **Wide Operating Temperature Range:** Power-Sonic batteries may be discharged over a temperature range of -40°C to +60°C and charged at temperatures ranging from -20°C to +50°C
- **Long Shelf Life:** A low self-discharge rate permits storage of fully charged batteries for up to a year at room temperature before charging is required. Lower storage temperatures enhance shelf life characteristics even further.



Model No.	Design Life in Float Service at 20 Deg o C	Nominal Voltage	Nominal Capacity	Length	Width	Overall Height	Terminal Type	Weight
PSG12170	10	12V	18.0Ah	181.0mm	76.0mm	168mm	SS5	5.80kg
PSG12260	10	12V	26.0Ah	165.0mm	126.0mm	175mm	SS6	10.00kg
PSG12310	10	12V	33.0Ah	196.0mm	131.0mm	151mm	SS6	11.00kg
PSG12400	10	12V	40.0Ah	196.0mm	165.0mm	175mm	SS6	14.80kg
PSG12550	10	12V	55.0Ah	229.0mm	138.0mm	208mm	SS6	19.00kg
PSG12700	10	12V	70.0Ah	259.0mm	169.0mm	208mm	SS6	25.50kg
PSG121000	10	12V	100.0Ah	307.0mm	169.0mm	208mm	SS7	32.50kg



Alkaline Batteries

The cylindrical alkaline battery is composed of manganese dioxide (+), zinc powder (-) and caustic alkali (Potassium hydroxide) as electrolyte. These alkaline batteries have a higher energy output than zinc carbon batteries, a longer shelf life and better leakage resistance due to the use of purest materials to minimize self discharge. Their performance in terms of low temperature performance is much better than zinc carbon batteries.

Overdischarge (< 0.6 Volt/cell) can lead to gas generation and increase the volume of the manganese dioxide mass. These 2 effects combined can lead to internal pressure and result in vented batteries and leakage.

To avoid overdischarge:

- As an appliance manufacturer, make sure your technical design does not allow overdischarge of the batteries.
- As a user of electrical appliances, remove the batteries if you do not intend to use the appliances for long periods unless you check them regularly.

When changing the batteries, always change all of them at the same time. Do not mix brands or chemistries and be careful to respect polarities when inserting the new batteries!

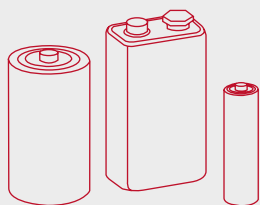
Range of applications:

- Premium products
- Toys
- Remote controls
- Flashlights
- Clocks
- Consumer applications
- RAM cells can be interchanged with standard alkaline cells (but not mixed in the same application).



Cross reference

IEC	LR03	LR6	LR14	LR20	6LR61
ANSI	AAA	AA	C	D	9V
JIS	AM-4	AM-3	AM-2	AM-1	6AM-6
	Micro	Mignon	Baby	Mono	
	Ø 10.5 / H 44.5 mm	Ø 14.5 / H 50.5 mm	Ø 26.2 / H 50.0 mm	Ø 34.2 / H 61.5 mm	L 17.5 / W 26.5 / H 48.5 mm

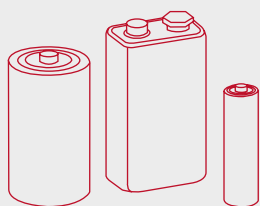


Alkaline Batteries

Panasonic

- **Chemical System:** Alkaline Manganese Dioxide
- **Temperature Range:** -10 °C to +45 °C
- **Self discharge:** 1 % per year at 25 °C
- **Storage Capability:** 5 years at max. 25 °C

Product	Type	Voltage	Diameter	Height	Weight
LR03	Power Line	1.5 V	10.5 mm	44.5 mm	10.8 g
LR06	Power Line	1.5 V	14.5 mm	50.5 mm	10.8 g
LR14	Power Line	1.5 V	26.2 mm	50.0 mm	63.3 g
LR20	Power Line	1.5 V	34.2 mm	61.5 mm	137.7 g
6LR61	Power Line	9.0 V	L 17.5 / W 26.5 mm	48.5 mm	45.0 g

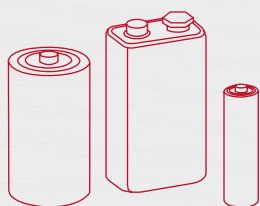


Alkaline Batteries

SONY®

- **Chemical System:** Alkaline Manganese Dioxide
- **Temperature Range:** -10 °C to +45 °C
- **Self discharge:** 1 % per year at 25 °C
- **Storage Capability:** 5 years at max. 25 °C

Product	Type	Voltage	Diameter	Height	Weight
LR03	Stamina Plus	1.5 V	10.5 mm	44.5 mm	10.8 g
LR06	Stamina Plus	1.5 V	14.5 mm	50.5 mm	10.8 g
LR14	Stamina Plus	1.5 V	26.2 mm	50.0 mm	63.3 g
LR20	Stamina Plus	1.5 V	34.2 mm	61.5 mm	137.7 g
6LR61	Stamina Plus	9.0 V	L 17.5 / W 26.5 mm	48.5 mm	45.0 g

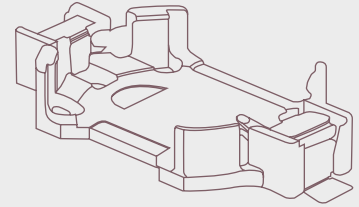


Alkaline Batteries

DURACELL®

- **Chemical System:** Alkaline Manganese Dioxide
- **Temperature Range:** -10 °C to +45 °C
- **Self discharge:** 1 % per year at 25 °C
- **Storage Capability:** 5 years at max. 25 °C

Product	Type	Voltage	Diameter	Height	Weight
LR03	Procell	1.5 V	10.5 mm	44.5 mm	10.8 g
LR06	Procell	1.5 V	14.5 mm	50.5 mm	10.8 g
LR14	Procell	1.5 V	26.2 mm	50.0 mm	63.3 g
LR20	Procell	1.5 V	34.2 mm	61.5 mm	137.7 g
6LR61	Procell	9.0 V	L 17.5 / W 26.5 mm	48.5 mm	45.0 g



Battery Holders

A battery holder is one or more compartments or chambers for holding a battery or batteries. In the case of dry cells the holder is also usually responsible for making electrical contact.

