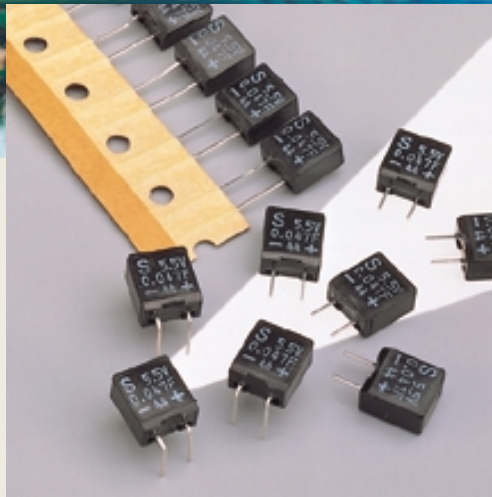
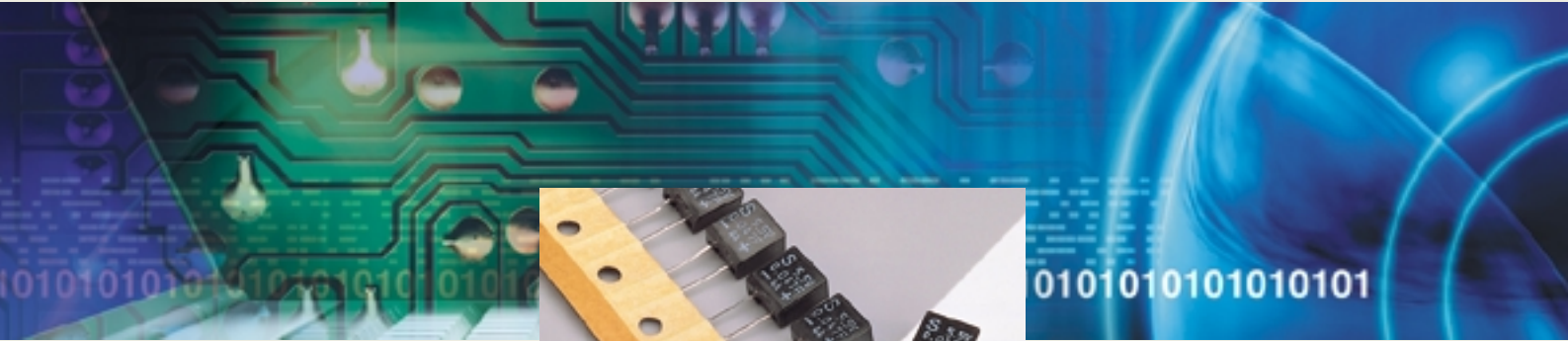
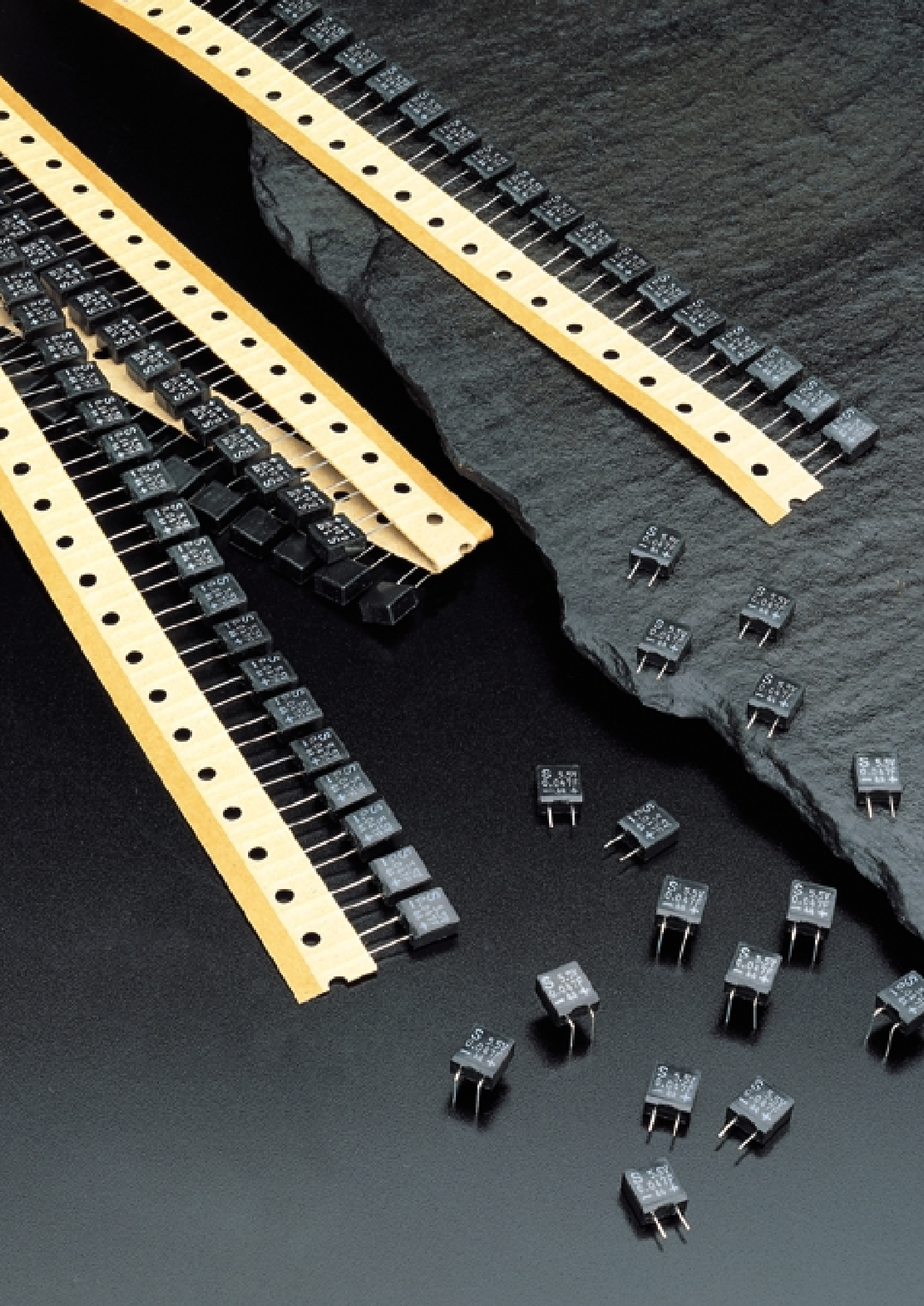


