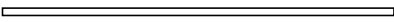
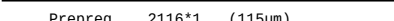
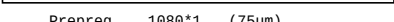


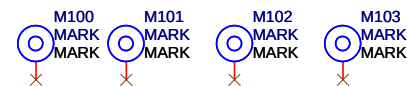
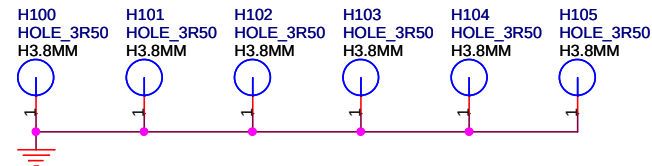
HAIER RK3288 KitchenHub V1.0

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-  03.Block Diagram
-  04.I2C Map
-  05.Power Tree-RK808-B
-  06.RK3288 Power.10
-  07.RK3288 PMU Controler.11
-  08.RK3288 DDR Controler.12
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-  12.RK3288 DVP Interface.16
-  13.RK3288 Display Interface.17
-  14.RK3288 GPIO.18
-  15.USB Port.20
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-  17.RAM-DDR3 4x16bit.30
-  18.Memory-eMMC.40
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-  20.Camera-MIPI CSI.46
-  21.LCM-LVDS Panel & Touch.53
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-  23.WIFI/BT module
-  24.HDMI IN
-  25.Audio Codec-PCM5100A
-  26.Sensors & MC connectors

6 LAYERS PCB STACK (e.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 (465um)	
SIGNAL		Hoz(18um)
	Prepreg 2116*1 (115um)	
GND2		Hoz(18um)
	Prepreg 1080*1 (75um)	
BOTTOM		1oz(35um) Silkscreen (25um)

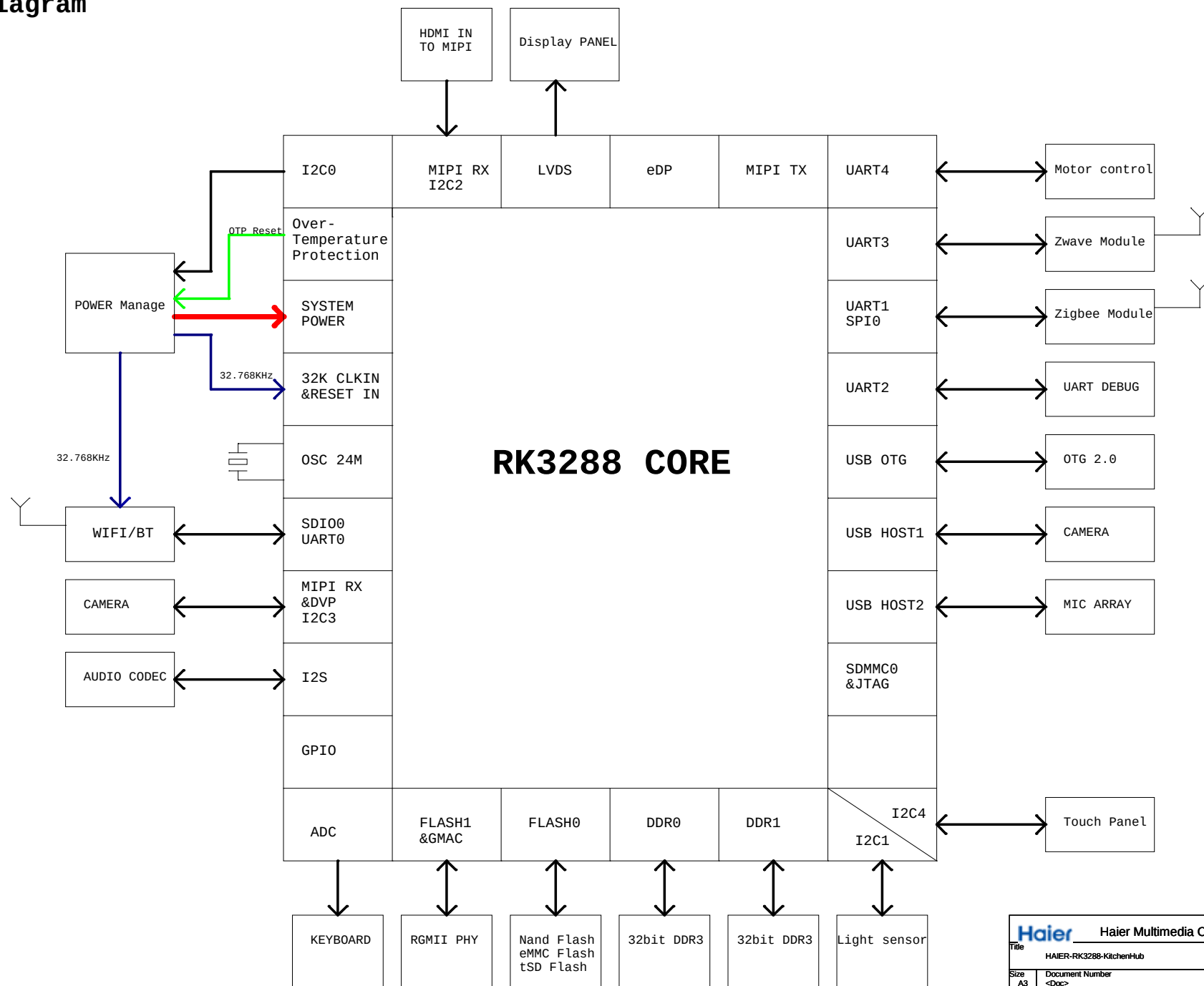


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Change List

Version	Date	Author	Change Note	Approved
V1.0	2018.4.12	Zuo Chuanjin	First edition	
V1.1	2018.7.20	Zuo Chuanjin	Second edition	

Block Diagram

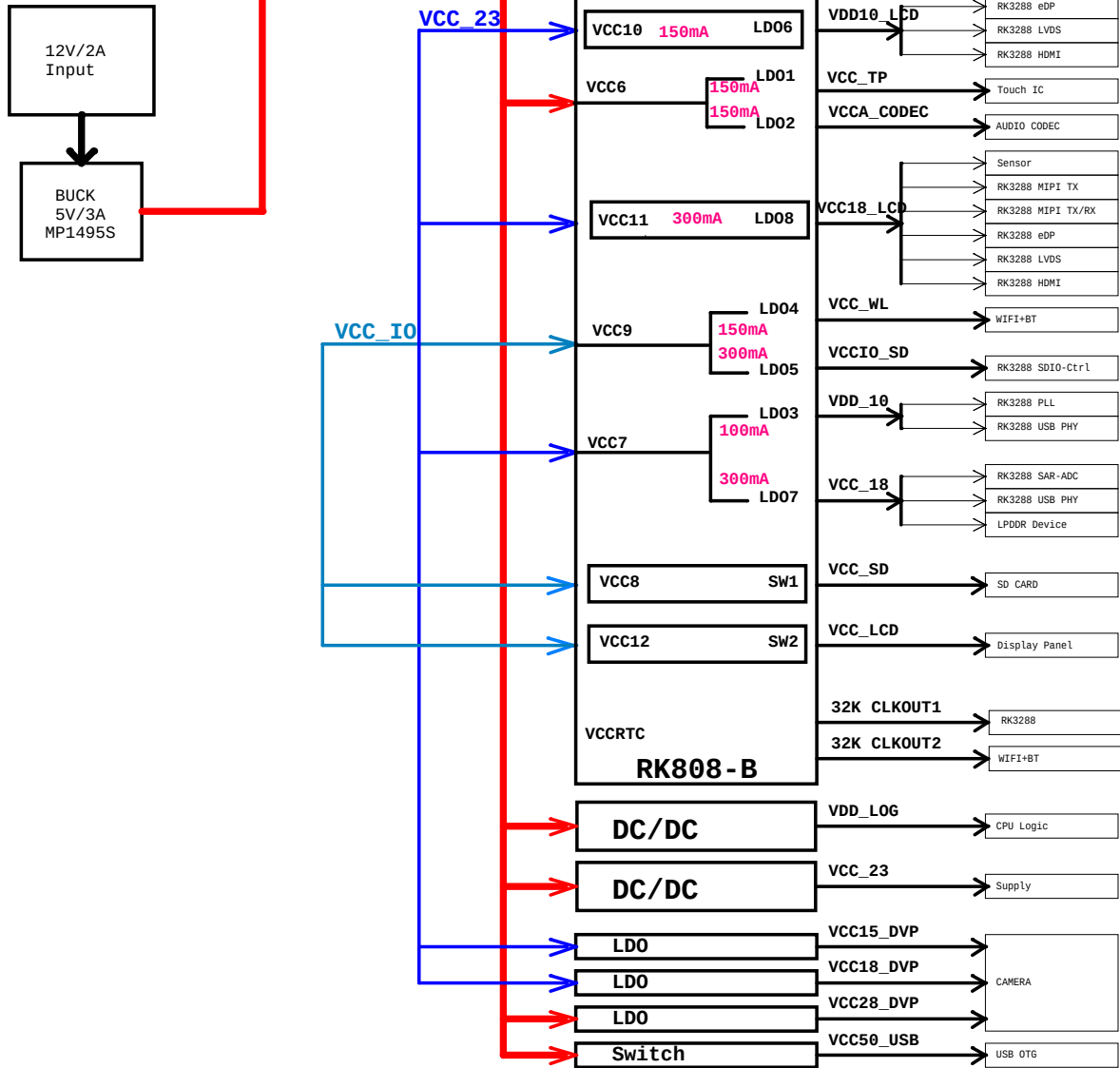


I2C MAP

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	PMUI0	I2C0_SDA_PMIC I2C0_SCL_PMIC	VCCIO_PMU	Rockchip RK808	0x36(1b)	PMIC	100kHz, 400KHz
I2C1	I2C1_SDA/SC_RST/GPIO8_A4 I2C1_SCL/SC_CLK/GPIO8_A5	API02	I2C1_SDA_sensor I2C1_SCL_sensor	VCC_IO	OPT3001	0x88(44)	LIGHT-Sensor	100kHz, 400KHz
I2C2	I2C2_SDA/GPIO6_B1 I2C2_SCL/GPIO6_B2	API04	I2C2_SDA_AUDIO I2C2_SCL_AUDIO	VCCIO_CODEC	TC358743XBG	0x1e(0f)	HDMI to MIPI bridge.	100kHz, 400KHz
					ALC5651	0x34(1a)	Audio codec	100kHz, 400KHz
I2C3	I2C3_SCL/GPIO2_C0 I2C3_SDA/GPIO2_C1	DVPI0	I2C3_SDA_CAM I2C3_SCL_CAM	VCC18_DVP	IMX179	0x20(10)	Image Sensor	100kHz, 400KHz
I2C4	I2C4_SDA/GPIO7_C1 I2C4_SCL/GPIO7_C2	API01	I2C4_SDA_TP I2C4_SCL_TP	VCCIO_TP	ILI2312	0x41	Touch IC	100kHz, 400KHz
I2C5	I2C5_SDA/EDPHDMI_I2C_SDA/GPIO7_C3 I2C5_SCL/EDPHDMI_I2C_SCL/GPIO7_C4	API01	I2C5_SDA_HDMI I2C5_SCL_HDMI					

