Rajguru Electronics (I) Pvt. Ltd.

MCP2515 CAN Bus Module

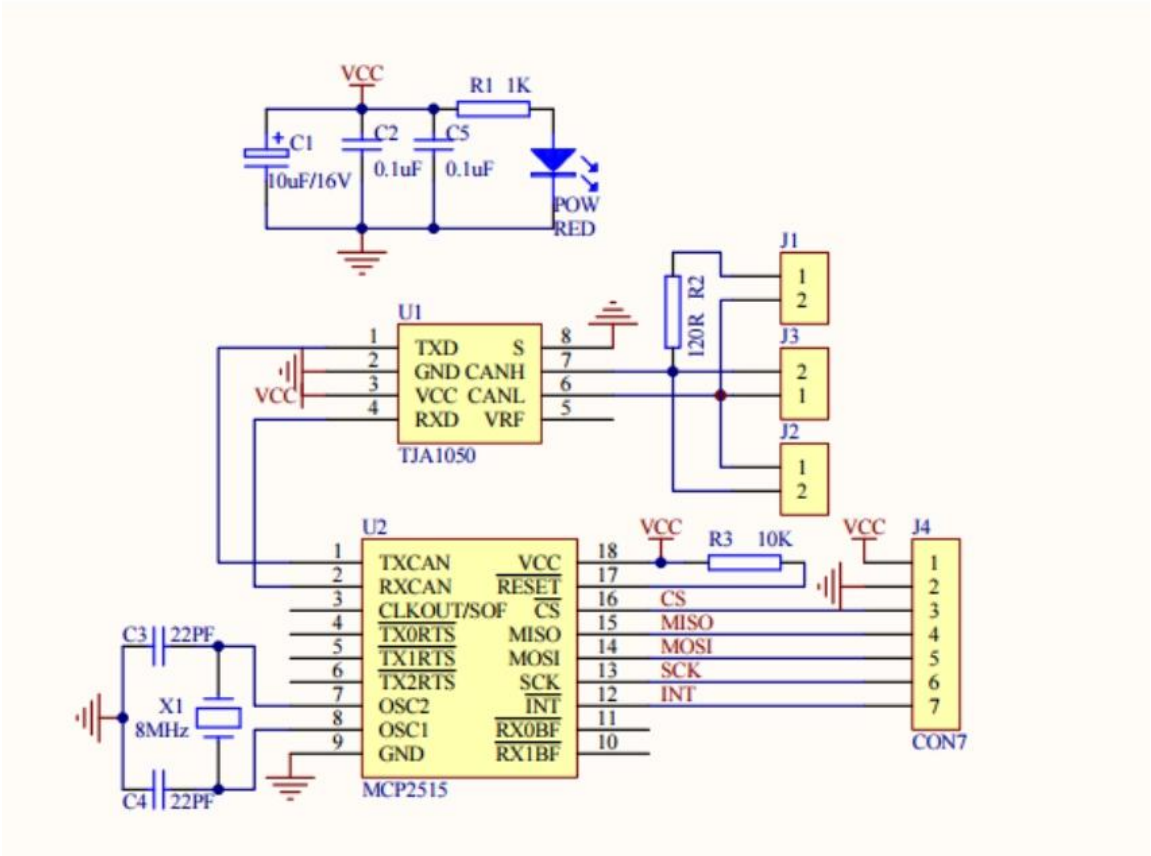
This is a easy to use CAN bus module controlled via SPI Interface. It contains CAN Controller MCP2515 and TJA1050 which is a high speed CAN trans-receiver. This module can be esaily interfaced to any microcontroller via SPI Interface. It can also be interfaced to Arduino and Raspberry PI.

