

Super Pulse Cell Capacitor

Model SPC1530

1. Scope

This data sheet describes the mechanical design and performance of EVE (Super Pulse Cell Capacitor) model SPC1530, optimized for extreme temperatures, used in an ES battery system.

2. Mechanical characteristics

Physical:

Length	26.7 ± 0.3 mm
Diameter	15.1 mm. max
Weight:	9.9 ± 0.2 gr

3. Electrical characteristics

3.1 Discharge

Discharge capacity (at RT):

When charged to 3.67V:	250 A*sec
When charged to 3.90V:	380 A*sec
Discharged end current:	2.5V (discharge below 2.5V at RT and discharge below 2.0V at -40°C may increase the SPC internal impedance)

Maximum discharge current:	Continuous: 750mA Pulse: 3A
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3.2 Charge (constant current)

Max. charge voltage:	3.95V
Max. charging current:	50 mA

3.3 Cell impedance: Less than 100 mOhm (at RT @ 1kHz)

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3. 4 Shelf life

Shelf life at different storage temperature to 80% of initial capacity, used in an ES battery system.

Temperature	SPC used independently	SPC in ES battery system
RT	3 years	10 years
60 °C	4 weeks	7 years
80 °C	1 week	at least 1 year

3. 5 Self discharge current in ES battery system.

at RT: 1.8 μ A

at 80°C : 8 μ A

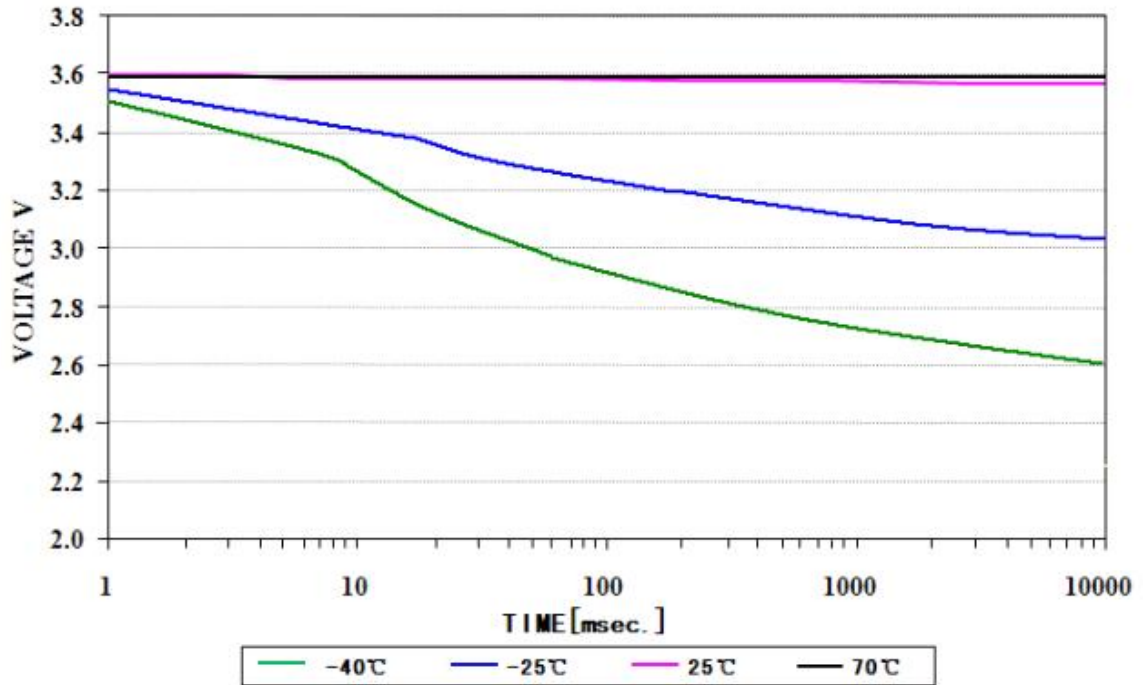
3. 6 Number of charge-discharge cycles to 85% of initial capacity (DOD: Depth of Discharge).