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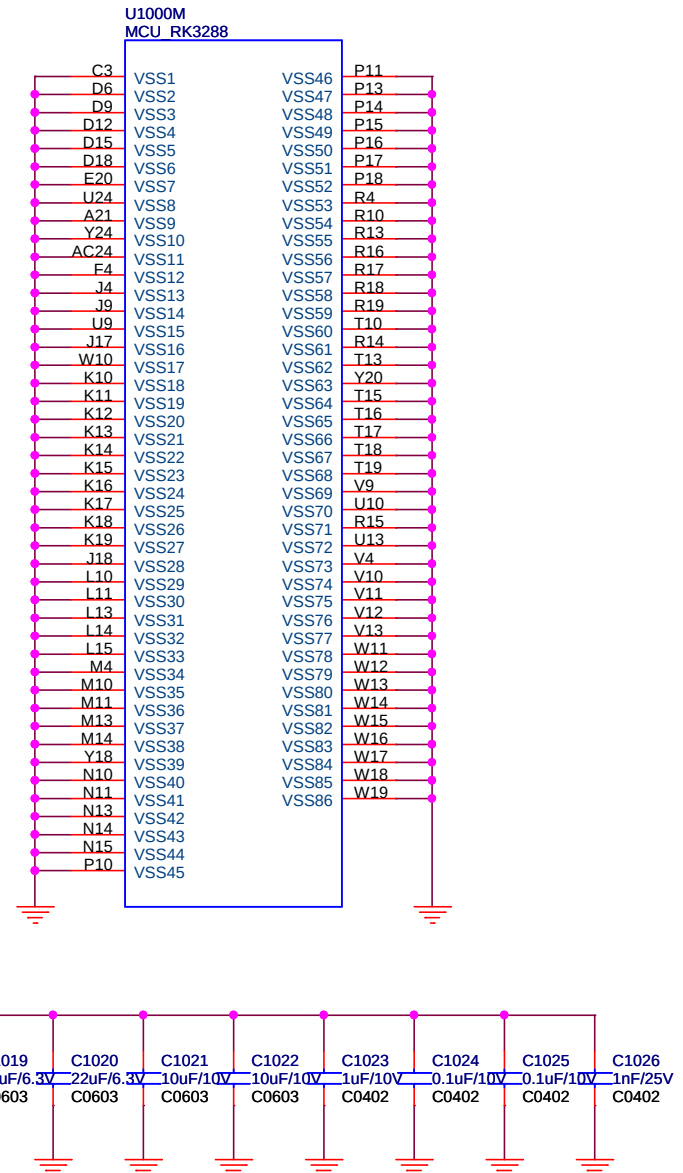
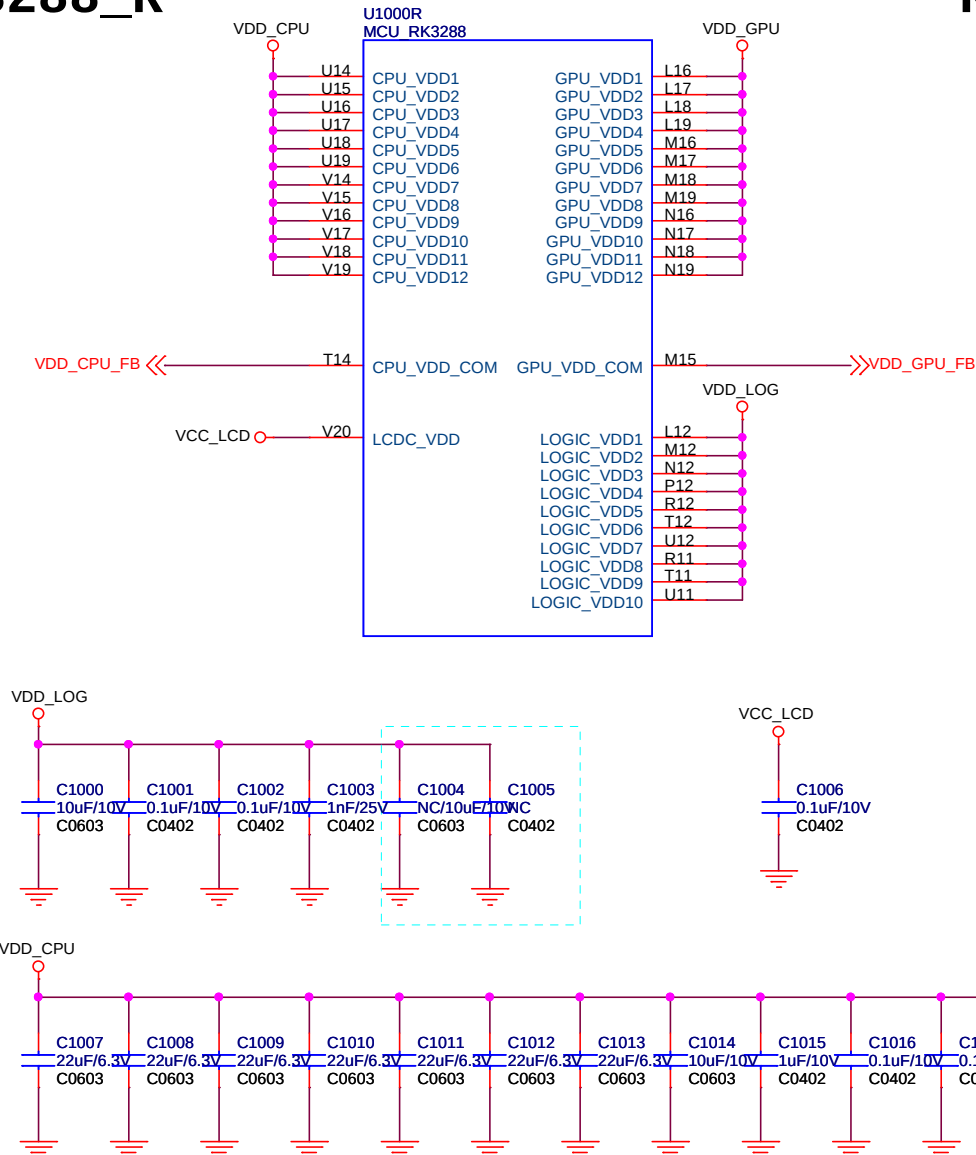
RK808-B POWER DIAGRAM



PowerName	PMIC Channel	TIMER (2mS)	Default ON/OFF	default voltage	sleep ON/OFF
VDD_18	VLD03	sol1:1	ON	1.8V	ON
VDD_CPU	DCDC1	sol1:2	ON	1.1V	OFF
VDD_GPU	DCDC2	sol1:3	ON	1.1V	OFF
VCC_DDR	DCDC3	sol1:3	ON	DDR3 1.5V DDR3L 1.35V LPDDR 1.25V	ON
VCC_LOG	EX_DDC	sol1:3A	ON	1.1V	ON
VCC_18	VLD07	sol1:3	ON	1.8V	ON
VCC_TP	VLD01	sol1:4	ON	1.8V	ON
VCC_I0	DCDC4	sol1:4	ON	3.3V	ON
VCCIO_SD	VLD05	sol1:5	ON	3.3V	OFF
VCC_SD	VSWOUT1	sol1:5	ON	3.3V	OFF
VDD18_LCD	VLD06		OFF	1.8V	OFF
VCC18_LCD	VLD08		OFF	1.8V	OFF
VCCA_CODEC	VLD02		OFF	3.3V	OFF
VCC_WL	VLD04		OFF	1.8V	OFF
VCC_LCD	VSWOUT2		OFF	3.3V	OFF

RK3288_R

RK3288_M



RK3288 Power Filter

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

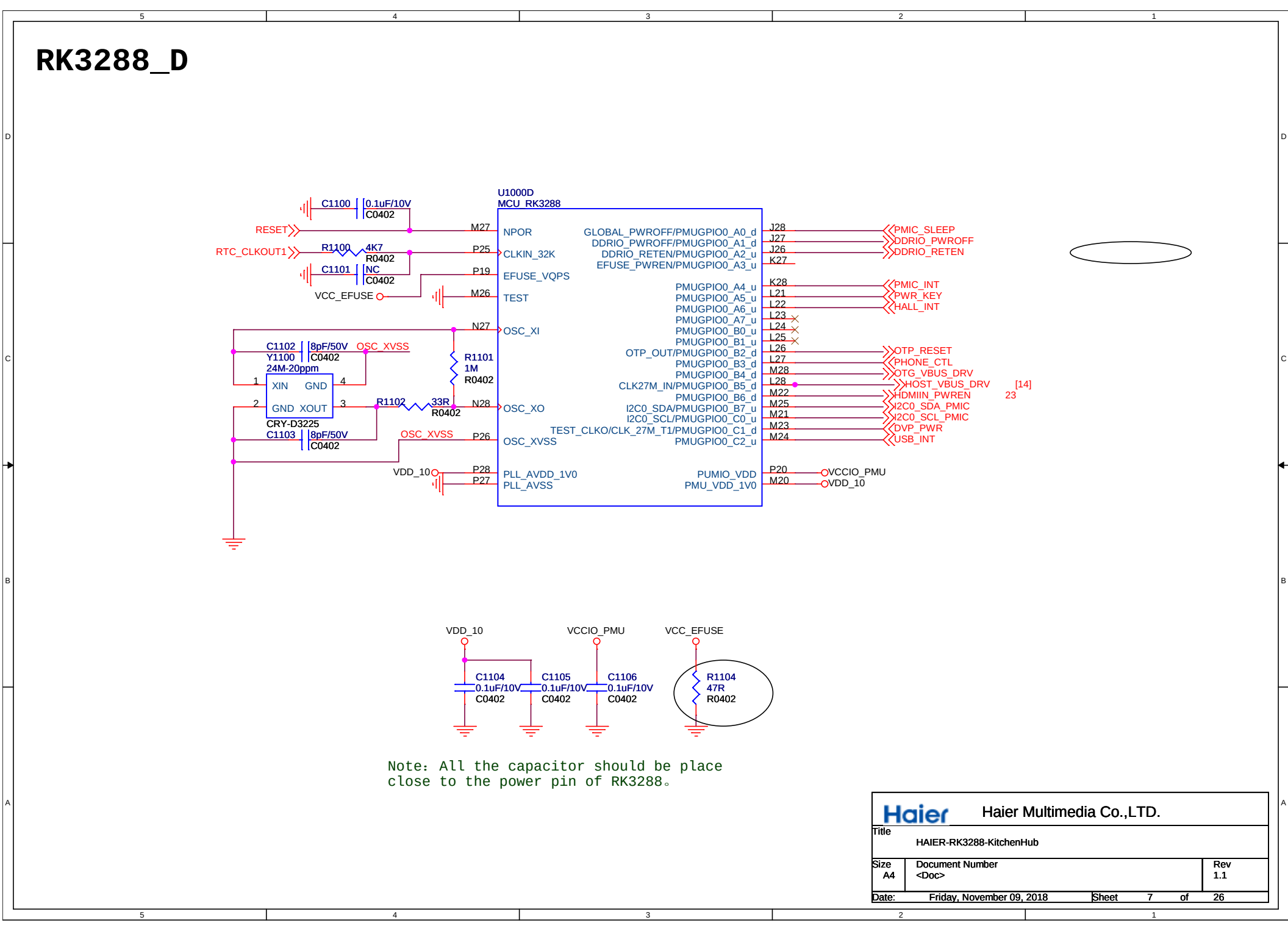
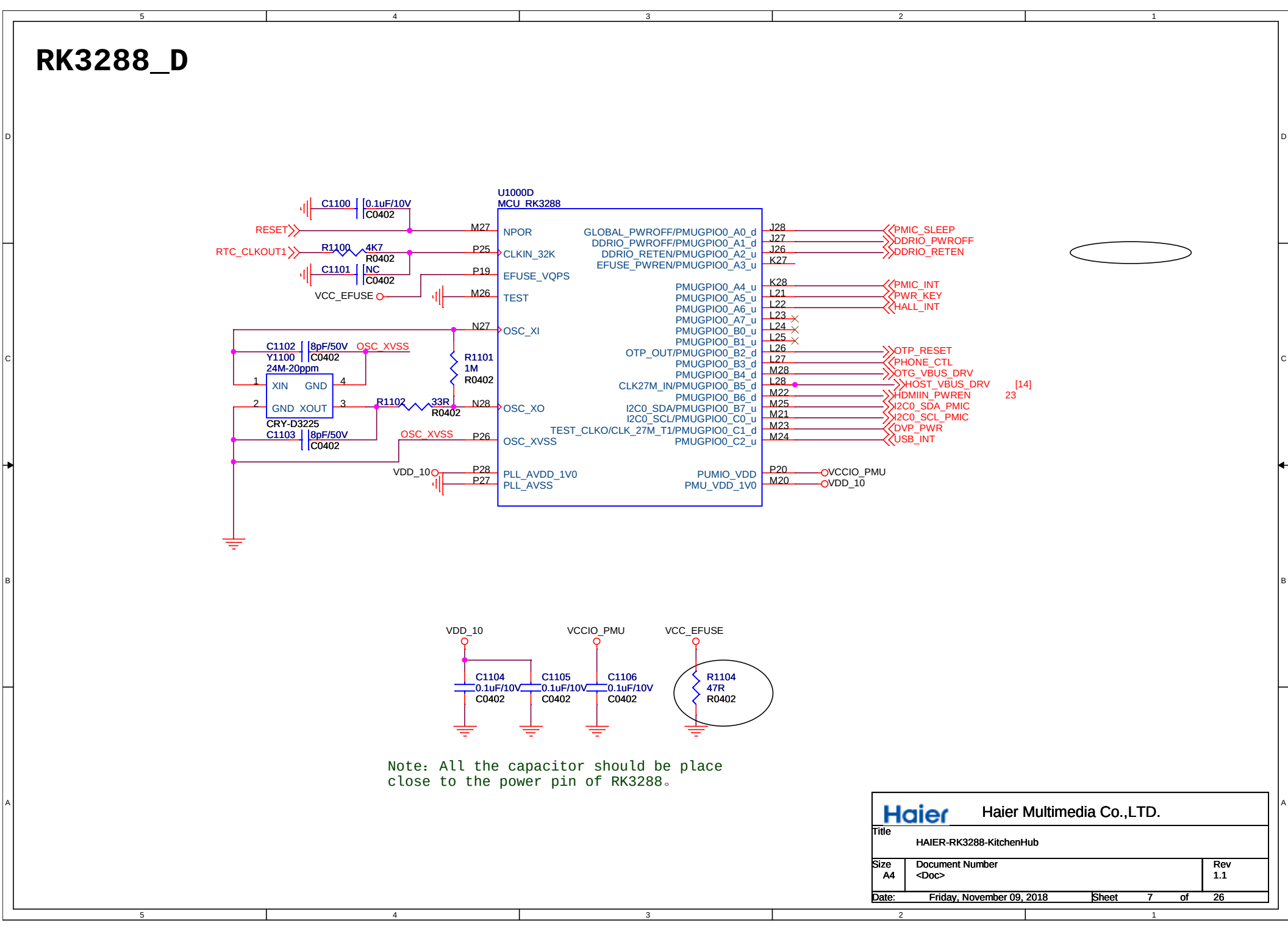
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The schematic diagram illustrates the electrical connections for the RK3288_D board. The central component is the U1000D MCU RK3288. Key connections include:

- Power Management:** VDD_10 (P28) and PLL_AVSS (P27) are connected to the MCU. VCCIO_PMU (P20) and VDD_10 (M20) are connected to the PMU. VCC_EFUSE is connected to the MCU.
- Reset and Clock:** RESET (M27) is connected to the NPOR pin. RTC_CLKOUT1 (R1100) is connected to the CLKIN_32K pin. CRY-D3225 is connected to the OSC_XI and OSC_XO pins.
- GPIOs:** Various PMUGPIO pins (A0_d, A1_d, A2_u, A3_u, A4_u, A5_u, A6_u, A7_u, B0_u, B1_u, B2_d, B3_d, B4_d, B5_d, B6_d, B7_u, C0_u, C1_d, C2_u) are connected to external components like PMIC_SLEEP, DDRI0_PWROFF, DDRI0_RETEN, PMIC_INT, PWR_KEY, HALL_INT, OTP_RESET, PHONE_CTL, OTG_VBUS_DRV, HOST_VBUS_DRV, HDMIIN_PWREN, I2C0_SDA_PMIC, I2C0_SCL_PMIC, DVP_PWR, and USB_INT.
- Other Connections:** P26 is connected to the TEST pin. P19 is connected to the EFUSE_VQPS pin. P25 is connected to the CLKIN_32K pin. P27 is connected to the PLL_AVSS pin. P28 is connected to the VDD_10 pin.

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

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The schematic diagram illustrates the electrical connections for the RK3288_D board. The central component is the U1000D MCU RK3288. Key connections include:

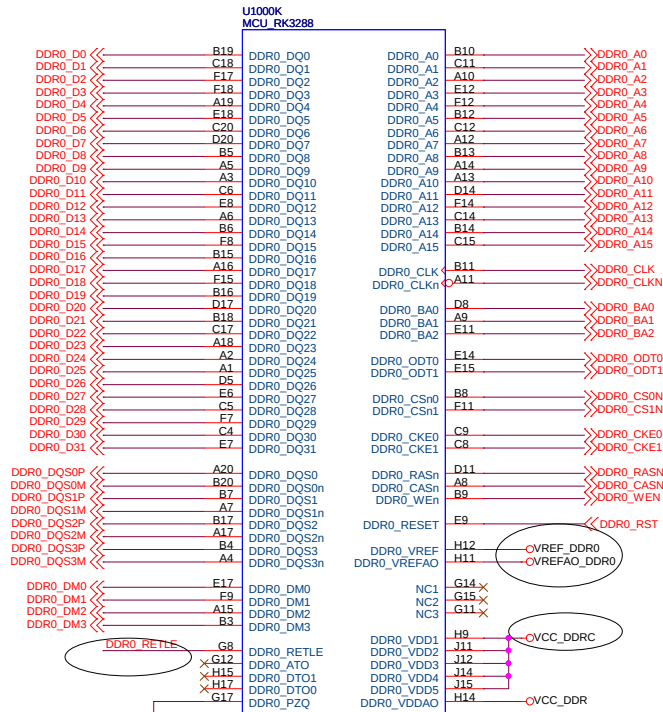
- Power Management:** VDD_10 (P28) and PLL_AVSS (P27) are connected to the MCU. VCCIO_PMU (P20) and VDD_10 (M20) are connected to the PMU. VCC_EFUSE is connected to the MCU.
- Reset and Clock:** RESET (M27) is connected to the NPOR pin. RTC_CLKOUT1 (R1100) is connected to the CLKIN_32K pin. CRY-D3225 is connected to the OSC_XI and OSC_XO pins.
- GPIOs:** Various PMUGPIO pins (A0_d, A1_d, A2_u, A3_u, A4_u, A5_u, A6_u, A7_u, B0_u, B1_u, B2_d, B3_d, B4_d, B5_d, B6_d, B7_u, C0_u, C1_d, C2_u) are connected to external components like PMIC_SLEEP, DDRI0_PWROFF, DDRI0_RETEN, PMIC_INT, PWR_KEY, HALL_INT, OTP_RESET, PHONE_CTL, OTG_VBUS_DRV, HOST_VBUS_DRV, HDMIIN_PWREN, I2C0_SDA_PMIC, I2C0_SCL_PMIC, DVP_PWR, and USB_INT.
- Other Connections:** P26 is connected to the TEST_CLKO/CLK_27M_T1 pin. P25 is connected to the CLKIN_32K pin. P19 is connected to the EFUSE_VQPS pin. M26 is connected to the TEST pin.

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

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RK3288_K

DDR Channel-0



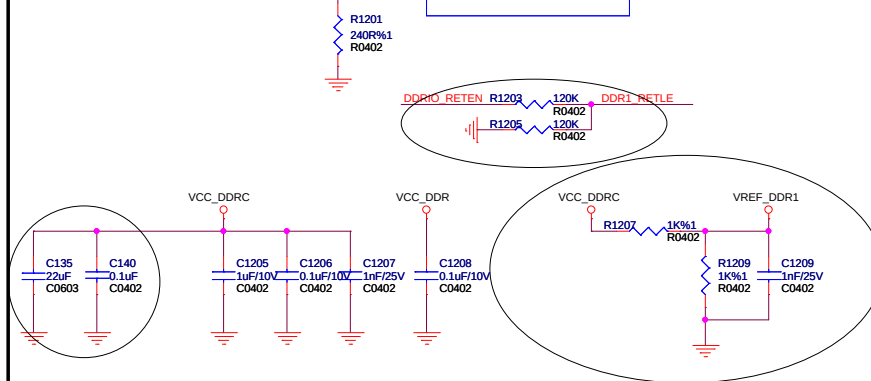
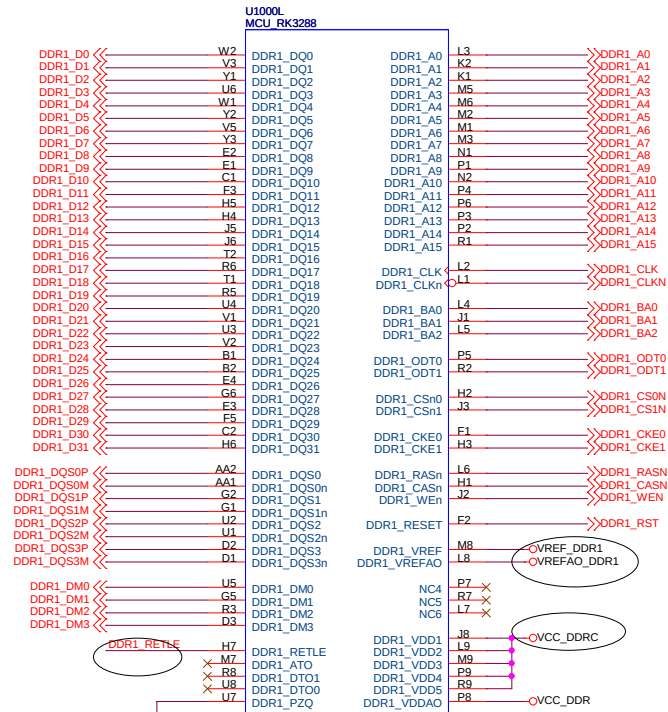
	R1282	R1284
DDR3	128K	128K
LPDDR2/3	108K	82K

公版在芯片端和DDR端分别加了分压电阻。
新参考设计只在芯片端加了分压电阻，但是分了两路。

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

RK3288_L

DDR Channel-1

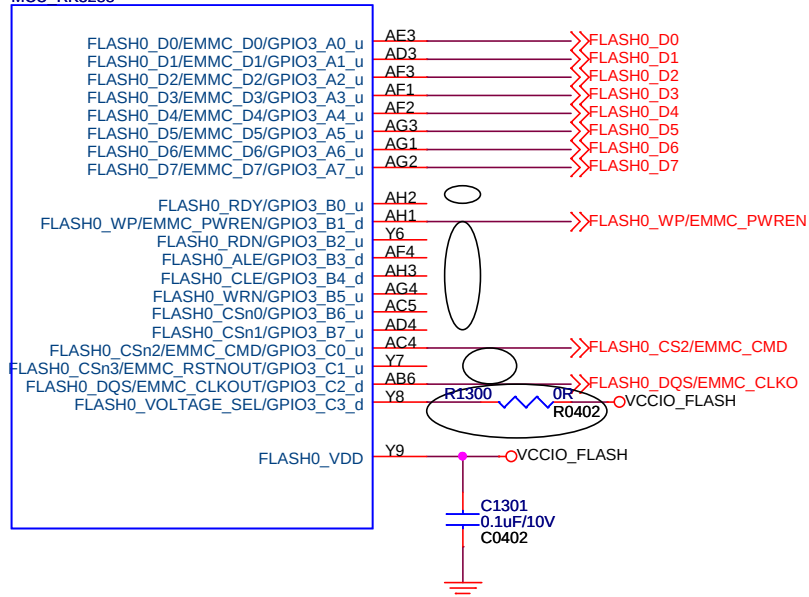


Note: All the capacitor should be place close to the power pin of RK3288.

