

RAK13006 WisBlock CAN Module Datasheet

Overview

Description

RAK13006 is a CAN Bus communication module based on the MCP2518FD CAN controller and ATA6563 CAN transceiver both from Microchip. The MCP2518FD is the CAN chip that communicates to WisBlock Core MCU via SPI up to 17 MHz SPI Clock Speed and ATA6563 is the low-level physical layer chip that provides a physical connection with the CAN bus communication lines. It supports both CAN 2.0B and CAN FD with an arbitration bit rate up to 1 Mbps. This WisBlock Interface module is ideal for industrial and automotive applications.

Features

- Based on MCP2518FD and ATA6563
- Arbitration Bit Rate up to 1 Mbps
- ISO11898-2:2016 and SAEJ2962-2 Compliant
- Configurable terminal resistance on CANH and CANL lines via slide switch
- Operating temperature: **-40 °C ~ 85 °C**
- Size: 25 x 35 mm

Specifications

Overview

Mounting

The RAK13006 module can be mounted on the IO Slot of a WisBlock Base board. **Figure 1** shows the mounting mechanism of the RAK13006 on a WisBlock Base board, such as the RAK5005-O, and **Figure 2** shows the terminal crimp connector.

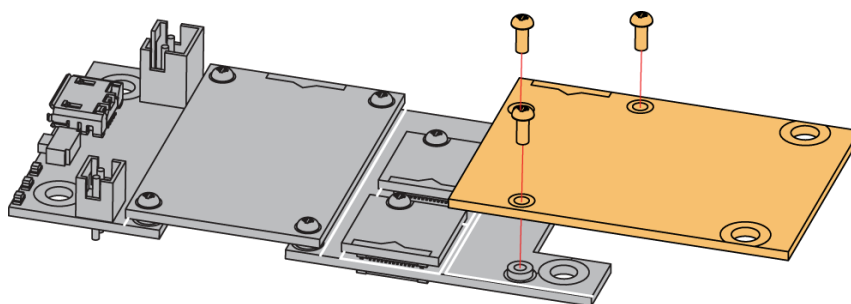


Figure 1: RAK13006 WisBlock CAN Module mounting

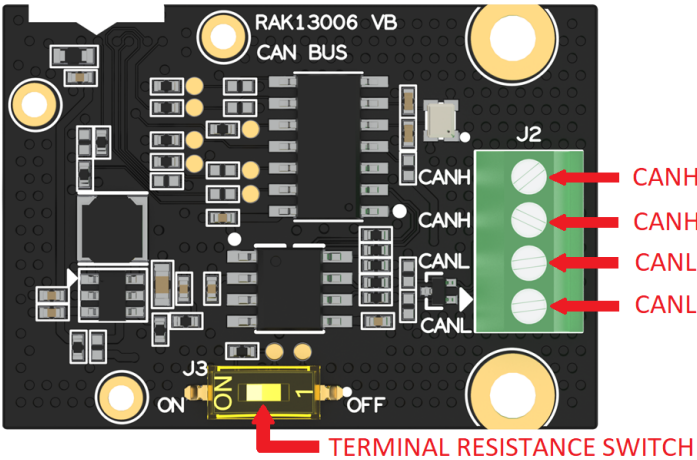


Figure 2: RAK13006 Crimp Terminal Connector and Terminal Resistance Switch

Hardware

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

Chipset

Vendor	Part Number
Microchip (CAN Controller)	MCP2518FD
Microchip (CAN PHY Transceiver)	ATA6563

Pin Definition

The RAK13006 WisBlock CAN module comprises a standard 40-pin WisConnector. The WisBlock 40-pin connector allows the RAK13006 module to be mounted on a WisBlock Base board. The pin order of the connector and the pinout definition is shown in **Figure 3**.

