

| I2C | Sub SYS | Function | Part Number | I2C Spec. | Budget Timing | I2C Slave Address / Write / Read (7-bit mode) | | |
|----------------|------------------|------------------------|--------------|-----------|---------------|---|------------------------|--|
| I2C-0 | AP | Cap Touch controller | GT1151 | 400 Kbps | Yes. | 0x5D | Write:0xBA / Read:0xBB | |
| | | LCM Gate Drive | RT4801HWSC | 400 Kbps | Yes. | | | |
| I2C-1 (I3C) | AP Sensor Hub | Magnetic Sensor | AK09918C | 400 Kbps | Yes. | 0x0C | Write:0x18 / Read:0x19 | |
| | | Ambient Light Sensor | CM36558 | 400 Kbps | Yes. | 0x51 | Write:0xA2 / Read:0xA3 | |
| | | Proximity Sensor | | | | | | |
| | | Pressure Sensor | BMP280 | 400 Kbps | Yes. | 0x77 | Write:0xEE / Read:0xEF | |
| I2C-2 (I3C) | AP | Rear Camera | IMX519 | 400 Kbps | | 0x1A | Write:0x34 / Read:0x35 | |
| | | | EEPROM | 400 Kbps | | 0x50 | Write:0xA0 / Read:0xA1 | |
| | | | AF driver | 400 Kbps | | 0x0C | Write:0x18 / Read:0x19 | |
| | | | SK2P7 | 400 Kbps | | 0x2D | Write:0x5A / Read:0x5B | |
| | | Dual cam (B+b) - Main1 | EEPROM | 400 Kbps | | 0x50 | Write:0xA0 / Read:0xA1 | |
| | | | AF driver | 400 Kbps | | 0x0C | Write:0x18 / Read:0x19 | |
| | | | | | | | | |
| | | | | | | | | |
| I2C-3 | AP | NFC | ST21NFCD | 400 Kbps | Yes. | 0x08 | Write:0x10 / Read:0x11 | |
| | | Dual cam (B+b) - Main2 | OV8856 | 400 Kbps | | 0x10 | Write:0x20 / Read:0x21 | |
| | | | EEPROM=NA | | | | | |
| | | | AF driver=NA | | | | | |
| | | | | | | | | |
| I2C-4 (I3C) | AP | Front Camera | SK2T7 | 400 Kbps | | 0x2D | Write:0x5A / Read:0x5B | |
| | | | EEPROM | 400 Kbps | | 0x52 | Write:0xA4 / Read:0xA5 | |
| | | | AF driver=NA | | | | | |
| I2C-5 | AP | Reserved | | | | | | |
| I2C-6 | AP SSPM | Reserved | | | | | | |
| I2C-7 | AP | Audio Smart PA | MT6660 | 400 Kbps | Yes. | 0x34 | Write:0x68 / Read:0x69 | |
| | | SW Charger | SW Charger | 400 Kbps | Yes. | | | |
| | | CC Detect | RT1715WSC | 400 Kbps | Yes. | | | |
| | | Flash LED 5V Boost | RT4505 | 400 Kbps | Yes. | | | |

(VIETMOBILE. VN)

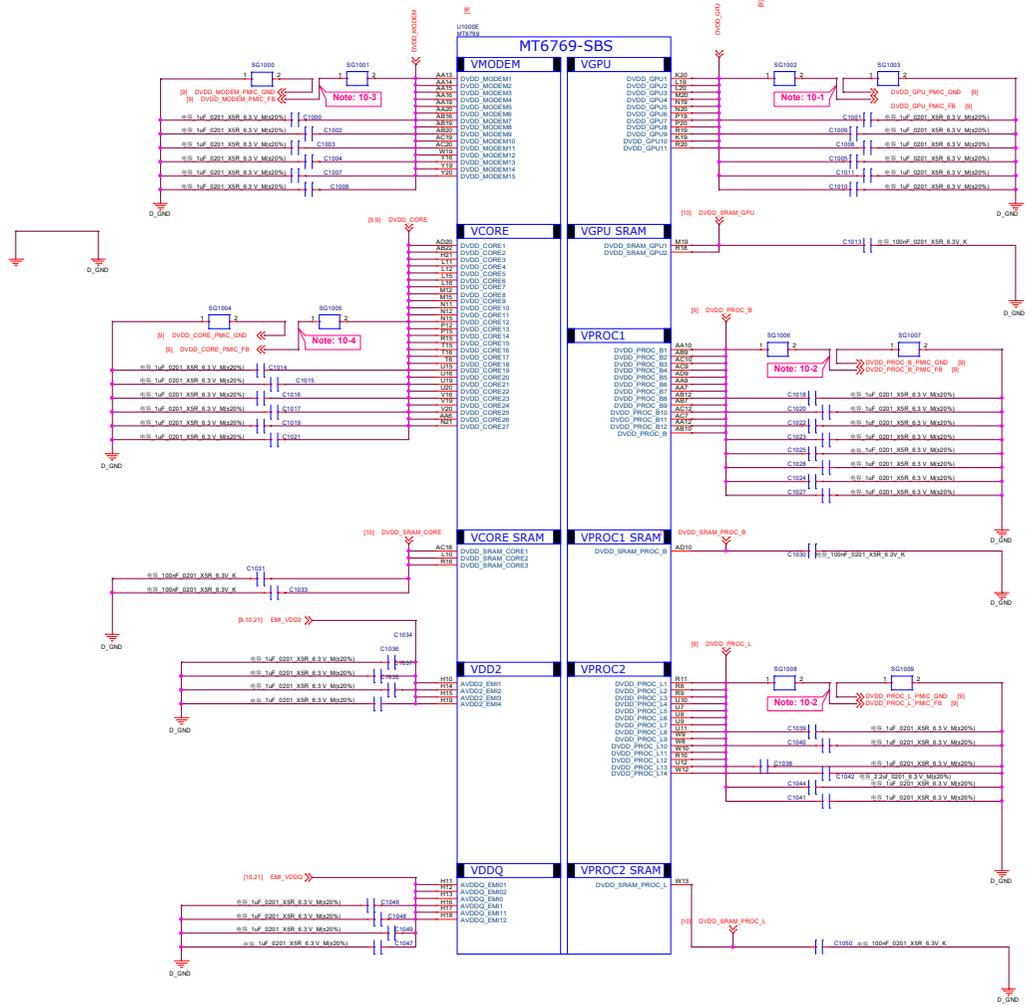
Note : I2C Spec. : Standard mode (100 kbps) and Fast mode (400 kbps), Fast mode Plus (1 Mbps) and High-speed mode (3.4 Mbps)

| | | |
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| Title 01_Block_Diagram | | |
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| Date | Category | Item |
|----------------------|----------|--|
| 2018.12.14 (V0.1) | Page 04 | V0.1 Release |
| 2019.01.11 (V0.2) | Page 12 | Add CAM_PDN3(GPIO110) HW pin for Note 12-4: HW pin for DDR type feature in bootstrap Delete R1007 and R1012 ext. pull for LP4X eMCP |
| | Page 13 | Add CAM_PDN3(GPIO110)'s Note : No ext. pull for DDR type feature in bootstrap |
| | Page 69 | Add CAM_PDN3(GPIO110)'s Note : No ext. pull for DDR type feature in bootstrap |
| | Page 21 | Add C2106 for VBIF28 cap |
| | Page 22 | Delete R2202 |

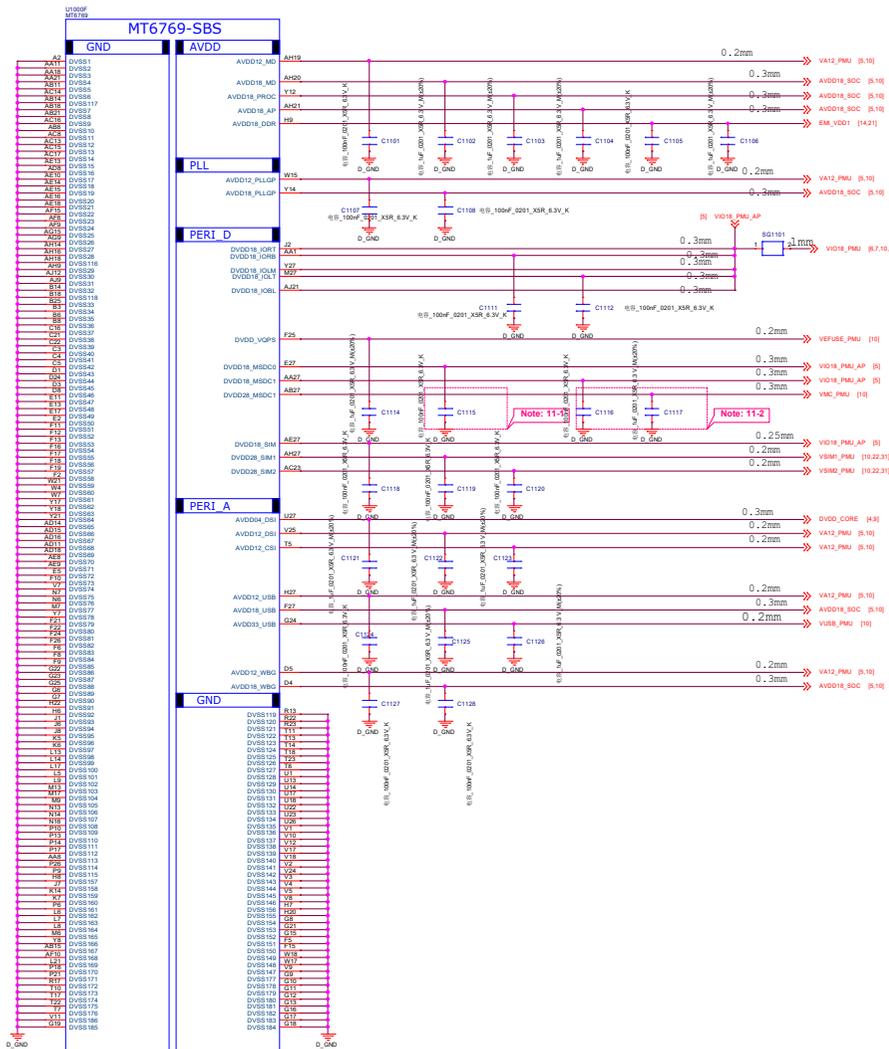
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| 华勤通讯 Huaqin Telecom Technology Com.,Ltd | | |
| Title 01_Block_Diagram | | |
| Size C | Project J15_MB_V1 | Rev v1 |
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Schematic design notice of "10_BB_POWER_PDN" page:



- Note 10-1: Differential pair of DVDD_GPU remote sense must be close to BB's ball.
Remote sense trace with GND shielding to PMIC (Differential)
- Note 10-2: Differential pair of DVDD_PROC remote sense must be close to BB's ball.
Remote sense trace with GND shielding to PMIC (Differential)
- Note 10-3: Differential pair of DVDD_MODEM remote sense must be close to BB's ball.
Remote sense trace with GND shielding to PMIC (Differential)
- Note 10-4: Differential pair of DVDD_CORE remote sense must be close to BB's ball.
Remote sense trace with GND shielding to PMIC (Differential)

| | | |
|---|-------------------|--------|
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| Title 01_Block_Diagram | | |
| Size D | Project J15_MB_V1 | Rev V1 |
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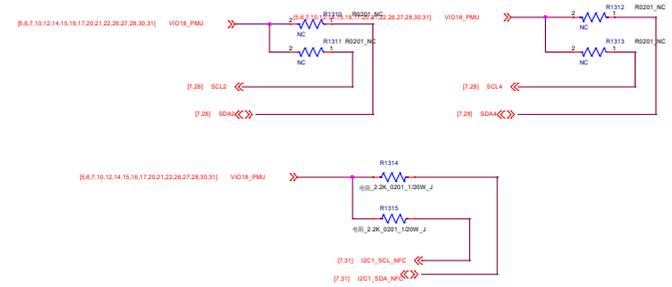
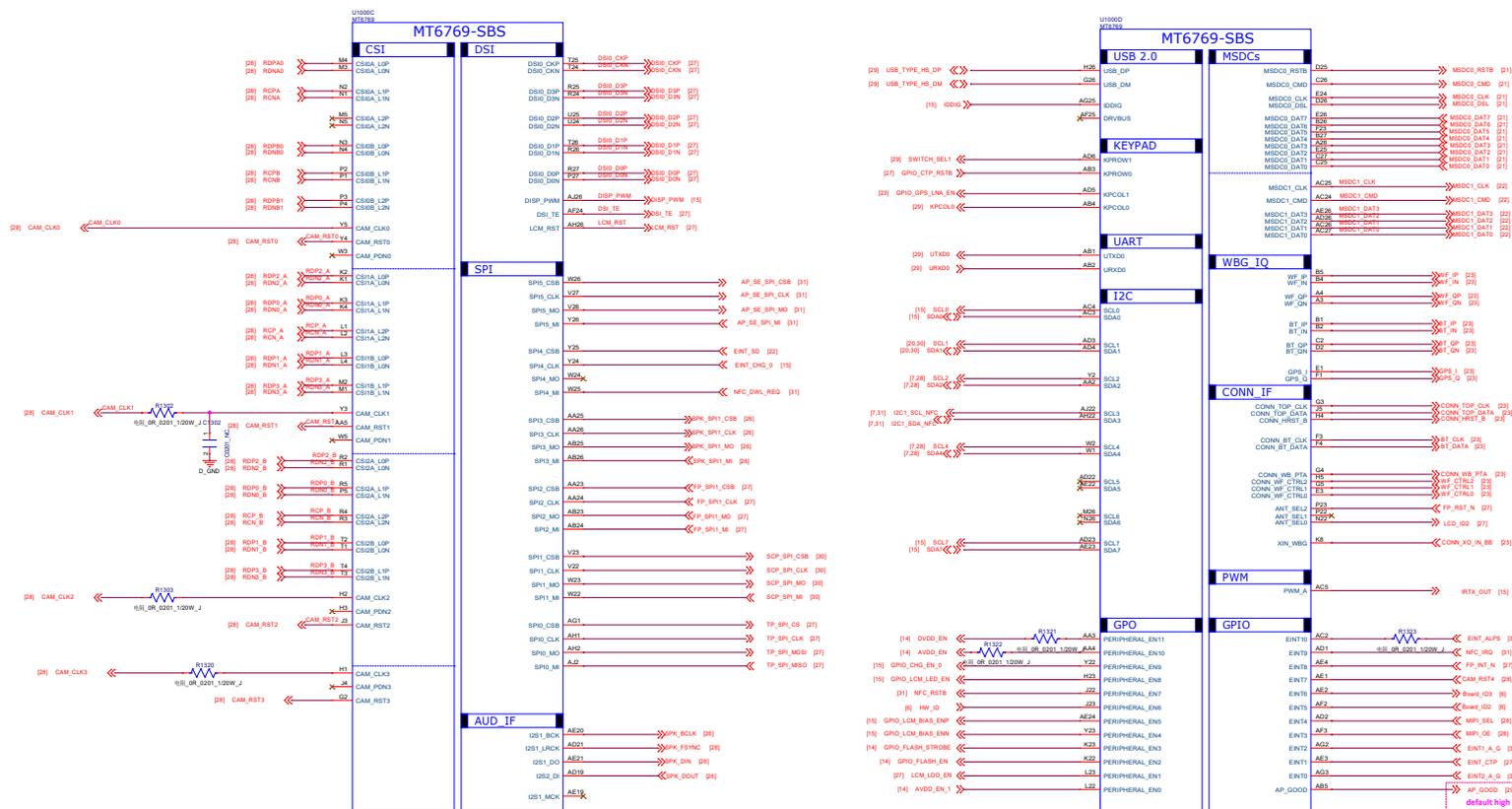
Schematic design notice of "11_BB_POWER_IO" page:

Note 11-1: C1115 closed DVDD18_MSDC0 150mil

Note 11-2: C1116 closed DVDD18_MSDC1 150mil
C1117 closed DVDD28_MSDC1 150mil

AVDD12 : 单个点走8mil, 两路分支各16mil, 总路径20mil
VIO18_FMCU_AP: 总路径40mil
AVDD18_SOC: 总路径20mil

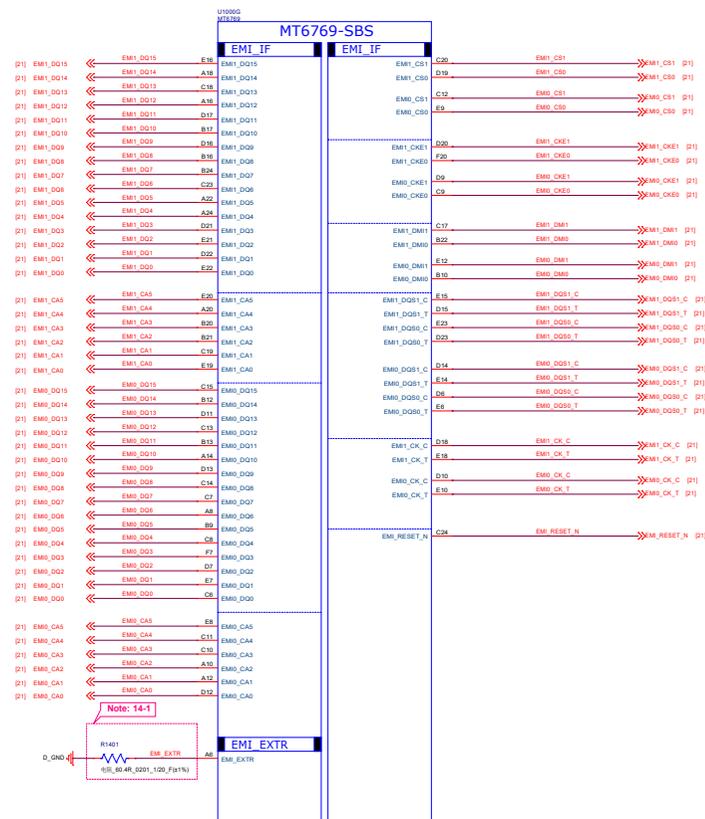
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|--|-------------------|--------|
| 华勤通讯 Huaqin Telecom Technology Com., Ltd | | |
| Title 01_Block_Diagram | | |
| Size D | Project J15_MB_V1 | Rev v1 |
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Title 01_Block_Diagram

| | | |
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| Size D | Project J15_MB_V1 | Rev v1 |
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Schematic design notice of "14_BB_3" page.

