BC95-D Reference Design

NB-IoT Module Series

Rev. BC95-D_Reference_Design_Rev.A

Date: 2018-05-03

Status: Released

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About the Document

History

Revision	Date	Author	Description
A	2018-05-03	Ewent LU	Initial

Contents

1 Reference Design

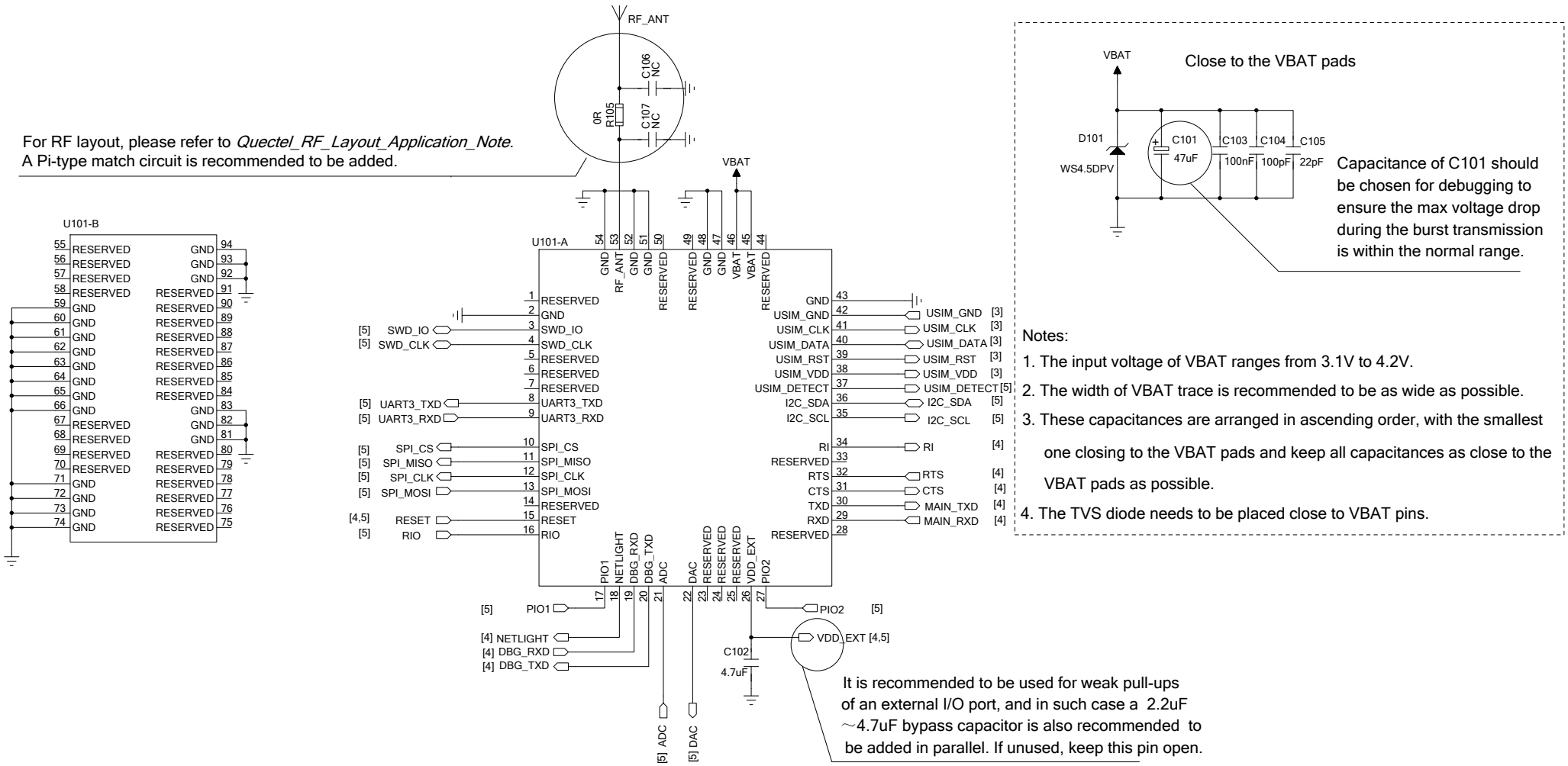
1.1. Introduction

This document provides the reference design for Quectel BC95-D module.

1.2. Schematics

The schematics illustrated in the following pages are provided for your reference only.

