

Advantages of using Murata micro batteries in wearable devices

1. Overview

In recent years, the demand for various patch-type wearable devices that enable to monitor the human body's sweat, temperature, heart rate, blood pressure, blood glucose level,-etc. has increased. The basic health data of human body has been difficult to quantify so far. However, those wearable devices can visualize the user's health status by communicating the data or storing data in memory and analyzing of data. Wearable devices can provide users useful information for their health maintenance and health issues. In addition, it can be used for safety management of construction workers and can be helpful to improve their work efficiency. Wearable devices are required to be smaller in size and to have sensing and communication functions. In order to meet these market needs, we believe our Murata micro batteries will be one of the dominant tools.

2. Advantages

Below are the advantages of our Murata micro batteries; 1. SR: Silver oxide batteries, 2. LR: Alkaline manganese batteries, 3. CR: Coin manganese dioxide lithium batteries.

☞ Lineup of smaller size and wide range of sizes

The graph below shows the capacity vs size of the primary batteries that are available at market (shops and web sites).

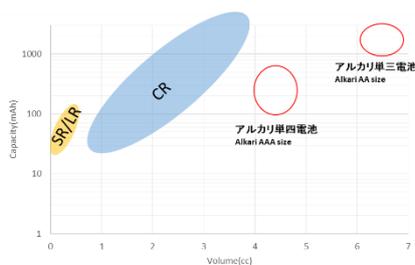


Fig.1 Comparison between Murata's MB and Dry cells

| Type | V | mAh | wh/I |
|--|-----|-----------|------|
| Coin Alkaline manganese batteries | 1.5 | 4~150 | 60 |
| Alkaline manganese batteries AA, AAA | 1.5 | 850, 2000 | |
| Coin manganese dioxide lithium batteries | 3 | 30 ~ 2000 | 400 |

Murata offers a wide lineup of small size batteries, which will can contribute to the miniaturization of wearable devices.

☞ High output (current)

Next, the upper right graph shows the relationship between capacity (mAh) and output current (mA) of SR/LR and CR.

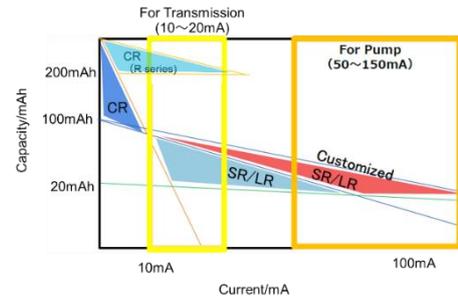


Fig.2 Capacity (mAh) vs Output (mA) of Murata batteries

SR/LR uses an aqueous solution as the electrolyte, which reduces internal resistance and enables pulse discharge for communication (BLE) and driving of small motors. (However, 2 or 3 in series use is required). On the other hand, CR has higher voltage and capacity than SR/CR. However, standard CR cannot output high current. Therefore, Murata has launched the "High drain type" Coin manganese dioxide batteries. Compared to the standard type CR battery, the large current type has a lower internal resistance, which makes it possible to discharge a pulse current of 30mA or more. We believe this type battery can be applicable not only to BLE but also to LPWA and Z-Wave communication.

☞ Recommended application

Wearable devices、 Electronic tags and etc.



3. Series Lineup

Introduction of "High drain type" series

| PN | Nominal capacity (mAh) | Diameter (inch) | height (inch) | Nominal Voltage (V) | Operating temperature* (°C) |
|---------|------------------------|-----------------|---------------|---------------------|-----------------------------|
| CR2032R | 200 | 0.787 | 0.126 | 3.0 | -30~70 |
| CR2450R | 500 | 0.965 | 0.197 | 3.0 | -30~70 |

4. Technical Support

Data sheet

[Click ▶ CR2032R](#) [Click ▶ CR2450R](#)

Sample

➤ Samples can be purchased from the link below.

[Click ▶ CR2032R series](#) [Click ▶ CR2450R series](#)

Others

➤ If you have any questions, please feel free to contact.

[Click ▶ Send your inquiry](#)