

SC66 Reference Design

Smart LTE Module Series

Rev. SC66_Reference_Design_V1.0

Date: 2019-06-11

Status: Released



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

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About the Document

History

Revision	Date	Author	Description
1.0	2019-06-11	Jian WU	Initial

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1 Reference Design

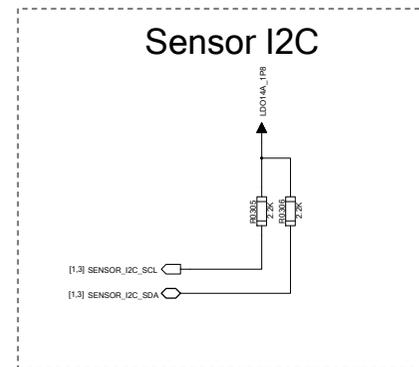
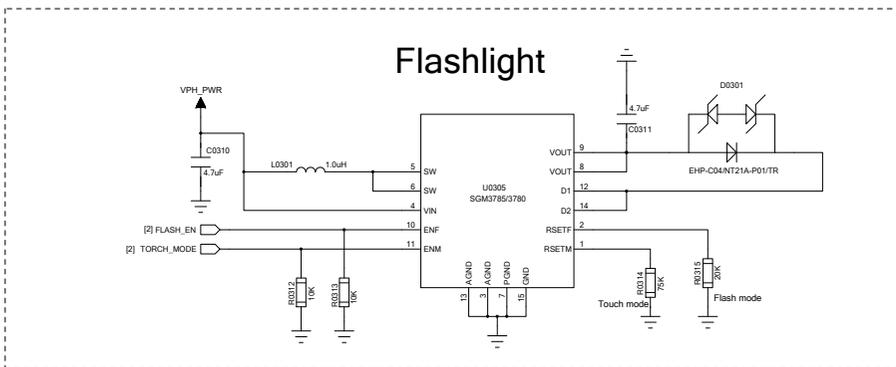
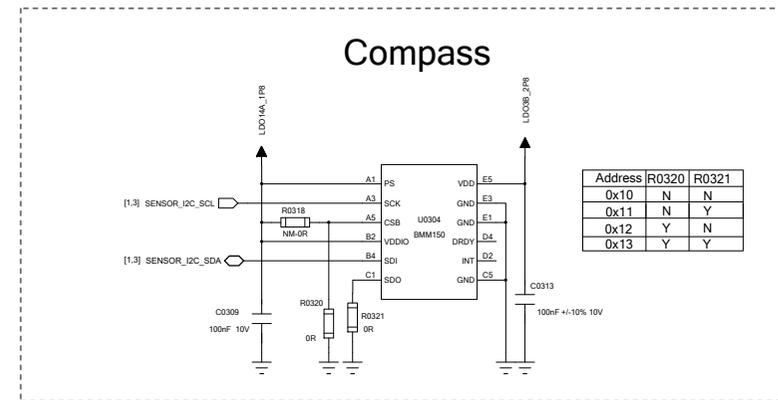
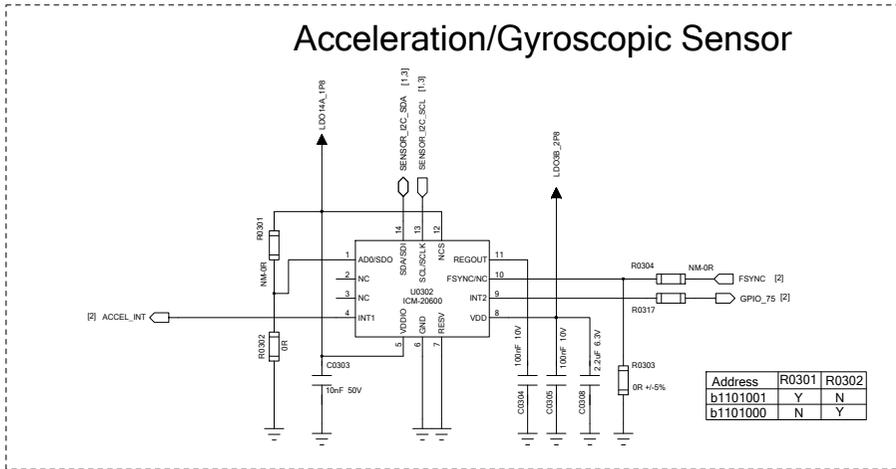
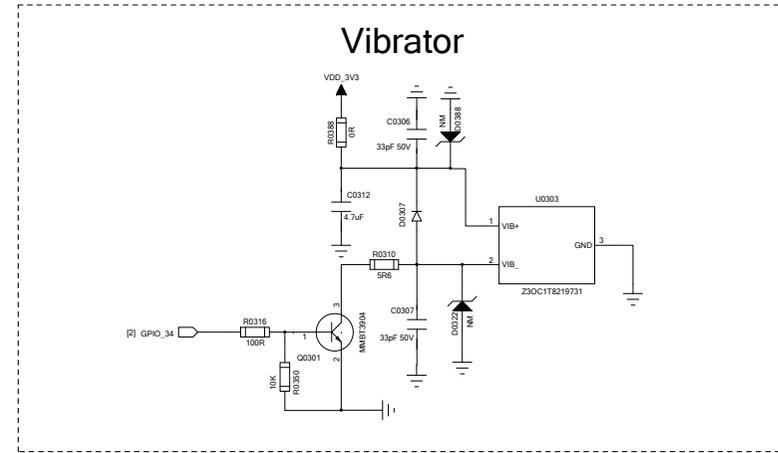
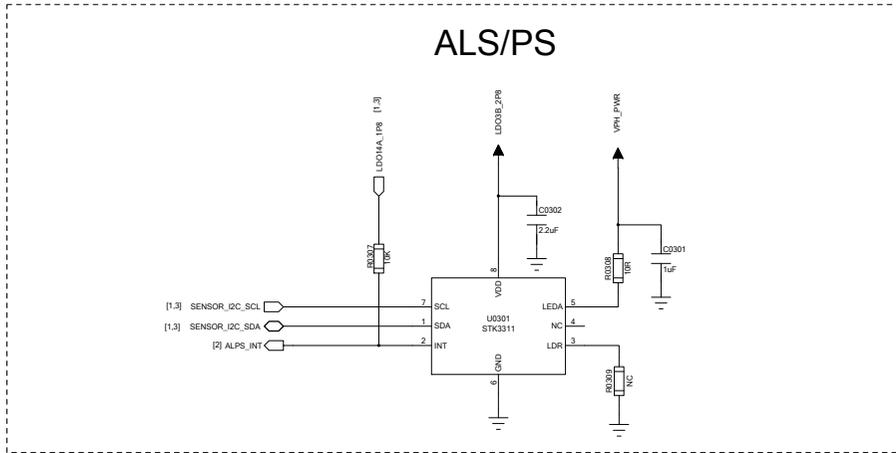
1.1. Introduction