	100% DOD	10% DOD	1% DOD
Charged to 3.67V	1000	10000	100000
Charged to 3.90V	800	8000	80000

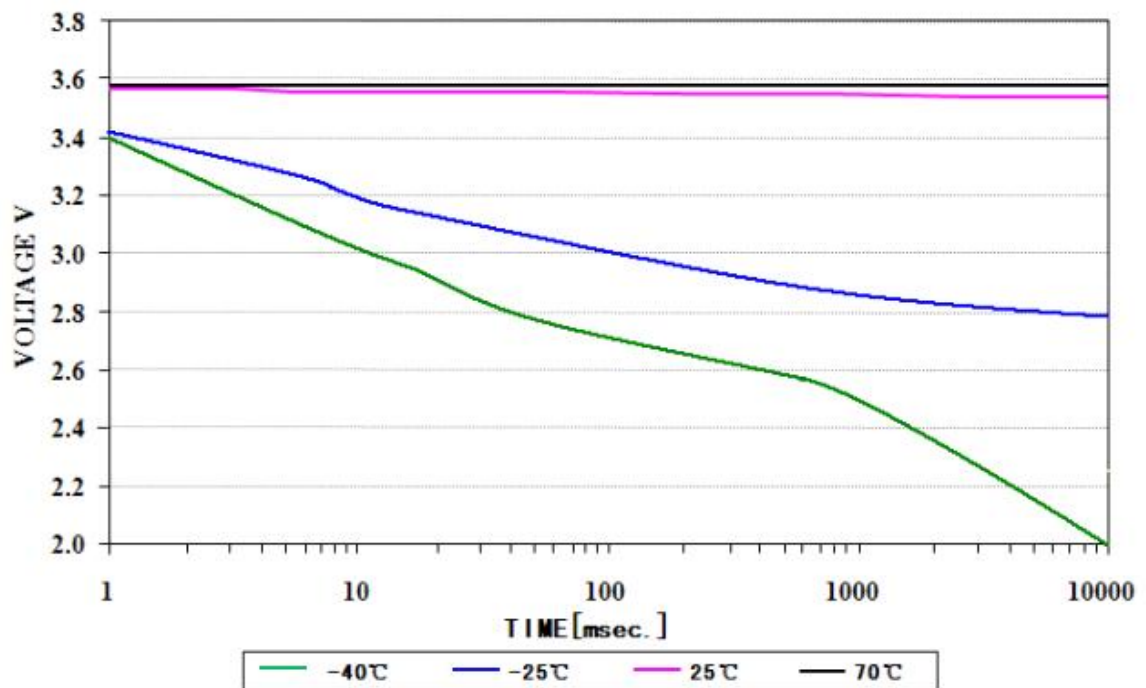
DOD(Depth of Discharge)

