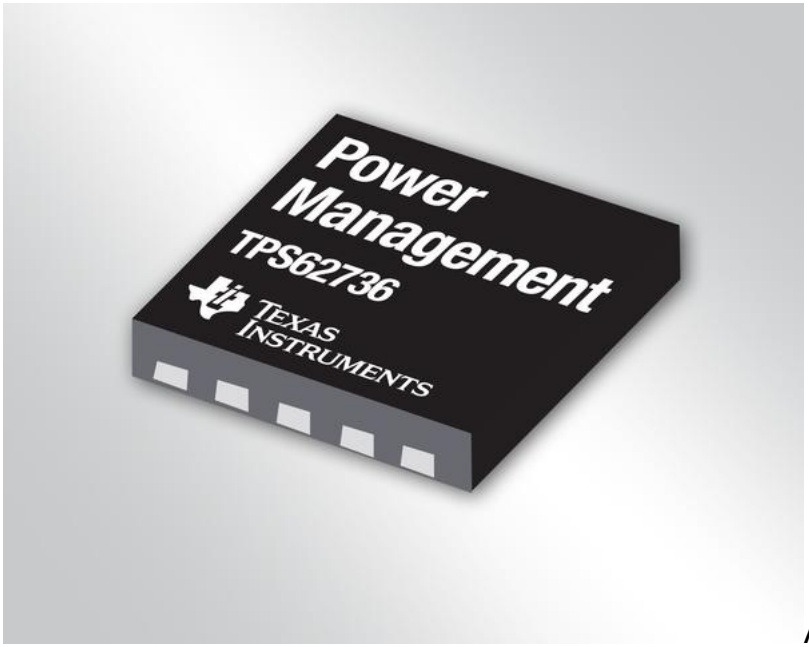
DC/DC step-down converter increases amounts of harvest energy



Answering the question, “How low can you go with power?” Texas Instruments Incorporated introduced the industry’s lowest power DC/DC step-down converter, which increases the amount of harvested energy an end application can use as much as 70 percent over alternative devices. The ultra-low power circuit enables battery-free power to applications, such as wireless sensor networks, monitoring systems, smoke detectors, wearable medical devices and mobile accessories.

TI’s TPS62736 DC/DC converter delivers high power conversion efficiency from 10 uA to 50 mA output currents, and consumes only 350 nA of active current and 20 nA during standby. The converter achieves greater than 90-percent efficiency across output currents higher than 15 uA. The TPS62736 regulator steps down the voltage from a power source, such as a thin-film or regular battery or a super capacitor and features a programmable output voltage.

Innovative power management, sensors and microcontrollers from TI are taking low-power design to the next level by optimizing extracted energy from ambient sources using the highest possible efficiency and lowest power consumption. In 2011, TI introduced its bq25504 boost charger circuit with a low quiescent current of 330nA, to allow start-up from single-cell solar cells under low light or thermoelectric generators with low temperature differences.

TI also recently announced sampling of its MSP430FR59xx microcontrollers based on its “Wolverine” technology platform. These new FRAM-based microcontrollers can operate as low as 360 nA in real-time clock mode or less than 100 uA/MHz in active power consumption, and feature fast wakeup time of 6.5 us and high-precision peripherals. The MSP430FR59xx enable developers to add flexibility,

performance and battery life to a variety of applications, including wireless sensing, energy harvesting, smart grid, building automation and security.

The TPS62736 is currently sampling through TI. It comes in a 3.5-mm by 3.5-mm QFN package and is priced at US$2.00 in 1,000-unit quantities. Volume production is expected later in the first quarter. Evaluation modules are available to select customers.

Texas Instruments
www.ti.com [1]

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