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RK3288_P

U1000P
MCU RK3288

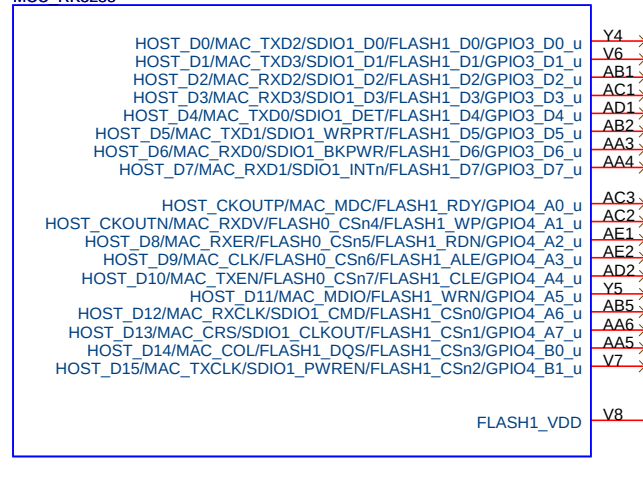


Note: All the capacitor should be place close to the power pin of RK3288.

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

RK3288_Q

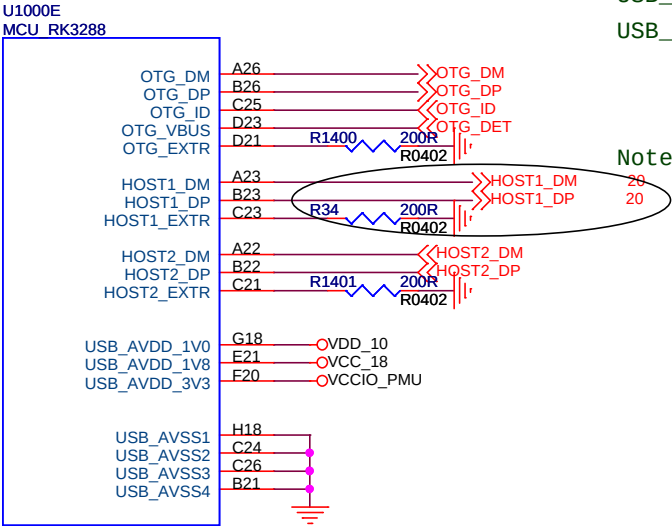
U1000Q
MCU RK3288



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

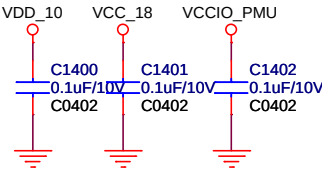
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RK3288_E



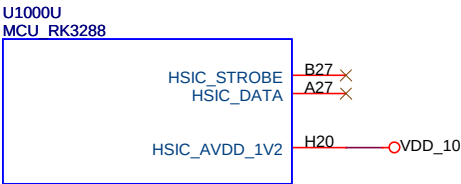
OTG port for debug.
USB_HOST1 for USB camera.
USB_HOST2 for MIC array.

Note2: USB_HOST1 don't support USB1.1;

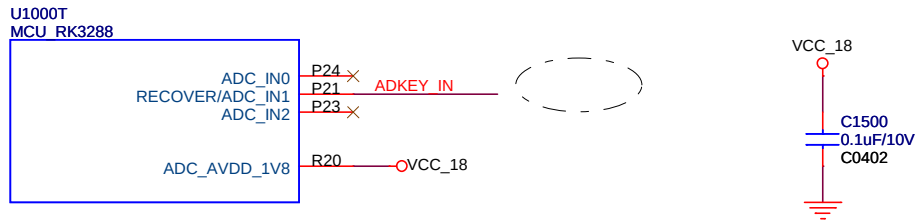


Note: All the capacitor should be place
close to the power pin of RK3288.

RK3288_U

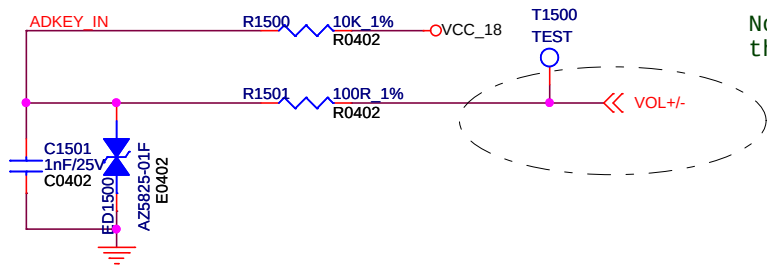


RK3288_T



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

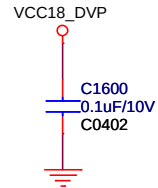
KEY



Note: When the system power on, if ADKEY_IN=0V, then enter Recovery mode;

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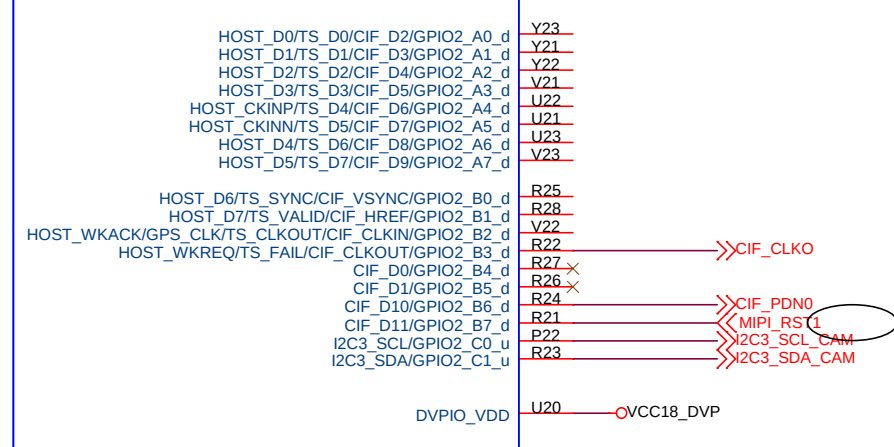
RK3288_C



CIF depends on camera.

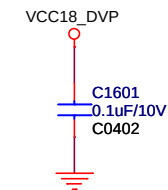
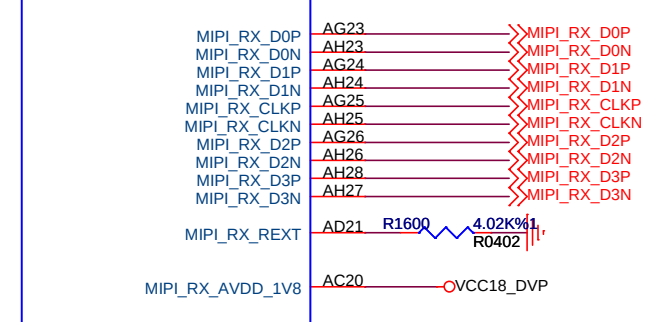
Note: All the capacitor should be place close to the power pin of RK3288.

U1000C
MCU RK3288



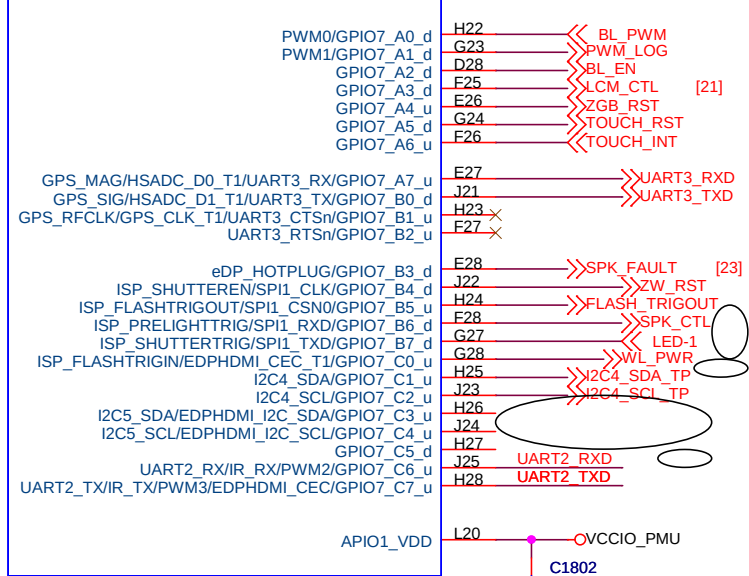
RK3288_W

U1000W
MCU RK3288



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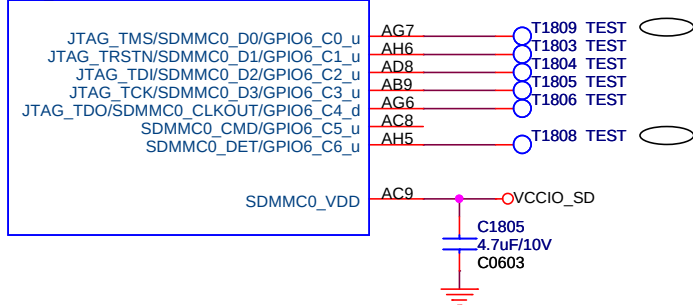
U1000F
MCU RK3288



RK3288_F

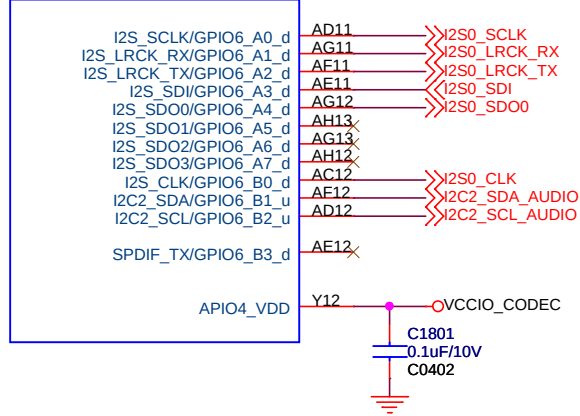
RK3288_B

U1000B
MCU RK3288



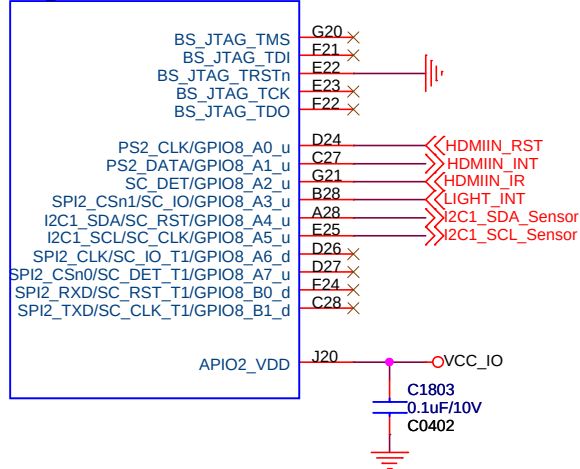
RK3288_I

U1000I
MCU RK3288



RK3288_G

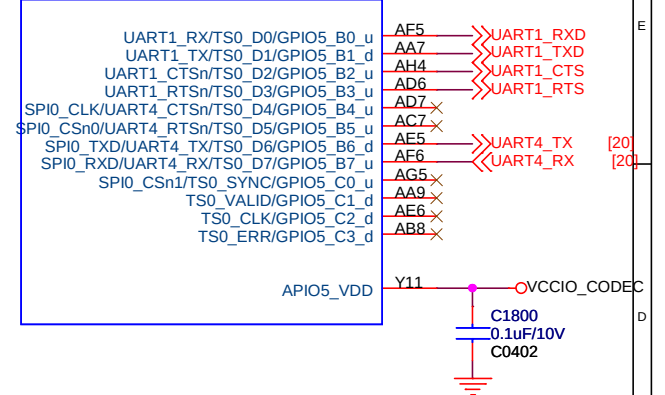
U1000G
MCU RK3288



Note: BS_JTAG_TRSTn must be 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.

