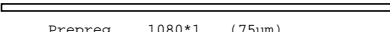
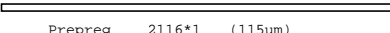

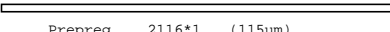
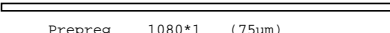



RK3288 Tablet REF V1.7

CONTENT INDEXING

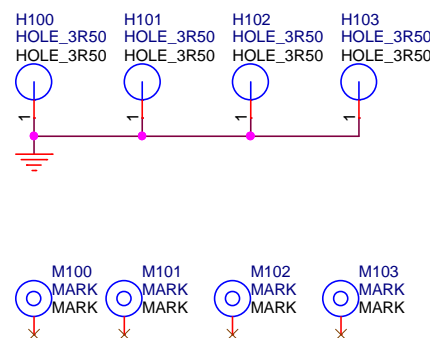
Page01	---01.Index
Page02	---02.Change List
Page03	---03.Block Diagram
Page04	---04.I2C Map
Page05	---05.Power Tree-RK808-B
Page06	---06.Power Tree-RK818-1
Page07	---10.RK3288 Power
Page08	---11.RK3288 PMU Controler
Page09	---12.RK3288 DDR Controler
Page10	---13.RK3288 Flash Controler
Page11	---14.RK3288 USB/HSIC Controler
Page12	---15.RK3288 SARADC/Key Board
Page13	---16.RK3288 DVP Interface
Page14	---17.RK3288 Display Interface
Page15	---18.RK3288 GPIO
Page16	---20.USB Port
Page17	---22.Power-RK808-B_2CELL (option)
Page18	---23.Power-RK818-1_1CELL
Page19	---30.RAM-DDR3 4x16bit
Page20	---32.RAM-DDR3 2x32bit (option)
Page21	---33.RAM-LPDDR2(168P) (option)
Page22	---34.RAM-LPDDR2(216P) (option)
Page23	---35.RAM-LPDDR2(220P) (option)
Page24	---36.RAM-LPDDR3(178P) (option)
Page25	---40.Memory-eMMC
Page26	---41.Memory-Nand FLASH (option)
Page27	---42.Memory-tSD (option)
Page28	---45.DVP power and Flash LED
Page29	---46.Camera-MIPI CSI
Page30	---47.Camera-CIF (option)
Page31	---50.LCM-eDP Panel
Page32	---51.LCM-MIPI Panel (option)
Page33	---52.LCM-Dual MIPI Panel (option)
Page34	---53.LCM-LVDS Panel (option)
Page35	---60.WIFI/BT-AP6210/AP6212/XZ3538
Page36	---61.WIFI ac/BT-AP6335 (option)
Page37	---62.WIFI/BT/GPS-AP6476 (option)
Page38	---65.4G Module
Page39	---66.4G Module PCIe
Page40	---70.Audio Codec-ES8323
Page41	---71.Audio Codec-ALC5631 (option)
Page42	---72.Audio Codec-ALC5640 (option)
Page43	---73.Audio Codec-ES8316 (option)
Page44	---74.Audio Codec-ALC5672 (option)
Page45	---75.TP COF
Page46	---76.TP COB-CT363 (option)
Page47	---77.TP COB-FT5506 (option)
Page48	---78.TP COB-GSL3680 (option)
Page49	---80.Sensor/VIB
Page50	---81.TF Card
Page51	---82.HDMI Port
Page52	---84.eFUSE (option)

6 LAYERS PCB STACK é g PCB=1.0mm

TOP		Silkscreen 25um 1oz (35um)
	Prepreg 1080*1 (75um)	
GND1		Hoz (18um)
	Prepreg 2116*1 (115um)	
POWER		Hoz (18um)
	Adjust Core 665um	
SIGNAL		Hoz (18um)
	Prepreg 2116*1 (115um)	
GND2		Hoz (18um)
	Prepreg 1080*1 (75um)	
BOTTOM		1oz (35um) Silkscreen 25um


Note:

- 1: If the Value or option of the component properties is DNP indicating do not paste.
- 2: ES8316 ES8323 ALC4531 is single channel I2S and o codec does not support BT voice and 4G voice;
- 3: ALC5672 supports BT voice with DSP ALC5640 supports BT voice and 4G voice;



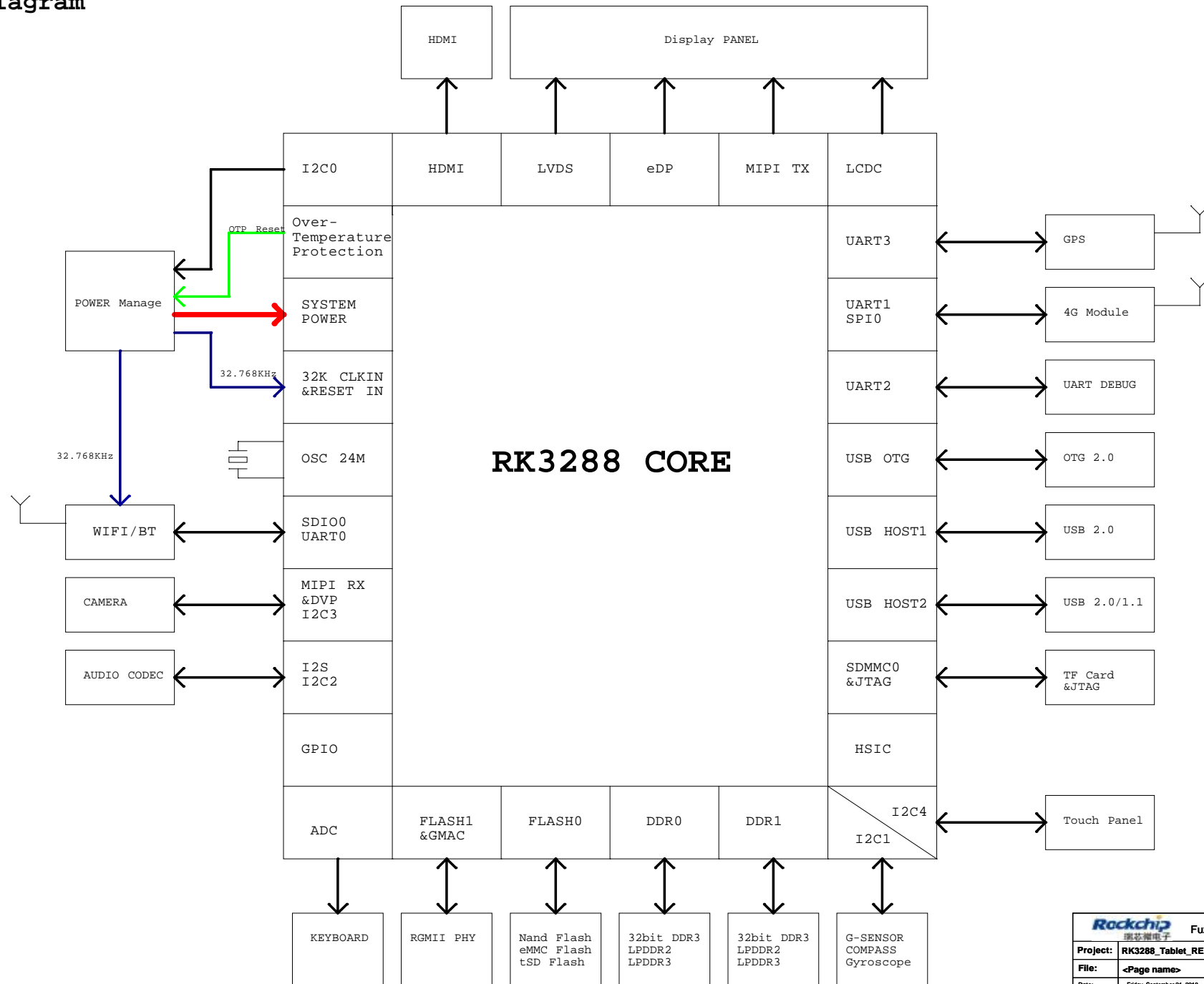
Change List

Version	Date	Author	Change Note	Approved
V1.0	2014.04.29	Linus.Lin	First edition	
V1.1	2014.06.25	Linus.Lin	Please refer to document of RK3288 图修 改点 V110402	
V1.2	2014.08.06	Linus.Lin	Please refer to document of RK3288 图修 改点 V120400	
V1.3	2014.12.10	Linus.Lin	Please refer to document of RK3288 图修 改点 V130420	
V1.4	2016.02.18	Linus.Lin	Please refer to document of RK3288_Tablet_REF_V14_20160218 Modify Notes	
V1.5	2016.08.10	Linus.Lin	Modify the error of Power-RK808 design VCC_SYS does not have output Please refer to document of RK3288_Tablet_REF_V15_20160810 Modify Notes	
V1.6	2016.09.07	Linus.Lin	Add ALC5672 circuit for option; Please refer to document of RK3288_Tablet_REF_V16_20160907 Modify Notes	
V1.7	2017.10.20	Linus.Lin	Please refer to document of RK3288(TABLER 布 说明 例表_V17_20171020	

 Fuzhou Rockchip Electronics


Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	2 of 52

Block Diagram

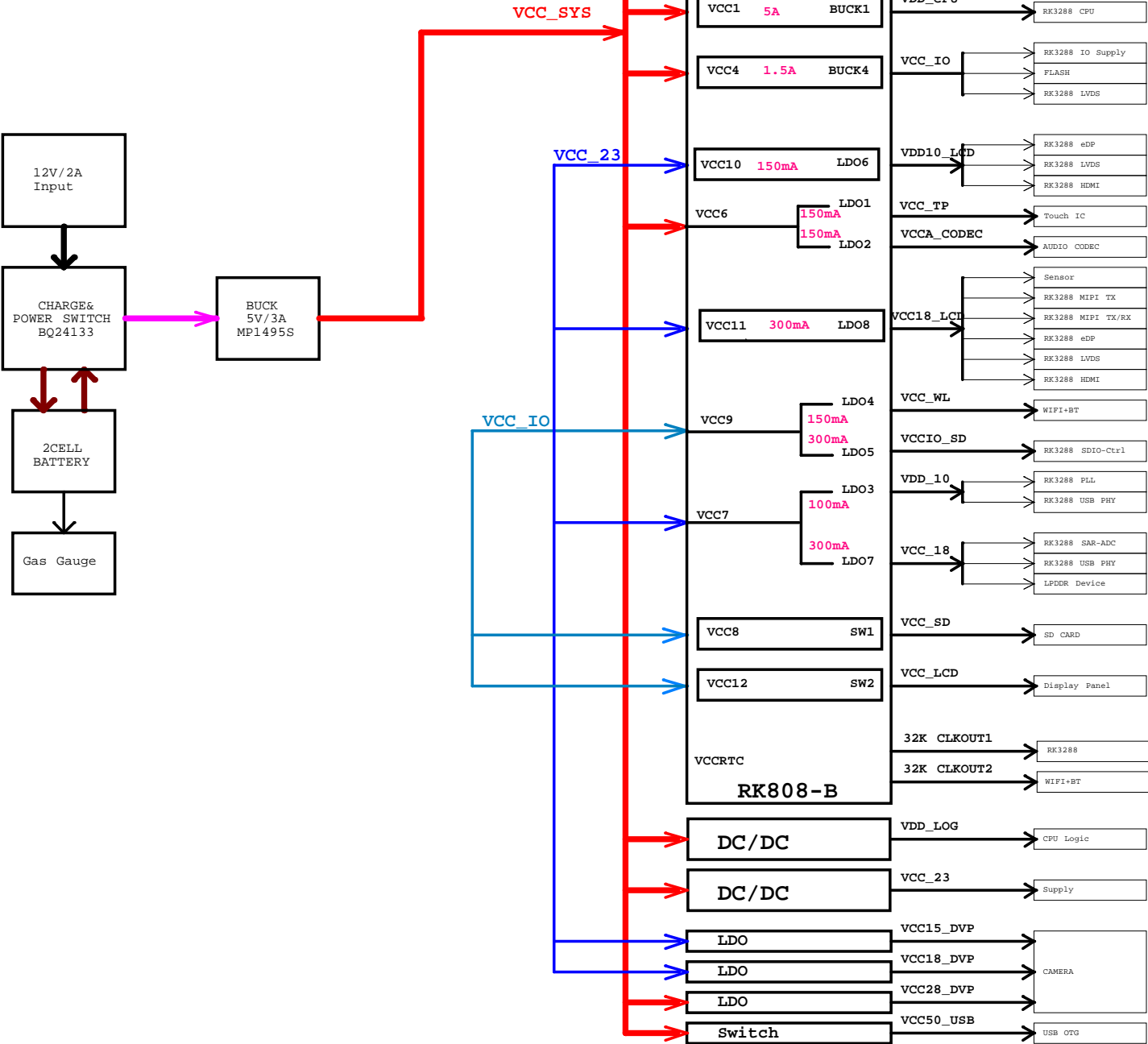


I2C MAP

Port	Pin name	Domain	Bus name	Pull-up voltage	Slave Device	Slave Addr (MS 7Bits)	Note	Slave Bus Capability
I2C0	I2C0_SDA/PMUGPIO0_B7 I2C0_SCL/PMUGPIO0_C0	PMUIO	I2C0_SDA_PMIC I2C0_SCL_PMIC	VCCIO_PMU	Rockchip RK808	0x1b	PMIC	100kHz, 400KHz
					Rockchip RK818	0x1c	PMIC	100kHz, 400KHz
					SYR837PKC	0x40	DC-DC BUCK	100kHz, 400KHz, 3.4MHz
					SYR838PKC	0x41	DC-DC BUCK	100kHz, 400KHz, 3.4MHz
					CW2013	0x62	Fuel Gauge	100kHz, 400KHz, 1MHz
I2C1	I2C1_SDA/SC_RST/GPIO8_A4 I2C1_SCL/SC_CLK/GPIO8_A5	APIO2	I2C1_SDA_sensor I2C1_SCL_sensor	VCC_IO	CM3218	0x10	LIGHT-Sensor	100kHz, 400KHz
					AK8963C	0x0d	Compass	100kHz, 400KHz
					MMA8452Q	0x1d	Accelerometer	100kHz, 400KHz
					LIS3DH	0x19	Accelerometer	100kHz, 400KHz
					LSM303D	0x1d	Accelerometer	100kHz, 400KHz
					LSM330TR	G:0x6a A:0x1e	Gyroscope+Accelerometer	100kHz, 400KHz
					MPU6500	0x68	Gyroscope+Accelerometer	100kHz, 400KHz
I2C2	I2C2_SDA/GPIO6_B1 I2C2_SCL/GPIO6_B2	APIO4	I2C2_SDA_AUDIO I2C2_SCL_AUDIO	VCCIO_CODEC	ALC5640/ALC5631	0x1c	Audio Codec	100kHz, 400KHz
					ALC5672	0x1c	Audio Codec	100kHz, 400KHz
					ES8316/ES8323	0x10	Audio Codec	100kHz
I2C3	I2C3_SCL/GPIO2_C0 I2C3_SDA/GPIO2_C1	DVPIO	I2C3_SDA_CAM I2C3_SCL_CAM	VCC18_DVP	OV2659	0x30	Image Sensor	100kHz, 400KHz
					OV8825	0x36	Image Sensor	100kHz, 400KHz
I2C4	I2C4_SDA/GPIO7_C1 I2C4_SCL/GPIO7_C2	APIO1	I2C4_SDA_TP I2C4_SCL_TP	VCCIO_PMU	CT363	0x1b	Touch IC	100kHz, 400KHz
					FT5506		Touch IC	100kHz, 400KHz
					GSL3680	0x40	Touch IC	100kHz, 400KHz
I2C5	I2C5_SDA/EDPHDMI_I2C_SDA/GPIO7_C3 I2C5_SCL/EDPHDMI_I2C_SCL/GPIO7_C4	APIO1	I2C5_SDA_HDMI I2C5_SCL_HDMI	VCCIO_PMU				

