

# MK71050-03 Evaluation Kit Hardware Manual

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## Notes

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- 5) The Products might receive the radio wave interference from electronic devices such as Wireless LAN devices, Bluetooth devices, digital cordless telephone, microwave oven and so on that radiate electromagnetic wave.
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  - [b] Installation of redundant circuits in the case of single-circuit failure
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This product is Electrostatic sensitive product, which may be damaged due to Electrostatic discharge. Please take proper caution during manufacturing and storing so that voltage exceeding Product maximum rating won't be applied to the Products. Please take special care under dry condition (Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control etc.)

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Temperature: 5°C to 40°C, Humidity 40% to 60%
  - [c] Storage in direct sunshine or condensation.
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## **Preface**

This hardware manual describes hardware overview of the MK71050-03 Evaluation Kit which enables Bluetooth® LE compliant 2.4GHz band radio communication capability to Windows® PC via USB.

The following related manual is available and should be referenced as needed:

- MK71050-03 Data Sheet
- ML7105 Data Sheet
- ML7105 User's Manual
- Bluetooth Application Controller Interface (BACI) Command Manual
- Bluetooth Low Energy VSSPP Software User's Guide

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•Bluetooth® is a registered trademark of Bluetooth SIG, Inc.

•All other company and product names are the trademarks or registered trademarks of the respective companies.

1. MK71050-03 Evaluation Kit overview

Once the MK71050-03 Evaluation Kit delivered, please confirm that the following composition article contents are all packed in this kit. If you find any damage, leakage of the package article in the kit, please contact to your distributor or the ROHM’s responsible sales.

The composition article contents

Composition article	Quantity
MK71050-03 USB dongle(Central) — MK71050-03 wireless module(Central) +USB conversion board	1
MK71050-03 USB dongle(Peripheral) — MK71050-03 wireless module(Peripheral) +USB conversion board	1
μ EASE Conversion Board	1

