Overview
The nPM1100 is a dedicated power management IC (PMIC) with dual-mode configurable buck regulator and integrated battery charger. It is designed as a complementary component to Nordic’s nRF52® Series and nRF53® Series System-on-Chips (SoCs) to ensure reliable power delivery and stable operation, whilst maximizing battery life through high efficiency and low quiescent currents.

The dual-mode regulator operates at up to 92% power conversion efficiency, prolonging battery life of any nRF52® or nRF53® SoC based application using a rechargeable battery. Hysteretic mode reduces current consumption for low load conditions, while PWM mode allows for cleaner power operation and better performance for higher loads. The regulator can deliver up to 150 mA, efficiently providing ample current for the nRF52® or nRF53® Series SoC plus additional circuitry.

The device can also be used as a generic PMIC for any rechargeable application. Its extremely compact form factor makes it ideal for advanced wearables, connected medical devices, and other size constrained applications. When optimized for size, PCB area usage can be as low as 23 mm² with passive components included. This increases to approximately 27 mm² when optimized for performance.

Speciation
- **Battery charger**
  - Regulatory compliance: JEITA compliant
  - Termination voltage: Versions with 4.1 or 4.2 V, and 4.25 or 4.35 V
  - Charge current: 20 mA to 400 mA

- **Input regulator**
  - Input voltage: 4.1 to 6.7 V
  - Output voltage: 3.0 to 5.5 V unregulated
  - Overvoltage protection: 20 V transient
  - USB current limit: 100 mA or 500 mA

- **Buck regulator**
  - Output voltage: 1.8, 2.1, 2.7 or 3.0 V
  - Current limit: 150 mA output
  - Quiescent currents: 800 nA typical, 460 nA in ship mode
  - Battery voltage: 2.3 V to 4.35 V
  - Operating temp: -40°C to 85°C

Applications
- Wearables
- Remote controls
- Personal medical devices
nPM1100 Evaluation Kit

The nPM1100 Evaluation Kit (EK) is a tool for evaluating the nPM1100 and its features in your application. The kit features switches for all selectable settings, buttons to enter and exit ship mode and connectors for batteries, USB and headers for all pins on the PMIC.

The EK allows for testing of the nPM1100 PMICs capabilities with existing applications without the need for creating custom hardware. The board supports charging batteries and powering applications with the included headers and battery connectors. It can be powered three ways:

- By USB power via the on-board micro-USB port
- From an external DC power supply through header pins
- From battery power via one of the headers

The kit further includes buttons to enter and exit the PMICs ship mode together with DIP-switches for all configuration options such as selecting the charger termination voltage, regulator output voltage, charge current and VBUS current limit, and fixing the buck regulator mode to PWM mode only. The kit also includes indicator LEDs for charge and error indication.

There is no programmable logic on the board, hence setup requires no programming for testing with existing hardware applications. The EK is designed for optimized performance. Refer to Nordic whitepaper nWP040 for inductor choices that allow for a trade-off between maximum performance and minimum size implementations.

Separate kits available for evaluation of parts with 4.1 to 4.2 V and 4.25 to 4.35 V charger termination voltage options.