CR-RP Series Manganese Dioxide Lithium Primary Battery with Snap Connector

FEATURE

● High Capacity

Higher Capacity: 10%~20% Increase Compared to Conventional Models, Extended Lifespan.

● High Power

Greater Discharge Current Compared to Conventional Models, Suitable for IoT Communication Requirements.

● Superior Discharge Stability

Stable voltage even during prolonged discharge.

● Excellent Storage Characteristics

Unique encapsulation technology with low self-discharge, annual rate below 2%.

APPLICATION

● Communication ● Smart Home ● RFID ● GPS

● Wearables ● Car Keys ● Bank Tokens ● ES

GENERAL SPECIFICATION

Item		CR1620RP	CR1632RP	CR2016RP	CR2025RP	CR2032RP	CR2050RP	CR2430RP	CR2450RP	CR3032RP	CR3832RP	CR2477RP
Nominal Voltage(V)		3	3	3	3	3	3	3	3	3	3	3
Nominal Capacity(mAh）①		80	140	85	165	245	380	300	620	550	950	1050
Nominal Discharge Current(uA)		0.1	0.2	0.1	0.2	0.2	0.4	0.2	0.4	0.4	0.8	0.6
Max. Continuous Current(mA)		4	4	6	6	6	6	8	8	10	20	8
Max. Pulse Current(mA)		10	10	18	18	18	18	28	28	35	75	28
Operating Temp.Range(℃)		-20~+70	-20~+70	-20~+70	-20~+70	-20~+70	-20~+70	-20~+70	-20~+70	-20~+70	-20~+70	-20~+70
Size②	Diameter(mm)	16.0	16.0	20.0	20.0	20.0	20.0	24.0	24.0	30.0	38.0	24.0
	Height(mm)	2.0	3.2	1.6	2.5	3.2	5.0	3.0	5.0	3.2	3.2	7.7
Weight②		1.3 g	2.0 g	2.0 g	2.7 g	3.2 g	4.7 g	4.5 g	6.9 g	6.9 g	11.5 g	10.5 g

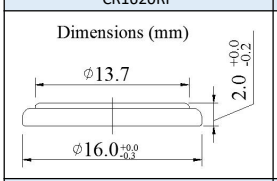
①Nominal capacity refers to the discharge capacity when the battery is discharged at standard discharge current in a 20°C environment until the discharge voltage drops to 2.0V

②Dimensions and weight are specified for the battery alone and may vary due to factors such as terminal pin shapes.

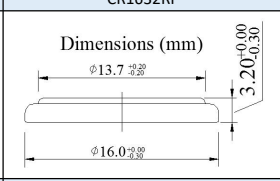
*Note: For continuous usage outside the temperature range of +60°C or below -10°C, please contact CDA.

DEMENSION

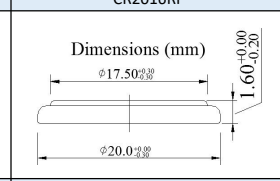
CR1620RP



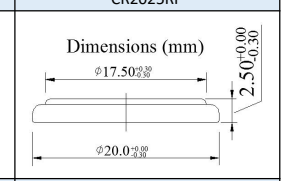
CR1632RP



CR2016RP



CR2025RP



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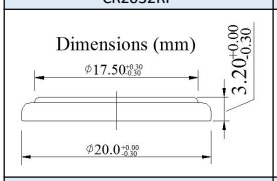

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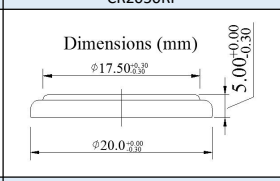

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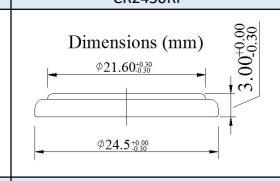

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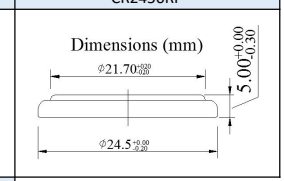
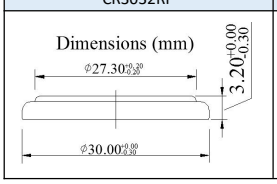


CR3032RP



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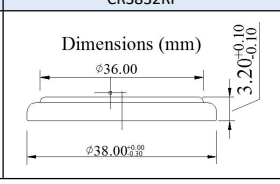

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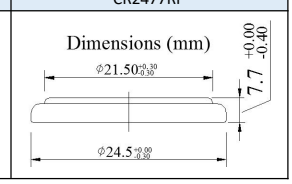


TEL: +86-852-51245795 Web: www.cda-cap.com Email: zfw@cda-cap.tw

Spec. Date:2024-04-10

PRODUCT MATERIAL CODE EXPLANATION

Model Code：

CR 12 20 / DN **

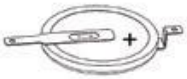
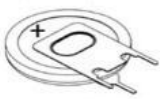
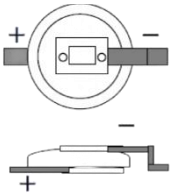
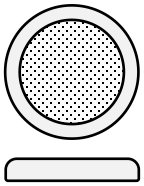
- **:Customization
- DN:Battery Terminal
- 20:Product Height
- 12:Product Diameter Ø Code
- CR:Series Name

BUTTON CELL PACKING CONFIGURATION

Item	Packaging type		Configuration Type
	Insulating sleeve with PET	Insulating sleeve without PET	
CR1620RP	T1	CR1620RP/DN	T1
CR1632RP	H1	CR1632RP/DN	H1
CR2016RP	FA	CR2016RP/DN	T2
CR2025RP	H2	CR2025RP/DN	F90
CR2032RP	H2	CR2032RP/DN	H2
CR2050RP	G	CR2050RP/DN	G
CR2430RP	G	CR2430RP/DN	G

*All the above models can be supplied with bare cells or without sleeves and with pins.