This document provides a reference design for Quectel SC66 module.

1.2. Schematics

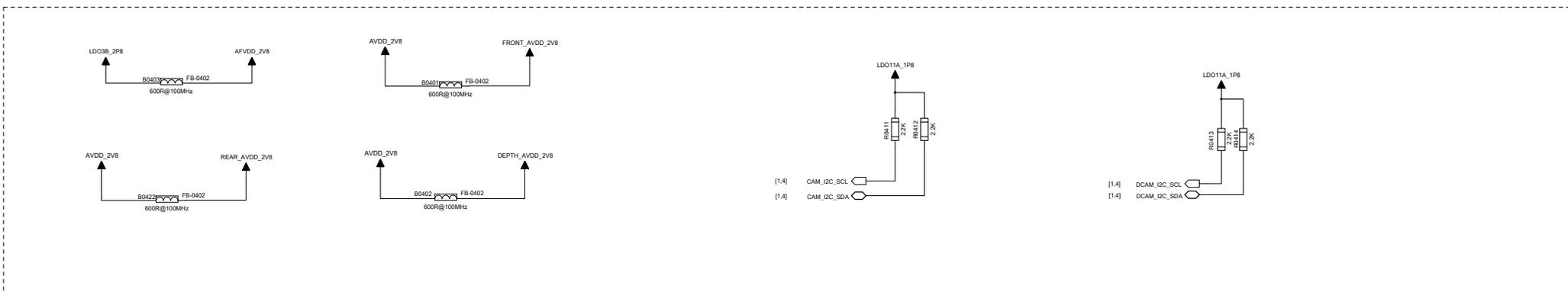
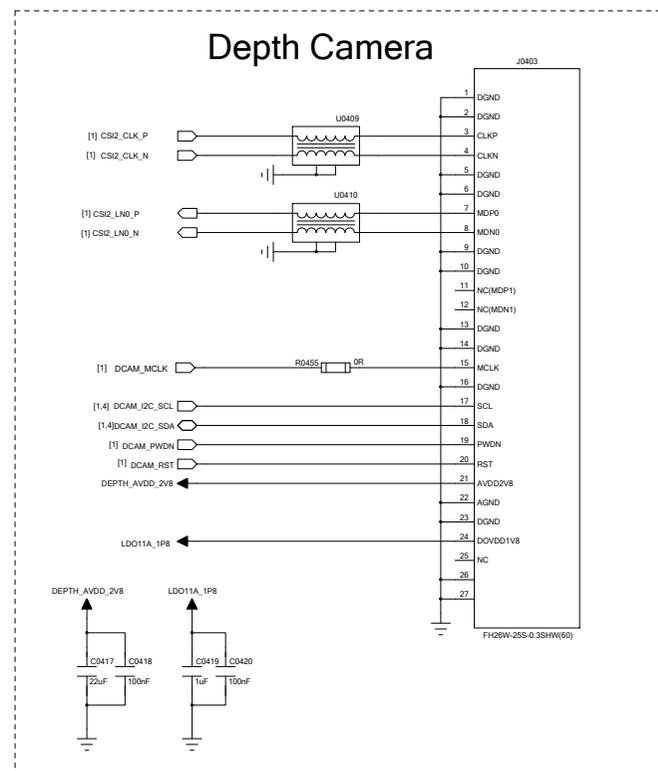
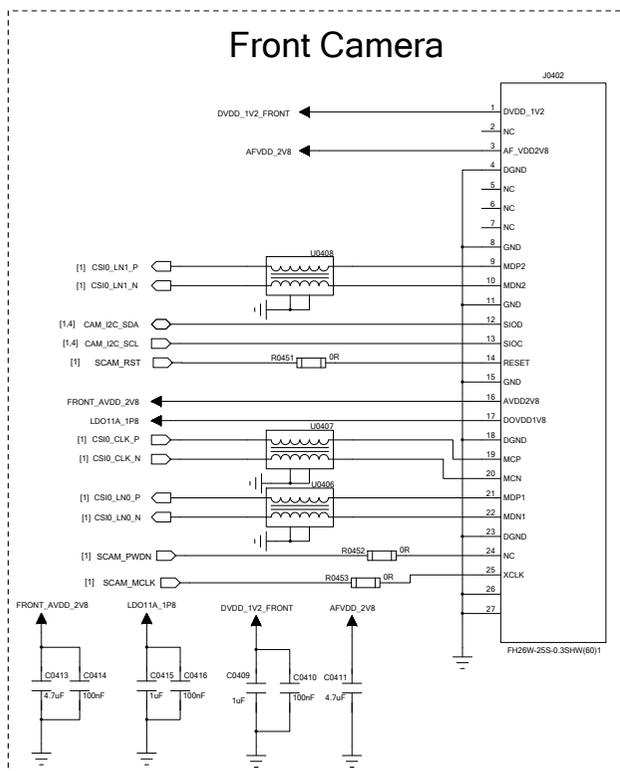
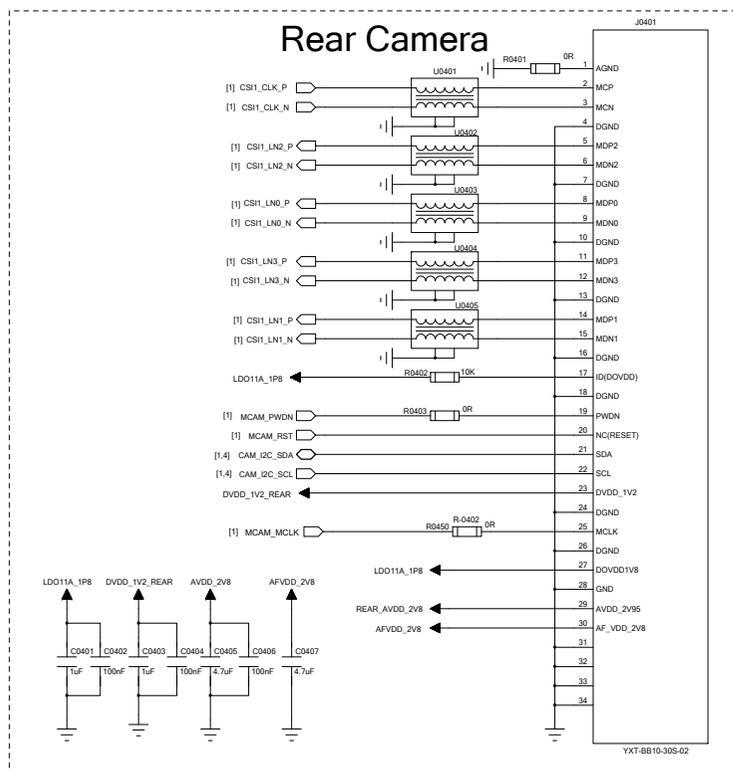
The schematics illustrated in the following pages are provided for your reference only.

