

# RAK19002 WisBlock Boost Module Datasheet

## Overview

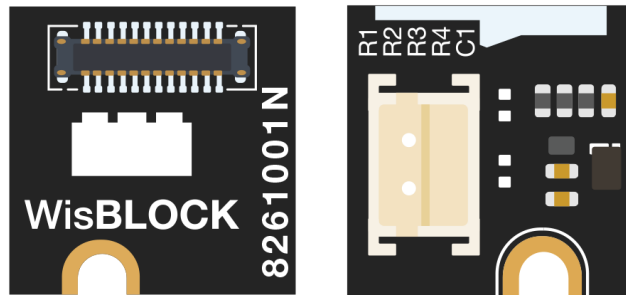


Figure 1: RAK19002 WisBlock Boost Module

## Description

The RAK19002 is a step-up boost regulator module, part of the RAKwireless WisBlock Series. The module can supply 12 V/50 mA and could be mounted on the WisSensor slot of RAK5005-O. The output voltage of the module is controlled by **WisBlock Core** IO pin.

## Features

- TPS61046 step-up boost converter
- Input voltage: 3.3 V
- Output voltage: 12 V
- Up to 85% efficiency at 3.6 V input and 12 V output
- $\pm 2$  % output voltage accuracy
- 50 mA output current
- Chipset: Texas Instruments TPS61046
- Module size: 10 x 10 mm

## Specifications

### Overview

### Mounting

The RAK19002 module can be mounted on the slots A, B, C or D of the WisBase board. **Figure 2** shows the mounting mechanism of the RAK19002 on a WisBase module, such as the RAK5005-O.

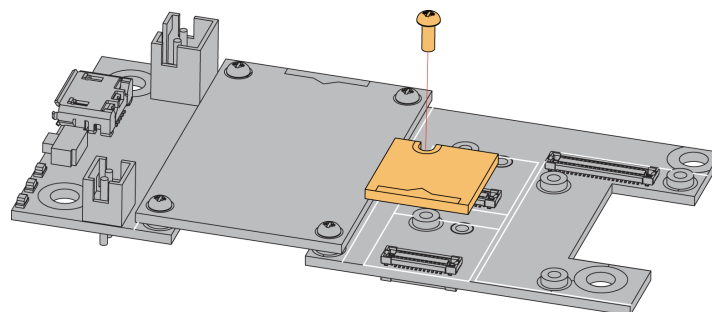


Figure 2: RAK19002 WisBlock boost module mounting

## Hardware

The hardware specification is categorized into five parts that cover the chipset and pinouts and the corresponding functions and diagrams of the board. It also presents the parameters and their standard values in terms of electrical and mechanical.

## Chipset

Vendor	Part number
Texas Instruments	TPS61046

## Pin Definition

The RAK19002 WisBlock boost module comprises a standard WisSensor connector. The WisSensor connector allows the RAK19002 module to be mounted on a WisBlock baseboard, such as RAK5005-O. The pin order of the connector and the pinout definition is shown in **Figure 3**.