CONFIGURATION TYPE

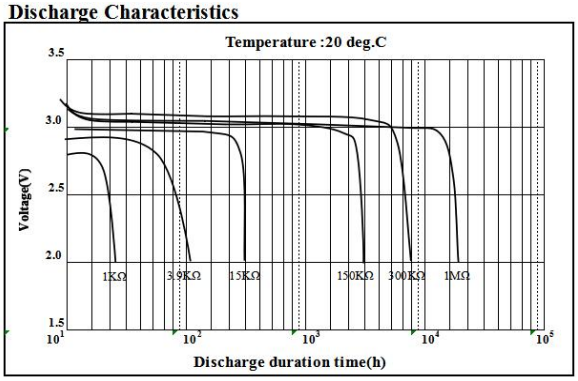
G -TYPE	H -TYPE	H1 -TYPE	H2-TYPE	R -TYPE
				
T1 -TYPE	**T2 -TYPE**	**V -TYPE**	**V1-TYPE**	**W -TYPE**
				
F90 -TYPE	**FA -TYPE**	**DN -TYPE**	**1S-TYPE**	**1ST-TYPE**
				

*The above configuration types can be customized according to customer requirements for corresponding pin type/pitch and different terminal type

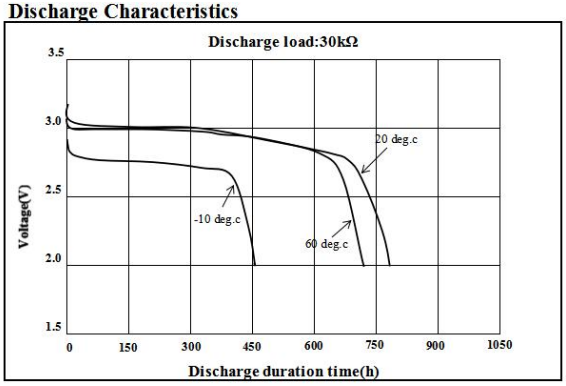
DISCHRGE CHARACTERISTIC

CR1620RP

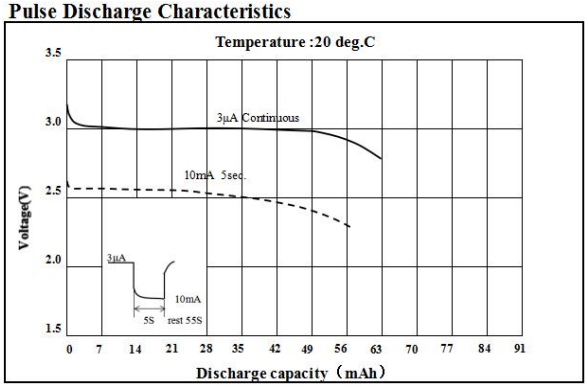
Discharge Characteristics



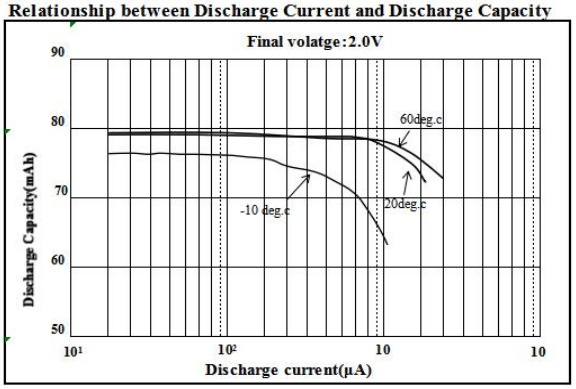
Discharge Characteristics



Pulse Discharge Characteristics

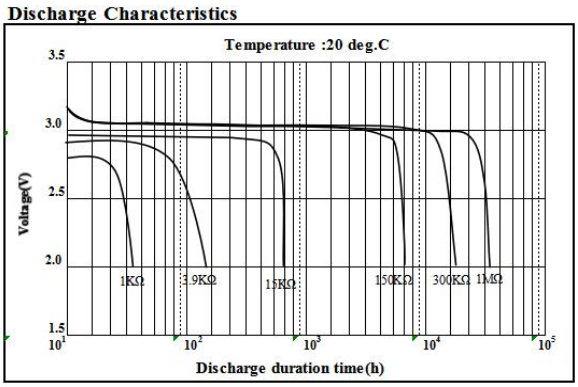


Relationship between Discharge Current and Discharge Capacity

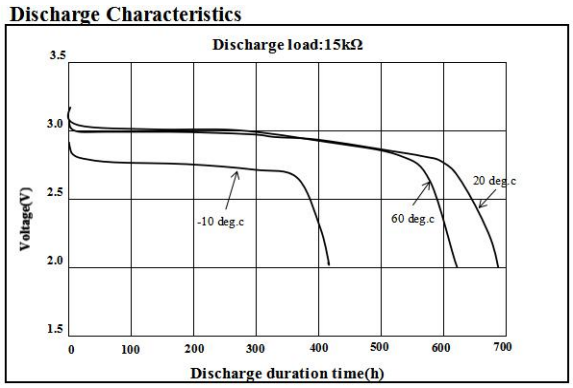


CR1632RP

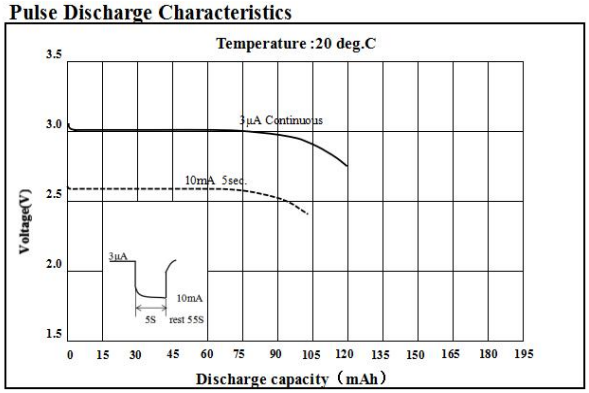
Discharge Characteristics



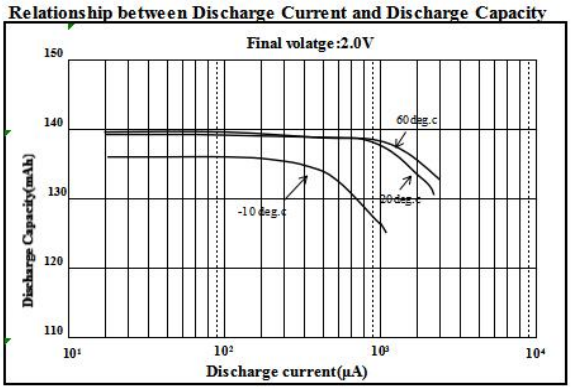
Discharge Characteristics



Pulse Discharge Characteristics



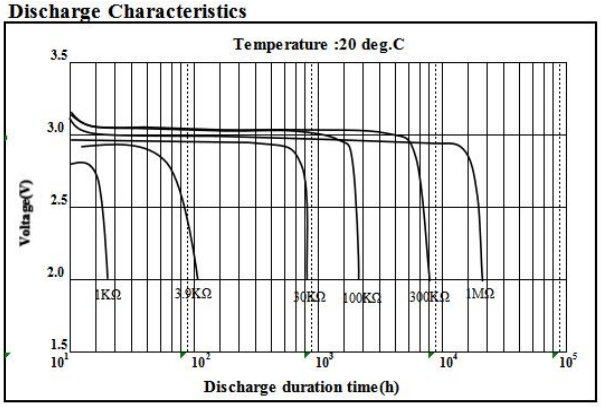
Relationship between Discharge Current and Discharge Capacity



