

## **1. Scope:**

This specification is applicable to RND 305-00004.

## **2. Law & Regulation Compliances:**

This product complies with EU's battery directive (2006/66/EC).

Packaging materials comply with EU's directive on packaging materials and waste (94/62/EC)

## **3. General:**

3.1 Type Designation

CR-V9

3.2 Chemical System: Lithium/Manganese Dioxide (Li/MnO<sub>2</sub>)

3.3 Nominal Voltage: 9 V

3.4 Weight: Approximate 34g

3.5 Shape and Dimension (mm): See figure-1

3.6 Capacity: Approximate 800mAh (10mA, 24h/d, 20±2°C, RH: 45%-75%, e.v.:5.4V)

3.7 Operation temperature : - 40°C ~60°C  
Recommend storage temperature : Not exceed 30°C

## **4. Electrical Characteristics**

Unless otherwise stated, all measurements are to be performed at a

**Standard Environment** of

**20°C ±2 °C**

**60±15% RH.**

All samples are normalized for 8 hours at least at the above environment prior to measurement.

The measurement accuracy for DCV shall be ±0.1% or better.

The load resistance of the total circuit is accurate within ±0.5% of the specified value.

#### 4.1 Open circuit voltage and closed circuit voltage (Load resistance 150Ω, 0.3s)

		OCV(V)	CCV(V)
Initial	Min	9.3	8.7
	Normal	10.2	10.05
Stored 1 year	Min	9.3	8.7
	Normal	10.2	10.05

#### 4.2 Service Output

Load		600Ω	270Ω	620Ω	Background: 10 000 <sup>a</sup> Pulse:620
Test mode		24h/d	1h/d	2h/d	24h 1 s per h
end voltage		5.4V	7.8V	7.8V	7.8V
Unit		hour	hour	hour	day
Initial	M.A.D	54	20.5	47	36
	Normal	58	22.5	51	39
Stored 1 year	M.A.D	53.5	20.2	46.5	35.6
	Normal	57.5	22.2	50.5	38.6

a: Smoke detector test. This is an accelerated test. (The pulse load of 620Ω alone should be applied across the battery. It is not added in series or parallel to the 10000Ω background load.)

\*The initial discharge test shall commence within 30 days of manufacture. During stored period, the cells shall be stored under room temperature conditions.

## **5. Reliability Test**

### 5.1 High Temperature Test

1.1.1 Store the cells in the temperature chamber at 60°C for 30 days, any defects should not be observed in appearance and dimensions.

1.1.2 Store the cells in the temperature chamber at 70°C for 10 days, any defects should not be observed in appearance and dimensions.

### 5.2 Low Temperature Test

Store the cells in the temperature chamber at -30°C for 10 days, any defects should not be observed in appearance and dimensions.

### 5.3 High Temperature and Humidity Test

Store the cells in the temperature & humidity chamber at 60°C, 90%RH for 30 days, any defects should not be observed in appearance and dimensions.

#### 5.4 Drop Test

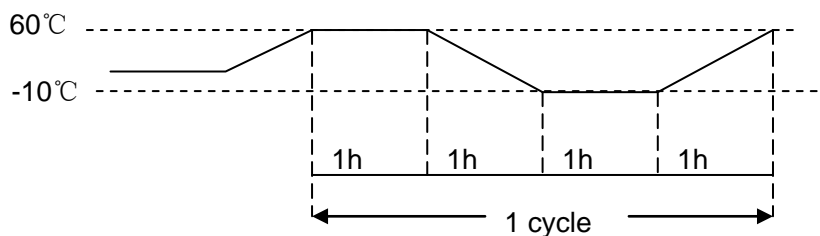
The batteries should withstand three drops from 75cm in any orientation onto an oak board.

Open circuit voltage should be kept over 9.3V.

Closed circuit voltage should be kept over 8.7V.

#### 5.5 Temperature Cycling Test

Store the cells in the temperature chamber at temperature cycling for 10 cycles, any defects should not be observed in appearance and dimensions.



#### 5.6 Short-Circuit Test

The batteries should be short-circuited for 2 hours at room temperature. Any defects should not be observed in appearance.

