EMCB-200U-MP01E CANBus Module Datasheet

CONTENTS

Revision History

Rev.	Date	History
0.1	2013/5/23	1. 1st draft
0.2	2013/6/24	1. Modify the naming rule.

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2   Page 3 of 12   Jun. 24, 2013

1. Overview

Advantech EMCB-200U CANBus module is a high-quality electronic component developed and manufactured according to the CAN networks standards. The form factor of EMCB-200U CANBus module is designed the full-size Mini PCIe & module type combo solution. The EMCB-200U is following the MiniPCIe definition and added USB pin header.

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2   Page 4 of 12   Jun. 24, 2013

2. Electrical Features

■ CANBus

– MiniPCIe form factor

– Using Microchip's PIC MCU, Stand-Alone CAN controller and TI's CAN transceiver

– CANbus connection according to ISO 11898-1, ISO 11898-2

– Compliant with 11-bit-ID (CAN 2.0A standard format) and 29-bit-ID (CAN 2.0B extended format) identifiers

– Galvanic isolation on CAN connection up to 300 V, separate for each CAN channel

– Two CAN controllers and buses. Two CAN (CAN1 and CAN2) channels with isolated

– Time-stamped CAN messages

– Bit rates up to 1 Mbit/s on each channel

– Low Power consumption

– 3 control LEDs

■ USB Interface

– Fully compliant with USB 2.0 spec.

– Reserved another USB pin header on the module

(The EMCB-200U model is ready the USB signal on both MiniPCIe side (Pin 23, 25, 31, 33) and Pin Header (USB1). While using, please kindly select only one of the two.)

– Support Control, Bulk, Interrupt and Isochronous endpoints

– Endpoint maximum packet size selection (up to USB maximum specification) by software at run time

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2 Page 5 of 12 Jun. 24, 2013

3.   Environmental Features

■ **Temperature Ranges**

  – Operating : -40℃ ~ 85℃

  – Storage : -40℃ ~ 85℃

■ **Humidity**

  – 25% ~ 95%, 40℃

■ **Random Vibration Test**

  – 5 - 500Hz, PSD 0.028G²/Hz,3.5Grms

  – 3 axes, 1 hr/per axis

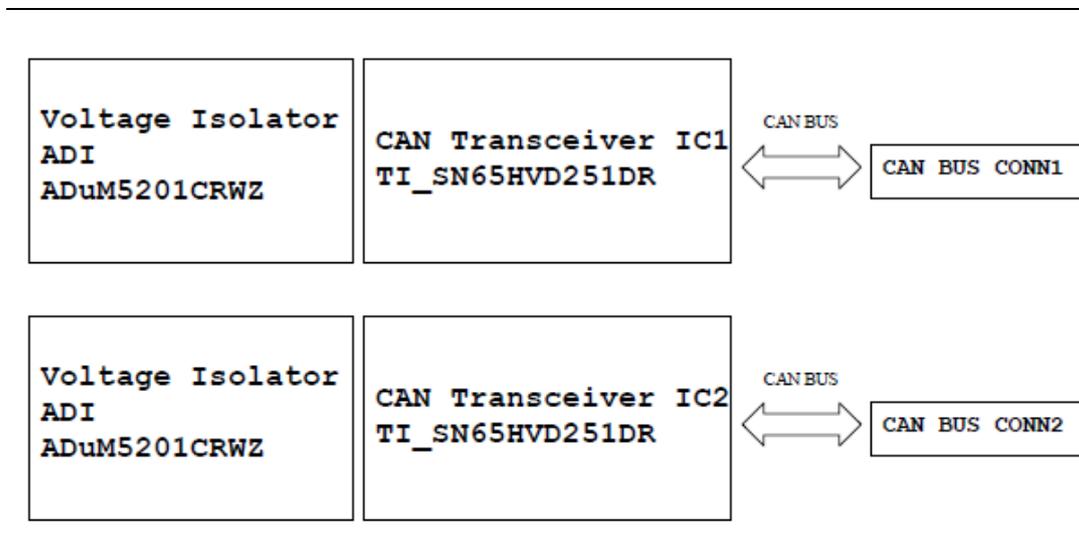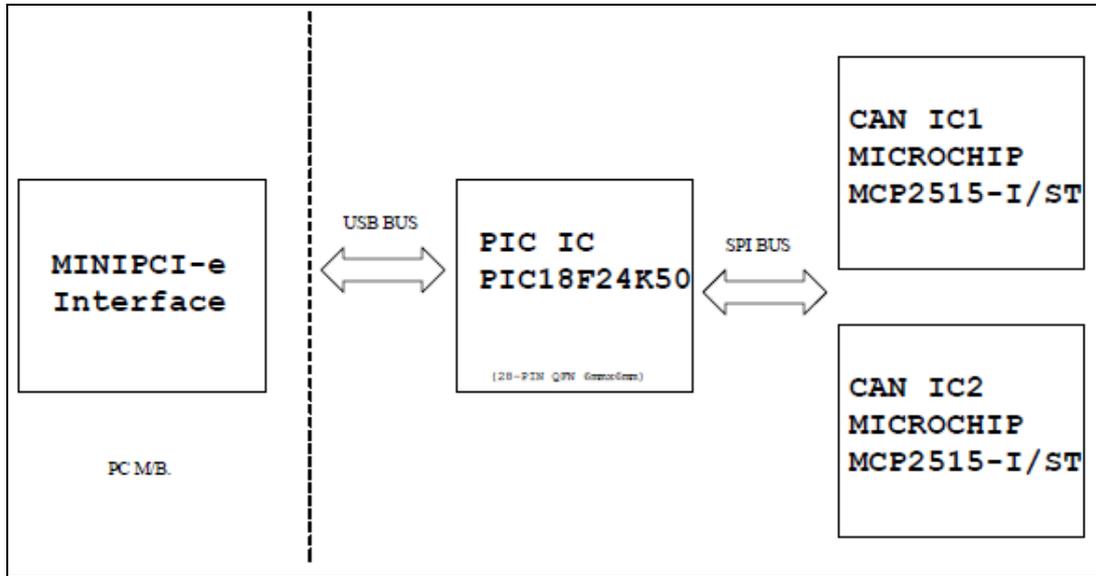■ **Acquired RoHS Certificate**

