

BC95-G Reference Design

NB-IoT Module Series

Rev. BC95-G_Reference_Design_Rev.B

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Status: Released



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About the Document

History

Revision	Date	Author	Description
A	2017-12-11	Ewent LU	Initial
B	2018-05-11	Ewent LU	<ol style="list-style-type: none">1. Changed the capacitance of C101 to 47uF in sheet 1.2. Added reference circuit of a boost converter in sheet 2.3. Added a 2M pull-up resistor between MAIN_RXD and VDD_EXT in sheet 4.

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1 Reference Design

1.1. Introduction

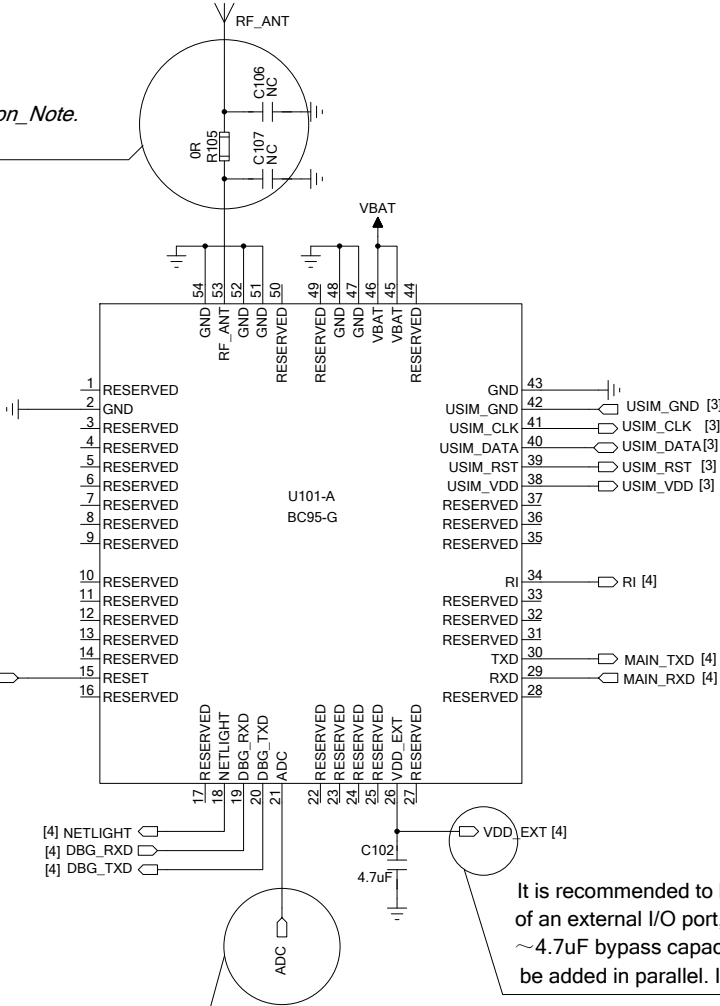
This document provides the reference design for Quectel BC95-G module.

1.2. Schematics

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

Module Design

For RF layout, please refer to *Quectel_RF_Layout_Application_Note*.
A Pi-type match circuit is recommended to be added.



Close to the VBAT pads

Capacitance of C101 should be chosen for debugging to ensure the max voltage drop during the burst transmission is within the normal range.

Notes:

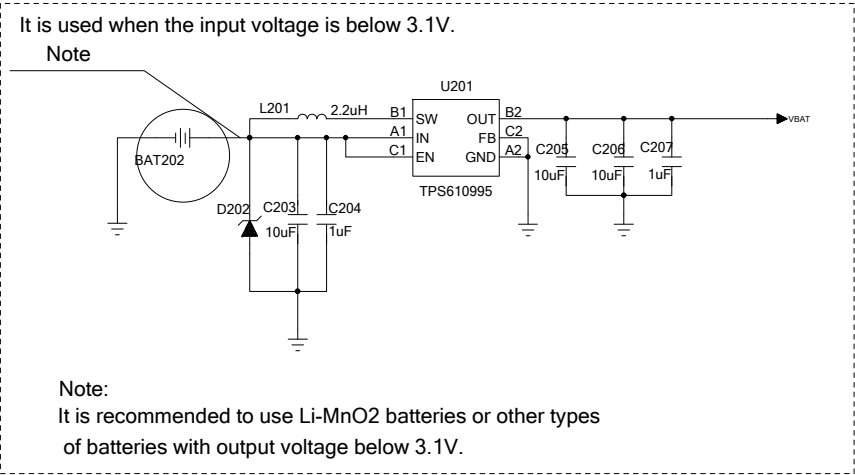
- 1. The input voltage of VBAT ranges from 3.1V to 4.2V.
- 2. The width of VBAT trace is recommended to be as wide as possible.
- 3. These capacitances are arranged in ascending order, with the smallest one closing to the VBAT pads and keep all capacitances as close to the VBAT pads as possible.
- 4.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

General purpose analog to digital converter.
If unused, please keep this pin open.