In the case of wet cells cables normally make contact with posts or terminals like commonly found on automobiles or emergency lighting and power. Battery holders developed in parallel with batteries over time and as battery package sizes shrunk so did the holders. Today's battery holders typically are either a plastic case with the shape molded in the housing as a compartment that accepts batteries or a separate plastic holder that is mounted with screws, eyelets, glued or double sided taped down. New holders have been designed for coin cells on surface mount boards. Using either coiled spring wire or flat tabs that press against the battery are the two most common methods of making the electrical connection inside a holder. External connections on battery holders are usually made by contacts with the following feature: PC pins, surface mount feet, solder lugs or wire leads.

The majority of AAA, AA, C and D battery holders available on the market are made with polypropylene or nylon bodies rated for 80–100°C. Lithium coin cell holders are made with high temperature PBT, nylon or LCP bodies because they normally are circuit board mounting and require wave soldering at 180–240°C or reflow soldering and rated 260–300°C.

Range of applications:

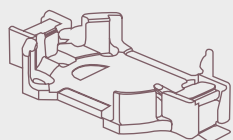
- Remote controlled car keys
- Electric thermometers
- Electric medical equipment
- Keyless entry systems
- Back-up for Computers
- Clocks and watches



Keystone Battery Holders



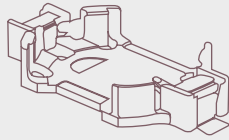
- Quick & Easy battery change
- Safe battery retention
- Clear contact separation
- Short-circuit safe
- Stable construction



Product	Type	Length	Width	Height	Remarks
1025	with Pins	30.9 mm	27.7 mm	11.4 mm	For CR2430, DL2430, CR2450, CR2477
1025-7	with Pins	30.9 mm	27.7 mm	12.7 mm	For CR2430, DL2430, CR2450, DL2450, CR2477
1026	with Pins	30.9 mm	27.7 mm	11.4 mm	For BR2016, CR2016, DL2016, BR2020, CL2020, BR2025, CR2025, DL2025, BR2032, CR2032, DL2032
1027	with Pins	30.9 mm	27.7 mm	11.4 mm	For BR2320, CL2320, CR2320, BR2325, CR2325, DL2325, BR2330, CL2330, BR2335, CR2354
103	with Pins	28.7 mm	22.7 mm	8.5 mm	For BR2016, CR2016, DL2016, BR2020, CL2020, BR2025, CR2025, DL2025, BR2032, CR2032, DL2032
104	with Pins	29.2 mm	25.4 mm	8.5 mm	For BR2320, CL2320, CR2320, BR2325, CR2325, DL2325, BR2330, CL2330, BR2335, CR2354
105	with Pins	30.9 mm	27.7 mm	8.5 mm	For CR2430, DL2430, CR2450, CR2477
106	with Pins	30.9 mm	27.7 mm	3.5 mm	For BR2016, CR2016, DL2016, BR2020, CL2020, BR2025, CR2025, DL2025, BR2032, CR2032, DL2032
1061	SMD	25.7 mm	22.7 mm	7.3 mm	For 2016, 2020, 2025, 2032
1062	SMD	25.7 mm	22.7 mm	10.3 mm	For 2016, 2020, 2025, 2032
1063	SMD	31.7 mm	22.7 mm	7.3 mm	For 2016, 2020, 2025, 2032
1064	SMD	31.7 mm	22.7 mm	10.3 mm	For 2016, 2020, 2025, 2032
107	with Pins	30.9 mm	27.7 mm	8.5 mm	For BR2320, CL2320, CR2320, BR2325, CR2325, DL2325, BR2330, CL2330, BR2335, CR2354
1071	SMD	25.7 mm	25.4 mm	7.3 mm	For 2320, 2325, 2330
1073	SMD	31.7 mm	25.4 mm	7.3 mm	For 2320, 2325, 2330
2998	SMD	8.0 mm	10.6 mm	2.8 mm	For MC621, V364, SC621
3000	SMD	12.7 mm	18.9 mm	3.1 mm	For BR1216, CR1216, BR1220, CL1220, BR1225
3001	with Pins	12.7 mm	18.9 mm	2.8 mm	For BR1216, CR1216, BR1220, CL1220, CR1220, BR1225
3002	SMD	19.6 mm	30.7 mm	4.0 mm	For BR2016, CR2016, DL2016, BR2020, CL2020, BR2025, CR2025, DL2025, DR2032, CR2032, DL2032
3003	with Pins	19.6 mm	22.6 mm	3.6 mm	For BR2016, CR2016, DL2016, BR2020, CL2020, BR2025, CR2025, DL2025, DR2032, CR2032, DL2032
3004	SMD	23.8 mm	34.0 mm	3.6 mm	For BR2320, CL2330, CR2320, BR2325, CR2325, DL2325
3005	with Pins	23.8 mm	34.0 mm	3.6 mm	For BR2320, CL2330, CR2320, BR2325, CR2325, DL2325
3006	SMD	23.3 mm	35.5 mm	3.9 mm	For CR2430, DL2430
3007	with Pins	23.3 mm	27.0 mm	3.6 mm	For CR2430, DL2430
3008	SMD	22.6 mm	35.5 mm	5.8 mm	For CR2450, DL2450
3009	with Pins	22.6 mm	26.8 mm	5.8 mm	For CR2450, DL2450
301	with Pins	36.1 mm	32.9 mm	8.5 mm	For BR3032
3010	SMD	20.8 mm	34.0 mm	6.0 mm	For CR2354, DL2354
3011	with Pins	20.8 mm	25.5 mm	6.0 mm	For CR2354, DL2354
3012	SMD	15.0 mm	23.2 mm	4.0 mm	For BR1616, CR1612, CR1616, CR1620, CR1632
3013	with Pins	15.0 mm	18.3 mm	3.6 mm	For BR1616, CR1612, CR1616, CR1620, CR1632
499	with Pins	19.05 mm	15.06 mm	6.35 mm	For DL 1/3N, K58L, CR 1/3N
501	with Pins	19.0 mm	15.0 mm	6.3 mm	For BR1216, BR1220, CL1220, CR1220, BR1225
502	with Pins	22.7 mm	19.0 mm	7.9 mm	For BR1616, CR1612, CR1616, CR1620, CR1632

Renata Battery Holders

- Clear contact separation
- Short-circuit safe
- Stable construction
- Easy and fast replacement of the battery
- Protection against short-circuit



