



Shanghai Green Tech Co.,Ltd.

(GT Confidential)



1. SCOPE

This product specification has a regulation on product performance and test methods, can be a norm for technology confirmation.

2. General Specification

2.1 Application Scope:

The product can used as back-up power in electronic devices, such as RAM, intelligent meter, motor driver, clock circuit, electronic toys, etc.

2.2 Standard Test Conditions:

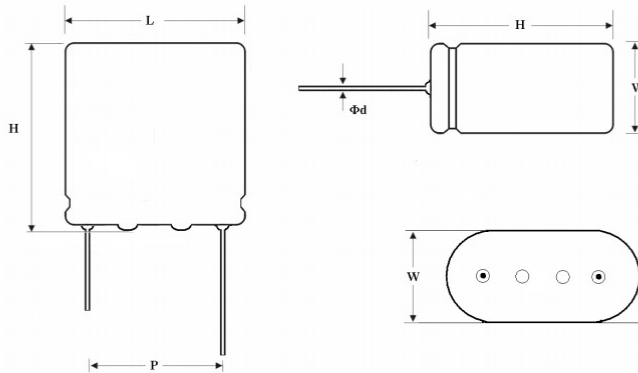
In general condition, test conducted under standard atmosphere pressure, temperature between 5°C~35°C and relative humidity below 85%. By this specification, the standard test condition is under standard atmosphere pressure, temperature at 25°C and relative humidity below 60%.

2.3 Executive Standard

IEC 62391-1 《Fixed electric double-layer capacitors for use in electronic equipment –Part 1:Generic specification》  
Q/KMNY001-2009 "Electrochemical Capacitor"

3. Product Structure

The product is an Electrical Double-Layer Capacitor, with activated charcoal inside be positive and negative pole.electrodes separated by electrolyte and separator , stainless steel case, the two electrodes leaded out in the same side.



4. Product Dimension

Dimension

Size (mm): LxWxH	21X10X22
Lead Space: P (mm)	12±0.5
Lead diameter Φd (mm)	0.6±0.05

5. Specifications

No.	Items	Specification/Condition
01	GT Part Number	GTSM-5R5-105UR
02	Rate discharge capacitance (F) (25°C, ΔV= 1.5V-1.25V I=0.1A)	1.0
03	Capacitance tolerance	-10%~+20%
04	Operating temperature range	-25°C~+70°C
05	Rated Voltage U <sub>0</sub> (V)	5.5
06	ESR (mΩ,1KHz, 25°C) Max	500
07	Max. Stored Energy(mWh)	1.15
08	Leakage Current(mA,72hrs)	0.01
09	Nominal current (A)	0.43
10	Max. Current (A)	1.38
11	Weight (g)	5.8
12	Cycle life expectancy	After 1,000,000 times of cycles between U <sub>0</sub> 1/2U <sub>0</sub> at RT,   ΔC/C   ≤30%,ESR≤4 times of specified ESR (25°C)

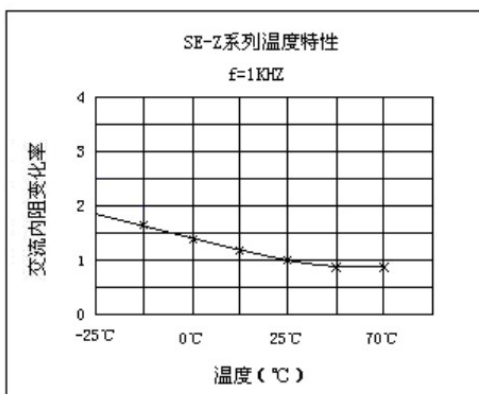


6. Environmental Characteristics

No.	Items	Specification/Condition
01	Temperature characteristics	$ \Delta C/C  \leq 30\%$ , $ESR \leq$ specified ESR(25°C) at +70°C $ \Delta C/C  \leq 50\%$ , $ESR \leq 4$ times of specified ESR (25°C) at -25°C
02	High temperature load	$ \Delta C/C  \leq 30\%$ , $ESR \leq 4$ times of specified ESR (25°C) at +70±2°C/1000hrs/rated voltage
03	High temperature storage	$ \Delta C/C  \leq 30\%$ , $ESR \leq 2$ times of specified ESR (25°C) at +70±2°C/1000hrs/standby after fully charge
04	Humidity Resistance	+40°C±2, 90-95%RH, 240h, $ \Delta C/C  \leq 30\%$ , $IL \leq 2$ times of specified leakage current, $ESR \leq 4$ times of specified ESR (25°C)

