Details of Technology

Name of Technology	Light charging thin-film secondary battery	Electronics
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Key words	lithium-ion secondary battery, silicon solar cell, thin-film battery, magnetron sputtering method	

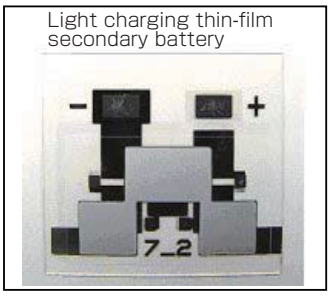
What kind of technology is this?

Outline

Rechargeable battery integrated with solar cell

Using solid thin-film lithium-ion secondary battery technology as a seed, studies were conducted to realize the following two types of batteries. That is, one is a composite type thin-film secondary battery comprised of a solar cell and a thin-film secondary battery. The other is an ultra thin type solid secondary battery such as stacked type thin-film secondary battery having high output voltage and capacity by stacking thin-film battery cells, with an expectation of their application to small electronic instruments.

A composite type highly functional thin-film battery was developed by stacking solid thin-film secondary batteries with an effective working area of 2.8 cm^2 on a thin-film silicon solar cell fabricated on a glass substrate. In addition, two high-voltage thin-film secondary batteries with an output voltage of 6V were prepared by stacking two pieces of the above composite battery serially on glass substrates of an area of 50 x 50 mm or 100 x 100 mm.



- The battery used is a lithium-ion secondary battery.
- It can be charged by the solar cell.
- It is a solid-state, highly reliable high-voltage battery.
- It is a thin-film battery, which can be mounted on small electronic instruments.

What are its applications?

Ultra thin battery mountable on non-contact active IC cards and RF-IC tags

Power source for mobile phones and wrist computers

Power source for ultra small medical electronic equipment and light-weight power source for highly-reliable space equipment

Related patents	Japanese Patent No. 3531866
Related materials	J. Power Sources, Vol. 119-121, pp. 914-917 (2003)

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