Sensor Interfaces



Quectel Wireless Solutions		
DRAWN BY Jian WU	PROJECT SC66	TITLE Reference Design
CHECKED BY Danny WU	SIZE A2	VER 1.0
SHEET 3 OF 12	DATE 2019/6/11	

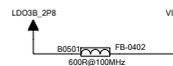
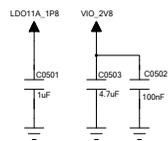
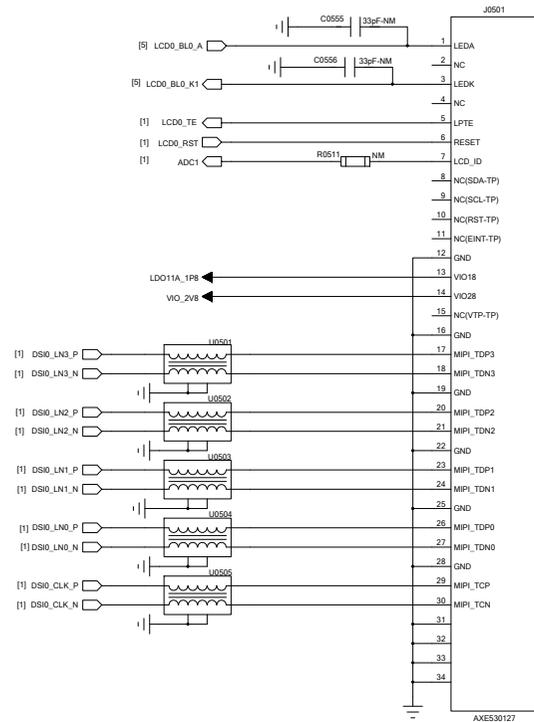
Camera Interfaces



