

RAK13300 WisBlock LPWAN Module Datasheet

Overview

Description

RAK13300 is a Lora module based on SX1262 LoRa chip. It provides an easy to use, small size, low-power solution for long range wireless data applications.

The module complies with LoRaWAN 1.0.2 protocols, it also supports LoRa point to point communication. It can easily connect to different LoRaWAN server platforms like TheThingsNetwork (TTN), Chirpstack, Actility, etc.

Features

- Based on SX1262 LoRa chip.
- LoRaWAN 1.0.2 Specification compliant
- Supports bands: EU433, CN470, IN865, EU868, AU915, US915, KR920, RU864 and AS923
- LoRaWAN Activation by OTAA/ABP
- LoRa Point to Point (P2P) communication
- Ultra-Low Power Consumption
- Supply Voltage: 2.0 V ~ 3.6 V
- Temperature Range: -40° C ~ 85° C

Specifications

Overview

Mounting

The RAK13300 LPWAN module can be mounted to the IO slot of the WisBase board. Figure 1 shows the mounting mechanism of the RAK13300 on a WisBase module, such as the RAK5005-O.

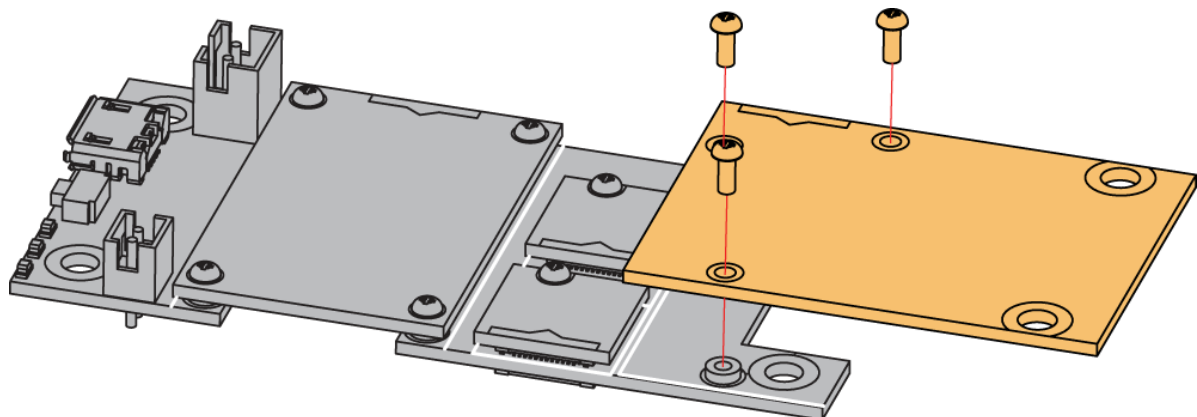


Figure 1: RAK13300 WisBlock LPWAN Module Mounting

Pin Definition

The RAK13300 WisBlock LPWAN module comprises a standard WisIO connector. The WisIO connector allows the RAK13300 module to be mounted to a WisBlock baseboard, such as RAK5005-O. The pin order of the connector and the pinout definition is shown in Figure 2.

NOTE

- **SPI** related pin, **NRESET**, **ANT_SW**, **DIO1**, **3V3** and **GND** are connected to WisIO connector