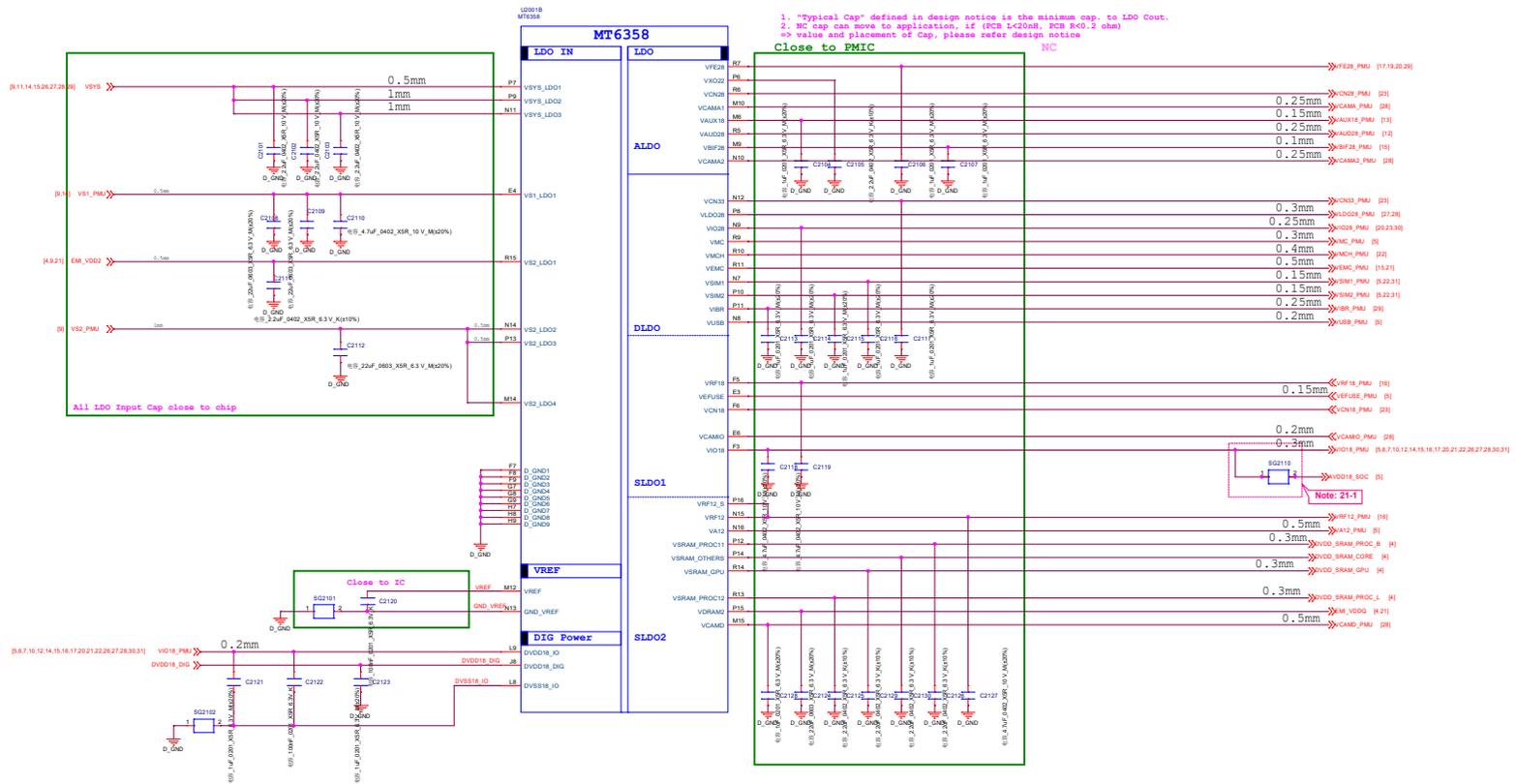
Note 14-1: R1401 please select 60.4 ohm (1%) resistor

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Title 01_Block_Diagram

| | | |
|-----------|----------------------|-----------|
| Size D | Project J15_MB_V1 | Rev V1 |
|-----------|----------------------|-----------|

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|----------------------------|---------------|



1. "Typical Cap" defined in design notice is the minimum cap. to LDO Cout.
2. NC cap can move to application, if (CINB < 220nF, CINB < 0.2 ohm) => value and placement of Cap, please refer design notice

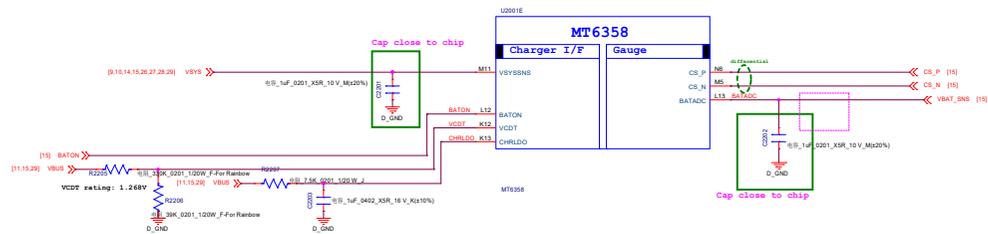
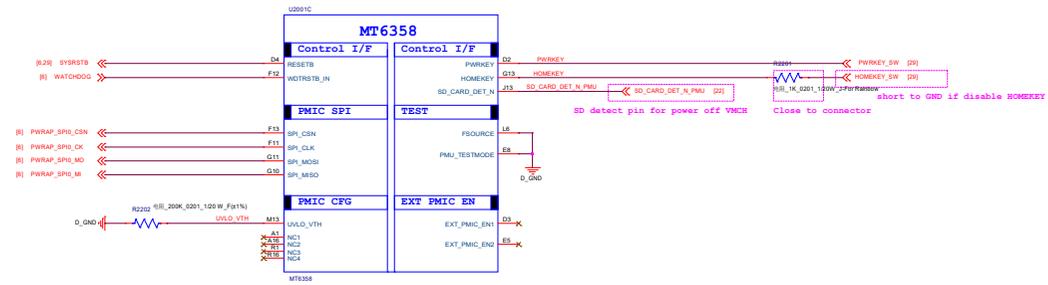
Schematic design notice of "21_POWER_MT6358-LDO" page.

Note 21-1: Please set SG2110 close to C2118, making star connection between VIO18_PMU and AVDD18_SOC near to LDO cap. C2118
Please also refer to MT6358 design notice for further detail design information

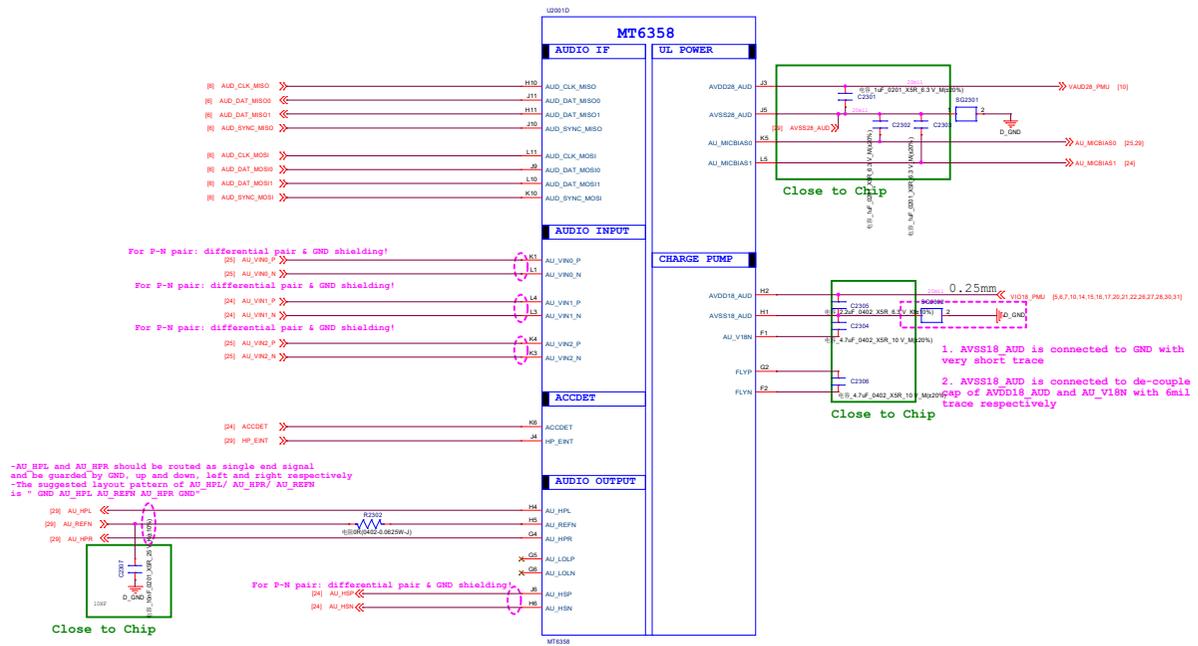
Note 21-2: If these power trace can meet LDO layout constraint, these CAP can be NC or removed.
Please refer to MT6358 design notice.

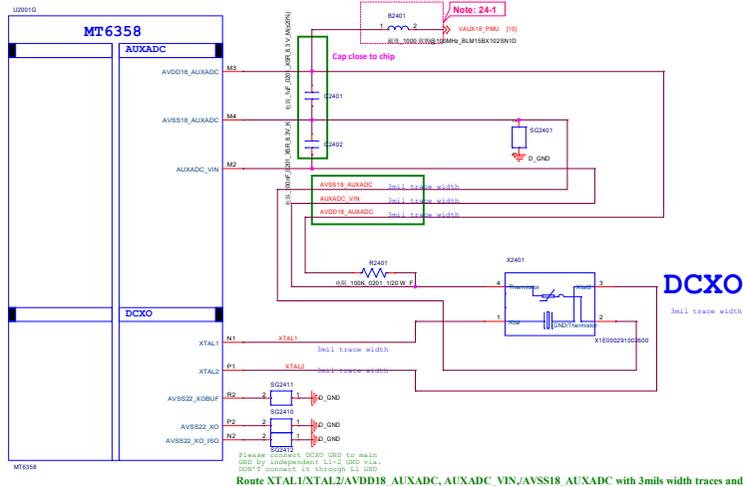
Note: 21-2

| | | |
|--|-------------------|----------------|
| 华勤通讯 Huaqin Telecom Technology Com., Ltd | | |
| Title 01_Block_Diagram | | |
| Size D | Project J15_MB_V1 | Rev V1 |
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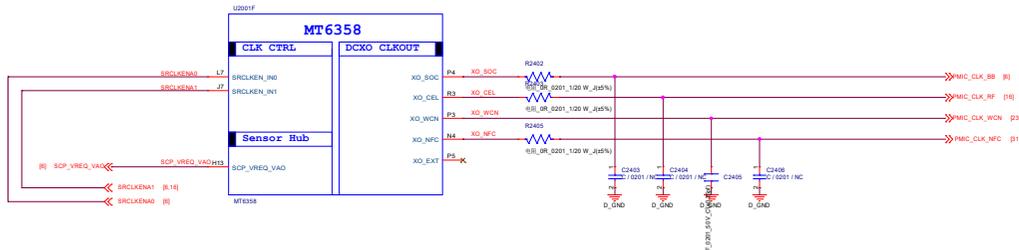


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| 华勤通讯 Huaqin Telecom Technology Com., Ltd | | |
| Title 01_Block_Diagram | | |
| Size D | Project J15_MB_V1 | Rev V1 |
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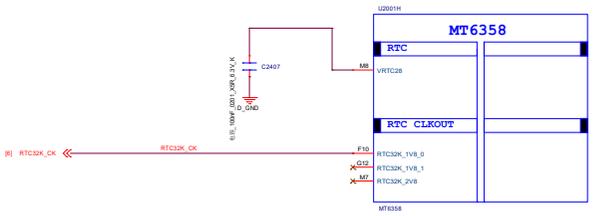


Route XTAL1/XTAL2/AVDD18_AUXADC, AUXADC_VIN/AVSS18_AUXADC with 3mils width traces and well GND shielding.