■ **Dimension：50.95 mm x 30 mm x 10 mm**

■ **Weight：30 g**

Specifications subject to change without notice, contact your sales representatives for the most update information.

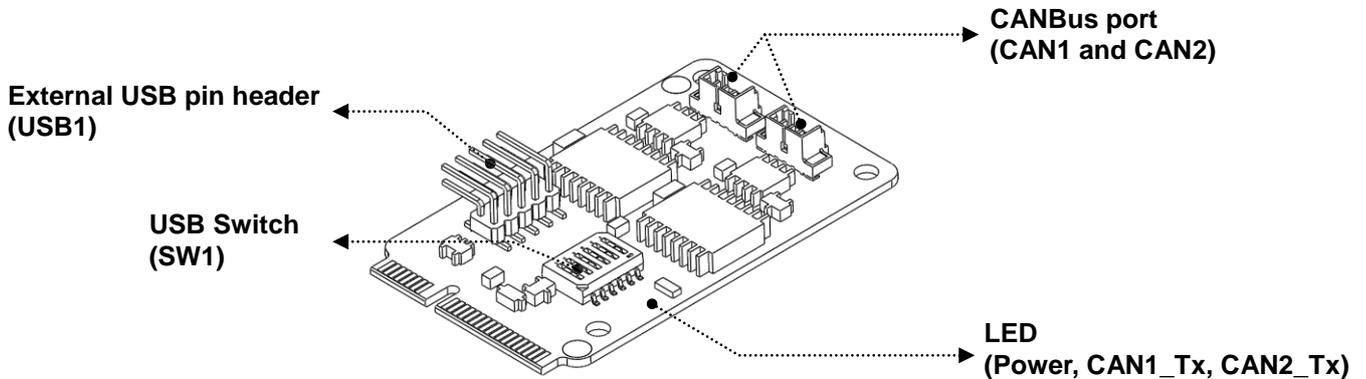REV 0.2   Page 6 of 12   Jun. 24, 2013

4. Block Diagram

Below Figure shows the operation of Advantech EMCB-200U CANBus module from the system level, including the major hardware blocks.

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2   Page 7 of 12   Jun. 24, 2013

5. Pin Assignment and Description

5.1 Connector, Switch and LED Location

CANBus port
(CAN1 and CAN2)

External USB pin header
(USB1)

USB Switch
(SW1)

LED
(Power, CAN1_Tx, CAN2_Tx)

LED #	Function
D1	Green, Power on/off LED
D2	Red, CAN-1 Tx LED
D3	Red, CAN-2 Tx LED

5.2 USB Interface Switch, SW1

The EMCB-200U have designed difference USB interface for difference usage. One is by MiniPCIe connector. Another is by USB pin header, USB1. We are able to choose whichone that we are going to use. And, change the setting of SW1 before connect with USB signal. While we change the setting, please cut off the input power from system. The USB interface of default setting is through MiniPCIe connector about EMCB-200U model.


