

产品规格书

Product Specification

Product Model: Coin Type Supercapacitor (V)

Part Number: S C EC 5R5 105V

Prepared by	Checked by	Approved by
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AMENDMENT RECORDS

Ver. No.	Description	Date	Approved by
1.0	Initial Releas	2017.08.15	

Customer Approval

Signature	Date
Company Name:	
Company Stamp:	

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1. Scope

This specification applies to Wincap (Electric Double Layer Capacitor), submitted to specified customer in cover page.

2. Test Condition

All tests and measurements shall be made under standard atmospheric conditions:

- temperature: 15 °C to 35 °C;
- relative humidity: 25 % to 75 %;
- air pressure: 86 kPa to 106 kPa

Before the measurements are made, the capacitor shall be stored at the measuring temperature for a time sufficient to allow the entire capacitor to reach this temperature. The period as prescribed for recovery at the end of a test is normally sufficient for this purpose.

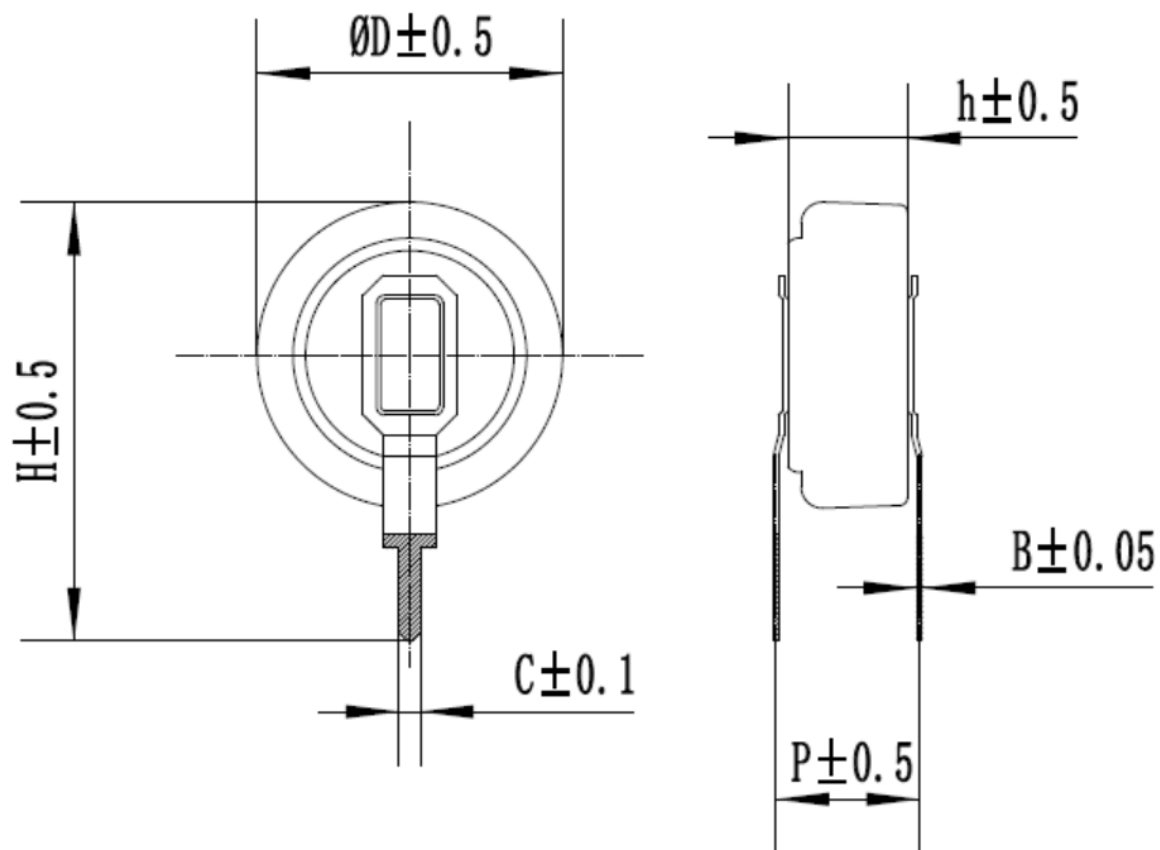
3. General Characteristics

No.	Items	Criteria	Method
1	Rated Voltage	5.5 V	
2	Rated Capacitance	1F	See 7.1
3	Capacitance Tolerance	-20%~+80%	
4	AC Impedance (ESR)	$< 15 \Omega$	See 7.2.2
5	Work Temperature Range	-25~+70°C	

4. Environmental Characteristics

No.	Items	Specification/Condition
1	Temperature Characteristics	+70±2°C, $ \Delta C/C \leq 30\%$, ESR ≤ 4 times of specified ESR; -25±2°C, $ \Delta C/C \leq 30\%$, ESR ≤ 4 times of specified ESR.
2	High Temperature Loading	+70±2°C, $ \Delta C/C \leq 30\%$, ESR ≤ 4 times of specified ESR, 1000 hrs, rated voltage.
3	High Temperature Storage	+70±2°C, $ \Delta C/C \leq 30\%$, ESR ≤ 4 times of specified ESR, 1000hrs.
4	Humidity Resistance	+40±2°C, 90%~95%RH, 240 hrs, $ \Delta C/C \leq 30\%$, ESR ≤ 4 times of specified ESR.