### **6. Expiry Period:**

10 years

### **7. Expiry Date Marking:**

7.1 Unless otherwise specified, one date code will be marked on the package plate of blisters or cards for finished cells. The date code will be followed by month and year of manufacturing for domestic and date code will be followed by month and year of expiry for export.

7.2 For private label, can mark according to customer's requirements.

### **8. Packaging Requirements**

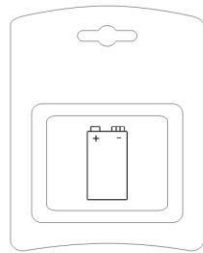
8.1 The total of heavy metal lead, cadmium, mercury, and hexavalent chromium concentration shall not exceed 100 ppm in Packaging materials and printing inks. Ozone depleting substances (ODS) shall not be used in the manufacturing of any packaging.

The printing on each cell label is legible and permanent. Label defects, if any, shall conform to mutually agreed upon limit samples.

8.2 It is recommended that packaging for shipment and sales according with Packaging Specification of Pairdeer CR-V9. For example, 1pcs cells in a card, 30 cards in a display box, and 8 display boxes in a final outer carton. Flow chart as next page:

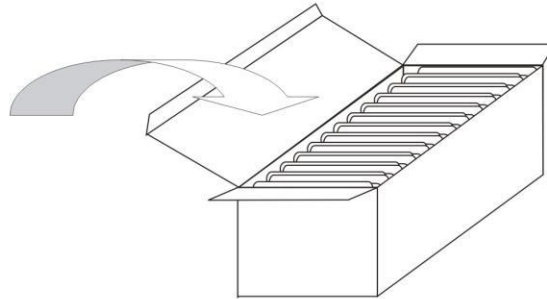
8.3 Otherwise packaging for shipment and sales shall conform to the mutually agreed to Packaging Specification of .the designated customers.

1



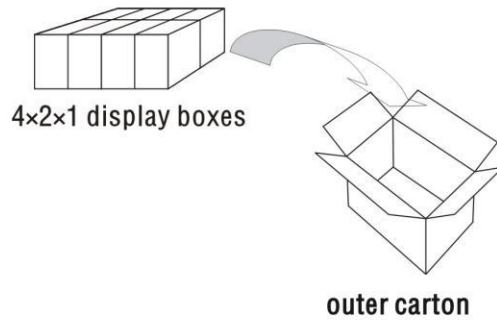
CR-V9 1pcs-card

2



30 cards in a display box

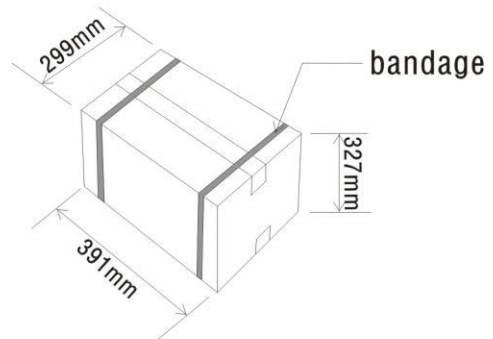
3



4x2x1 display boxes

outer carton

4



bandage

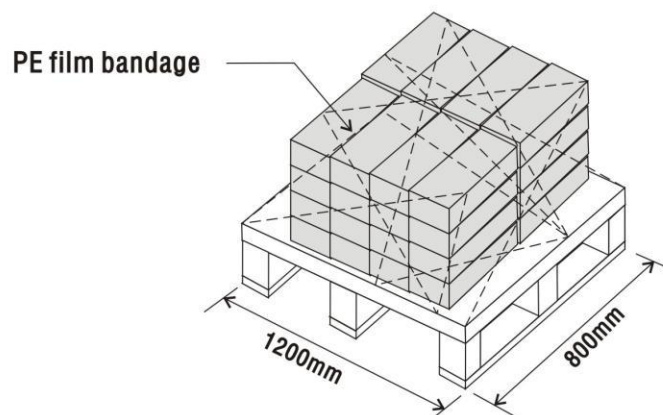
327mm

299mm

391mm

Gross weight: about 11.5kg

5



PE film bandage

1200mm

800mm

(4x2x4) outer boxes

---

## **9. Precautions in Handling of Lithium Batteries:**

Lithium batteries contain lithium metal, organic solvents and other reactive materials, which are combustible. Care must be exercised when handling Lithium batteries to ensure that short circuiting, puncturing or deformation does not occur which may result in heat generation, leakage, explosion or possibility a fire which might cause injury.