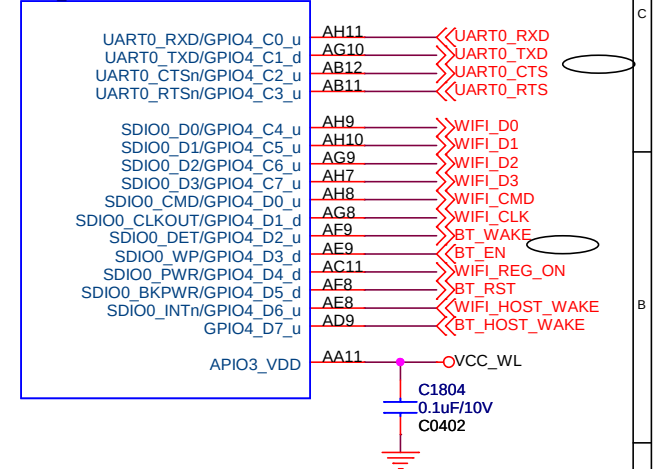
RK3288_J

U1000J
MCU RK3288



RK3288_H

U1000H
MCU RK3288

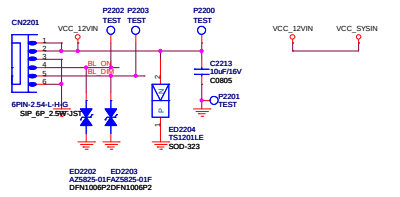


Haier

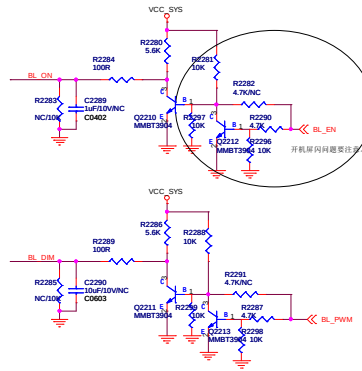
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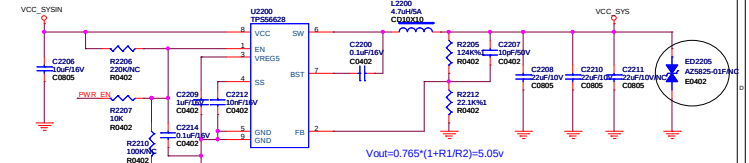
DC IN



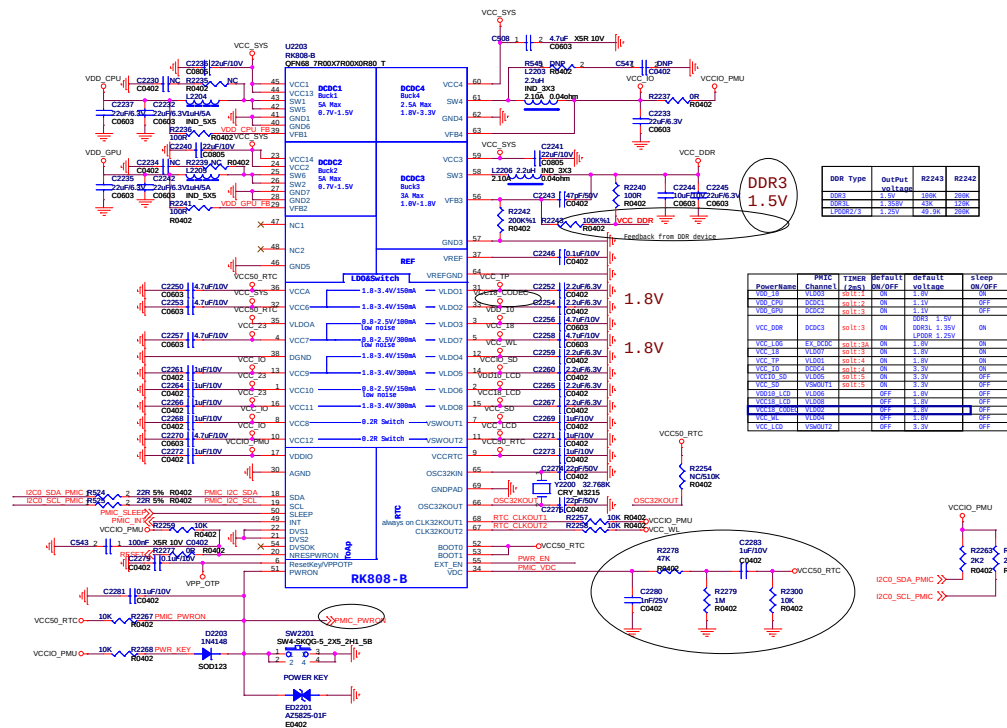
Backlight Control



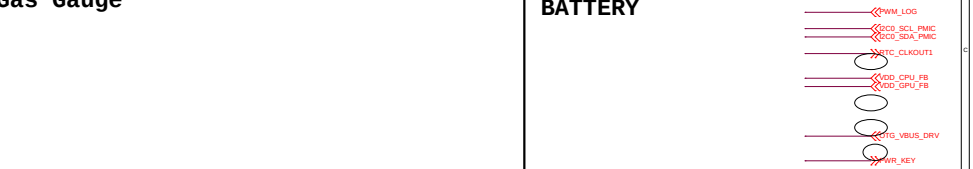
VCC_SYS POWER



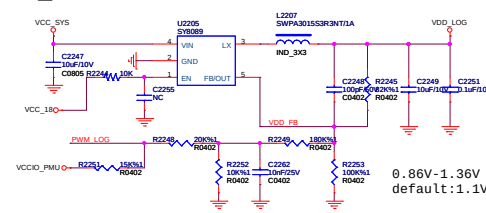
PMIC RK808-B



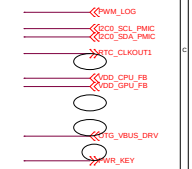
Gas Gauge



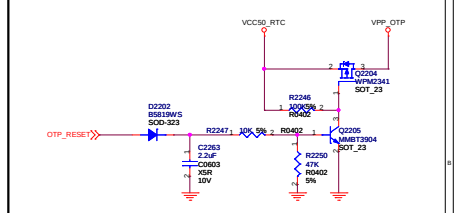
VDD_LOG POWER



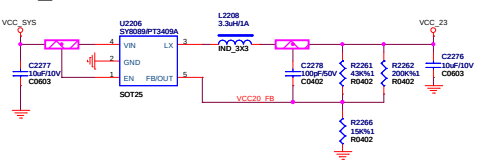
BATTERY



OTP & RESET

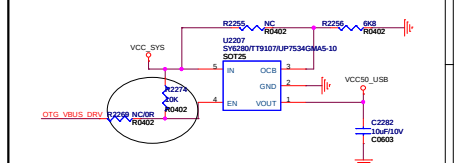
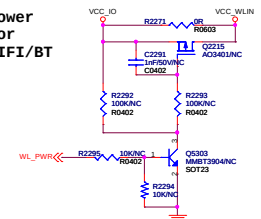


VCC_20 POWER



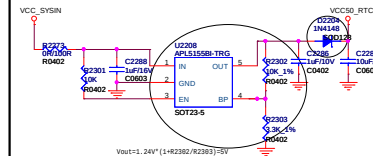
OTG POWER

For internal USB device.

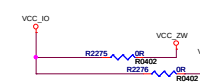
Power
for
WIFI/BT

RTC POWER

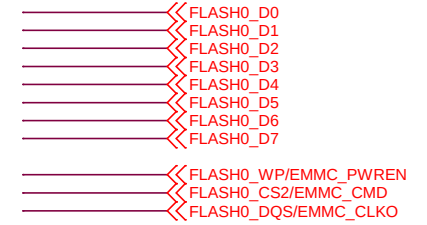
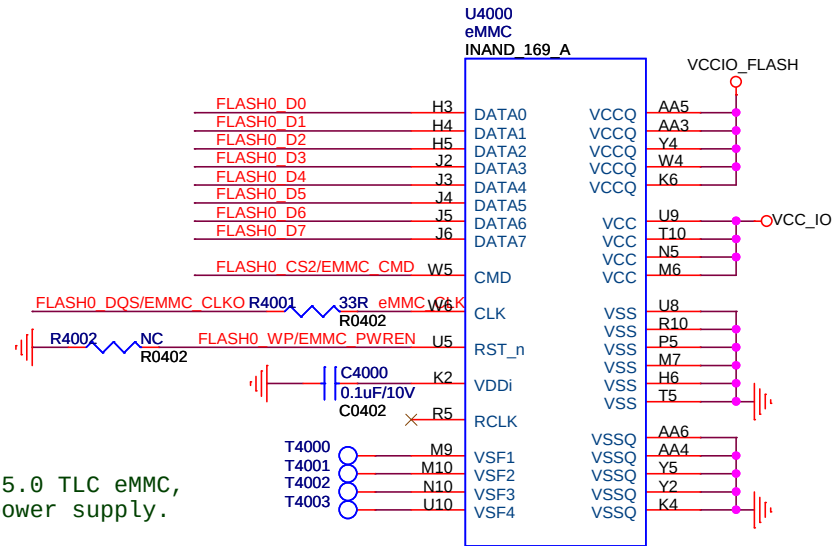
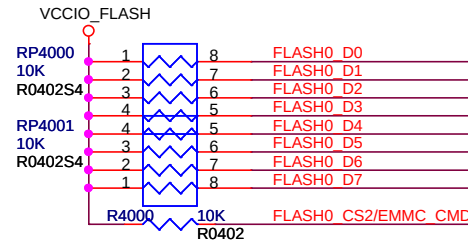
Note: If VCC50_RTC over-voltage of 6V, please use R2273=100ohm and C2288=1uF.



