

Demo Board Manual

megawin

MG32F02

***CAN Demo Set-2
(MG04-09)***

Using Manual

Version 0.1

Date 2024/9/23

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1. Introduction

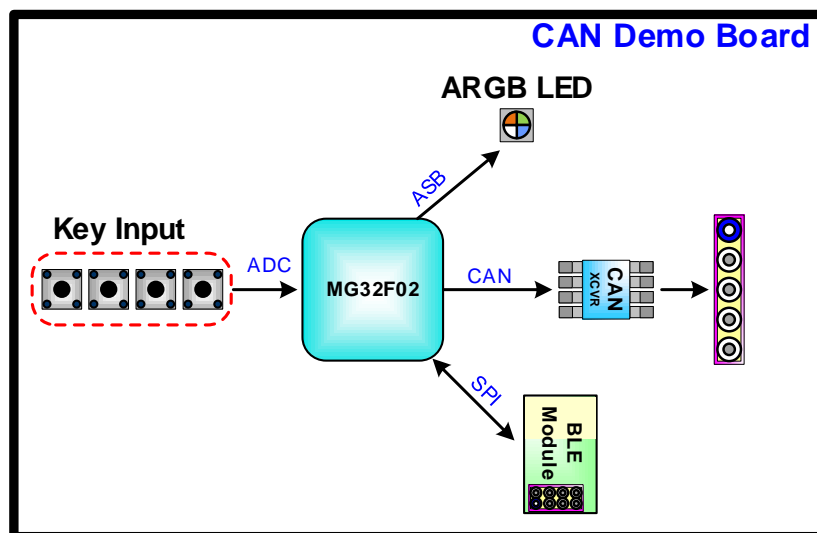
PCB Version

MG04-09(MG32F02_CAN2)

Features

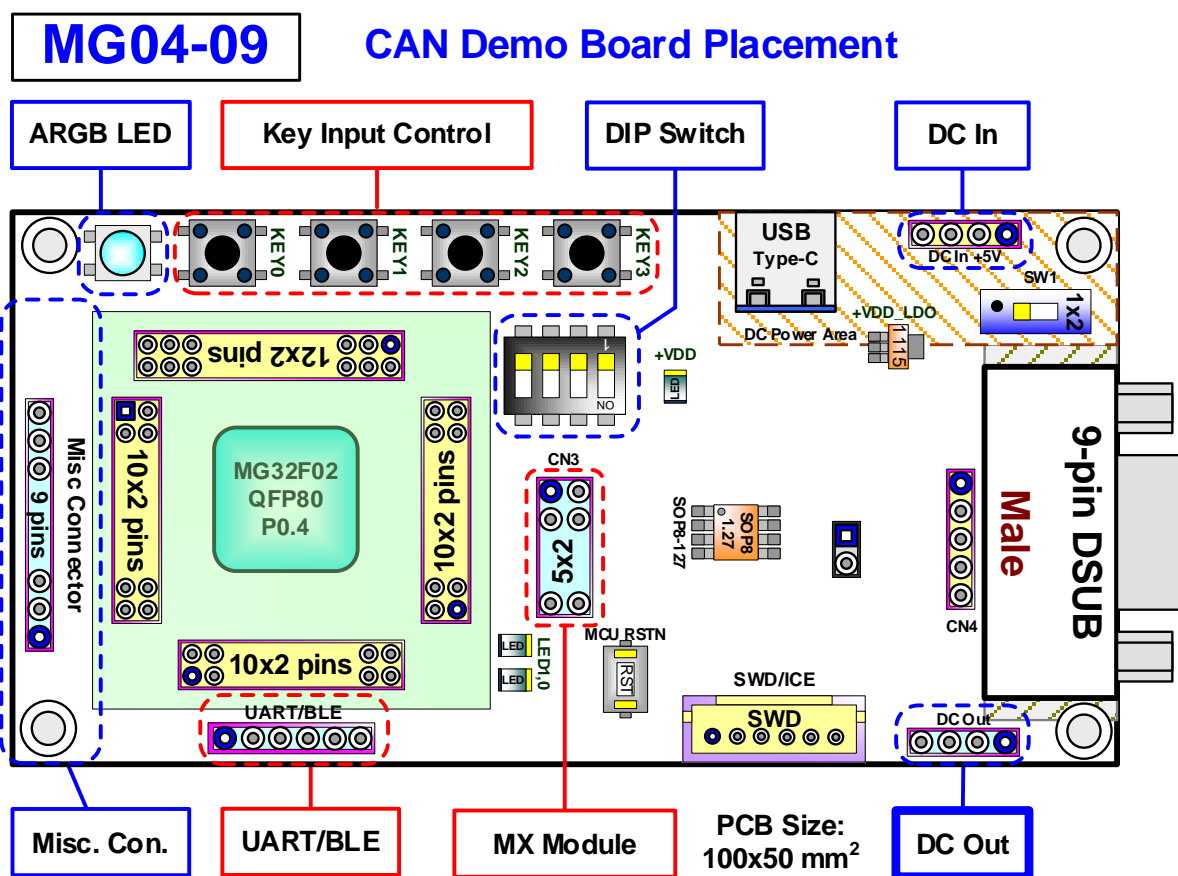
1. CAN Communication : CAN device communication with external CAN device.
(For demo set code, this board is only able to communicate with external major CAN device of MG04-08 PCB.)
2. ARGB LED Display : Display serial pattern on ARGB LED.
3. Button Key : Detect multi-key input by SARADC and show message on LCD.