 **NOTE:**

- 3V3_S supply pin
- SPI-related pins
- IO5 connected to interrupt pin

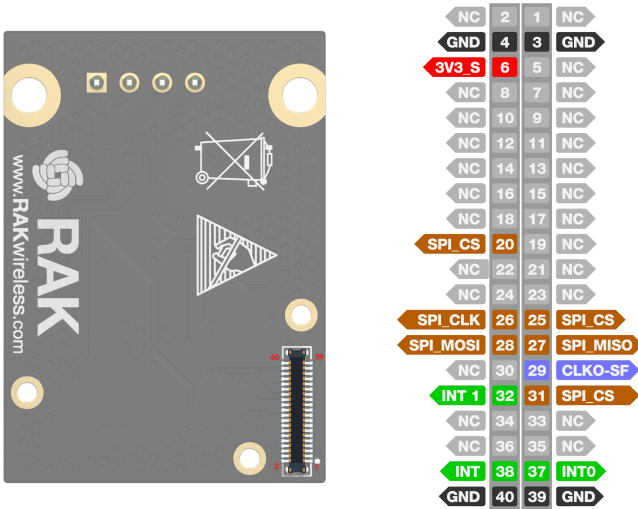


Figure 3: RAK13006 WisBlock CAN Module pinout diagram

Electrical Characteristics

Operating Conditions

MCP2518FD

Symbol	Description	Min.	Nom.	Max.	Unit
VDD	Supply voltage range	2.7	-	5.5	V
Idd	Active Current	-	15	20	mA
Idds	Sleep Current	-	15	60	uA

ATA6563

Symbol	Description	Min.	Nom.	Max.	Unit
VCC	Supply voltage range	4.5	-	5.5	V
Ivcc_stby	Standby Mode Current	-	7	12	uA
Ivcc_sil	Silent Mode Current	1.9	2.5	3.2	mA
Ivcc_rec	Normal Mode Current (recessive)	2.0	-	5.0	mA
Ivcc_dom	Normal Mode Current (dominant)	30	50	70	mA

Mechanical Characteristic

Board Dimensions

Figure 4 shows the dimensions and the mechanic drawing of the RAK13006 module.