To ensure safety and to avoid any possibility of any accidents, please observe the following precautions.

10.1 Do not insert batteries in reverse. Observe the + and – markings on battery and equipment. When batteries are inserted in reverse they may be short-circuited or charged. This may cause overheating, explosion, or fire.

10.2 Do not short-circuit batteries. When the positive (+) and negative (–) terminals of a battery are connected directly with each other, the battery becomes short-circuited. This can result in venting, leakage, and possibly fire.

10.3 Do not charge batteries. Attempting to charge a primary battery may cause internal gas and/or heat generation resulting in venting, explosion and possibly fire.

10.4 Do not force discharge batteries. When batteries are force discharged by means of an external power source, the voltage of the battery will be forced below its design capability and gases generated inside the battery. This may result in venting, leakage, explosion and possibly fire.

10.5 Do not mix batteries. When replacing batteries, replace all of them at the same time with new batteries of the same brand and type. When batteries of different brand or type are used together or new and old batteries are used together, some batteries may be charged due to a difference of cell voltage or overdischarged due to a difference of capacity. This may result in venting and/or explosion.

10.6 Exhausted batteries should be immediately removed from equipment and disposed of. When discharged batteries are kept in the equipment for a long time, electrolyte leakage may occur causing damage to the equipment.

10.7 Do not overheat batteries. When a battery is overheated, electrolyte may be released and separators may deteriorate. This may result in leakage, venting, explosion and possibly fire.

10.8 Do not weld or solder directly to batteries. The heat from welding or soldering directly to a battery may cause leakage, venting, explosion, or fire.

10.9 Do not dismantle batteries when a battery is dismantled, the components may cause personal injury or fire.

10.10 Do not deform batteries. Lithium batteries should not be crushed, punctured, or otherwise mutilated. Such abuse may result in leakage, venting, explosion, or possibly fire.

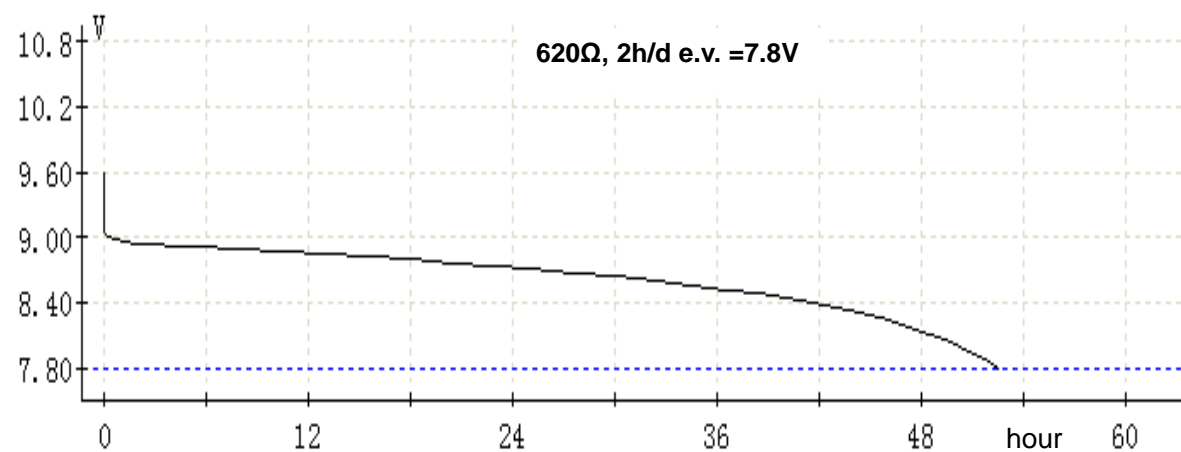
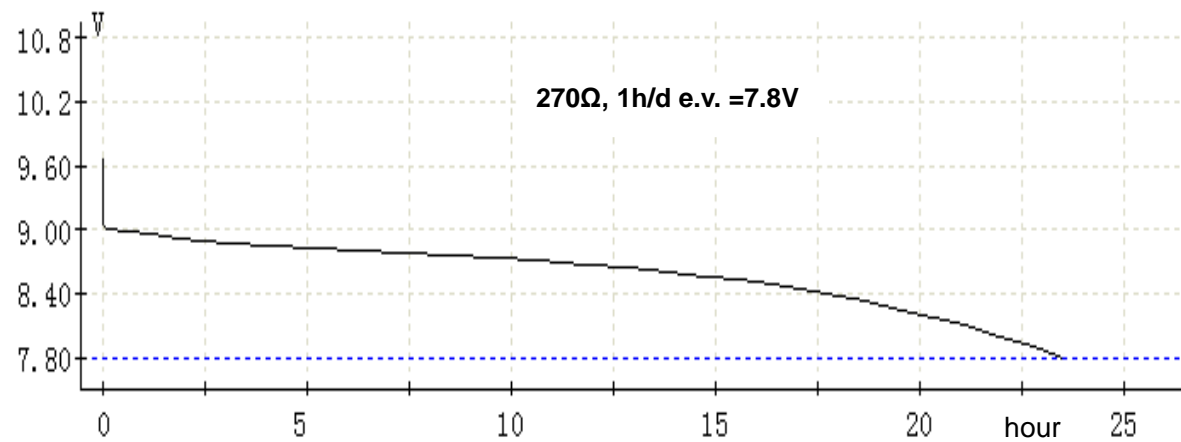
10.11 Do not dispose of batteries in fire. When batteries are disposed of in fire, the heat build-up may cause explosion and/or fire. Do not incinerate batteries except for approved disposal in a controlled incinerator.