System Block

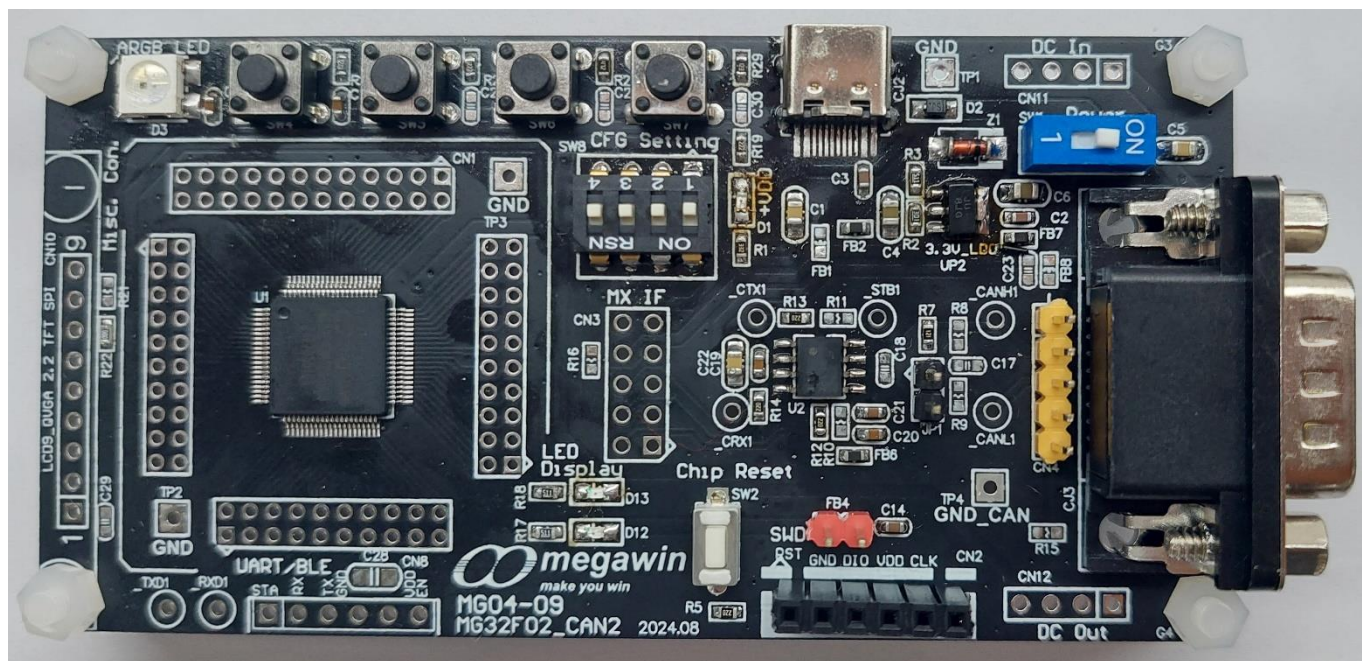


2. PCB Information

