



ZigBee USB Dongle ZSB series Data Sheet



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1. Introduction

The ZigBee USB Dongle family provides designers with a ready-made product which allows ZigBee wireless applications, to be quickly and easily included in product designs. The ZigBee USB Dongle integrate all of the RF components required, USB interface and removing the need to perform expensive RF design and test. Products can be designed by simply connecting USB power to be general router or simple end-device in ZigBee network, and connect to USB host to be coordinator. Hence, this range of dongles allows designers to bring wireless applications to market in the minimum time with significantly reduced development effort and cost.

The variants available are described below.

1.1 Variants

Variant	Description
ZSB-6810	JN5168 High Power ZigBee USB Dongle without external Flash
ZSB-6811	JN5168 High Power ZigBee USB Dongle with external Flash

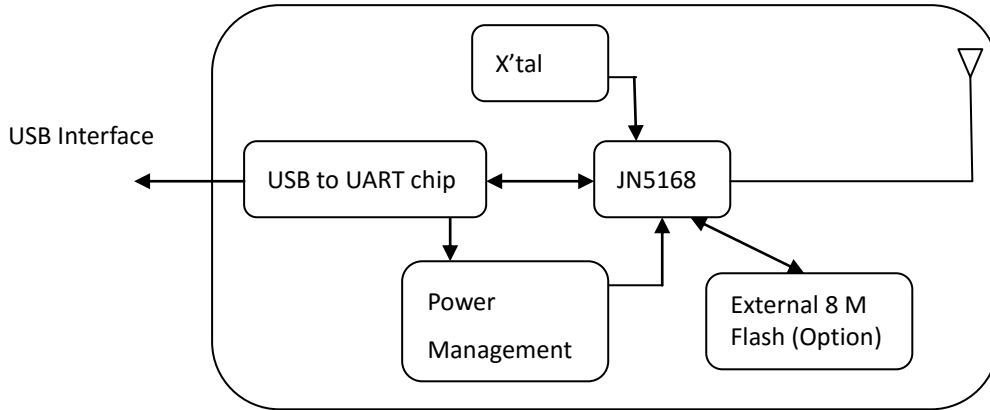
1.2 Key Features

- NXP ZigBee solution
- USB (A type) host interface
- Red and Blue LED indicators
- One Push bottom
- Embedded antenna
- Auto detect USB firmware download
- FTDI USB chip, support Windows, Linux and Android system driver

1.3 Applications

- Smart Lighting
- Asset Management
- Building Control
- Remote Control
- Smart Energy
- Healthcare
- Security
- Environment monitoring

2. Block Diagram



3. Specification

3.1 General Electrical Specification

VDD=3.0V @ +25°C

Typical DC Characteristics		Notes
ZSB-68xx		
Radio Transmit current	135mA	CPU in doze, radio transmitting
Radio receive current	40mA	CPU in doze, radio receiving
Centre frequency accuracy	+/-20ppm	Additional +/-15ppm allowance for temperature and ageing

3.2 Radio Characteristics

Typical RF Characteristics		Notes
ZSB-68xx		
Receive sensitivity	-95dBm	Nominal for 1% PER, as per 802.15.4 section 6.5.3.3 (Note 1)
Maximum Transmit power	+18dBm	
Maximum input signal	-5dBm	measured as sensitivity
RSSI range (dBm)	-95~ -10	
VSWR (max)	2:1	2.4 - 2.5GHz

3.3 Electrical Characteristics

In most cases, the Electrical Characteristics are the same for both module and chip. They are described in detail in the chip datasheet. Where there are differences, they are detailed below

Maximum Ratings

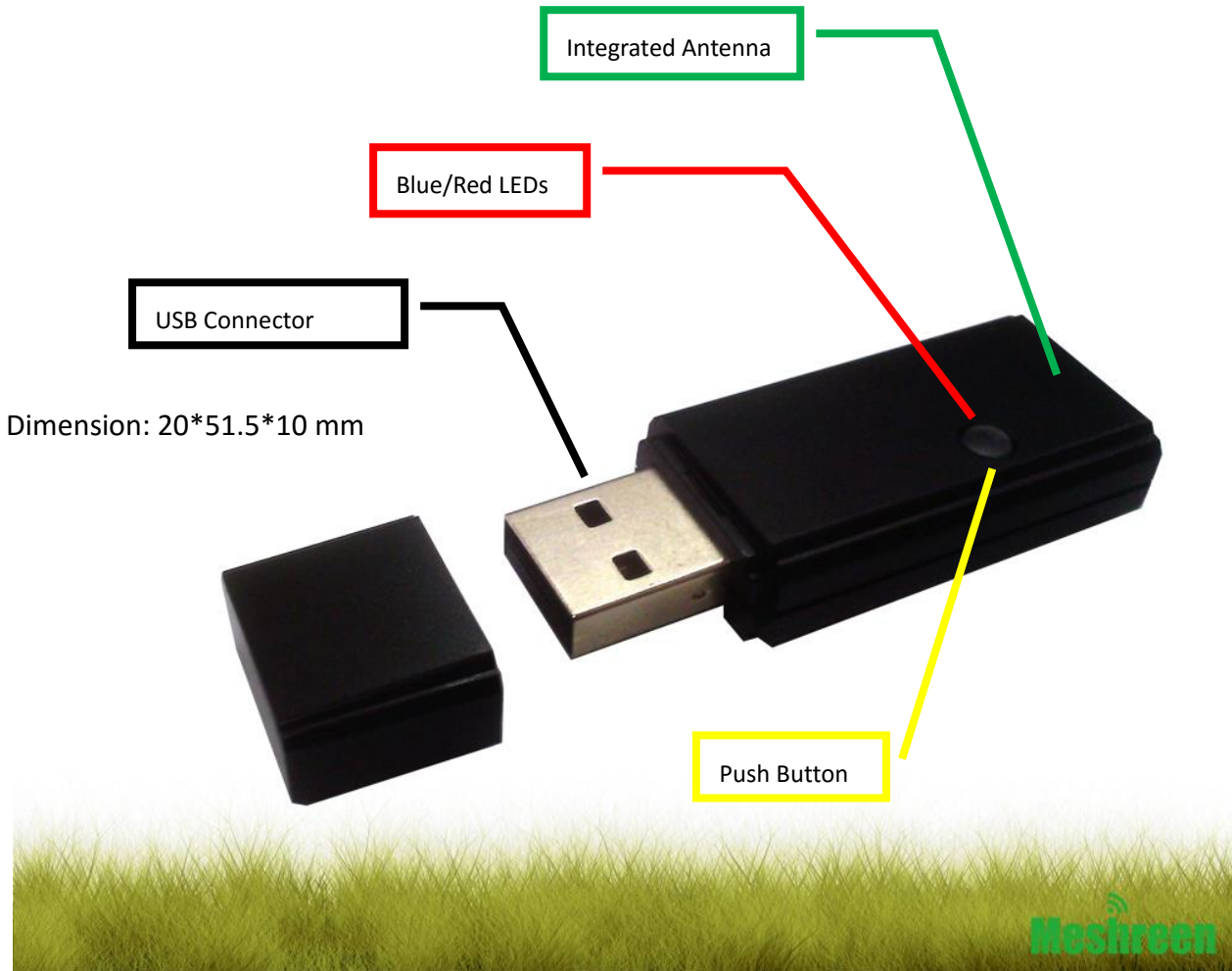
Exceeding these conditions will result in damage to the device.

