

RAK18000 WisBlock PDM Stereo Microphone Module Datasheet

Overview

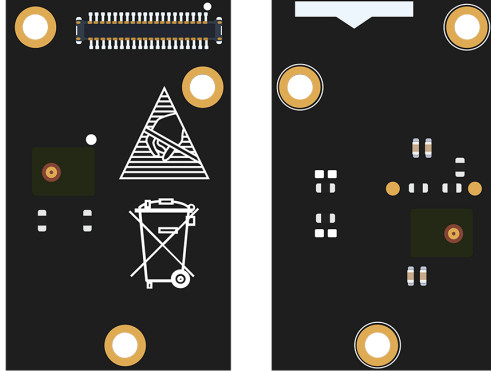


Figure 1: RAK18000 PDM Stereo Microphone Module

Description

RAK18000 is a **WisBlock Sensor** module that extends the **WisBlock** system with sound sensing capability. It is based on two MP34DT06J microphone modules.

The RAK18000 is a digital microphone module that is designed to detect sounds and to support left and right channels. It is also capable of changing microphone orientation on the left or right channel through the switch resistor.

Features

- **Module Specifications**
 - Voltage Supply: 3.3 V
 - Current Consumption: 5 μ A to 650 μ A
 - Chipset: ST MP34DT06J
 - 64 dB signal-to-noise ratio
 - -26 dBFS \pm 1 dB sensitivity
 - Stereo microphone 2 x MP34DT06J
 - Low power consumption
- **Size**
 - 25 x 15 mm

Specifications

Overview

Mounting

The RAK18000 WisBlock PDM Stereo Microphone Module can be mounted to the IO slot of the [WisBlock Base](#) board. **Figure 2** shows the mounting mechanism of the RAK18000 on a WisBlock Base module.

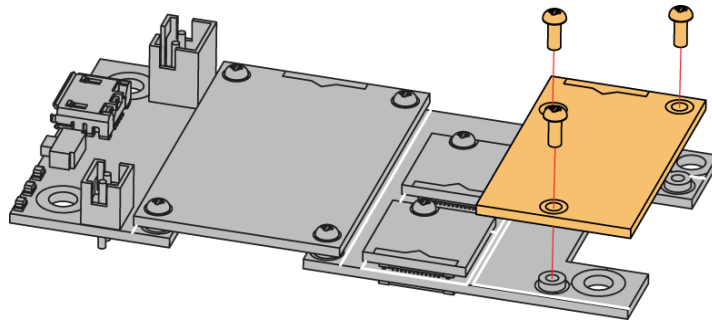


Figure 2: RAK18000 PDM Stereo Microphone Module Mounting

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 acoustic, electrical, and mechanical.

Chipset

Vendor	Part number
ST	MP34DT06J

Pin Definition

The RAK18000 WisBlock PDM Stereo Microphone Module comprises a standard WisBlock connector. The WisBlock connector allows the RAK18000 module to be mounted to a WisBlock Base board. The pin order of the connector and the pinout definition is shown in **Figure 3**.

NOTE:

DMIC1, DMCLK, 3V3, and GND are connected to WisConnector.