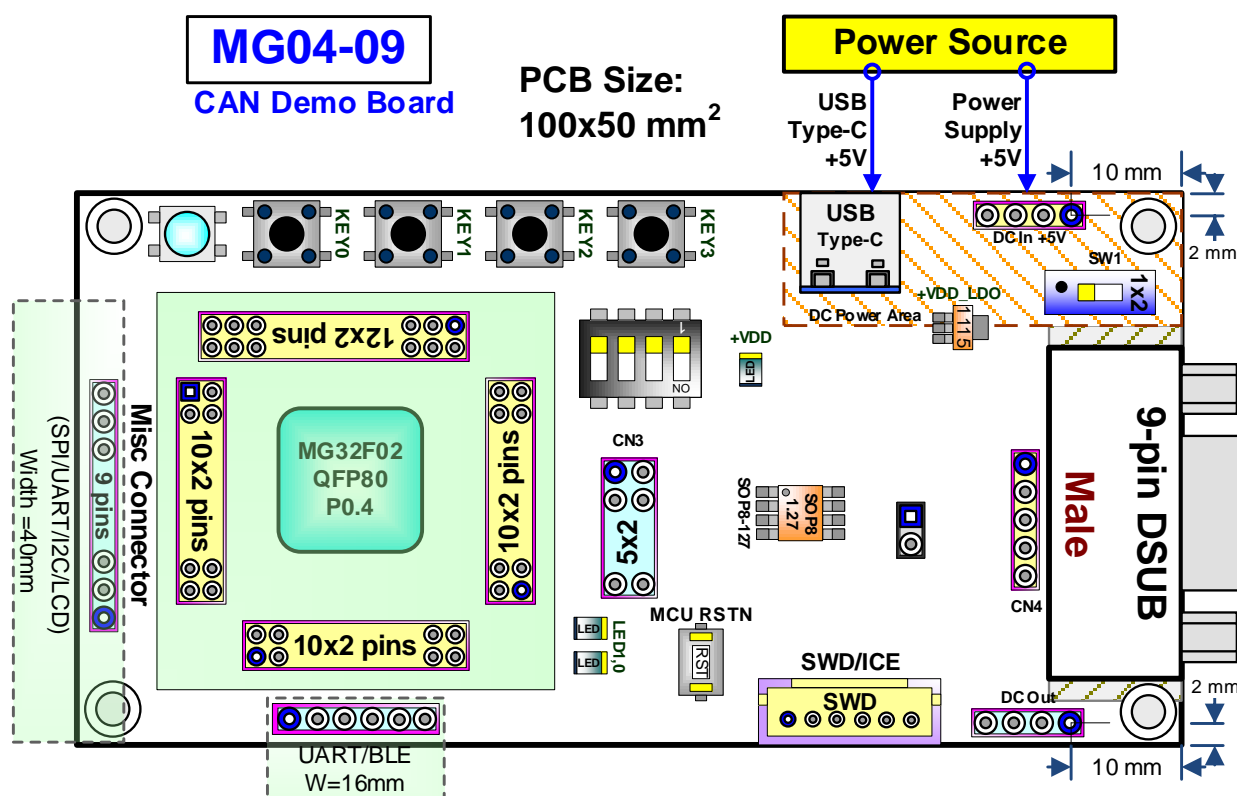
PCB Placement and Function Block Diagram