Through-hole Mounting

Product	Type	Length	Width	Height	Weight	Remarks
HU357-LF	with Pins	19.9 mm	11.6 mm	7.4 mm	0.84 g	For 357
HU1225-LF	with Pins	20.3 mm	12.5 mm	4.5 mm	0.70 g	For CR1225
HU1632-LF	with Pins	24.3 mm	16.0 mm	5.2 mm	0.80 g	For CR1632
HU2032-LF	with Pins	28.5 mm	20.0 mm	5.2 mm	0.95 g	For CR2032
HU2430-LF	with Pins	33.0 mm	24.5 mm	4.7 mm	1.05 g	For CR2430
HU2450N-LF	with Pins	33.0 mm	24.5 mm	7.3 mm	1.45 g	For CR2450N
HU2477N-LF	with Pins	33.0 mm	24.5 mm	10.1 mm	1.65 g	For CR2477N
VBH2032-1 vertical	VBH	22.5 mm	6.0 mm	23.6 mm	1.60 g	For CR2032
NH5077-LF vertical	with Pins	30.0 mm	8.4 mm	23.0 mm	2.4 g	For CR2450N, CR2477N
NL5077-CF horizontal	with Pins	30.0 mm	29.25 mm	8.4 mm	2.9 g	For CR2450N, CR2477N

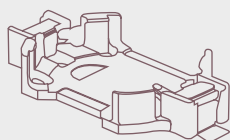
Surface Mounting Technology

SMTU357-LF	SMD	23.3 mm	11.6 mm	7.55 mm	0.85 g	For 357 (SR44W)
SMTU1220-LF	SMD	23.7 mm	12.5 mm	4.8 mm	0.80 g	For CR1220
SMTU1225-LF	SMD	23.7 mm	11.6 mm	4.8 mm	0.70 g	For CR1225
SMTU1632-LF	SMD	27.7 mm	16.0 mm	5.4 mm	0.80 g	For CR1632
SMTU2032-LF	SMD	32.0 mm	20.0 mm	5.4 mm	0.95 g	For CR2032
SMTU2430-LF	SMD	36.5 mm	24.5 mm	4.9 mm	1.05 g	For CR2430
SMTU2450N-LF	SMD	36.6 mm	24.5 mm	7.5 mm	1.45 g	For CR2450N
SMTU2477N-LF	SMD	36.7 mm	24.5 mm	10.3 mm	1.65 g	For CR2477N
SM2X2016-LF	SMD	32.0 mm	20.0 mm	5.4 mm	0.95 g	For CR2016
SMTM 1225	SMD	18.9 mm	10.6 mm	3.2 mm	0.40 g	For CR1220, CR1225
SMTM 1632	SMD	23.2 mm	13.25 mm	4.0 mm	0.50 g	For CR1620, CR1632
SMTM 2032	SMD	30.7 mm	16.0 mm	4.0 mm	0.80 g	For CR2025, CR2032
SMTM 2325	SMD	34.0 mm	18.0 mm	3.7 mm	0.80 g	For CR2320, CR2325
SMTM 2430	SMD	35.6 mm	23.0 mm	4.0 mm	1.50 g	For CR2430
SMTM 2450	SMD	35.6 mm	23.0 mm	5.8 mm	1.60 g	For CR2450

Comfortable Battery Holders

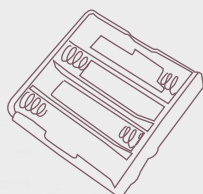


- Quick & Easy battery change
- Safe battery retention
- Clear contact separation
- Short-circuit safe
- Stable construction



Coin Cell Holders

Product	Type	Dimensions
CH23-1220	For CR1220 – one cell	Ø = 13.0 mm, H = 5.0 mm
CH23-1225	For CR1225 – one cell	Ø = 13.0 mm, H = 8.0 mm
CH25-2032	For CR2032 – one cell	Ø = 20.0 mm, H = 6.0 mm
CH25-2325	For CR2325 – one cell	Ø = 23.0 mm, H = 6.0 mm
CH26-2032	For CR2032 – one cell	Ø = 23.0 mm, H = 7.0 mm
CH28-2032	For CR2032 – one cell	L = 28.0 mm, W = 16.0 mm, H = 5.5 mm
CH29-2032	For CR2032 – one cell	L = 28.0 mm, W = 16.0 mm, H = 5.5 mm
CH74-2032	For CR2032 – one cell	L = 23.0 mm, L = 6.0 mm
CH002-2425	For CR2425 – one cell	Ø = 28.0 mm, H = 6.0 mm
CH004-2032	For CR2032 – one cell	L = 29.0 mm, W = 16.0 mm, H = 5.4 mm
CH005-2032	For CR2032 – one cell	L = 29.0 mm, H = 5.0 mm
CH224-2032	For CR2032 – one cell	Ø = 22.0 mm, H = 7.0 mm
CH243-2032	For CR2032 – one cell	
CH273-2450	For CR2450 – one cell	Ø = 27.0 mm, H = 9.0 mm
CH7410-2032	For CR2032 – one cell	L = 24.0 mm, W = 16.0 mm, H = 5.0 mm
BC-2001	For CR2032	L = 21.0 mm, W = 20.0 mm, H = 3.8 mm
BC-2002	For CR2032	L = 21.0 mm, W = 19.6 mm, H = 6.0 mm
BC-2401	For CR2430	L = 25.6 mm, W = 24.5 mm, H = 3.3 mm