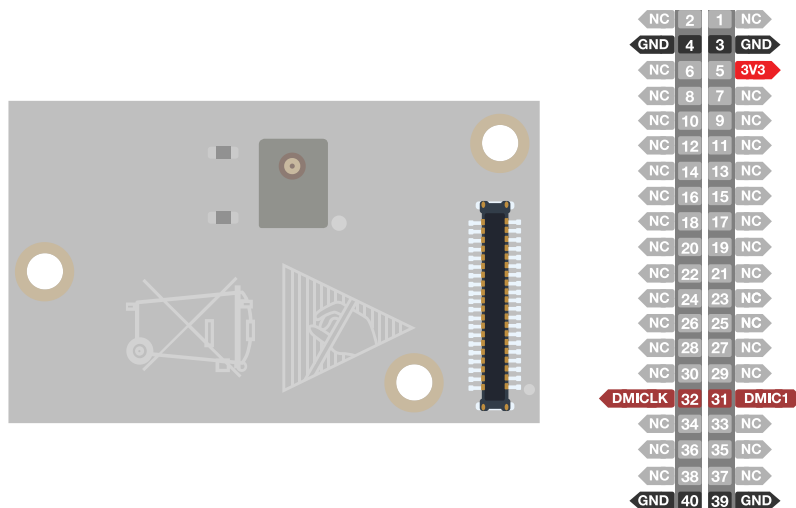


Figure 3: RAK18000 PDM Stereo Microphone Module Pinout Diagram

Acoustic and Electrical Characteristics

The table below shows RAK18000 digital microphone module acoustic and electrical characteristics:

Symbol	Description	Min.	Nom.	Max.	Unit
V _{DD}	Supply Voltage	1.6	3.3	3.6	V

Symbol	Description	Min.	Nom.	Max.	Unit
I _{DD}	Current consumption in normal mode	-	650	-	μA
I _{ddPdn}	Current consumption in power-down mode	-	-	5	μA
AOP	Acoustic Overload Point	-	122.5	-	dB SPL
SNR	Signal-to-Noise Ratio	-	64	-	dB
Clock	Input clock frequency	1.2	2.4	3.25	MHz
T _{op}	Operating temperature range	-40	-	+85	°C

Mechanical Characteristic

Board Dimensions

Figure 4 shows the dimensions and the mechanical drawing of the RAK18000 module.