Main Board Pictures



PCB Outline and Functions

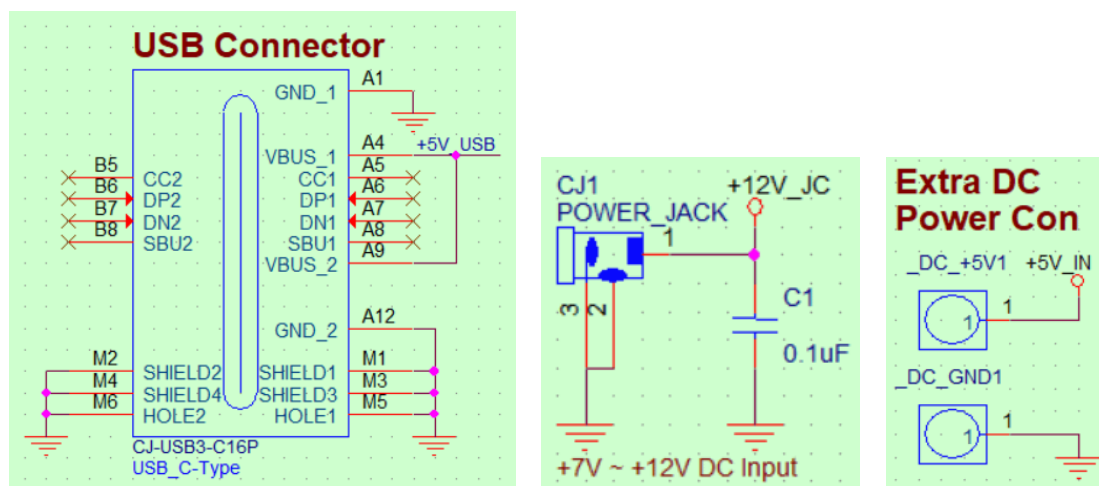


◆ DC Input Power Source

User can input +5 volt DC power to the C-type USB connector (CJ2) from external USB power source or optional on board +5V/GND connection holes from external power supply. The push button SW1 is used to turn on/off the input DC +5V power.

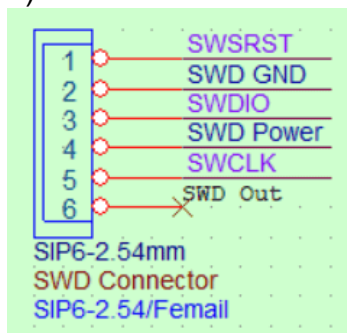
[Notify]: Please use "Type-A to Type-C" cable when power inputs from C-type connector.

These is one optional +7~12 volt DC input to the DC power jack (CJ1) from external power adapter. The input +7~12 volt DC power can also generate the +5 volt DC power by through the optional +5V_LDO power regulator.



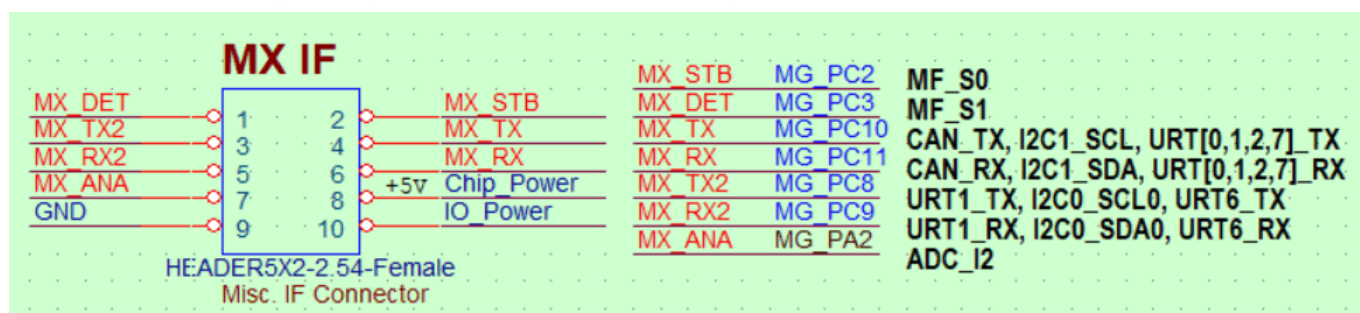
◆ SWD Connector

User can connect the MG32F02x MCU to the external SWD controller or debug ICE by through the SWD connector (CN2).