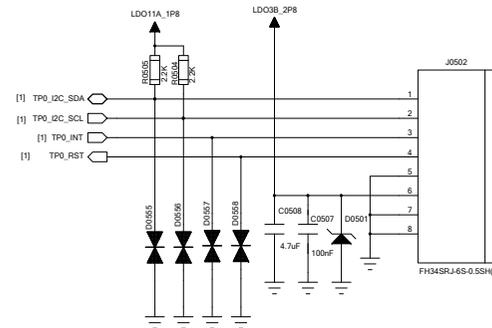
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LCM and CTP Interfaces 1

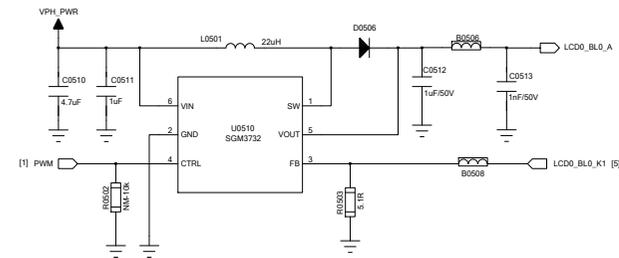
LCM0



CTP0 for LCM0



Backlight Driver for LCM0



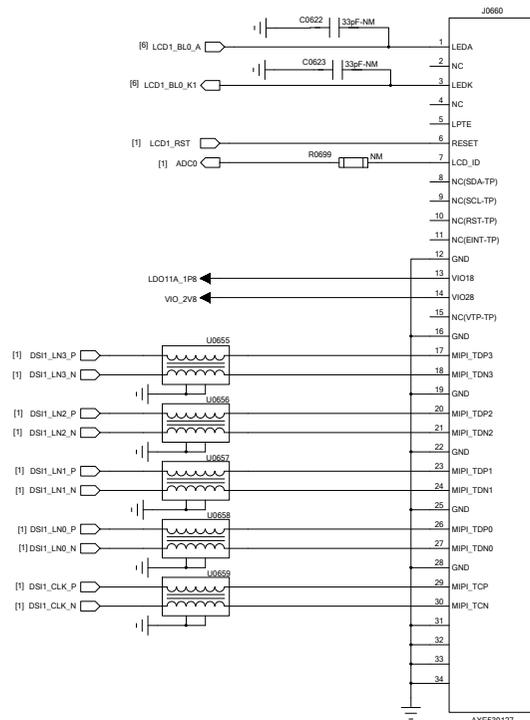
R0503=200mV/Imax

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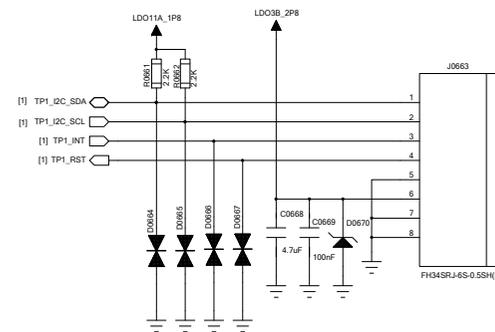
LCM and CTP Interfaces 2

LCM1

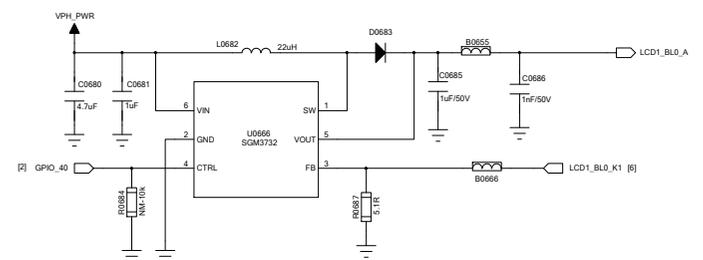


Note:
LCM1 only supports screens operating in Video Mode.