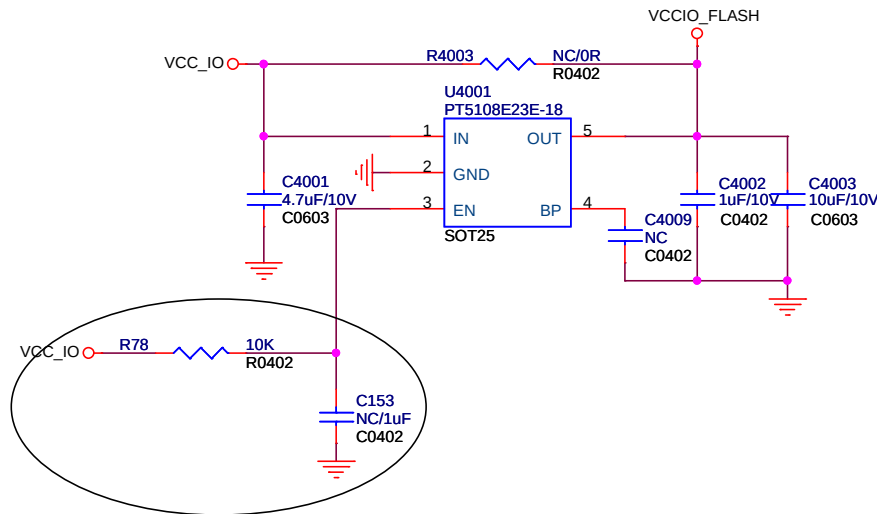
Power for ZIGBEE/ZWAVE



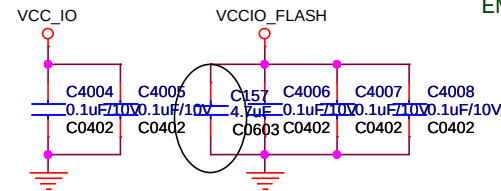
eMMC FLASH



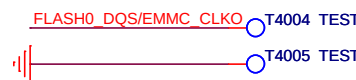
Note:U4001 must be use for Sandisk 5.0 TLC eMMC, because it support only 1.8V VCCQ power supply.



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

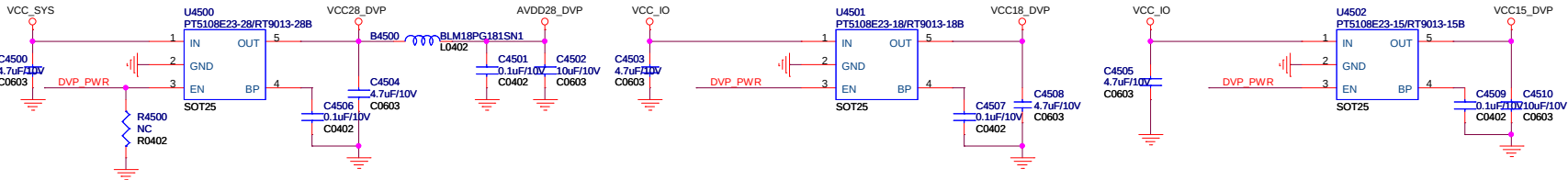


Note:Reserve PAD for Update.

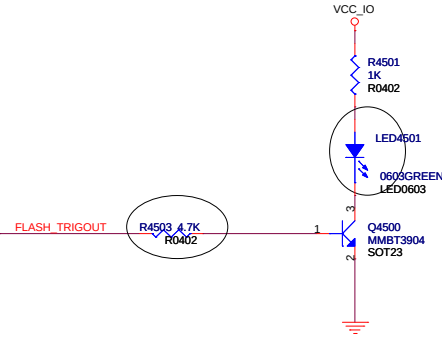


Haier Haier Multimedia Co.,LTD.		
Title		
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DVP Power

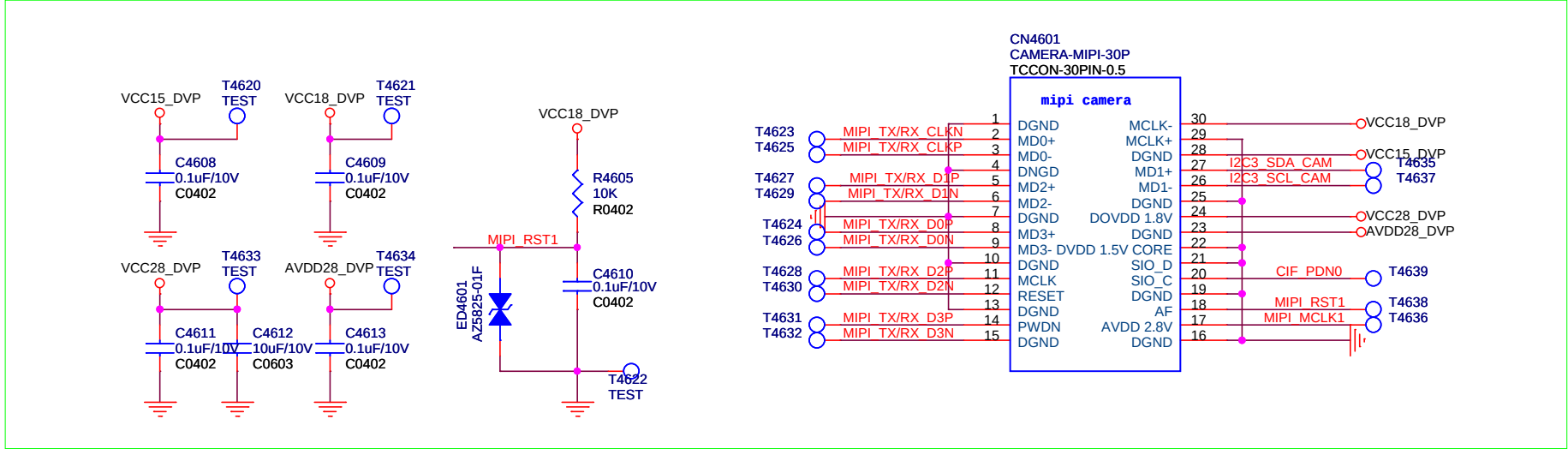
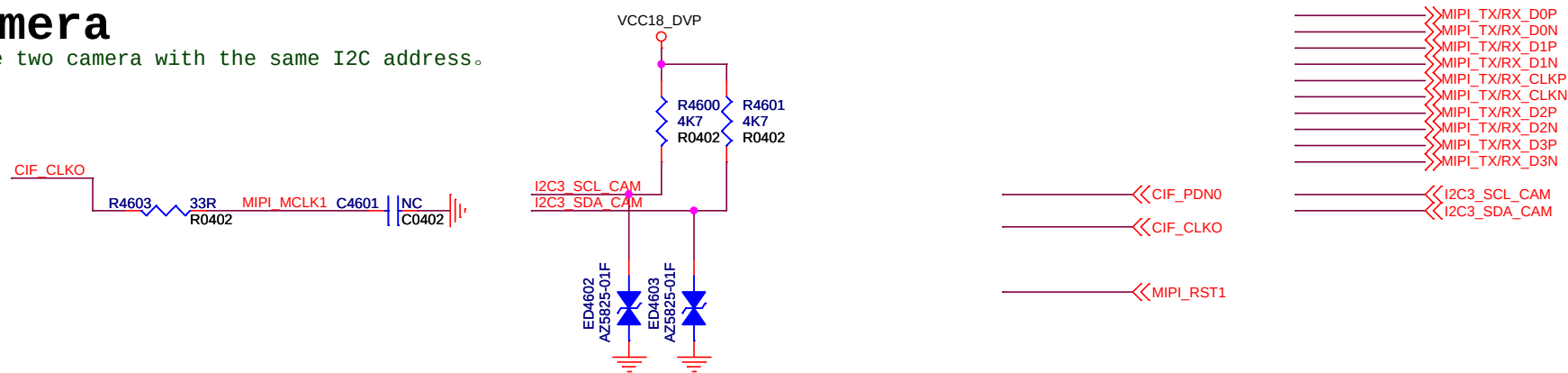


INDICATOR LED



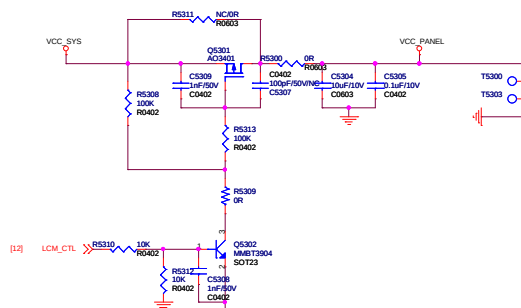
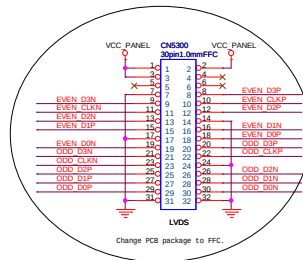
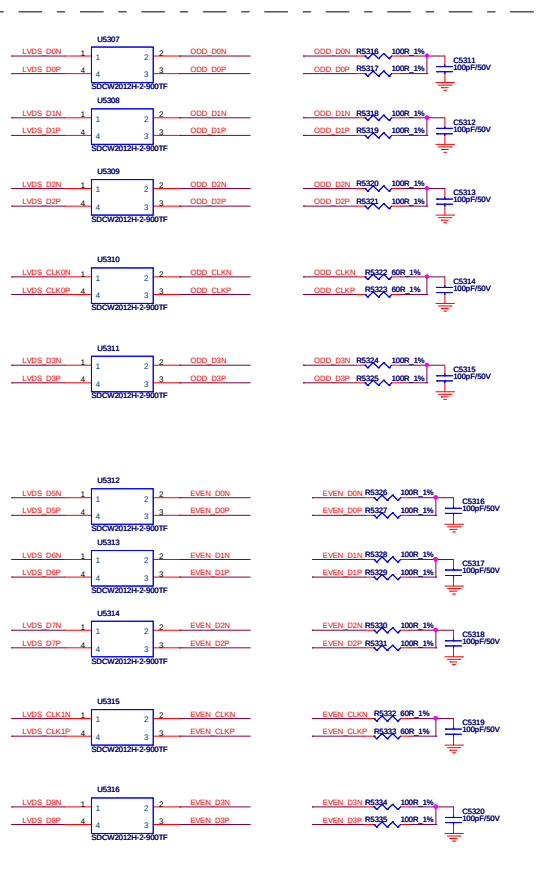
MIPI Camera

