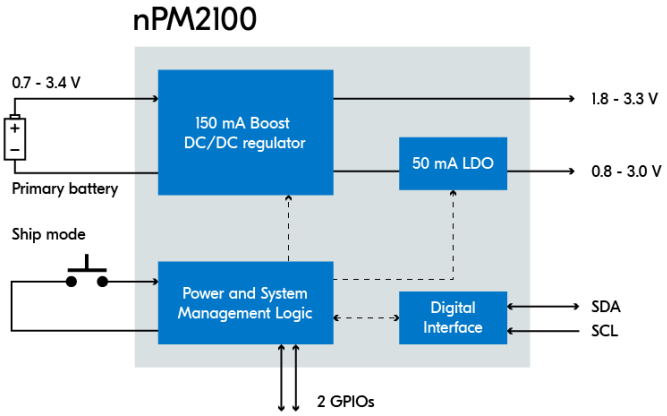
nPM2100 PMIC

Power Management IC (PMIC) with ultra-efficient boost regulator for primary-cell batteries

Overview

The nPM2100 PMIC enables longer run-time on every battery by implementing toolbox of power saving capabilities for primary cell batteries.

It features one boost converter that can provide voltages of 1.8 to 3.3 V output, from input voltages of 0.7 to 3.4 V. Examples of supported batteries are one or two AA/AAA batteries (in series), or one 3V CR2032 coin-cell. Single- or dual-cell silver oxide and zinc-air coin-cell batteries are also supported, or any other battery that operates within the PMICs input voltage range.



The 150 nA I_Q internal boost regulator places itself among the most efficient boost regulators on the market today. A 35 nA ship mode allows the device to be shipped with batteries inserted without draining the battery and eliminates the plastic pull-tab method of protecting batteries during shipping and storage. Hibernate mode includes timed wakeups for applications that spend most of their time in deep sleep, lowering sleep current to 175 nA extending battery lifetimes by up to 3×.

Designed to provide highly efficient power regulation for any primary-cell application, the nPM2100 comes with exceptional software support for Nordic's nRF52, nRF53, and nRF54 Series of wireless multiprotocol Systems-on-Chip (SoC) in the nRF Connect SDK. The nPM2100 is also suitable for use with non-Nordic host devices.

The nPM2100 features precise algorithm-based fuel gauging. Standard voltage-based estimation is often inaccurate, leading to premature replacements or unexpected depletion. Instead, the nPM2100 uses a voltage and temperature-based fuel gauge on the host microprocessor for more accurate readings, ensuring full battery utilization with minimal additional load.

Key features

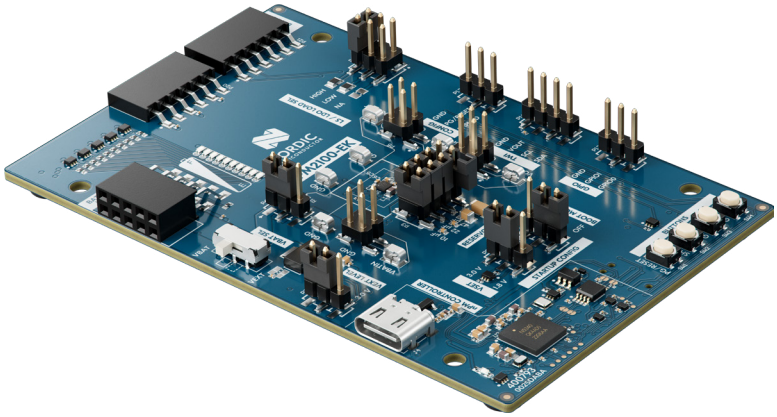
- Ultra-efficient boost regulator
  - 1.8 to 3.3 V output
  - 150 mA max
- LDO/Load switch supplied by the boost regulator
  - 0.8 to 3.0 V in LDO-mode
  - 50 mA max
- 35 nA Ship Mode with multiple wakeup options
- 175 nA Hibernate mode with wakeup timer
- Fuel gauge for primary cell batteries
- 0.7 to 3.4 V supply voltage
- Multiple package options
  - 1.9 × 1.9 mm WLCSP
  - 4 × 4 mm QFN16

Applications

- Computer peripherals / HID
- Remote controls
- Smart home sensors
- Bluetooth asset tracking
- Fitness accessories
- Personal medical devices

nPM FAMILY

For more information please visit: **nordicsemi.com/nPM2100**



nPM2100 Evaluation Kit

Overview

The nPM2100 Evaluation Kit allows for simple evaluation and code-free configuration of the nPM2100 Power Management IC (PMIC). By connecting to the nPM PowerUP app found in nRF Connect for Desktop, all settings of the nPM2100 can easily be configured through an intuitive GUI and exported as code to be implemented in your MCUs application.

The kit includes add-on boards to connect AA, AAA, LR44 and CR2032 batteries for easy evaluation of the nPM2100 with combinations of non-rechargeable batteries. In all the kit comes with six battery holders for 1 and 2 AA and AAA batteries in series, as well as holders for 20 mm diameter coin-cells like CR2032 and 11.6 mm button-cells like LR44.

Key features

- Evaluation Kit for the nPM2100 PMIC
  - Highly efficient boost regulator
  - LDO/Load Switch for additional power rail
  - 35 nA Ship Mode
  - 175 nA Hibernate mode with timed wakeups
  - Fuel gauge for primary-cell batteries
- Includes add-on boards to connect AA, AAA, LR44 and CR2032 batteries
- Easy connection and setup for use with nPM PowerUP PC software