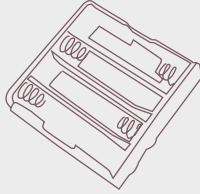
AAA Cell Holders

Product	Type	Dimensions
BH411A/D/P	For one "AAA" cell	L = 50.0 mm, W = 13.0 mm, H = 12.0 mm
BH411-1A/1D/1P	For one "AAA" cell	L = 50.0 mm, W = 13.0 mm, H = 12.0 mm
BH411-2A/2D/2P	For one "AAA" cell	L = 50.0 mm, W = 13.0 mm, H = 12.0 mm
BH421A/B/D/P	For two "AAA" cells – parallel	L = 53.0 mm, W = 25.0 mm, H = 13.0 mm
BH421-1A/1B/1D/1P	For two "AAA" cells – parallel	L = 52.0 mm, W = 25.0 mm, H = 13.0 mm
BH421-3A/3B/3D/3P	For two "AAA" cells – parallel	L = 53.0 mm, W = 25.0 mm, H = 13.0 mm
BH421-4A/4B/4D/4P	For two "AAA" cells – parallel	L = 52.0 mm, W = 25.0 mm, H = 13.0 mm
BH422A/D	For two "AAA" cells – 2x series	L = 50.0 mm, W = 25.0 mm, H = 13.0 mm
BH425A/D/P	For two "AAA" cells – series	L = 95.0 mm, W = 13.0 mm, H = 12.0 mm
BH431A/B/D/P	For three "AAA" cells – parallel	L = 53.0 mm, W = 37.0 mm, H = 13.0 mm
BH431-1A/1B/1D/1P	For three "AAA" cells – parallel	L = 53.0 mm, W = 38.0 mm, H = 13.0 mm
BH432A	For three "AAA" cells – circle	L = 53.0 mm, Ø 22.0 mm
BH441A/B/D/P	For four "AAA" cells – parallel	L = 54.0 mm, W = 50.0 mm, H = 13.0 mm
BH441-2A/2B/2D/2P	For four "AAA" cells – parallel	L = 50.0 mm, W = 47.0 mm, H = 12.0 mm
BH443A/B/D	For four "AAA" cells – 2x parallel	L = 53.0 mm, W = 25.0 mm, H = 24.0 mm
BH463A/B/D	For six "AAA" cells – 2x parallel	L = 53.0 mm, W = 38.0 mm, H = 27.0 mm
BH482A/B/D	For eight "AAA" cells	L = 97.0 mm, W = 25.0 mm, H = 24.0 mm
BH483A/B/D	For eight "AAA" cells – 2x parallel	L = 54.0 mm, W = 50.0 mm, H = 27.0 mm

Comfortable Battery Holders



- Quick & Easy battery change
- Safe battery retention
- Clear contact separation
- Short-circuit safe
- Stable construction



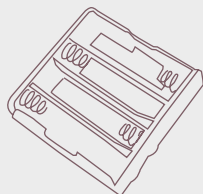
AA Cell Holders

Product	Type	Dimensions
BH311-1A/1D/1P	For one "AA" cell	L = 57.0 mm, W = 17.0 mm, H = 14.0 mm
BH311-2A/2D/2P	For one "AA" cell	L = 57.0 mm, W = 17.0 mm, H = 14.0 mm
BH311-3A/3D/3P	For one "AA" cell	L = 71.0 mm, W = 16.0 mm, H = 13.0 mm
BH321-1A,AS/1B/1D/1P	For two "AA" cells – parallel	L = 57.0 mm, W = 32.0 mm, H = 16.0 mm
BH321-2A,AS/2D/2P	For two "AA" cells – parallel	L = 59.0 mm, W = 33.0 mm, H = 15.0 mm
BH321-3A/3D/3P	For two "AA" cells – parallel	L = 79.0 mm, W = 32.0 mm, H = 16.0 mm
BH321-4A/4B/4D/4P	For two "AA" cells – parallel	L = 71.0 mm, W = 32.0 mm, H = 16.0 mm
BH321-5A/5B/5D/5P	For two "AA" cells – parallel	L = 57.0 mm, W = 32.0 mm, H = 16.0 mm
BH322-1A/1B/1D	For two "AA" cells	L = 58.0 mm, W = 26.0 mm, H = 17.0 mm
BH324A/D	For two "AA" cells	L = 57.0 mm, W = 26.0 mm, H = 15.0 mm
BH325A/AS	For two "AA" cells – series	L = 109.0 mm, W = 17.0 mm, H = 14.0 mm
BH325-1A/1AS	For two "AA" cells – series	L = 109.0 mm, W = 17.0 mm, H = 14.0 mm
BH331A/B/D/P	For three "AA" cells – parallel	L = 58.0 mm, W = 48.0 mm, H = 17.0 mm
BH331-1A/1B/1D/1P	For three "AA" cells – parallel	L = 80.0 mm, W = 48.0 mm, H = 17.0 mm
BH331-2A/2B/2D/2P	For three "AA" cells – parallel	L = 58.0 mm, W = 49.0 mm, H = 17.0 mm
BH332A	For three "AA" cells – orthogonal	L = 58.0 mm, W = 32.0 mm, H = 29.0 mm
BH333A/D/P	For three "AA" cells – series	L = 158.0 mm, W = 17.0 mm, H = 14.0 mm
BH341-1A/1B/1D/1P	For four "AA" cells – parallel	L = 58.0 mm, W = 64.0 mm, H = 16.0 mm
BH341-2A/2B/2D/2P	For four "AA" cells – parallel	L = 57.0 mm, W = 62.0 mm, H = 15.0 mm
BH341-3A/3B/3D/3P	For four "AA" cells – parallel	L = 58.0 mm, W = 64.0 mm, H = 16.0 mm
BH342-1A/1B/1D	For four "AA" cells – 2x series	L = 109.0 mm, W = 17.0 mm, H = 26.0 mm
BH343-1A/1B/1D	For four "AA" cells – 2x parallel	L = 57.0 mm, W = 30.0 mm, H = 27.0 mm
BH343-2A/2B/2D	For four "AA" cells – 2x parallel	L = 58.0 mm, W = 31.0 mm, H = 28.0 mm
BH344A/B/D/P	For four "AA" cells – 2x series	L = 109.0 mm, W = 32.0 mm, H = 16.0 mm
BH351A/B/D	For five "AA" cells – parallel	L = 79.0 mm, W = 59.0 mm, H = 17.0 mm
BH361A/B/D	For six "AA" cells	L = 111.0 mm, W = 48.0 mm, H = 17.0 mm
BH362A/B/D/P	For six "AA" cells	L = 157.0 mm, W = 32.0 mm, H = 16.0 mm
BH363A/B/D	For six "AA" cells – 2x parallel	L = 58.0 mm, W = 45.0 mm, H = 28.0 mm
BH364A/D	For six "AA" cells – parallel	L = 91.0 mm, W = 57.0 mm, H = 16.0 mm
BH365A/B/D	For six "AA" cells – series	L = 158.0 mm, W = 26.0 mm, H = 17.0 mm
BH381A/B/D	For eight "AA" cells – parallel	L = 121.0 mm, W = 59.0 mm, H = 16.0 mm
BH381-2A/2B/2D	For eight "AA" cells – parallel	L = 171.0 mm, W = 59.0 mm, H = 16.0 mm
BH382A/B/D	For eight "AA" cells	L = 108.0 mm, W = 31.0 mm, H = 29.0 mm
BH383A/B/D	For eight "AA" cells – 2x parallel	L = 58.0 mm, W = 63.0 mm, H = 28.0 mm
BH3101A/D	For ten "AA" cells – parallel	L = 152.0 mm, W = 57.0 mm, H = 16.0 mm
BH3103-1A/1B/1D	For ten "AA" cells – 2x parallel	L = 79.0 mm, W = 59.0 mm, H = 59.0 mm