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

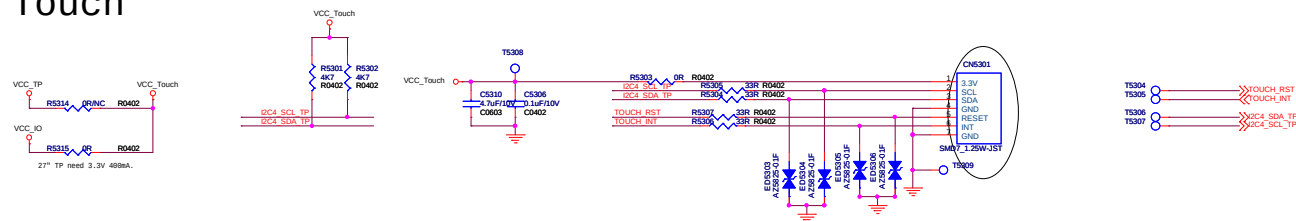


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Title HAIER-RK3288-KitchenHub		
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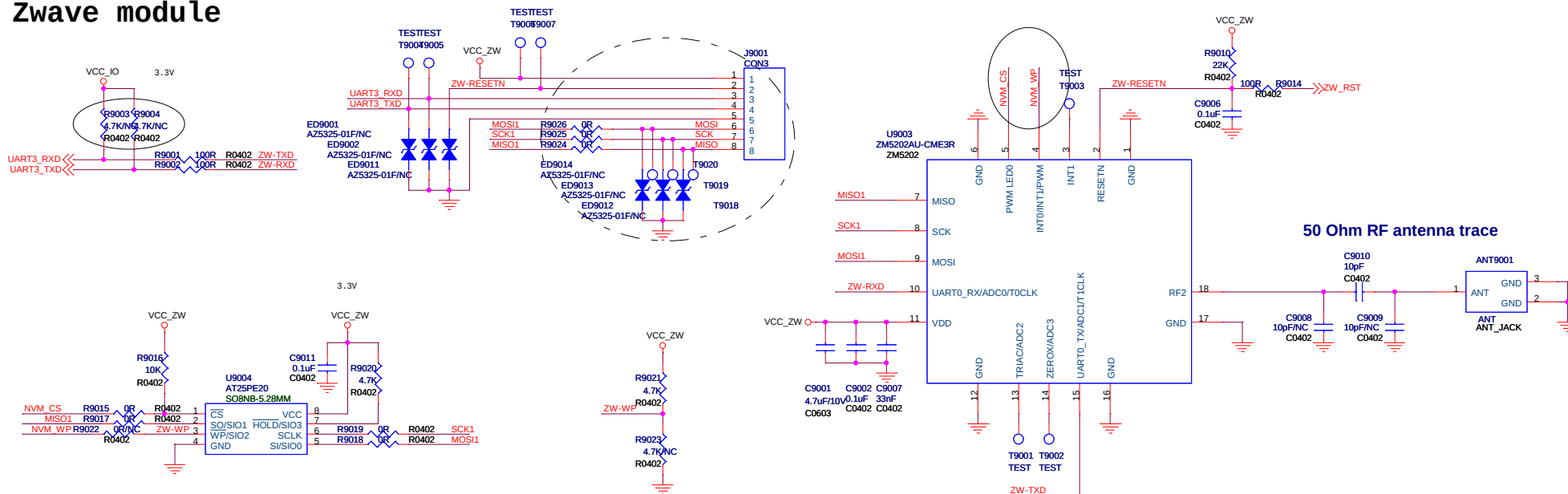
LVDS Panel



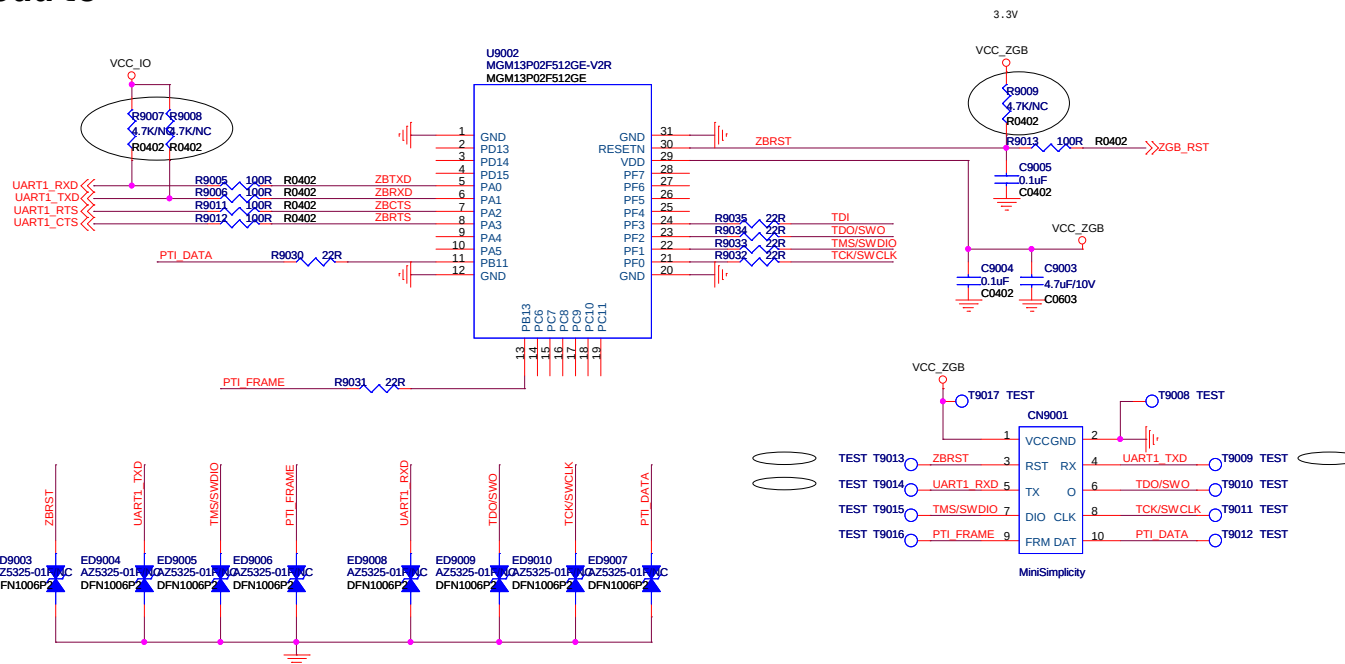
Touch



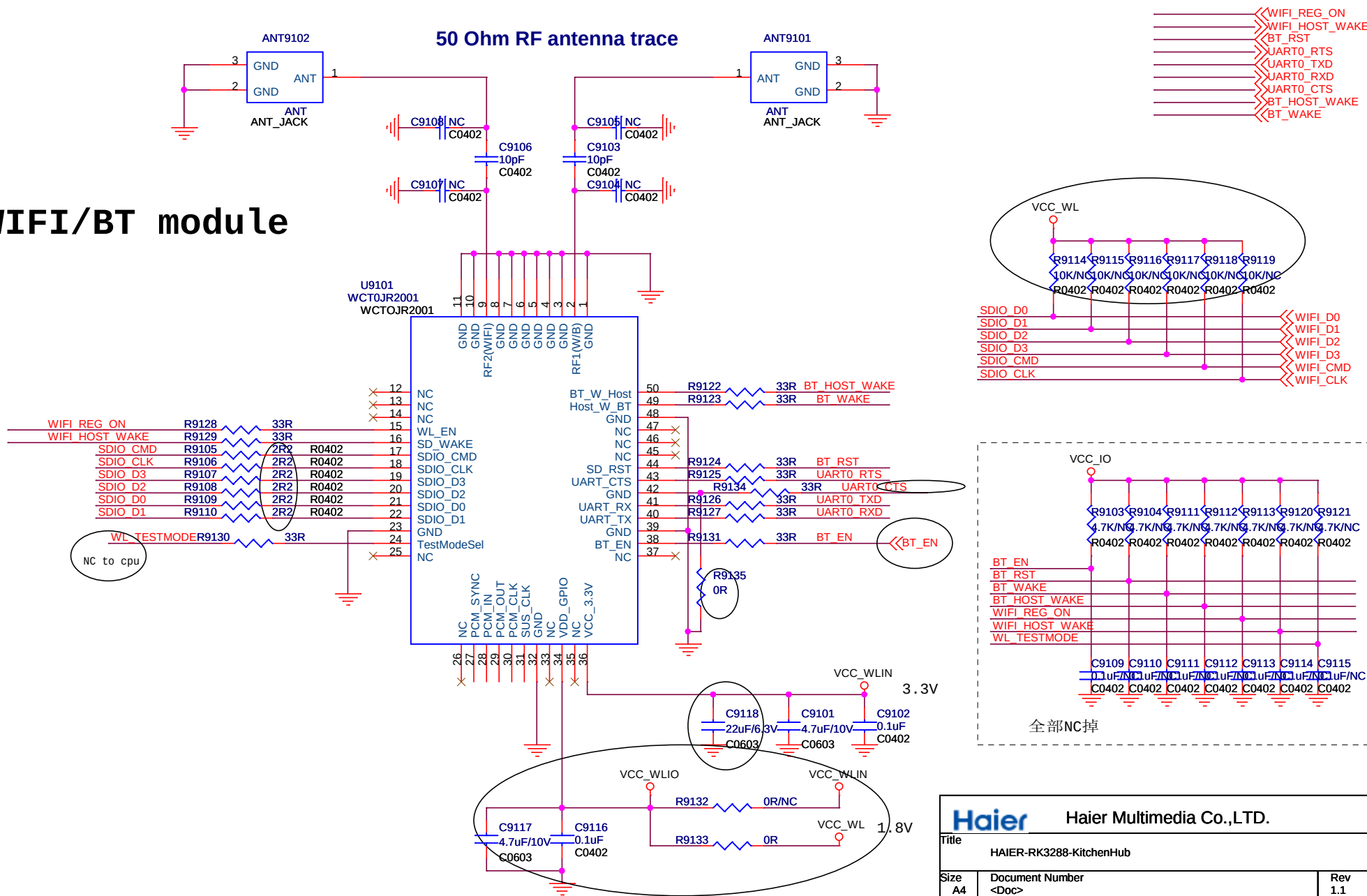
Zwave module



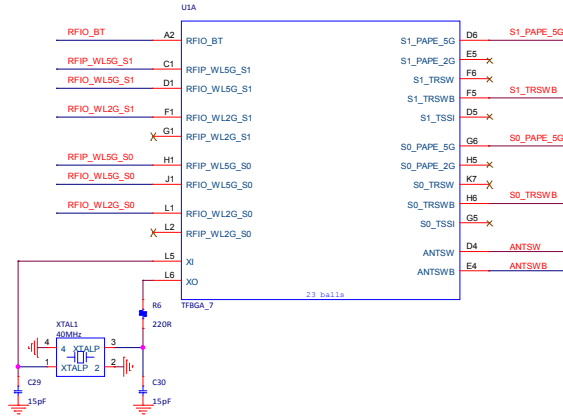
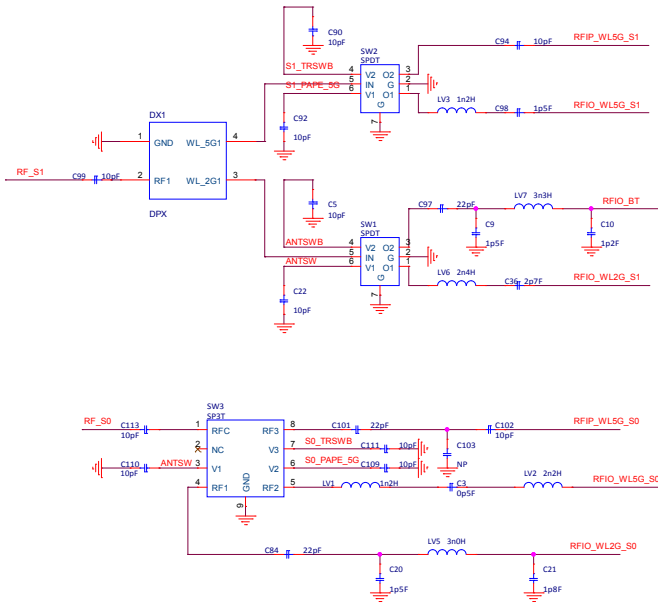
Zigbee module



