BC95-G Reference Design

NB-IoT Module Series

Rev. BC95-G_Reference_Design_Rev.B

Date: 2018-05-11

Status: Released

Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarters:

Quectel Wireless Solutions Co., Ltd.
7th Floor, Hongye Building, No.1801 Hongmei Road, Xuhui District, Shanghai 200233, China
Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local office. For more information, please visit:
http://quectel.com/support/sales.htm

For technical support, or to report documentation errors, please visit:
http://quectel.com/support/technical.htm
Or Email to: support@quectel.com

GENERAL NOTES

QUECTEL OFFERS THE INFORMATION AS A SERVICE TO ITS CUSTOMERS. THE INFORMATION PROVIDED IS BASED UPON CUSTOMERS' REQUIREMENTS. QUECTEL MAKES EVERY EFFORT TO ENSURE THE QUALITY OF THE INFORMATION IT MAKES AVAILABLE. QUECTEL DOES NOT MAKE ANY WARRANTY AS TO THE INFORMATION CONTAINED HEREIN, AND DOES NOT ACCEPT ANY LIABILITY FOR ANY INJURY, LOSS OR DAMAGE OF ANY KIND INCURRED BY USE OF OR RELIANCE UPON THE INFORMATION. ALL INFORMATION SUPPLIED HEREIN IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

COPYRIGHT

About the Document

History

Revision	Date	Author	Description
A	2017-12-11	Ewent LU	Initial
B	2018-05-11	Ewent LU	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.