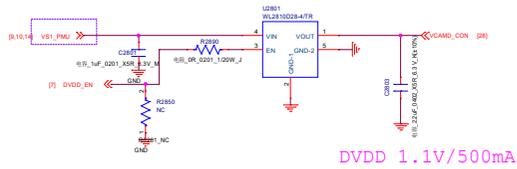
Schematic design notice of "24_POWER_MT6358_Clock"

Note 24-1: Please follow MT6768_MT6358 Co-Clock Design Notice for Layout guide of VAUX18, then B2401 can use 0 ohm to replace BEAD.

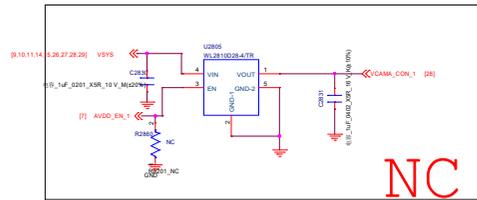


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| 华勤通讯 Huaqin Telecom Technology Com., Ltd | | |
| Title 01_Block_Diagram | | |
| Size D | Project J15_MB_V1 | Rev V1 |
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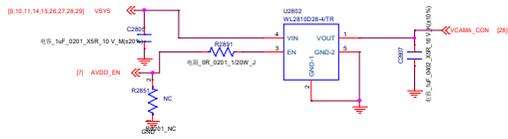
**LDO for Rear Camera (VCAMD_EXT1)
1.06V**



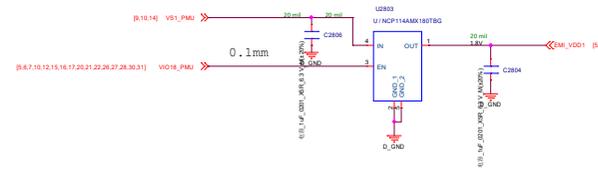
**LDO for Dual Camera (VCAMA_EXT)
2.8V**



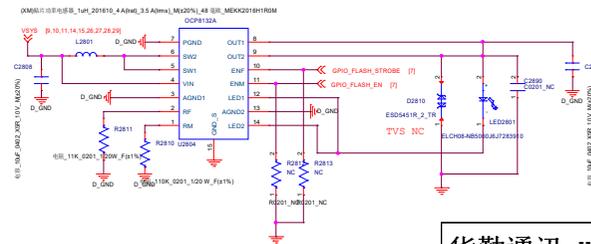
**LDO for Dual Camera (VCAMA_EXT)
2.8V**



Ext. EMI_VDD1 for LPDDR4X VDD1



Flash LED 5V Boost

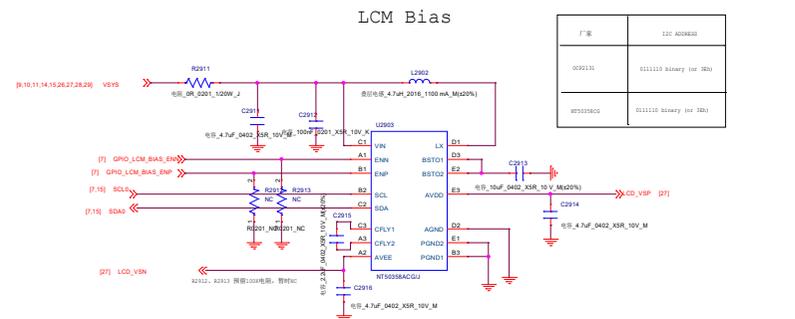
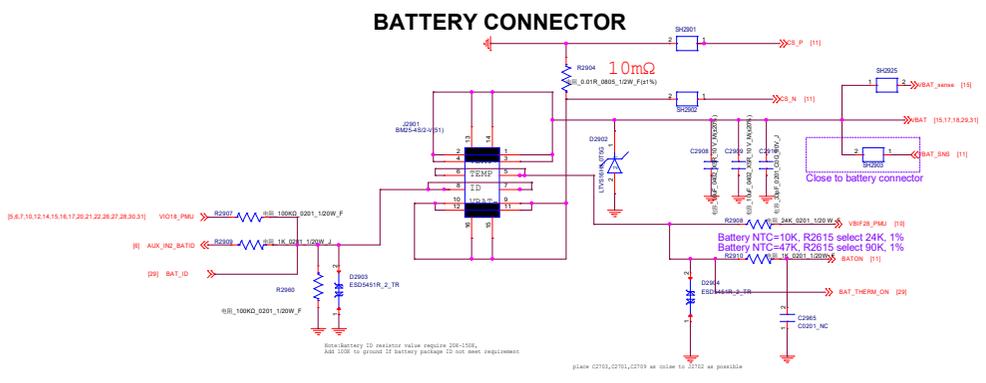
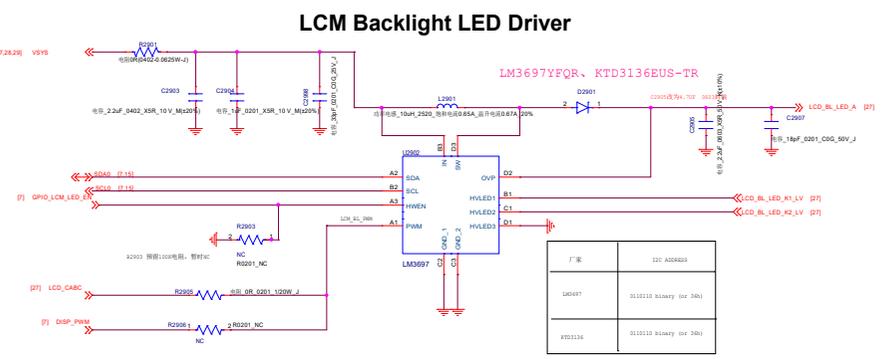
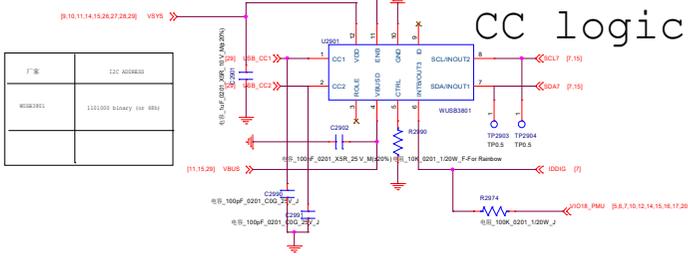


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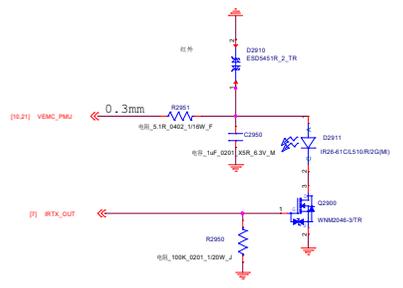
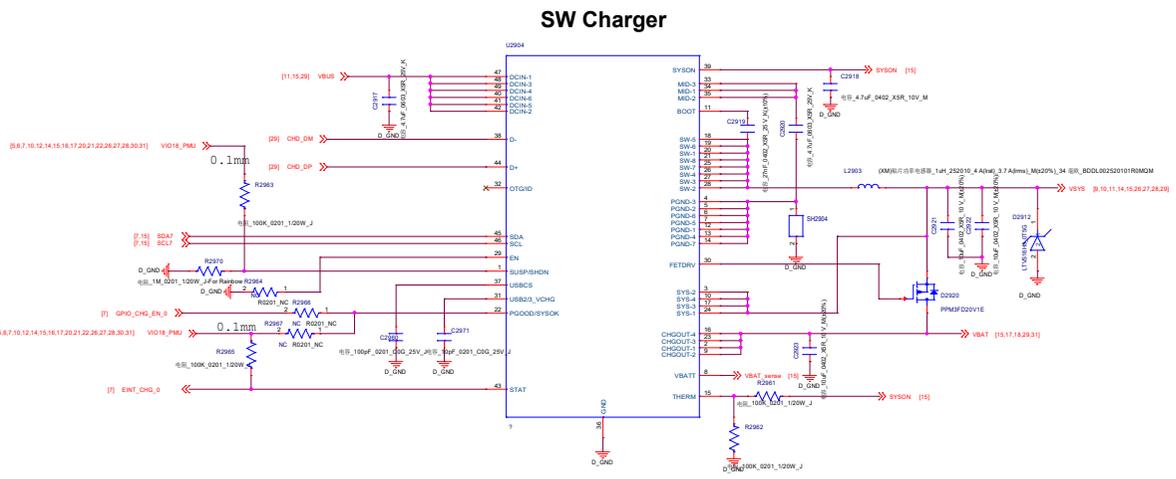
Title 01_Block_Diagram