Comfortable Battery Holders



- Quick & Easy battery change
- Safe battery retention
- Clear contact separation
- Short-circuit safe
- Stable construction



C Cell Holders

Product	Type	Dimensions
BH211A/D	For one "C" cell	L = 62.0 mm, W = 30.0 mm, H = 25.0 mm
BH211-1A/1D	For one "C" cell	L = 58.0 mm, W = 29.0 mm, H = 24.0 mm
BH221A/B/D	For two "C" cells – parallel	L = 63.0 mm, W = 56.0 mm, H = 23.0 mm
BH225A/D	For two "C" cells – series	L = 108.0 mm, W = 29.0 mm, H = 23.0 mm
BH231A/D/P	For three "C" cells – series	L = 160.0 mm, W = 30.0 mm, H = 27.0 mm
BH232A/B/D	For three "C" cells – parallel	L = 82.0 mm, W = 59.0 mm, H = 24.0 mm
BH241A/D	For four "C" cells – 2x series	L = 210.0 mm, W = 30.0 mm, H = 26.0 mm
BH242A/B/D	For four "C" Cells	L = 108.0 mm, W = 54.0 mm, H = 23.0 mm
BH242-1A/1B/1D	For four "C" cells – parallel	L = 108.0 mm, W = 54.0 mm, H = 26.0 mm
BH243A/B/D	For four "C" cells – parallel	L = 106.0 mm, W = 59.0 mm, H = 22.0 mm
BH261A/B/D	For six "C" cells	L = 159.0 mm, W = 57.0 mm, H = 25.0 mm
BH262A/B/D	For six "C" cells – 2x parallel	L = 82.0 mm, W = 59.0 mm, H = 49.0 mm
BH281A/B/D	For eight "C" cells– 2x parallel	L = 106.0 mm, W = 59.0 mm, H = 45.0 mm
BH282-1A/1B/1D	For eight "C" cells	L = 108.0 mm, W = 54.0 mm, H = 53.0 mm

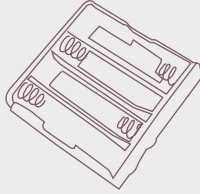
D Cell Holders

Product	Type	Dimensions
BH111A/D	For one "D" cell	L = 69.0 mm, W = 37.0 mm, H = 27.0 mm
BH111-1A/1D	For one "D" cell	L = 69.0 mm, W = 37.0 mm, H = 27.0 mm
BH121-1A/1B/1D	For two "D" cells – parallel	L = 71.0 mm, W = 73.0 mm, H = 31.0 mm
BH121-1AS/1DS/1P	For two "D" cells – parallel	L = 71.0 mm, W = 73.0 mm, H = 31.0 mm
BH125A/D	For two "D" cells – series	L = 130.0 mm, W = 37.0 mm, H = 28.0 mm
BH131A/B/D	For three "D" cells – parallel	L = 106.0 mm, W = 70.0 mm, H = 28.0 mm
BH132A/D	For three "D" cells – series	L = 192.0 mm, W = 37.0 mm, H = 31.0 mm
BH141A/D	For four "D" cells	L = 130.0 mm, W = 74.0 mm, H = 29.0 mm
BH142-1A/1B/1D	For four "D" cells	L = 134.0 mm, W = 74.0 mm, H = 31.0 mm
BH143-1A/1D	For four "D" cells – parallel	L = 141.0 mm, W = 73.0 mm, H = 31.0 mm
BH143-2A/2D	For four "D" cells – parallel	L = 142.0 mm, W = 73.0 mm, H = 31.0 mm
BH144-1A	For four "D" cells – 2x parallel	L = 71.0 mm, W = 73.0 mm, H = 62.0 mm
BH145A/D	For four "D" cells – series	L = 256.0 mm, W = 37.0 mm, H = 31.0 mm
BH161A/B/D	For six "D" cells – 2x parallel	L = 105.0 mm, W = 70.0 mm, H = 56.0 mm
BH162A/B/D	For six "D" cells – 2x series	L = 195.0 mm, W = 74.0 mm, H = 33.0 mm
BH163A/B/D	For six "D" cells	L = 134.0 mm, W = 106.0 mm, L = 28.0 mm
BH181-1A/1D	For eight "D" cells – 2x parallel	L = 141.0 mm, W = 73.0 mm, H = 63.0 mm
BH182-1A/1B/1D	For eight "D" cells	L = 134.0 mm, W = 74.0 mm, H = 63.0 mm

Comfortable Battery Holders



- Quick & Easy battery change
- Safe battery retention
- Clear contact separation
- Short-circuit safe
- Stable construction



Cylindrical Cell Holders

Product	Type	Dimensions
BH9VA/D/P	For 9V Cell	L = 55.0 mm, W = 31.0 mm, H = 21.0 mm
BH9V-1A/1D/1P/1T	For 9V Cell	L = 54.0 mm, W = 30.0 mm, H = 20.0 mm
BH9V-2	For 9V Cell	L = 49.0 mm, W = 29.0 mm, H = 20.0 mm
BH1/2AA-2A/2P	For "1/2AA" Cell	L = 31.0 mm, W = 18.0 mm, H = 15.0 mm
BH1/ AA-3S	For "1/2AA" Cell	Ø = 19.0 mm, H = 36.0 mm
BHC-CR123A	For "CR123A" Cell	L = 43.0 mm, W = 18.0 mm, H = 14.0 mm

AA Contacts

Product	Type	Dimensions
BC-0301	For "AA" Clip	W = 15.0 mm, H = 14.0 mm
BC-0302	For "AA" Clip	W = 14.8 mm, H = 14.0 mm
BC-0401	For "AAA" Clip	W = 12.0 mm, H = 10.4 mm