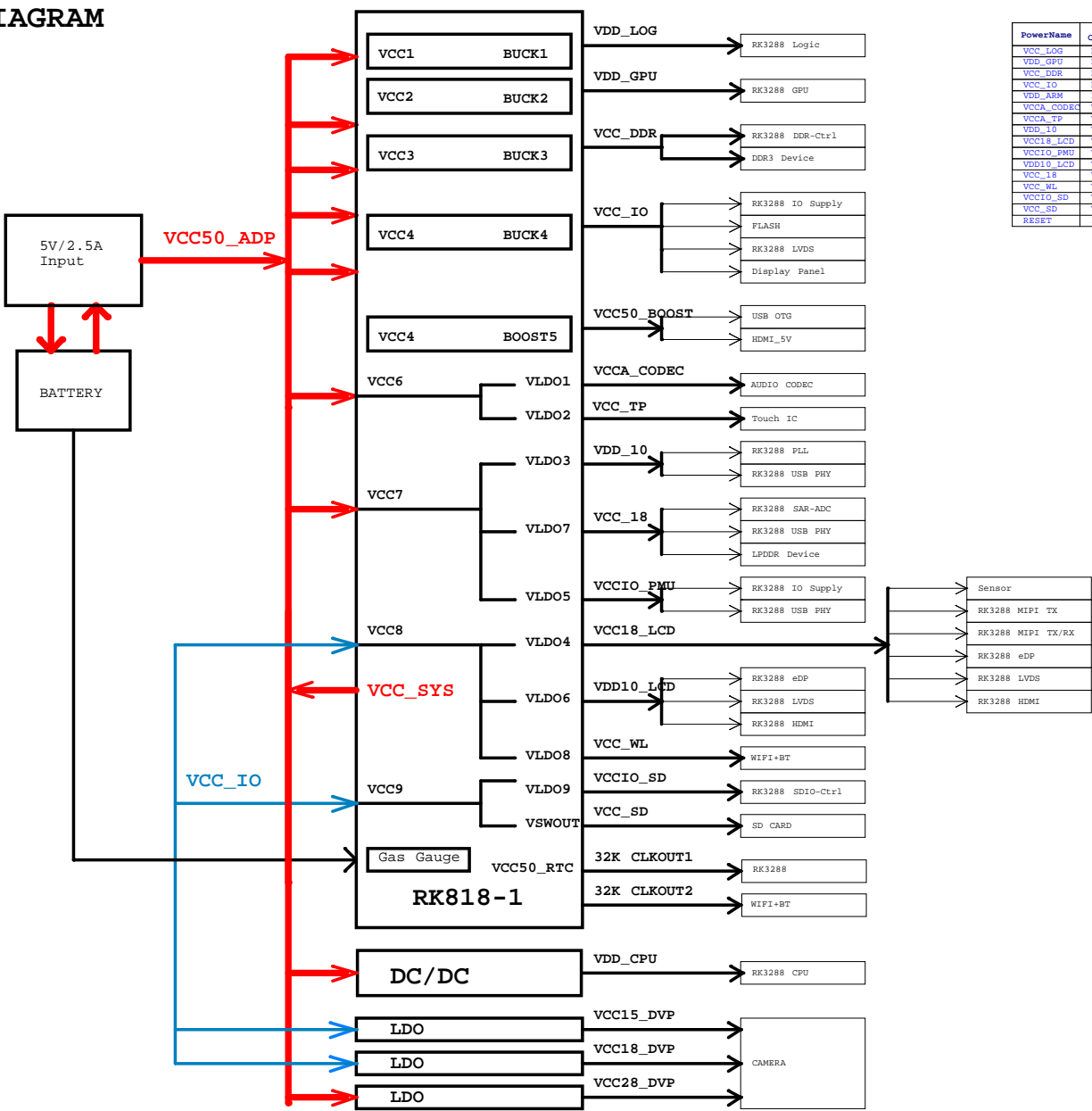
		Fuzhou Rockchip Electronics	
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	4 of 52

RK808-B POWER DIAGRAM



PowerName	PMIC Channel	TIMER (2ms)	Default ON/OFF	default voltage	sleep ON/OFF
VDD_10	VLD03	soltt:1	ON	1.0V	ON
VDD_CPU	DCDC1	soltt:2	ON	1.1V	OFF
VDD_GPU	DCDC2	soltt:3	ON	1.1V	OFF
VCC_DDR	DCDC3	soltt:3	ON	DDR3 1.5V DDR3L 1.35V LPDDR 1.25V	ON
VCC_LOG	EX_DDC	soltt:3A	ON	1.1V	ON
VCC_18	VLD07	soltt:3	ON	1.8V	ON
VCC_TP	VLD01	soltt:4	ON	1.8V	ON
VCC_IO	DCDC4	soltt:4	ON	3.3V	ON
VCCIO_SD	VLD05	soltt:5	ON	3.3V	OFF
VCC_SD	VSWOUT1	soltt:5	ON	3.3V	OFF
VDD10_LCD	VLD06	OFF	OFF	1.0V	OFF
VCC18_LCD	VLD08	OFF	OFF	1.8V	OFF
VCCA_CODEC	VLD02	OFF	OFF	3.3V	OFF
VCC_WL	VLD04	OFF	OFF	1.8V	OFF
VCC_LCD	VSWOUT2	OFF	OFF	3.3V	OFF

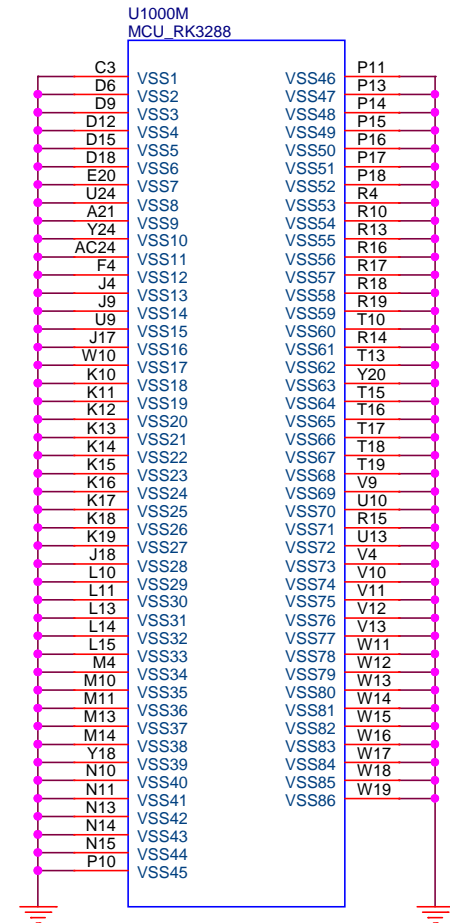
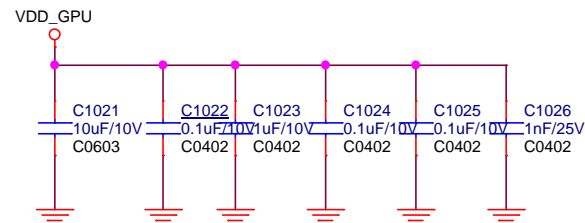
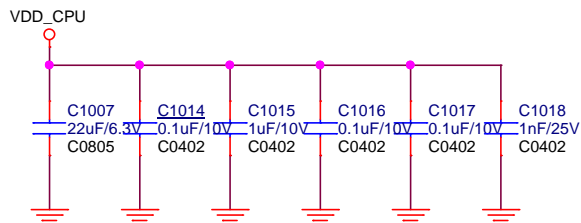
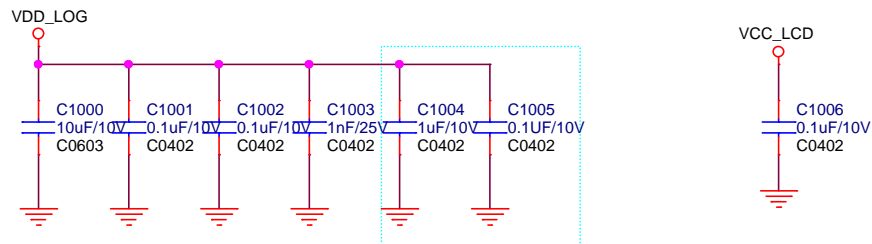
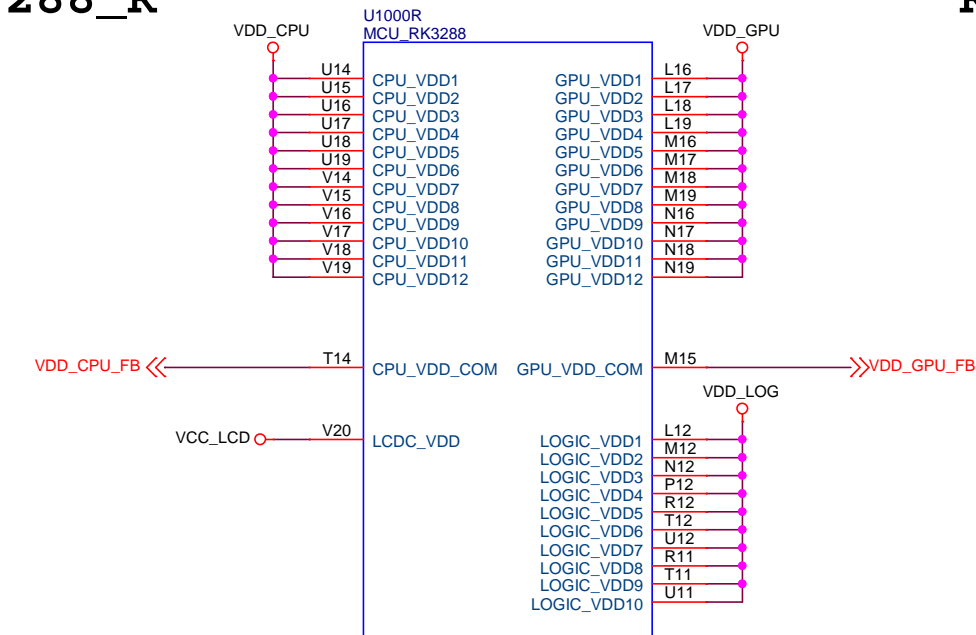
RK818-1 POWER DIAGRAM



PowerName	PMU Channel	TIMER (2ms)	OutPut voltage
VCC_LOG	DCDC1	Wolt:3	1.1V
VDD_GPU	DCDC2	Wolt:2	1.1V
VCC_DDR	DCDC3	Wolt:4	1.0V
VCC_IO	DCDC4	Wolt:7	1.3V
VDD_ARM	EXDCDC1	Wolt:4	1.1V
VCCA_CODEC	VLD01	DFF	1.3V
VCCA_TP	VLD02	DFF	1.3V
VDD_IO	VLD03	Wolt:1	1.0V
VCC18_LCD	VLD04	DFF	1.8V
VCC10_PMU	VLD05	Wolt:6	1.8V
VDD10_LCD	VLD06	DFF	1.0V
VCC_18	VLD07	Wolt:5	1.8V
VCC_WL	VLD08	DFF	1.8V
VCCIO_SD	VLD09	Wolt:8	1.3V
VCC_SD	VSW1	Wolt:8	1.3V
RESET	16*2MS+50MS		

RK3288_R

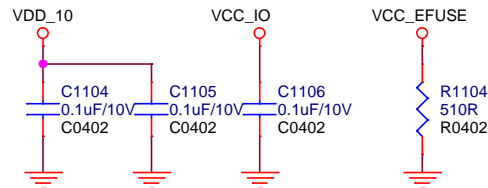
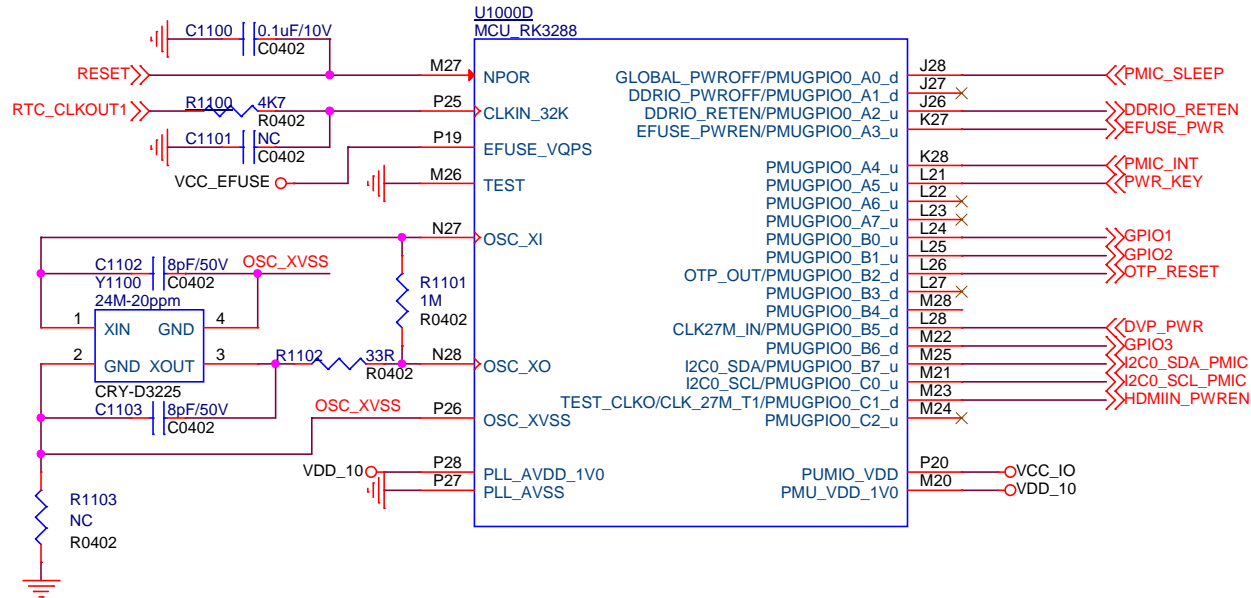
RK3288_M



RK3288 Power Filter

Note: All the capacitor should be place close to the power pin of RK3288.