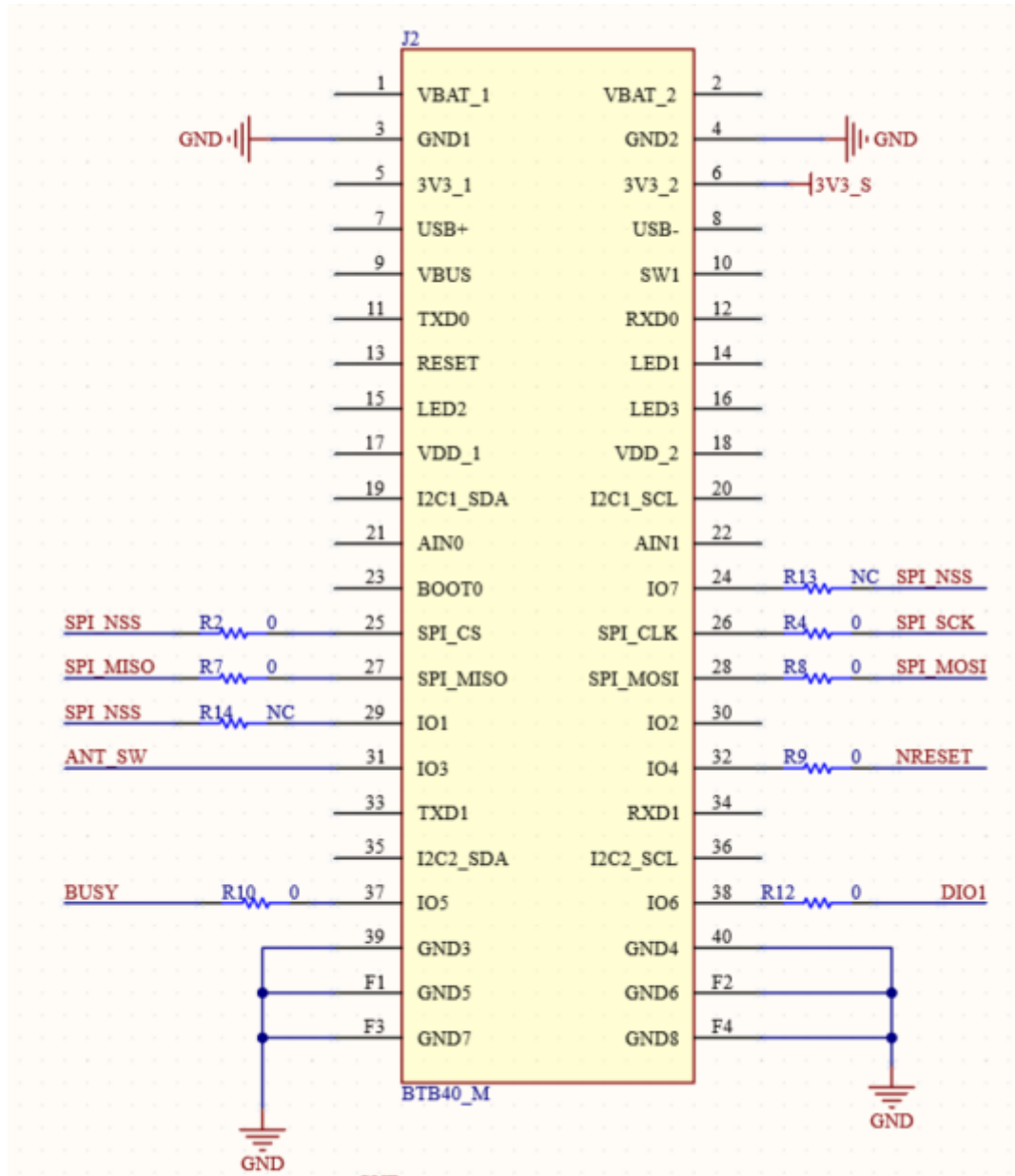


Figure 2: RAK13300 WisBlock LPWAN Module Pinout

Support LoRaWAN Bands

The Table 1 shows support LoRaWAN Bands of RAK13300 module.

Region	Frequency(MHz)	Part Number
Europe	EU433	RAK13300L
China	CN470	RAK13300L
Europe	EU868	RAK13300
America	US915	RAK13300
Australia	AU915	RAK13300
Korea	KR920	RAK13300
Asia	AS923	RAK13300
India	IN865	RAK13300
Russia	RU864	RAK13300

Electrical Characteristics

Absolute Maximum Ratings

Symbol	Description	Min.	Nom.	Max.	Unit
VBAT_SX	LoRa chip supply voltage	-0.5	-	3.9	V
VBAT_SX_IO	LoRa chip supply for I/O pins	-0.5	-	3.9	V
ESD HBM	Human Body Model	-	-	2000	V
ESD CDM	Charged Device Model	-	-	500	V

Recommended Operating Conditions

Symbol	Description	Min.	Nom.	Max.	Unit
VBAT_SX	SX1262 supply voltage	2.0	3.3	3.7	V
VBAT_SX_IO	SX1262 supply for I/O pins	2.0	3.3	3.7	V

Mechanical Characteristics

Board Dimensions

Figure 3 shows the dimensions and the mechanic drawing of the RAK13300 module.