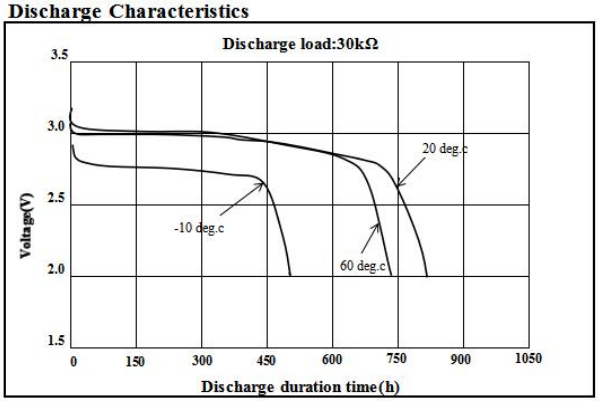
DISCHARGE CHARACTERISTIC

CR2016RP

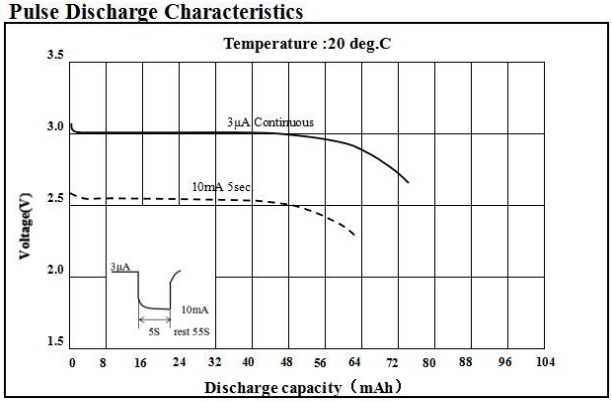
Discharge Characteristics



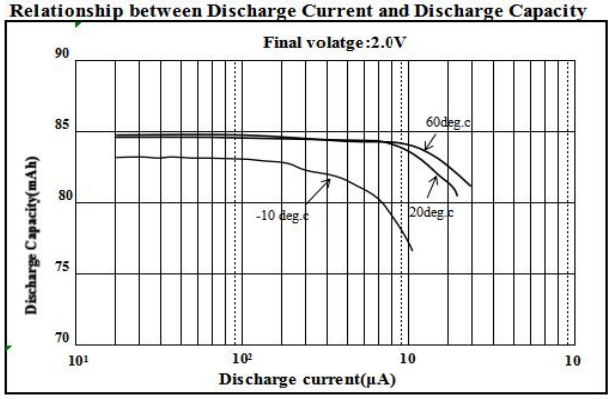
Discharge Characteristics



Pulse Discharge Characteristics

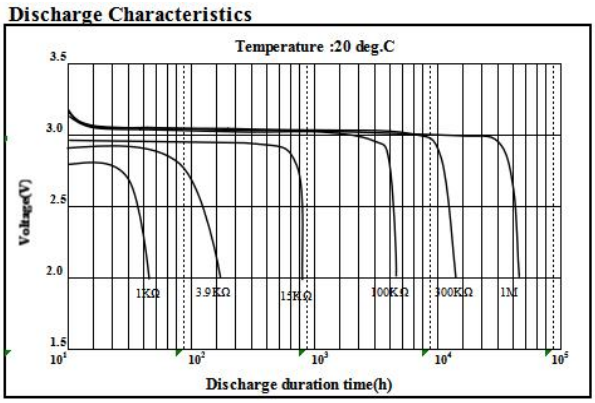


Relationship between Discharge Current and Discharge Capacity

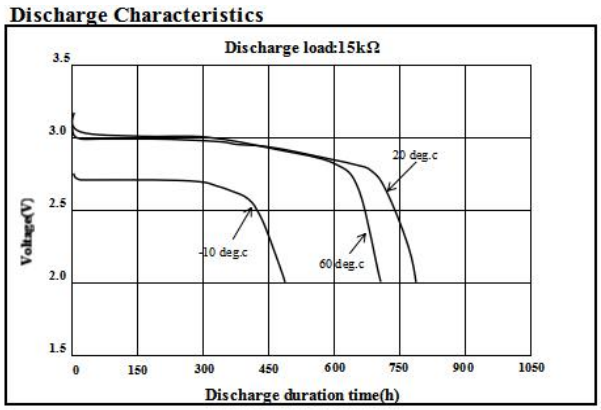


CR2025RP

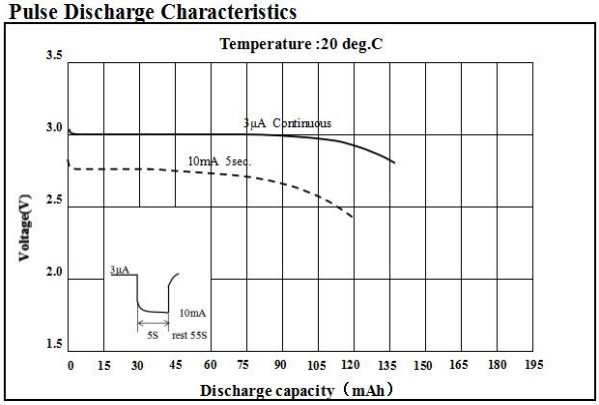
Discharge Characteristics



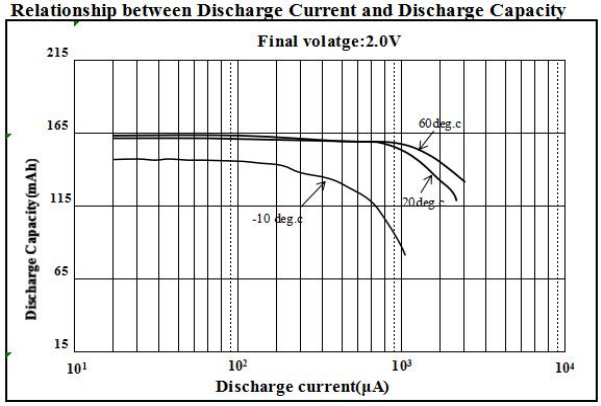
Discharge Characteristics



Pulse Discharge Characteristics



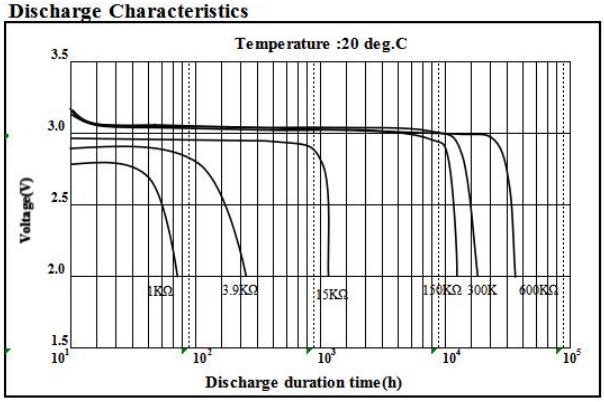
Relationship between Discharge Current and Discharge Capacity