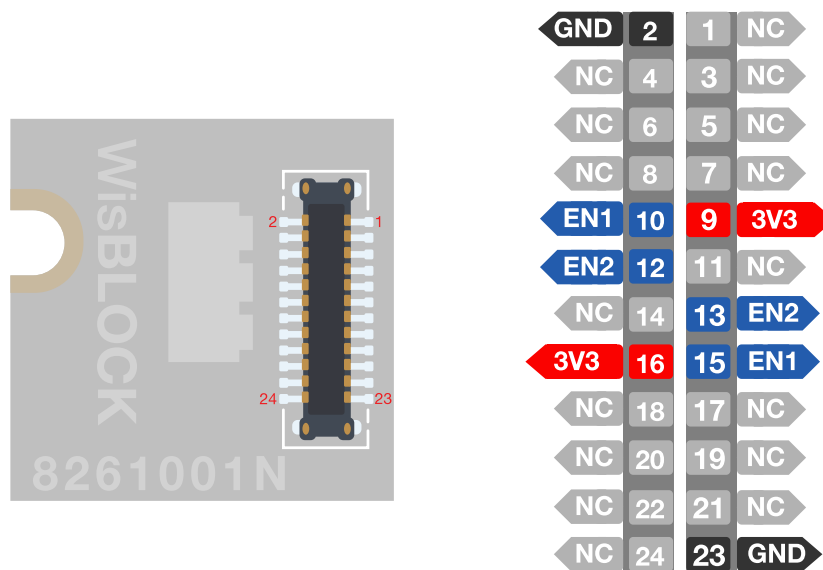


Figure 3: RAK19002 WisBlock Boost Module Pinout

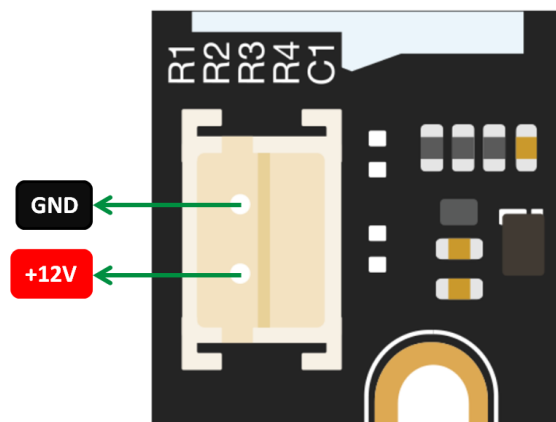


Figure 4: RAK19002 power pins

The following table shows default IO used for different slots:

SLOT A	SLOT B	SLOT C	SLOT D
IO1	IO2	IO3	IO5

**NOTE:**

- Only one **IO** (as a IC enable pin), **VDD**, and **GND** are connected to this module.
- Connect R1 or R3 resistor to select the **IO** pin. Check the schematic diagram in **Figure 7**.
- The slot B is not recommended because the IO2 pin is used to control power supply 3V3\_S on WisBase RAK5005-O.
- The maximum recommended current is 50 mA ( $V_{IN}=3.3\text{ V}$ ).

## Electrical Characteristics

### Recommended Operating Conditions

Symbol	Description	Min.	Nom.	Max.	Unit
$V_{IN}$	Input voltage	2.7	3.3	3.6	V
$V_{OUT}$	Output voltage	-	12	-	V
$I_{OUT}$	Output current	-	-	50	mA
$I_{SD}$	Shutdown current (IC disable)	-	-	0.8	$\mu\text{A}$

## Mechanical Characteristic

### Board Dimensions

Figure 5 shows the dimensions and the mechanic drawing of the RAK19002 module.

