CYPRESS

S6AE101A/102A/103A

The Industry's Lowest-Power Energy Harvesting PMIC for IoT Devices

PRODUCT OVERVIEW

INTRODUCTION

Never mind costly electrical wirings and battery maintenance for wireless sensors! Cypress's Energy Harvesting PMIC enables the industry's lowest-power, tiny, solar-powered Wireless Sensor Nodes (WSN).

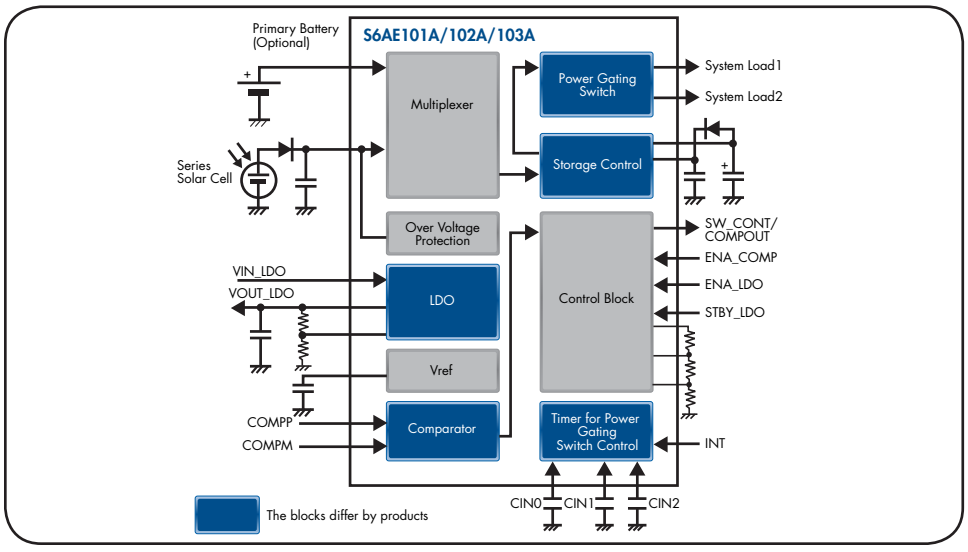
Introducing Cypress's S6AE101A/102A/103A Power Management ICs (PMIC) for energy harvesting that can be built into multiplexer circuits (battery vs. solar cell), power-gating switches for output, storage control circuits, LDOs, comparators, CR timers and overvoltage protections for input.

THE LOWEST-POWER OPERATION

These devices enable ultra-low power operation with quiescent currents of only 250 nA and startup power of only 1.2 µW. This enables to store slight amounts of power generation from 1 cm^2 series solar cell under low-brightness environments of approximately 100 lx and provide power to system.

FLEXIBLE POWER GATING

Power delivery is managed efficiently with a power gating switch and multiplexer that ensure the connection between input source (solar cell or primary battery) and output load (system or storage capacitor) are flexibly and automatically controlled. An interrupt signal and CR timers provide additional control for effective system operation.



FEATURES

- INPUT CHANNEL
  - Two outputs for Series Solar Cell and Primary Battery (option)
- INPUT VOLTAGE RANGE
  - 2.0 - 5.5 V
- INPUT OVER VOLTAGE PROTECTION
  - 5.4 V
- STARTUP POWER
  - 1.2 µW
- OUTPUT CHANNEL
  - Up to two outputs for different system loads
- OUTPUT VOLTAGE RANGE
  - 1.1 - 5.2 V
- QUIESCENT CURRENT
  - Down to 250 nA
- POWER GATING SWITCH
  - Up to two output power control circuits that controls power provided to the system load
- MULTIPLEXER
  - Switch two inputs from Series Solar cell and Primary Battery
- STORAGE CONTROL
  - Store Energy in up to two external capacitors
- PERIPHERALS
  - Low-Power (400 nA) LDO
  - Low-Power (30 nA) CR timer
  - Low-Power (20 nA) Comparator
- PACKAGES
  - 10-pin SON
  - 20-pin QFN
  - 24-pin QFN

APPLICATIONS

- Series solar cell Energy Harvesting
- Bluetooth Smart® sensor
- Wireless HVAC sensor
- Wireless sensor for Smart home, Building, and Industrial

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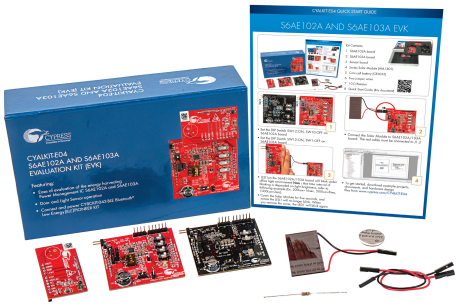
S6AE10XA SERIES PRODUCT LINEUP

MPN	Output Channels	Input Voltage Range (V)	Recommended Input Harvesting Power (mW)	Output Voltage Range (V)	Quiescent Current (nA)	Min. Startup Power (µW)	Power Gating Switch	Storage Control	LDO	IRQ	CR Timer	Comparator	Package
S6AE101A	1	2.0 -5.5	< 1	1.1-5.2	250	1.2	Yes	Yes	-	-	-	-	10-pin SON
S6AE102A	2	2.0-5.5	< 10	1.1-5.2	280	1.2	Yes	Yes	Yes	Yes	-	-	20-pin QFN
S6AE103A	2	2.0-5.5	< 10	1.1-5.2	280	1.2	Yes	Yes	Yes	Yes	Yes	Yes	24-pin QFN

KIT INFORMATION

$59 S6AE102A and S6AE103A Evaluation Kit (CYALKIT-E04)

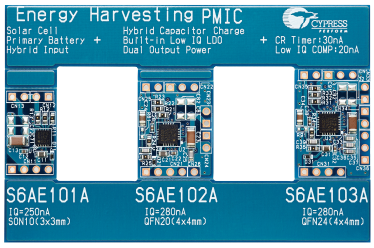


$49 Solar-Powered BLE Sensor Beacon Reference Design Kit (CYALKIT-E02)

$99 Solar-Powered BLE Sensor 5 Pack (CYALKIT-E03)

$49 Solar-Powered IoT Device Kit (S6SAE101A00SA1002)

$25 S6AE10xA EvaluationBoard (S6SAE100A00VA1001)



GET STARTED TODAY!

Watch the Energy Harvesting Solutions Video – www.cypress.com/eh-solution-iot-video

Buy the development kit

- $59 S6AE102A and S6AE103A Evaluation Kit (CYALKIT-E04) – www.cypress.com/CYALKIT-E04
- $49 Solar-Powered BLE Sensor Beacon Reference Design Kit (CYALKIT-E02) – www.cypress.com/CYALKIT-E02
- $49 Solar-Powered BLE Sensor 5 Pack (CYALKIT-E03) – www.cypress.com/CYALKIT-E03
- $49 Solar-Powered IoT Device Kit (S6SAE101A00SA1002) – www.cypress.com/solar-powered-iot-device-kit
- $25 S6AE10xA Series Evaluation Board (S6SAE100A00VA1001) – www.cypress.com/S6AE10xA-EVB

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