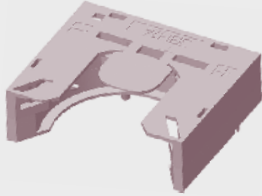
Cylindrical Cell Holders with Cover

Product	Type	Dimensions
BH511A/D/P	For one "N" cell	L = 35.0 mm, W = 13.0 mm, H = 12.0 mm
BH511-1A/1D/1P	For one "N" cell	L = 35.0 mm, W = 13.0 mm, H = 12.0 mm
BH521A/D/P	For two "N" cells – parallel	L = 38.0 mm, W = 28.0 mm, H = 14.0 mm
BH522A/D	For two "N" cells – 2x series	L = 35.0 mm, W = 25.0 mm, H = 13.0 mm
BH543A/D	For four "N" cells	L = 38.0 mm, W = 28.0 mm, H = 28.0 mm
SBH221A/AS	For two "C" cells – with cover	L = 83.0 mm, W = 57.0 mm, H = 30.0 mm
SBH-231A/B/D	For three "C" cells – with cover	L = 84.0 mm, W = 58.0 mm, H = 31.0 mm
SBH-321A	For two "AA" cells – with cover	L = 67.0 mm, W = 33.0 mm, H = 18.0 mm
SBH-321-1A/1AS	For two "AA" cells – with cover	L = 68.0 mm, W = 33.0 mm, H = 19.0 mm
SBH-321-2A	For two "AA" cells – with cover	L = 68.0 mm, W = 35.0 mm, H = 18.0 mm
SBH-321-3A/3AS	For two "AA" cells – with cover	L = 67.0 mm, W = 33.0 mm, H = 19.0 mm
SBH-331A/AS	For three "AA" cells – with cover	L = 69.0 mm, W = 48.0 mm, H = 18.0 mm
SBH-331-1A/1AS	For three "AA" cells – with cover	L = 74.0 mm, W = 48.0 mm, H = 20.0 mm
SBH-331-2A/2AS	For three "AA" cells – with cover	L = 74.0 mm, W = 48.0 mm, H = 20.0 mm
SBH-341A/AS	For four "AA" cells – with cover	L = 69.0 mm, W = 65.0 mm, H = 19.0 mm
SBH-341-1A/1AS	For four "AA" cells – with cover	L = 69.0 mm, W = 65.0 mm, H = 19.0 mm
SBH-341-2A/2AS	For four "AA" cells – with cover	L = 72.0 mm, W = 65.0 mm, H = 20.0 mm
SBH-341-3A/3AS/3S/USB	For four "AA" cells – with cover	L = 80.0 mm, W = 63.0 mm, H = 19.0 mm
SBH-341-4A/4AS	For four "AA" cells – with cover	L = 94.0 mm, W = 73.0 mm, H = 19.0 mm
SBH-361A/D	For six "AA" cells – with cover	L = 114.0 mm, W = 66.0 mm, H = 18.0 mm
SBH-421-1A/1AS	For two "AAA" cells – with cover	L = 63.0 mm, W = 26.0 mm, H = 16.0 mm
SBH-421-2A	For two "AAA" cells – with cover	L = 63.0 mm, W = 26.0 mm, H = 16.0 mm
SBH-431A/B/D/P	For three "AAA" cells – with cover	L = 54.0 mm, W = 38.0 mm, H = 15.0 mm
SBH-431-1A/1AS	For three "AAA" cells – with cover	L = 63.0 mm, W = 37.0 mm, H = 16.0 mm
SBH-441A/AS	For four "AAA" cells – with cover	L = 63.0 mm, W = 49.0 mm, H = 15.0 mm
SBH-9VA/9VAS/9VP	For one "9V" cell – with cover	L = 69.0 mm, W = 33.0 mm, H = 21.0 mm
SBH-32021S/MV	For twenty "AA" cells – with cover	L = 155.0 mm, W = 128.0 mm, H = 21.0 mm



JAUCH Battery Holders

- Quick & Easy battery change
- Safe battery retention
- Clear contact separation
- Short-circuit safe
- Stable construction



Mounting versions

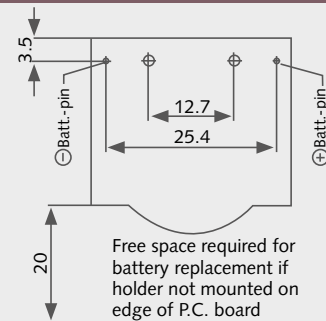
- JBH24-3.5-PCB-version (contact length 3.5 mm)
- Tape & Reel

Battery holder for batteries

Sony:	- CR2450 - CR2477
Renata:	- CR2450N - CR2477N
Panasonic:	- CR2450 - CR2477

Dimensional sketch

Layout top view



Technical data

Solder contacts:

Current load capability: = < 1 A (short term load capability: ~ 30 sec.)
= < 100 mA (continuous load capability)

Material: CuSn6
Contact material: 2µm Soft- Ni (99.96 %)
Soldering range: Ni solderable

Battery contact:

Material: CuZn37
Contact surfaces: Sn (lead-free)

Holder:

Material: ULTRAMID T KR 4365 G5
Melting temperature: 295°C
Deformation resistance temp. (1.8MPa): 270°C
Flammability: UL-V-2 (E41871)
Allowance: Masterbatch UN-MD0051

Battery contact:

- manual
- wave soldering
- Reflow-soldering < 270°C for 5 min.

Features:

- Suction surface-area for automatic mounting

Advices:

- Recommended cycle for battery-change: < 10
- All components and surfaces are compliant according to RoHS – directive 2002/15/EG

Specifications / Custom Battery Packs

JAUCH QUARTZ BATTERIES offers you special custom battery packs.

At JAUCH QUARTZ BATTERIES, customer satisfaction is more than just a term, it's a reality we live every day. Punctual delivery at JAUCH QUARTZ BATTERIES is an established fact. Constant deliveries to renowned customers the world over prove that when you rely on JAUCH QUARTZ BATTERIES, you're relying on production security. Because for us, overall product quality has always involved far more than the product alone.

With our Customer Support Center we offer active cooperation in every situation. It's worth discussing an optimal solution with us as early as the conceptional phase.

We offer you a service that is unique worldwide:

- Consulting and support from battery product specialists
- Our own development centre for battery products
- Check-up service: circuit testing with special testing devices
- High availability, with over 4 million batteries ex stock

Or do you only need a few hundred or a thousand battery packs for your pilot production?