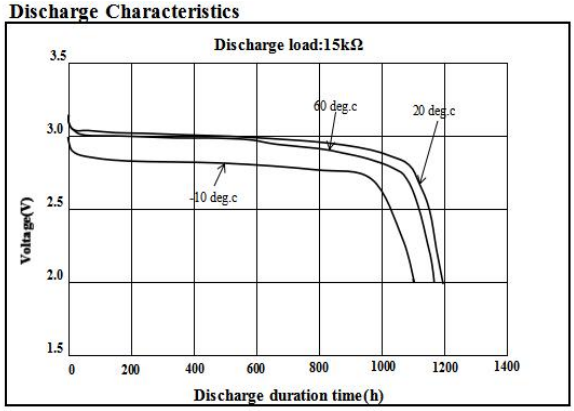
DISCHARGE CHARACTERISTIC

CR2032RP

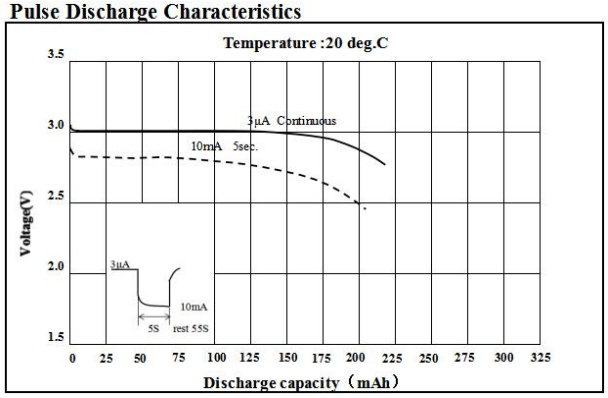
Discharge Characteristics



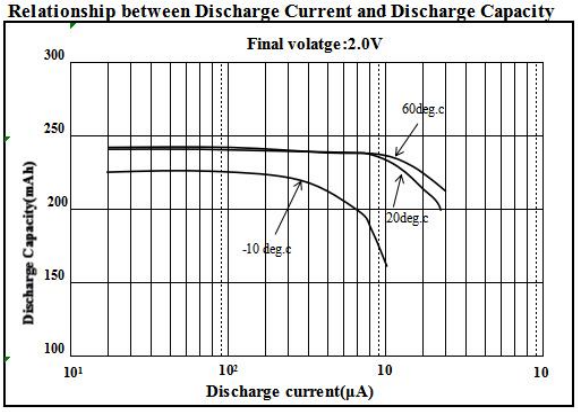
Discharge Characteristics



Pulse Discharge Characteristics

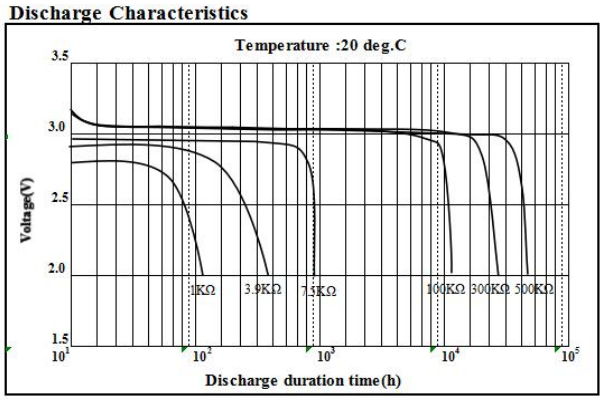


Relationship between Discharge Current and Discharge Capacity

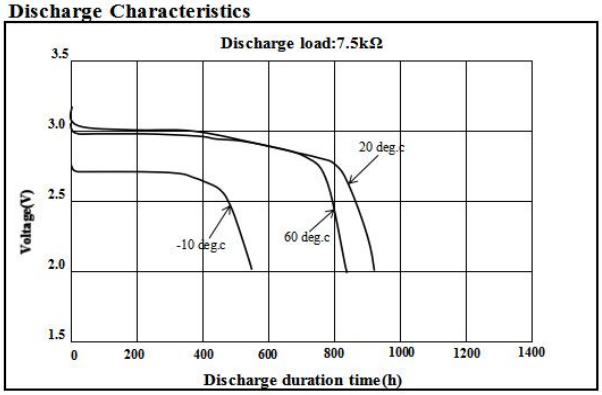


CR2050RP

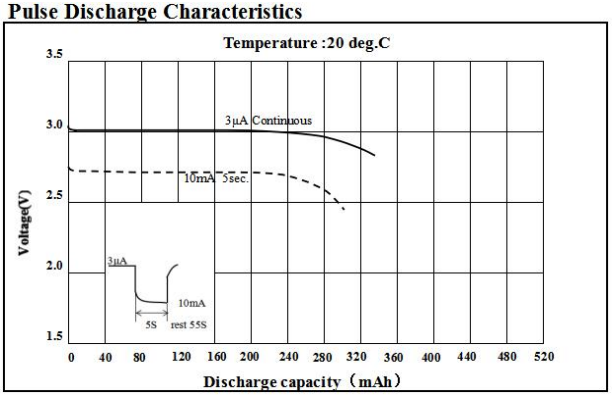
Discharge Characteristics



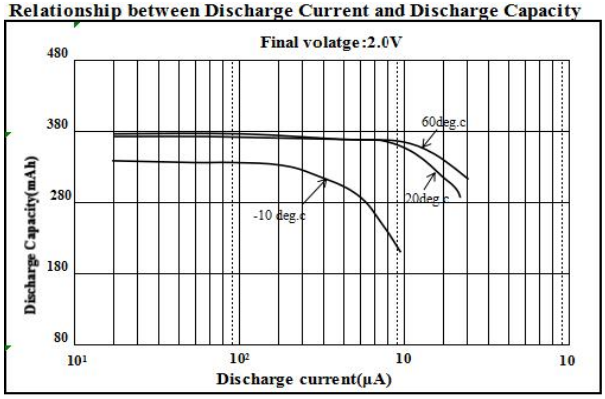
Discharge Characteristics



Pulse Discharge Characteristics



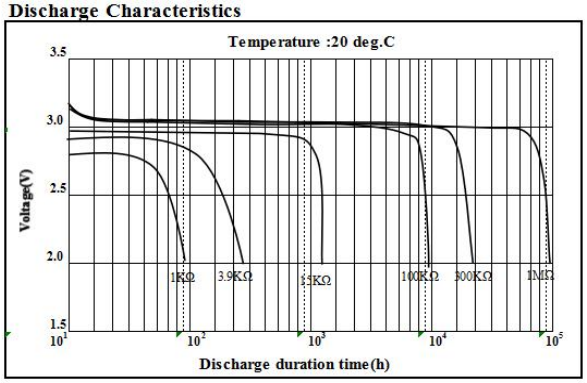
Relationship between Discharge Current and Discharge Capacity