RK3288_D

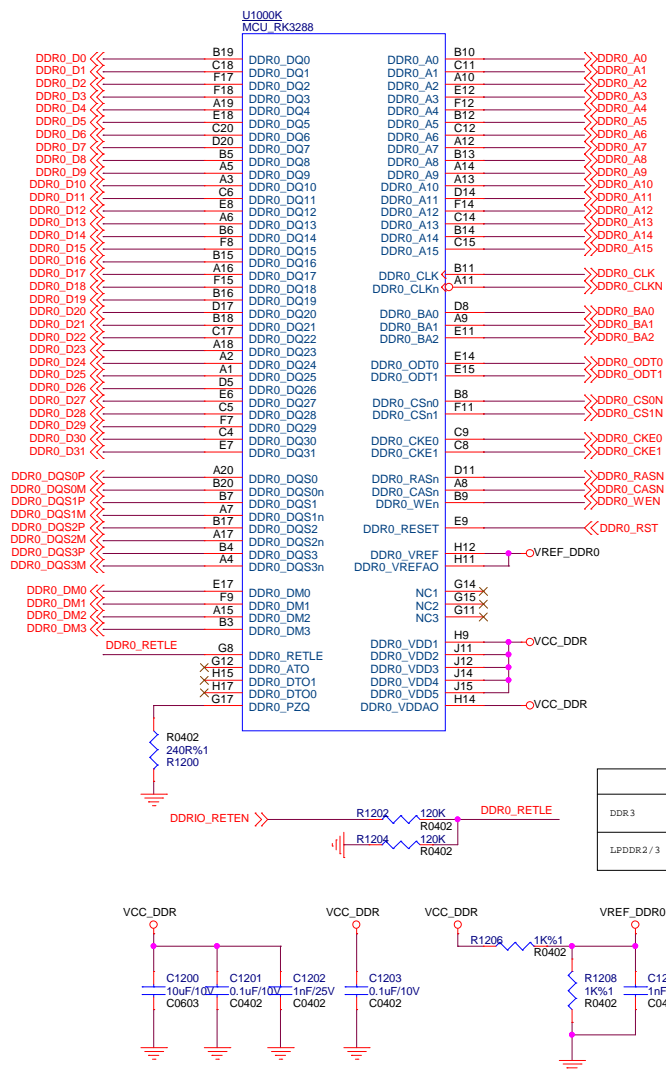


Note: All the capacitor should be place close to the power pin of RK3288.

 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	8 of 52

RK3288_K

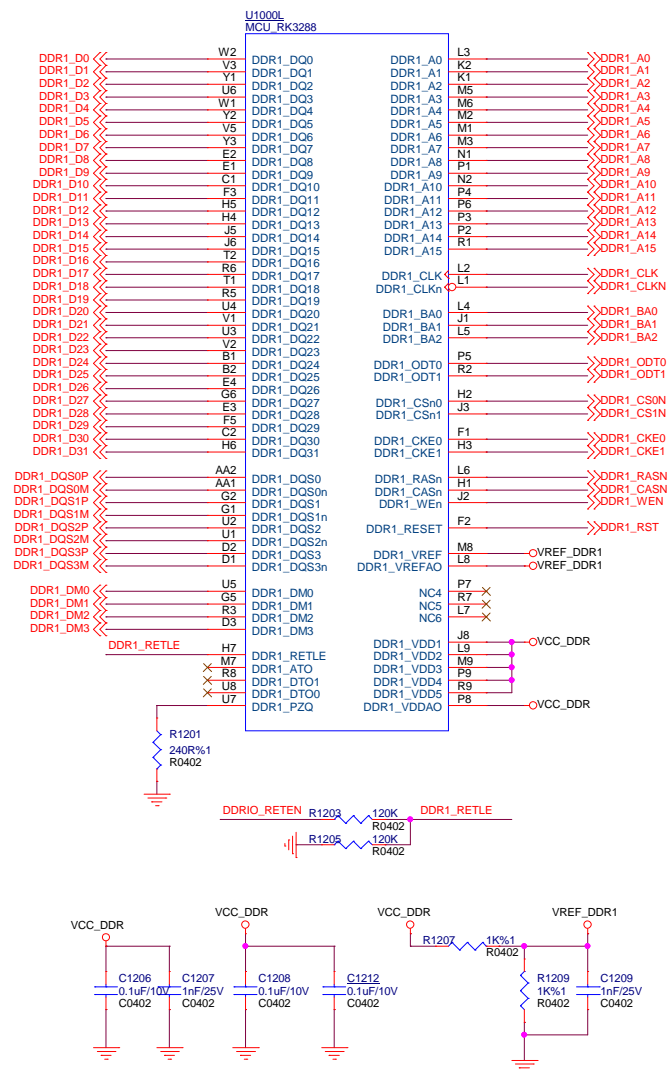
DDR Channel-0



Note: All the capacitor should be place close to the power pin of RK3288.

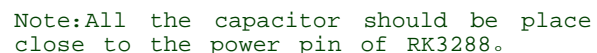
RK3288_L

DDR Channel-1



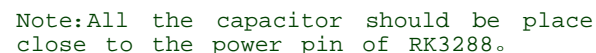
Note: All the capacitor should be place close to the power pin of RK3288.

A

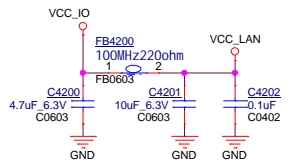


	VCCIO_FLASH=1.8V	VCCIO_FLASH=3.3V
FLASH0_VOLTAGE_SEL pin connect to	VCCIO_FLASH	Floating(Default)
R1300	0R	DNP

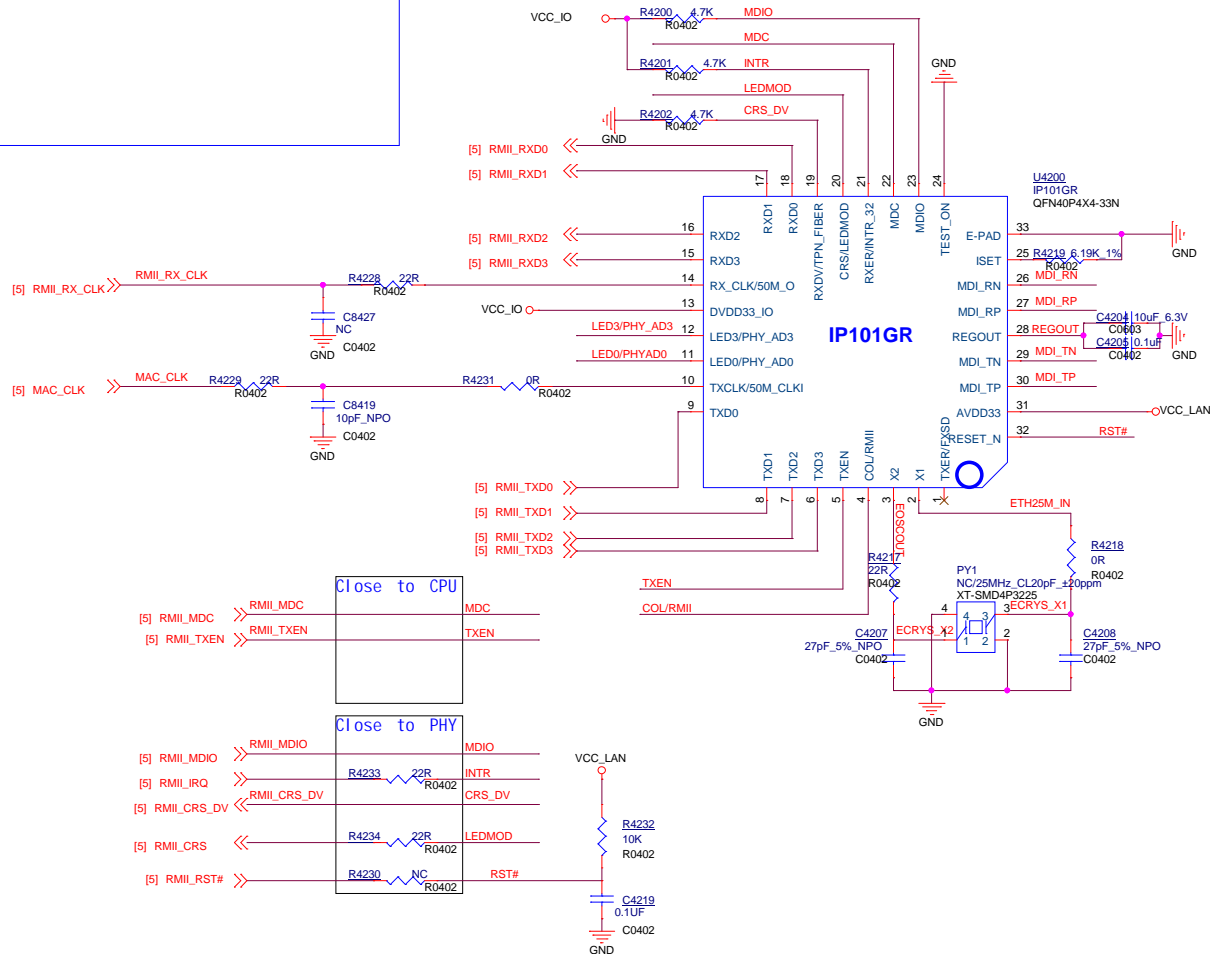
1



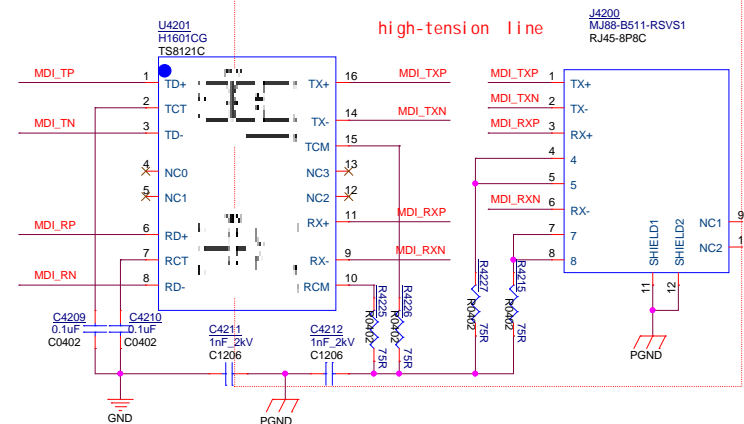
Ethernet power



Ethernet(RMII)10/100Mbps



Transformer&RJ45



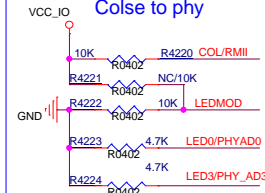
LED Mode and RMII Configuration

Net Name	Pull high	Pull down
COL/RMII	RMII mode	MII mode disable
LEDMOD	LED0 Link	LED3 Act and blinking
LED mode 1		

PHY address Configuration

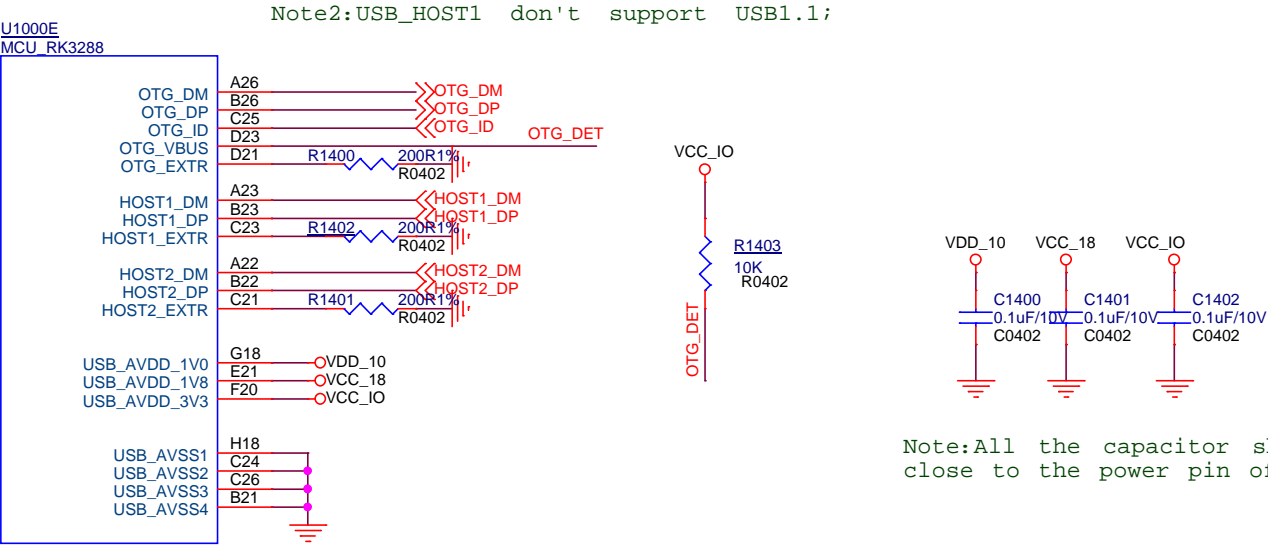
Net Name	LED0/PHYAD0	LED3/PHY_AD3
High/Low	0	0
Phy Addr	5' d0	

Colse to phy



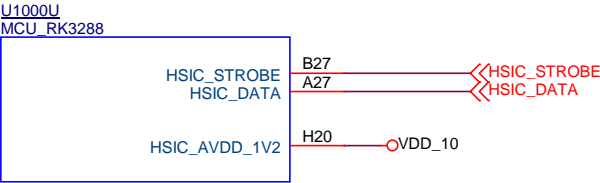
		Drawn by:	JieCui
Title: S805_MBX_REF_BAS1C		Draw Date:	2014-07-01
Document: Ethernet		Checked by:	<checked>
Date: Thursday, September 27, 2018		Rev	004
Sheet		checked date	
10 of 11			


RK3288_E



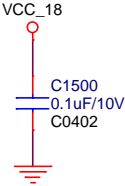
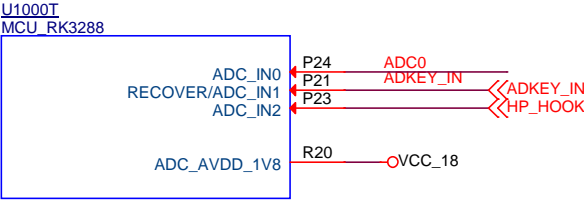
Note:All the capacitor should be place close to the power pin of RK3288.