Mini-PCIe
(Default)
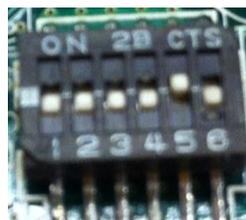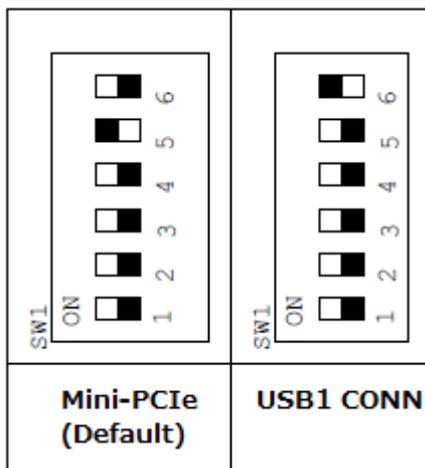
USB1 CONN

MiniPCIe (Default)
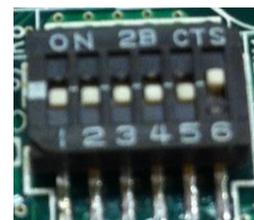
USB1 Connector

5.3 USB Interface Connector, USB1

The USB interface connector, USB1, is a 2.0mm 2x5-pins 90 degree, Male type pin header connector. The pins are numbered as shown in the table below. This connector has combined both USB and Programming pin together. (Please don't use and connect to programming pin by self.)

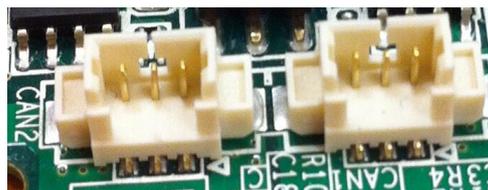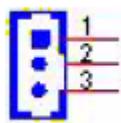| USB1 Pin #	Signal Name	Signal Function	USB1 Pin #	Signal Name	Signal Function
1	VBus	USB Power (+5V)	2	+5V	
3	D-	USB D-	4	PG_DAT	
5	D+	USB D+	6	PG_CLK	ICSP Programming usage
7	GND	Ground	8	MCLR#	
9	GND	Ground	10	GND	
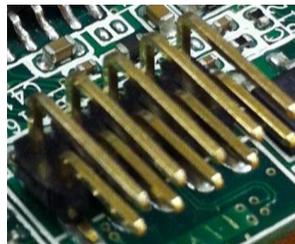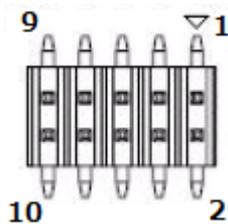
USB and ICSP Connector

5.4 CAN Bus channel, CAN1 and CAN2

The EMCB-200U have designed 2-channel of CAN Bus port which is CAN1 and CAN2. It is a 1.25mm 1x3-pins 180 degree, Male type pin header connector. The pins are numbered as shown in the table below.

CAN1 Pin #	Signal Name	Signal Function
1	CAN_H	Differential Signal
2	CAN_L	Differential Signal
3	GND	Ground

CAN2 Pin #	Signal Name	Signal Function
1	CAN_H	Differential Signal
2	CAN_L	Differential Signal
3	GND	Ground

CAN Bus Connector

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2   Page 9 of 12   Jun. 24, 2013

6. Physical Dimension

EMCB-200U-MP01E CANBus module (Unit: mm)