STARCAP®





PERFORMANCE CHARACTERISTICS

The STARCAP® is an electric double layer capacitor consisting of activated charcoal electrodes and organic electrolyte.

Because of extremely larger effective surface area of the activated charcoal electrodes.

The STARCAP® can hold for much greater charge than aluminium electrolytic capacitor.

STARCAP® is designed with ultra large capacitance characteristics for memory back-up circuit.

The STARCAP® has many applications over various gadgets most of which use it for the purpose of memory back-up.

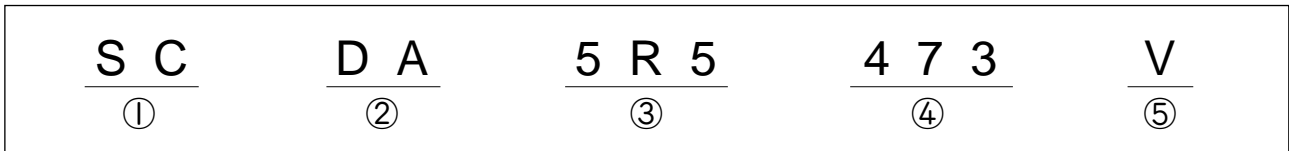
FEATURES

- Tape packaging available
- Longer life than secondary battery
- Unrestricted lengthwise and crosswise mounting
- Compact resin case further helps miniaturize and conserve space
- Waterproof structure facilitates washing

TABLE OF CONTENTS

- 3 INTRODUCTION
- 3 FEATURES
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- 4 MARKING
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- 7 PERFORMANCE CHARACTERISTIC
- 10 CAUTION FOR USE

