EM MICROELECTRONIC

A COMPANY OF THE SWATCH GROUP

FACT SHEET | EM8502

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www.emmicroelectronic.com

Power Management Controller with Solar Cell Harvester Interface

General Description

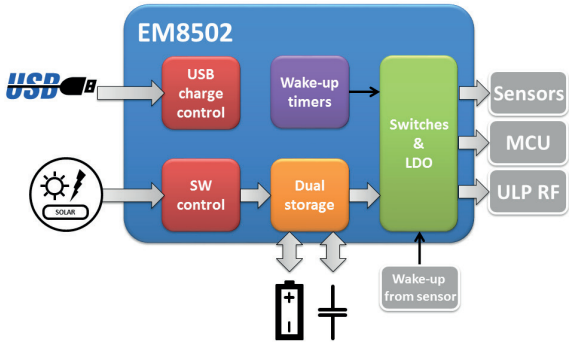
The EM8502 is an integrated power management solution for low power applications. It is specifically designed for efficient operation with photovoltaic source in the µW to mW range.

The EM8502 is capable of operating with a variety of energy elements as secondary storage, namely re-chargeable batteries, super-capacitors or conventional capacitors.

To perform granular power management of the application, the EM8502 integrates four independent supply outputs and a sleep mode offering the capability to switch off part or all the supplies.

Applications

- Solar Energy harvesting
- Wearable systems
- Beacons and wireless sensor networks
- Industrial and environmental monitoring
- Battery operated platforms



Main Features

- Smart Power Management
  - Ultra low quiescent current regulator (25nA)
  - 3 auxiliary supplies with high current drive capability
  - Programmable supply output level
  - Wake-up function on VSUP
- Ultra low power solution
  - 15 nA on battery in protection mode
  - 135 nA supplying low power applications
- Fast cold-start start-up
  - Fast start-up due to dual storage elements
  - STS: Short Term Storage LTS: Long Term Storage
  - Maintain STS in configurable voltage window when LTS is lower than minimum application voltage
- USB Charger
  - Configurable current charger
  - Maintain application supply from USB power
- Flexible interface
  - SPI or I^2C host interfaces available
- Configuration by E^2PROM
  - No external components required
    Configuration default values stored in E^2PROM
- Power control
  - Stop charging when harvester power is under a minimum configurable limit
  - Configurable under and over voltage battery protection
- Luxmeter
  - Harvester current sensor with multiple ranges