

SC20 Reference Design

Smart Module Series

Rev. A

Date: 2016-02-16



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

Quectel Wireless Solutions Co., Ltd.

Office 501, Building 13, No.99, Tianzhou Road, Shanghai, China, 200233

Tel: +86 21 5108 6236

Mail: info@quectel.com

Or our local office, for more information, please visit:

<http://www.quectel.com/support/salesupport.aspx>

For technical support, to report documentation errors, please visit:

<http://www.quectel.com/support/techsupport.aspx>

Or Email: Support@quectel.com

GENERAL NOTES

QUECTEL OFFERS THIS 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. THE INFORMATION SUPPLIED HEREIN IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

COPYRIGHT

THIS INFORMATION CONTAINED HERE IS PROPRIETARY TECHNICAL INFORMATION OF QUECTEL CO., LTD. TRANSMITTABLE, REPRODUCTION, DISSEMINATION AND EDITING OF THIS DOCUMENT AS WELL AS UTILIZATION OF THIS CONTENTS ARE FORBIDDEN WITHOUT PERMISSION. OFFENDERS WILL BE HELD LIABLE FOR PAYMENT OF DAMAGES. ALL RIGHTS ARE RESERVED IN THE EVENT OF A PATENT GRANT OR REGISTRATION OF A UTILITY MODEL OR DESIGN.

Copyright © Quectel Wireless Solutions Co., Ltd. 2016. All rights reserved.