RK3288_U



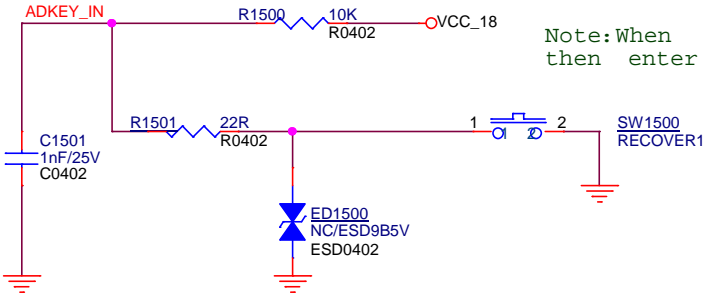
 Fuzhou Rockchip Electronics			
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	11 of 52

RK3288_T

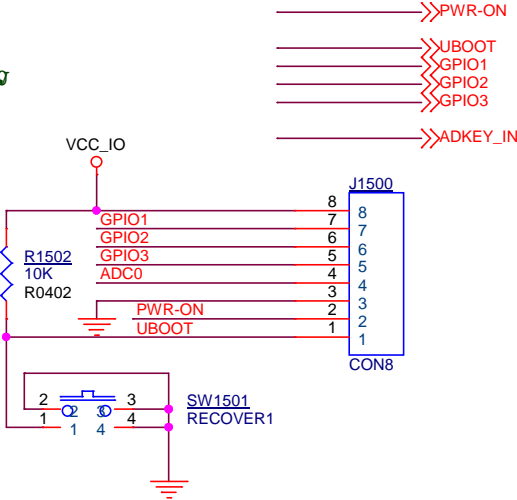



Note:All the capacitor should be place close to the power pin of RK3288.

KEY



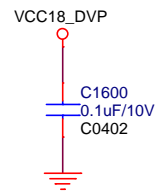
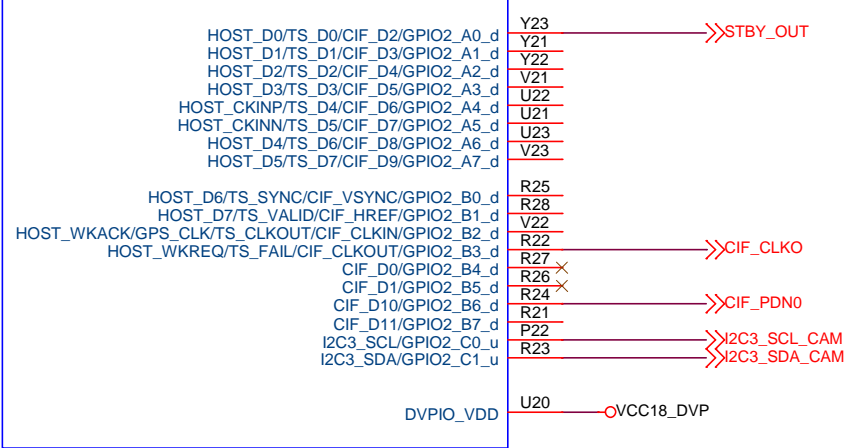
Note:When the system power on i f ADKEY_IN=0 then enter Recovery mode;



		Fuzhou Rockchip Electronics	
瑞芯微电子			
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	12 of 52

RK3288_C

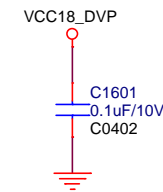
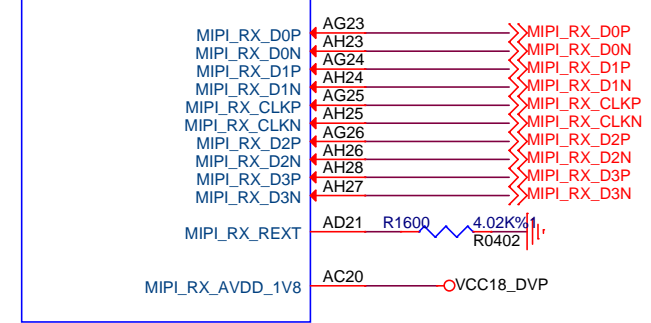
U1000C
MCU_RK3288




Note: All the capacitor should be place close to the power pin of RK3288.

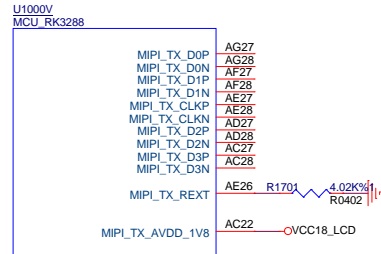
RK3288_W

U1000W
MCU_RK3288

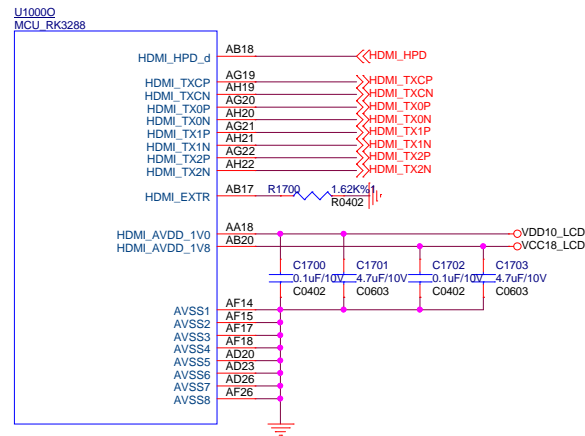


 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	13 of 52

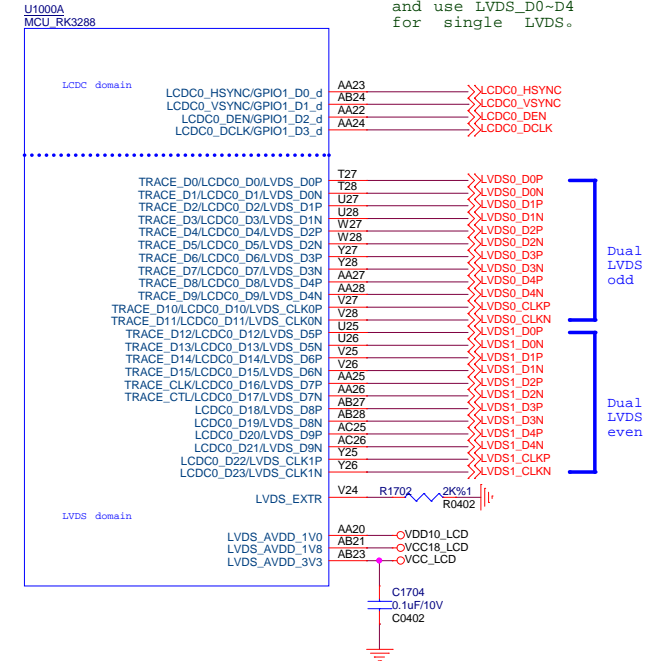
RK3288_V



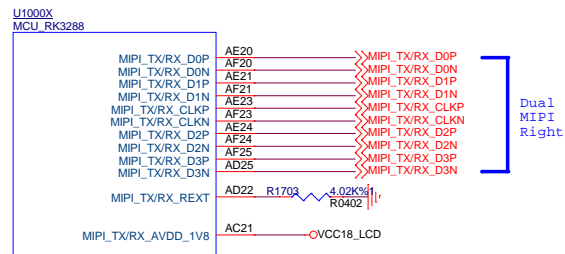
RK3288_O



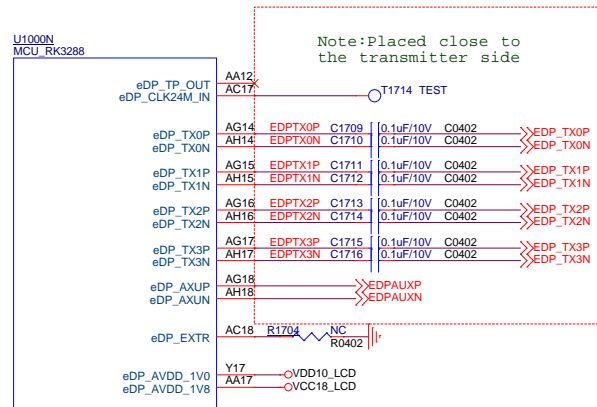
RK3288_A



RK3288_X



RK3288_N

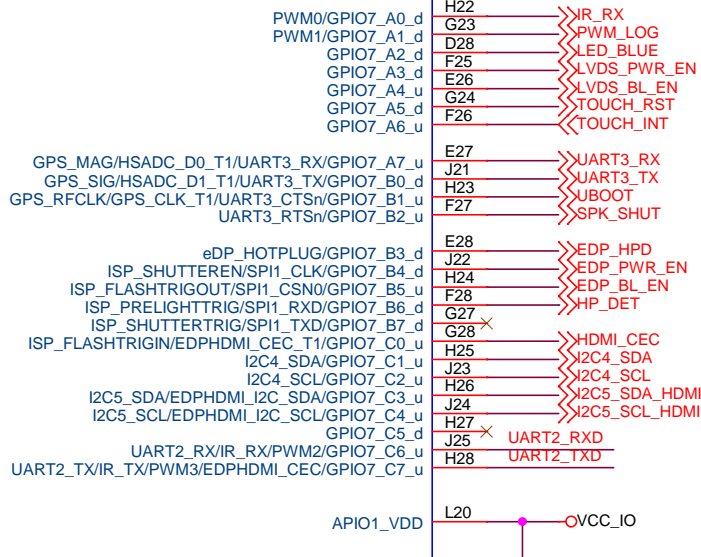


Note: All the capacitor should be place close to the power pin of RK3288.

Correspondence between LCD_C DATA and RGB

LCD_C_D0	B0	LCD_C_D8	G0	LCD_C_D16	R0
LCD_C_D1	B1	LCD_C_D9	G1	LCD_C_D17	R1
LCD_C_D2	B2	LCD_C_D10	G2	LCD_C_D18	R2
LCD_C_D3	B3	LCD_C_D11	G3	LCD_C_D19	R3
LCD_C_D4	B4	LCD_C_D12	G4	LCD_C_D20	R4
LCD_C_D5	B5	LCD_C_D13	G5	LCD_C_D21	R5
LCD_C_D6	B6	LCD_C_D14	G6	LCD_C_D22	R6
LCD_C_D7	B7	LCD_C_D15	G7	LCD_C_D23	R7

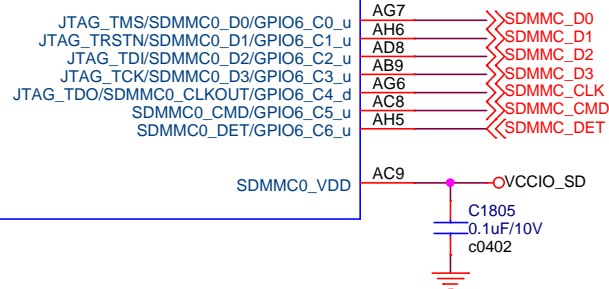
U1000F
MCU_RK3288



RK3288_F

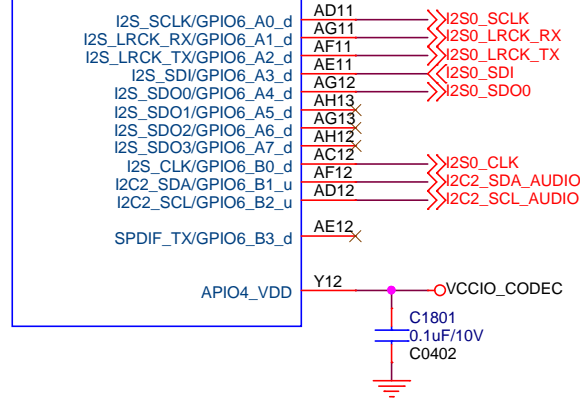
RK3288_B

U1000B
MCU_RK3288



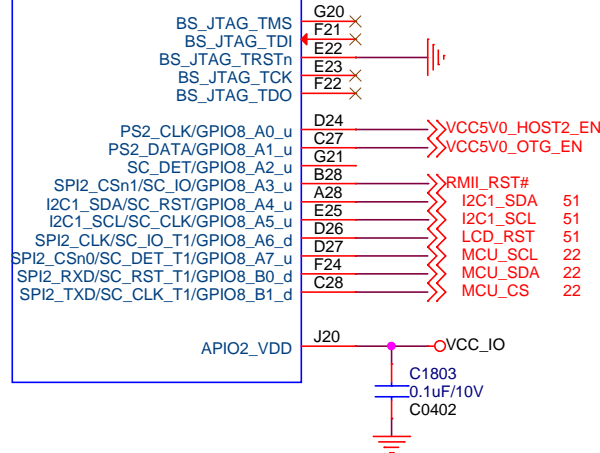
RK3288_I

U1000I
MCU_RK3288



RK3288_G

U1000G
MCU_RK3288

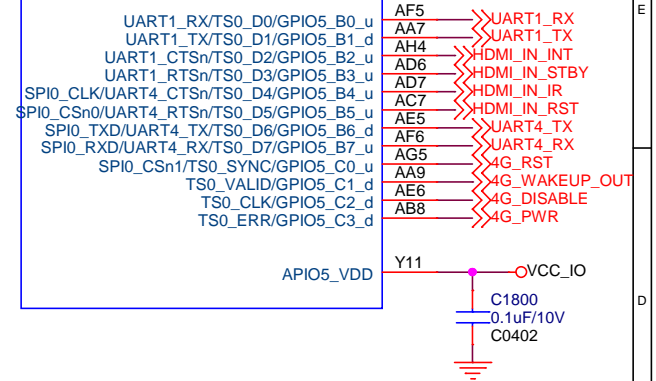


Note:BS_JTAG_TRSTn must connected to VSS and APIO2_VDD must be power supply always.

Note:All the capacitor should be place close to the power pin of RK3288.