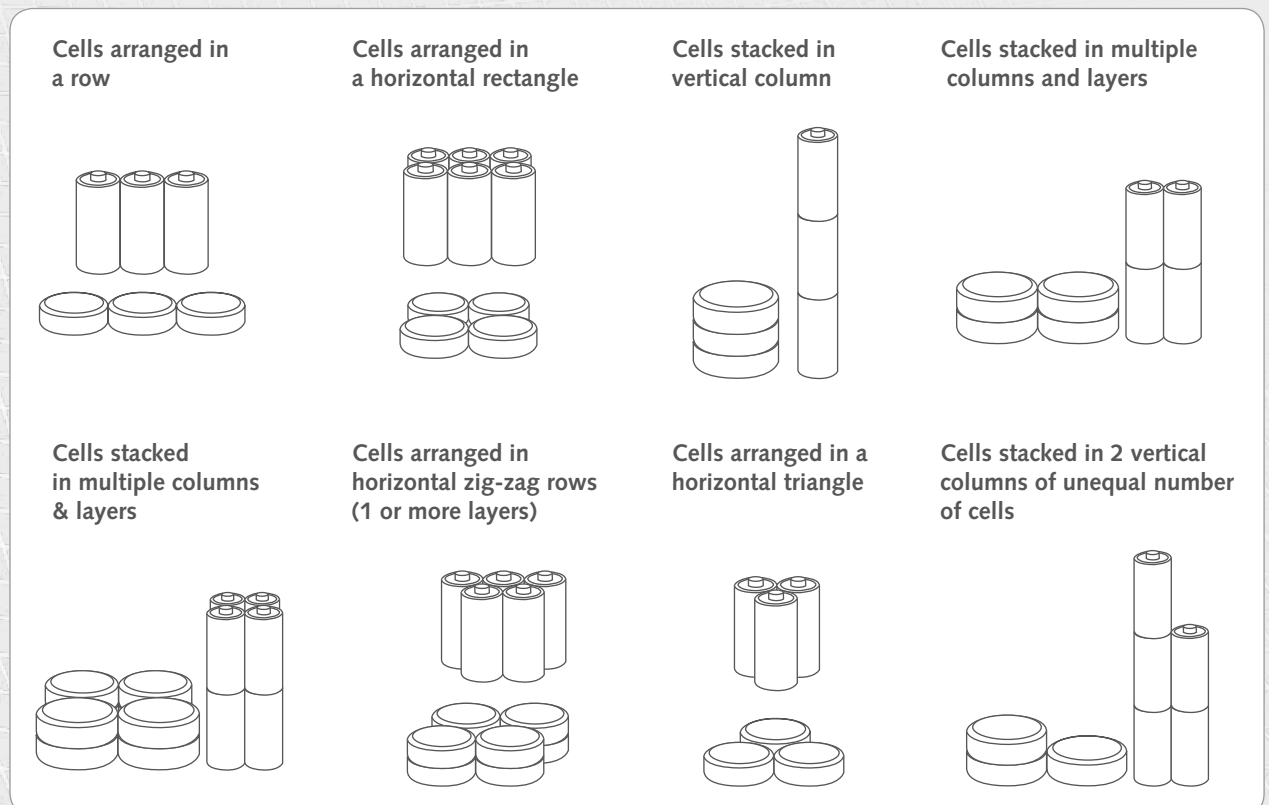
We're a specialist for battery products so for us it's all part of customer service. And that's something our customers really appreciate.

Contact JAUCH BATTERIES to optimize your custom battery pack:

Phone: +49.7720.945-0

Fax: +49.7720.945-102

Email: info@jauch-batteries.com



Submit your Battery Requirements

If you have specific battery requirements, please complete the form below and submit it to our Technical Team.

Customer Information

Company: _____

Address: _____

Contact Person: _____

Telephone: _____

Fax: _____

E-mail: _____

Battery Specification

1. Primary or Rechargeable
2. Required capacity _____
3. System Voltage _____
4. Fixed or removable
5. Space available _____
6. Heat Shrink Soft Pack or Hard Case
7. Target price _____
8. Volume _____
9. Production schedule _____
10. Application _____

EXTENDED SPEC (optional)

1. Battery Requirements (optional)

Voltage:

Min _____ Max _____ Typical _____ Cut-off _____

Drain:

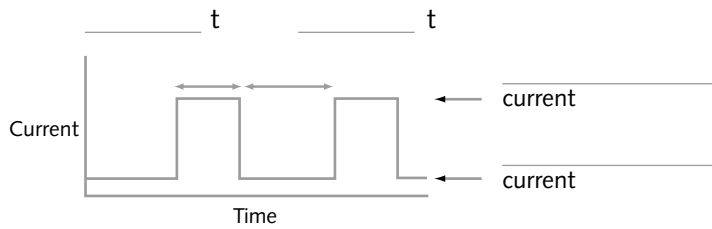
Constant Resistance: _____ ohms | Constant Current: Min _____ mA | Max: _____ mA

Typical: _____ mA | Stand-by Drain: _____ mA

Pulse:

Peak Current: _____ mA | Pulse Duration: _____ milliseconds or seconds

Pulse Interval: one pulse per _____ milliseconds _____ seconds _____ minutes
 _____ hours _____ days _____ years



Pulse Cycle (If there are pulse cycles of different pulses, please describe):

2. Temperature Range & Operating Life (optional)

Duration: _____ months _____ years | Operation Life: (mins/hrs/days/etc.) _____

Storage Temp

Minimum: _____ °C | Typical: _____ °C | Maximum: _____ °C

Operation Temp

Minimum: _____ °C | Typical: _____ °C | Maximum: _____ °C

3. Connectors (optional)

Terminals (type) Brand: _____ Model: _____ Wire Leads (gauge, length): _____

4. Other Requirements (optional)

SGS

Certificate DE05/53347

The management system of

JAUCH QUARTZ GmbH

In der Lache 24
DE-78056 VS-Schwenningen



has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

**Design, production and sales of crystals,
oscillators, resonators and filters
Sales of batteries**

Further clarifications regarding the scope of this certificate and the applicability of
ISO 9001:2008 requirements may be obtained by consulting the organization

This certificate is valid from 03/04/2009 until 21/04/2011
Issue 5. Certified since 02/11/1998

Authorised by



SGS-International Certification Services GmbH
Raboisen 28 D-20095 Hamburg (Germany)
t +49 (0)40 30.101.361 f +49 (0)40 33.04.08 www.de.sgs.com

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Transport of Lithium Metal und Lithium Ion Batteries

Definitions

Lithium Metal batteries are generally primary (non-rechargeable) batteries that have Lithium Metal or lithium compounds as an anode. Lithium Metal batteries are generally used to power watches, calculators, cameras, etc.;

Lithium-Ion batteries (sometimes abbreviated Li-Ion batteries) are a type of secondary (rechargeable) battery commonly used in consumer electronics. Also included within Lithium-Ion batteries are Lithium Polymer batteries. Lithium-Ion batteries are generally found in mobile telephones, laptop computers, etc.

