

## Product Specification

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**model( Model ):** Button super capacitors ( V type)

**Part Number ( Part Number ):** SC EB 5R5 474 V

Fiction	Check	Approve
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### Version change history

Ver. No.	summary	date	Approve
1.0	First edition fiction	<u>2017.08.15</u>	

## Customer acknowledges

client: \_\_\_\_\_

signature: \_\_\_\_\_

date: \_\_\_\_\_

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## 1. Scope

This product specification describes the Jiang Su Xingkai New Energy Technology Co., Ltd. (hereinafter referred to as Star Kay) production of ultra-button capacitor.  
Product performance level of the capacitor.

## 2. Standard test conditions

Typically, at standard atmospheric pressure, temperature 15 ~ 35 °C, relative humidity of less than 85% Under the conditions tested;

Before testing samples should be placed at the test temperature 1h Above, the test conditions of the present specification is a standard atmospheric pressure, temperature for 25 ± 2 °C, relative humidity 60 ± 15% .

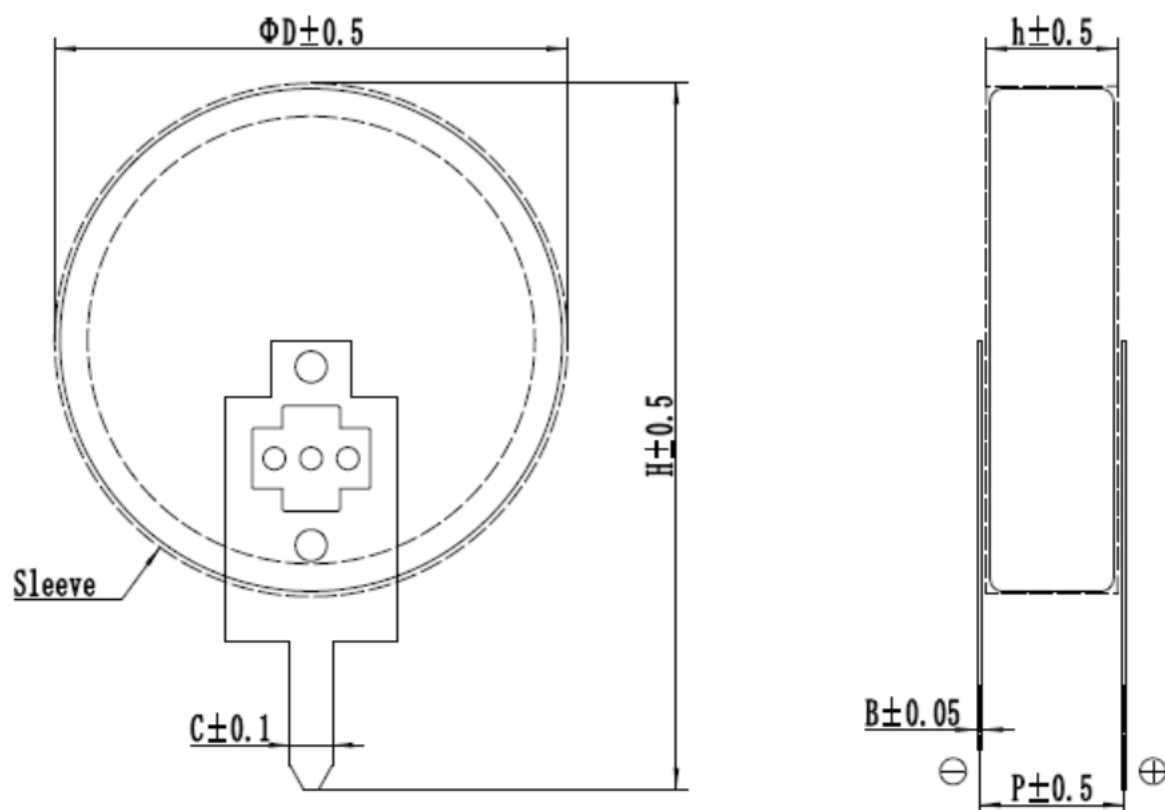
## 3. General Characteristics

Numbering	project	Specification Value	Test Methods
1	Rated voltage	5.5 V	
2	Surge voltage	6.0 V	
3	Rated Capacity	0.47 F	See 7.1
4	Capacitance tolerance	- 20% + 80%	
5	AC resistance ( ESR )	< 30 Ω	See 7.2.2
6	range of working temperature	-25 ~ + 70 °C	