3.7 Performance Data

Voltage curves for SPC1530 at Li/SOCl₂ potential (3.67V), 350mA

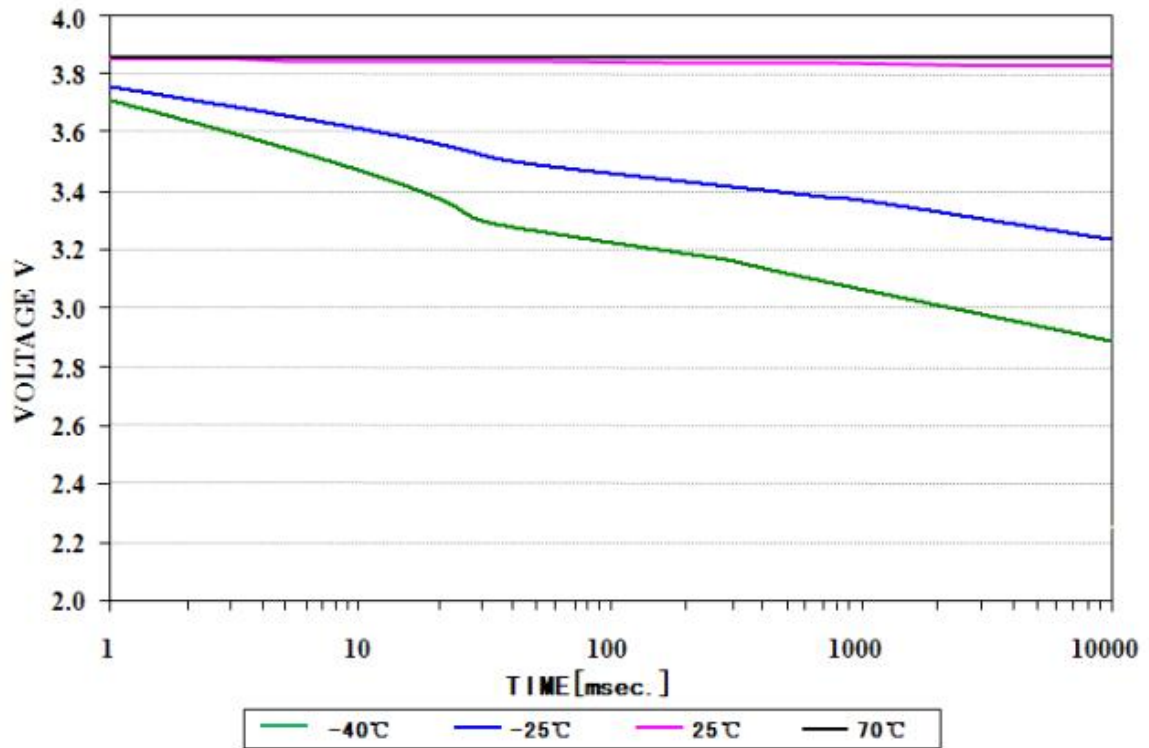


Voltage curves for SPC1530 at Li/SOCl₂ potential (3.67V), 600mA

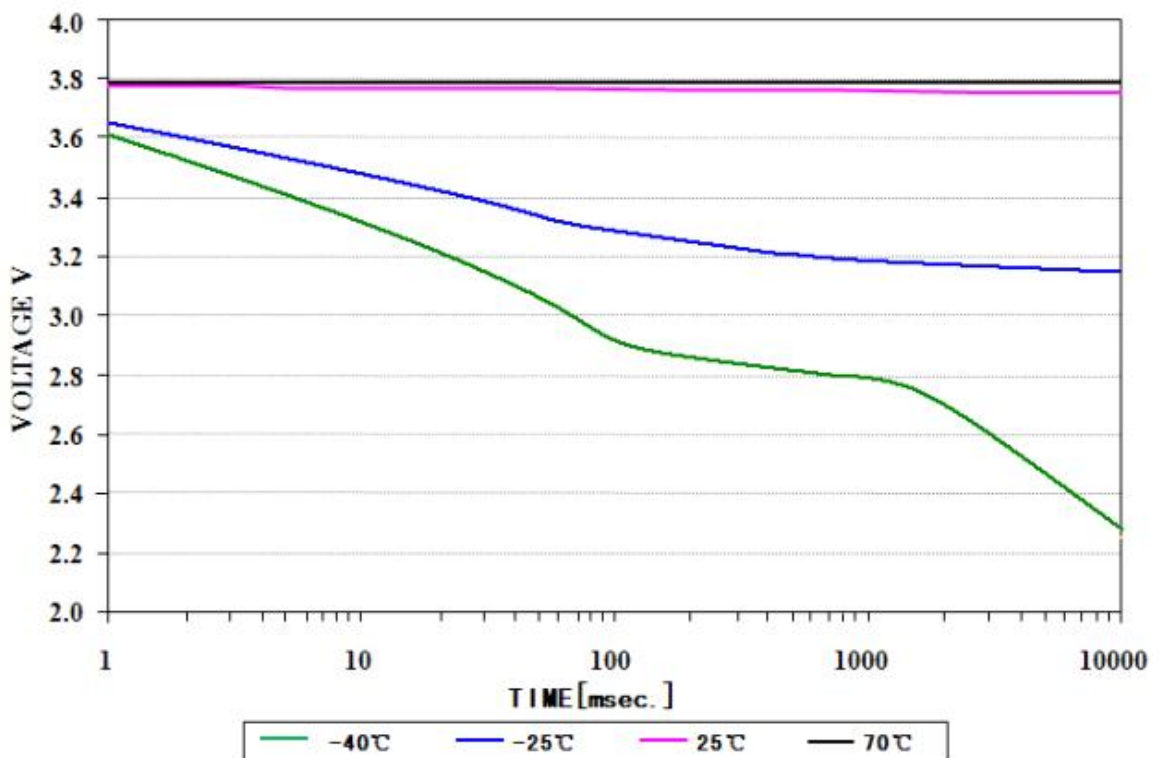


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Voltage curves for SPC1530 at Li/SOC12 potential (3.90V), 350mA