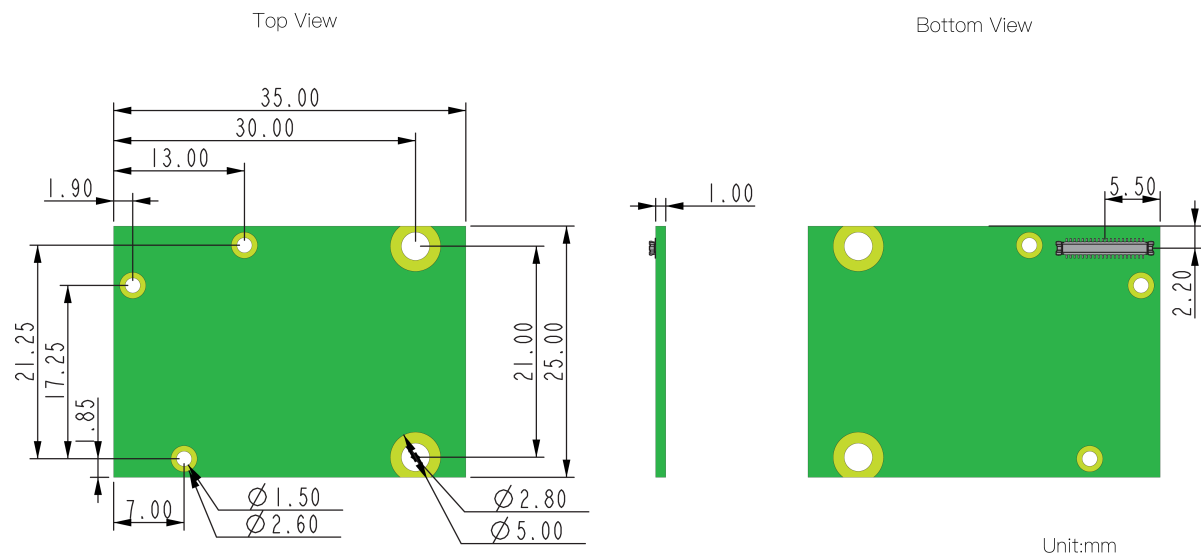


Figure 3: RAK13300 WisBlock Mechanic Drawing