MK71050-03 Evaluation Kit

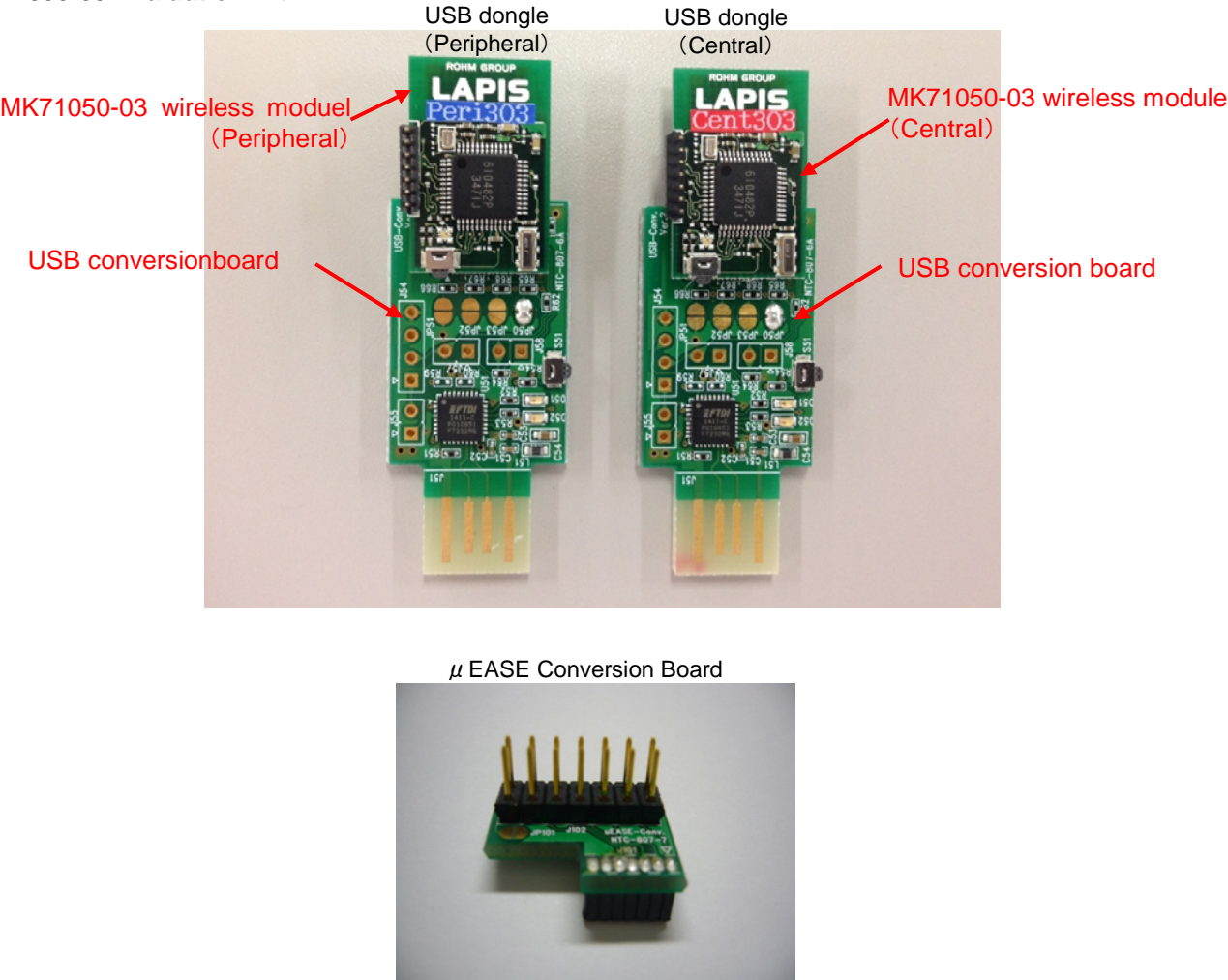


Figure 1-1 MK71050-03 Evaluation Kit

2. General Description

2.1 System structure

MK71050-03 USB dongle can be master role of Bluetooth LE connection or slave role of Bluetooth LE connection.

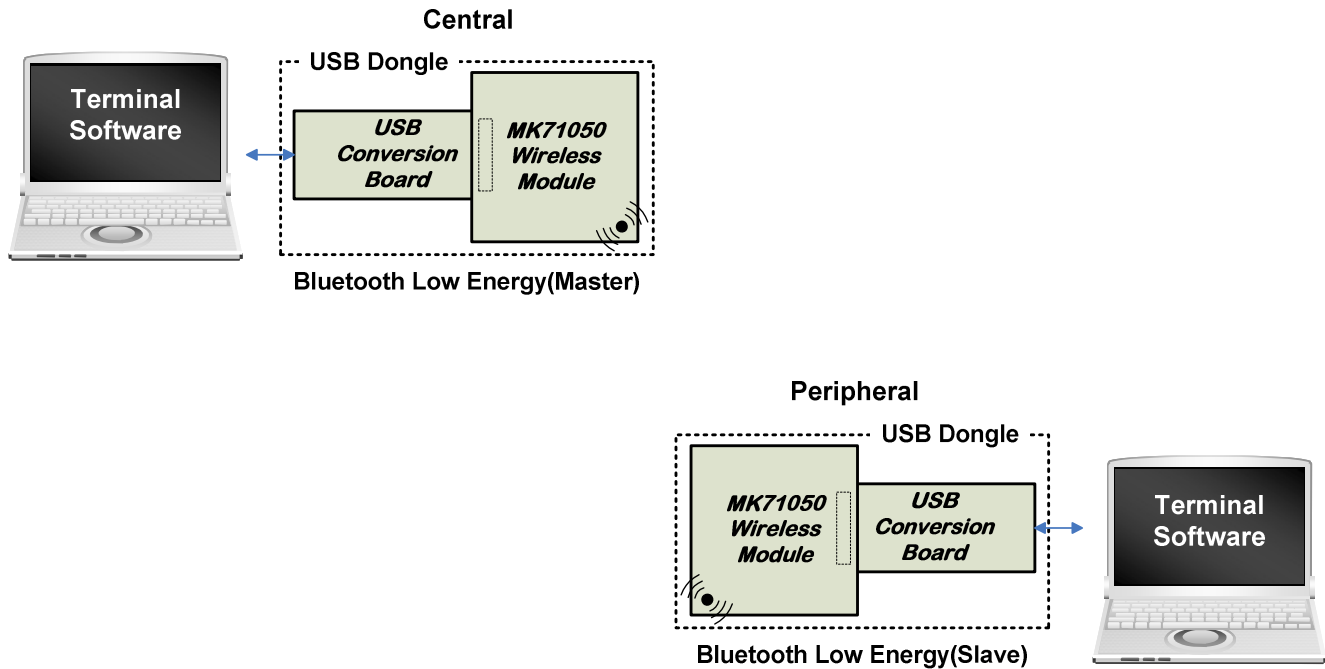


Figure 2-1 System overview using MK71050-03 Evaluation Kit

## 2.2 Composition of MK71050-03 USB dongle

Figure 2-2 shows a external view of MK71050-03 USB dongle, and Table 2-1 explains the compositions.