CTP1 for LCM1



Backlight Driver for LCM1



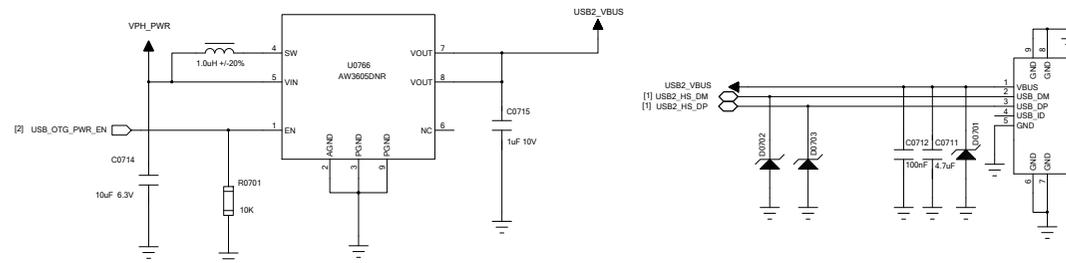
R0687=200mV/Imax

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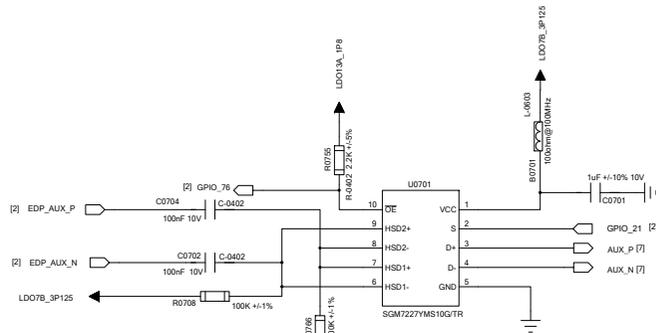
USB and UART Interfaces

USB2 Host Interface



Note:
USB2_HS_DM and USB2_HS_DP only support host mode.

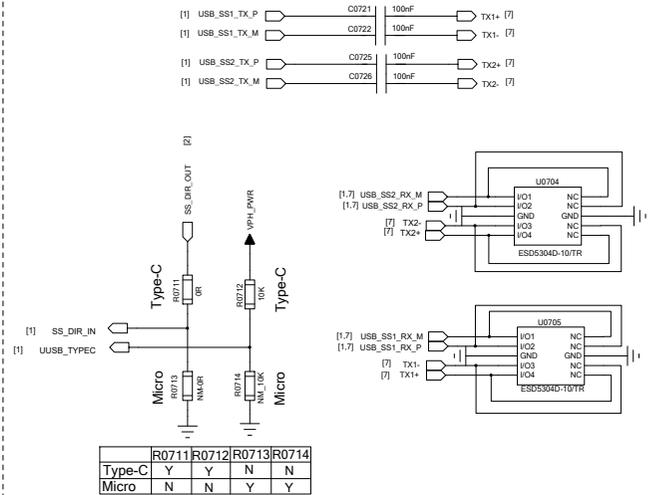
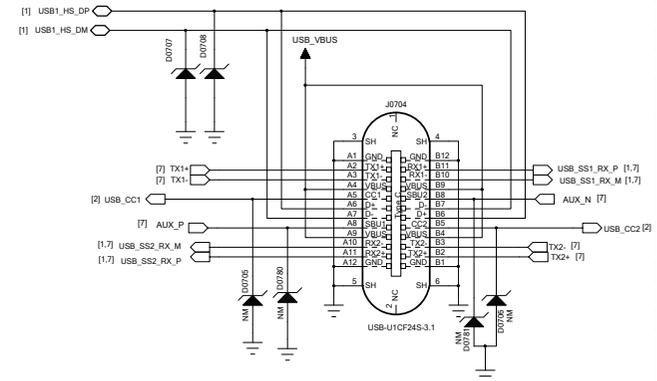
Display Port



Notes:

1. It is recommended to add TVS components close to USB connector.
2. The junction capacitance value of the TVS components on USB_DP/DM lines should be less than 2pF.
3. The junction capacitance value of the TVS components on USB_TX/RX lines should be less than 0.5pF.

Type-C Interface



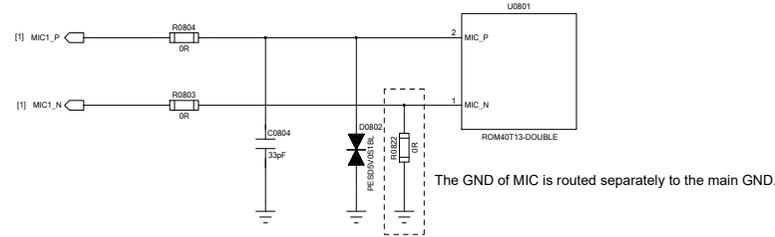
	R0711	R0712	R0713	R0714
Type-C	Y	Y	N	N
Micro	N	N	Y	Y

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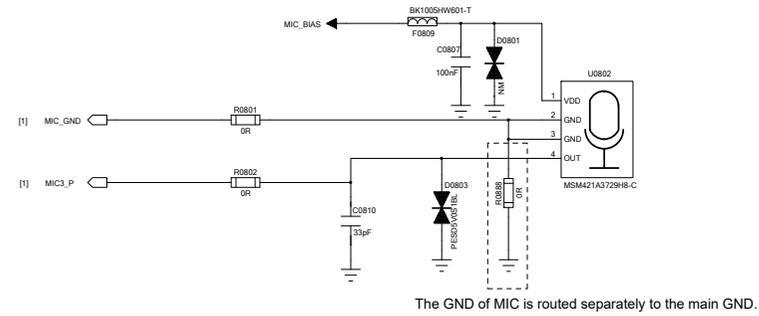
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Audio Interfaces