WisConnector PCB Layout

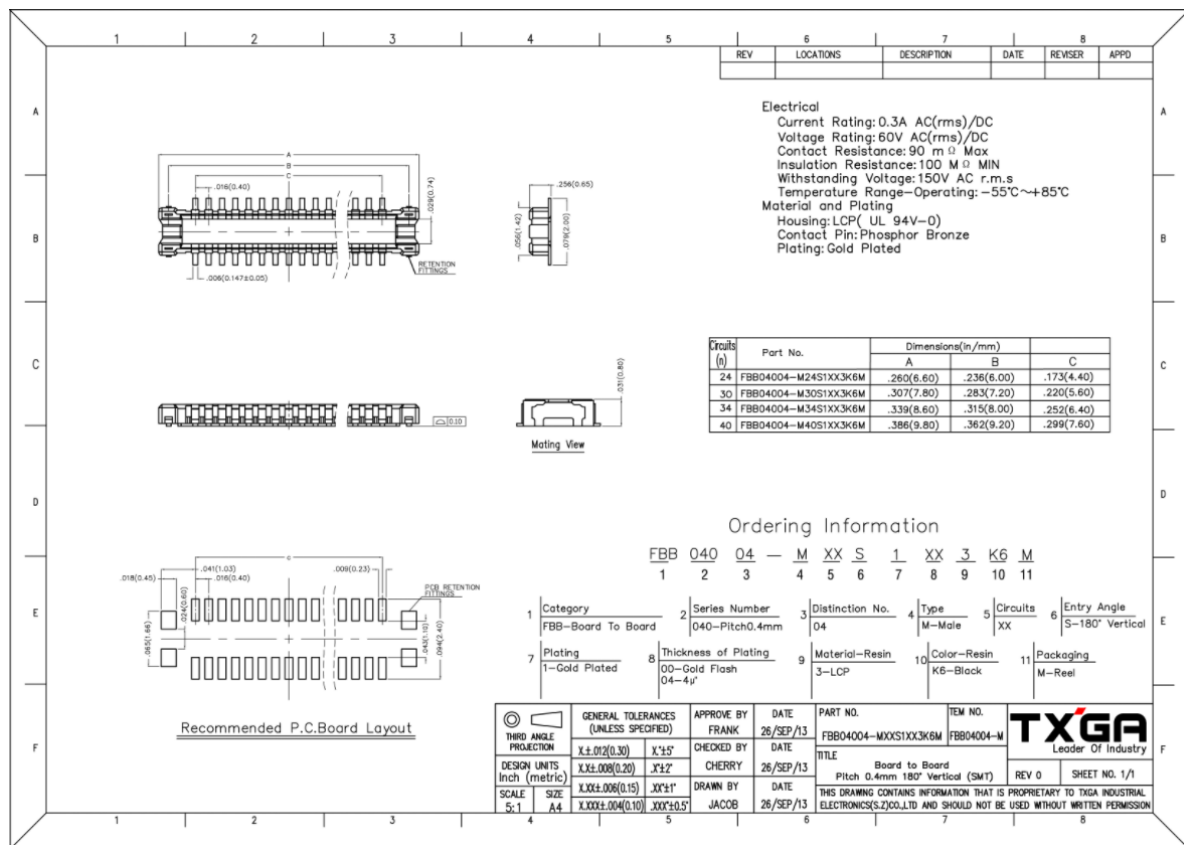
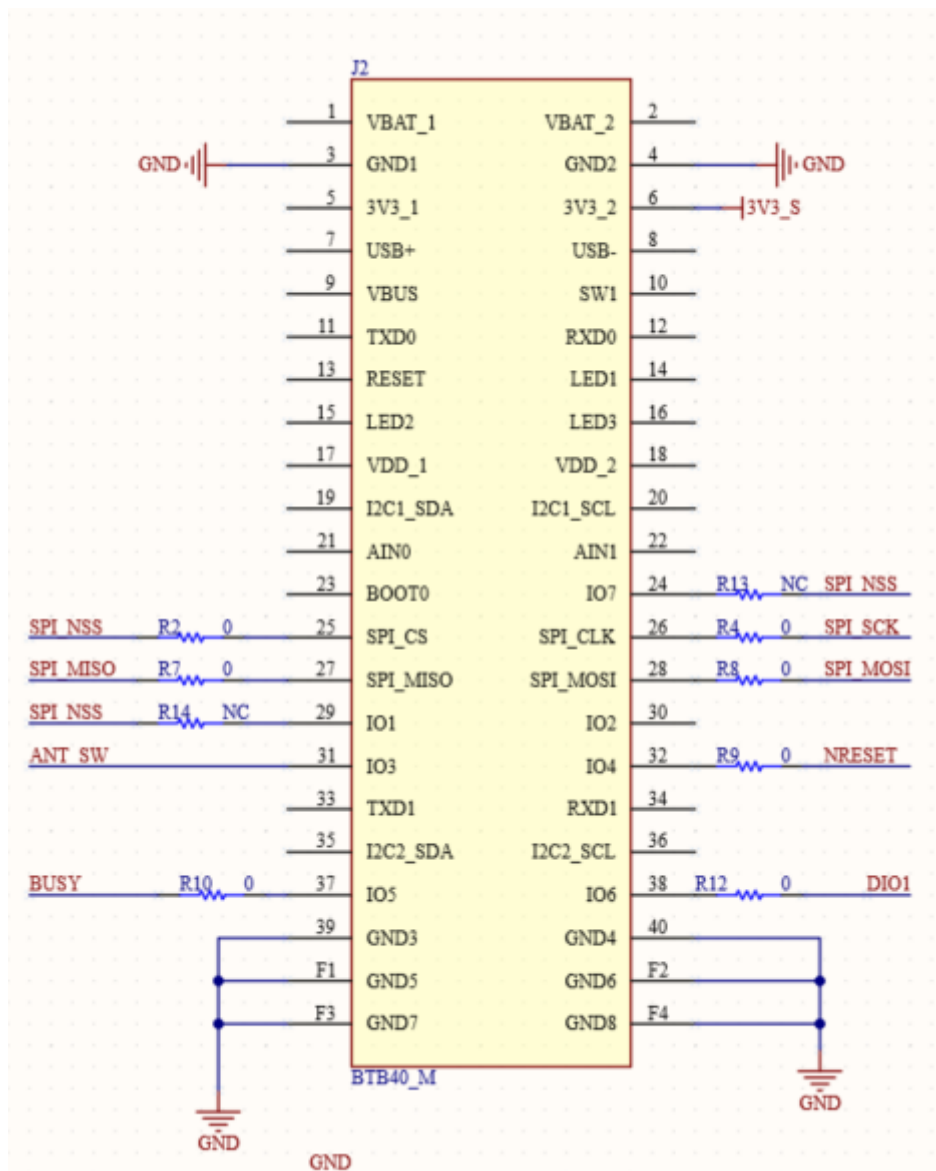