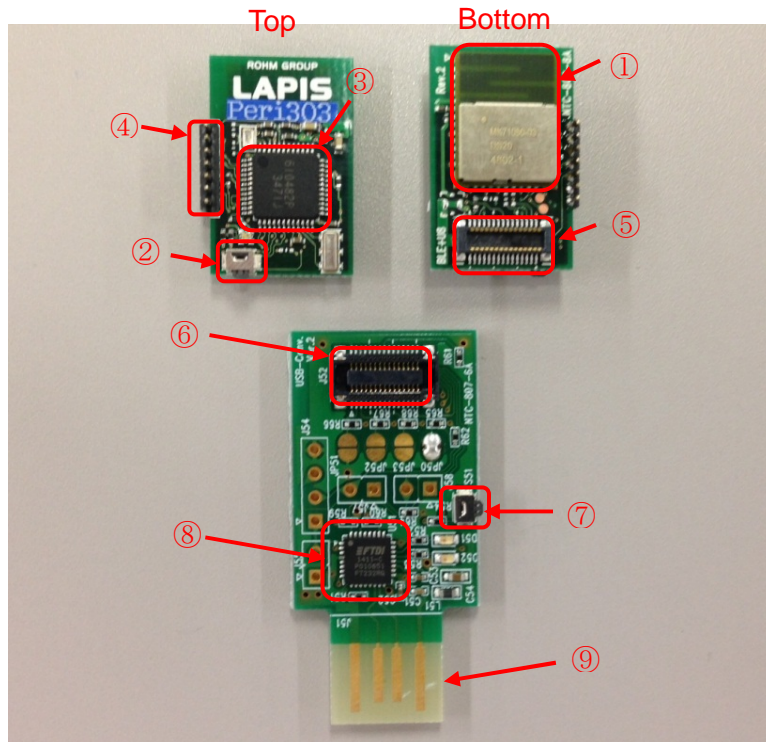


Figure 2-2 External view of MK71050-03 USB dongle

Table 2-1 Composition of MK71050-03 USB dongle

Number	Name	Symbol	Description
MK71050-03 wireless module			
①	MK71050-03	U1	Bluetooth LE wireless module
②	B3U-3000P(M)	S1	Reset switch of MK71050-03
③	ML610Q482	U2	U8 MCU
④	Half pitch pin header	J2	Connector port for uEASE port conversion board
⑤	55650-0388	J1	Molex 0.5mm pitch BtoB connector (plug)
USB conversion board			
⑥	54363-0389	J52	Molex 0.5mm pitch BtoB connector (receptacle)
⑦	B3U-3000P(M)-B	S51	Reset switch of USB conversion board
⑧	FT232RQ	U51	FTDI USB UART (USB serial) IC
⑨	USB connector	J51	USB plug-A PCB pattern

## 3. Operation procedure

### 3.1 First setup

- ① Install driver software for USB serial IC. Virtual Com Port driver can be downloaded from following link.  
<http://www.ftdichip.com/Drivers/VCP.htm>
- ② Insert USB dongle into USB connector on your PC.
- ③ Run the terminal software and set the below serial port setting.
  - Baud rate : 38400
  - Data bit : 8 bit
  - Parity : None
  - Stop bit : 1 bit
  - Flow control : None
- ④ Push on the reset switch of MK71050-03 wireless module.