History

Revision	Date	Author	Description
A	2016-02-16	Storm Bao	Initial

Contents

1	Reference Schematic.....	4
1.1.	Introduction	4
1.2.	Schematic	4

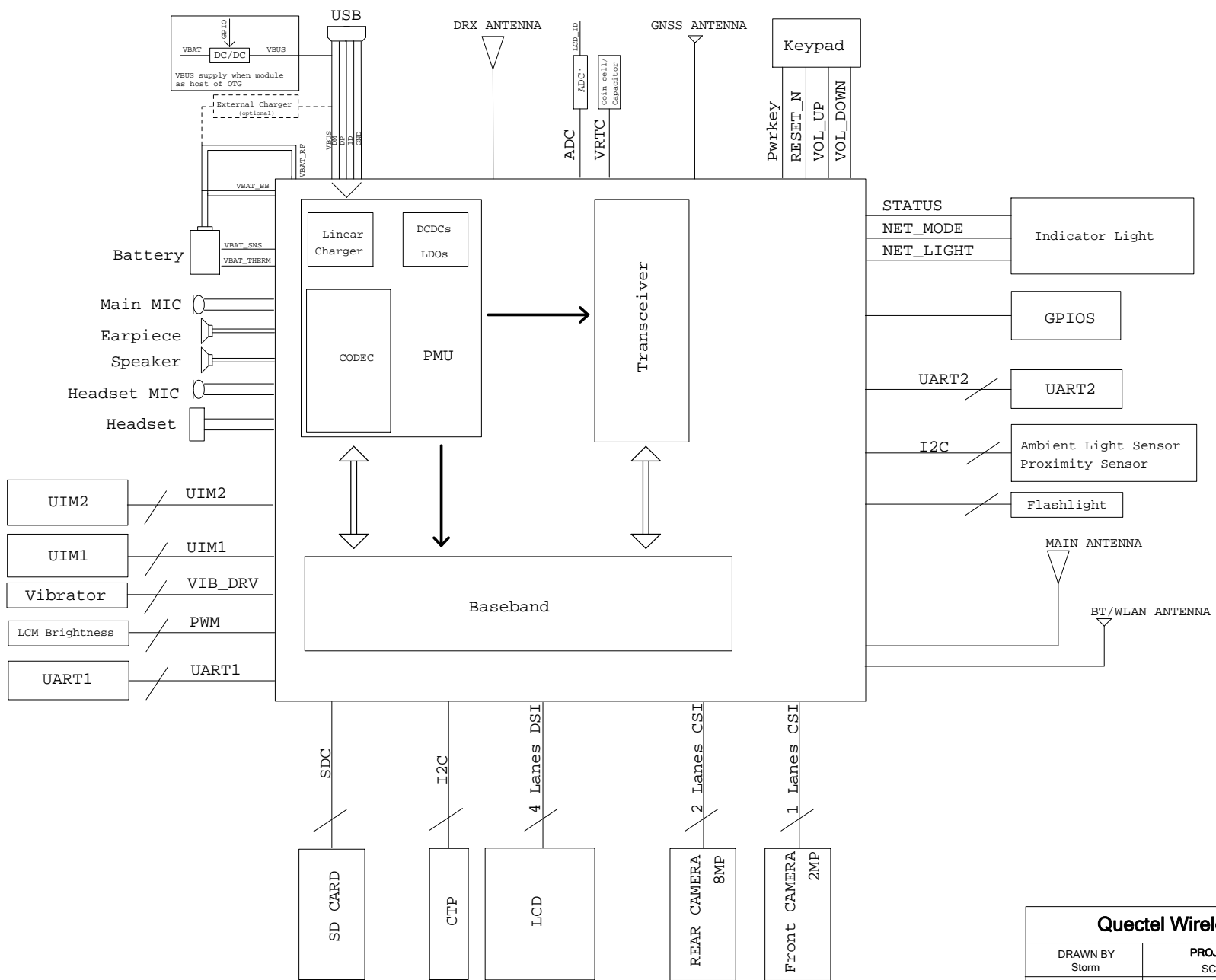
1 Reference Schematic

1.1. Introduction

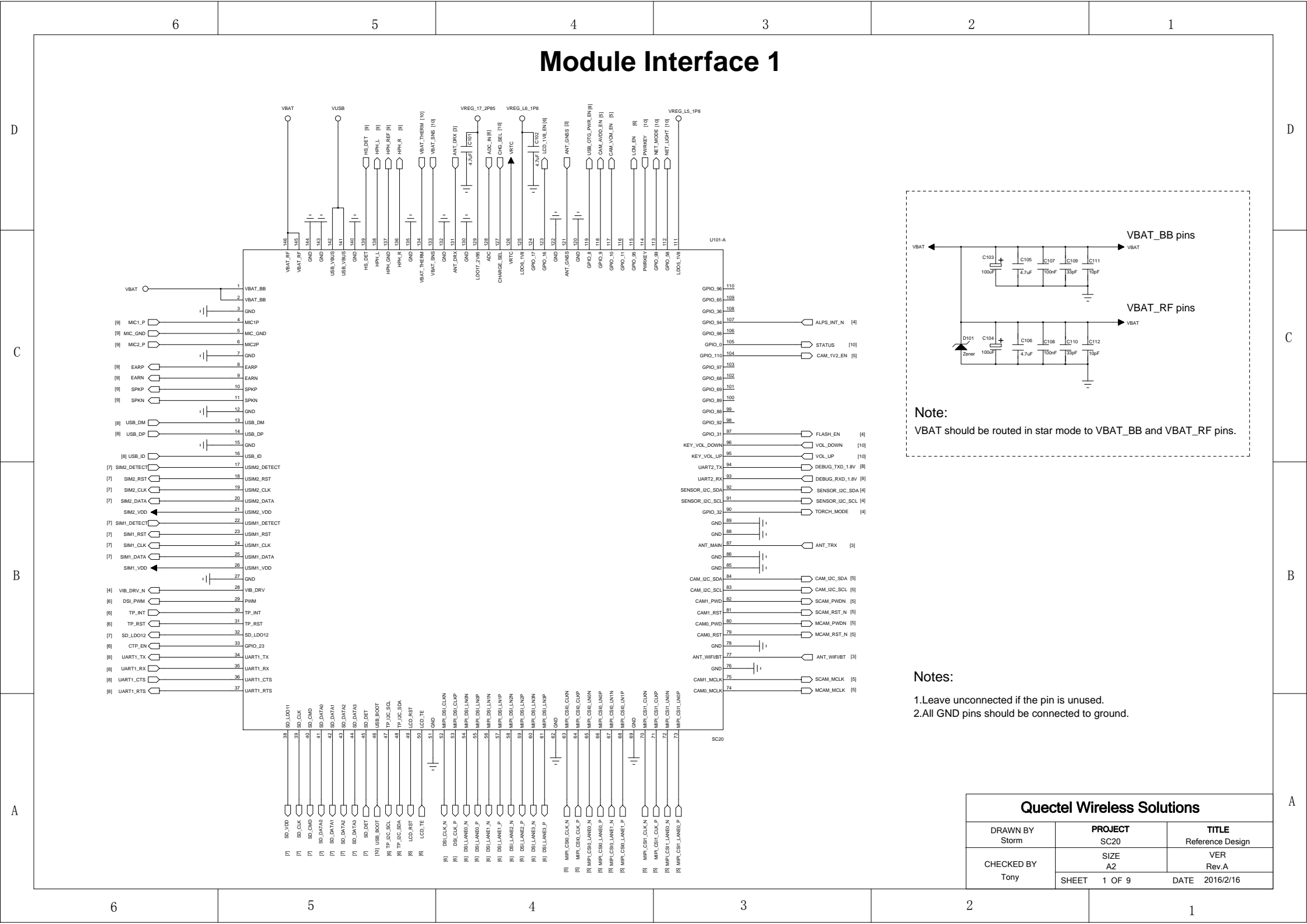
This document is a reference design for SC20 module. The schematic included in this document are preliminary and are subject to change without notice.