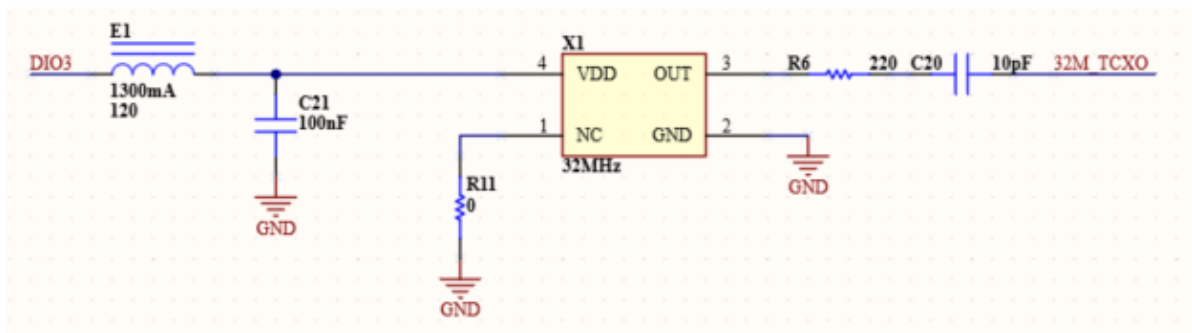
Figure 4: WisConnector PCB Footprint and Recommendations

Schematic

Connector

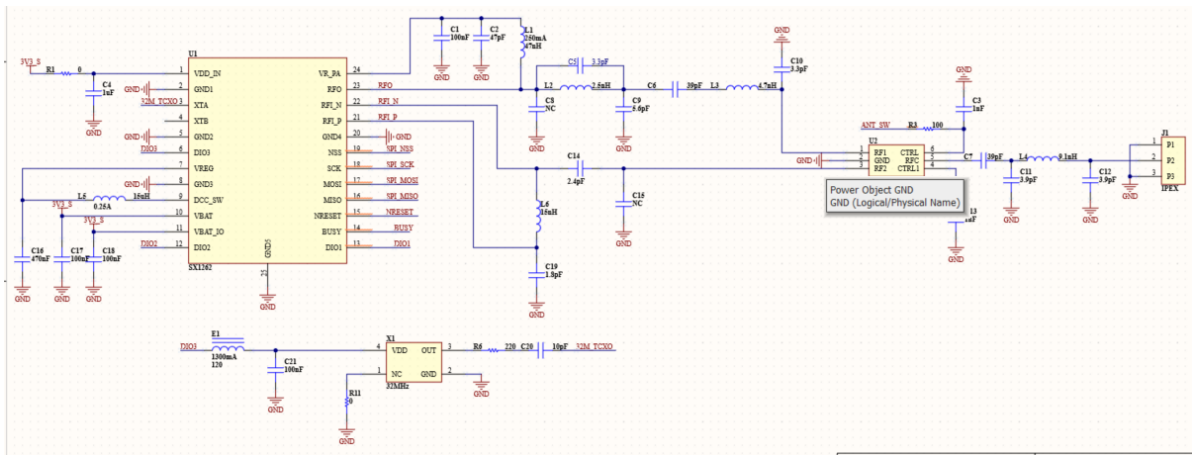


Oscillator



SX1262

1. Use DC-DC Converter as default
2. J1 is a IPEX Connector for Lora antenna



History

Date	Version	Description
2021-11-2	V1.0	Initial
2022-1-20	V1.1	Change LoRaWAN Specification compliant to 1.0.2