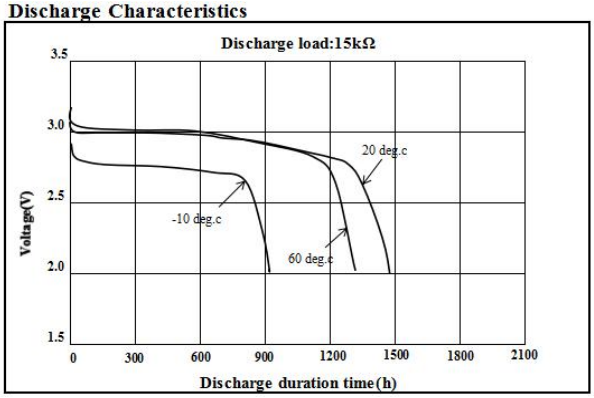
DISCHARGE CHARACTERISTIC

CR2430RP

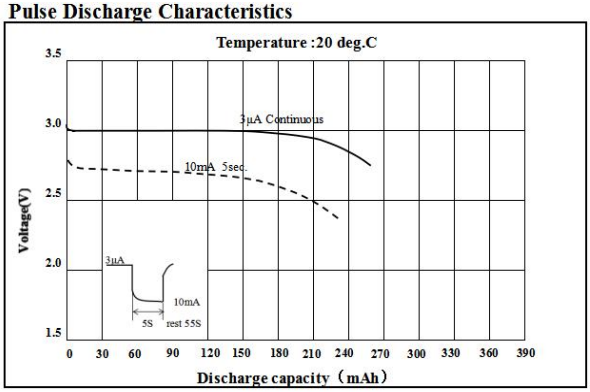
Discharge Characteristics



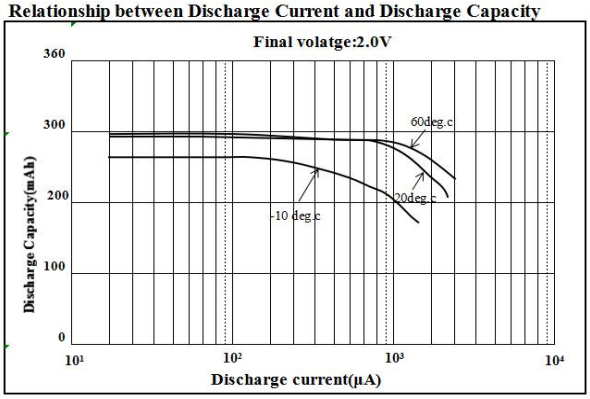
Discharge Characteristics



Pulse Discharge Characteristics

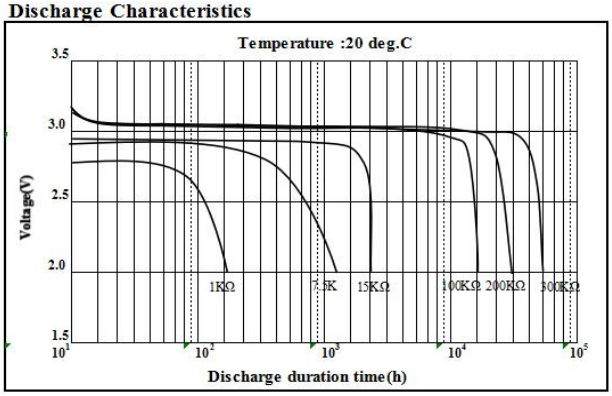


Relationship between Discharge Current and Discharge Capacity

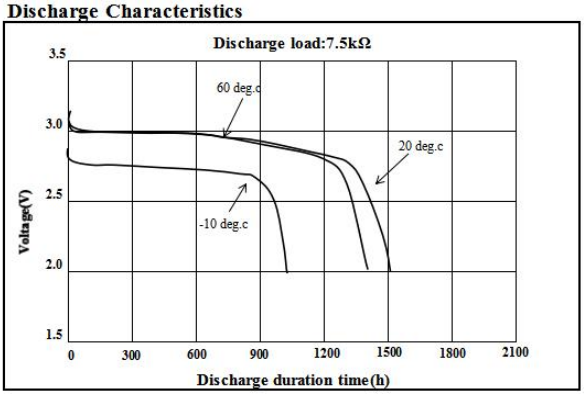


CR2450RP

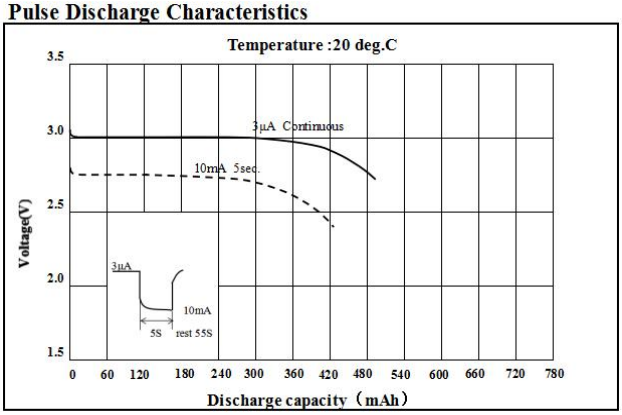
Discharge Characteristics



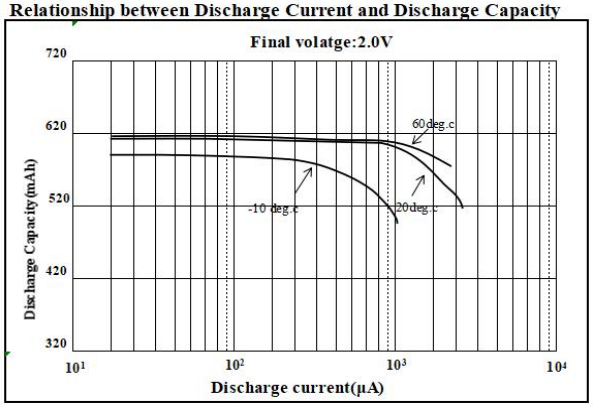
Discharge Characteristics



Pulse Discharge Characteristics



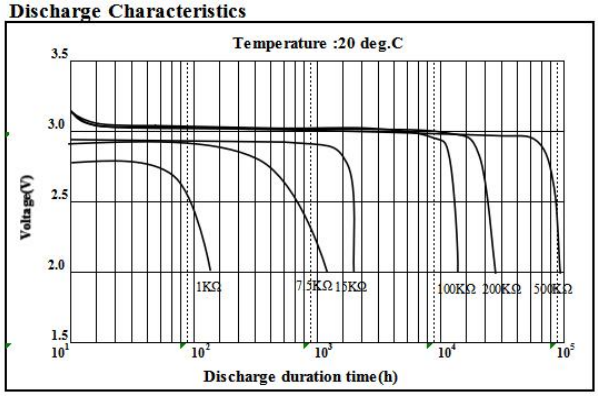
Relationship between Discharge Current and Discharge Capacity