Contents

1 Reference Design

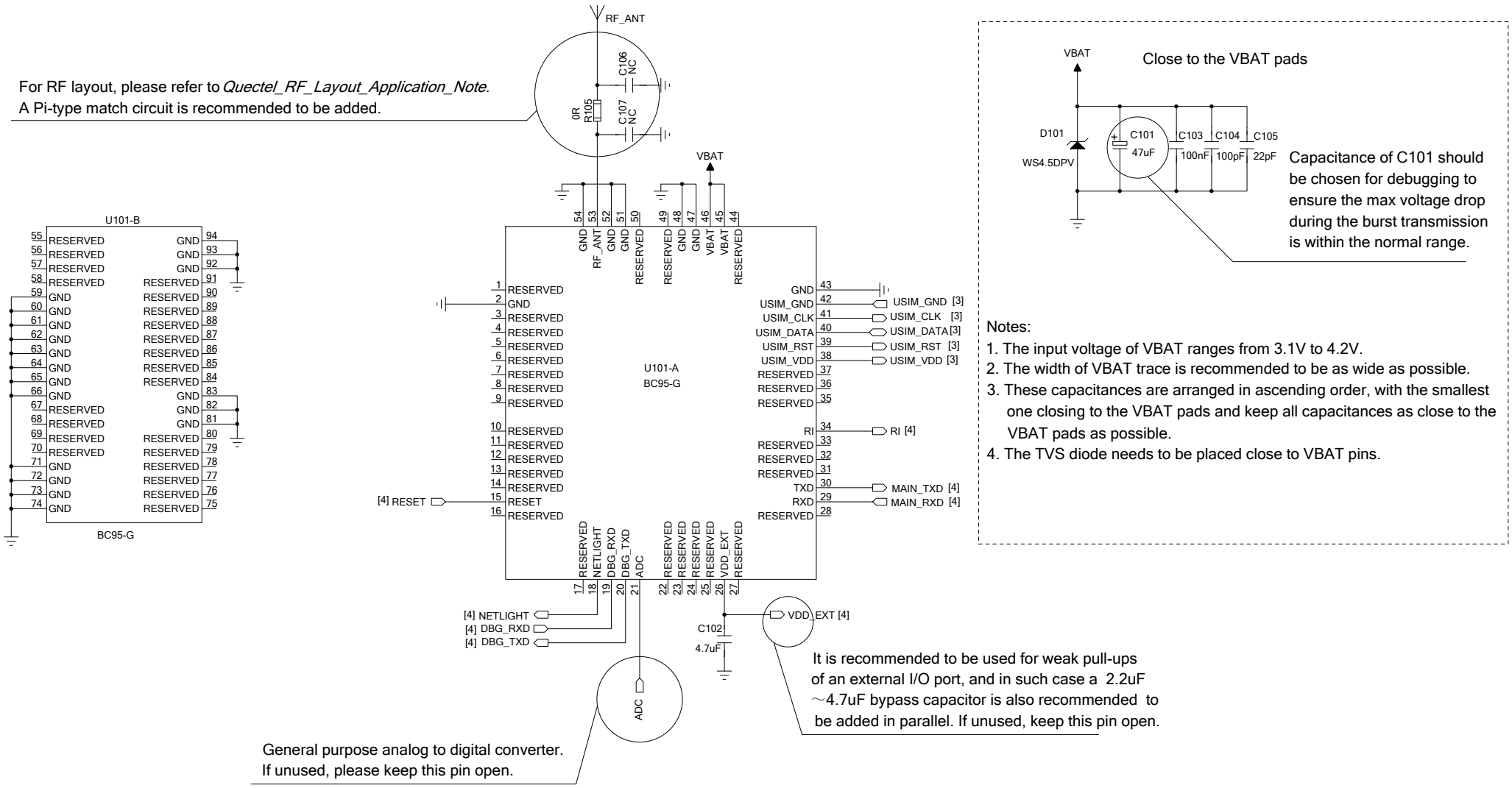
1.1. Introduction

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



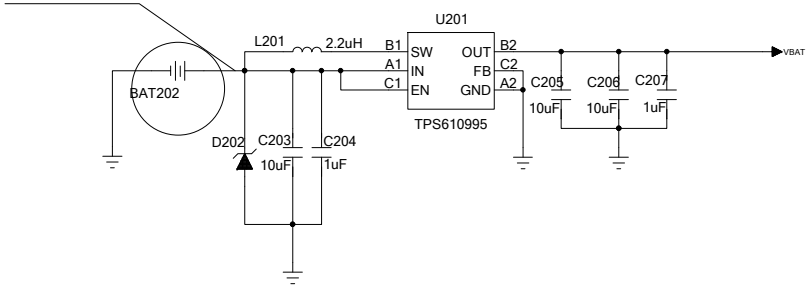
Quectel Wireless Solutions		
DRAWN BY Ewent LU	PROJECT BC95-G	TITLE Reference Design
CHECKED BY Vae LIU	SIZE A2	VER B
	SHEET 1 OF 4	DATE 2018/5/11

Power Supply

Power Supply Design (1)

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

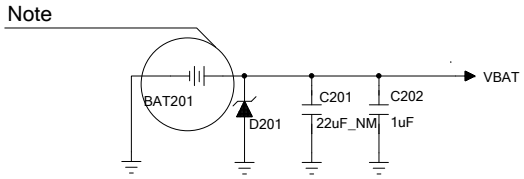
Note



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

Power Supply Design (2)

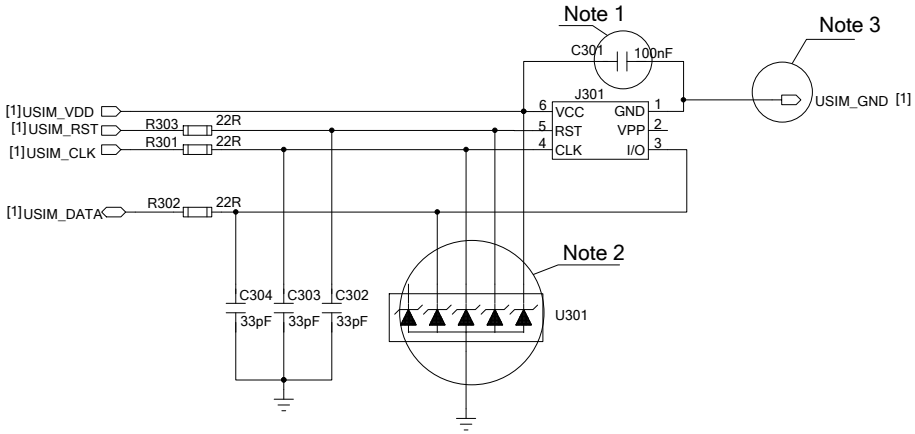
It is used when the input voltage ranges from 3.1V to 4.2V.