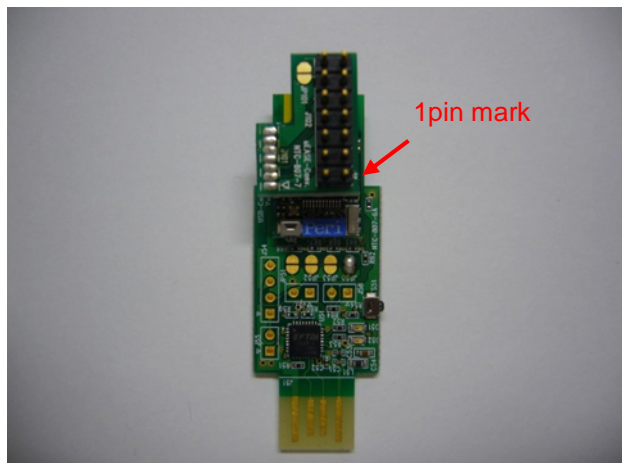
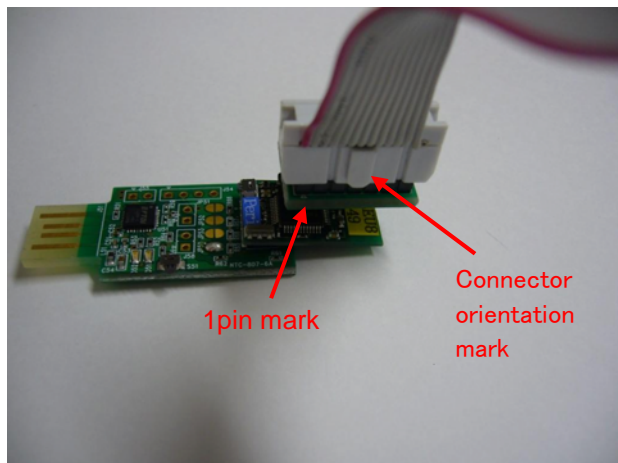
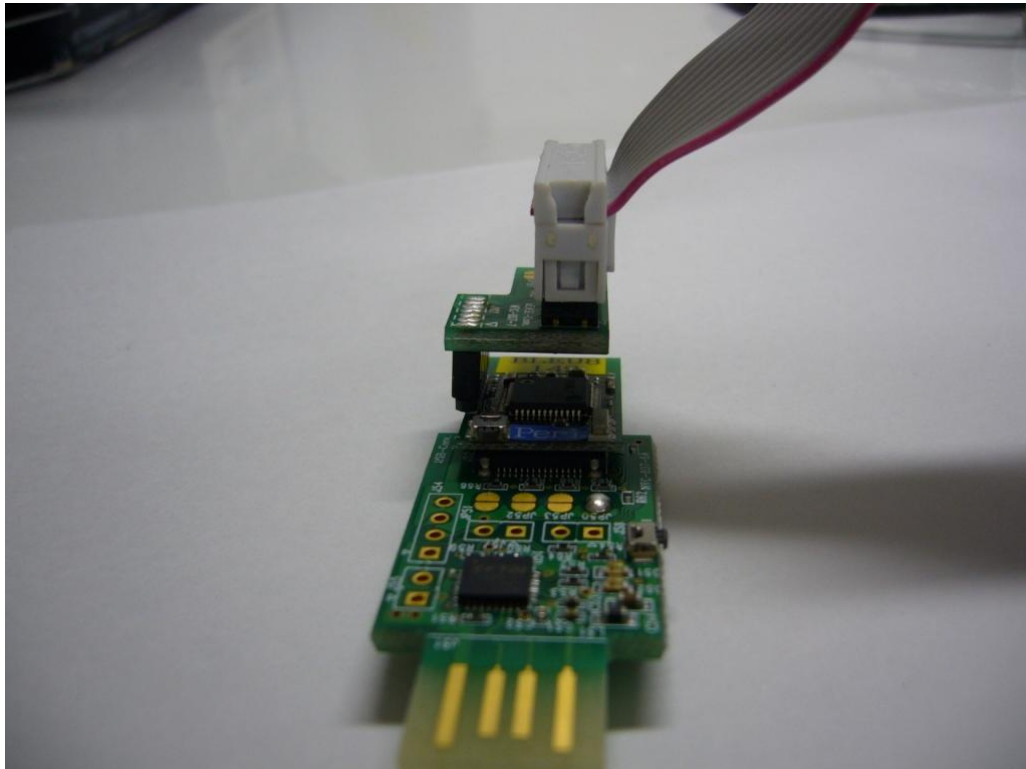
Please refer to the Bluetooth Low Energy VSSPP Software User's Guide for more detail procedure.

## 4. User Interface

### 4.1 Connecting uEASE

uEASE is In Circuit Emulator (ICE) module for U8 microcontroller ML610Q482 mounted on MK71050-03 wireless module.

Connection between MK71050-03 wireless module and uEASE module will be done as shown below picture. As pin pitches between uEASE connector and cable for uEASE are different, uEASE pitch conversion board has to be used.



**Figure 4-1 MK71050-03 wireless module with uEASE**

Using uEASE following function can be achieve.

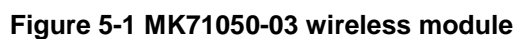
- Write application code into Flash memory embedded in ML610Q482
- On chip debugging (Reset, step execution, stop trigger etc)

For more detail about debugging feature, please refer to uEASE

## **5. PCB Schematics**

### **5.1 MK71050-03 wireless module**

Please refer to the next page.