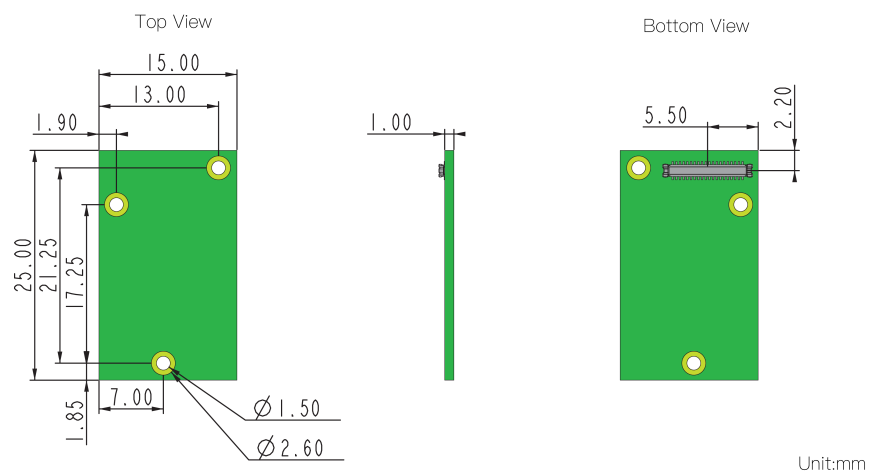


Figure 4: RAK18000 PDM Stereo Microphone Module Mechanical Drawing

WisConnector PCB Layout

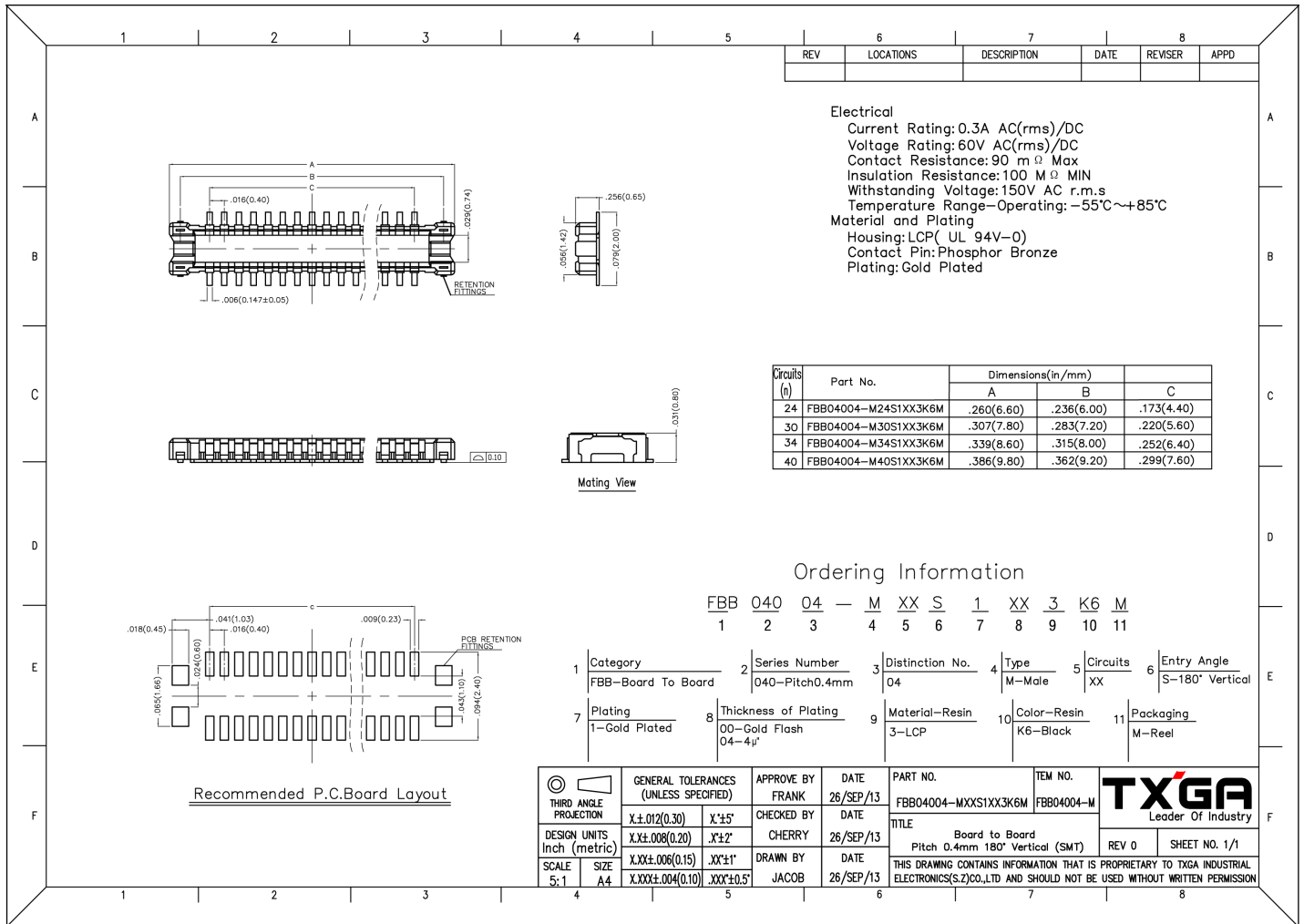


Figure 5: WisConnector PCB footprint and recommendations

Schematic Diagram

WisConnector Connection

Figure 6 shows the WisConnector connection and the digital microphone data line connected to IO3 and the clock line connected to IO4.