## 4. Environmental Characteristics

Numbering	project	Specification / Condition
1	Temperature characteristics	+ 70 ± 2 °C,   ΔC / C   ≤30%, ESR≤ 4 times the standard value; -25 ± 2 °C,   ΔC / C   ≤30%, ESR≤ 4 times the standard value.
2	High-temperature load	+ 70 ± 2 °C, rated voltage 1000h After,   ΔC / C   ≤30%, ESR≤ 4 times the standard value.
3	High Temperature Storage	+ 70 ± 2 °C, storage 1000h After,   ΔC / C   ≤30%, ESR≤4 Times the standard value.
4	Heat load	+ 40 ± 2 °C, 90% ~ 95% RH, after 240h,   ΔC / C   ≤30%, ESR≤ 4 times the standard value.

**5. Product Size ( mm )**



project	standard value	project	standard value
D	11.5	h	4.5
P	4.5	H	17.0
C	0.8	B	0.2

## 6. Naming Rules

<u>S</u>	<u>C</u>	<u>EB</u>	<u>5R5</u>	<u>474</u>	<u>V</u>
6-1	6-2	6-3	6-4	6-5	6-6

6-1	S Indicates that the product type super capacitor
6-2	C It represents the shape of the product as a button
6-3	EB Indicates that the product range
6-4	5R5 The rated voltage 5.5 V
6-5	474 The rated capacity 0.47F
6-6	V Expressed as foot-Line

## 7. Test Methods

### 7.1 Capacity test method

( 1 ) The switch S Switching to the constant current / constant-voltage source, 3 mA The constant current charging current to the capacitor to be measured;

( 2 ) Measured in capacitor voltage reaches the rated voltage  $U_R$  After the constant voltage charging 30min ;

( 3 ) In the constant voltage charging 30min After the switch S Switch

In the constant current discharge means 3 mA The constant current discharge; test

Voltage between both ends of the capacitor begins to discharge from  $U_1$  ( 4.4 V )with

$U_2$  ( 2.2 V )time  $t_1$  with  $t_2$  , As 2 , According to

The capacity of the capacitor is calculated:

$$C = \frac{I \cdot (t_{\text{twenty one}} - t_2)}{U_1 - U_2}$$

among them: C: capacity( F )

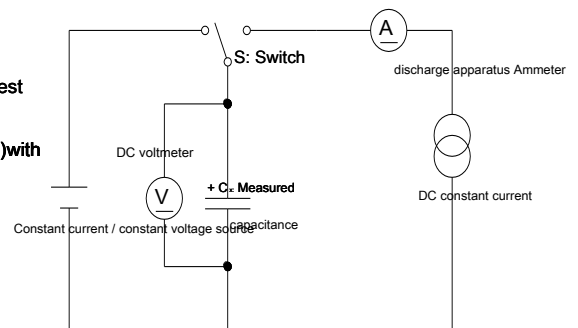
I :Discharge current( A )

$t_1$  : Discharge start voltage reaches  $U_1$  time( s )

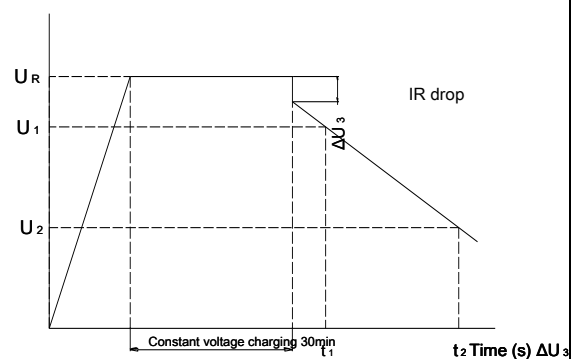
$t_2$  : Discharge start voltage reaches  $U_2$  time( s )

$U_1$  : Measurement starting voltage ( V )

$U_2$  : Measurement termination voltage ( V )



Map 1 Capacity test circuit



Map 2 Charge-discharge curves of FIG.

