

## **Dual power supply control allows safe use of solar energy and battery**

ECN Europe

[Lapis Semiconductor](#) [1] has developed the ML9077/ML9078 series of power controllers for small electronics using dual power supplies, in systems using solar panels as well as a battery. These LSIs provide stable power supply to electronic components like microcontrollers by controlling the switching between the primary/secondary (rechargeable) batteries and solar panels as well as performing the charge control of power supplied from the solar panels to the secondary battery.



[2]Energy generation by solar panels have been already adopted as power source in the area of small sized electronics such as clocks, calculators, weather stations, remote controls, cycle meters, compact games and others, for postponement of battery life or elimination of battery. However, adoption of these products to solar energy has proven to be difficult due to the increase of development cost and system components as it is required to configure a new electronic system combining both. Additionally, safety functions such as voltage control of the power supplied to the microcomputer, protection of abnormal current to the battery as well as control circuits have to be considered as well.

The new series from Lapis has the relevant safety functions and features for safe and easy use of solar energy. Both devices control the dual power sources on an entirely independent basis; there is no need for external control with an application or other component.

The ML9077 solar power and rechargeable battery control IC automatically control the power supplied to the microcontroller and peripheral components from a rechargeable battery (VBAT) as well as from the solar panels to the rechargeable battery based on the remaining charge of the battery. Protection functions are built

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in, including charging stop with overcharge detection and malfunction prevention that prevents failures due to power supply stoppage caused by low voltage. The result is significantly less peripheral circuitry compared with conventional products. In addition, current consumption is less than 80nA (at 25Â°C).

The ML9078 continuously monitors the voltage generated by the solar panel (VSC) and at the primary battery (VBAT) and selects the higher voltage for supply to the microcontroller and peripheral devices. It protects the primary battery by preventing the flow of generated current from the solar panel. High voltage supply to the microcontroller is prevented by converting the generated voltage by the solar panel to low voltage. In addition, protection functions are built in such as power supply selection monitoring, reducing peripheral circuitry significantly. Current consumption is less than 80nA (at 25Â°C).

[SOURCE](#) [3]

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### Links:

[1] <http://www.rohm.com/eu>

[2] <http://ecneurope.files.wordpress.com/2012/03/090312-rohm.jpg>

[3] <http://ecneurope.wordpress.com/2012/03/09/dual-power-supply-control-allows-safe-use-of-solar-energy-and-battery/>