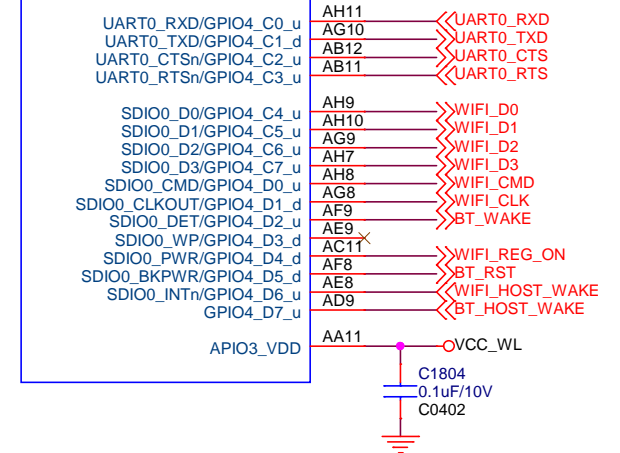
RK3288_J

U1000J
MCU_RK3288



RK3288_H

U1000H
MCU_RK3288

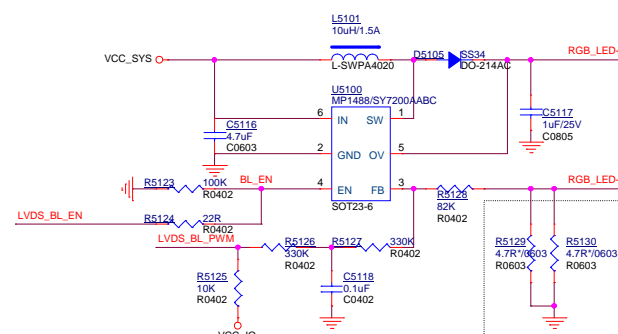
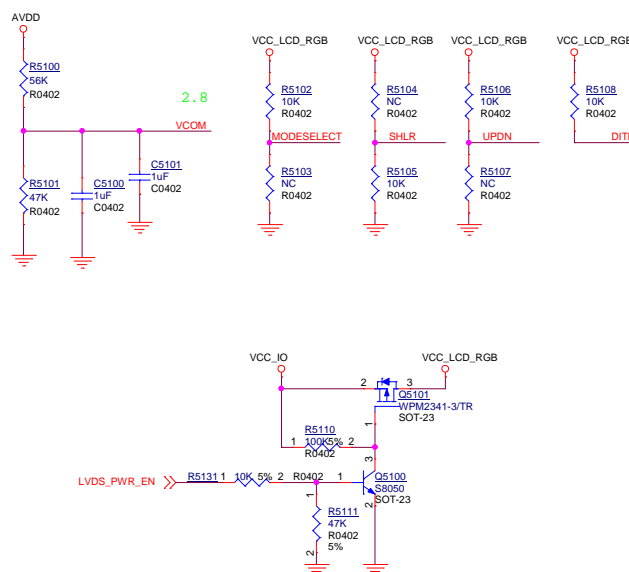



Rockchip
瑞芯微电子

Fuzhou Rockchip Electronics

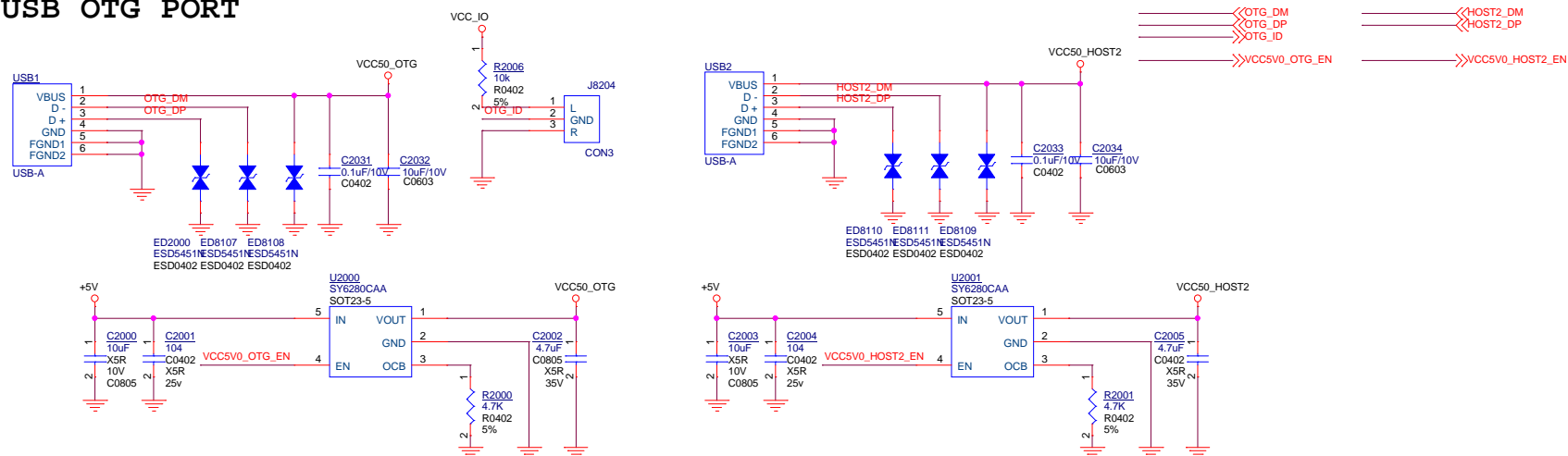
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Thursday, September 27, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	15 of 52

Pin	Signal	Pin	Signal
50	NC	51	GND
49	NC	52	NC
48	GND	53	NC
47	DITH	54	DITH
46	VCOM	55	VCOM
45	NC	56	NC
44	NC	57	RSTB
43	RSTB	58	AVDD
42	VGL	59	VGL
41	UPDN	60	SHLR
40	SHLR	61	GND
39	UPDN	62	DCLK
38	SHLR	63	GND
37	GND	64	R0
36	DCLK	65	R1
35	GND	66	R2
34	R0	67	R3
33	R1	68	R4
32	R2	69	R5
31	R3	70	R6
30	R4	71	R7
29	R5	72	G0
28	R6	73	G1
27	R7	74	G2
26	G0	75	G3
25	G1	76	G4
24	G2	77	G5
23	G3	78	G6
22	G4	79	G7
21	G5	80	B0
20	G6	81	B1
19	G7	82	B2
18	B0	83	B3
17	B1	84	B4
16	B2	85	B5
15	B3	86	B6
14	B4	87	B7
13	B5	88	HSD
12	B6	89	VSD
11	B7	90	DE
10	HSYNC	91	MODE
9	VSNC	92	DVDD
8	DE	93	VCOM
7	MODE	94	GND
6	MODESELECT	95	VLED-
5	VCOM	96	VLED+
4	RGB_LED-	97	VLED+
3	RGB_LED+	98	VLED+
2	RGB_LED+	99	VLED+
1	RGB_LED+	100	GND

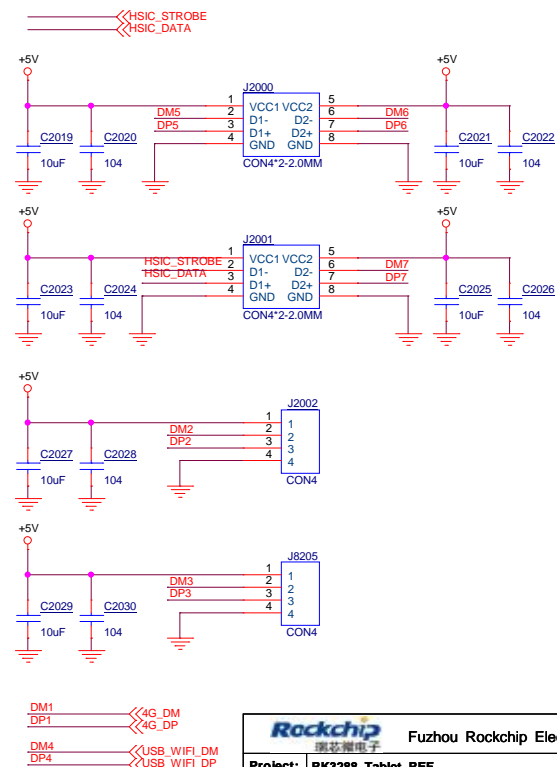
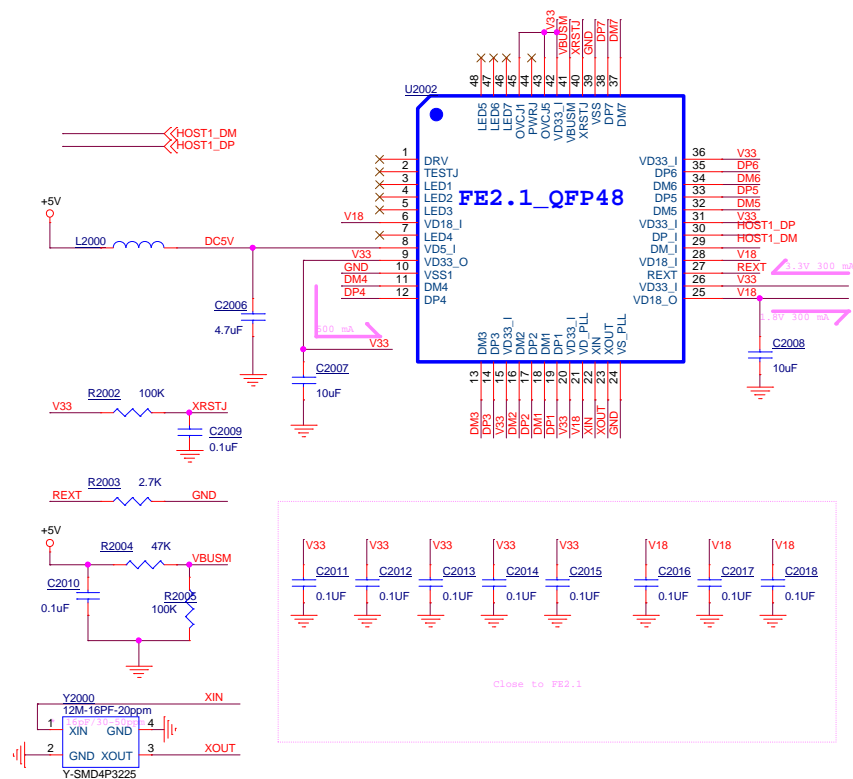


 瑞芯微电子		福州瑞芯微电子	
Title: LCD			
File: RK3288_Tablet_REF			REV: 1.0
Create Date:		Page	Num: 15
Modify Date:	Friday, September 21, 2018	Page	Total: 19

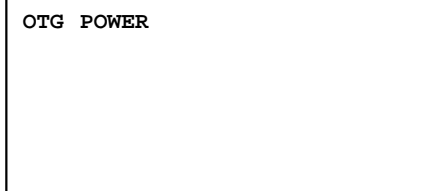
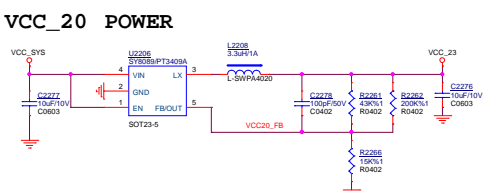
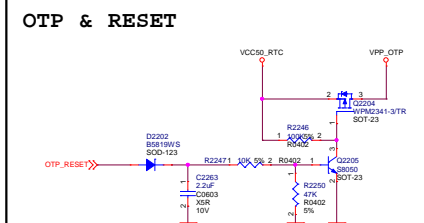
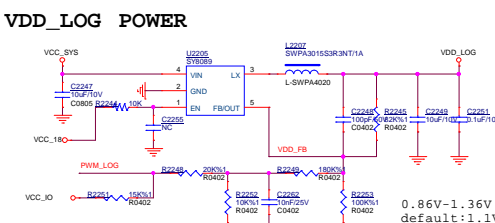
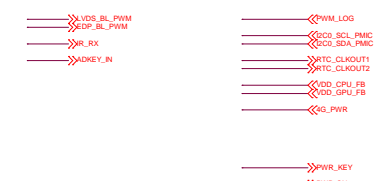
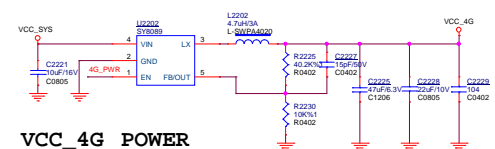
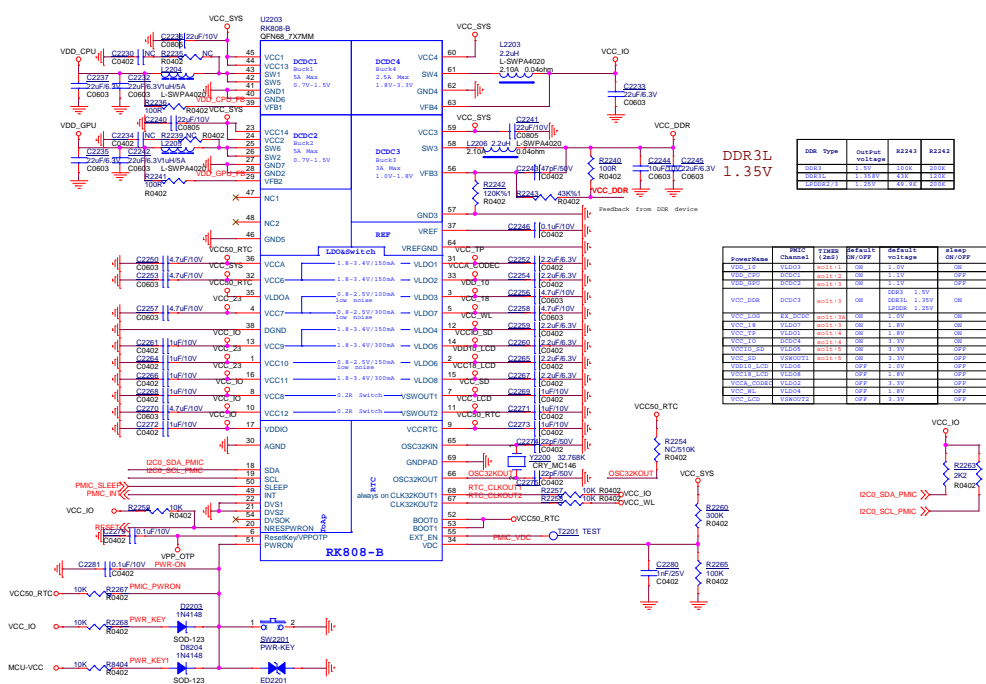
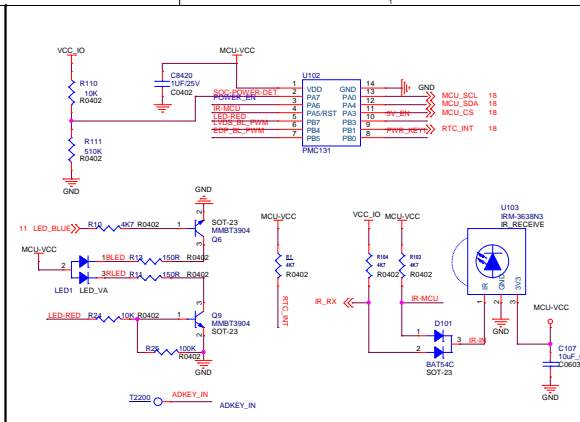
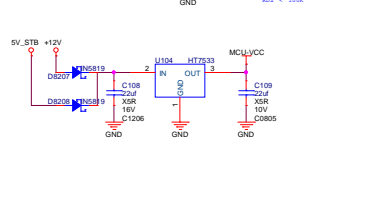
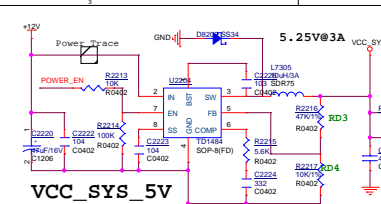
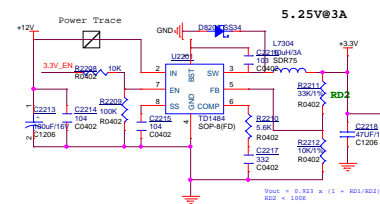
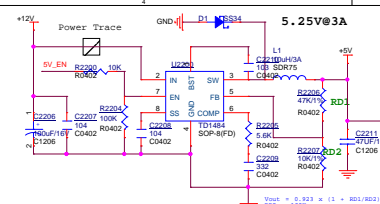
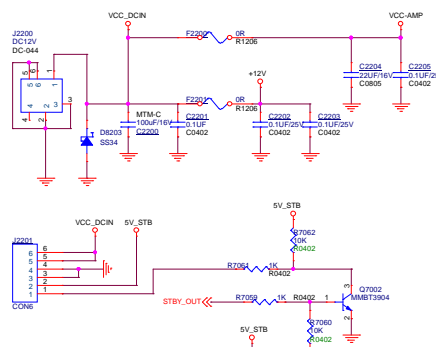
USB OTG PORT