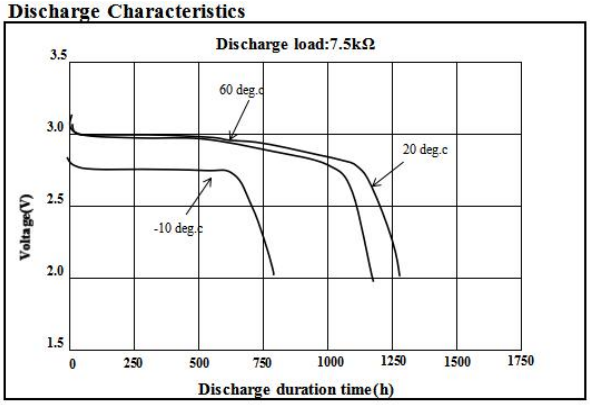
DISCHARGE CHARACTERISTIC

CR3032RP

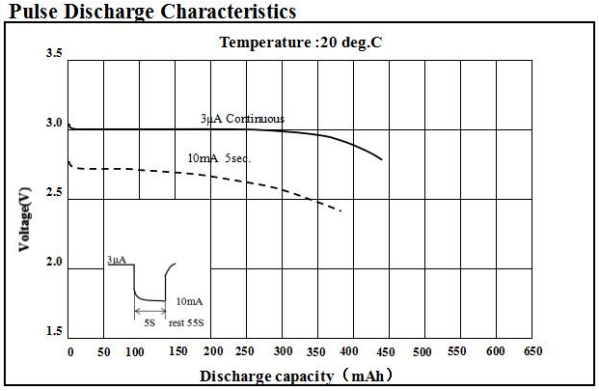
Discharge Characteristics



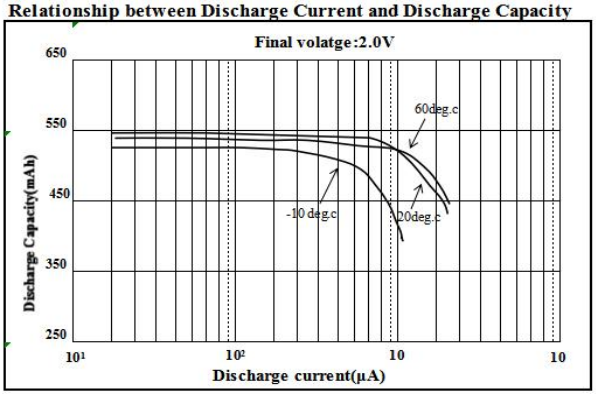
Discharge Characteristics



Pulse Discharge Characteristics

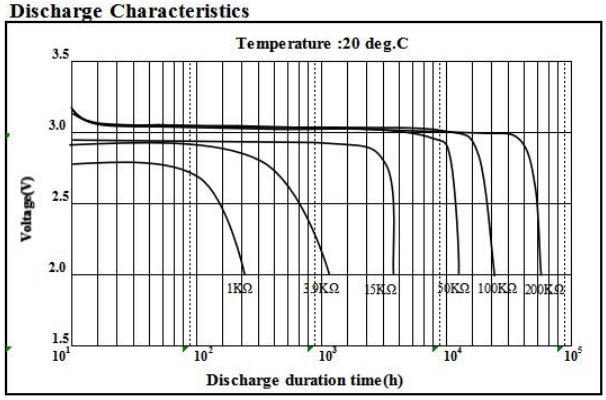


Relationship between Discharge Current and Discharge Capacity

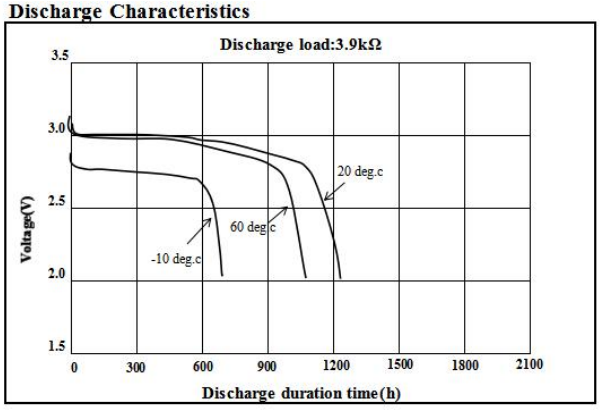


CR3832RP

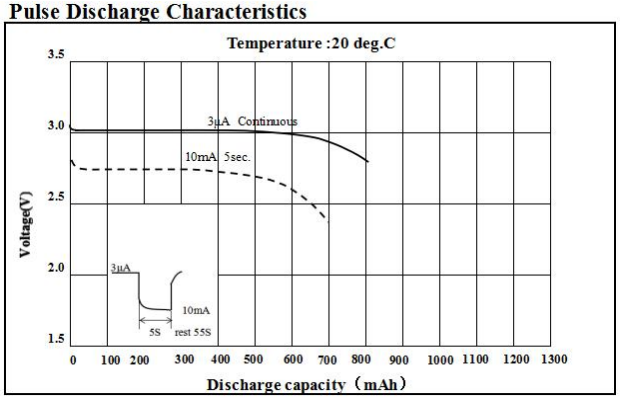
Discharge Characteristics



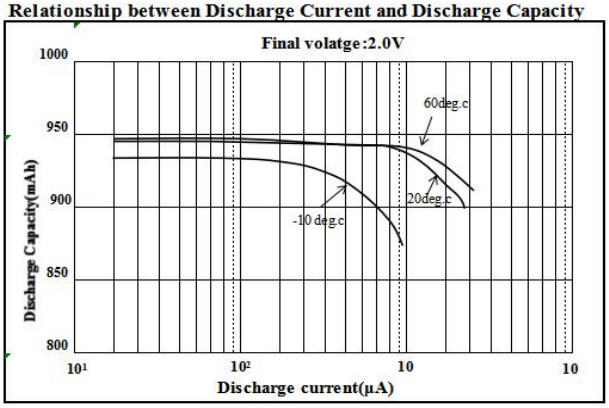
Discharge Characteristics



Pulse Discharge Characteristics



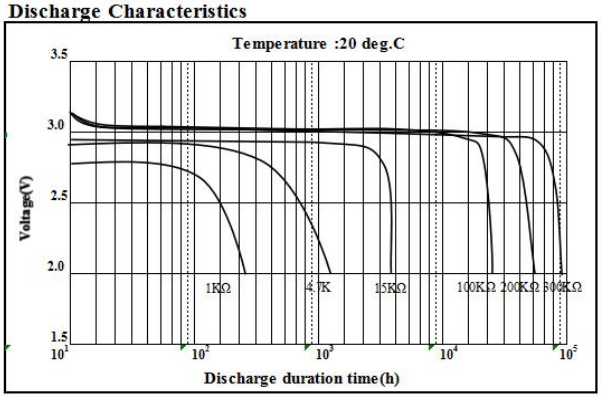
Relationship between Discharge Current and Discharge Capacity



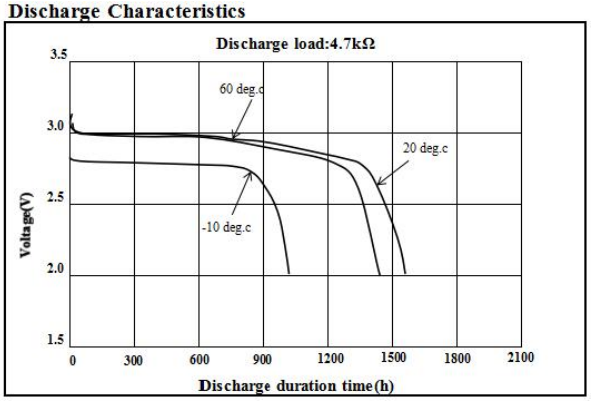
DISCHARGE CHARACTERISTIC

CR2477RP

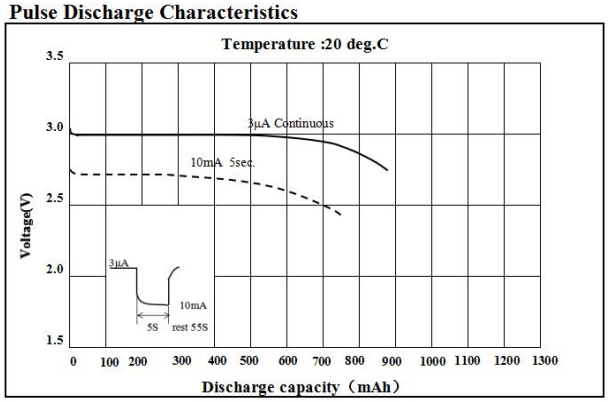
Discharge Characteristics