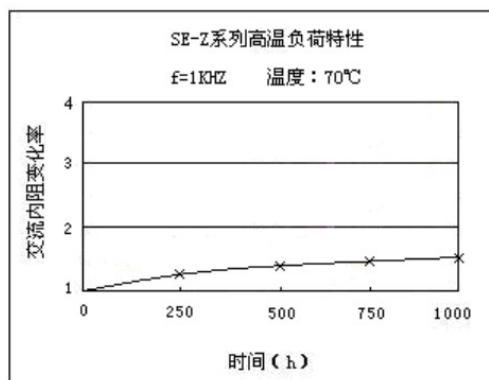
7. Performance Characteristics

(1) 温度特性 Temperature characteristics

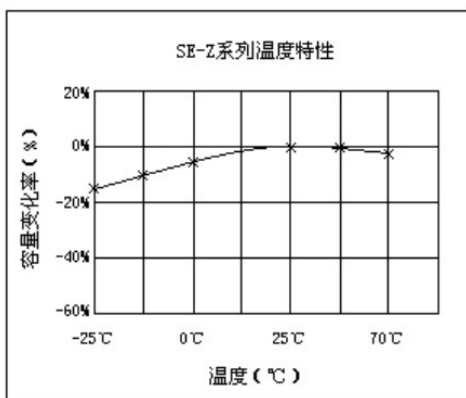


ESR(AC) Change rate VS Temperature

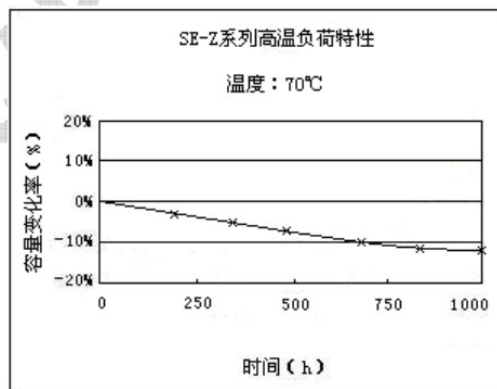
(2) 寿命特性 Life characteristics



Hi-temp. Loaded ESR(AC) Change rate VS Time

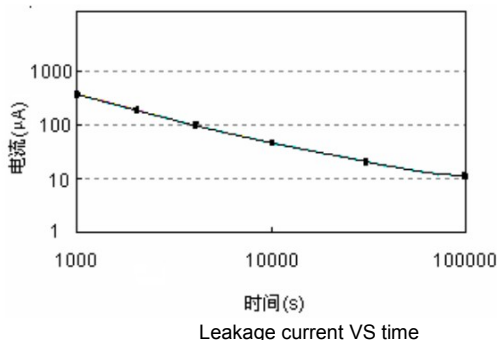


Capacitance Change rate VS Temperature



Hi-temp. Loaded Capacitance Change rate VS Time

(3) 漏电流特性:



Leakage current VS time



8. Handling Precautions and Guidelines

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

8.1 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 come 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.

8.2 Application Guidelines

- (1) It is not suitable that cell is used under such conditions: AC circuit and wave filing.
(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 230°C, soldering time should not exceed 5s.
Please don't use reflow soldering of infrared heating and air heating.

9. GT Part NO.

Table with columns: Brand, Super capacitor, Series, Rated Voltage, Capacitance, Tolerance, Terminal Type. It lists various part numbers and their specifications.

10. How to order

Model: GTSM-5R5-105UR
Version: R3.0

The customer is requested to write down your information and contact GT in advance, if and when the customer needs applications or operating conditions other than those described in this document. GT could design and build such products according to your special request.

Company Name: \_\_\_\_\_ E-mail: \_\_\_\_\_ Signature: \_\_\_\_\_ Date : \_\_\_\_\_