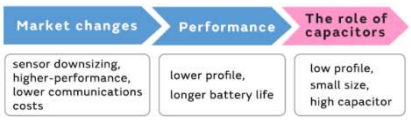
Application notes for IoT (UWB)



IoT : Stands for "Internet of things" .
UWB : Stands for "ultra wide band" .

1. What Is a Polymer Aluminum Electrolytic Capacitor?

Murata uses aluminum foil with a laminated structure for the anode and conductive polymer for the cathode in our polymer aluminum electrolytic capacitors (ECAS series). The strengths of these capacitors include a low profile, a low ESR, and a large capacity. They can draw out a lot of current in an instant.

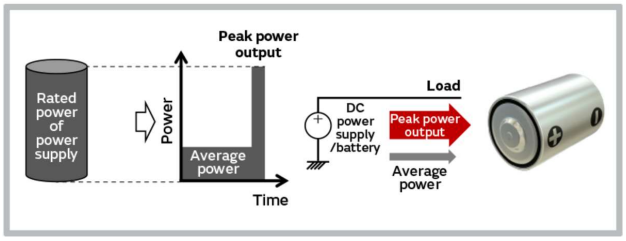
2. Market Trends and Issues

Internet of Things (IoT) devices have spread in recent years. Furthermore, highly functional small devices such as smart tags and smart keys have been developed. Therefore, it is necessary to have a power supply that can draw out sufficient electric power in a limited space.

For example, it is anticipated that devices equipped with UWB, one of the communication methods, will spread to many fields in the future due to its advanced position measurement performance and security performance. Devices equipped with this UWB require peak output when transmitting and receiving.

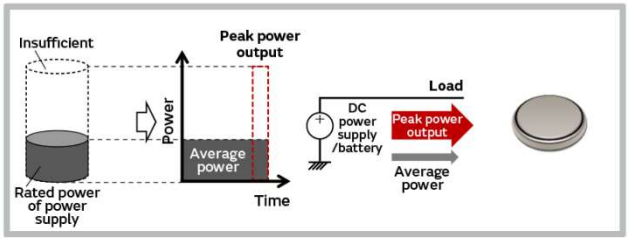
However, issues arise when designing the power supplies of devices to match peak output. Those issues include the size of the power supply becoming too large and rising costs.

Designing to accommodate the peak power output increases the power supply size



Moreover, there is the issue that it is difficult to realize peak output in small batteries such as coin batteries.

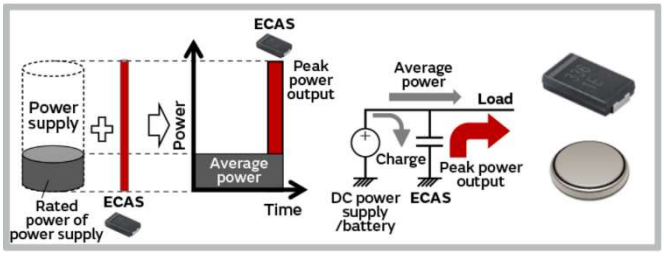
The peak power output cannot be achieved when the miniaturization of the power supply size is prioritized



Using the ECAS series together with a power supply has been given as a solution to the above issues.

3. Example of applied circuit

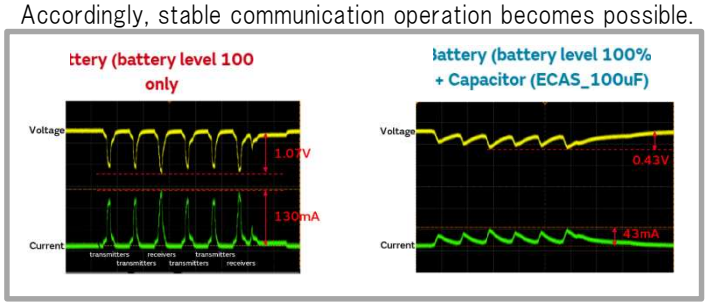
Immediately provides a power assist for the peak power output without the need to change the power supply size



4. Advantages of using the ECAS series

①Longer battery life

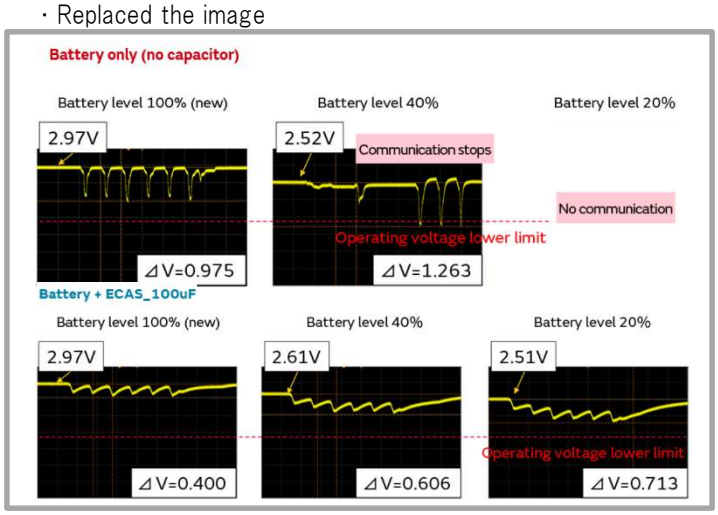
Combining ECAS with a coin battery assists with the peak output of the coin battery. The peak current during coin battery communications is suppressed with the assistance of ECAS. That means it is possible to reduce the voltage drop. Accordingly, stable communication operation becomes possible.



［シミュレーション結果］

In addition, reducing the voltage drop of the coin battery during communications enables communications with an improved depth of discharge (DOD) from 60% up to 80%, allowing the battery to last about 1.3 times longer.

・Changed the expression for capacitor in Japanese
・Replaced the image



[Simulation Results]

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Sample : Please contact your nearest sales office or authorized distributor.
Technical Support : Please visit the WEB page.
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