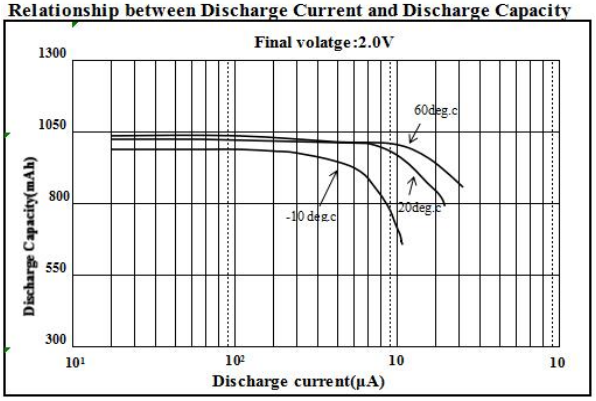
Discharge Characteristics



Pulse Discharge Characteristics

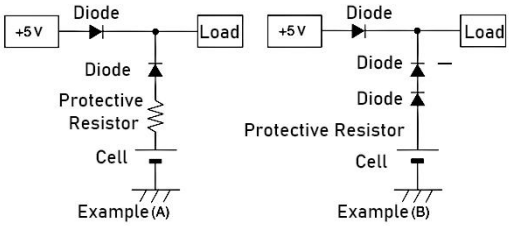


Relationship between Discharge Current and Discharge Capacity



⚠Warning - Circuit Design

This battery is non-rechargeable and should not be charged. If used as a memory or RTC backup power source, a diode must be employed to prevent the main power source or other batteries from charging it. Additionally, protective resistors should be used to control the current, as illustrated in the diagram below. When selecting the diode and protective resistor, the following points should be particularly noted.



● Load Supply Voltage

Due to the voltage drop caused by the diode and resistor during operation, please consider these voltage drops in the supplied voltage to the load.