ECM-type Microphone



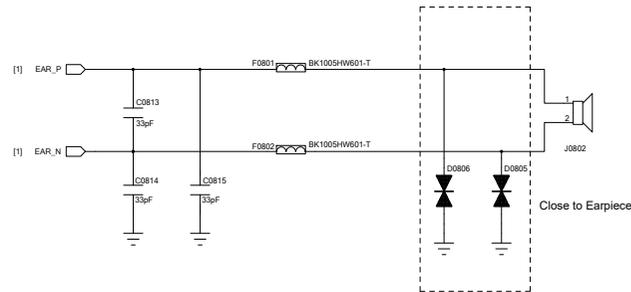
MEMS-type Microphone



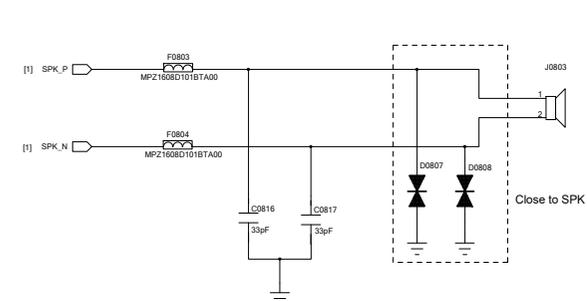
Notes:

1. SC66 supports ECM-type and MEMS-type microphones, for ensuring better interference immunity, the latter is highly recommended.
2. For more details, please refer to *Quectel_SC66_Hardware_Design*.

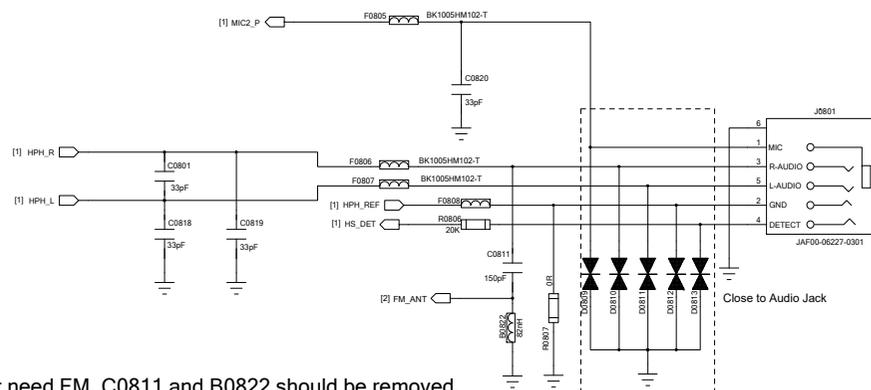
Earpiece



Loudspeaker



Headset



Note:

If customers do not need FM, C0811 and B0822 should be removed.

Notes:

TVS components for speaker and earpiece interface pins:
The clamping voltage range should be from 10V to 12V.

TVS components for microphones and headset interface pins:

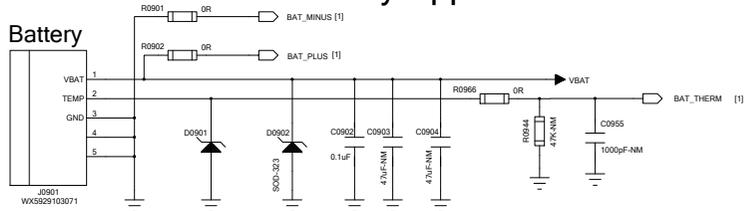
1. The clamping voltage range should be from 5V to 6V.
2. Headset interface has a negative swing and requires a bidirectional TVS.
3. ESD diodes should be placed near microphones, headset jack connector, and output speakers for best protection.

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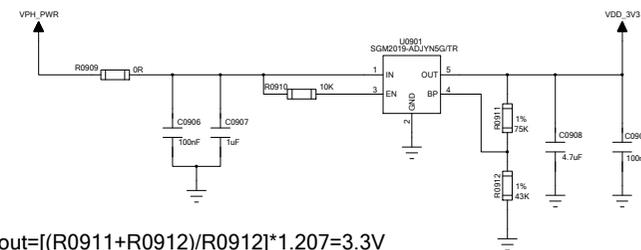
Power Supply 1

Battery Application



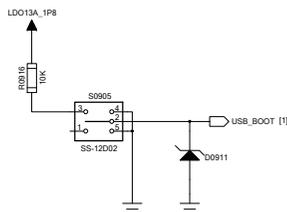
Note:
BAT_THERM should not be left floating, if unused, it should be connected to ground through a 47k ohm pull-down resistor.