PART NUMBER SYSTEM



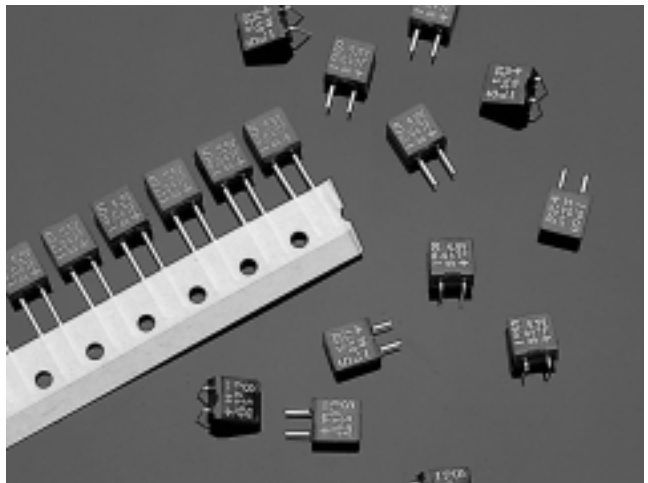
1. STARCAP[®]
2. SERIES NAME
3. RATED VOLTAGE
4. CAPACITANCE CODE

CAP.(F)	CODE
0.022	223
0.047	473
0.1	104
*0.22	224
*0.47	474
*1.0	105

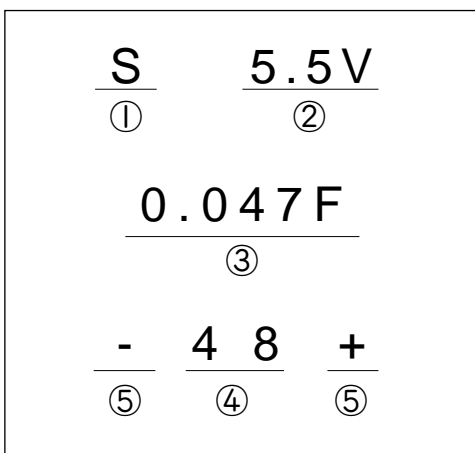
*IN PROCESSING

5. LEAD & TAPING TYPE

TYPE	CODE
VERTICAL BULK	V
HORIZONTAL BULK	H
AMMO TAING	A



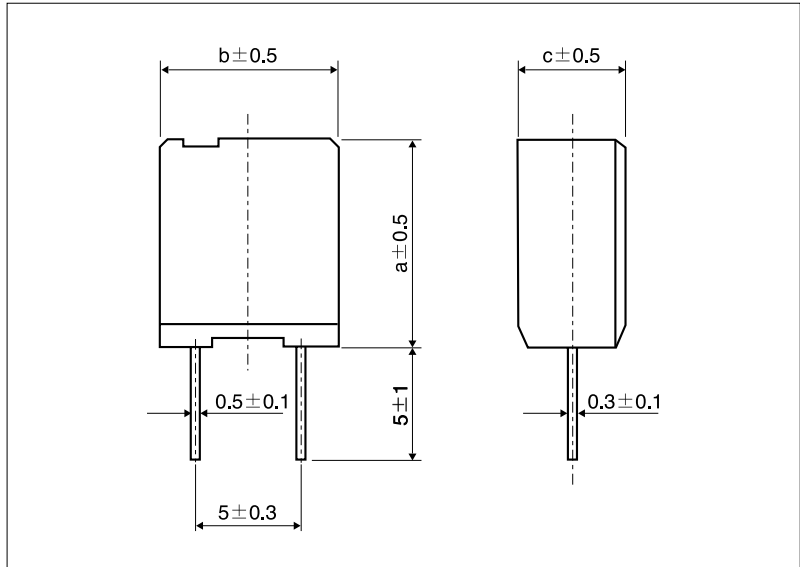
MARKING



