

## EVE SPC(Super Pulse Capacitor cell)

### Model SPC1520

## 1. scope

This data sheet describes the mechanical design and performance of EVE SPC (Super Pulse Capacitor cell) model SPC-1520 which is used in a EVE-ES battery system.

ES battery system: ER battery + SPC

## 2. Characteristics

### 2.1 Physical

2.1.1 Length:  $20.5 \pm 0.5$  mm.

2.1.2 Diameter: 15.0 mm. max.

2.1.3 Weight:  $8.0 \pm 0.3$  gr.



### 2.2 Electrical

#### 2.2.1 Operating conditions

Nominal Voltage: 3.60V

Cell impedance:  $\leq 150$  mOhm (at RT @ 1kHz)

Operating temperature range:  $-40$  °C ~  $+85$  °C(in ES battery system)

#### 2.2.2 discharge

Discharge capacity (at RT):

When charged to 3.67V: 140A\*sec

Discharge end voltage: 2.5V

Maximum continuous current: 500 mA

Maximum Pulse, 1 sec: 2 A

#### 2.2.3 charge

Max. charge voltage: 3.95V

Standard charging current: 20mA

Max. charging current: 50 mA

#### 2.2.4 Shelf life at different storage temperature to 80% of initial capacity

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

## 2.2.5 Self discharge current in ES battery system

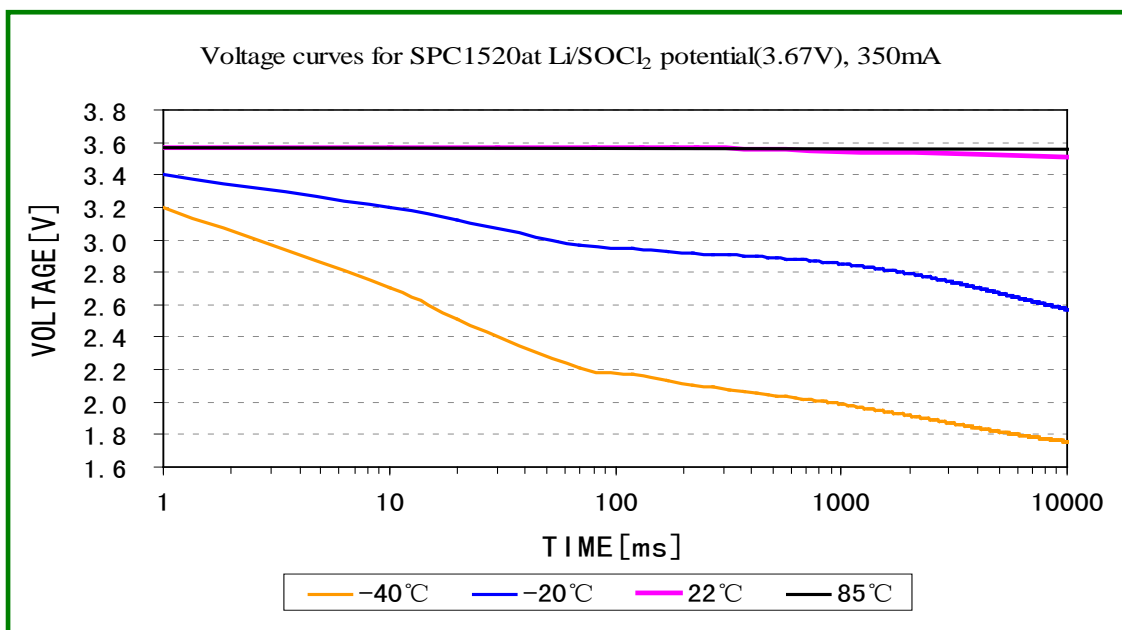
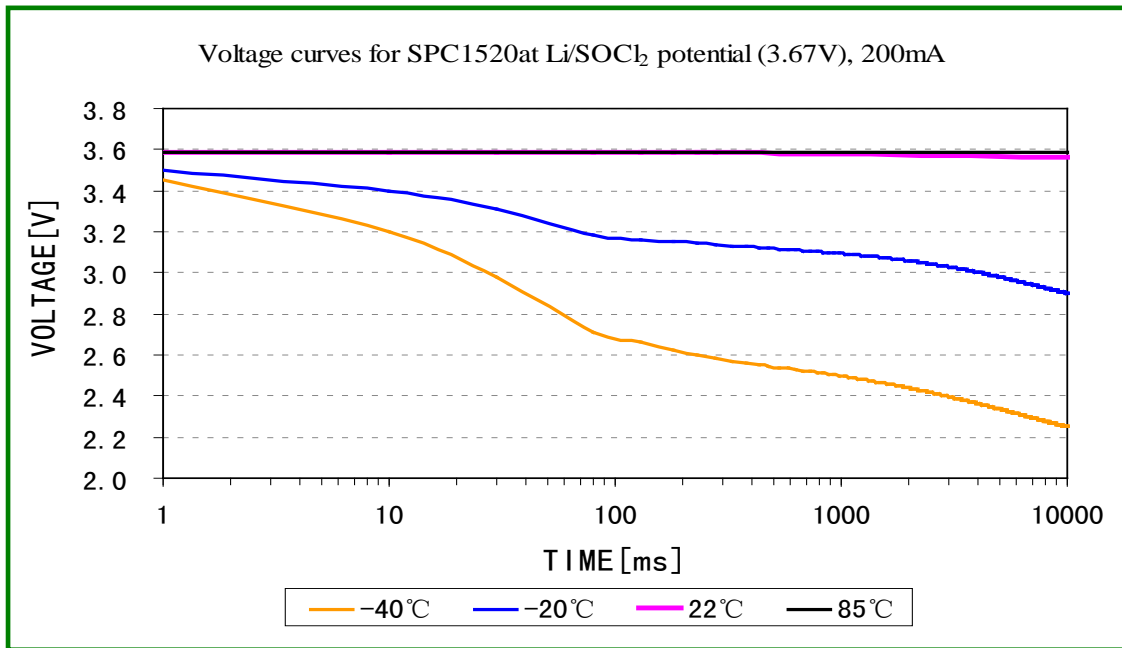
At RT: 1  $\mu$ A

At 80°C: 5  $\mu$ A

## 2.2.6 Number of charge-discharge cycles to 80% of initial capacity :

	100% DOD	10% DOD	1% DOD
Charged to 3.67V	4000	40000	400000

## 2.2.7 Performance data



## 2.3 Safety

### 2.3.1 The SPC successfully passed the following tests:

- Short circuit at RT
- Short circuit at +55 °C
- Impact
- Compression
- Over-charge
- High temperature exposure
- Shock and vibration
- Forced discharge

EVE-SPC performed the tests according to UL 1642 specification for lithium batteries.

### 2.3.2 The SPC is not restricted for air transportation.

## 3. Key Features

- Hermetically sealed (glass-to-metal)
- Wide operating temperature range
- Low self discharge
- End of life indication capability
- High reliability
- Lightweight
- Safe design

## 4. Main Applications

- Utility Meters (AMR)
- Asset, Container & Cargo Tracking
- RFID Devices
- Sonar Buoys
- Communication Equipment
- Emergency & Medical Devices

**Warning:**

The SPC1520 is designed for use in a ES battery system or in low charge current as specified only. The SPC1520 may explode or violently vent if over-charge above 4.4V.

• Do not charge the SPC1520 higher than 4.1 V, over discharge, short circuit, heat above 100°C, incinerate or expose content to water.

• Charging the SPC1520 at above 3.95 V may lead to capacity loss and / or internal impedance rise.

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