1.2. Schematic

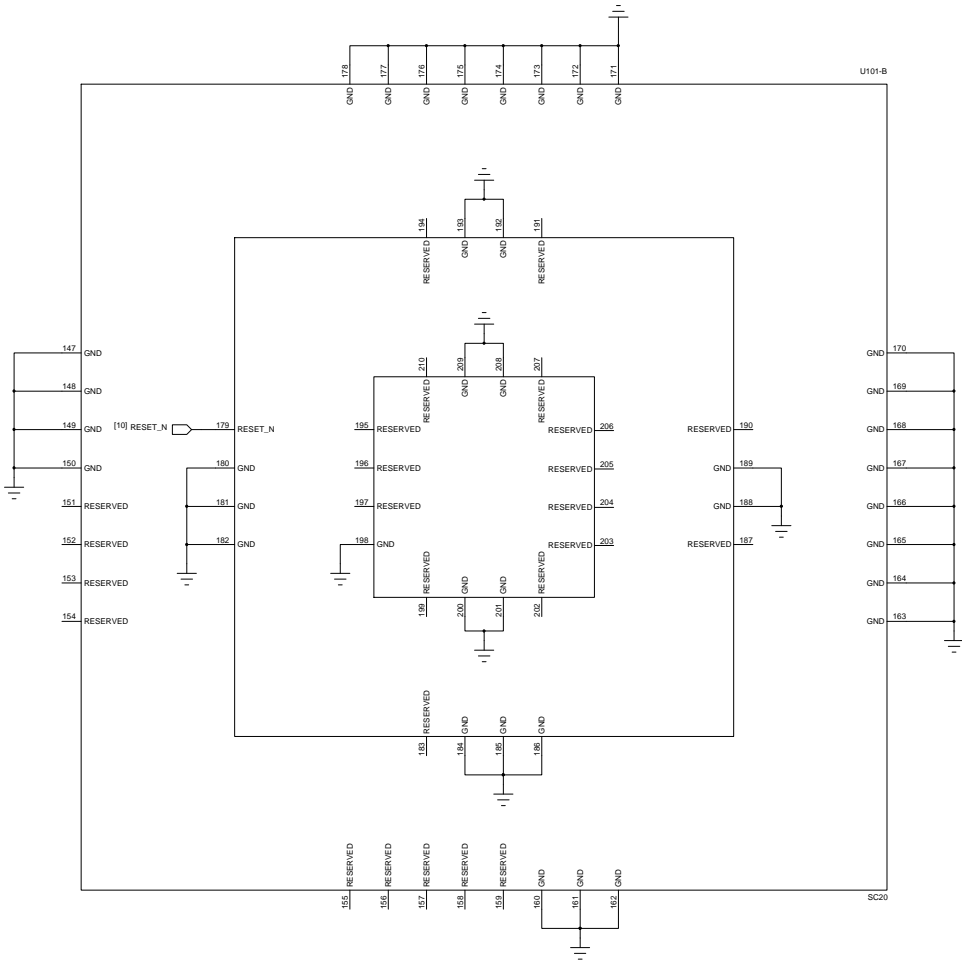
Block Diagram



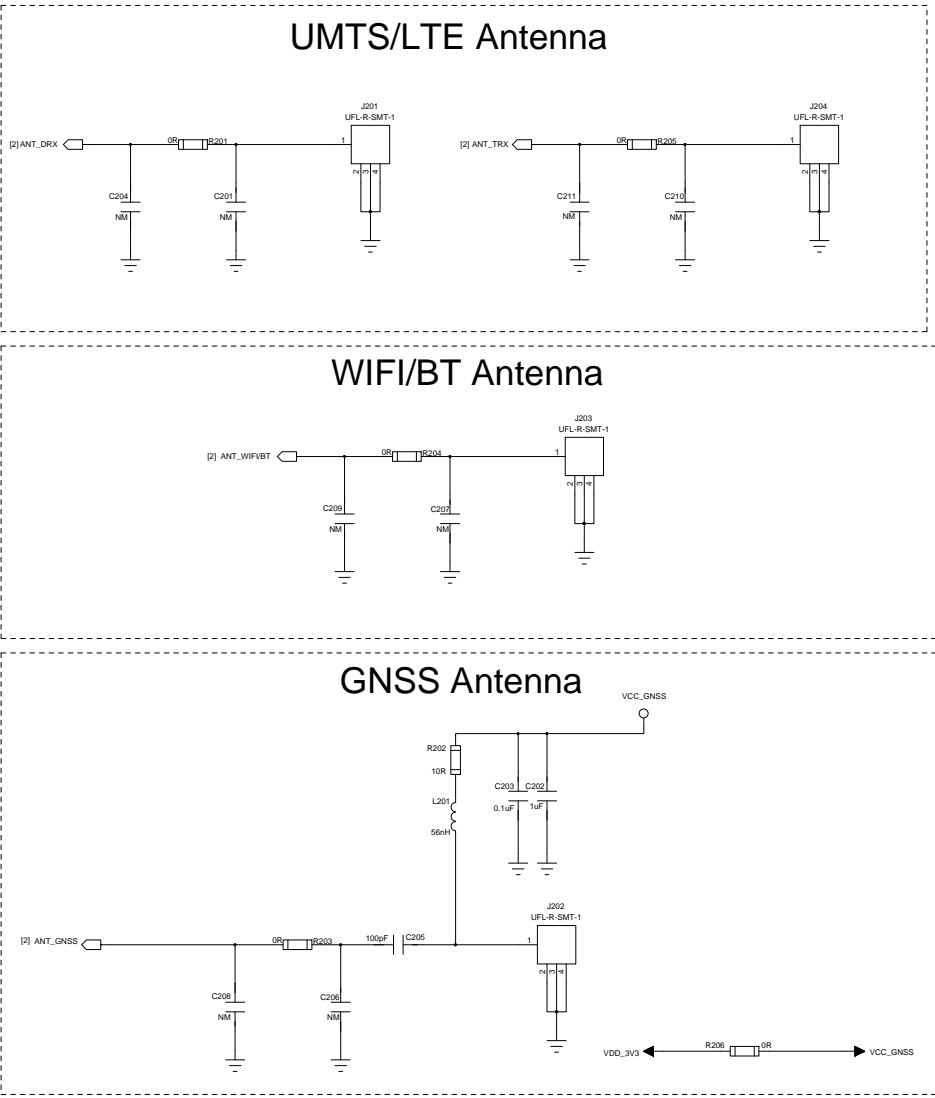
Quectel Wireless Solutions		
DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
SHEET	1 OF 1	DATE 2016/2/16

[illegible][illegible][illegible]