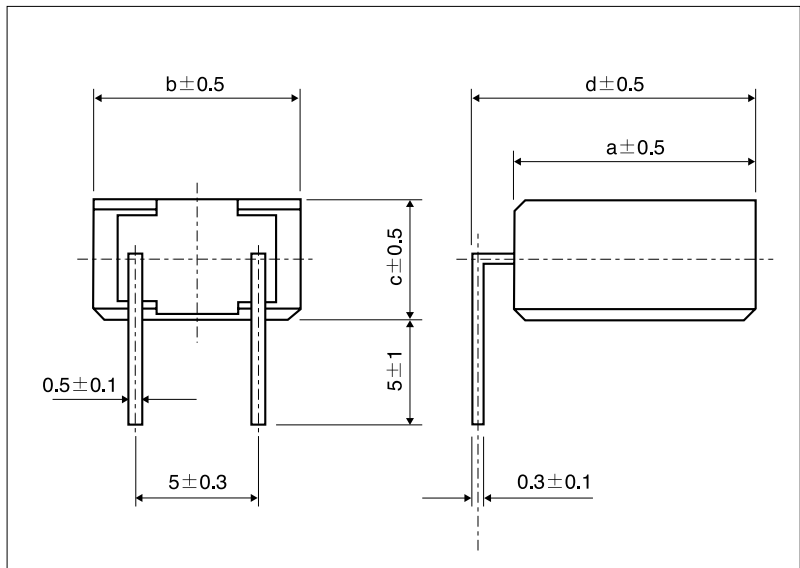
1. MANUFACTURER MARK
2. RATED VOLTAGE
3. CAPACITANCE
4. LOT NO
5. POLARITY

DIMENSION

VERTICAL TYPE



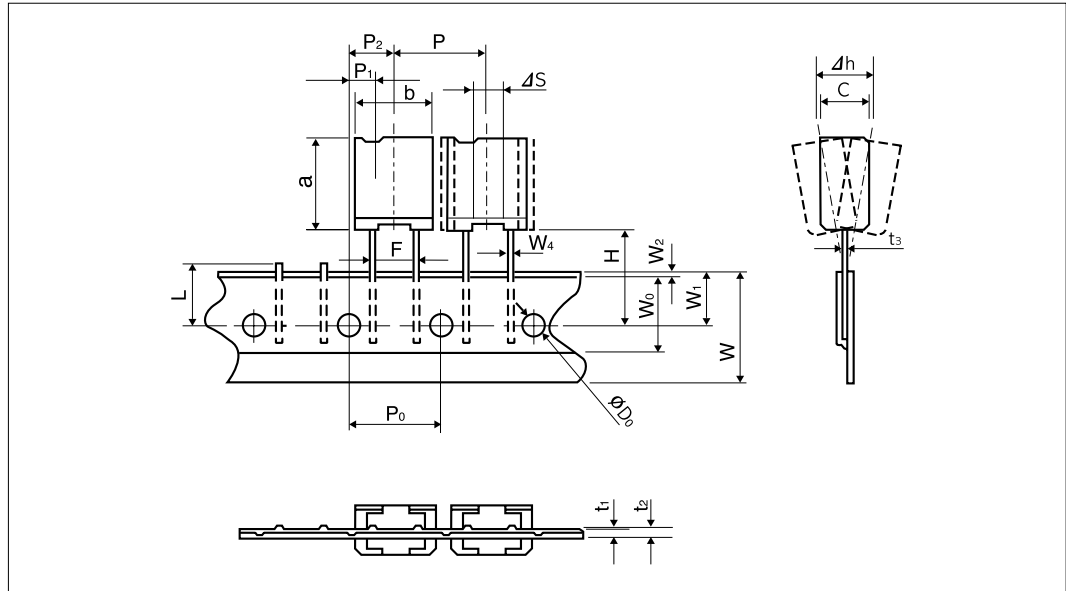
HORIZONTAL TYPE



(Unit : mm)

NO.	CODE	RATED VOLTAGE (VDC)	CAPACITANCE (F)	SIZE			
				a	b	c	d
1	SCDA5R5223V(H)	5.5	0.022	10.5	9.5	5.0	12.0
2	SCDA5R5473V(H)	5.5	0.047	10.5	9.5	5.0	12.0
3	SCDA5R5104V(H)	5.5	0.1	12.5	11.5	5.0	14.0