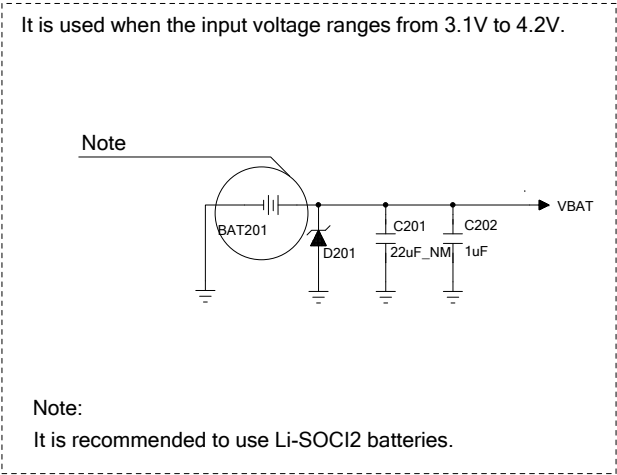
Quectel Wireless Solutions		
DRAWN BY Ewent LU	PROJECT BC95-G	TITLE Reference Design
CHECKED BY Vae LIU	SIZE A2	VER B
	SHEET 1 OF 4	DATE 2018/5/11

Power Supply

Power Supply Design (1)

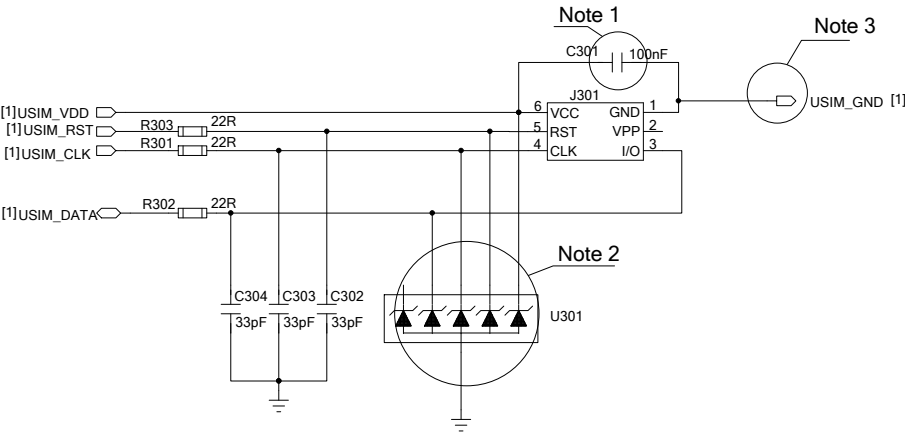


Power Supply Design (2)



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USIM Interface



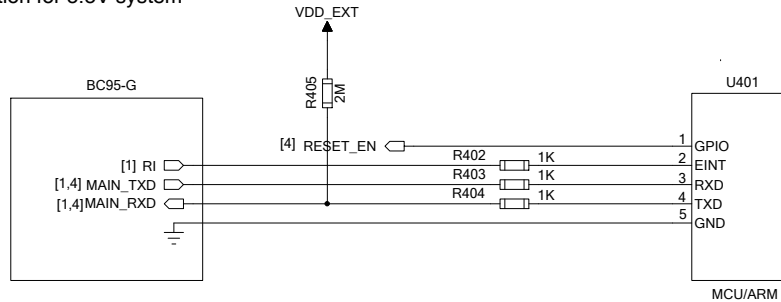
- Notes:
- 1. The value of C301 should be less than 1uF.
 - 2. U301 is used for protecting USIM interface against ESD and the junction capacitance should be less than 50pF.
It should be placed nearby USIM card connector.
 - 3. For BC95-G module, ground line of USIM card is recommended to be routed to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

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MCU Connection

UART Interface

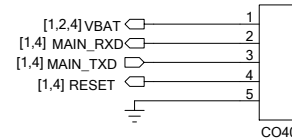
Connection for 3.3V system



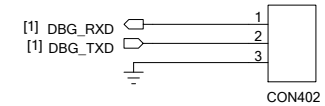
Electric characteristics of the module's input and output ports:

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)

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



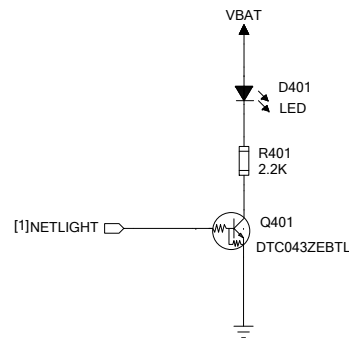
It is recommended to reserve the points for debugging.



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 applications.

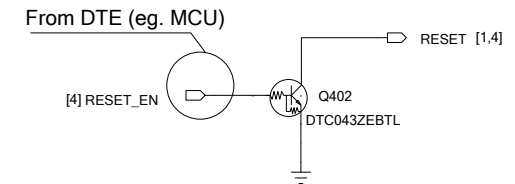
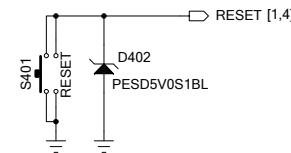
Network Status Indication



Pin "NETLIGHT" indicates the network status.

Reset Function

Please reserve recommended circuit for resetting the module.



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