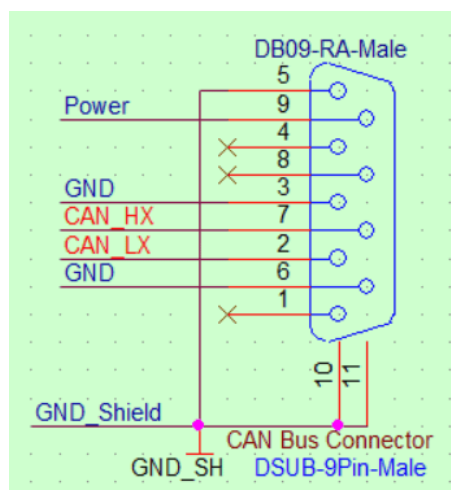
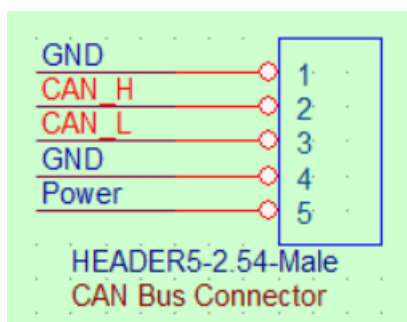
◆ MX IF Connector

User can connect the MG32F02x MCU to the external CAN XCVR device, I2C/UART device or analog voltage output device by through the MX IF connector (CN3).



◆ CAN Bus Connector

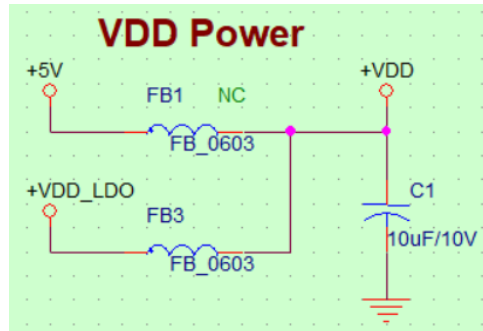
User can connect the MG32F02x MCU to the external CAN bus device by through the CAN bus connector (CN4, CJ3).



PCB Design Options

◆ VDD Power Option

The VDD power are default from +VDD_LDO. The +VDD_LDO is outputted from the UP1 LDO about +3.33 volt. Please notify the operation voltage of actual used SPI flash and BLE module.



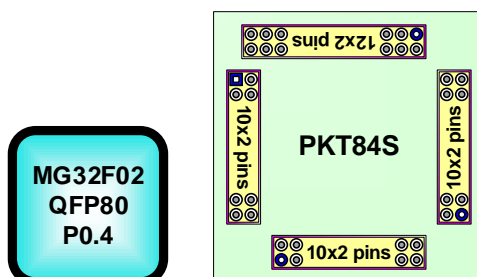
◆ CAN Bus Termination Option

JP1 : CAN bus termination resistance option

- Short : Enable on board 120 ohm termination
- Open : Disable on board 120 ohm termination

Module Board and Components

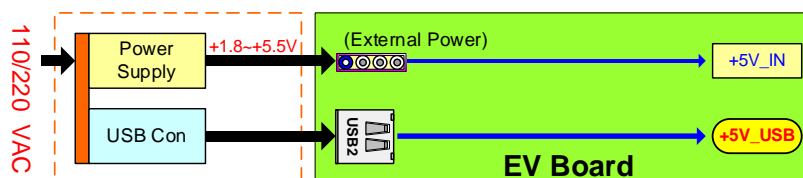
1. MG32F02Nxxx : 32-Bit ARM Cortex M0 MCU ~ directly chip on board or PKT84S MCU daughter board (MG07-03/04/05/06) option