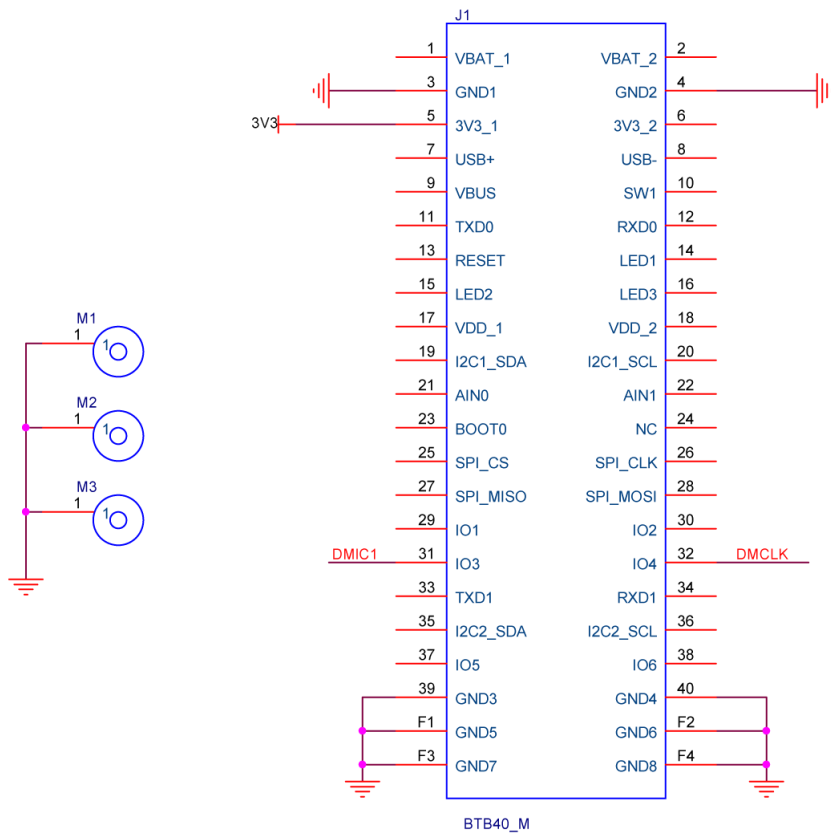


Figure 6: RAK18000 PDM Stereo Microphone Module Connection

Digital Microphone

Figure 7 shows the schematic of RAK18000. The two digital microphones, left or right channel, can be switch through R6, R7, R8, and R9.

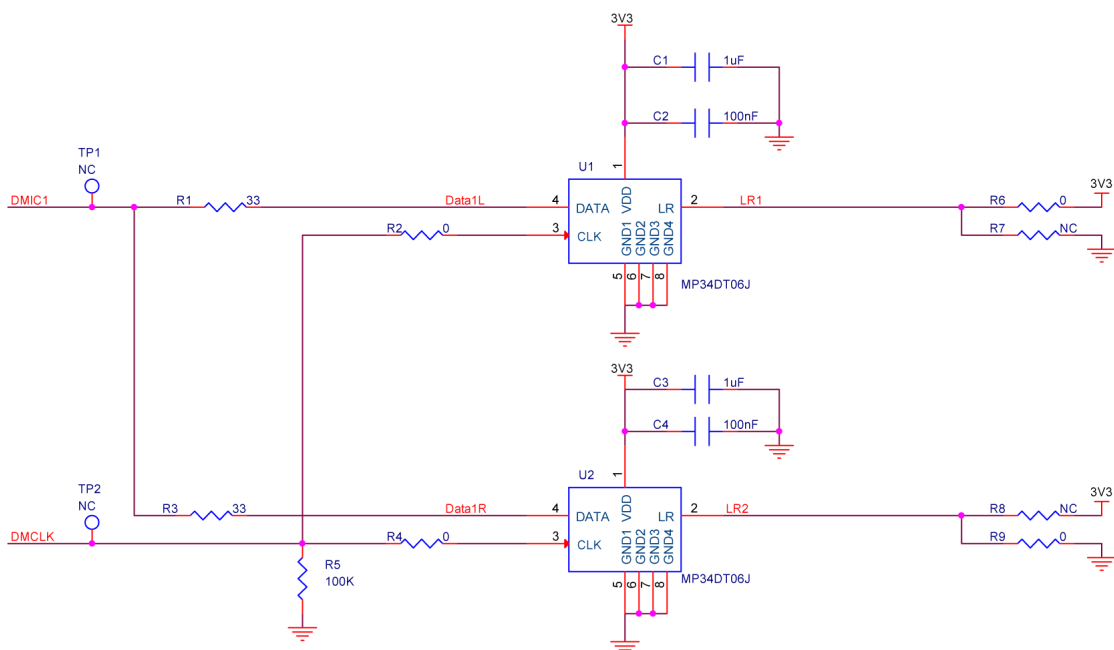


Figure 7: RAK18000 PDM Stereo Microphone Module Schematic

