1. SCOPE

These are the specification of STARCAP(Electric Double Layer Capacitor) which you are using.

Please study these applications and approved them.

2. General Specification

1) Apply range

This capacitor, electronic double layer capacitor (EDLC), is applied to used for electronic circuits such as memory back up and motor drive, toy.

2) Standard test conditions

These are standard test conditions that temperature range is 5~35 ℃ and humidity range is 45~85 % RH.

In special case, these conditions that temperature range is 20 ±3 ℃ and humidity range is 65 ±5 % RH can be accept.

3) Standard element

This test shall be applied to JIS-C-5102.

3. Structure & Form

1) Structure

Inside structure consists of winded anode and cathode electrodes with two separators. Aluminum-can case and rubber cover is outer structure.

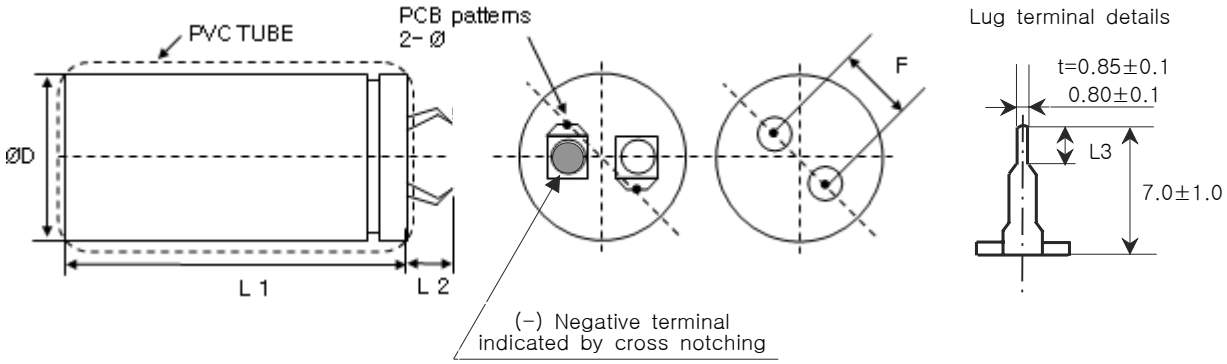
2) Form

Cylindrical and both leads were extracted one-direction form.

4. General Characteristic

ITEM	VALUE	
Operating voltage	DC 2.5 V	DC 2.7 V
Operating Temp.	-25 ~+70 ℃	-40 ~+60 ℃
Rated Capacitance	100 F	
Cap. Tolerance (20℃)	-20 % ~ +40 %	
Equivalent Series Resistance (1KHz)	≤ 18 mΩ	≤ 14 mΩ
Size (Ø × L)	Ø 22 × 45 mm(L)	
Weight	23.3 g	21.0 g
Volume	17.10 ml	
Energy Density	312.50 J (0.0868 Wh)	364.50 J (0.1013 Wh)

5. Construction and Dimension (Unit : mm)



Size	ØD	L1	L2	L3	F
Ø22×45 (L)	22±1.0	45±2.0	5.5±1.0	2.3±0.2	10.0±1.0

6. Electrical performance

1) Nominal capacitance

Constance current charge until operation voltage for 90 min and then measure time though discharge from 2.0 VDC to 1.0 VDC by 1 mA/F

After that, capacitance shall be calculated by the following formula

C	Capacitance (F)
I	Discharge current (mA)
T	Discharge Time (sec)
Vc	Voltage (2.0-1.0) (V)

$$C = (i \cdot T) / Vc$$

2) ESR (Equivalent Series Resistance)

Reading of V be measured at A shall be rated at AC 0.2~0.5V at 1KHz ±200Hz

The ESR(Equivalent Series Resistance) Z(Ω) shall be calculated by the following formula.

$$Z = \frac{V}{10^{-3}} (\Omega)$$

7. Specifications and Test method

ITEM		SPECIFICATION		CONDITION
Temp, Charact-eristics	Capacitance	Step2	70%↑of Initial Value	
	ESR		400%↓of Spec. Value	
	Capacitance	Step4	130%↓of Initial Value	
	ESR		Spec. Value	
	Capacitance	Step5	Within ± 30% of Initial Value	
	ESR		Spec. Value	