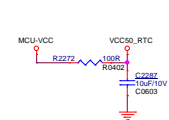
USB HUB



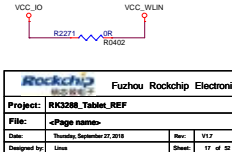
Note: Please use a 12V DC.



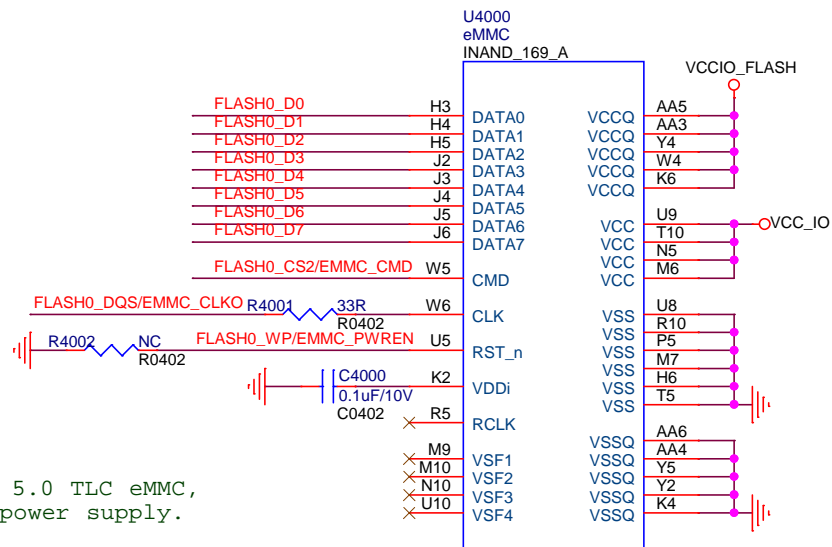
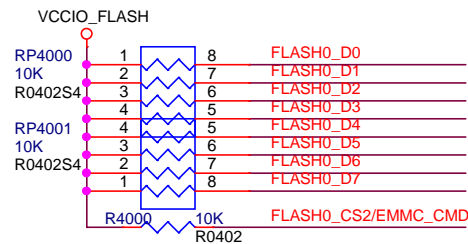
Note: If VCC50_RTC over-voltage of 6V, please use R2273=100ohm and C2288=1uF.



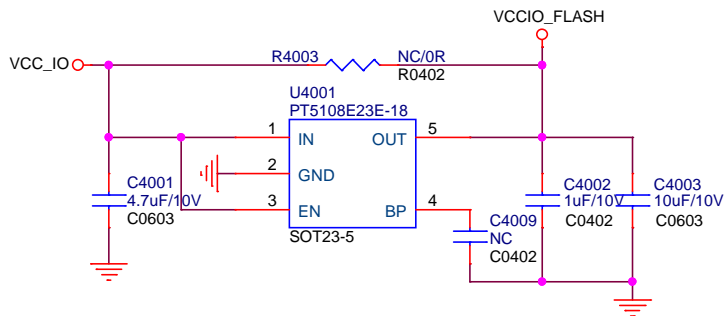
POWER FOR ALL E-DE



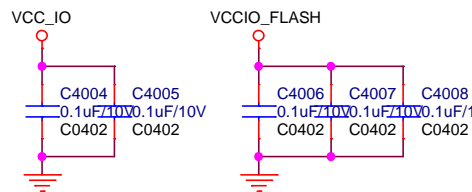
eMMC FLASH



Note:U4001 must be use for Sandisk 5.0 TLC eMMC, because it support only 1.8V VCCQ power supply.

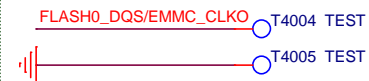


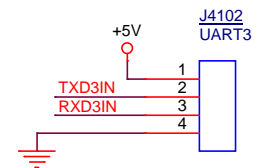
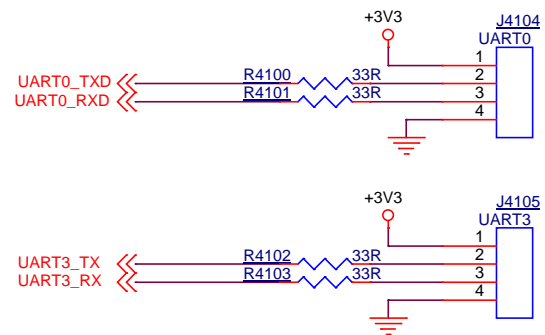
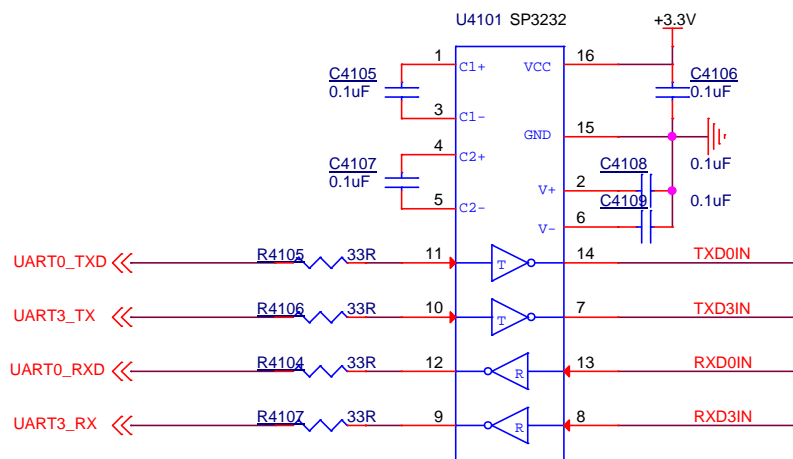
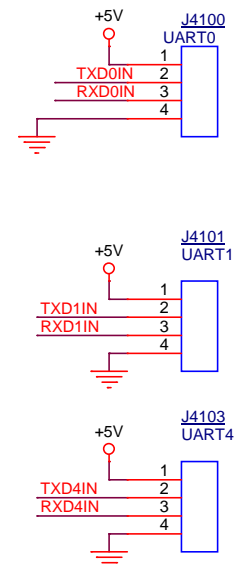
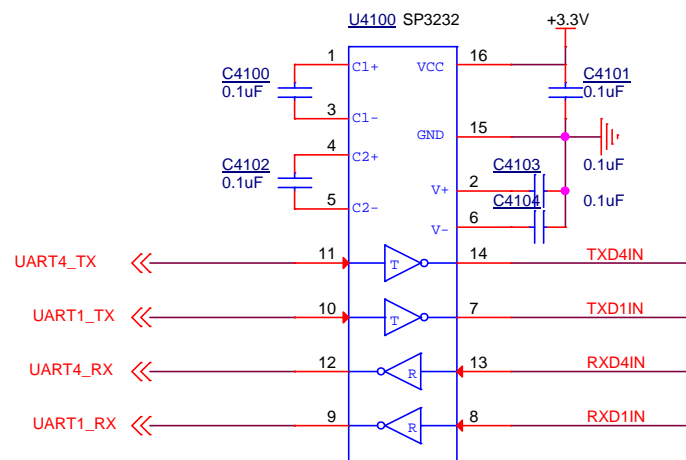
Note:For eMMC&Nand Flash Compatible layout ,
please make the trace go through Nand Flash
and then go through eMMC Flash.




```
Note:For eMMC&Nand Flash
Compatible layout,
please make sure the
EMMC_CLKO stub as short as possible.
```

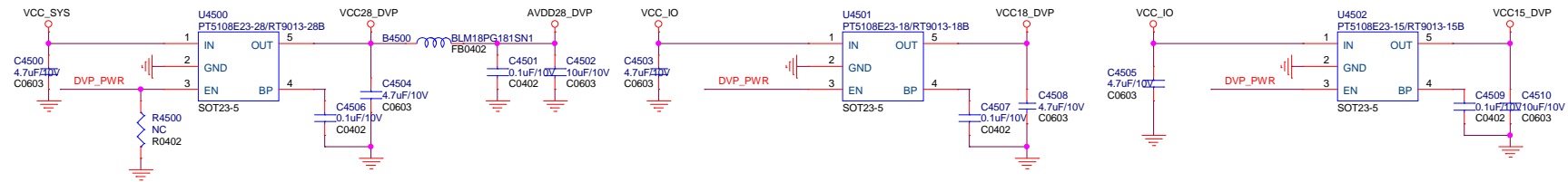
Note: Reserve PAD for Update.





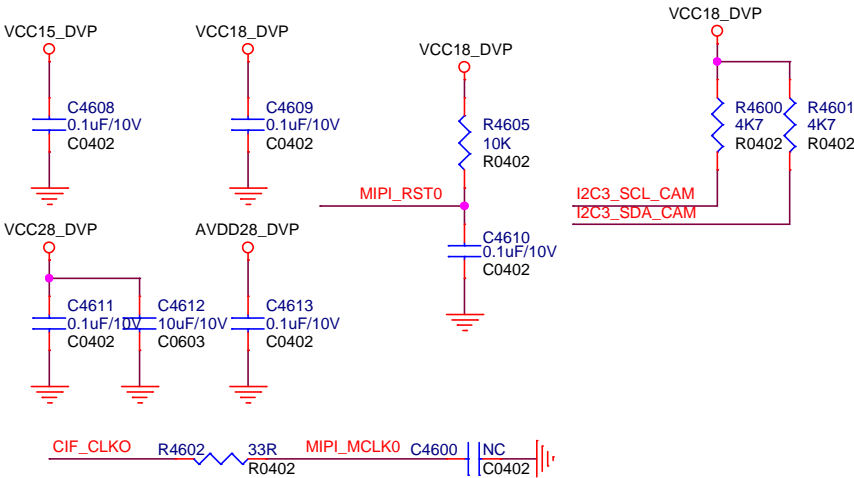
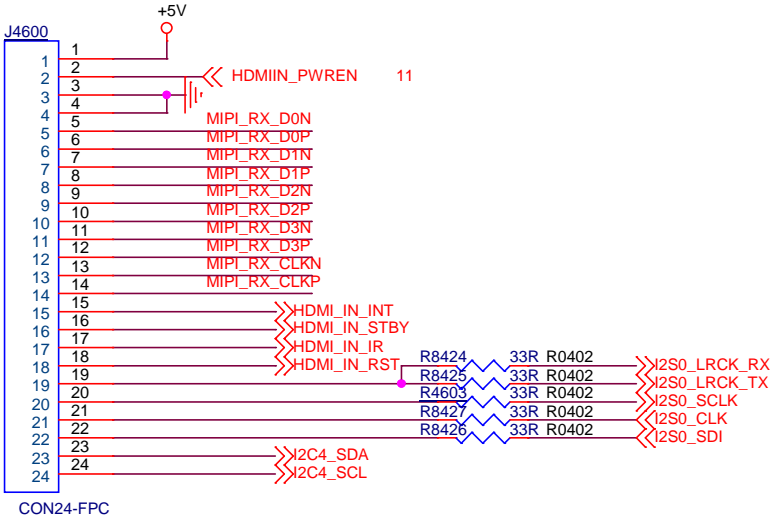
 Fuzhou Rockchip Electronics			
Project:	RK3288_Tablet_REF		
File:	UART		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	26 of 52