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| Size D | Project J15_MB_V1 | Rev V1 |
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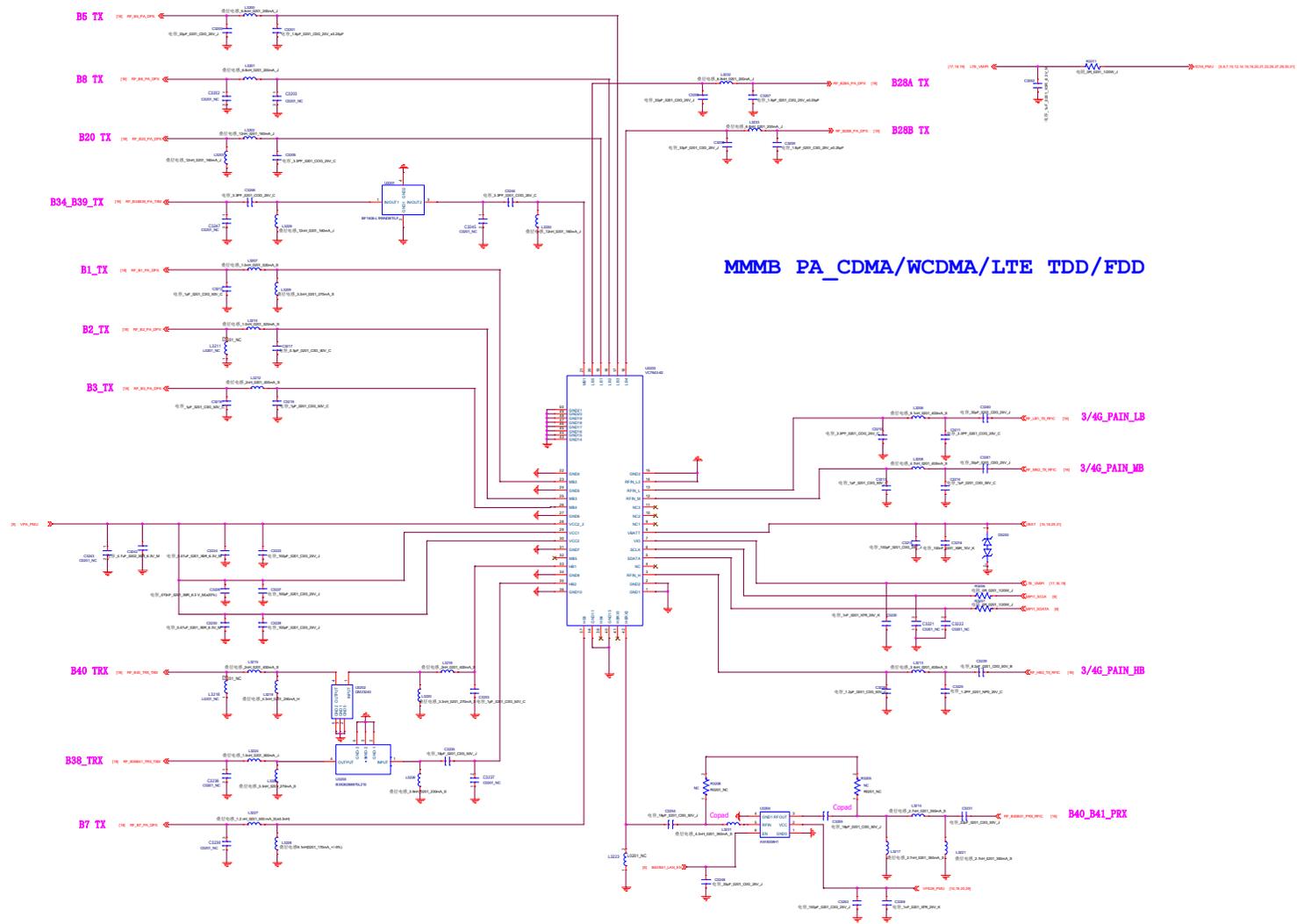
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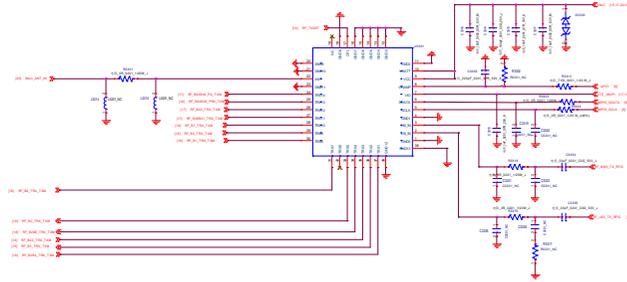
Schematic design notice of "29_EXT_WLED+DB+FL+CHG+PD" page.
 Note 29-1: For better ESD or surge performance we need choose suitable device for system protection. Please refer to [Surge device selection guide V2.0] provide by MTK.



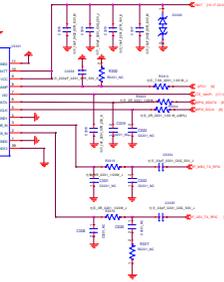
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| 华勤通讯 Huaqin Telecom Technology Com., Ltd | | |
| Title 01_Block_Diagram | | |
| Size D | Project J15_MB_V1 | Rev V1 |
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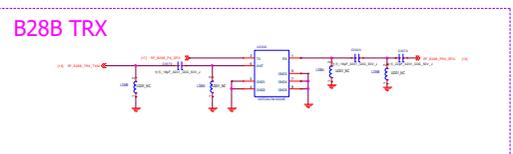
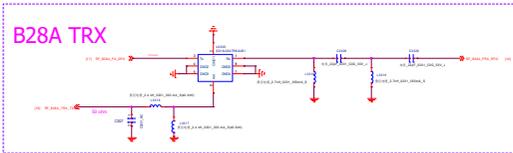
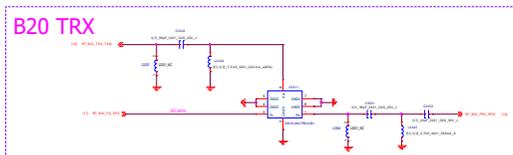
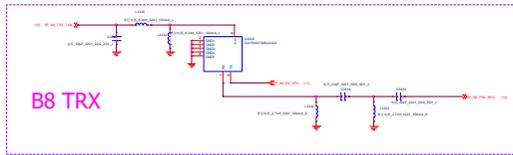
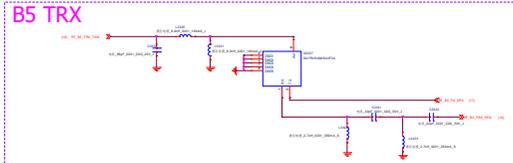
MAIN_ANT



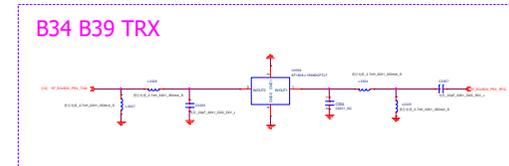
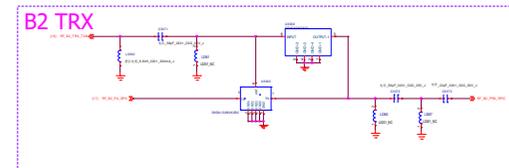
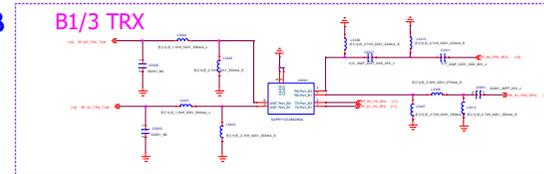
TXM_GSM



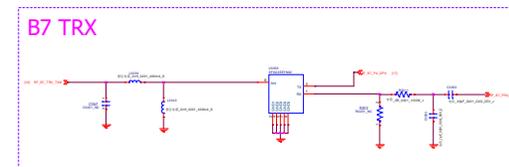
TRX_LB



TRX_MB



TRX_HB



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Title 33_RF_MT6177_RF_PRX

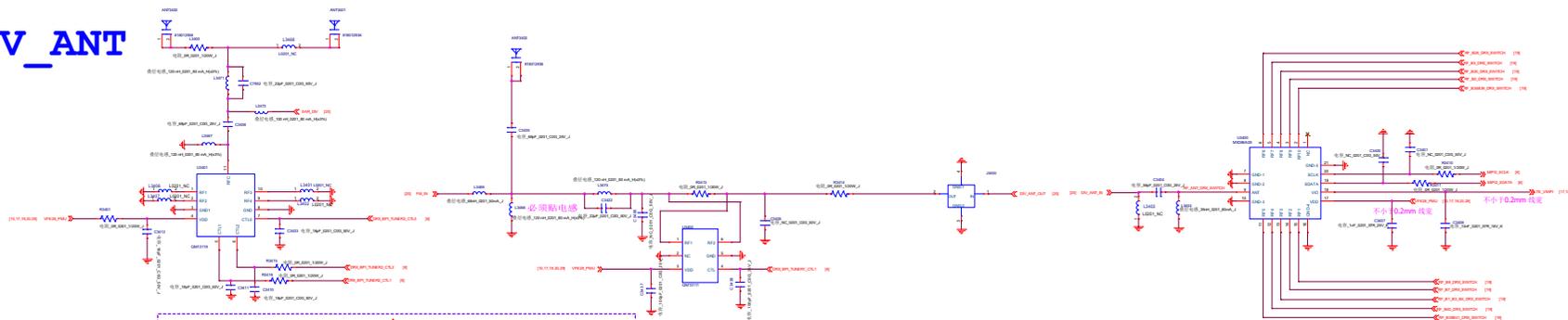
Size Project F9_MB_V1
Custom

Rev
v1

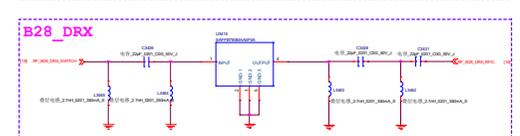
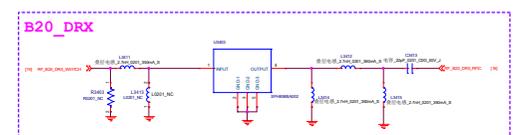
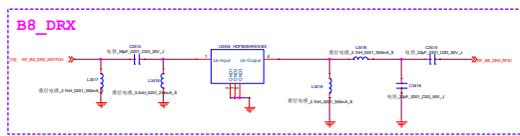
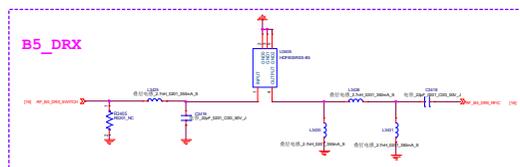
Date: Monday, May 25, 2020

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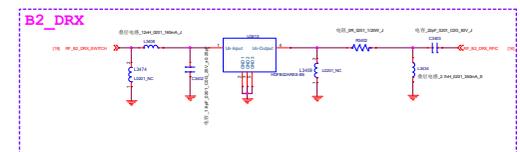
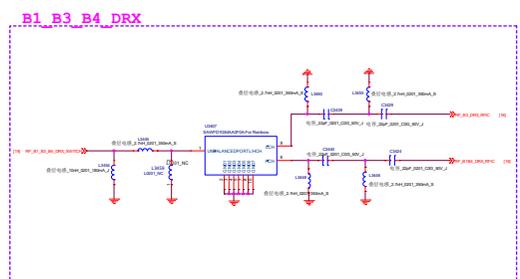
DIV_ANT