3V3 Output Power

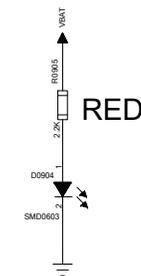


$$V_{out} = [(R0911 + R0912) / R0912] * 1.207 = 3.3V$$

Force Download

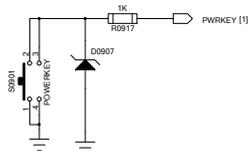


Indicator Light

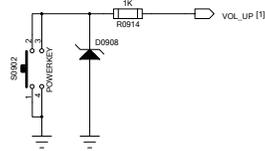


Keypad

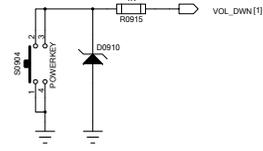
PWRKEY



VOL_UP



VOL_DOWN



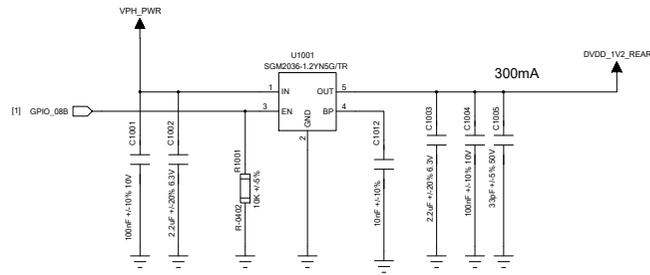
Note:
The VOL_UP voltage is equal to the VBAT voltage, so customers should make sure an appropriate TVS is used.

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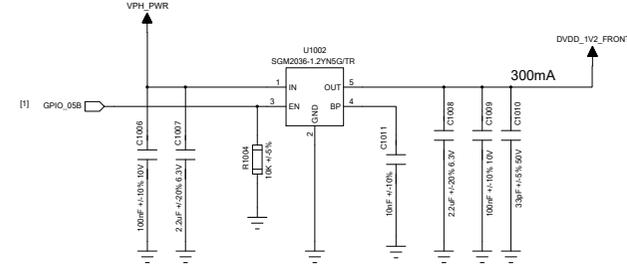
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Power Supply 2

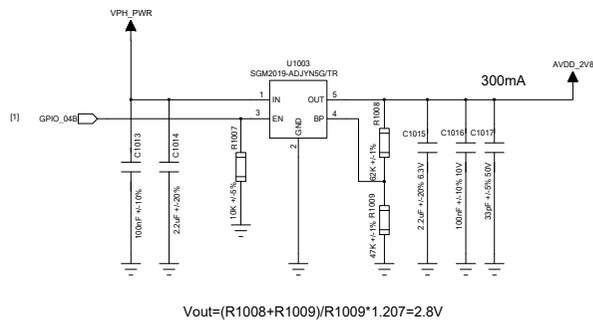
1.2V Power Supply for DVDD of Rear Camera



1.2V Power Supply for DVDD of Front Camera



2.8V Power Supply for AVDD of Camera



Note:

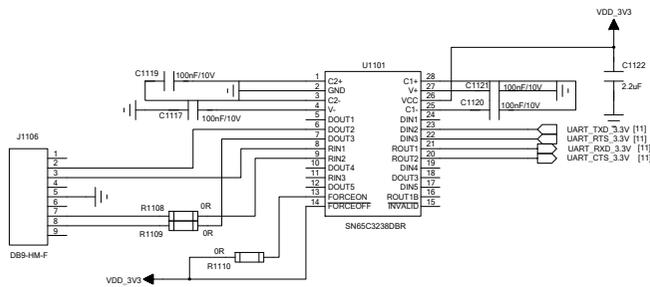
If customers want to improve camera quality, a high-PSRR LDO is recommended.

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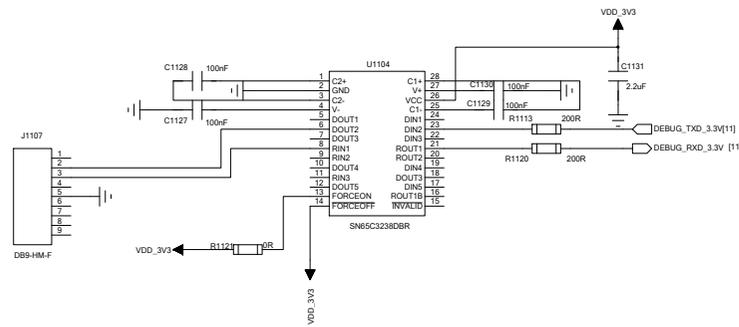
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UART Interfaces