DVP Power



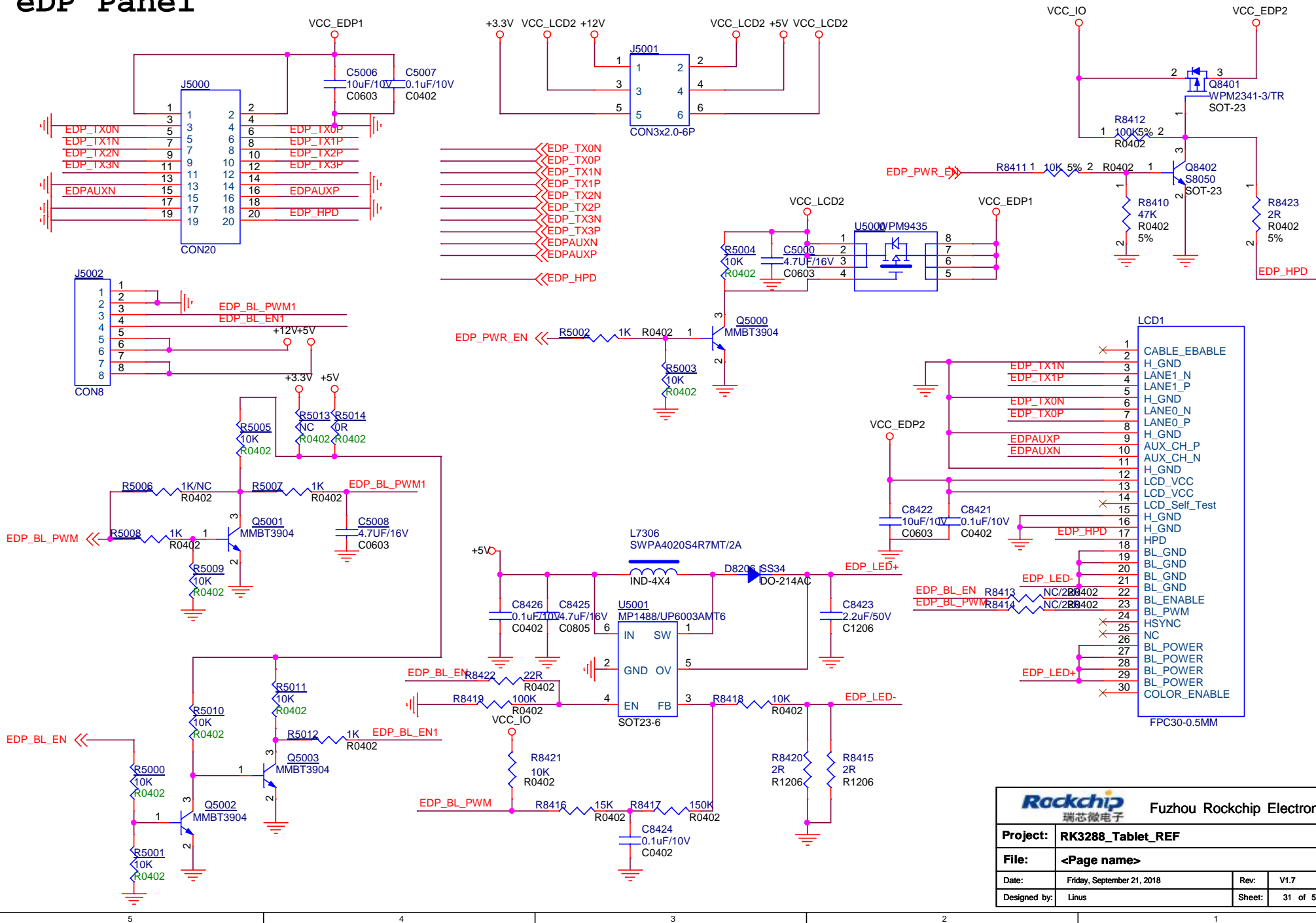
MIPI Camera

Note:Do not use two camera with the same I2C address

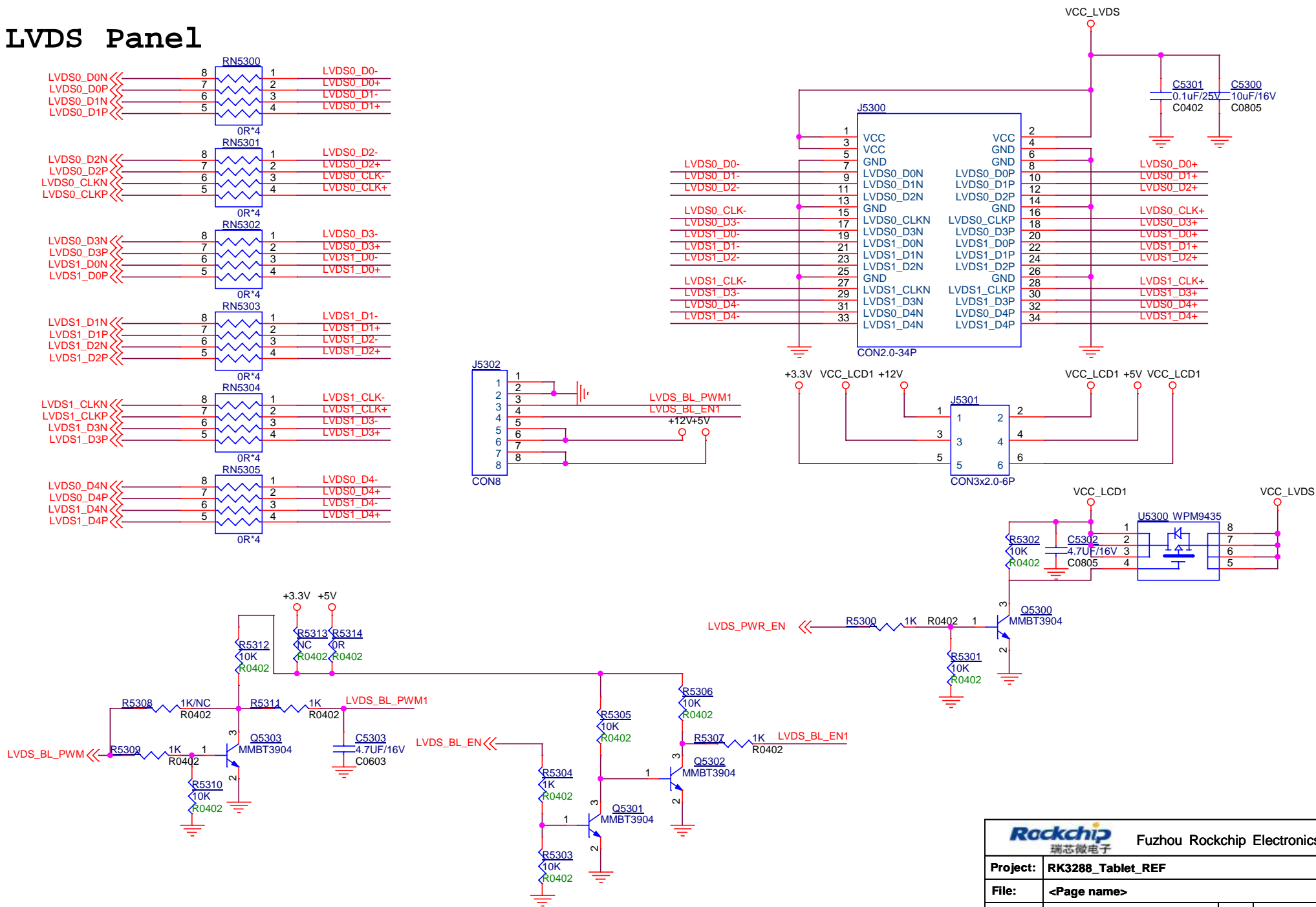


 Fuzhou Rockchip Electronics			
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	29 of 52

eDP Panel



LVDS Panel

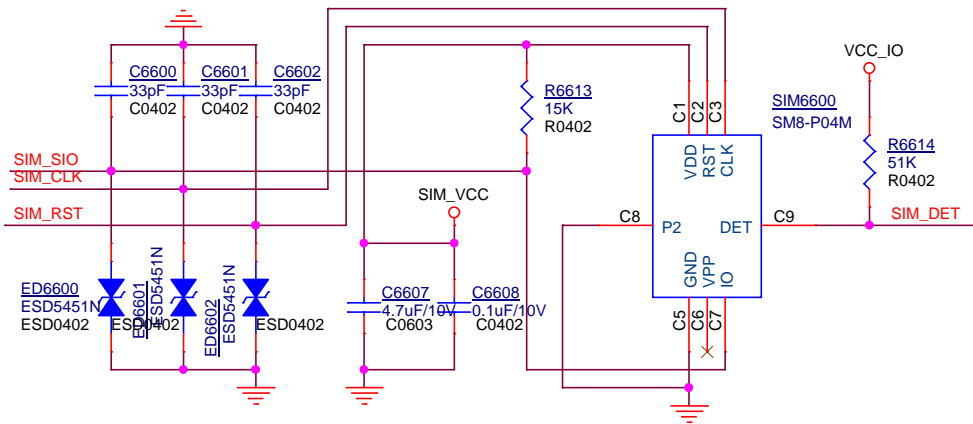
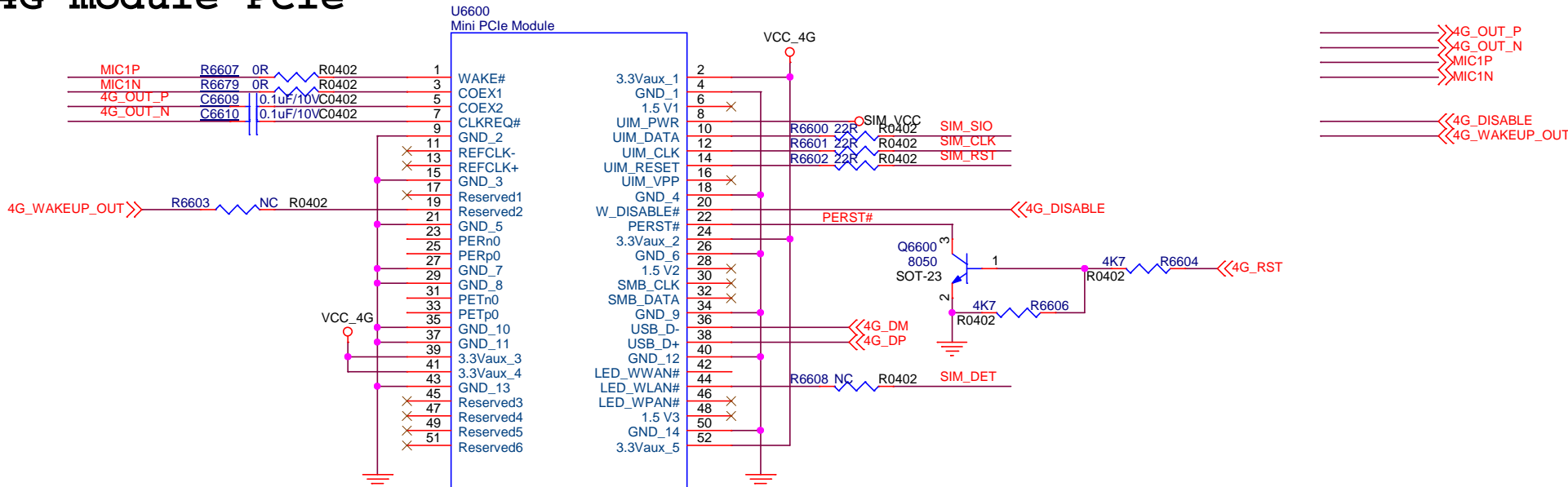


Note:VBAT supply from 3.0V~4.8V,
400mA of current.

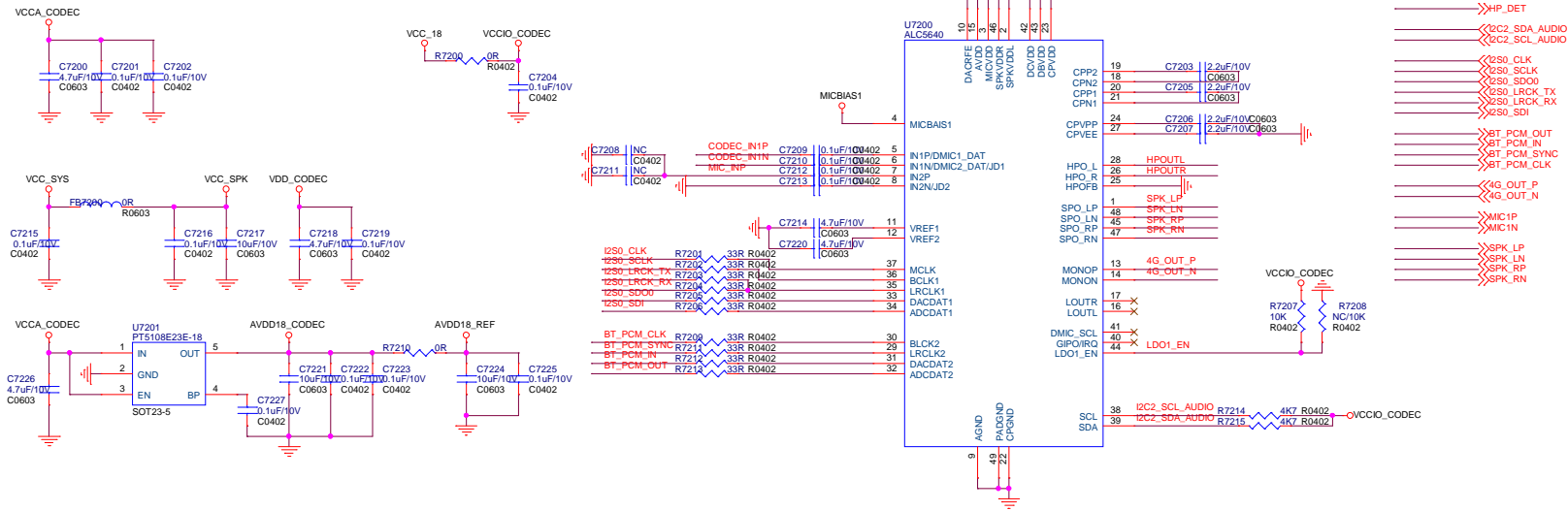
Default:AP6335
Note:
YES:Paste
NO:Do not paste