Module Design



Notes:

1. The input voltage of VBAT ranges from 3.1V to 4.2V.
2. The width of VBAT trace is recommended to be as wide as possible.
3. These capacitances are arranged in ascending order, with the smallest one closing to the VBAT pads and keep all capacitances as close to the VBAT pads as possible.
4. The TVS diode needs to be placed close to VBAT pins.

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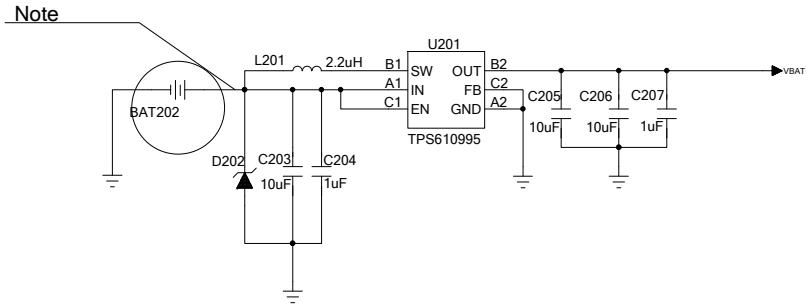
Power Supply

Power Supply Design (1)

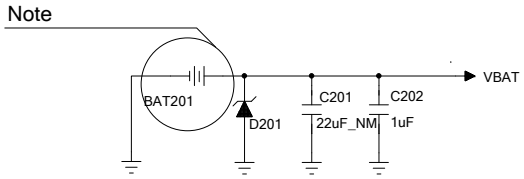
It is used when the input voltage is below 3.1V.



Note:
It is recommended to use Li-MnO2 batteries or other types of batteries with output voltage below 3.1V.

Power Supply Design (2)

It is used when the input voltage ranges from 3.1V to 4.2V.



Note:
It is recommended to use Li-SOCl2 batteries.

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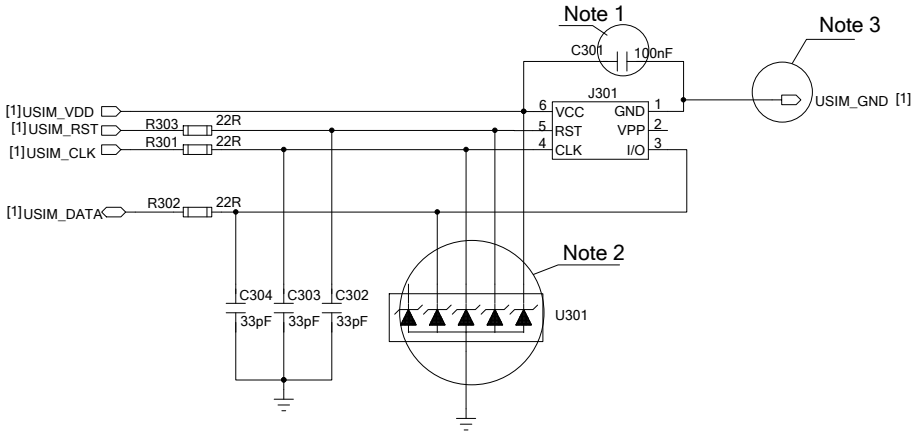
USIM Interface



Notes:

1. The value of C301 should be less than 1uF.
2. U301 is used for protecting USIM interface against ESD and the junction capacitance should be less than 50pF.
   It should be placed nearby USIM card connector.
3. For BC95-D module, ground line of USIM card is recommended to be routed to pin 42 ("USIM_GND") of the module separately.

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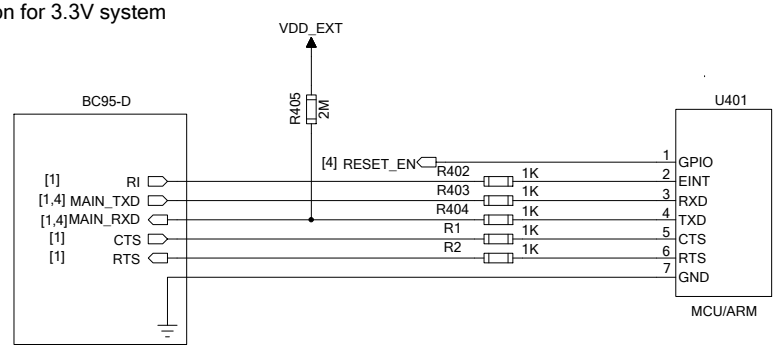
MCU Connection