TAPING



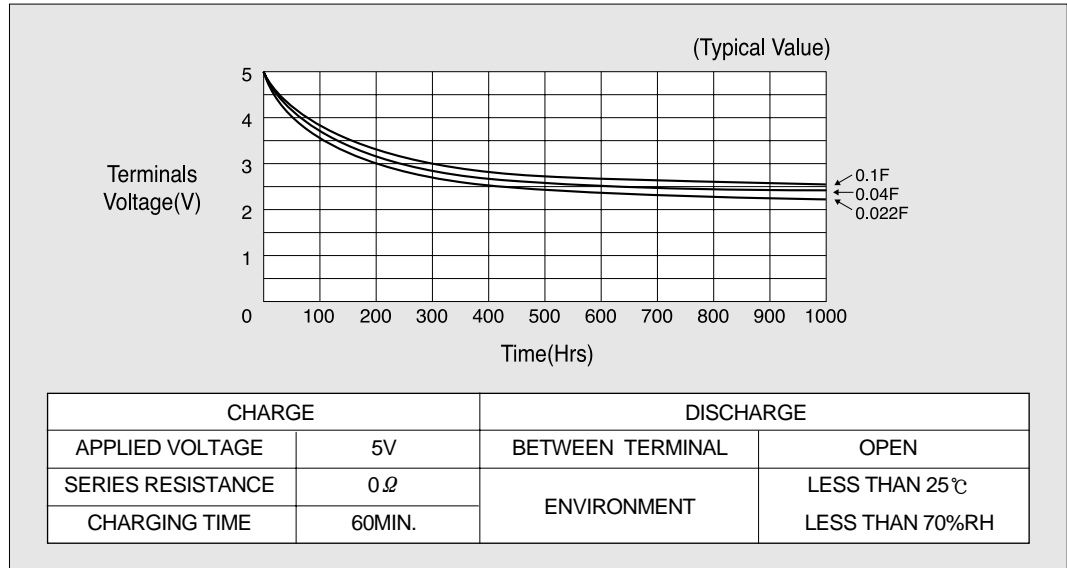
ITEM	CODE	DIMENSIONS(mm)	
Pitch of component	P	12.7	
Pitch of sprocket hole	P ₀	12.7±0.2	
Length from hole center to lead	P ₁	3.85±0.7	
Length from hole center to component center	P ₂	6.35±1.3	
Lead spacing	F	5.0± ^{0.8} _{0.2}	
Carrier tape width	W	18.0±0.5	
Hole down tape width	W ₀	12.5 max.	
Position of sprocket hole	W ₁	9.0± ⁰ _{0.5}	
Hole down tape position	W ₂	0.5±0.5	
Components bottom plane	H	18.5±0.5	
Diameter of sprocket hole	∅ D ₀	∅ 4.0±0.1	
Portion to cut in case of defect	L	11.0± ⁰ _{1.0}	
Total tape thickness	t ₁	0.6±0.3	
Total thickness, tape and lead wire	t ₂	1.5 max.	
Deviation across tape	△h	0±1.0	
Deviation along tape, left or right	△s	0±2.0	
Lead cross section	Width	W ₄	0.5±0.1
	Thickness	t ₃	0.3±0.1
Body dimension	a	10.5±0.5	*12.5±0.5
	b	9.5±0.5	*11.5±0.5
	c	5.0±0.5	*5.0±0.5

*104

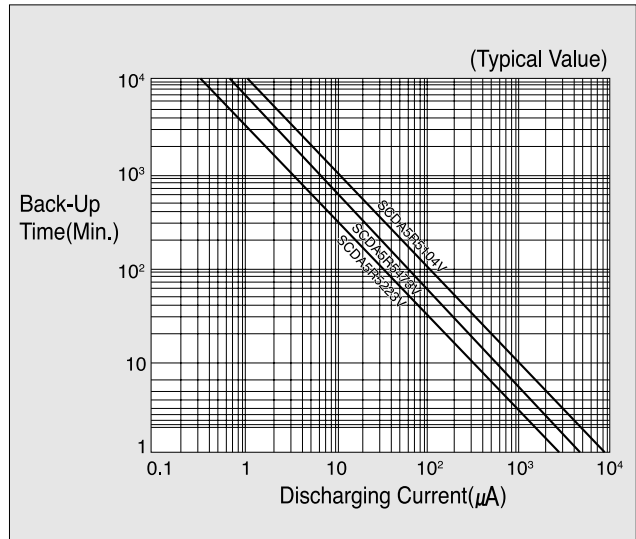
PERFORMANCE CHARACTERISTICS

CAPACITANCE RANGE : 0.022~0.1F
 RATED VOLTAGE : 5.5VDC
 CAPACITANCE TOLERANCE : -20~80%
 OPERATING TEMPERATURE RANGE : -25~70°C
 EQUIPVALANT SERIAL RESISTOR(ESR)
 0.022F : LESS THAN 150Ω
 0.047, 0.1F : LESS THAN 60Ω
 LEAKAGE CURRENT 0.022F : LESS THAN 50 μA
 0.047F : LESS THAN 70 μA
 0.1F : LESS THAN 150 μA