5.2 USB conversion board

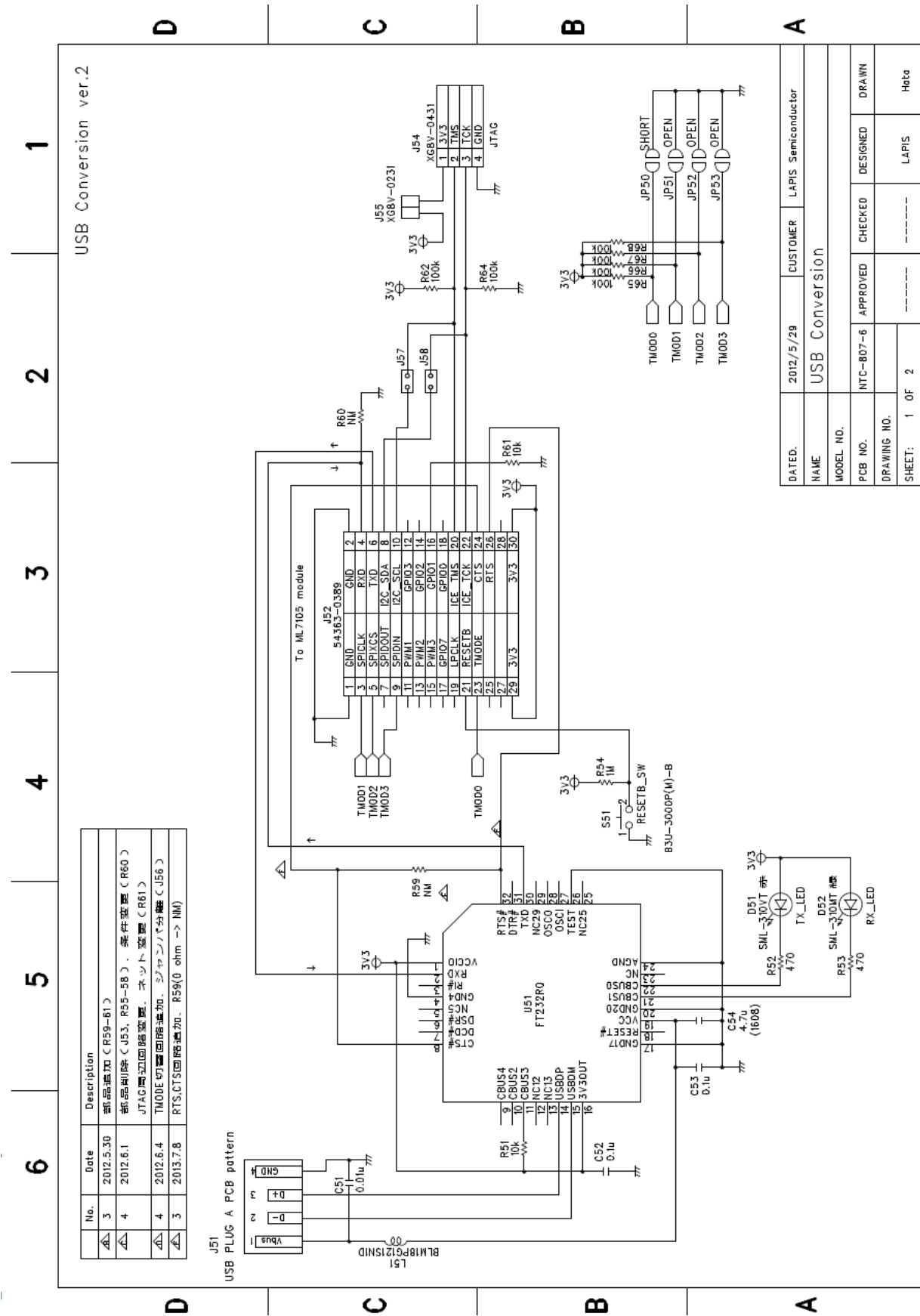


Figure 5-2 USB conversion board

## Revision History

Document No.	Issue Date	Page		Description
		Previous Edition	New Edition	
PEXK71050-03_Eval Kit_HardManual-01	2014.Sep.16	–	–	Draft 1st release
PEXK71050-03_Eval Kit_HardManual-02	2015.3.10	13	15	2 <sup>nd</sup> release