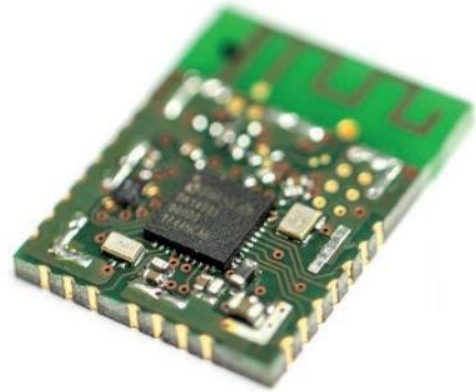# OSB-DA14584

Smart Bluetooth 5.0 LE MESH Module

The OSB-DA14585 RF module are designed in compliance with the Bluetooth 5.0 LE Specification and is based on the Dialog DA14585 single-chip controller. The new Bluetooth 5.0 features enable a higher symbol rate of 2 Mbps and open field transmission rage up to 90 meters.

The new channel selection algorithm improves the performance in environments, which are busy at 2.4 GHz. Furthermore, the new Low Energy advertising extensions allow for much larger amounts of data to broadcast in connectionless scenarios, are therefore favorable for beacon, and mesh applications.

A high output power of up to 0 dBm sensitivity of the Dialog DA14585 make the module very attractive in applications where a long range is required. The ultra-low current consumption of the OSB-DA14585 Smart Bluetooth 5.0 LE MESH Module make the module an ideal choice for battery powered devices. Various sleep modes can be used to minimize power consumption and prolong battery lifetime.

To provide maximum flexibility, the module operated in hosted as well as standalone mode. In standalone mode, no external processor is necessary, which saves complexity, space, and cost. The built-in 1.024 kB serial flash memory is completely free for application use.

OSB-DA14585 Smart Bluetooth 5.0 LE MESH Module has a small form factor and footprint.
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Key
Benefits

The integrated AI software allows a broad set of Plug & Play Features:

✓ 2 MBit Full Duplex Telnet Connection between Consumer Application and Android or iOS Device

✓ Up to 1 MBit Device to Device Connection with a 64 Devices MESH Network

✓ MESH Networking Background Repeater Function for other known devices

✓ Encrypted Communication Stack

✓ Audio Transmission Real Time or Delayed

✓ 2D relative Geo Positioning, Beacon Functionality

✓ Over the Air Software Update of features

Enhanced

Features

Bluetooth 5.0, ETSI EN 300 328 and EN 300 440 Class 2 (Europe),
FCC CFR47, Part 15 (US) and ARIB STD-T66 (Japan)
Supports up to 64 Bluetooth LE connections
Fast cold boot in less than 50 ms
Over the Air Software Update of features

Integrated AI software

Allows a broad set of Plug & Play Features:
- 2 MBit Full Duplex Telnet Connection between Consumer
Application and Android or iOS Device
- Up to 1 MBit Device to Device Connection
with a 64 Devices MESH Network
- MESH Networking Background Repeater Function
for other known devices
- Encrypted Communication Stack
- Audio Transmission Real Time or Delayed
- 2D relative Geo Positioning, Beacon Functionality

Processing units

16 MHz 32 bit ARM Cortex-M0 with SWD interface
Dedicated Link Layer Processor
AES-128 bit encryption Processor

Memories

64 kB One-Time-Programmable (OTP) memory
96 kB Data/Retention SRAM
128 kB ROM Operating System and protocol stack
1.024 kB Serial Flash for User Specific Software Stack

Interfaces

2x UART
14x I/O
1x ADC 4-channel 10-bit
1x SPI+™
1x I²C bus at 100 kHz, 400 kHz
1x pin for System & Power-On-Reset

Electrical Characteristics

Power Consumption (Typical)

Current consumption
Digital circuits operation: 1.2 mA
(BLE and built-in flash memory: not used)
Low power mode: 2.5 µA
Deep sleep mode: 50 nA

Data transmission: 5.4 mA (2 Mbps, 0 dBm)
Data reception: 5.64 mA (2 Mbps)

Power management

Integrated Buck/Boost DCDC converter
1.8 V cold boot support-buck mode
0.9 V cold boot support-boost mode

Maximum Output Power

0 dBm

Sensitivity

-105 dBm

General Features

Supply Voltage Range:
1.8 V ~ 3.6 V, 3.3V Typ.

Temperature Range:
-40° C ~ +85° C

Package
22 Pins SMD module

Dimension
16.0 mm x 21.0 mm x 3.5 mm

Weight:
4 g

Certification

FCC for US*
ISED for Canada*
RED (2014/53/EU) for EU

* Under Development