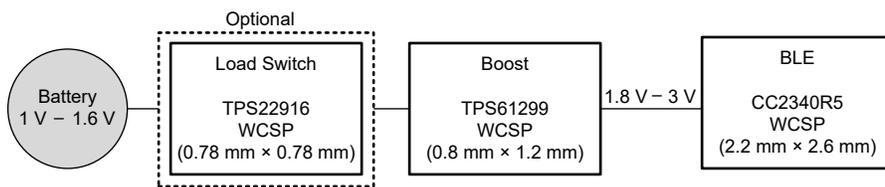


Solving Ultra-Low-Power Challenges for Connected Devices With Advanced Battery Chemistries

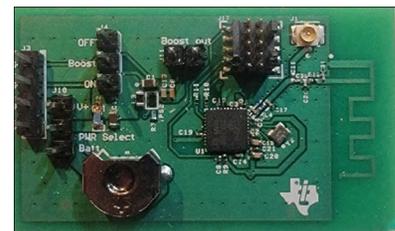


Description

With the growing push for smaller and low-power connected devices, systems face a dual challenge: achieving ultra-low quiescent and shutdown currents while adapting to lower supply voltages. Advancements in battery manufacturing bring high-power density chemistries such as Silver-Oxide and Zinc-Air to more devices including medical wearables, Internet of Things (IoT) devices, and measurement instrumentation. This results in a need for small connected systems that operate with supply voltages as low as 1 V and shutdown currents in the 10s of nA range.



Block Diagram



Example Implementation

Features

- Active standby system-level currents down to 1 μA with 1.5-V supplies and minimal component count.
- System level shelf-mode and ship-mode currents as low as 60 nA without a load switch and down to 10 nA with a load switch.

Applications

- [Medical sensor patches](#)
- [Hearing aid](#)
- [Continuous blood glucose monitor](#)
- [Insulin pump](#)

Recommended Devices

Part Number	Range	Standby Current	Shutdown Current	Package	Features
CC2340R5	1.71 V – 3.8 V	700 nA	150 nA	QFN (4 mm × 4 mm) WCSP (2.2 mm × 2.6 mm)	Bluetooth® 5.3 Low Energy, 12-bit ADC
TPS61299	0.7 V – 5.5 V	155 nA	60 nA	WCSP (1.2 mm × 0.8 mm)	High efficiency across load ranges
TPS22916	1.0 V – 5.5 V	500 nA	10 nA	WCSP (0.78 mm × 0.78 mm)	Low-leakage load switch

TI Resources

- [SimpleLink Academy for CC23XX](#)
- [SimpleLink Low Power F3 Documentation Overview](#)
- [SimpleLink 2.4GHz Hardware Design Reviews](#)

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