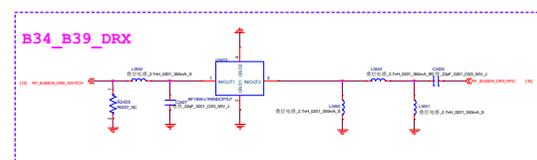
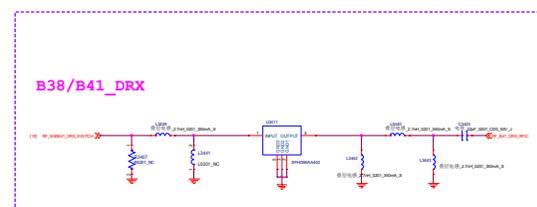
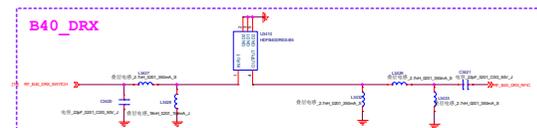
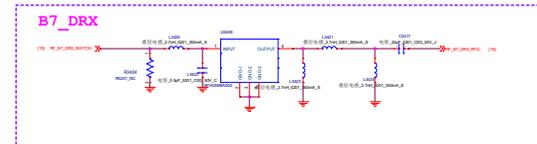
DIV_LB



DIV_MB



DIV_HB



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Title 34_RF_MT6177_RF_DRX

Size E Project F9_MB_V1 Rev v1

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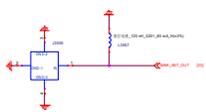
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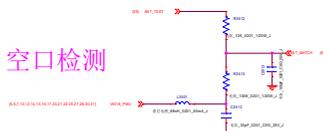
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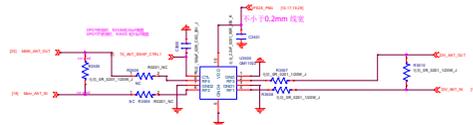


空口检测

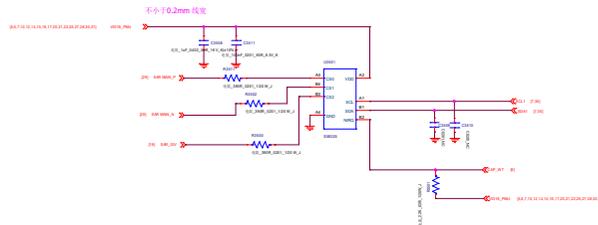


TAS

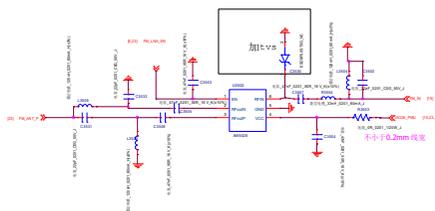
MAIN DPDT SWITCH



SAR Sensor



FM



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3

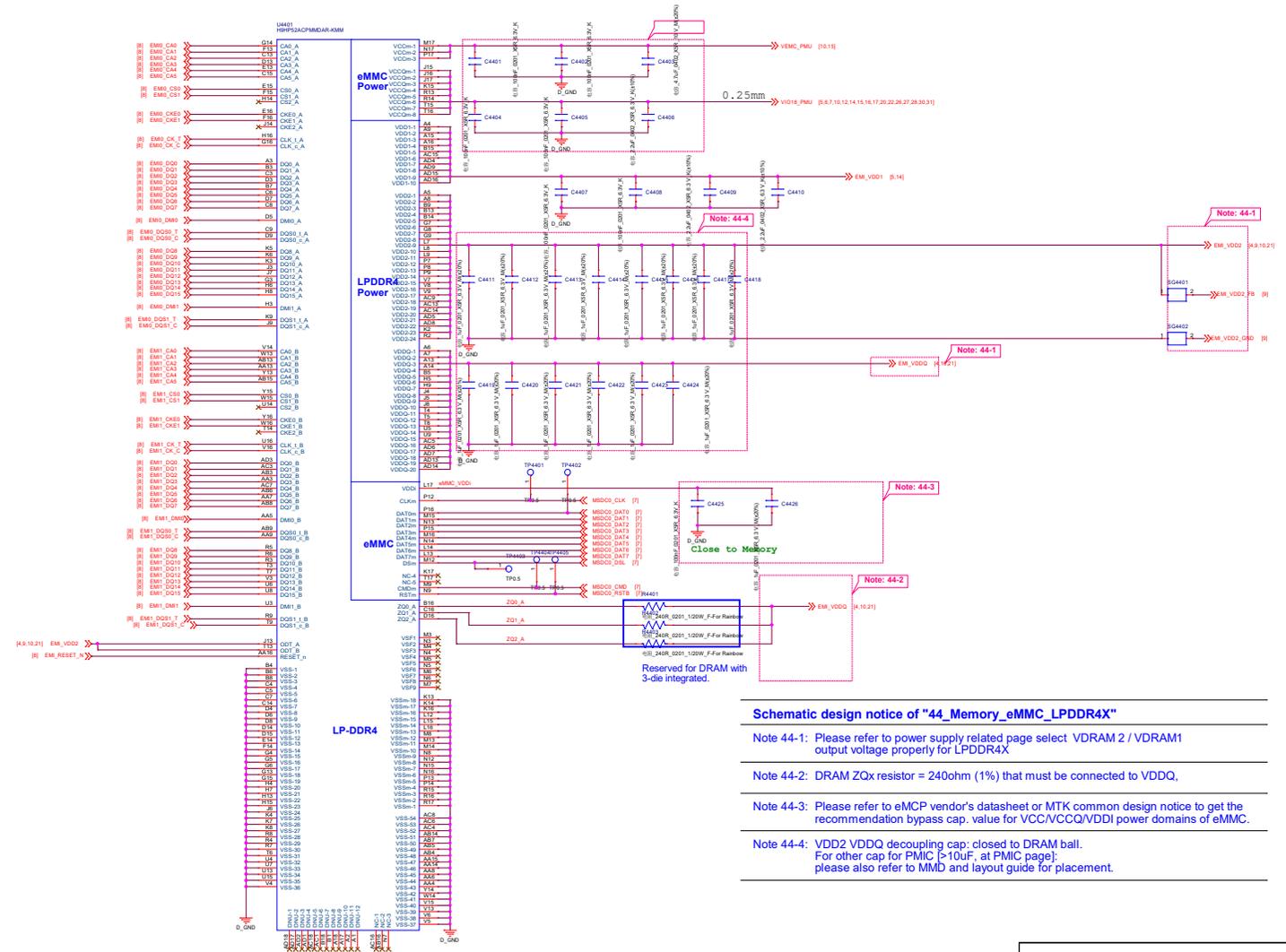
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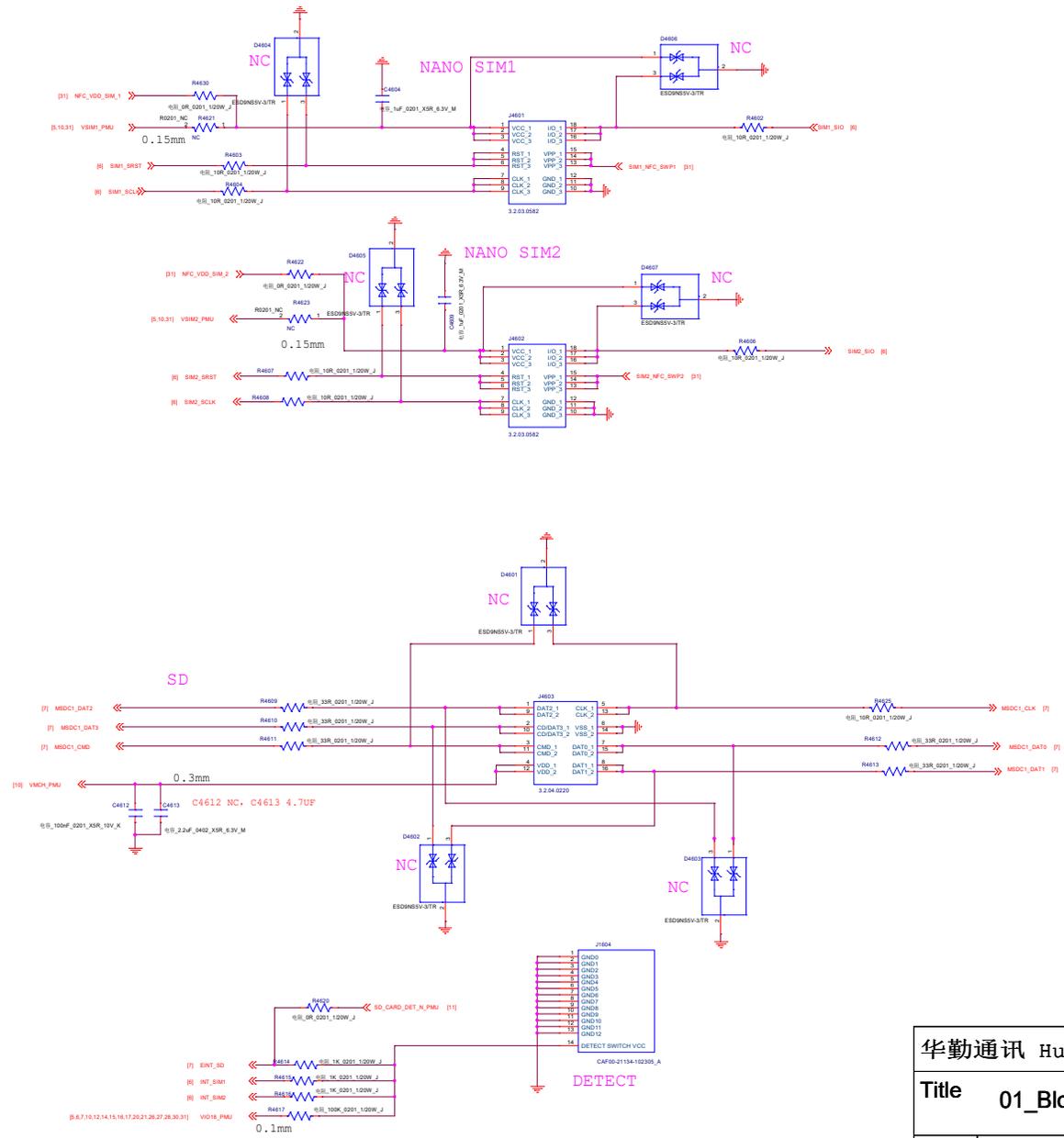
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| 华勤通讯 Huaqin Telecom Technology Com.,Ltd | | |
| Title | 35_DPDT | |
| Size | Project | Rev |
| A0 | F9_MB_V1 | v1 |
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- Schematic design notice of "44_Memory_eMMC_LPDDR4X"**
- Note 44-1: Please refer to power supply related page select VDRAM 2 / VDRAM1 output voltage properly for LPDDR4X
 - Note 44-2: DRAM ZQx resistor = 240ohm (1%) that must be connected to VDDQ,
 - Note 44-3: Please refer to eMCP vendor's datasheet or MTK common design notice to get the recommendation bypass cap. value for VCC/VCCQ/VDDI power domains of eMMC.
 - Note 44-4: VDD2 VDDQ decoupling cap: closed to DRAM ball.
For other cap for PMIC (>10uF, at PMIC page) please also refer to MMD and layout guide for placement.

