

eZ430-RF2500-SEH

solar energy harvesting development kit



Product Bulletin

Remote or hard-to-access environments demand integrated and miniaturized wireless sensors. Until now, designers typically powered wireless devices with storage components such as coin cell or AA batteries. However, these storage technologies don't supply the right mix of charging, storage, discharge and physical size to provide permanent power for wireless devices.

The combination of TI's ultra-low-power MSP430 MCU and RF technology with Cymbet's EnerChip batteries allows energy harvesters to achieve more efficient storage, processing and transmission from ambient light.

The solar energy harvester module includes a high-efficiency solar panel (2 1/4 x 2 1/4-inch) optimized for operating indoors under low-intensity lights, which provides enough power to run a low-power wireless sensor application with no additional batteries. Inputs are also available for additional external energy harvesters such as thermal, piezoelectric or another solar panel.

The system also manages and stores additional energy in a pair of thin-film

rechargeable EnerChips, capable of delivering enough power for more than 400 transmissions from a single charge. The EnerChips act as an energy buffer, storing energy while the application is idle and has light available to harvest. The batteries are environmentally friendly and can be recharged thousands of times. They also have a very low self discharge – vital for no-power energy harvesting systems.

The eZ430-RF2500 runs the energy harvesting application. It is a complete USB-based MSP430 wireless development tool, providing all of the hardware and software necessary to use the MSP430F2274 microcontroller and CC2500 2.4-GHz wireless transceiver. It includes a USB debugging

Key features

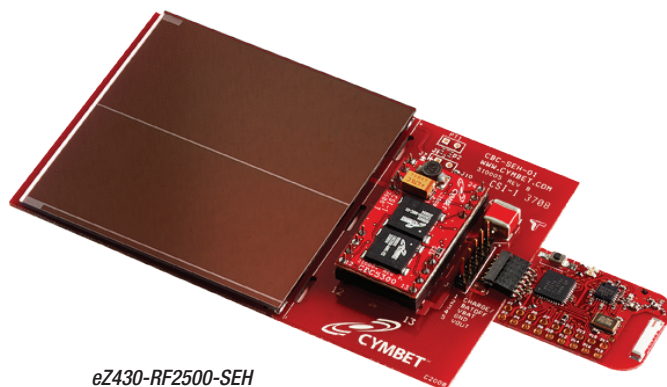
- Efficient solar energy harvesting module for the eZ430-RF2500
- Battery-less operation
- Works in low ambient light
- 400+ transmissions in dark lighting conditions
- Adaptable to any RF network or sensor input
- Inputs available for external harvesters, including thermal and piezo
- USB debugging and programming interface with an application backchannel to the PC
- 18 available analog and communications input/output pins
- Highly integrated, ultra-low-power MSP430 MCU with 16-MHz performance
- Two general-purpose digital I/O pins connected to green and red LEDs for visual feedback
- Interruptible push button for user feedback

interface that allows for real-time, in-system debugging and programming for the MSP430 and is also the interface for transferring data to a PC from a wireless system.

Integrated temperature and RF signal strength indicators can monitor the environment, while any external sensor can be integrated to collect additional data.

For more information

To learn more about the eZ430-RF2500-SEH and TI's other products, contact your local TI field sales office or see www.ti.com/ez430.



eZ430-RF2500-SEH

TI Worldwide Technical Support

Internet

TI Semiconductor Product Information Center Home Page

support.ti.com

TI Semiconductor KnowledgeBase Home Page

support.ti.com/sc/knowledgebase

Product Information Centers

Americas	Phone	+1(972) 644-5580
Brazil	Phone	0800-891-2616
Mexico	Phone	0800-670-7544
	Fax	+1(972) 927-6377
	Internet/Email	support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone	
European Free Call	00800-ASK-TEXAS (00800 275 83927)
International	+49 (0) 8161 80 2121
Russian Support	+7 (4) 95 98 10 701

Note: The European Free Call (Toll Free) number is not active in all countries. If you have technical difficulty calling the free call number, please use the international number above.

Fax	+ (49) (0) 8161 80 2045
Internet	support.ti.com/sc/pic/euro.htm

Japan

Fax	International	+81-3-3344-5317
	Domestic	0120-81-0036
Internet/Email	International	support.ti.com/sc/pic/japan.htm
	Domestic	www.tij.co.jp/pic

Asia

Phone	
International	+91-80-41381665
Domestic	<u>Toll-Free Number</u>
Australia	1-800-999-084
China	800-820-8682
Hong Kong	800-96-5941
India	1-800-425-7888
Indonesia	001-803-8861-1006
Korea	080-551-2804
Malaysia	1-800-80-3973
New Zealand	0800-446-934
Philippines	1-800-765-7404
Singapore	800-886-1028
Taiwan	0800-006800
Thailand	001-800-886-0010
Fax	+886-2-2378-6808
Email	tiasia@ti.com or ti-china@ti.com
Internet	support.ti.com/sc/pic/asia.htm

Important Notice: The products and services of Texas Instruments Incorporated and its subsidiaries described herein are sold subject to TI's standard terms and conditions of sale. Customers are advised to obtain the most current and complete information about TI products and services before placing orders. TI assumes no liability for applications assistance, customer's applications or product designs, software performance, or infringement of patents. The publication of information regarding any other company's products or services does not constitute TI's approval, warranty or endorsement thereof.

The platform bar is a trademark of Texas Instruments. All other trademarks are the property of their respective owners.

A093008