Infant Tag Hardware and Technical Specification

Version (Rev 1.3)

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WiSilica Inc

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Revision History

Rev No	Date	Notes
Rev 1.0	13/03/2017	Draft Release
Rev1.1	21/04/2017	FCC Warning message included
Rev1.2	25/04/2017	TX power changed as per FCC testing
Rev1.3	02/05/2017	System Clock Updated

General Information

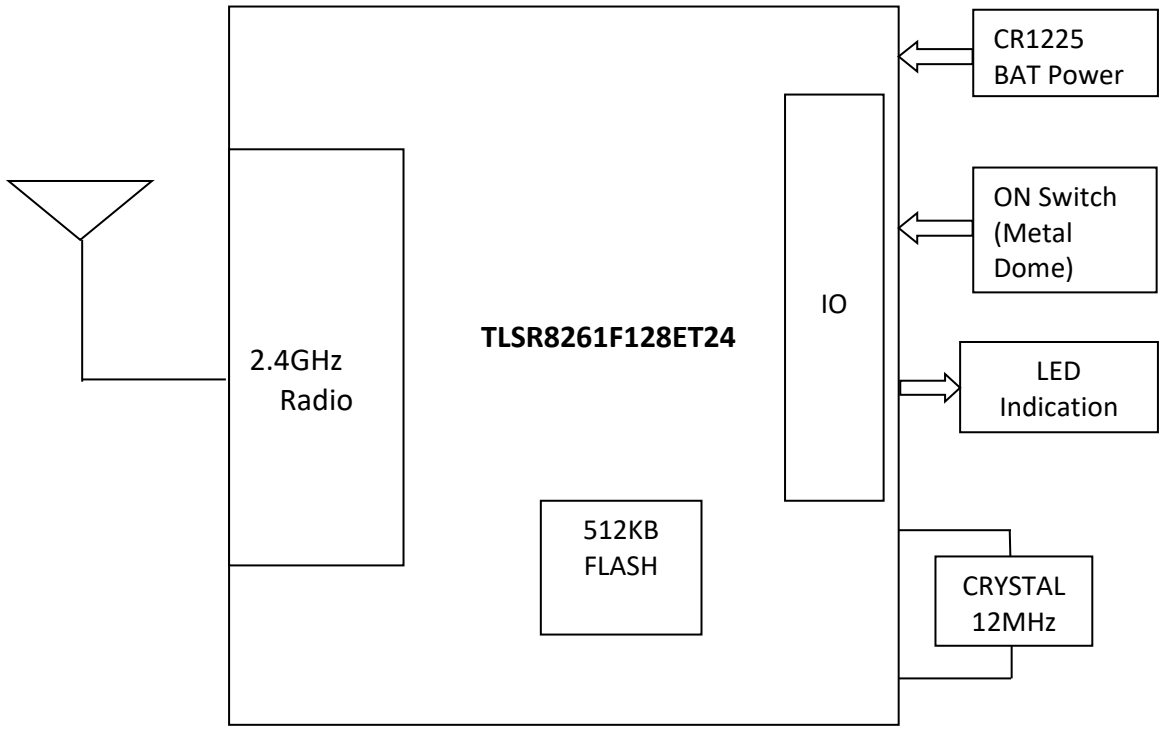
Features

- Bluetooth v4.0 specification complaint
- Support for Bluetooth 4.1 specification host stack
- 128KB of Flash memory
- 12 MHz clock system
- TX output power upto 4 dBm
- -92dbm BT4.0 RX sensitivity
- RSSI Monitoring
- Flex PCB printed

General Description

The Wise Infant tag emits beacons at an interval configured during pairing Infant Tag that enables the ultra-low-power connectivity and basic data transfer for applications previously limited by the power consumption, size constraints and complexity of other wireless standards. Infant tag is basically used in tracking system. Also Infant tag is powered with CR1225 battery were it considerably reduced power consumption and compact in size.

Block Diagram:



Application:

WiSe Infant Tag enables connectivity and data transfer to leading smartphone, tablet and personal computing devices including Apple iPhone, iPad, iPod and Mac products and leading Android devices. It is mainly use in the patient or infant tracking system.

Form factor:

- Dimension: 160 x 13mm

Hardware Specification:

COMPONENTS	DESCRIPTION
BLE CHIP	TLSR8261F128ET24
CRYSTAL	12MHz

Antenna

WiSe Infant tag has the external Flex PCB printed antenna .The WiSe infant tag has been certified with the external antenna only.

The external antenna's directivity determines the required position. We need to make sure the external antenna impedance is close to 50 Ohm to have optimal matching. External antenna's center band frequency should be in the range of 2.4 to 2.402 GHz. The PCB antenna employs a topology that is compact and highly efficient.

Electrical characteristics

Absolute Maximum Ratings

Ratings	Min	Max
Storage Temperature	-65℃	125℃
Supply voltage	2.2V	3.6V

Recommended operating condition

Item	Min	Typical	Max
Operating Temperature	-40	-	125℃
Supply voltage	2.6V	3.3V	3.6V
IO Supply Voltage	V	-	3.6V

Current Consumption:

Mode	Total Typical Current at 3V
Sleep Mode	15µA
RX/TX active	~15mA @ 3V peak current

RF Characteristics:

Path	Description	Conditions	Min	Typ	Max	Unit
	Operating Frequency		2402		2480	MHz
	Maximum output power			4		dBm
	2nd harmonic				54	dBuV
	3rd harmonic				54	dBuV
TX	Modulation delta F1 average		225	255	275	kHz
	Modulation delta F1 / F2		0.8			
	Modulation delta F2 max			100		%
	Frequency accuracy		-100	25	100	kHz
	Frequency offset		-100	25	100	kHz
RX	Receiver Sensitivity			-92		dBm
	Receiver Sensitivity (with dirty transmitter)			-93		dBm
	Maximum received signal at 30.8% PER			-10		dBm

Operation of the WiSe Infant Tag:

The Wise Beacon tag emits beacons at an interval configured during pairing via Wise Tracking Application.

The tag has an LED which indicates the state of the tag.

- Initially tag is powered off – LED is not lit.
- Tag is powered on by pressing the button for at least 2 sec and will be in pairing mode for 30 sec (duration is configurable) – LED will blink every 500ms.
- After pairing mode, if tag is not paired, it will power off. If the tag is paired, normal operation of tag is initiated - beacon packets will be transmitted at the configured interval – LED will not be lit.
- During normal operation, tag may be powered down by pressing button for 30 sec – LED will blink thrice and turn off.
- During normal operation, if button is pressed for at least 1 sec – LED will blink once

1. Phone initiates pairing with tag – reads it guid
2. GUID of tag sent to server
3. Server sends pairing key to phone
4. Phone completes pairing
5. Tag data is synced with server

Warning:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1) This device may not cause harmful interference, and
2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help