What is the difference between a lithium cell and a lithium battery?

A lithium cell is a single encased electrochemical unit consisting of one positive and one negative electrode that exhibits a voltage differential across the two terminals. A lithium battery is one or more cells electrically connected. A single cell battery is considered a cell and not a battery.

How are component cells connected to form a battery?

Cells in batteries may be connected in parallel, in series, or in a combination of the two. When cells are connected in series the voltage of the battery increases but the capacity in ampere-hours (Ah) does not change. By contrast, when cells are connected in parallel the capacity in ampere-hours of the battery (Ah) increases but the voltage stays the same.

What does the new lithium battery handling label look like and when it is required?

The new lithium battery handling label is required as specified in the additional requirements of Part 1 of packing instructions 965, 966, 967, 968, 969 and 970. The new label is as shown in Figure 7.4.I IATA Dangerous Goods Regulations. The border of the label must have red diagonal hatchings with text and symbols in black on a contrasting background. The lithium battery handling label may be printed directly on the outer packaging provided that there is sufficient contrast between the elements of the lithium battery label and the colour of the packaging material.

When does a lithium battery handling label is not required?

A lithium battery handling label is not required for packages prepared in accordance with Part 2 of Packing Instructions 965-970 (i.e. bearing a Class 9 label) or when a package contains no more than 4 cells or 2 batteries installed in equipment prepared in accordance with Part 1 of Packing Instructions 967 and 970. This applies to UN 3481 Lithium Ion batteries contained in equipment (See Part 1 of Packing Instruction 967) and UN3091 Lithium Metal batteries contained in equipment (see Part 1 of Packing Instruction 970). As these packages do not require a lithium battery handling label, the accompanying document mentioned in the Additional Requirements of Part 1 of Packing Instructions 967 and 970 are not required.

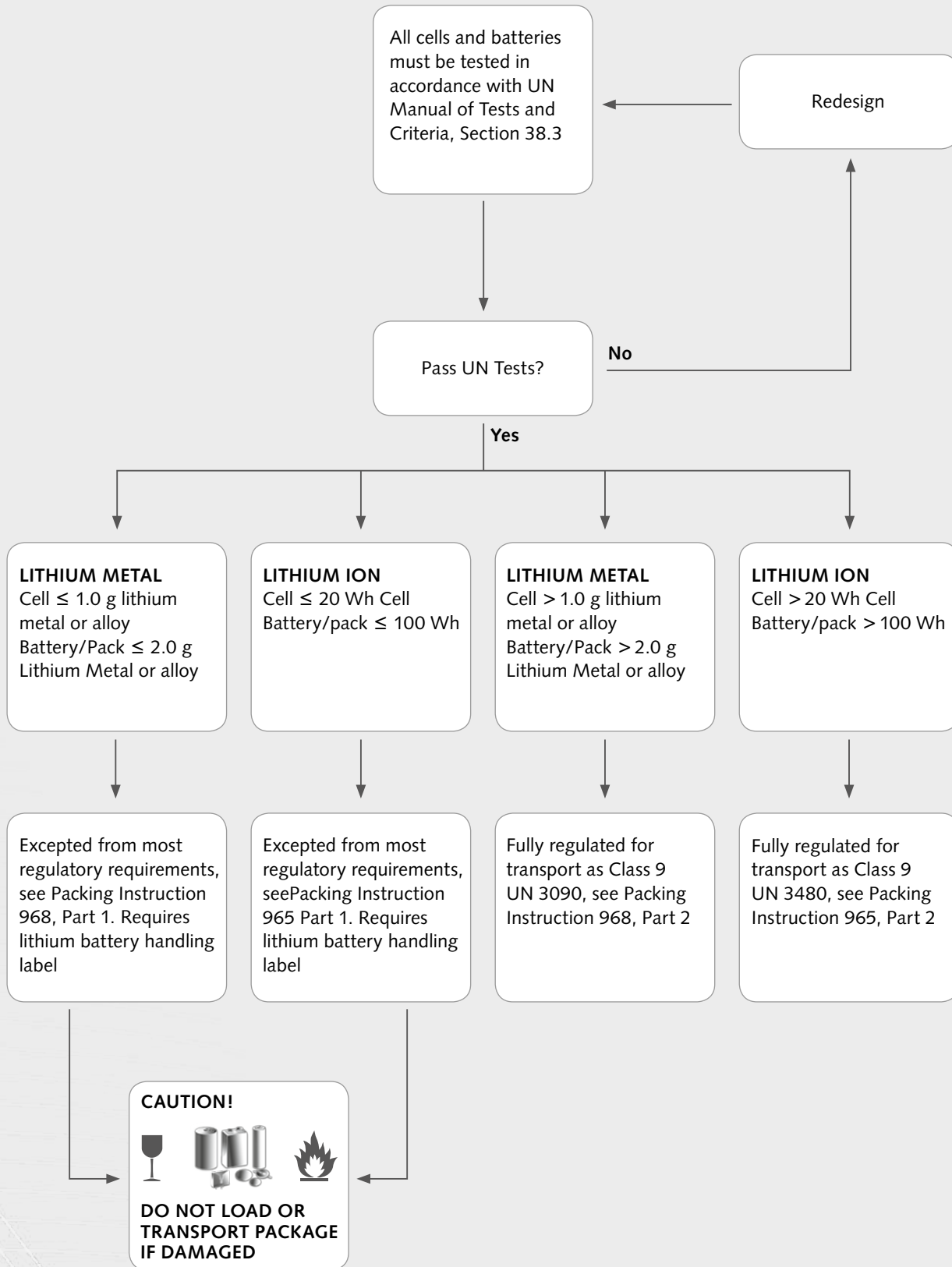
Documentation requirements for consignments of lithium batteries.

Each consignment of packages with lithium batteries that is required to have the lithium battery handling label must be accompanied by a document such as an airway bill or other document that indicates:

- The package contains Lithium Ion cells or batteries;
- The package must be handled with care and that a flammability hazard exists if the package is damaged;
- Special procedures should be followed when the event the package is damaged, including inspection and repacking if necessary; and
- A telephone number for additional information.

This document may be in any form provided it contains all the appropriate information and accompanies the consignment. For example, the document may be provided separately to the carrier or in a pouch attached to the package.

Lithium Ion and Lithium Metal cells and batteries shipping requirements*



* Flow chart does not apply to shipments of prototype cells and batteries. Prototypes are subject to Special Provision A88.