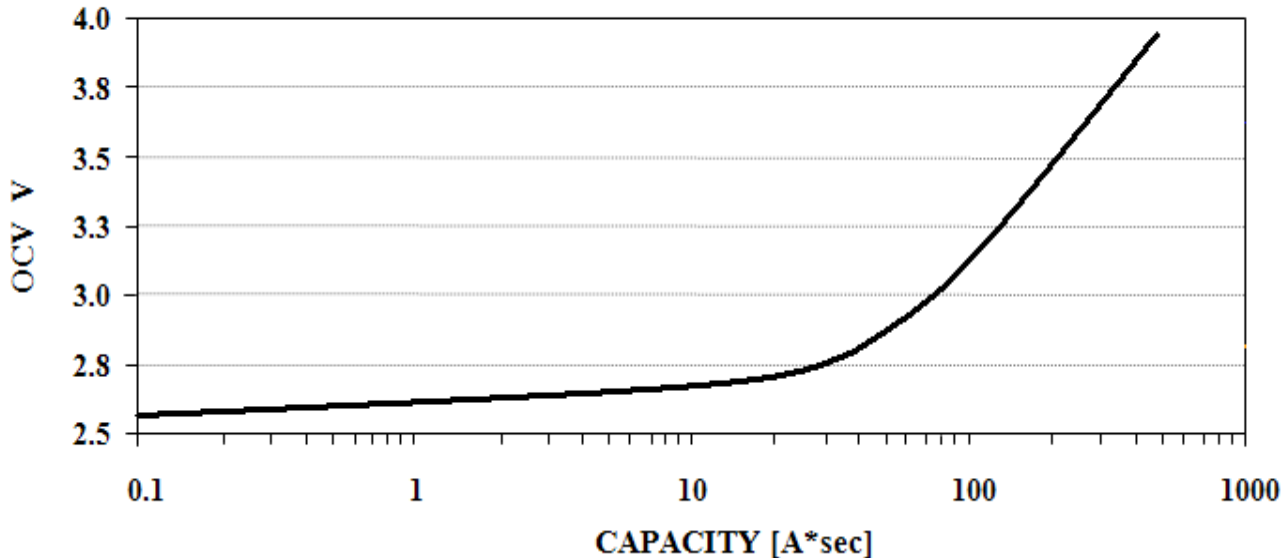


Voltage curves for SPC1530 at Li/SOC12 potential (3.90V), 600mA



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Discharge capacity vs. OCV for SPC1530 (at RT, 90 mA discharge)



3.8 Safety tests:

The SPC successfully passed the following tests:

- Short circuit at RT and 55°C
- Compression
- Impact
- Overcharge
- High temperature exposure
- Shock and vibration
- Nail penetratio
- Forced discharge

EVE Batteries performed the tests according to UL 1642 specification for lithium batteries. The SPC was approved by UL under file no. MH28717 issued on May 7, 2013.

The SPC is not restricted for air transportation.

3.9 Safety tests:

Test Item	SPC1530 used Independently	SPC1530 in ES battery system
Operating Temperature	-30 to 60 °C	-40 to 85 °C
Storage Temperature	-30 to 60 °C	-30 to 60 °C

Warning:

- The SPC1530 is designed for use in a ES battery system or in low charge current as specified only.
- The SPC1530 may explode or violently vent if over-charge above 4.4V.
- Do not charge the SPC1530 higher than 4.1 V, over discharge, short circuit, heat above 100°C, incinerate or expose content to water.
- Charging the SPC1530 at above 3.95 V may lead to capacity loss and / or internal