

BSC3100 Product Brief

Ultra-low power backscatter and active Bluetooth Low Energy smart label IC

Overview

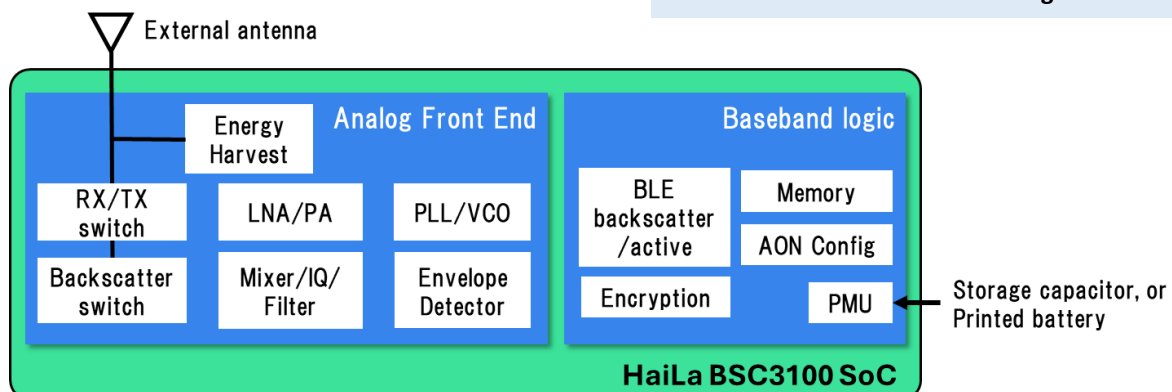
HaiLa's BSC3100 smart label IC enables ground-breaking solutions for asset tracking and cold chain monitoring, as well as for inventory management and electronic shelf labels.

HaiLa's BSC3100 offers ultra-low power temperature sensing and RFID functions that uplink to a broad and established ecosystem of standard Bluetooth Low Energy (BLE) devices including smart phones, tablets, and wireless access points supporting BLE. The BSC3100 supports serialized unique IDs such as the GTIN-96 standard. Depending on the application requirements, BSC3100 supports connectionless data transmission either by a low output power active BLE link, or by an RFID-like BLE backscatter link. Both operating modes can be supported by either a low-cost printed battery, or via harvested RF energy for battery-free operation.

HaiLa's adaptation of low power backscatter communication to Bluetooth Low Energy offers the latency and battery-less form factor advantages of RFID, combined with the ubiquitous availability of a standard wireless protocol supported in multiple platforms. Support for active BLE transmission allows for fully autonomous operation when paired with a low-cost printed battery. The versatile BSC3100 includes an on-chip temperature sensor with +/- 1°C accuracy for environmental and cold chain monitoring.

The BSC3100 is supported by HaiLa SmartLink software development package for integration with standard BLE stacks.

Block Diagram



Features

- Operating frequency band
 - Worldwide 2.4GHz
- Wireless protocol
 - Bluetooth Low Energy 1Mbps FSK
- Data encryption
 - AES-128/AES-256
- On-chip temperature sensor
- Backscatter mode:
 - 850 – 915MHz, 2400MHz Exciter
- Active transmit mode:
 - 2400 – 2483 MHz
 - -10 dBm transmit power
- Power supply
 - RF energy harvesting
 - 1.1V to 1.5V printed battery
- Average Power Consumption
 - < 5 μ W
- Packaging & Environmental
 - Die or dry-inlay label-mount
 - Operating temperature range: -40 to 85°
 - Storage temperature: 40°C, 90% RH

Applications

- Fulfillment logistics
- Asset tracking
- Cold chain monitoring
- Inventory tracking (retail, medical)
- Electronic shelf labels



HaiLa BSC3100-based asset tag