System backup and Hotswap for electric equipment

RoHS REACH Hand Soldering Only

1. Overview

If the power supply to an electronic device is interrupted due to a momentary power failure, battery replacement, etc., data will be lost and it will take time to restart. Also, if the power supply is suddenly cut off, the system may break down, and primary batteries, secondary batteries, and Supercapacitors are used as backup power supplies when power supply is interrupted.

2. Applications

The CT series have superior performance as an auxiliary power supply for system backup, compared with Supercapacitors and general lithium-ion secondary batteries. A typical lithium-ion secondary battery has the drawbacks that it deteriorates rapidly after repeated charging and discharging, and a dedicated charge / discharge control IC and protection IC are required, increasing the number of parts.

Super capacitors are excellent for applications that supply large currents for short periods of time in the order of milliseconds, but due to their low energy density, they require a large amount of energy for backup and are suitable for applications that require a long time, are not good for small devices. When used in series, a circuit is required to equalize the voltage of each cell in order to prevent deterioration, which results in energy loss and a large number of parts.

On the other hand, the CT series is capable of constant voltage charging and is resistant to over-discharge, so only the voltage applied to the battery needs to be controlled, and a dedicated charge / discharge control IC is not required. Also, for backup applications where the number of times charge and discharge is repeated is relatively small, deterioration does not significantly accelerate even if they are connected in series without using a circuit that adjusts the voltage of each cell.

Table 1 .Comparison with other storage devices

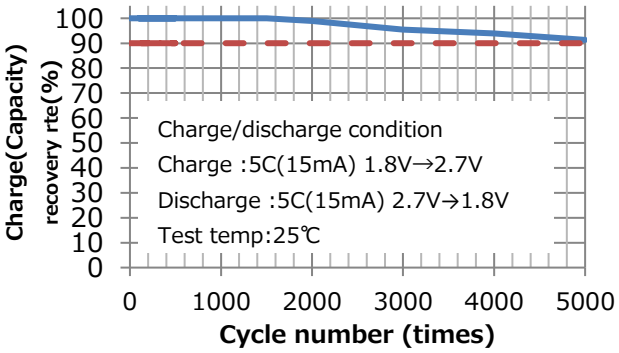
	Super capacitors	CT series	LIB
1)long operation & Downsize	×	○	◎
2)long lifecycles	◎	○	×
3)High output	◎	○	△
4)Simple charge circuit construction	△	○	×

1) Long oeration&Downsize

Compared with Supercapacitors, CT series and LiB can contribute to downsize the equipment because of tens times of high energy density.

2) Long charge / discharge cycle life

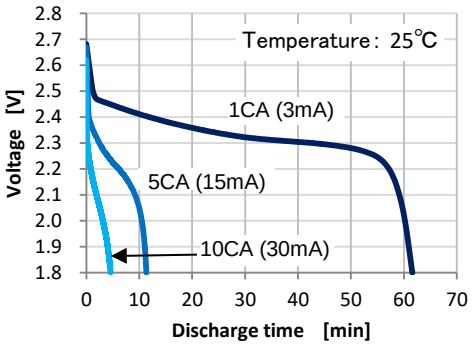
Compared to general lithium-ion secondary batteries, the CT series is less prone to deterioration due to repeated charging and discharging. The recovery capacity ratio is maintained at 80% or more after repeating constant voltage charging and 5CA (15mA) discharging / charging 5000 times.



<Fig.1. Cycle characteristics>

3) High output

Although CT series are not comparable to Supercapacitors. CT series can discharge with high output despite CT's small size.



<Fig.2. Discharge cuurent characteristics>

4) Simple circuit construction

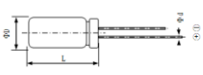
Because CT series can be charged by constant charge, Charge circuit can be only consisted of DC/DC converter or LDO for adjusting the charge voltage.

3. Application

Handy terminal/bar code reader, POS(payment terminal),RTC, specified low power wireless/ISM frequency terminal

4. Product Lineup

Product name	CT04120	Dimensions	
		ΦD	4mm
Nominal Voltage	2.3V	L	12mm
Charge Voltage	2.7V	Φd	0.45mm
End of discharge Voltage	1.8V	F	1.5mm
Capacity	3mAh	Operating temp	-20~70℃



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