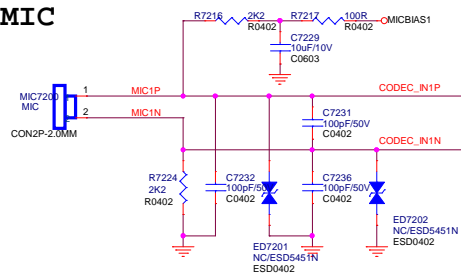
4G module PCIe



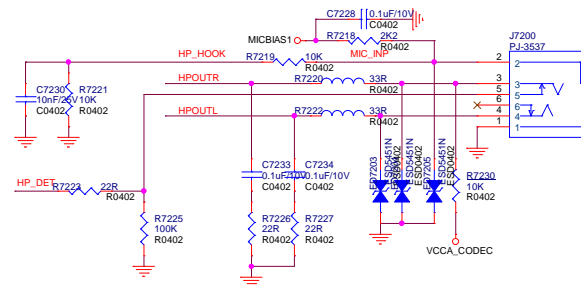
CODEC



MIC



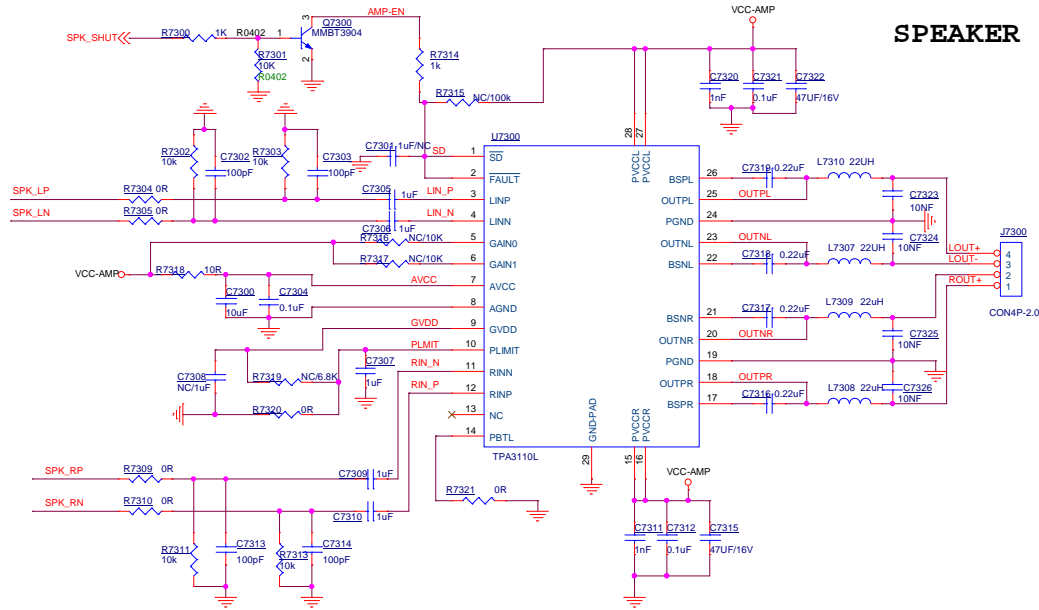
EARPHONE



SPEAKER

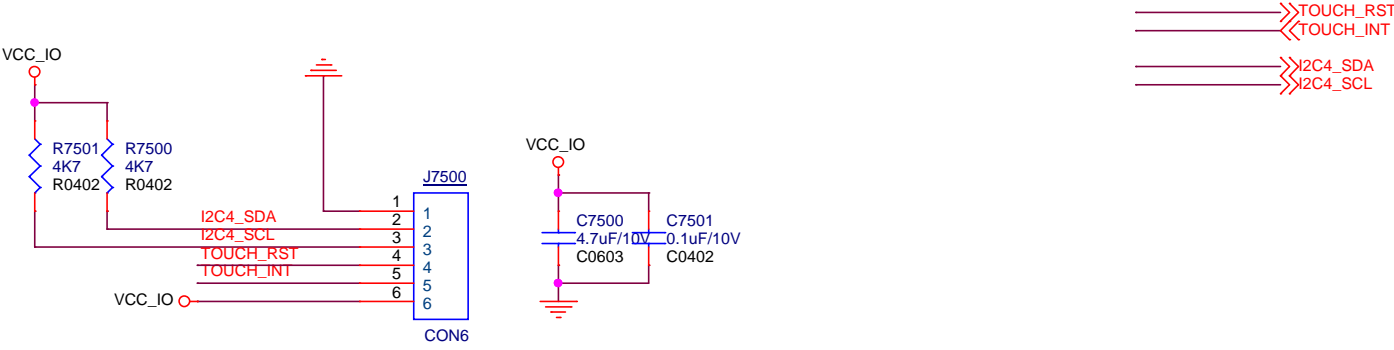
SPEAKER

>>SPK_LP
 >>SPK_LN
 >>SPK_RP
 >>SPK_RN
 >>SPK_SHUT

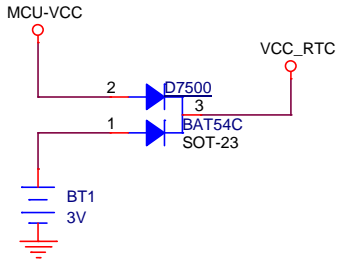
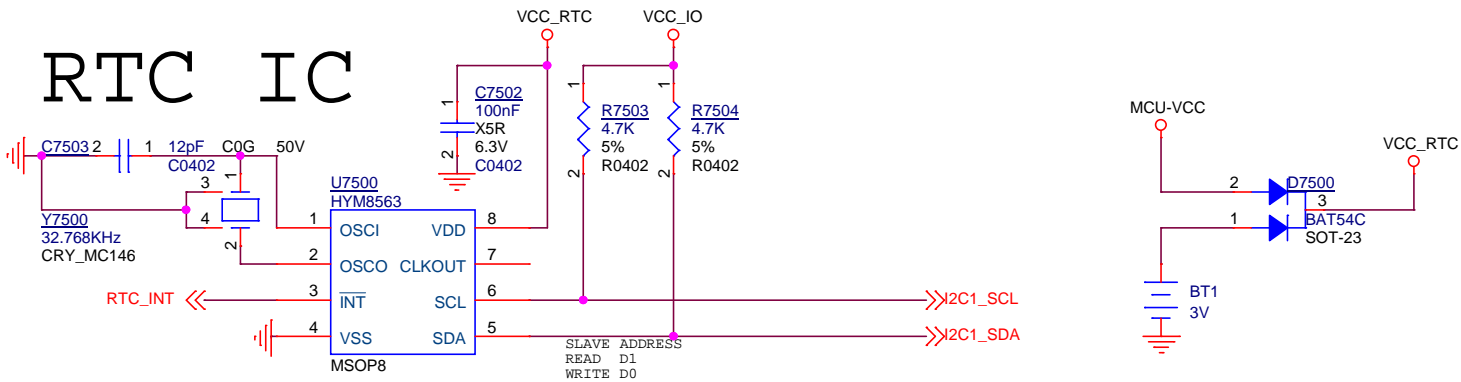


SPEAKER

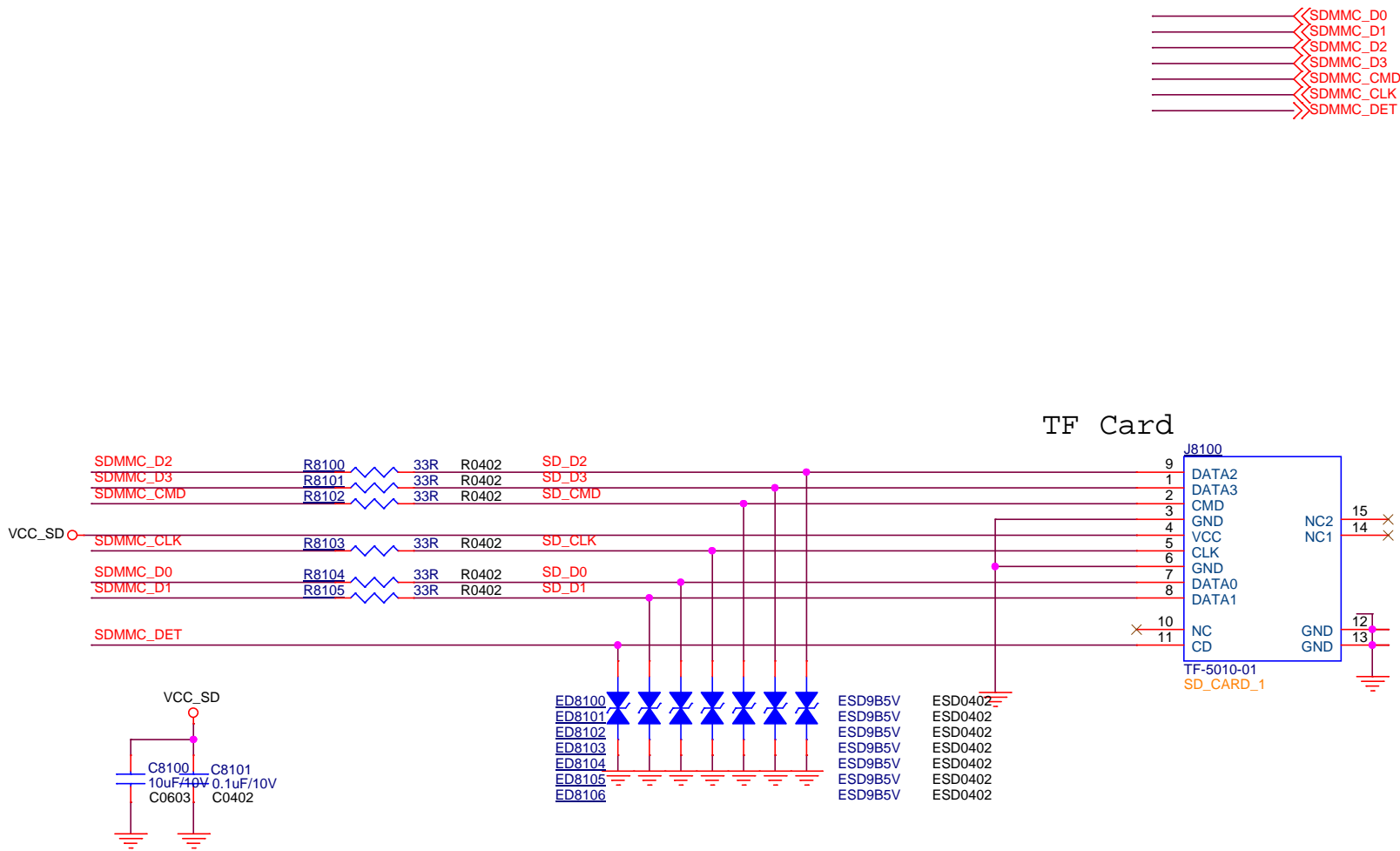
Touch Panel connector




RTC IC

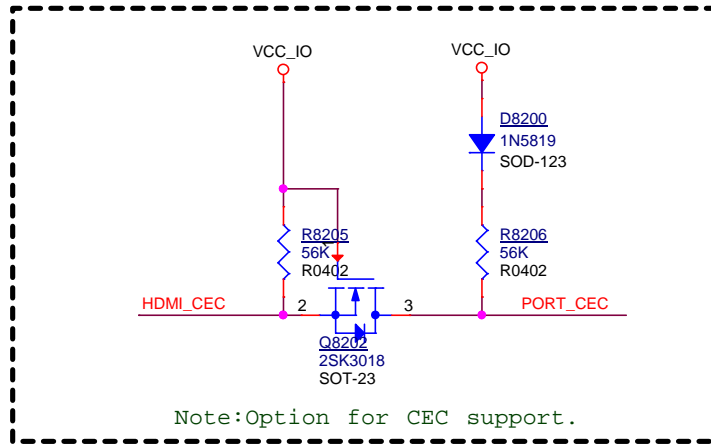
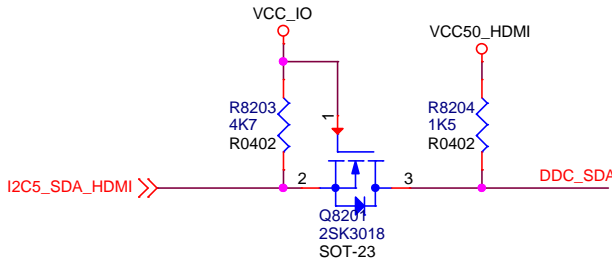
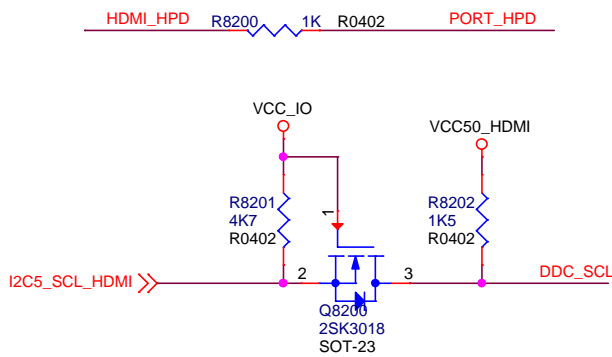
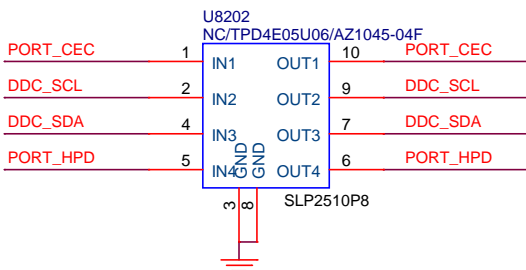
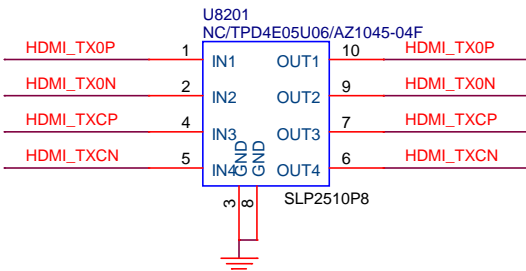
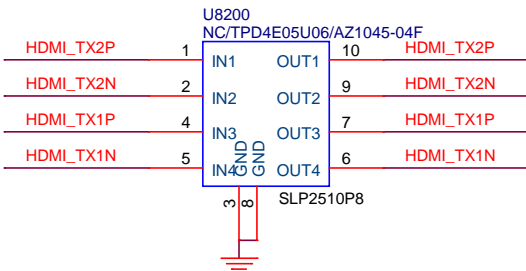
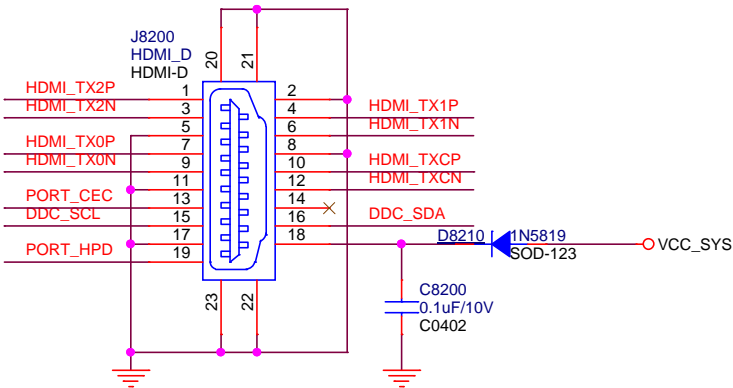


TF CARD



<div><div><div>Fuzhou Rockchip Electronics</div></div></div>			
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	50 of 52

HDMI C Type Port



- << HDMI_TX0P
- << HDMI_TX0N
- << HDMI_TX1P
- << HDMI_TX1N
- << HDMI_TX2P
- << HDMI_TX2N
- << HDMI_TXCP
- << HDMI_TXCN
- << HDMI_HPDP
- << HDMI_CEC

Rockchip 瑞芯微电子 Fuzhou Rockchip Electronics			
Project:	RK3288_Tablet_REF		
File:	<Page name>		
Date:	Friday, September 21, 2018	Rev:	V1.7
Designed by:	Linus	Sheet:	51 of 52

EFUSE Power

Note:Place the Component if need to write eFUSE

EFUSE_PWR