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2   Page 10 of 12   Jun. 24, 2013
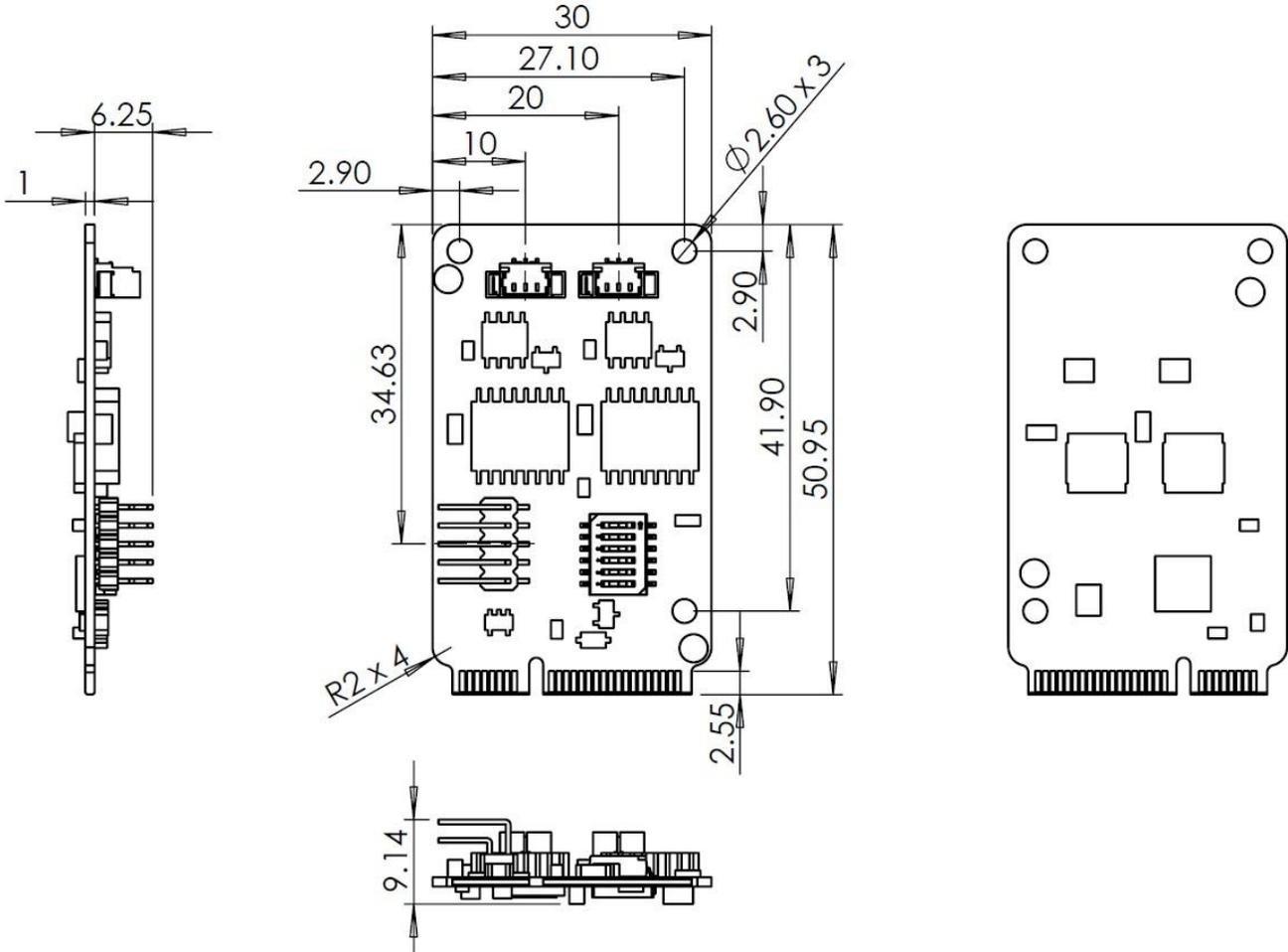
Appendix I: Part Number Table

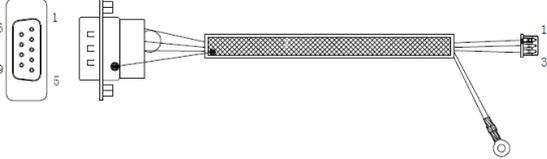| Product Description	Advantech P/N
Advantech EMCB-200U CANBus module, 2-Ch, USB I/F (-40~85°C)	EMCB-200U-MP01E

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2   Page 11 of 12   Jun. 24, 2013

Appendix II: Peripheral Cable recommendation

1.   CANBus cable

Advantech P/N	Description	Picture
1700021705-01	Cable, D-SUB 9P to 1x3P-1.25mm+G-TEM, L=30cm	

2.   Between the USB1 and Main Board

Advantech P/N	Description	Picture
TBD	Cable, 2x5P-2.0mm to USB-B (F), L=30cm + 1x6P-2.54mm (M)	

Specifications subject to change without notice, contact your sales representatives for the most update information.

REV 0.2   Page 12 of 12   Jun. 24, 2013