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Within, the Future

News Release

September 13, 2022
Maxell, Ltd.

Maxell develops the CLB640 coin type high capacity lithium-ion rechargeable battery with a diameter of approx. 6 mm and approx. 1000 charge/discharge cycle characteristics

Maxell's unique stacked structure and electrode technology improve energy density to meet the needs of small multi-function wearable devices and IoT equipment

CLB640 coin type lithium-ion rechargeable battery with a diameter of approx. 6 mm (sample)

Maxell, Ltd. (President and Representative Director: Keiji Nakamura / hereinafter "Maxell") has developed a coin type high capacity lithium-ion rechargeable battery with a diameter of approx.6 mm, whose energy density had been improved by a unique stacked structure and electrode technology to realize approx. 1000 charge/discharge cycle characteristics.

Features

1. Small size with an external diameter of 6.8 mm and height of 4.0 mm (full charge)
2. Unique electrode technology and precision production technology have realized a nominal capacity of 13 mAh
3. Unique stacked structure, and electrode and electrolyte technologies have accomplished a capacity retention rate of 80% or more after 1000 cycles

The market for wearable devices and small IoT equipment is expected to expand with the recent advancement of wireless communication and sensing technologies. In addition, while the main units for such equipment tend to be downsizing, the demand for long life is increasing due to the increased power consumption arising from multi-function equipment, medical applications etc. As far as the types of batteries used in such equipment, there has been an increase in the need for small, high capacity, long-life batteries.

Against the background of these trends, Maxell maximized the electrode capacity and optimized the electrode composition of the existing CLB740H coin type lithium-ion rechargeable battery to achieve even higher energy density and more favorable charge/discharge cycle characteristics. The result was the development of the CLB640, with high capacity and high charge/discharge cycle characteristics, in a 640-size coin-type lithium-ion rechargeable battery.

Maxell will continue to improve the capacity and lifetime of batteries based on its original analog core technologies*[1], and will devote itself to the development of high-performance, safe, secure, and highly reliable batteries to continuously contribute to a sustainable society.

*1 Analog core technology: Maxell's DNA technologies that have been uniquely refined and passed down in the fields of material processing and molding, and are a source of competitive power. Also a generic term for three essential technologies in Maxell production: mixing dispersion, fine coating, and high precision molding and forming
https://www.maxell.co.jp/corporate/analogcore.html

CLB coin type lithium-ion rechargeable battery webpage
https://biz.maxell.com/en/rechargeable_batteries/coin-type_lithium.html

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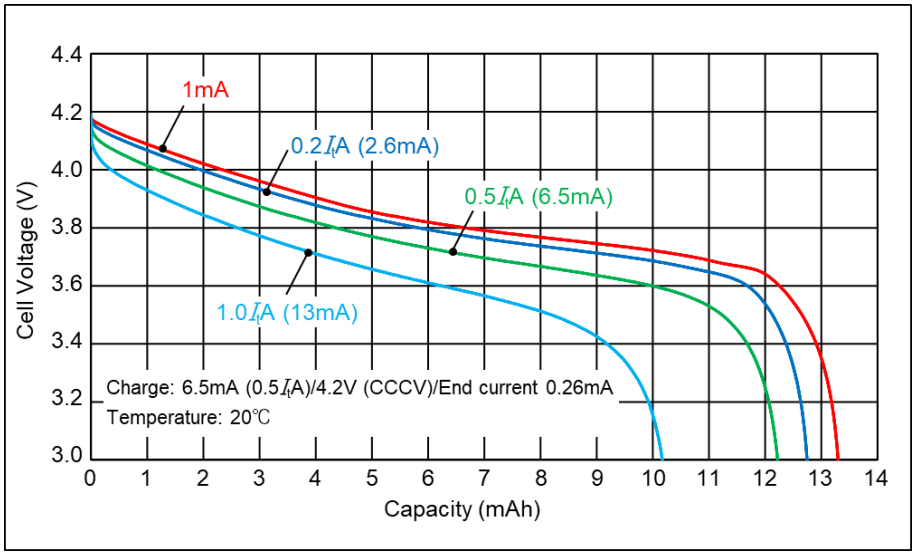
Inquiries:
https://biz.maxell.com/ja/rechargeable_batteries/inquiry_form_input2.html

Appendix

Discharge load characteristics



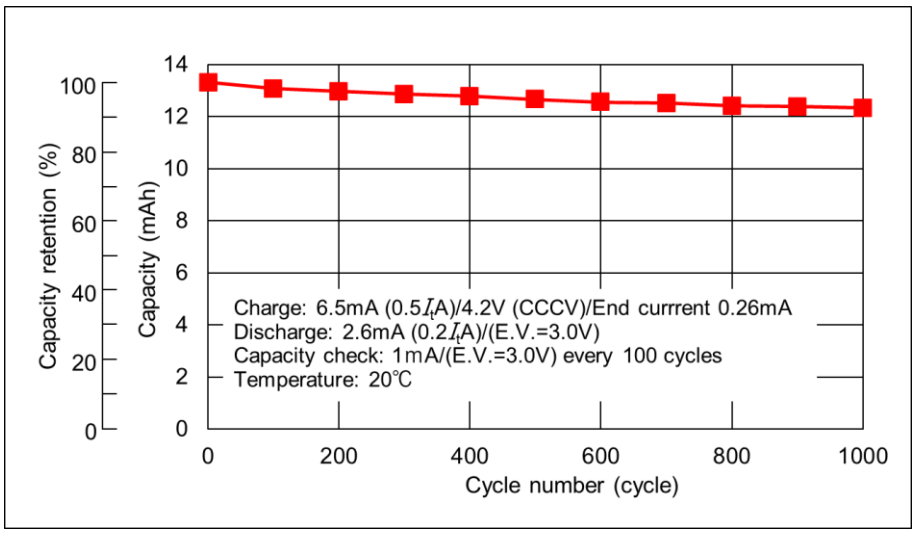
Capacity characteristics of CLB640, depending on discharge load

[Test conditions]

Charge: 6.5 mA (0.5 ItA)/4.2 V (CCCV)/end current 0.26 mA, environmental temperature 20°C

Discharge: Indicated for each current value (E.V. = 3.0 V), environmental temperature 20°C

Charge/discharge cycle characteristics



Charge/discharge cycle characteristics of CLB640

[Test conditions]

Charge: 6.5 mA (0.5 ItA)/4.2 V (CCCV)/end current 0.26 mA, environmental temperature 20°C

Discharge: 2.6 mA (0.2 ItA)/(E.V. = 3.0 V), environmental temperature 20°C

Capacity check: 1 mA /(E.V. = 3.0 V), environmental temperature 20°C, every 100 cycles

Main specifications

Model		CLB640
Nominal voltage (V)		3.8
Nominal capacity (mAh)*1		13
Charge conditions CC-CV	Maximum voltage (V)	4.2
	Standard current (mA)	13
	Temperature (°C)	0 to +45
Discharge conditions CC	End voltage (V)	3.0
	Maximum current (mA)	13
	Temperature (°C)	-20 to +60
Dimensions*2 (initial)	Diameter (mm)	φ6.8
	Height*3 (mm)	4.0
Weight (g)*2		0.4

*1 Nominal capacity (mAh): Capacity when measured at a charge of 0.5 ItA/4.2 V (CCCV)/end current 0.02 ItA, and a discharge of 1 mA/E.V.=3.0 V, at an environmental temperature of 20°C

*2 Dimensions, Weight: Dimensions and weight indicate the values of the battery itself, and vary depending on specifications

*3 Height: Value at 100% charge

* Specifications are subject to change without notice.

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