3. 5. Product Dimensions (mm)



Items	Criteria	Items	Criteria
D	19.0	h	4.5
P	5.0	H	25.0
C	1.0	B	0.2

6. Wincap Type

<u>S</u>	<u>C</u>	<u>EC</u>	<u>5R5</u>	<u>105</u>	<u>V</u>
6-1	6-2	6-3	6-4	6-5	6-6

6-1 S means supercapacitor

6-2 C means coin type

6-3 EC means series

6-4 5R5 means 5.5 V

6-5 105 means 1F

6-6 V means chip type

7. Test Method

7.1 Capacitance

(1) Turn the switch S to the d.c. power supply, and unless otherwise specified in the individual standards, apply voltage and charge for 30 min after the constant current (3 mA)/constant voltage power supply has achieved the rated voltage

(2) After a charge for 30 min has finished, change over the switch S to the constant current (3 mA) discharger, and discharge with a constant current.

(3) Measure the time t_1 and t_2 where the voltage between capacitor terminals at the time of discharge reduces from U_1 (4.4 V) to U_2 (2.2 V) as shown in Figure 2, and calculate the capacitance value by the

following formula:

$$C = \frac{I \times (t_2 - t_1)}{U_1 - U_2}$$

Where: C is the capacitance (F);

I is the discharge current (A);

U_1 is the measurement starting voltage (V);

U_2 is the measurement end voltage (V);

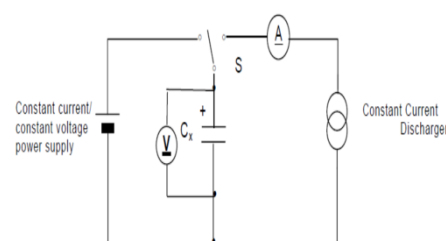


Figure 1 – Circuit for constant current discharge method

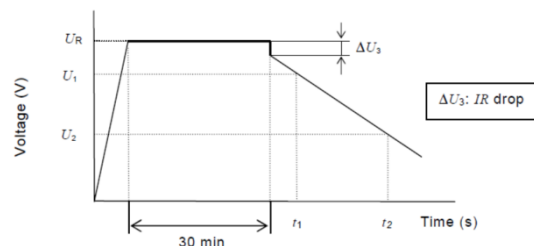


Figure 2 – Voltage characteristic between capacitor terminals

t_1 : is the time from discharge start to reach $U_1(s)$

t_2 : is the time from discharge start to reach $U_2 (s)$

7.2 DC resistance method

7.2.1 Calculation

$$R_{DC} = \frac{U_3}{I}$$

Where: R_{DC} is the d.c. internal resistance (Ω);

U_3 : is the drop voltage (V);

I : is the discharge current (A).

7.2.2 AC resistance method

Measurement shall be made using the measuring circuit shown in Figure 3.

$$R_{AC} = \frac{U}{I}$$

其中: R_{AC} is the a.c. internal resistance (Ω);

U is the effective value of a.c. voltage (V r.m.s.);

I : is the effective value of a.c. current (A r.m.s.).

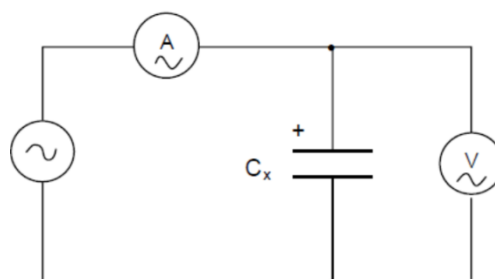


Figure 4 – Circuit for
a.c. resistance method

8. Handling Precautions and Guidelines

For safety application, please contact Xingkai directly for any technical specifications, handling precautions and guidelines critical to application.

Precautions

(1) Prohibition of disassembly

The disassembling may generate internal short circuit in the cell, which may cause gassing, leakage, explosion, or other problems.

Electrolyte is harmful: In case the electrolyte comes into contact with the skin, or eyes, physicians shall flush the electrolyte immediately with fresh water and medical advice is to be sought.

(2) Prohibition of dumping of cells into fire

These may cause explosion of the cells, which is very dangerous and is prohibited.

(3) Prohibition of cells immersion into liquid

The cells shall never be soaked with liquids such as water, seawater, drinks such as juices, coffee or others.

(4) Prohibition of use of damaged cells

The cells might be damaged during shipping by shock. If any abnormal features of the cells are found such as damages in the cell package, smelling of an electrolyte, an electrolyte leakage and others, the cells shall never be used any more.

The Cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid firing or explosion.

Handling Guidelines

(1) It can not be used in AC circuits. DC conversion is necessary before using.

(2) Work voltage of cell should not exceed Max. work voltage of cell during using. Otherwise, will shorten shelf life, even cause swelling, leakage or crack.

(3) Please check the polarity before using. If working under reverse polarity, cell will not only shorten shelf life, but also heavy damage, such as swelling, electrolyte leakage etc.

(4) Environment

Work temperature will have an influence on shelf life of cell. As usual, higher work temperature will shorten shelf life. So, it is better that cell works under as possible as low environmental temperature. Work temperature of cell should consider internal work temperature in the unit and temperature rise when cell works.

(5) IR drop

When main power sources shut down, cell will change into work mode from failure mode, at the same time, OCV will decrease due to IR drop. So please choose proper product type according to impedance specified in product datasheet and applied current.

(6) Cells in series connection

When cells in series connection for higher work voltage, it should be assured that work voltage of any single cell must not exceed Max. work voltage of single cell, otherwise, will

shorten shelf life, even cause swelling, leakage or crack.

(7)Soldering

Heat shock will decrease electric performance of cell, even cause swelling, leakage or crack. Soldering temperature should not exceed 260℃, soldering time should not exceed 5s.

Please don't use reflow soldering of infrared heating and air heating.