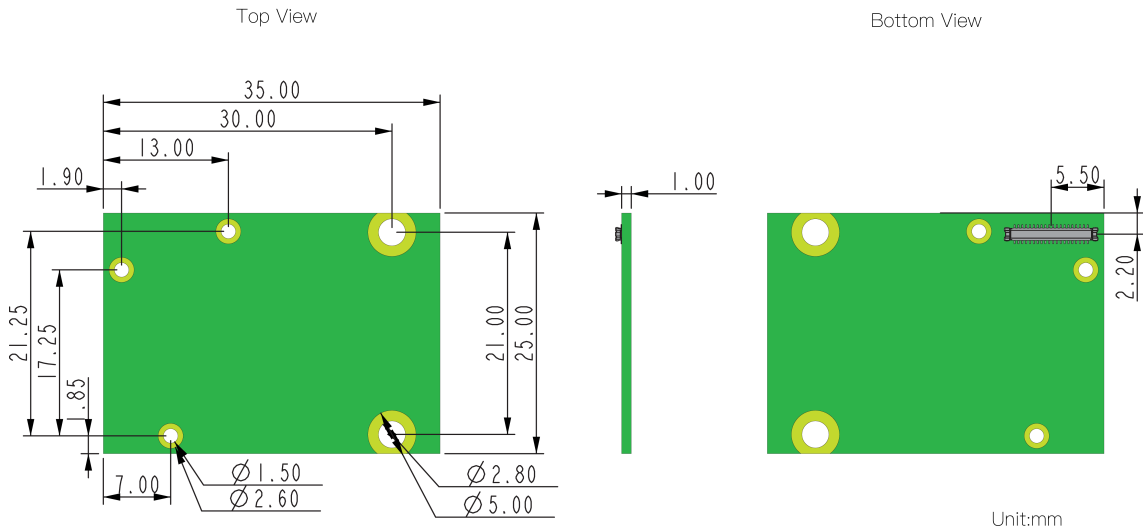


Figure 4: RAK13006 WisBlock CAN Module mechanic drawing

WisConnector PCB Layout

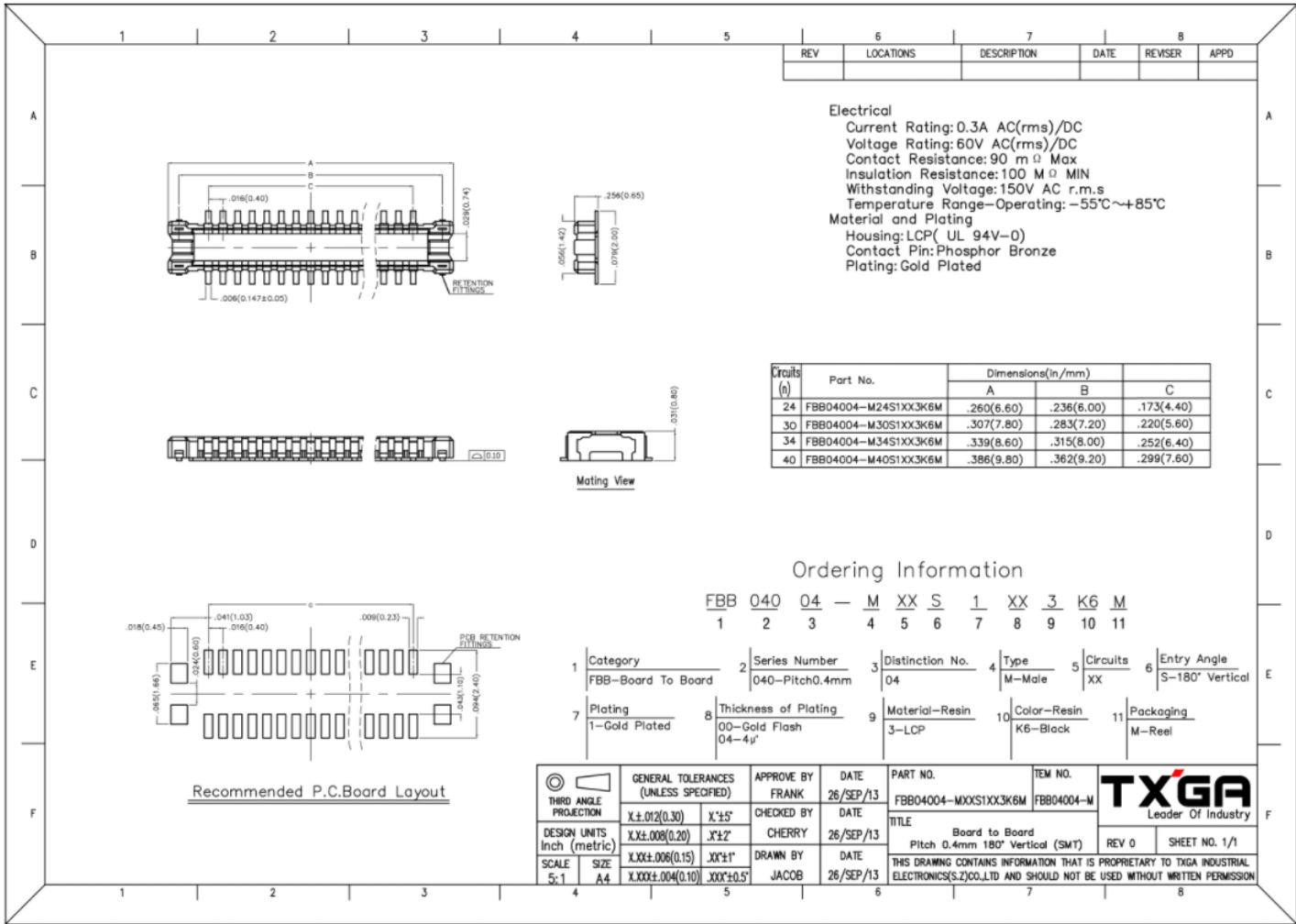


Figure 5: WisConnector PCB footprint and recommendations

Schematic Diagram

- CAN Controller and CAN PHY Transceiver:

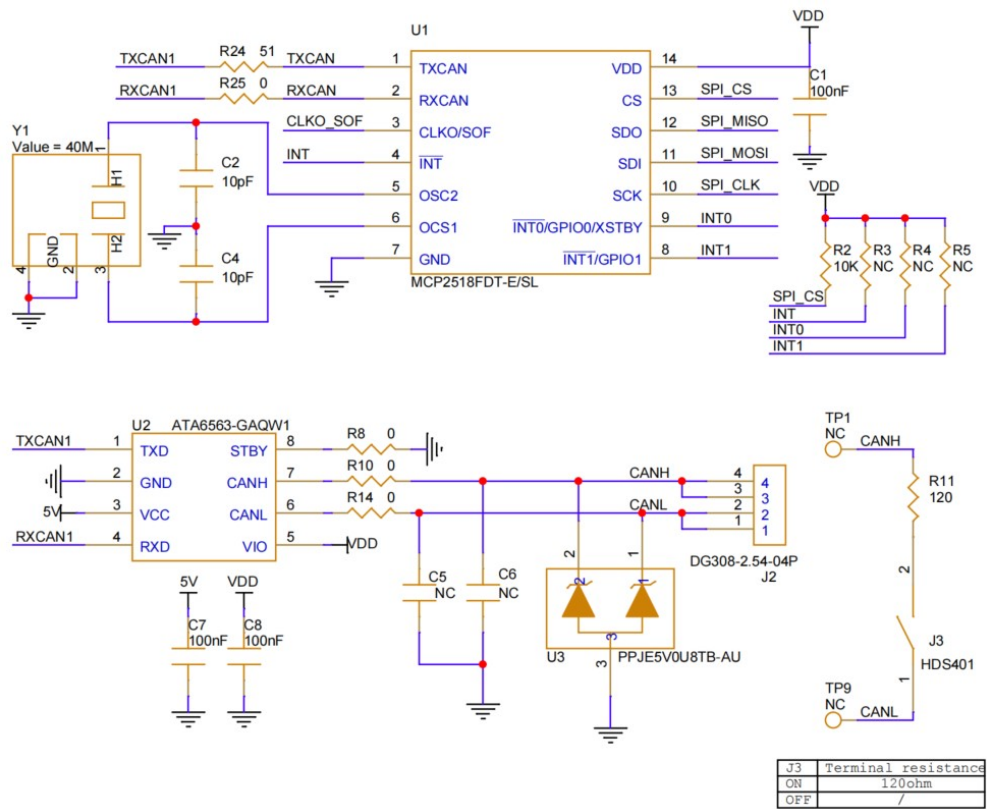


Figure 6: RAK13006 CAN controller and transceiver

- 5-V Boost converter for CAN PHY transceiver voltage supply:

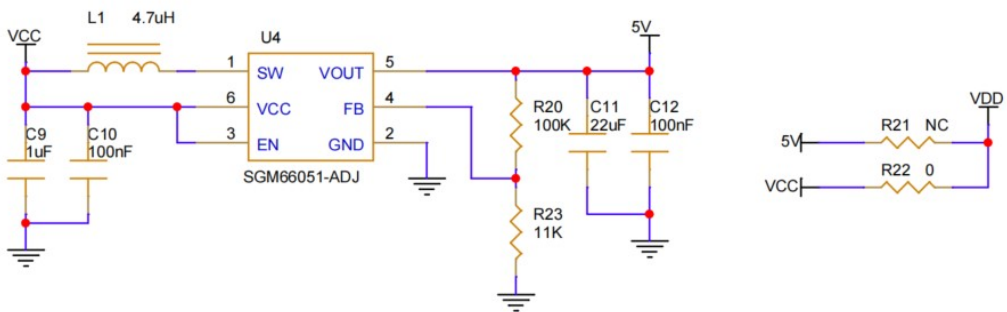


Figure 7: 5V Boost