Module Interface2 And Antenna

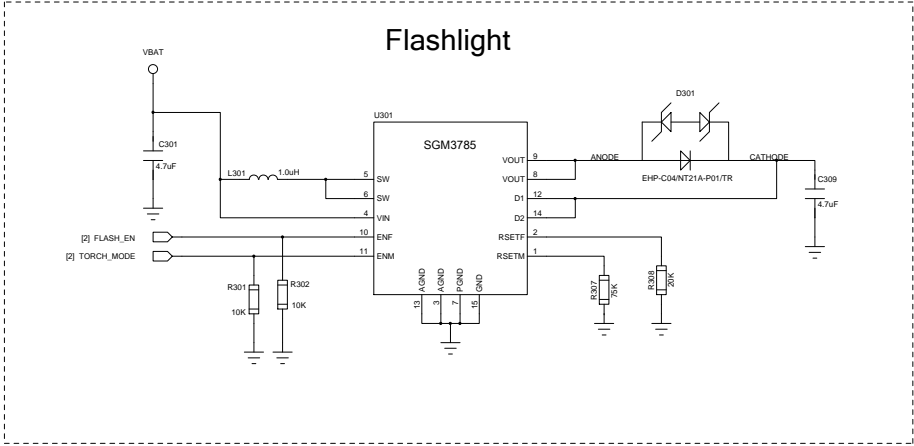
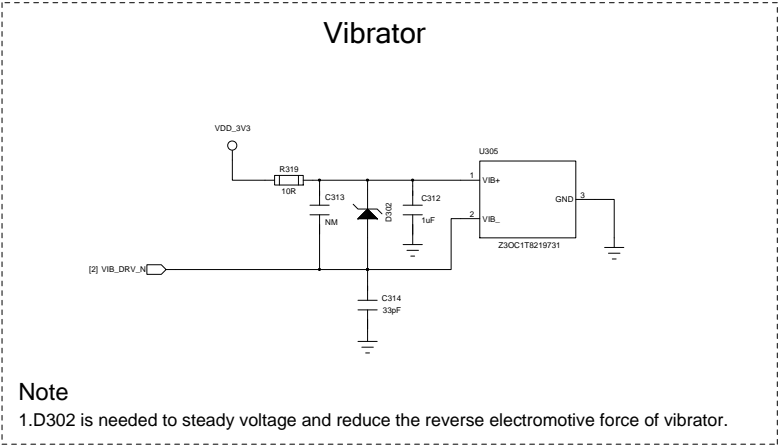
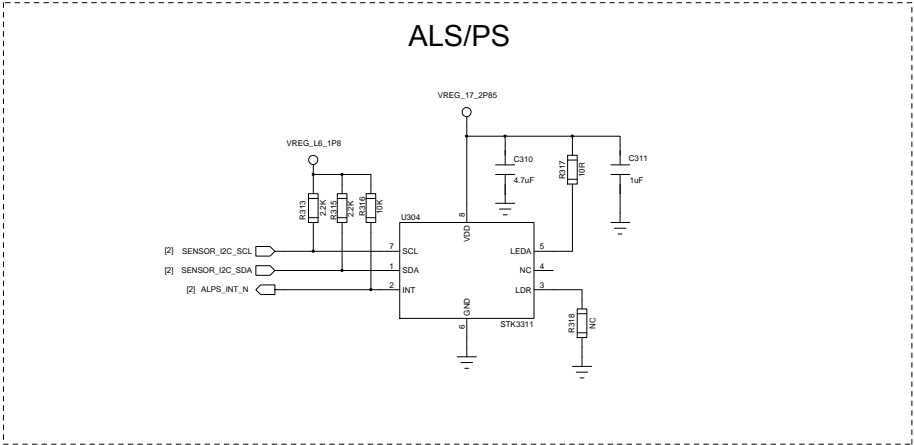


Notes:
1.Keep all RESERVED and unused pins unconnected,
2.All GND pins should be connected to ground.



Quectel Wireless Solutions		
DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
	SHEET 2 OF 9	DATE 2016/2/16

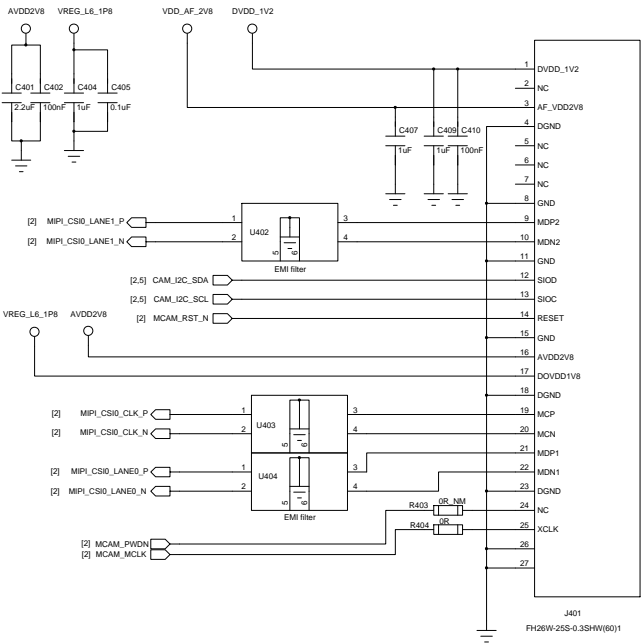
Sensor



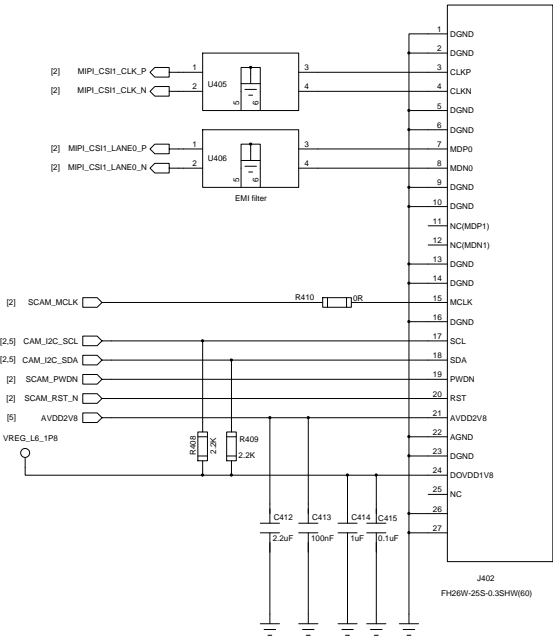
Quectel Wireless Solutions		
DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
SHEET	3 OF 9	DATE 2016/2/16