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Note 46-1:

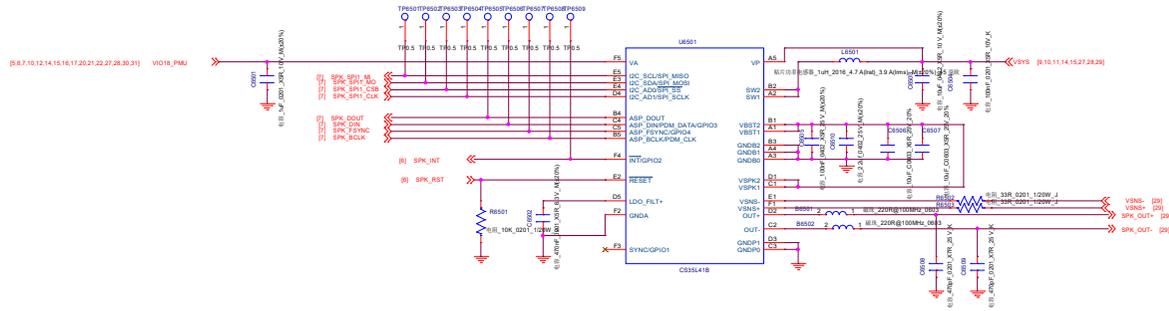
Schematic design notice of "46_MEMORY_SD Card" page.

For better ESD performance, please select suitable components for system protection.

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| 华勤通讯 Huaqin Telecom Technology Com., Ltd | | |
| Title 01_Block_Diagram | | |
| Size D | Project J15_MB_V1 | Rev V1 |
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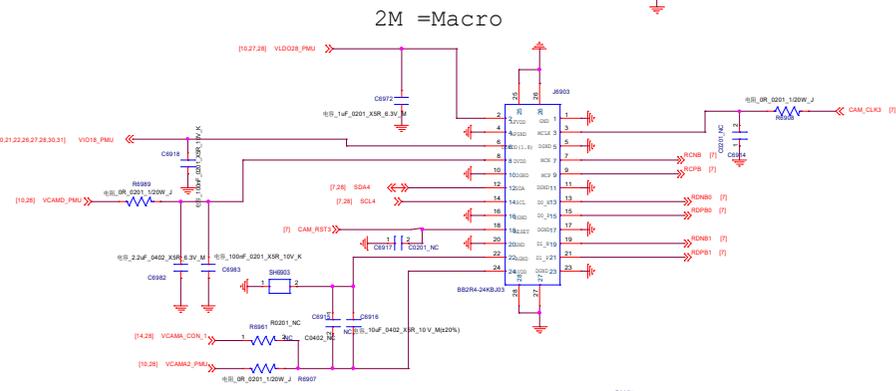
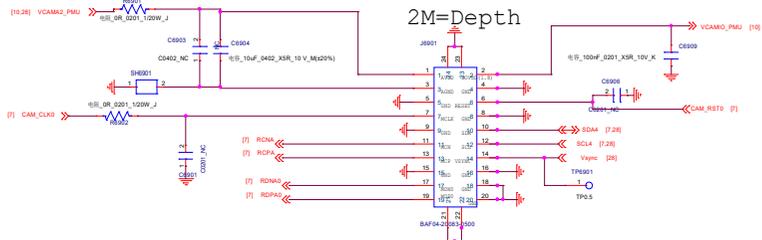
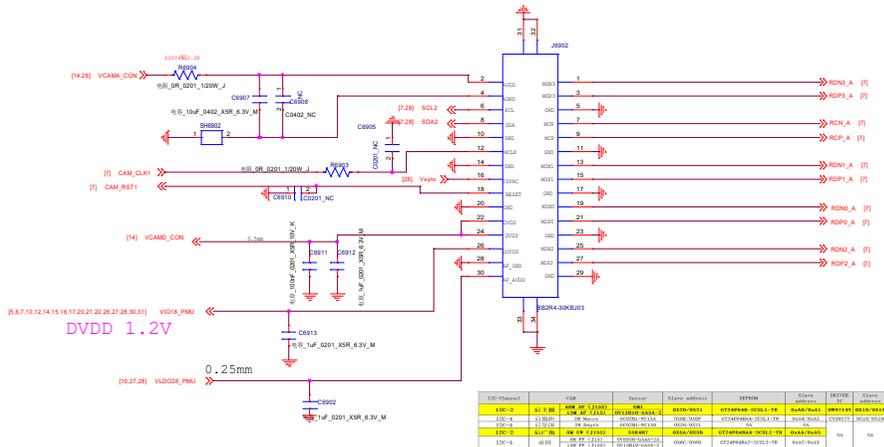
Speaker Amplifier

MT6660 Speaker AMP I2C Address: 0x34 (Write:0x68, Read:0x69) when ADS1 = GND; ADS2 = GND.

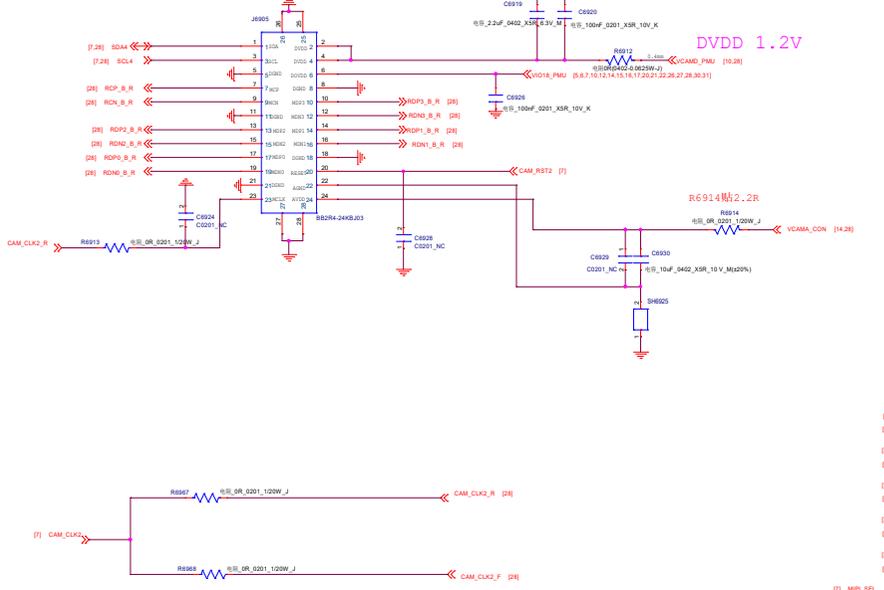


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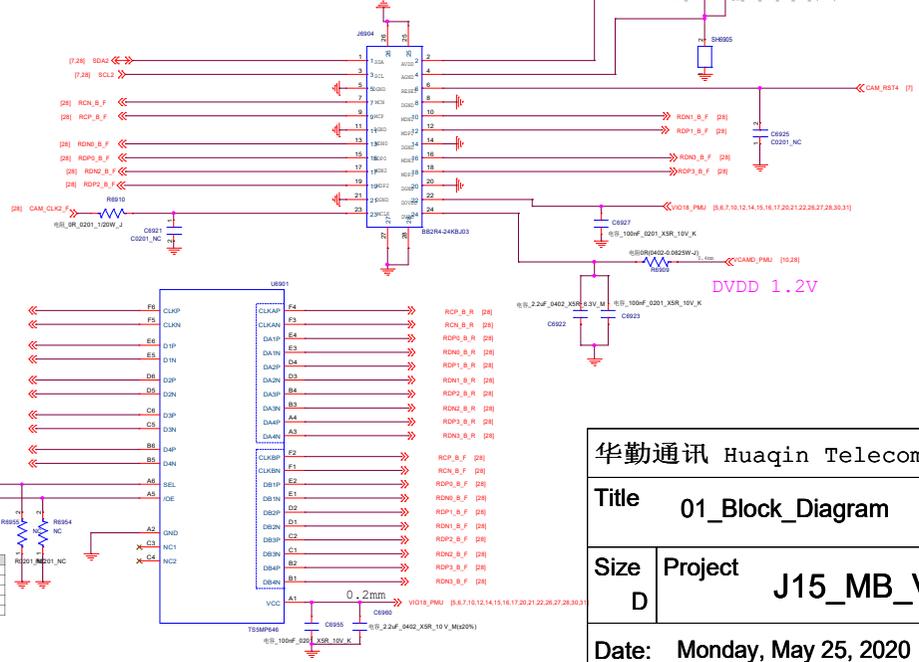
Main MONO Camera 48M



Front Camera - 13M



Rear Camera 8M



贴R6967、R6968，其他器件NC

| CLK_IN | CLK_OUT | CLK_IN | CLK_OUT | CLK_IN | CLK_OUT |
|--------|---------|--------|---------|--------|---------|
| L | L | L | L | L | L |
| L | L | L | L | L | L |
| L | L | L | L | L | L |

Table 1. Function Table

| OE | SEL | Function |
|----|-----|-----------------------|
| L | X | IO per High Impedance |
| L | L | CLK(PN) - CLK(PN) |
| L | H | CLK(PN) - CLK(PN) |