UART Interface

Connection for 3.3V system



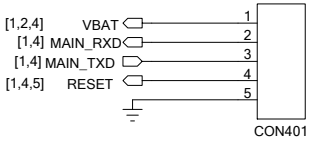
Electric characteristics of the module's input and output ports:

VOHmin=2.4V
VOLmax=0.4V
VILmin= -0.1*VDD_EXT
VILmax=0.2*VDD_EXT
VIHmin=0.7*VDD_EXT
VIHmax=1.1*VDD_EXT
VDD_EXT=3.0V (typical value)

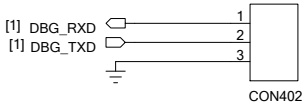
Notes:

1. When an SMS is received or data is transmitted, the module will output signals to inform DTE.
2. Please pay attention to the level match of UART in product application.

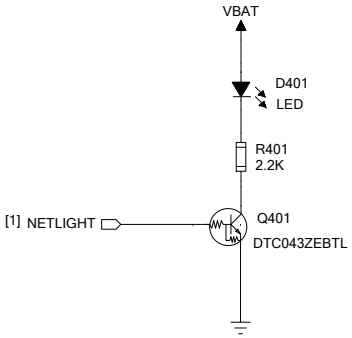
It is recommended to reserve the points for upgrading the firmware.



It is recommended to reserve the points for debugging.



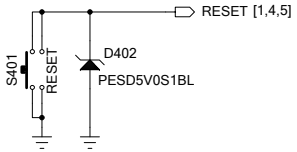
Network Status Indication

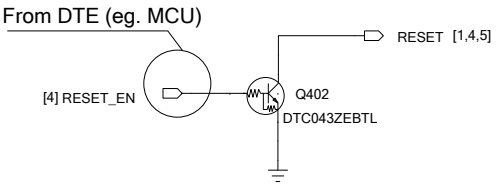


Pin "NETLIGHT" indicates the network status.

Reset Function

Please reserve recommended circuit for resetting the module.





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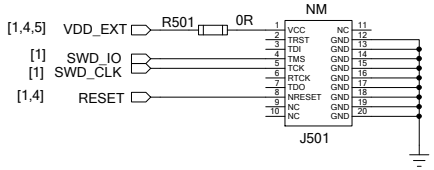
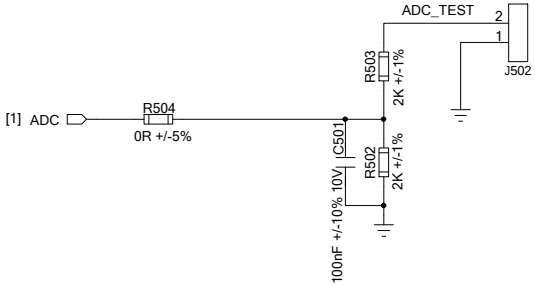
Other Interfaces

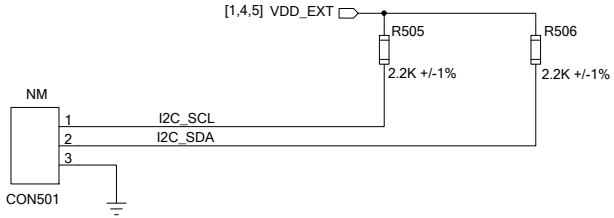
JTAG



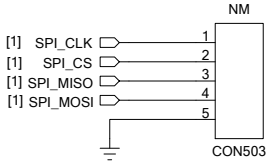
ADC



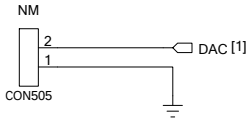
I2C



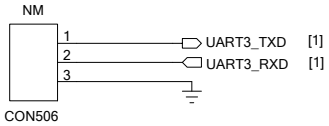
SPI



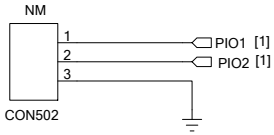
DAC



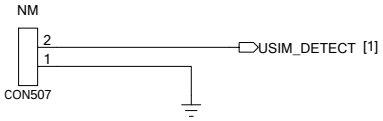
UART3



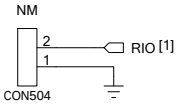
PIO



USIM_DETECT



RIO



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