SELF-DISCHARGING CHARATERISTICS



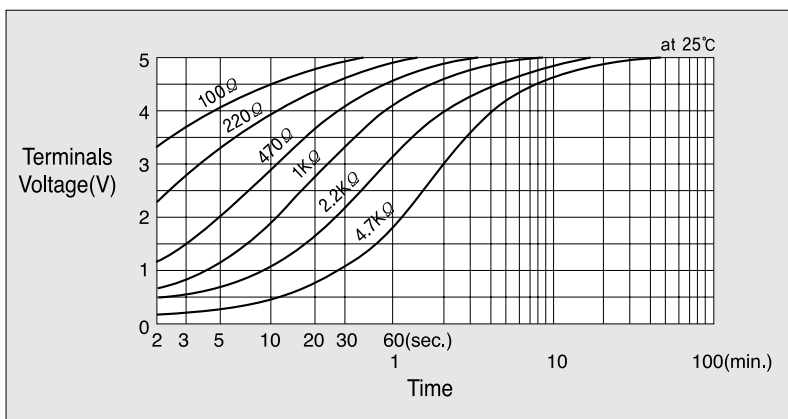
BACK-UP TIME



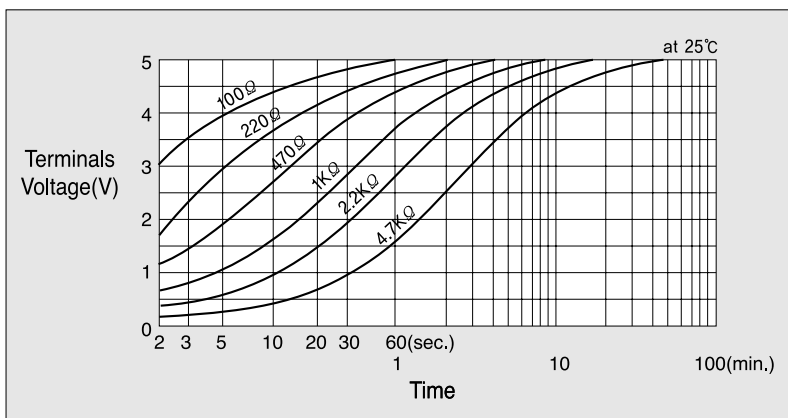
(NOTE)
 Back-up time :
 First, a voltage of 5.5V is applied to a sample capacitor for 60 minutes. Next, the power source is removed, and then a constant resistor is connected to each other discharging current. Finally, the time when the capacitor terminal voltage drops 5V to 2V is measured. The time when the capacitor backs up this processing is called the "back-up time".

CHARGE CHARACTERISTIC

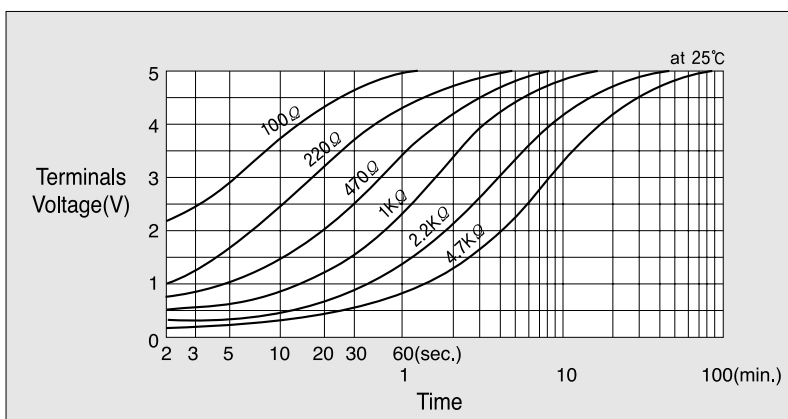
SCDA5R5223V(H)



SCDA5R5473V(H)



SCDA5R5104V(H)