Note:
It is recommended to use Li-SOCI2 batteries.

Quectel Wireless Solutions		
DRAWN BY Ewent LU	PROJECT BC95-G	TITLE Reference Design
CHECKED BY Vae LIU	SIZE A2	VER B
	SHEET 2 OF 4	DATE 2018/5/11

USIM Interface



Notes:

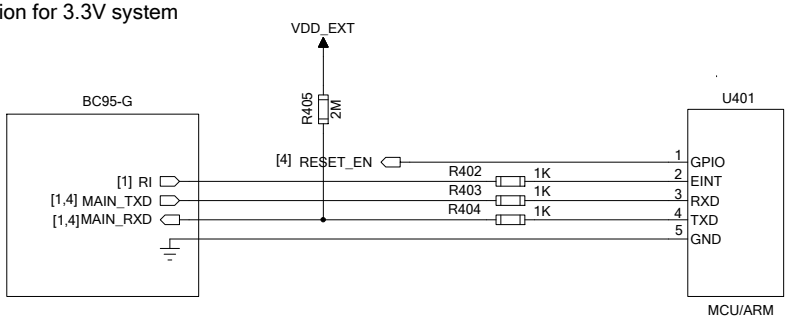
1. The value of C301 should be less than 1uF.
2. U301 is used for protecting USIM interface against ESD and the junction capacitance should be less than 50pF.
   It should be placed nearby USIM card connector.
3. For BC95-G module, ground line of USIM card is recommended to be routed to pin 42 ("USIM_GND")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

Quectel Wireless Solutions		
DRAWN BY Ewent LU	PROJECT BC95-G	TITLE Reference Design
CHECKED BY Vae LIU	SIZE A2	VER B
	SHEET 3 OF 4	DATE 2018/5/11

MCU Connection

UART Interface

Connection for 3.3V system



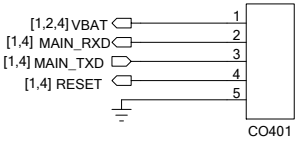
Electric characteristics of the module's input and output ports:

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)

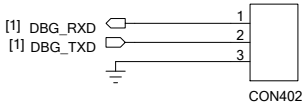
Notes:

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 applications.

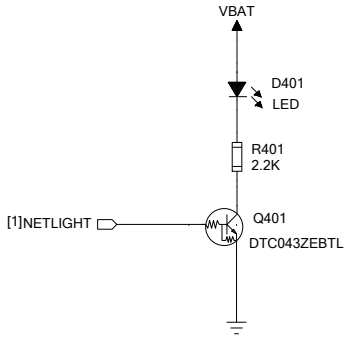
It is recommended to reserve the points for upgrading the firmware.



It is recommended to reserve the points for debugging.



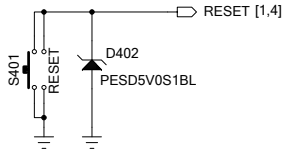
Network Status Indication

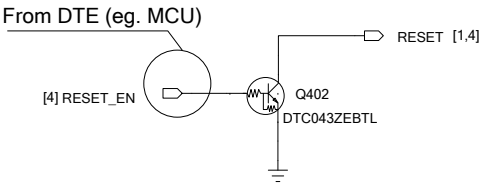


Pin "NETLIGHT" indicates the network status.

Reset Function

Please reserve recommended circuit for resetting the module.





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