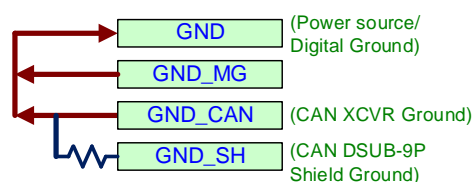
2. TCAN1462V-Q1 : CAN transceiver ~ MCU transmits or receives CAN data with external CAN bus devices by through this CAN transceiver.
3. ARGB LED : There is one on- board ARGB LED. MCU can control these LED display by through MCU ASB bus.
4. Mono LED : There are two on- board mono LED parts of LED0 and LED1.

PCB Power Connection

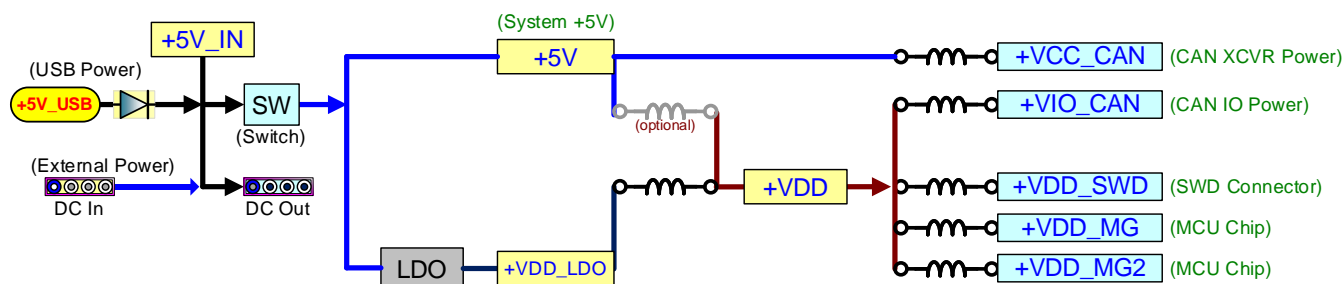
Power Supply Source Diagram



Ground Connection Diagram

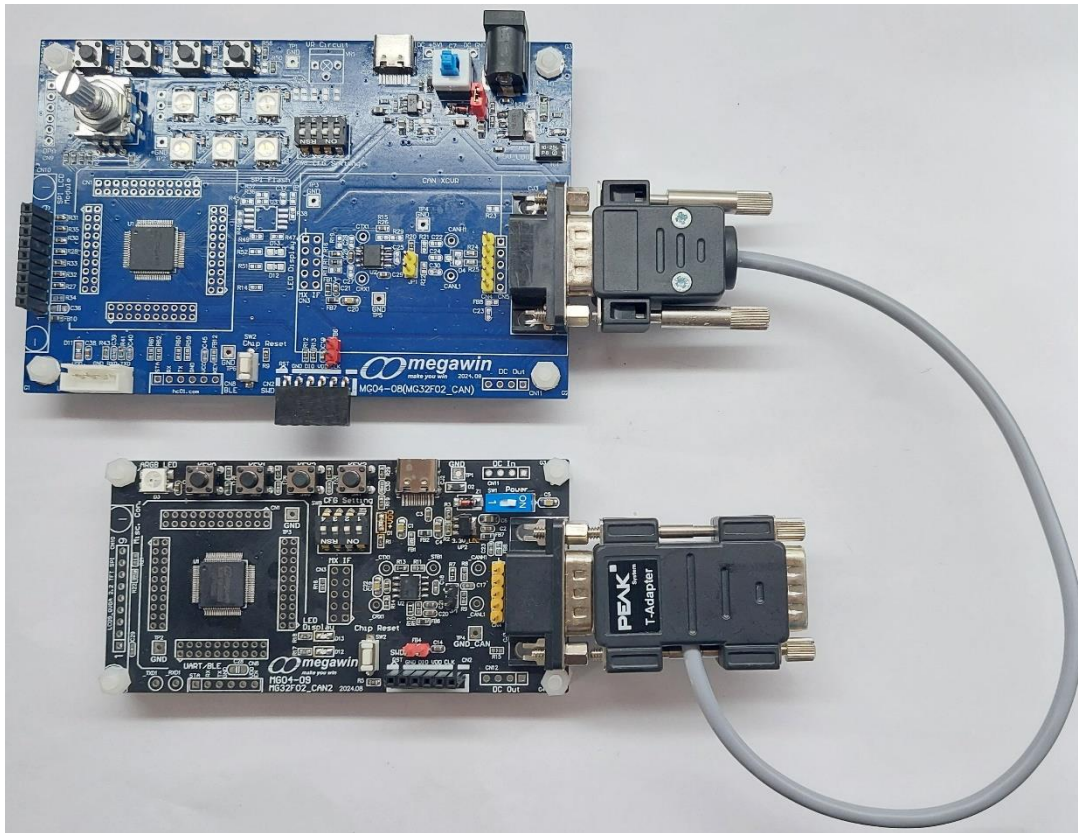


Power Connection Diagram

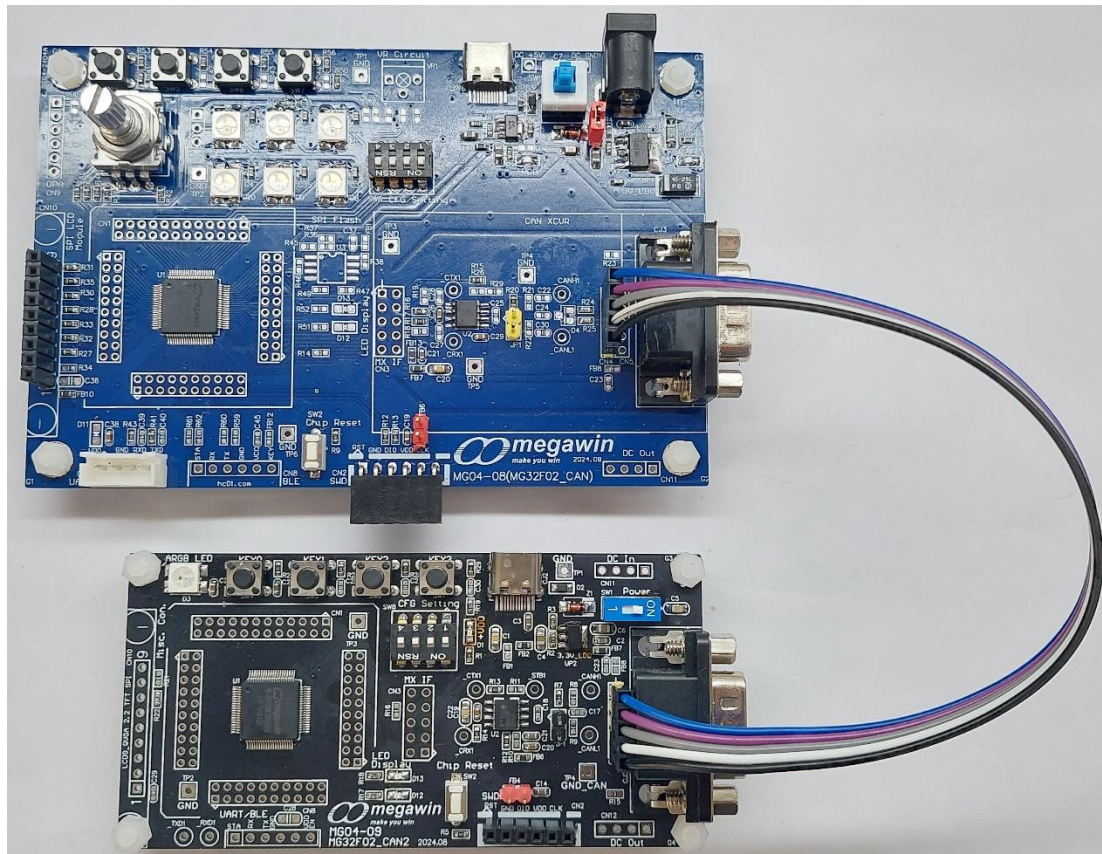


PCB Assembly and Connection

◆ MG04-08 + MG04-09 Connect with CJ3 (DB9) Connector



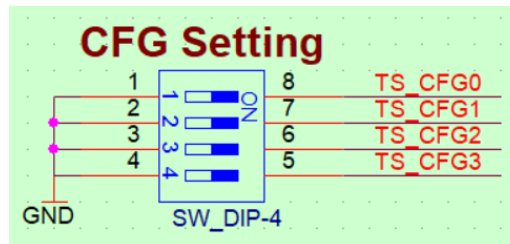
◆ MG04-08 + MG04-09 Connect with CN4 (Header5)



3. Board Function

Configure Setting

The function is setting and demonstrated by sample firmware pack.



◆ CFG0 ~ CFG2

CAN Device identification number setting {#0 ~ #6}. User can set #0 for this MG04-08 PCB and set #1 ~ #6 for other MG04-09 PCB for demo platform.

- #0 ~ This ID is set to indicate that this is the major CAN device for demo set.
- #7 ~ This ID is set to indicate that this is controlled CAN device for demo set.

