

Ceramic Packaged All-solid-state Batteries

Next-generation power source,
in support of a sustainable society



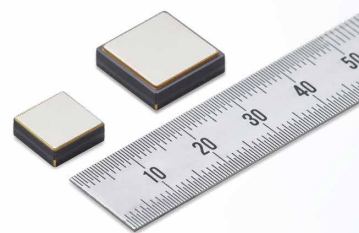
The ideal solution for applications
where conventional batteries have caused limitation

1961



Maxell continues to offer
innovative batteries to the world

2023



Ceramic Packaged All-solid-state Battery



Maxell's Ceramic Packaged All-solid-state Batteries

Summary

Maxell's proprietary technologies include surface treatment, mixing, dispersion, coating, molding, and encapsulation. These specialized technologies are what enable Maxell's all-solid-state batteries to achieve both high capacity and high load*1. All-solid-state batteries inherently exceed conventional lithium-ion batteries in long life*2 and heat resistance, making Maxell's all-solid-state battery apt for applications that were once inaccessible due to the limitations of conventional lithium-ion batteries. Ceramic packaged all-solid-state batteries can be surface mounted on board by reflow soldering*3.

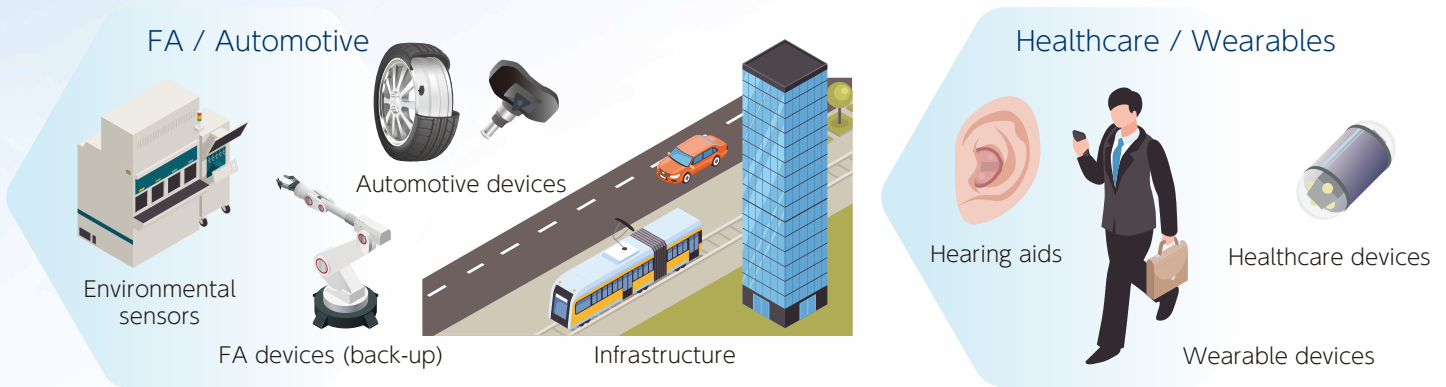
*1 Maxell's all-solid-state battery has equivalent characteristics to Maxell's coin type lithium-ion battery (927 size) which has the nominal capacity of 8mAh and the maximum discharge rate of 20mA.
*2 The number of the days that 90% capacity can be maintained is 10 days for Maxell's coin type lithium-ion battery (927 size), while that for all-solid-state battery is 100 days from the results of acceleration test at 60 °C storage.
*3 The reflow at the maximum temperature of 245°C does not show any deterioration in the basic characteristics such as capacity and load characteristics.

Features



*4 The lifetime predicted based on the acceleration factor is 20-year level, which is longer than the life of general electronic parts (for example, insulating parts) of 5 years.
*5 Since the internal structure of Maxell's all-solid-state battery is simple, it is easy to miniaturize its size, compared to Maxell's coin type lithium-ion battery (4 mmφ can be designed as an example).

Application examples

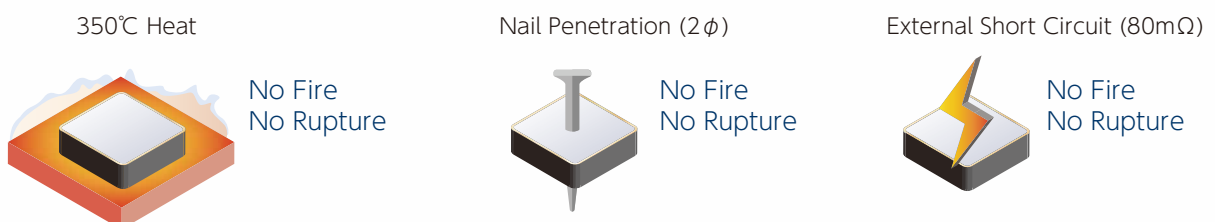


Specifications

| | | Ceramic Packaged All-solid-state Battery | |
|------------------------|------------------------|--|-------------------|
| | | Mass-produced | Under Development |
| Model | | PSB401010H | PSB401515H |
| Size | Length (mm) | 10.5 × 10.5 | 14.5 × 14.5 |
| | Height (mm) | 4.0 | 4.0 |
| | Weight (g) | 1.4 | 2.7 |
| Charge (CCCV) | Voltage(V) | 2.6 | 2.6 |
| | Current(mA) | 4.0 | 8.0 |
| | Temp. (°C) | -20 ~ +115 | -20 ~ +115 |
| Discharge (CC) | End voltage(V) | 1.0 | 1.0 |
| | Lower limit voltage(V) | 0 | 0 |
| | Maximum current*6(mA) | 30.0 | 60.0 |
| | Temp. (°C) | -50 ~ +125 | -50 ~ +125 |
| Nominal Voltage (V) | | 2.3 | 2.3 |
| Nominal Capacity (mAh) | | 8.0 | 16.0 |

*6 Maximum current : * Maximum current (mA): maximum current that can maintain 1.8V or more after discharge for 1 second in initial fully charged state at 25°C
*7 Nominal current : Measured capacity while charging (CCCV: 4.0mA/2.6V/end current 15 hours) and discharging (0.05mA/E.V. = 1.0V) in an environmental temperature of +23°C
: Data and dimensions are not guaranteed.
: Specifications and appearances of the battery are subject to change without notice.

Safety



* "High reliability" , according to the result of over discharge performance compared to that of coin type lithium-ion battery with electrolyte solution.