SPECIFICATIONS:

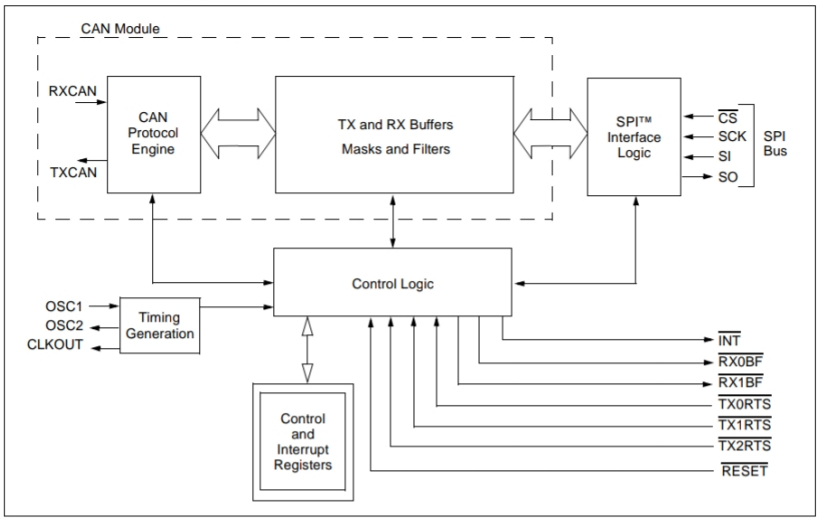
- Support CAN V2.0B technical standard, communication rate 1Mb/S.
- Use High-speed CAN transceiver TJA1050
- Dimension: 40×28mm
- SPI control for expand Multi CAN bus interface
- 8MHZ crystal oscillator
- 120Ω terminal resistance
- Module 5V DC power supply.
- 0 to 8 bytes long data field.

- Impedance matching, guaranteed drive capability, long-distance data transmission, prevent signal radiation
- The working current: typical 5mA, standby current 1 microamp. Except for the power indicator.
- Use serial port could view the communication data
- With the independent key, LED indicator, Power indicator
- With power pin
- Standard frames, extended frames, and remote frames.
- Positioning screw hole center spacing 23 mm x 38 mm

SCHEMATIC DIAGRAM:



FUNCTIONAL DESCRIPTION:



The MCP2515 is a stand-alone CAN controller developed to simplify applications that require interfacing with a CAN bus. A simple block diagram of the MCP2515 is shown in Figure 1-1. The device consists of three main blocks:

1. The CAN module, which includes the CAN protocol engine, masks, filters, transmit and receive buffers.
2. The control logic and registers that are used to configure the device and its operation.

3. The SPI protocol block.

- CAN Module:

  The CAN module handles all functions for receiving and transmitting messages on the CAN bus. Messages are transmitted by first loading the appropriate message buffer and control registers. Transmission is initiated by using control register bits via the SPI interface or by using the transmit enable pins. Status and errors can be checked by reading the appropriate registers. Any message detected on the CAN bus

ischecked for errors and then matched against the user-defined filters to see if it should be moved into one of the two receive buffers.

- Control Logic:
  The control logic block controls the setup and operation of the MCP2515 by interfacing to the other blocks in order to pass information and control. Interrupt pins are provided to allow greater system flexibility. There is one multi-purpose interrupt pin (as well as specific interrupt pins) for each of the receive registers that can be used to indicate a valid message has been received and loaded into one of the receive buffers. Use of the specific interrupt pins is optional. The general purpose interrupt pin, as well as status registers (accessed via the SPI interface), can also be used to determine when a valid message has been received. Additionally, there are three pins available to initiate immediate transmission of a message that has been loaded into one of the three transmit registers. Use of these pins is optional, as initiating message transmissions can also be accomplished by utilizing control registers, accessed via the SPI interface.
- SPI Protocol Block:
  The MCU interfaces to the device via the SPI interface. Writing to, and reading from, all registers is accomplished using standard SPI read and write commands, in addition to specialized SPI commands.

PIN FUNCTION:

- VCC :5V power input pin
- GND : power ground pin
- CS : SPI SLAVE select pin (Active low)
- SO : SPI master input slave output lead
- SI : SPI master output slave input lead
- SCLK: SPI clock pin
- INT: MCP2515 interrupt pin

Interface:

- J1 120R resistor terminal selection
- J2 CANH, CANL KF301-2P block output
- J3 CANH, CANL pin output

PACKAGE INCLUDES:

1x MCP2515 CAN Bus Module TJA1050 Receiver SPI Protocol 51 Single Chip Micro-controller Program Routine.