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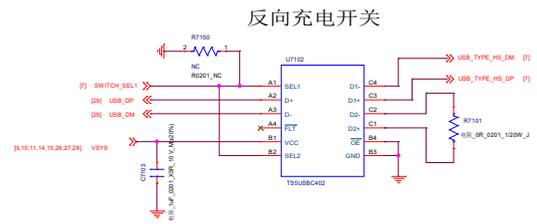
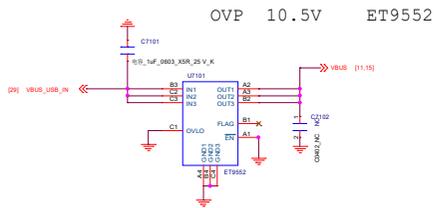
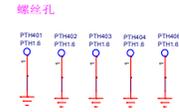
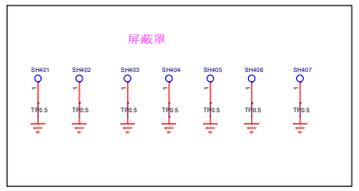
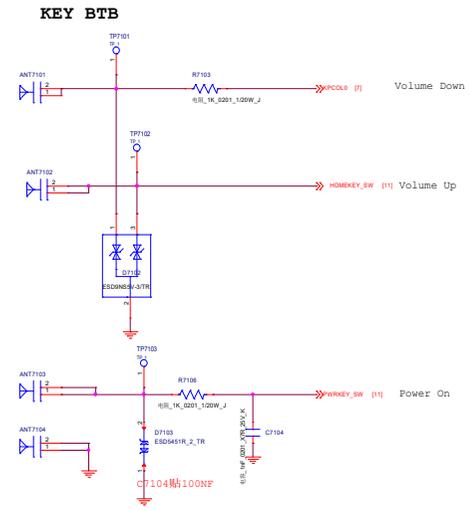
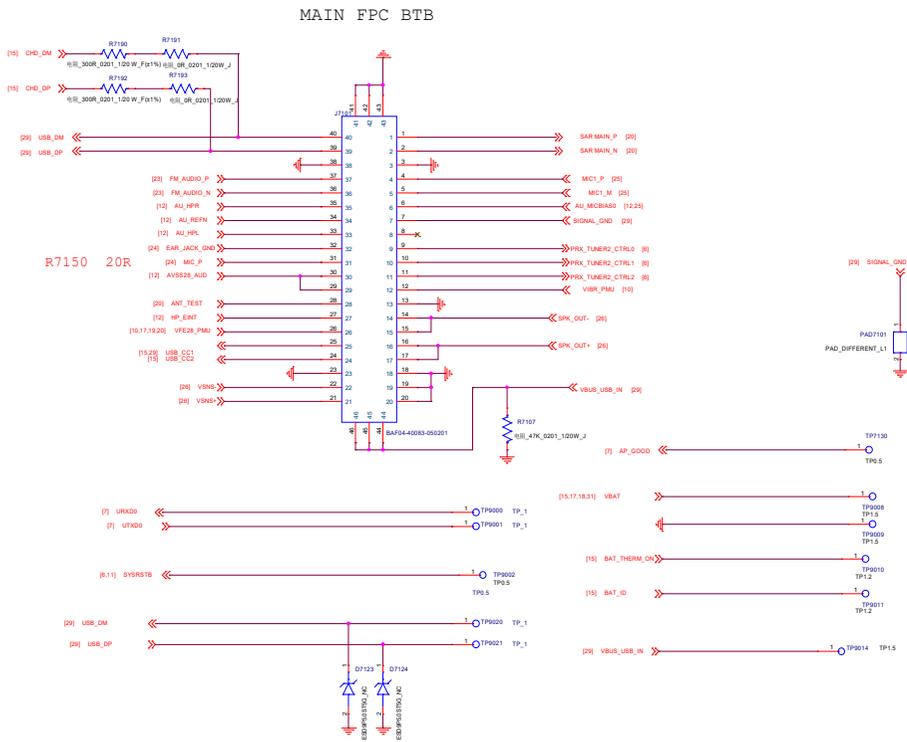


Table 1. Function Table

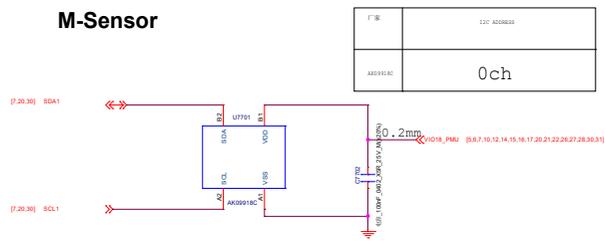
| OE | SEL1 | SEL2 | D- Connection | D+ Connection |
|----|------|------|---------------|---------------|
| H | X | X | High-Z | High-Z |
| L | L | L | D- to D1- | D+ to D1+ |
| L | L | H | D- to D1- | D+ to D2+ |
| L | H | L | D- to D2- | D+ to D1+ |
| L | H | H | D- to D2- | D+ to D2+ |



USB

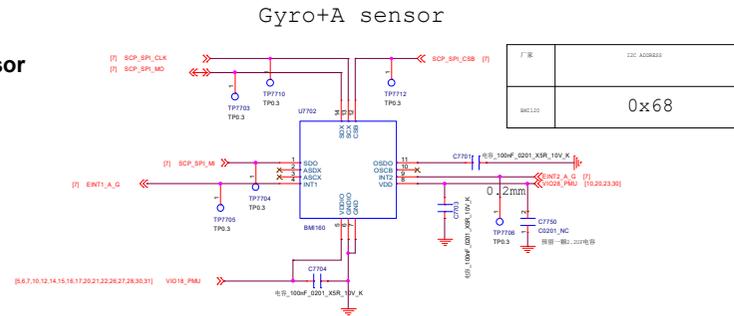
| | | |
|--|-----------------------------|-----------------------|
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M-Sensor

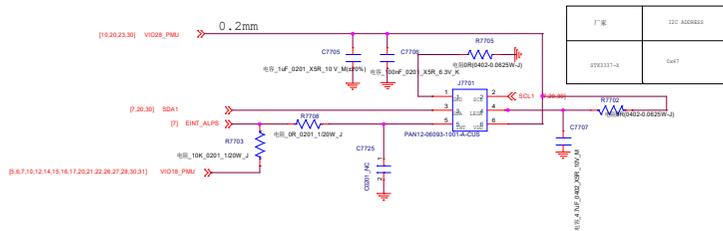


Accerometer + Gyro Sensor

default SPI (if sensor hub support)



ALS PS STK3337-X

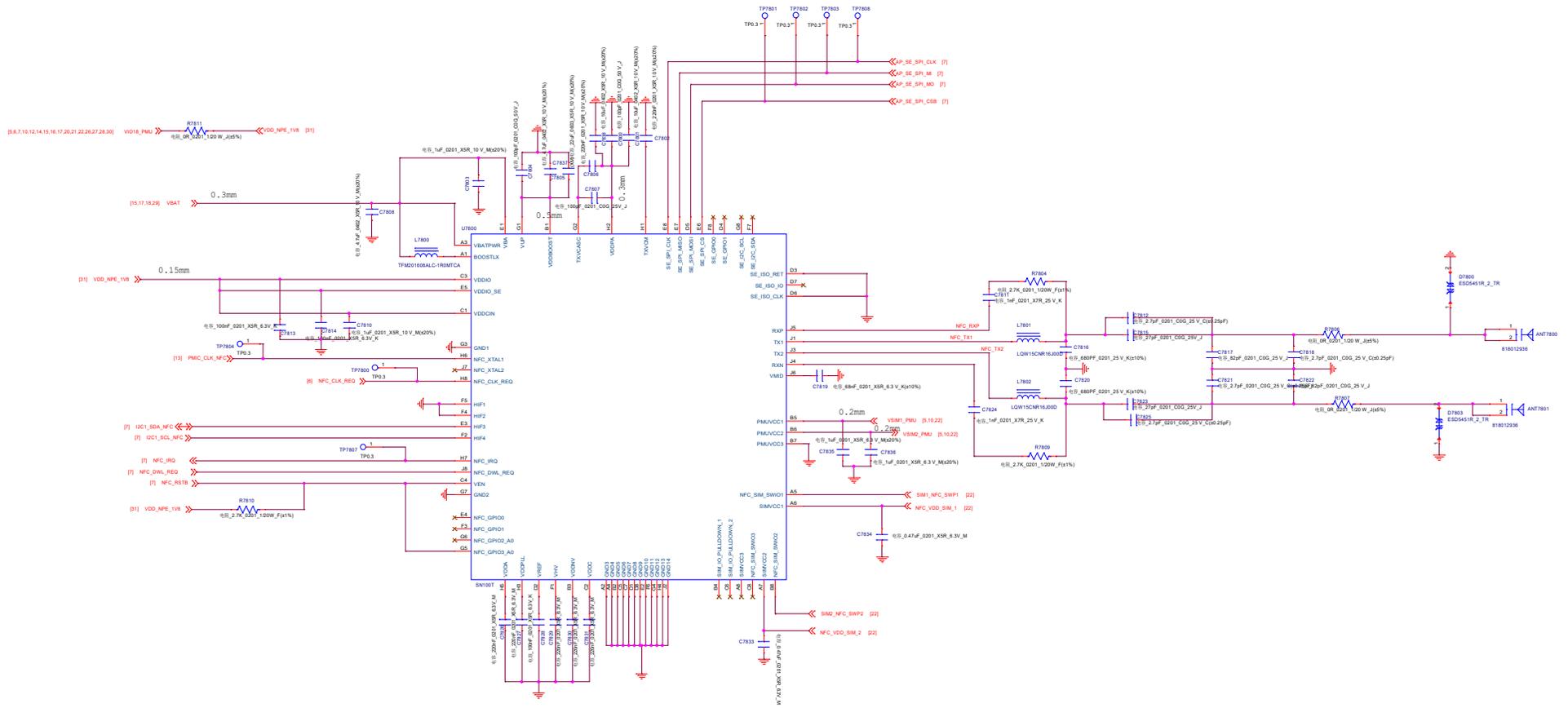


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Title 01_Block_Diagram

| | | |
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(VIETMOBILE.VN)

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