

Battery embedded in circuit board demonstrated at Tokyo exhibition

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(Left) The printed circuit board embedded with a thin-film rechargeable battery.
(Right) The prototype lights an LED lamp. Image credit: Oki Printed Circuits.

(PhysOrg.com) -- Looking to the future of powering mobile devices, Japanese company Oki Printed Circuits recently demonstrated a prototype of a 0.8-mm-thick printed circuit board embedded with a 170- μ m-thick rechargeable all-solid-state Lithium-ion battery. The prototype was on display at the JPCA Show 2010 in Tokyo last week, and the company hopes to bring the product to market next year.

So far, there have been only a few circuit boards that have come with integrated energy devices. For instance, some [circuit boards](#) in mobile phones have embedded double layer capacitors to store energy, but these capacitors tend to have problems with high leak currents that increase the number of charges and drain the battery faster than normal.

On the other hand, embedding the entire battery into a circuit board makes it possible to reduce leak currents and the number of charges, as well as reduce the peak [power](#) of the system. Oki Printed Circuits' embedded thin-film battery, which is a product of Infinite Power Solutions, has an output voltage of 4.2V and a 0.7mAh capacity. With these parameters, the device could turn an LED lamp off and on, as demonstrated at the exhibition. If the battery's power can be scaled up in the future, it might also be used to power other electronic devices.

An article at The Green Optimistic mentions another potential future application of embedded batteries: "Electric cars could also benefit from an embedded battery that is spread all over the vehicle in independent modules that could power various parts of the car. When they break, the embedded batteries would also be changed easily and cheaper than if a total replacement of a unique and bigger [battery](#) would be needed."

Oki Printed Circuits plans to expand the applications of the technology with several corporate partners, and hopes to commercialize the device in 2011.

More information: via: [Tech-On](#) and [The Green Optimistic](#)

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