Camera

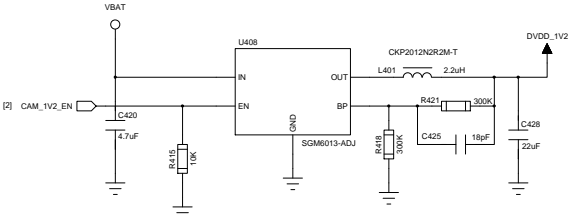
Rear Camera Sensor



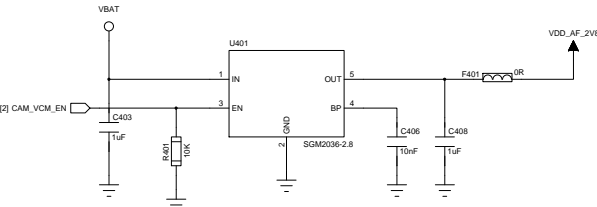
Front Camera Sensor



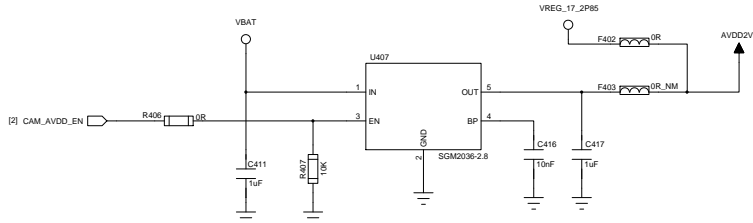
Power For Camera DVDD1V2



Power For Camera AF_VDD2V8



Power For Camera AVDD2V8

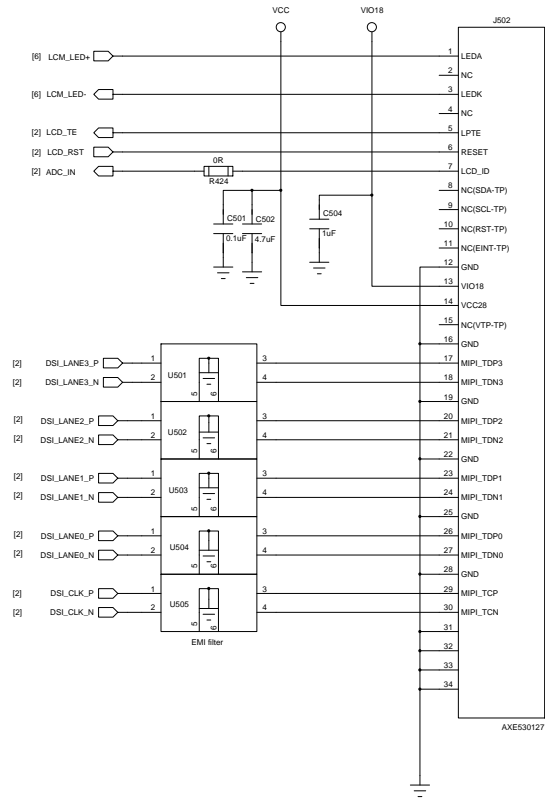


Quectel Wireless Solutions

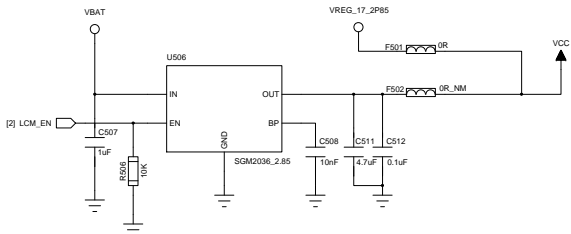
DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev. A
SHEET	4 OF 9	DATE 2016/2/16

