

Suggestion of Murata Micro battery for functional medical equipment



1. Overview

Murata's small energy devices (UMA series) can be charged quickly regardless of their small form and can be used instantly. Also, since high rate discharge is available, it becomes possible to incorporate high functions which could not be done with conventional button batteries such as communication function into the equipment. Especially, it is expected to improve the functionality of compact equipment such as insulin pens.

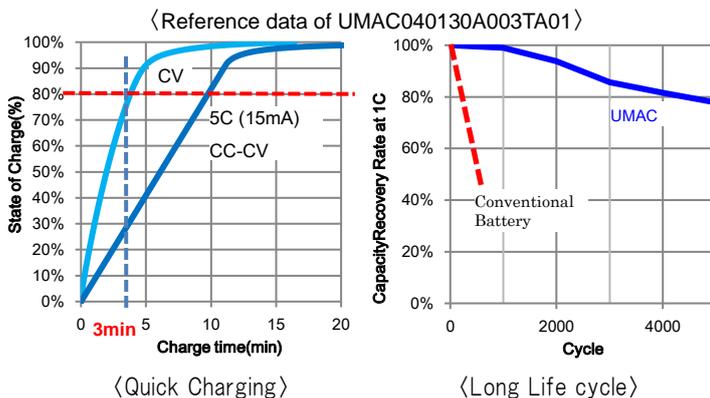


2. Improvement of medical equipment

For example, syringes, whose function had been to inject medicines into the body, have recently been equipped with a memory function. In addition, there are growing demands for incorporating various functions such as recording time of use and injection volume, and alarm function to prevent forgetting. However, there are restrictions of the batteries which can be installed, and it becomes an obstacle to further enhancement of functions. In addition, the danger of secondary batteries in recent years is also a problem and there is a growing demand for safety.

3. Features of UMA series

- Quick charge is available. It can be charged to 80% in about 3 minutes.
- No complicated charging circuit is required.
- UMAC can supply current up to 30 mA with an internal resistance of 800 mΩ despite its small size.
 - * 3 mAh: 10 Farad capacity equivalent
- By adopting the optimum material, it realizes a very long cycle life. (About 10 times longer than the conventional batteries)
- Contributing to miniaturization of equipment because of its small size and light weight
- Extremely high safety component (no smoke, no ignition and no explosion)



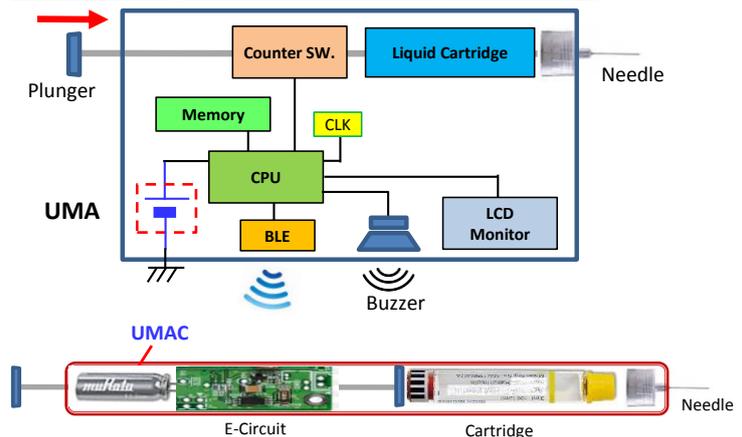
4. Contribution to the medical market by UMA

For example, to give an example of high-performance equipment for medical use, if you can link equipment with information devices such as smartphones using Bluetooth communication and so on, there will be the possibility to be able to utilize various apps necessary for health maintenance management.

However, in the case of conventional button batteries, the internal resistance is large and it cannot cover the current needed to drive the BLE. On the other hand, the UMA series can easily drive it, as it can be discharged at high rate. Also, troublesome battery replacement is necessary if the conventional batteries become flat. UMA series, however, can be repeatedly charged and recharged many times because of its very long cycle life. The UMA series is a completely new rechargeable battery that devised the structure and materials so that you can use it with confidence in the medical market

Even if the external terminals were shortened, or UMA was exposed at high temperature, or the package was deformed carelessly, UMA wouldn't cause firing, ignition and explosion.

5. Block diagram and structure (Insulin Pen)



6. UMA series Line-up

Part Number	UMAC040130A003TA01	UMAL361421B024TA01
Nominal Voltage	2.3V	
Charge Voltage	2.7V	
End Voltage	1.8V	
Capacity	3mAh (10F)	24mAh (100F)
ESR	800mΩ	100mΩ
Discharge Current	30mA(10C)	240mA(10C)
Charge Current	150mA(50C)	1200mA(50C)
Size	Φ4 x 12 mm	25x14x3.6 mm
Operating Temp.	-20 ~ 70°C	

7. Technical Support

Free samples

➤ Please contact Murata sales or distributors.

Technical support

➤ Please access our website for more information

<http://www.murata.com/ja-jp/products/smallenergydevice/uma>