Parameter	Min	Max
Storage Temperature	-40°C	70°C
Supply Voltage VDD	-0.5VDC	6VDC

Operation Conditions

Operating Condition	Min	Max
Operating Temperature range	0°C	70°C

4. Outline Drawing



5. Hardware Overview

5.1 USB connection

The USB connector on device is standard **USB** Type A. This allows connection to the power and serial data connection from USB host. The USB interface device is an FTDI FD230x device. It is used to interface between the data connections of the USB port and the standard UART connection for UART0 of the JN5168 device.

With the FTDI royalty-free drivers, the USB dongle will appear as a COM port on a Windows PC. Therefore, for many applications there is no requirement to develop USB drivers. For detail of installing the device driver, refer to <http://www.ftdichip.com/Drivers/VCP.htm> and Chapter

5.2 Power supply

The power for the dongle is sourced from the USB connector. The wireless microcontroller cannot be directly connected to the USB port. The USB interface device generates the required voltage levels for the JN5168 and the design provides all the necessary decoupling of these supplies.

5.3 Wireless Microcontroller

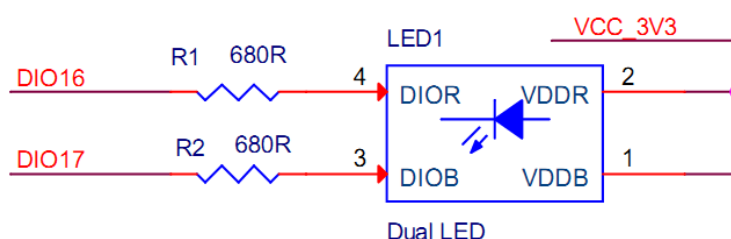
The wireless microcontroller on the dongle board is the NXP JN5168, which is detailed in the JN5168 Data Sheet (JN-DS-JN5168). To facilitate the development of JN5168 wireless network applications on a PC, NXP provide the JN5168 Software Developer's Kit (SDK). This SDK includes Application Programming Interfaces (APIs) and development tools, and is supplied as two installers: SDK libraries (JN-SW-4040) and SDK Toolchain (JN-SW-4041).

5.4 LED

There are a RED LED and Blue LED on the device.

Red LED can be controlled by the JN5168 wireless microcontroller **DIO16**;

Blue LED can be controlled by **DIO17**. The pin is driven low, the LED is illuminated.



5.5 Switches

There is a push button that can be controlled by the JN5168 wireless microcontroller **DIO9**. It is low active.

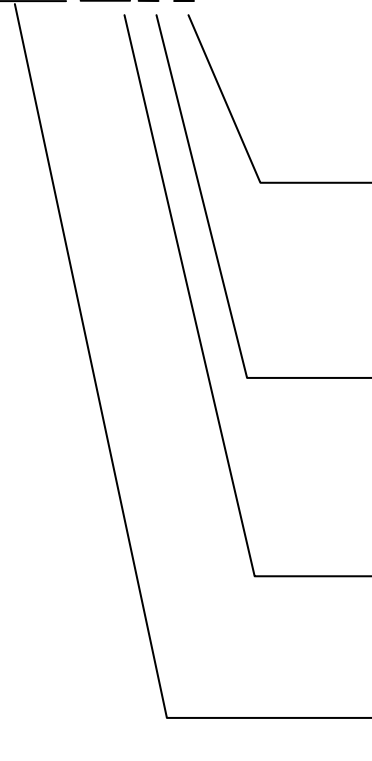
The LED and switch is the same position.

6. Package

TBD

7. Ordering Information

ZSB-xxxx



Flash option:

- 0 without external Flash
- 1 with external Flash

Housing option:

- 0 without housing, PCBA shipment
- 1 with Meshreen Housing

Main Chip Type:

- 68 JN5168-001 main chip

Meshreen ZigBee USB Dongle

Version Control

Version	Notes
1.0	1 st Issue
2.0	Re-design housing and PCB

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