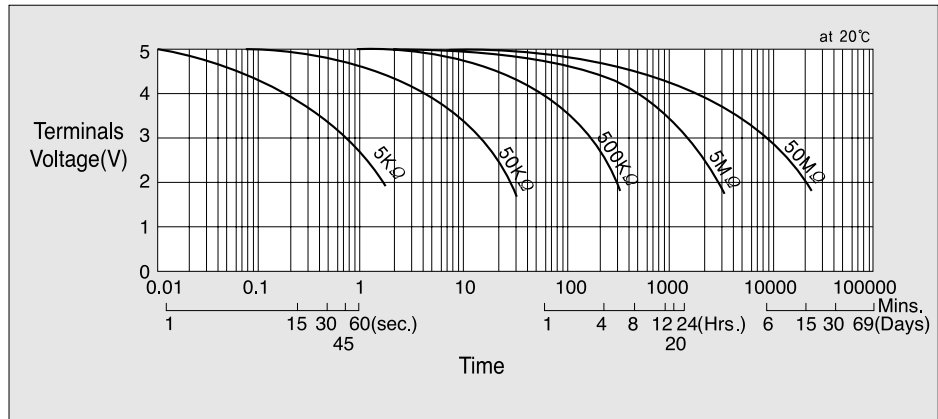
(NOTE)

Measuring conditions:

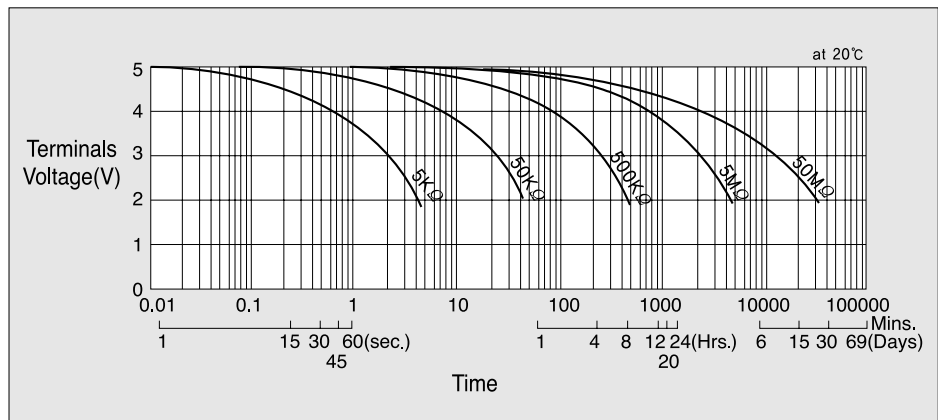
First, the sample is kept short-circuited for 60 minutes at 25°C before measurement. Next the rated resistance is connected in series to the sample. And then, using a 5V power supply, the time it takes the voltage applied to both ends of the capacitor to come to 5V is measure this time represents the charging characteristics.

RESISTOR DISCHARGING CHARACTERISTIC

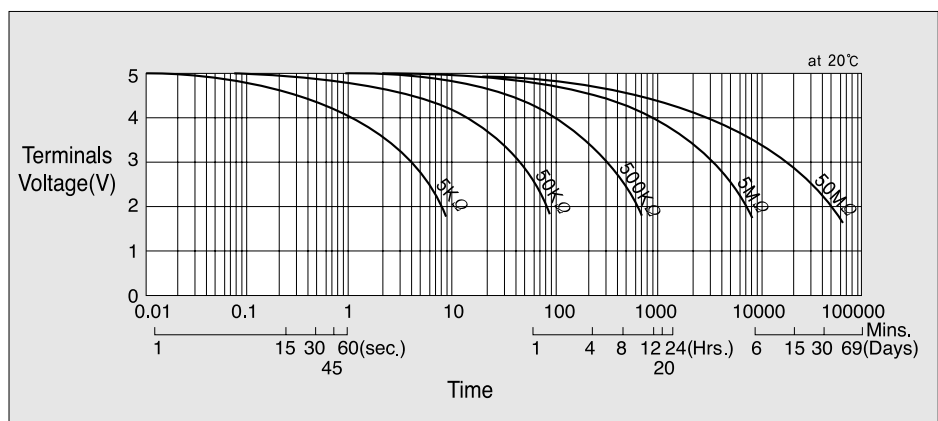
SCDA5R5223V(H)



SCDA5R5473V(H)



SCDA5R5104V(H)



(NOTE)

Measuring conditions:

First, a voltage of 5.5V is applied to a sample capacitor for 60 minutes.