◆ CFG3

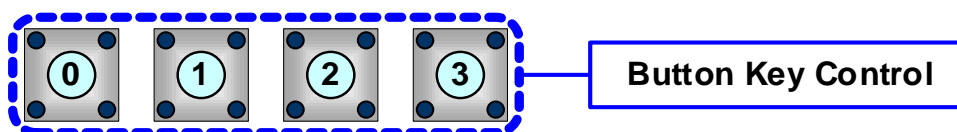
Reserved

Button Keys

The keys of 0, 1, 2 and 3 are used as CAN data and output trigger events by push-pop button-key.

User can directly press these keys to trigger CAN data transmission by single key pressed event or compound keys pressed event. When user is pressing a single key or compound keys, the chip will send the key pressed information to CAN bus. The major CAN device (MG04-08) will receive the key pressed information and show the related message on SPI LCD.

For example user presses KEY0, KEY2 and KEY3, the SPI LCD of major CAN device will show "KEY0 KEY2 KEY3". When user releases these keys, the SPI LCD of major CAN device will clear the key message.



ARGB LED Display

There is one on-board ARGB LED which can display RGB color and be set the color by external major CAN device (MG04-08 PCB). Normally, it will show **white** color with breaking display. The external major CAN device can assert command to set the RGB color of ARGB LED. Also it can assert command to do flashing display. When the on-board CAN device receives this command, it will make the ARGB LED flashing N times and recover to normal breaking display. The N value is 1 ~ 6 and equals the CAN ID number #1 ~ #6.

Mono LED Display

There are two on-board mono LED parts of LED0 and LED1. These two LED will be flashing display when MCU detects no one of external active CAN device on the CAN bus. User needs to press Chip Reset key to release this condition after other CAN device connects to this CAN bus.

- <LED0>

This mono LED can be used to indicate the communication status between on board CAN device and external major CAN device (MG04-08 PCB). When on board CAN device transmits or receives data to or from CAN bus, this LED will turn on. This LED will turn off about 1-sec after this CAN data communication start. If the CAN data communication is continuous over 1-sec, it will be continuous to turn on until the CAN data communication is ending.

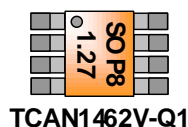
- <LED1>

Reserved.

4. Test List

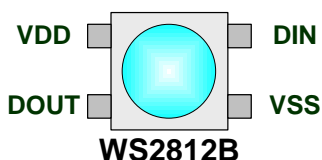
CAN Transceiver List

1. TCAN1462V-Q1



ARGB Part List

1. Worldsemi : WS2812B



5. Revision History

Revision V0.1 (2024_0923)		Chapter
1	Initial version	