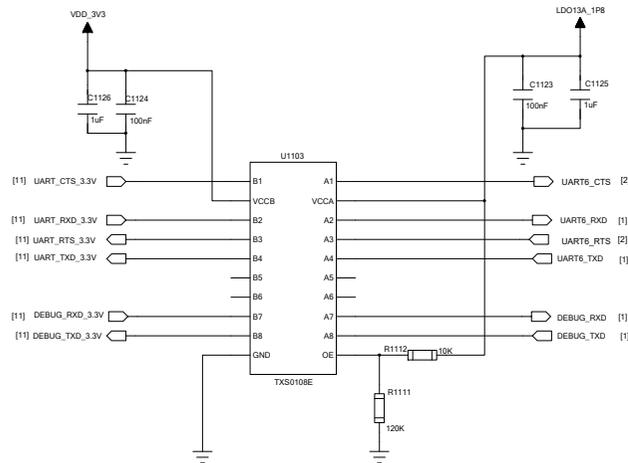
Main UART



Debug UART



Voltage-level Translator

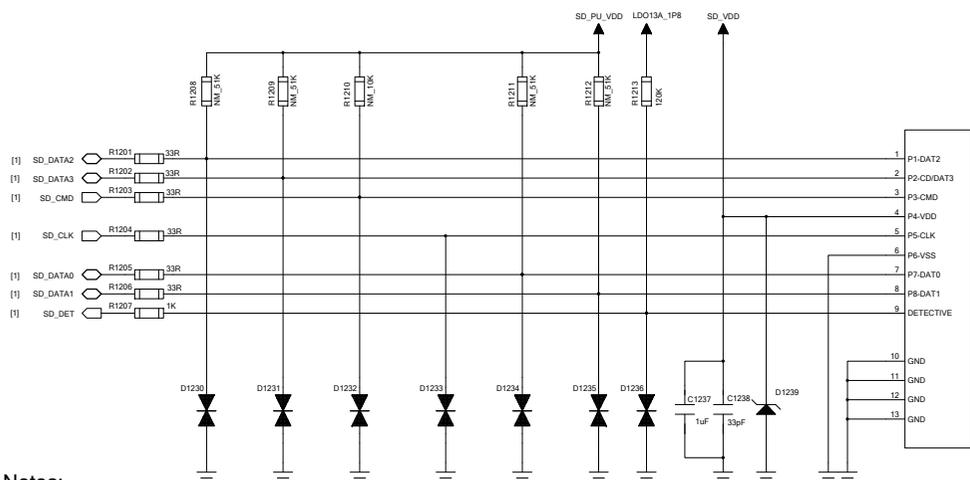


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(U)SIM and SD Card Interfaces

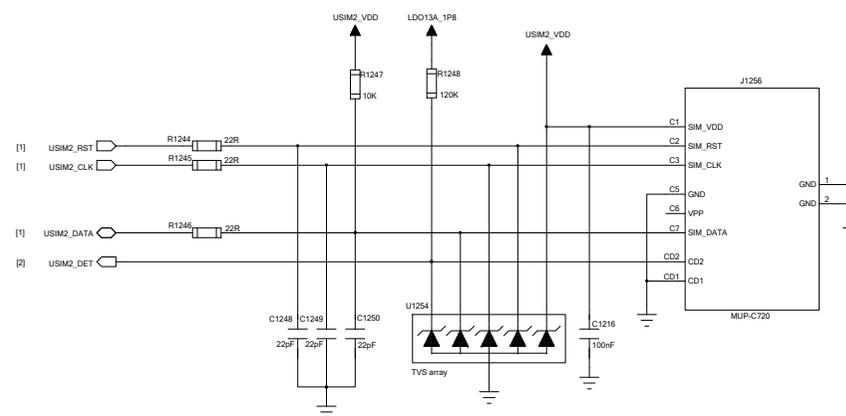
SD Card



Notes:

- 1. R1201~R1206 are applied to suppress EMI spurious transmission and enhance ESD protection.
- 2. The capacitance value of D1230~D1235 should not exceed 5pF.

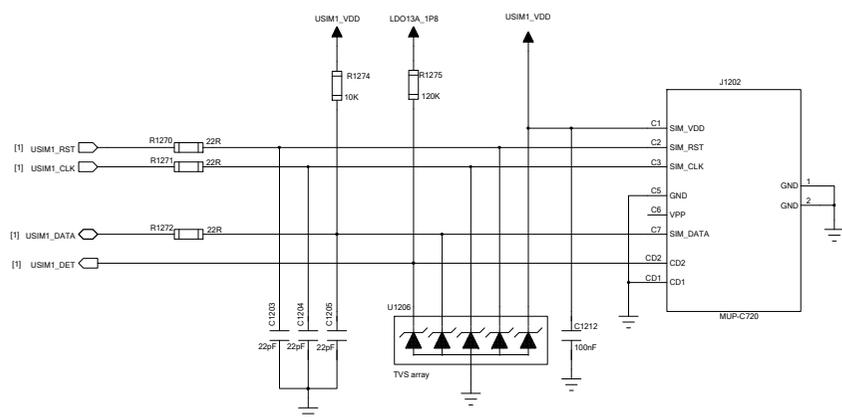
Sub (U)SIM



Note:

- R1244~R1246 are applied to suppress EMI spurious transmission and enhance ESD protection.

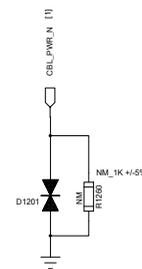
Main (U)SIM



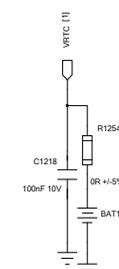
Note:

- R1270~R1272 are applied to suppress EMI spurious transmission and enhance ESD protection.

Auto Power-on



RTC



Note:

- If customers do not need the RTC function, it is recommended to replace the 100nF C1218 with a 47uF one, and R1254 should be removed.

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