Step	Temp,
1	20±2℃
2	-25(-40)±2℃
3	20±2℃
4	70(60)±2℃
5	20±2℃

ITEM		SPECIFICATION	CONDITION
Vibration resistance	Capacitance	Spec. Value	Amplitude : 1.5mm Frequency : 10~55Hz Direction: X,Y,Z 3direction Test Time : 6 Hrs
	ESR	Spec. Value	
	Appearance	No Marked Defect	
Solder-ability		Terminal shall be soldered over than 3/4	Solder Temp. : 230±5℃ Immersion time: 5±0.5Sec Dip Length : To 1.6mm From the lower end of the capacitor
Soldering Effect	Capacitance	Spec. Value	Solder Temp. : 260±5℃ Immersion time: 10±0.5Sec Dip Length : To 1.6mm From the lower end of the capacitor
	ESR	Spec. Value	
	Appearance	No Marked Defect	
Cycle Temp.	Capacitance	Spec. Value	Temp : -25(-40)℃→20℃ →70(60)℃→20℃ Cycle : 5 cycle
	ESR	Spec. Value	
	Appearance	No Marked Defect	
Humidity	Capacitance	Within ±30% of Initial Value	Temp : 40±2℃ Humidity : 90~95%RH Test Time : 240±8hours
	ESR	200%↓ of Spec. Value	
	Appearance	No Marked Defect	
High Temp. Loading	Capacitance	Within ±30% of Initial Value	Temp : 70(60)±2℃ Voltage : 2.5(2.7)VDC Resistance : 0Ω Test Time : 1,000hours
	ESR	200%↓ of Spec. Value	
	Appearance	No Marked Defect	
Self Life	Capacitance	Within ±30% of Initial Value	Temp : 70(60)±2℃ Resistance : 0Ω Test Time : 1,000hours
	ESR	200%↓of Spec. Value	
	Appearance	No Marked Defect	
Cycle Life	Capacitance	Within ±30% of Initial Value	1Cycle : Charge(20sec)→ CV(10sec) →CC(1/2Vw, 20sec) → Rest(10sec), 100,000Cycles
	ESR	200%↓ of Spec. Value	

8. Packing

Part number	Quantity (EA)	Size(W × H × T)	Weight (Kg)
SCDL2R5107L	250	300×300×100	7.0
SCDL2R7107L			7.0

9. Caution for using

1) To keep the operation voltage marked on sleeve.
2) To caution polarity change because of the STARCAP has be verified by aging process
3) To use operation voltage on the warranty temperature.
4) To keep operation voltage, when use to capacitor module of series or parallel connection. The module should be use same grade of capacitance
5) The STARCAP maker don't have any responsibility, if customer to make mistake or misuse or abuse.

10. Application Guide-Line

Please be careful following points when you used STARCAP.

1) Don't apply more than rated voltage
If you apply more than rated voltage, STARCAP's electrolyte will be electrolyzed and Its ESR gets higher. At the worst, It is broken

2) Don't use for ripple absorption

3) Polarity
The STARCAP is non-polar fundamentally, However STARCAP is made polarity, When it is packed. Please mount it in accordance with its polarity for the maintaining best condition.

4) Operating temperature and life

Generally, STATCAP has a lower leakage current, long back-up time and longer life in the low temp. But it has a higher leakage current, shorter back-up power time and shorter life in the high temp.

Please design to keep STARCAP away a calorific parts.

5) Cleaning

STARCAP is a proof against cleaning, cleaning guarantee is as follows :

-. Solvent : FREON TES45℃

-. Ultrasonic trasonic wave : LESS THAN 38㎑, LESS THAN 20 Watt/Liter.

-. Immersing time : LESS THAN 1 MIN.

-. Ultrasonic wave must not be centered.

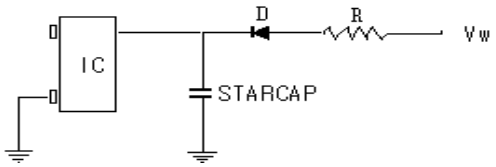
6) Soldering

When you solder by solder iron, Please do quickly it within 3 sec.

Please don't touch the resin case of STARCAP by solder iron.

because the resin may melted by its heat

7) Following figure shows the general back-up circuit

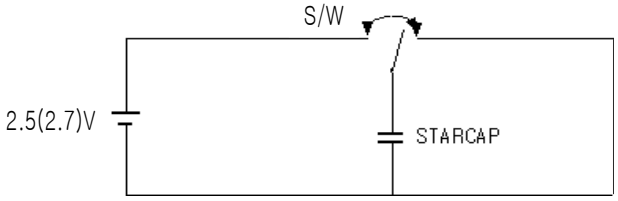


D : Diode for protection of counter

R : Resistor for protection of electric power source

8) Short circuit STARCAP

You can short-circuit between terminals without resistor. However when you short circuit frequently, Please let us know. We think that frequently condition is as follows



CHARGE : 30 SEC., DISCHARGE : 30 SEC., CYCLE : 1000 CYCLE, TEMP. : 70(60) ℃

9) Storage

In Long term Storage, please store STARCAP in following condition;

① TEMP. : 15 ~ 35 ℃

② HUMIDITY : 45 ~ 75 %RH

③ NON-DUST

10) Please don't disassemble STARCAP.

Because its electrolyte is organic solvent, It's dangerous to mankind.

11) Series connection

Series connection of STARCAP cause a difference of applied voltage for each STARCAP. Because of dispersion of capacitance and ESR.

As a result, it's possible to apply over-rated voltage. Please inform us if you are using STARCAP in series connection and please design so as not to apply over-rated voltage to each STARCAP.