● Use a diode to prevent charging

Select a diode with the lowest possible leakage current. Ensure that the charging capacity due to leakage current is controlled within one percent of the nominal capacity.

● Utilize and configure protective resistors

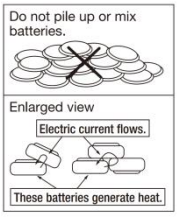
Use a protective resistor to prevent excessive charging in case of diode failure. For example, in a CR2032 battery circuit (Case A) connected to a 5V power source, with a maximum allowable charging current of 10mA and a 3V battery, a resistor with a minimum value of 0.2k ohms is required to ensure the maximum current stays within safe limits.

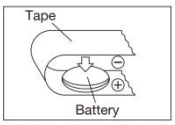
Item	Max. Current	Item	Max. Current
CR1620RP	2.5mA	CR2050RP	10mA
CR1632RP	2.5mA	CR2430RP	10mA
CR2016RP	10mA	CR2450RP	10mA
CR2025RP	10mA	CR3032RP	10mA
CR2032RP	10mA	CR3832RP	10mA
		CR2477RP	10mA

Caution: In the event of diode failure, prompt replacement is necessary, despite the use of protective resistors. Due to the potential for diode and resistor malfunctions, the circuit should include additional safety measures.

⚠Warning - Disposal

Batteries are subject to national or local regulations. Please comply with the relevant legal requirements. Due to the residual charge in discarded batteries, contact with other metals can lead to deformation, leakage, overheating, or explosion. Therefore, before disposal, ensure to wrap the (+) and (-) terminals with insulating materials such as tape to prevent any contact.





Example of battery insulation

⚠Caution - Operation, Use, and Storage

● Do not place the battery in ultrasonic waves under any circumstances

Placing the battery in an ultrasonic environment may cause internal metal fragmentation, leading to a short circuit, and ultimately resulting in battery deformation, leakage, overheating, explosion, or ignition.

● Strictly avoid subjecting the battery to severe vibrations.

Dropping, throwing, or stepping on the battery may result in battery deformation, leakage, overheating, explosion, or fire.

● Strictly prohibit the battery from coming into contact with water.

Contact with water may cause the battery to rust or lead to deformation, leakage, overheating, explosion, or fire.

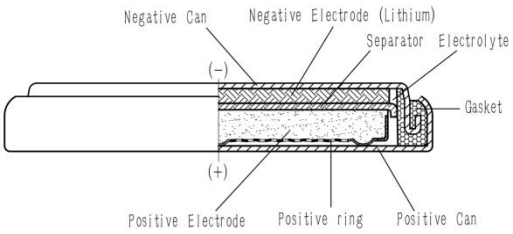
● Strictly prohibit storing the battery in hot and high-humidity environments.

This can lead to deterioration in battery performance. Moreover, in such environments, the battery may deform, leak, overheat, explode, or catch fire.

● Maintain a contact pressure of 2N or higher

Due to poor contact, the battery voltage may fall below the target value. Therefore, maintain a contact pressure of 2N or higher to ensure proper contact resistance.

Structure



⚠Warning - Handling

● Strictly prohibited to swallow

Keep batteries away from infants and children to prevent swallowing. If a battery is swallowed, seek medical attention immediately.

● Strictly prohibited to replace

Due to potential performance differences among batteries from different manufacturers, even of the same model or type, it is crucial to use new batteries of the identical type and model when replacing batteries in electronic devices. Rechargeable batteries differ significantly from regular ones, and substituting them with non-rechargeable batteries may lead to smoke, short circuits, and various hazards, including deformation, leakage, overheating, explosion, or fire. Design your equipment to prevent end-users from accidentally replacing batteries.

⚠Warning - Handling

●Strictly prohibited to install batteries with reversed polarity.

Inappropriate installation of batteries may lead to short circuits, charging, or forced discharge, resulting in battery deformation, leakage, overheating, explosion, or fire.

●Strictly prohibited to short-circuit the battery.

Do not short-circuit the positive and negative terminals. Avoid carrying or storing batteries with metal items such as necklaces and hairpins. During installation, prevent contact with metal objects that could cause a short circuit, as it may result in battery deformation, leakage, overheating, explosion, or fire.

● Strictly prohibited to heat

Heating the battery to over 100 degrees Celsius increases internal pressure, leading to battery deformation, leakage, overheating, explosion, or fire.

●Strictly prohibited to place in an open flame

Placing the battery in an open flame can cause the lithium metal to melt, leading to battery ignition or explosion.

●Strictly prohibited to disassemble the battery

Do not disassemble the battery, as it may damage insulation layers or seals, resulting in battery deformation, leakage, overheating, explosion, or fire.

●Strictly prohibited to touch the battery electrodes

Do not allow the battery electrodes to come into contact with your skin or fingers. Moisture from your skin may cause the battery to discharge, leading to exposure to chemicals that can cause chemical burns.

● Place leaking batteries away from open flames

If there is suspicion of leakage or a strong odor is detected, place the battery away from open flames, as the leaked liquid may be flammable.

● Strictly prohibited to directly solder wires or terminals onto the battery body

Heating during soldering can cause lithium to melt or damage the insulation material inside the battery. This can result in battery deformation, leakage, overheating, explosion, or fire. If you need to solder the battery directly to the device, only solder on the terminal pins or wires. Even in this case, the temperature of the soldering iron must be below 350 degrees Celsius, and the soldering time should be less than 5 seconds. Do not use a solder bath, as the circuit board containing the battery may stop moving or fall into the solder bath. Additionally, avoid using excessive solder, as it may flow into areas of the board where it should not, causing short circuits or affecting battery charging.

● Strictly prohibited to allow leaked battery liquid to come into contact with eyes or mouth.

As this liquid can cause serious harm, if it comes into contact with your eyes, immediately rinse with plenty of water and consult a doctor. Similarly, if the liquid enters your mouth, rinse immediately with plenty of water and seek medical advice.

● Place leaking batteries away from open flames

If there is suspicion of leakage or a strong odor is detected, place the battery away from open flames, as the leaked liquid may be flammable.

● Safety Instructions

The battery contains lithium, organic solvents, and other flammable materials. Improper handling of the battery may lead to battery deformation, leakage*, overheating, explosion, or fire, resulting in bodily harm or equipment issues. Please read the following instructions carefully to prevent accidents. *Leakage is defined as the unintentional release of liquid from the battery.