10.12 A lithium battery with a damaged container should not be exposed to water. Lithium metal in contact with water may produce fire and/or hydrogen gas.

### 10.13 Keep batteries out of the reach of children

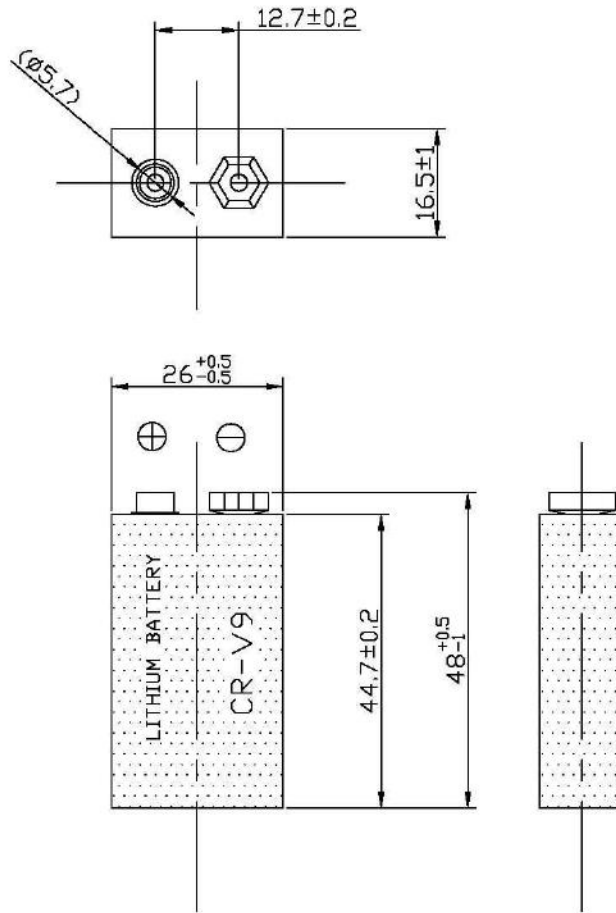
Especially keep batteries which are considered swallowable out of the reach of children. In case of ingestion of a cell or battery, seek medical assistance promptly.

Chart1.Discharge diagram



**Figure-1 SHAPE AND DINENSION**

Unit: mm



: LABEL AREA