LCM And TP

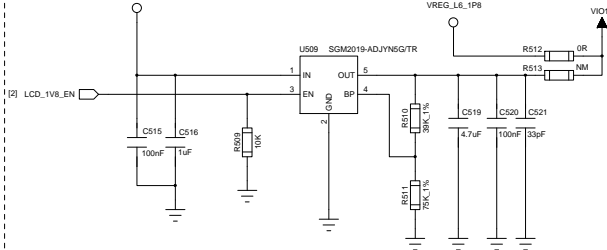
LCM



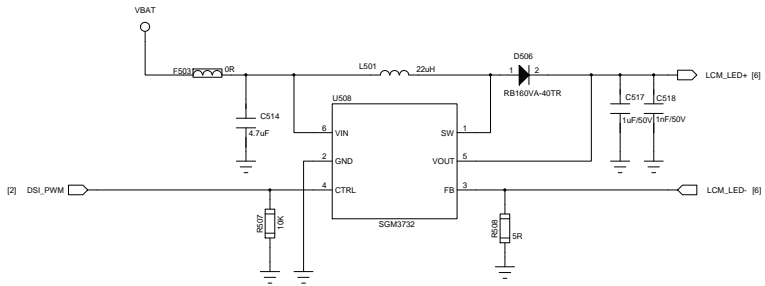
Power For LCM VCC



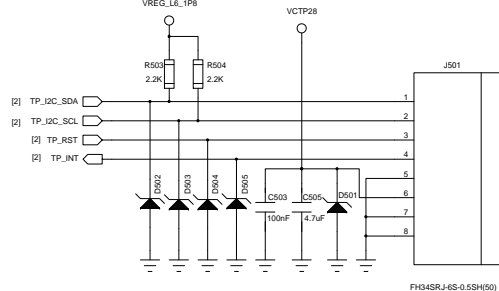
Power For LCM VIO18



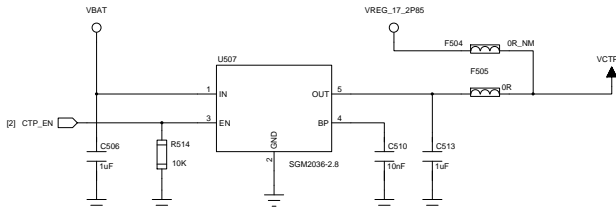
LCM Brightness Control



CTP



Power For TP

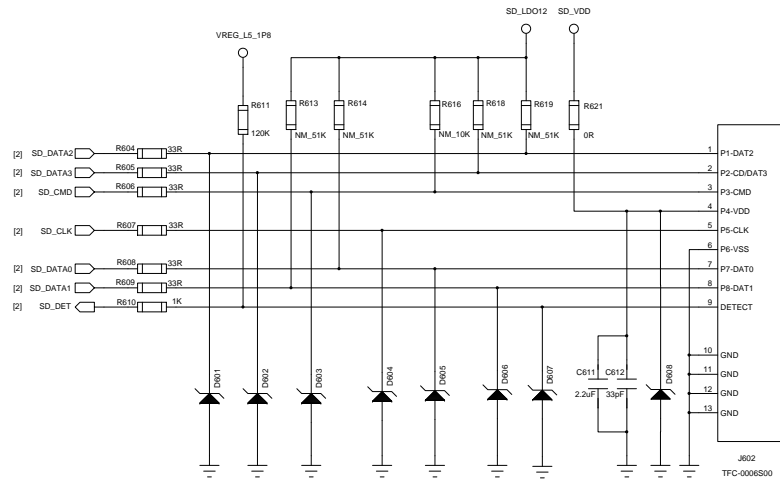


Quectel Wireless Solutions

DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
SHEET	5 OF 9	DATE 2016/2/16

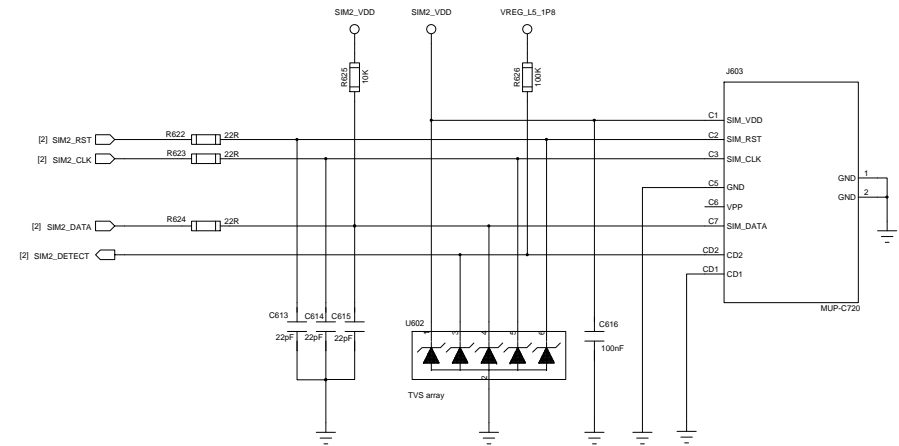
SIM AND SD CARD

SD Card



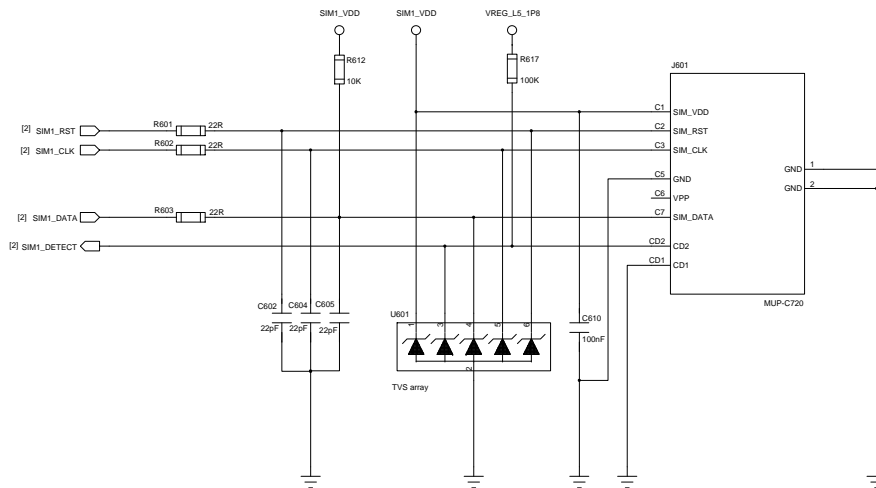
Note:
R604~R610 are applied to suppress the EMI spurious transmission and enhance the ESD protection.

Sub SIM



Note:
R622~R624 are applied to suppress the EMI spurious transmission and enhance the ESD protection.

Main SIM



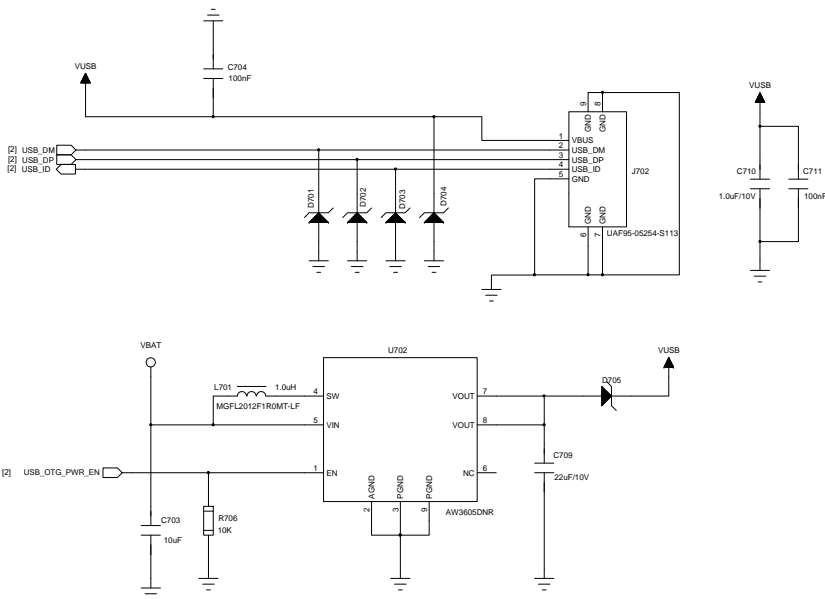
Note:
R601~R603 are applied to suppress the EMI spurious transmission and enhance the ESD protection.