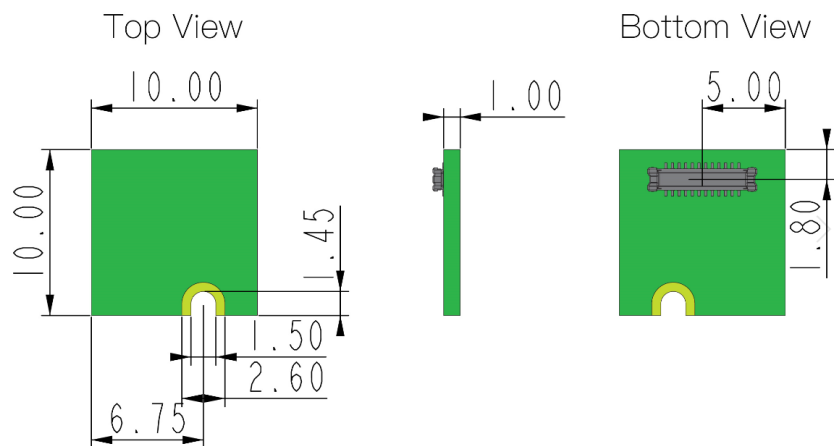


Figure 5: RAK19002 WisBlock Boost Module Mechanic Drawing

## WisConnector PCB Layout

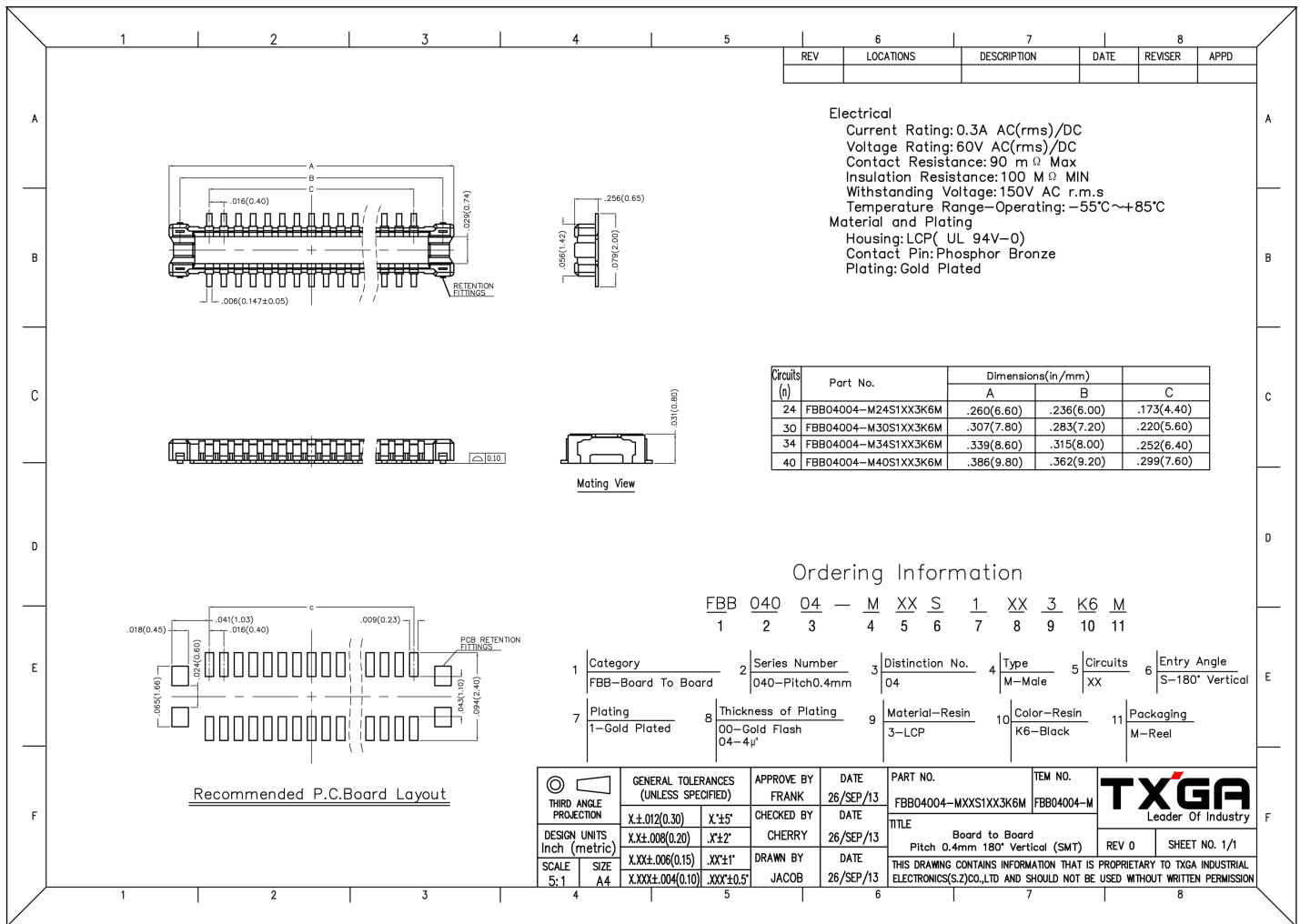


Figure 6: WisConnector PCB footprint and recommendations

## Schematic Diagram

Figure 7 shows the schematic of RAK19002 boost module.

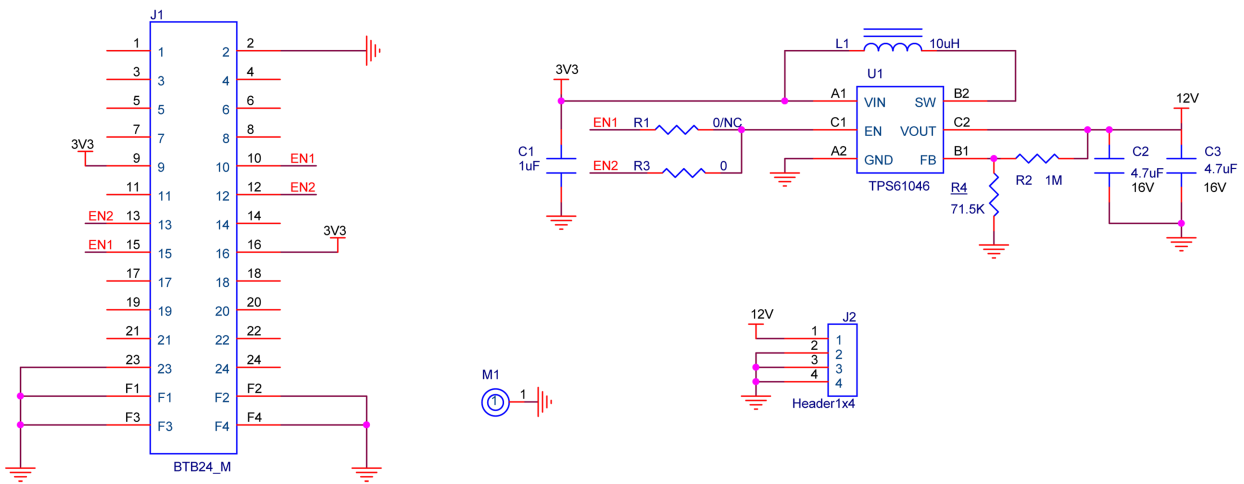


Figure 7: RAK19002 WisBlock Boost Module Schematic