

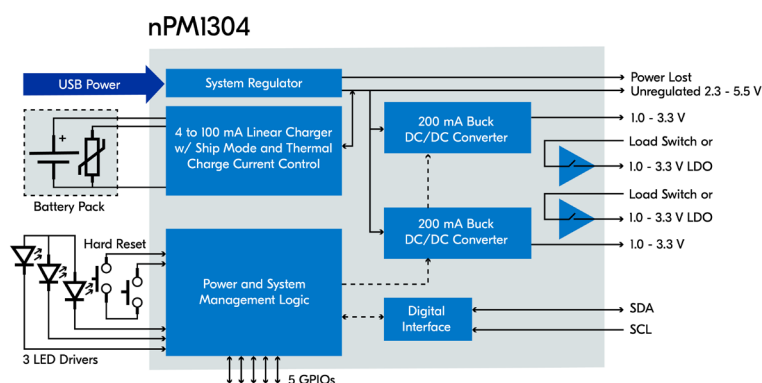
nPM1304

Power Management IC (PMIC) with battery charging, precision fuel gauging and advanced system management features for small size batteries.

Key benefits

- Intelligent system management features eliminate the need for discrete system management components like dedicated button-reset ICs and external watchdogs
- Ultra low-power, accurate fuel gauging capabilities for battery state-of-charge monitoring and battery runtime estimation
- USB-C compatible battery charger for single-cell Lithium-ion, Lithium-polymer and Lithium iron phosphate batteries up to 4.65 V.

Block diagram



Overview

nPM1304 is a power management IC (PMIC) that simplifies system design by integrating essential functions required for embedded Bluetooth Low Energy designs and any other applications requiring small size batteries. It features a hard reset functionality for one or two buttons, precision battery fuel gauging, system-level watchdog, power loss warning, and recovery from failed boot.

These functions are typically implemented as discrete components in embedded designs, but the nPM1304 integrates them into a single, compact package, simplifying system design and reducing the number of required components.

The nPM1304 is ideal for compact and advanced IoT products with small battery sizes such as smart rings, sports performance trackers and personal health care monitoring devices.

Key features

- Highly efficient PMIC with built-in system management features
 - Supports model-based precision fuel gauge running on host
 - Watchdog and boot timer
 - Power loss warning
 - One- or two-button hard reset
- 4 - 100 mA battery charger
 - Supports Li-ion, Li-poly and LiFePO₄ batteries
- Four individually controllable power rails
 - Two highly efficient buck regulators with 200 mA current limit
 - Two 100 mA load switches or 50 mA LDOs
- Input regulator with USB support
 - USB-C compatible
- Ship- and hibernate modes
- Five GPIOs and three LED drivers
- -40°C to 85°C operating temperature

Applications

- Smart rings
- Smart glasses
- Health & fitness sensors and monitoring devices
- Smart/low-energy sensors
- Computer and gaming equipment
- Asset tracking

Specifications

Battery charger	
Regulatory compliance	JEITA compliant
Termination voltage	3.5 to 4.65 V
Power path	Dynamic
Charge current	4 mA to 100 mA
Input regulator	
Input voltage	4.0 to 5.5 V
Output voltage	2.3 to 5.5 V unregulated
Overvoltage protection	22 V transient
USB current limit	1500 mA
Buck regulators	
Output voltage	2
Current limit	1.0 - 3.3 V
	200 mA output each
Battery voltage	2.3 V to 4.65 V
Operating temp	-40°C to 85°C