Quectel Wireless Solutions

DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
SHEET	6 OF 9	DATE 2016/2/16

USB And UART

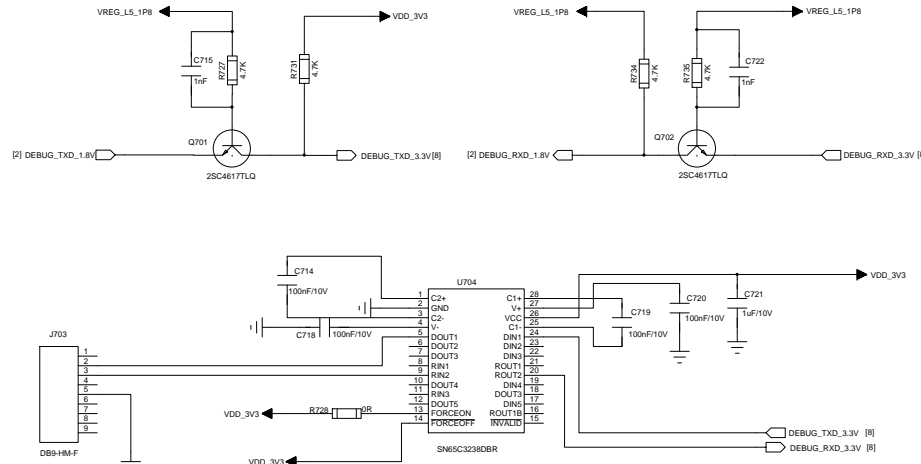
USB



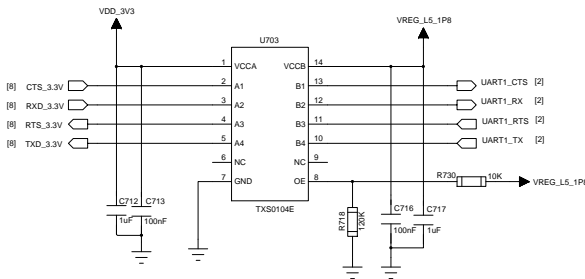
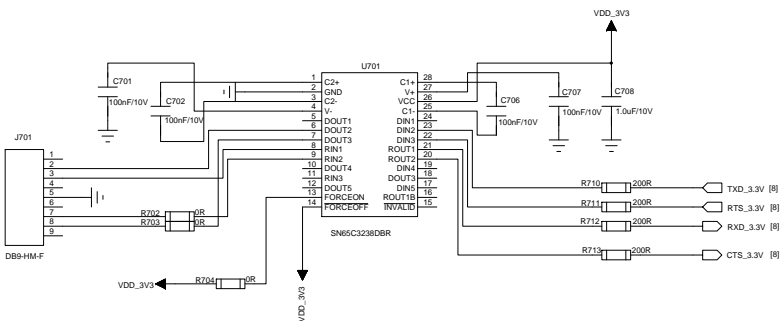
Notes:

- 1.It is recommended to add TVS on USB interface.
- 2.The junction capacitance value of TVS on USB data lines should be less than 2pF.