## 7.2 Resistance test method

### 7.2.1. DC resistance calculated

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

among them:  $R_{DC}$  : DC resistance (  $\Omega$  )

$U_3$  : Constant current discharge 10ms Pressure drop ( V )

$I$  : Constant discharging current ( A )

### 7.2.2 AC resistance test method

AC impedance by LCR Bridge measurement, measurement of the voltage

Frequency 1KHz , AC resistance of the supercapacitor  $R_{AC}$

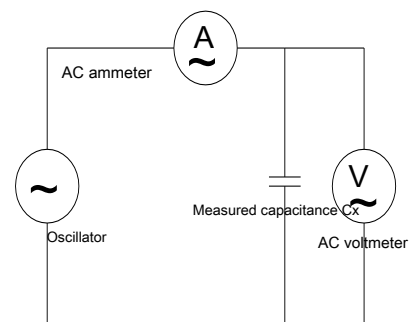
Calculated as follows:

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

among them:  $R_{AC}$  : AC resistance ([ $\Omega$ ])

$U$  : AC voltage rms ( V rms )

$I$  : Alternating current rms ( A rms )



Map 3 AC resistance test circuit diagram

## 8. Precautions

In order to ensure safety when designing the device uses capacitive, please contact Kay Consulting capacitance Star technical specifications to And use requirements.

### 8.1 Precautions

( 1 ) Not disassemble disassembling may generate internal short-circuit, resulting in gas, leakage of the electrolyte. Electrolytes

Harmful, if the electrolyte in contact with skin or eyes, rinse, and should seek medical treatment immediately with water.

( 2 ) Prohibits the capacitor in a fire, it may lead to a risk of explosion.

( 3 ) Prohibits the capacitor is immersed in a liquid such as water, saline, beverages such as fruit juices, coffee or other.

( 4 ) Prohibit the use of a capacitor damaged, if used before rupture was found in the cell package, smell electrolysis

Odor liquid electrolyte leakage or other abnormal conditions, do not continue to use.

### 8.2 User guides

( 1 ) Can not be used in the following situations: the AC circuit; not for filtering.

( 2 ) Use, the operating voltage of the capacitor does not exceed its maximum operating voltage. Otherwise, it will be shortened

Life, even cause swelling, leakage or crack.

( 3 ) Be sure to check before using the polar capacitor capacitance long time in the opposite polarity, not only

Shorten its life, and may cause serious damage, such as swelling, electrolyte leakage.

( 4 ) Capacitor life will be affected operating temperature, the higher the general, the capacitance of the ambient temperature,

The shorter its life. Accordingly, the operating temperature of the capacitor should be as low as possible at the maximum allowable temperature.

( 5 ) Capacitance exceeds the allowable operating temperature range or thermal shock, will not only shorten its life, and even guide

Caused by swelling, leakage, or cracking. Capacitors should be considered when using the internal temperature of the product during use and the working unit

The temperature rise inside the capacitor.

( 6 ) When the main power is off, the capacitor from the power failure back-up power supply mode to test mode, where

Since the resistance and the capacitor starting current instant will lead to an open circuit voltage drop. Please introduce resistance depending on the products listed in

And use current anti determine the correct product model.

( 7 ) When a plurality of unit capacitors in series to increase when the operating voltage, must ensure that the two monomers each capacitor

Voltage does not exceed its maximum operating voltage, otherwise, it will shorten its life, and even lead to swelling, leakage, or open

crack.

( 8 ) Welding temperature should not exceed 230 °C, time should not exceed 5s , A distance of not less iron from the body capacitance

to 1.6mm . If the soldering iron tip capacitance across the outer sleeve, the sleeve will cause melting or cracking; provided when using an oven, etc.

Preparation of the capacitor when the preheated and curing of the adhesive, provided the temperature is not 150 °C, or it may be capacitive overtube

You might crack, while the bottom portion is deformed to seal the capacitor; infrared heating method and heated air prohibiting the use of the capacitor

Reflow.