Next, discharge to the rated resistance is called the “resistor discharge characteristics”

CAUTION FOR USE

Please be careful following points when you use STARCAP®

1. Don't apply more than rated voltage

If you apply more than rated voltage, STARCAP®'s electrolyte is electrolyzed.
And its ESR gets higher, at the worst, it is broken.

2. Don't use ripple absorption

3. Polarity

Fundamentally STARCAP® is non-polar.
However STARCAP® is made polarity, when it is shipped.
Please mount it in accordance with its polarity.

4. Operating temperature and life

Generally speaking, STARCAP® has a lower leakage current.
In the low temperature, the STARCAP® has longer back up time and longer life.
But, in the high temperature, it has a higher leakage current, shorter back up time and shorter life.
Please design to keep STARCAP® away a calorific parts.

5. Cleaning

STARCAP® is a proof against cleaning.
Cleaning guarantee is as follows ;
Solvent : freon tes
Temperature : 45℃
Ultrasonic wave : less than 38kHz
Less than 20Watt / liter
Immersing time : less than 10 minutes
Ultrasonic wave must not be centered.

6. Soldering

When you solder by solder iron, please do quickly it within 3 seconds.
Please don't touch the resin case of STARCAP® by solder iron.
Because the resin may be melted by its heat.

7. Short circuit

You can short circuit between terminals without resistor.
However, when you short circuit frequently, please let us know.

8. Storage

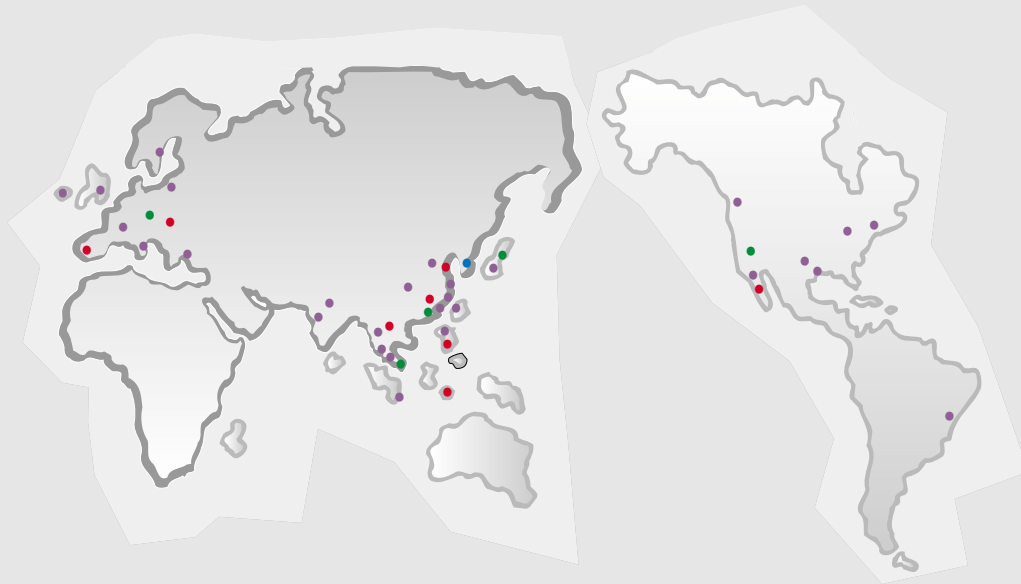
Please store STARCAP® in following condition ;
Temperature : 15~35℃
Humidity : 45~75%RH
Non dust

9. No disassembling STARCAP®

Please don't disassemble STARCAP®
Because its electrolyte is sulfuric acid.

10. Series connection

Series connection of STARCAP® causes a difference of applied for each STARCAP®,
because of dispersion of capacitance and ESR.
As a result, its 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®,
and use STARCAP® in same lot.



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 TEL : 36-483266
 FAX : 36-483311

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 FAX : 1753-689100

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 D-75228 Ispringen, Pforzheim,
 Germany
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 FAX : 49-7231-822-82

TTI Inc.
 Goethe Str. 15, D-75173 Pforzheim,
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- Domestic Factories & Offices
- ▶ Offshores Production Facilities
- Overseas Sales Subsidiaries
- Overseas Branches