UART2_DEBUG



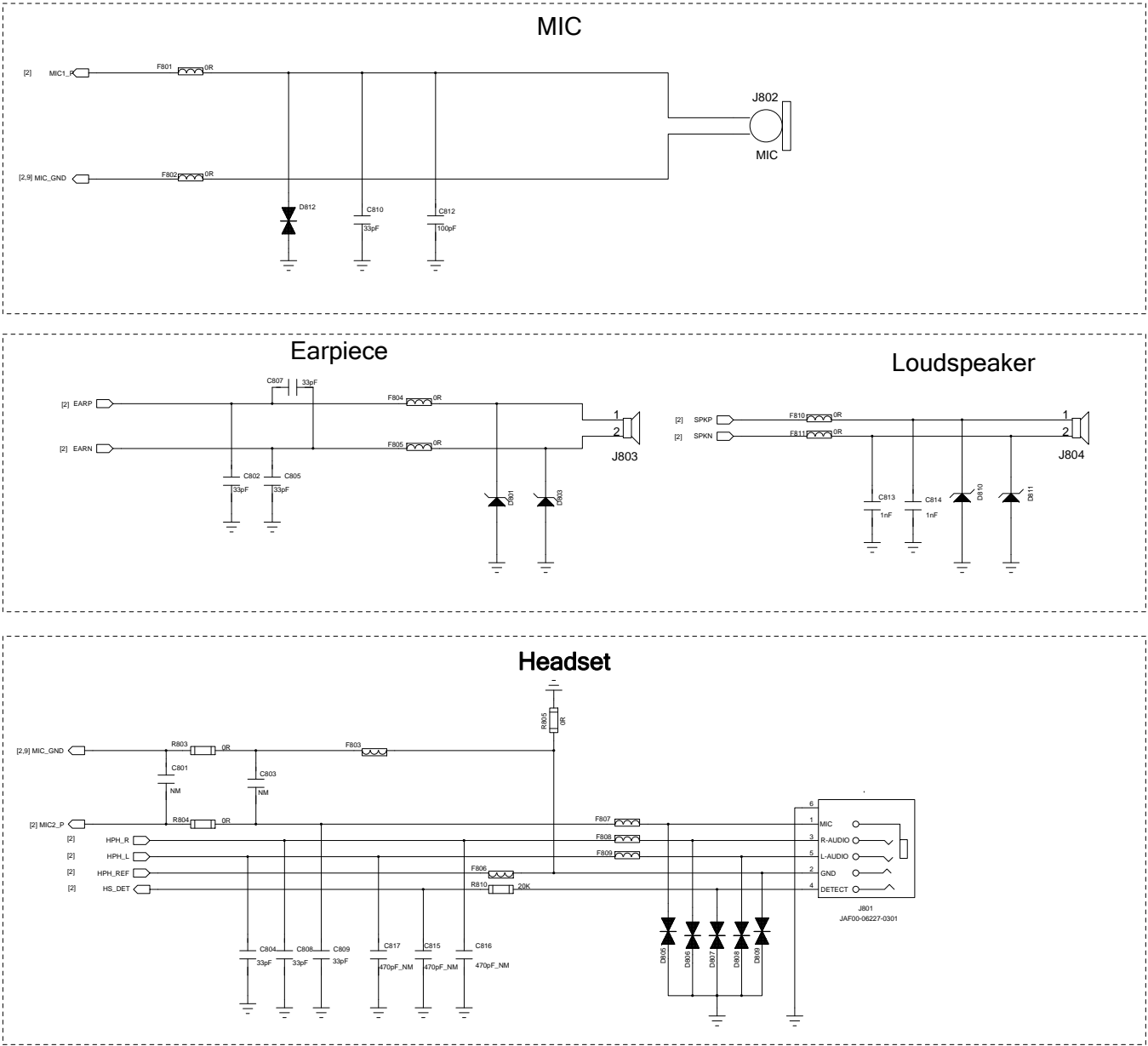
UART1



Quectel Wireless Solutions

DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
SHEET	7 OF 9	DATE 2016/2/16

Audio Design



Notes:

TVS diode for SPK and Earpiece pins:

- 1.The maximum breakdown voltage should be less than 6V
- 2.The maximum clamping voltage should be less than 12.5V

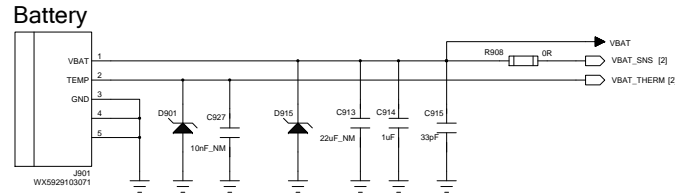
TVS diode for MIC and Headset pins:

- 1.The maximum breakdown voltage should be less than 3.6V
- 2.The maximum clamping voltage should be less than 6V
- 3.HPH has a negative swing and require a bi-directional TVS diode.

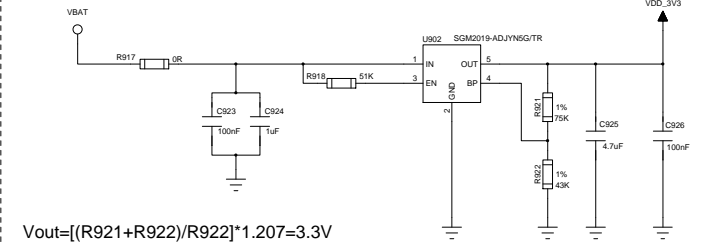
Quectel Wireless Solutions		
DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
SHEET	8 OF 9	DATE 2016/2/16

Power Supply

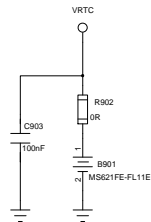
Battery Application



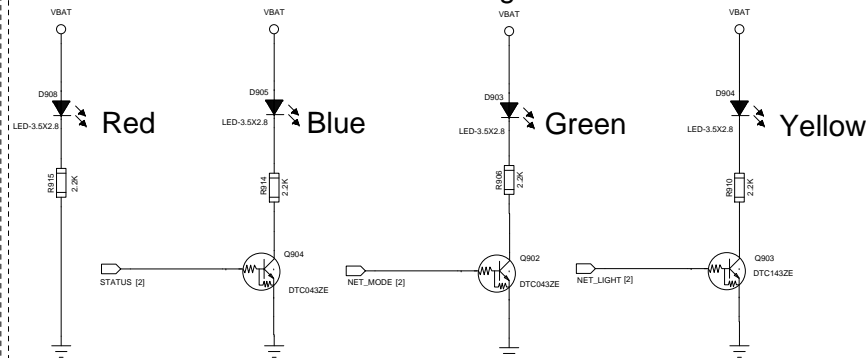
Power For 3V3



Backup Battery

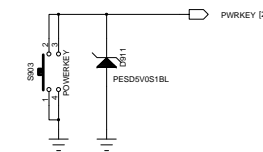


Indicator Light

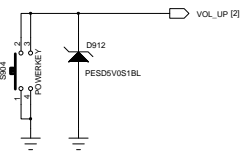


Keypad

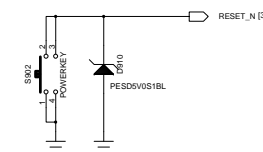
PWRKEY



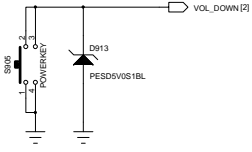
VOL_UP



RESET_N



VOL_DOWN

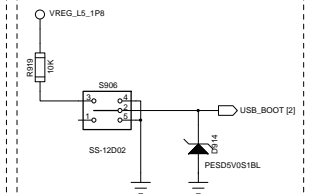


Charger Select



Notes:
1. Internal charger is used when R916 is NM.
2. If external charger is used, R916 must be mounted.

FORCE_USB_BOOT



Quectel Wireless Solutions

DRAWN BY Storm	PROJECT SC20	TITLE Reference Design
CHECKED BY Tony	SIZE A2	VER Rev.A
SHEET	9 OF 9	DATE 2016/2/16