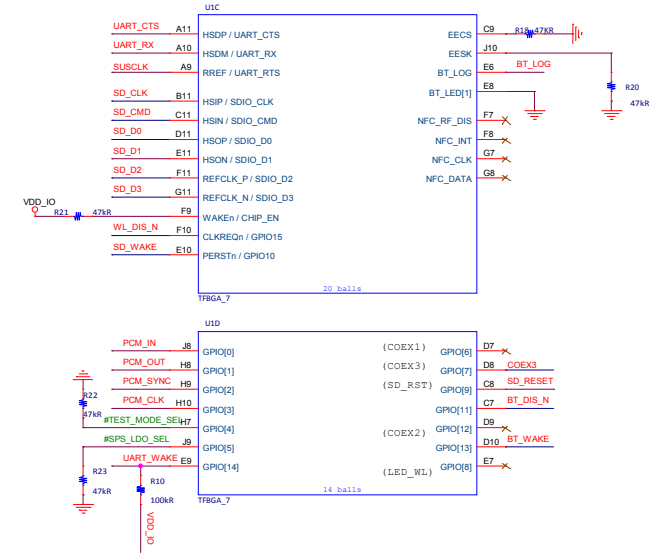
WIFI/BT module



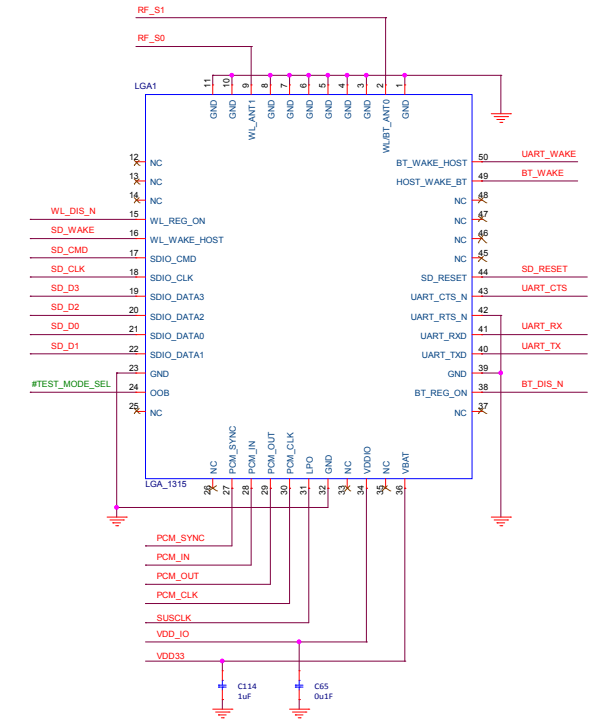
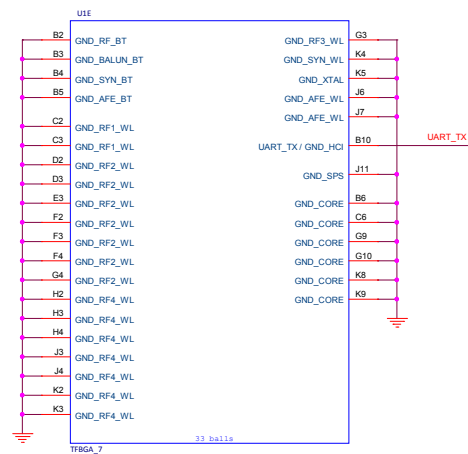
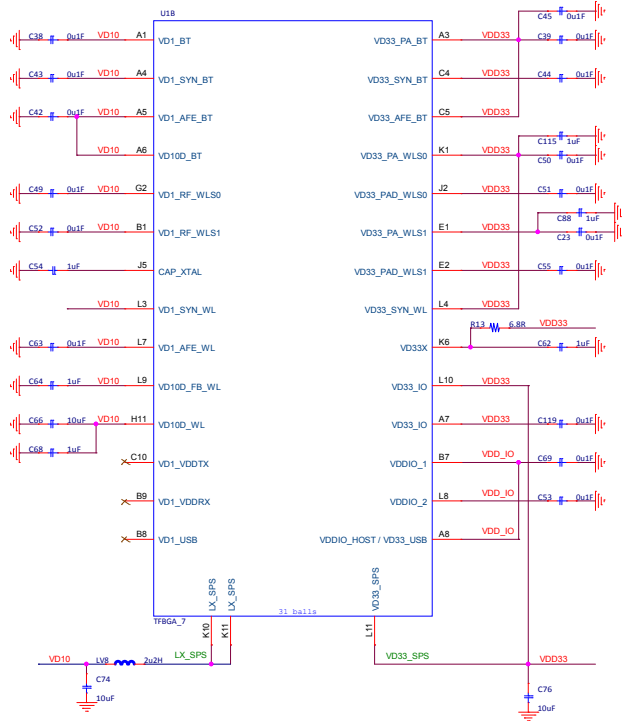
RF



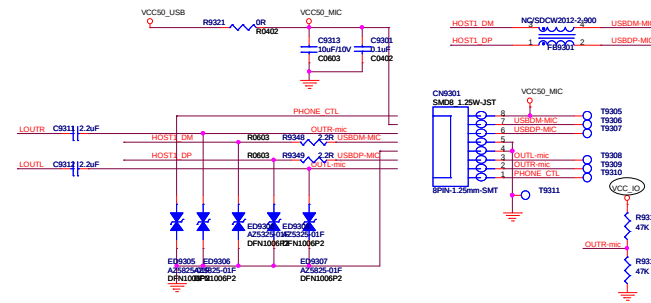
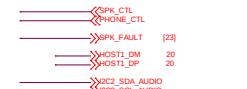
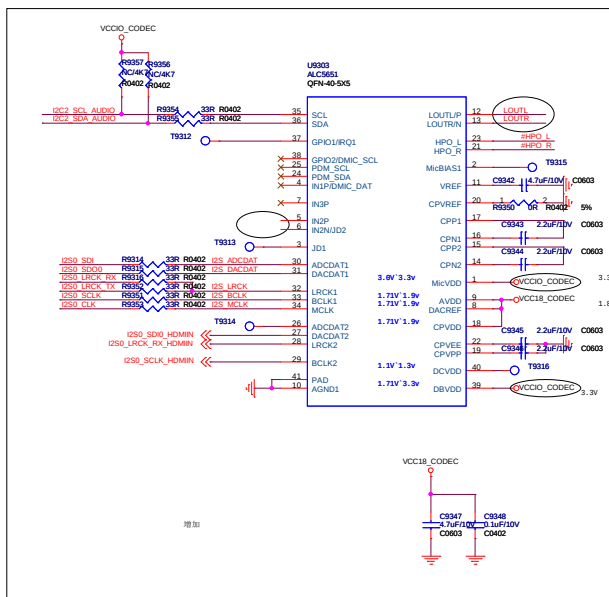
Interface & GPIO



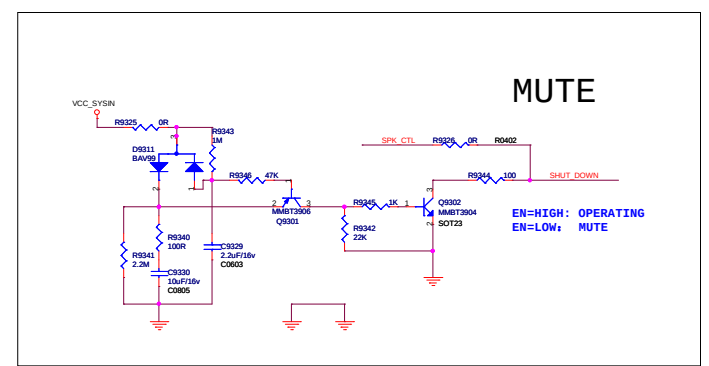
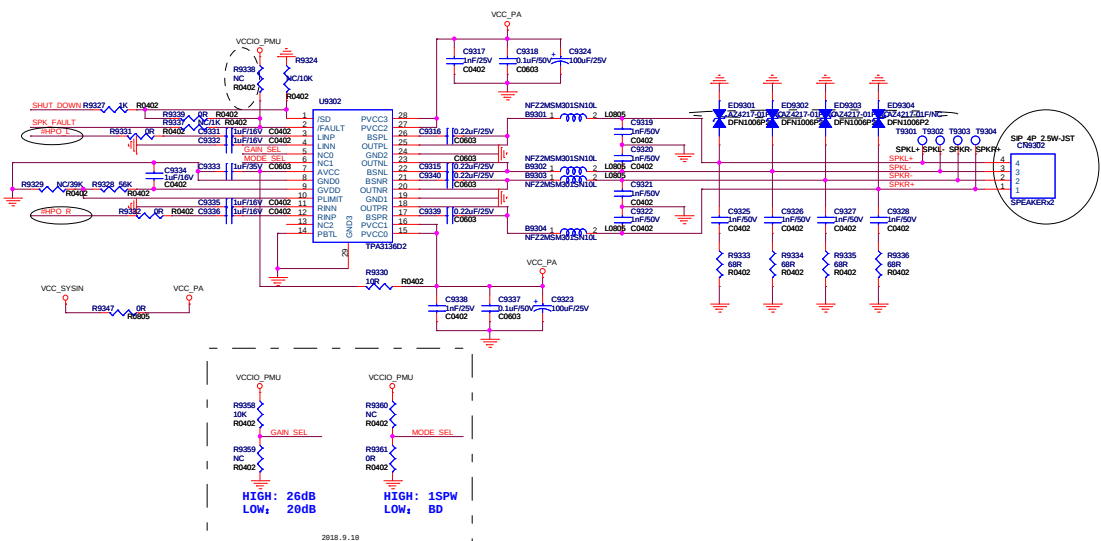
Power & GND



CODEC

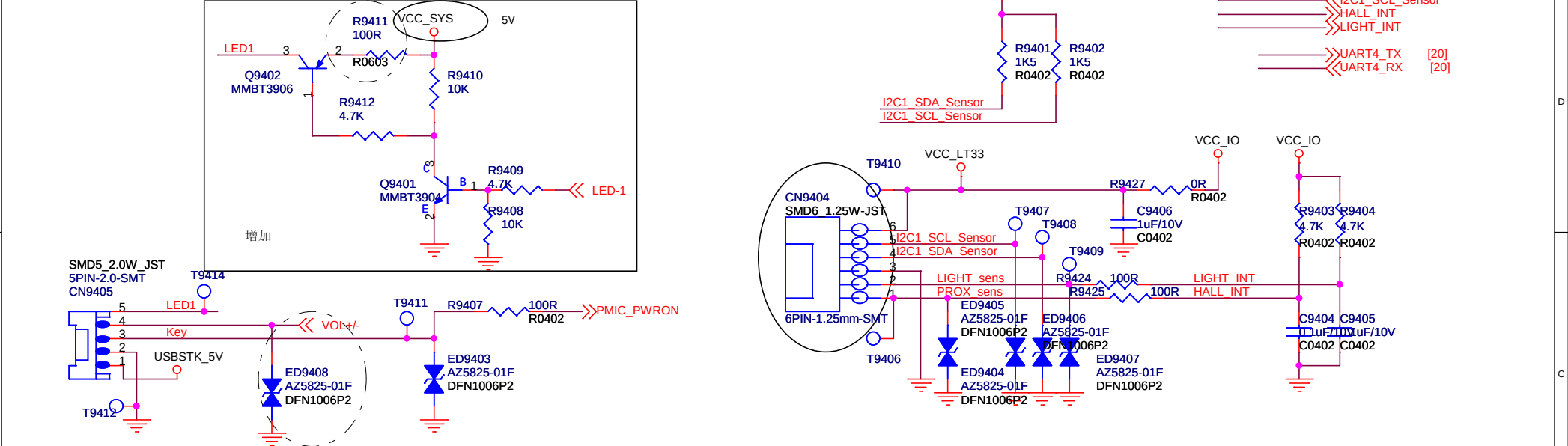


SPEAKER

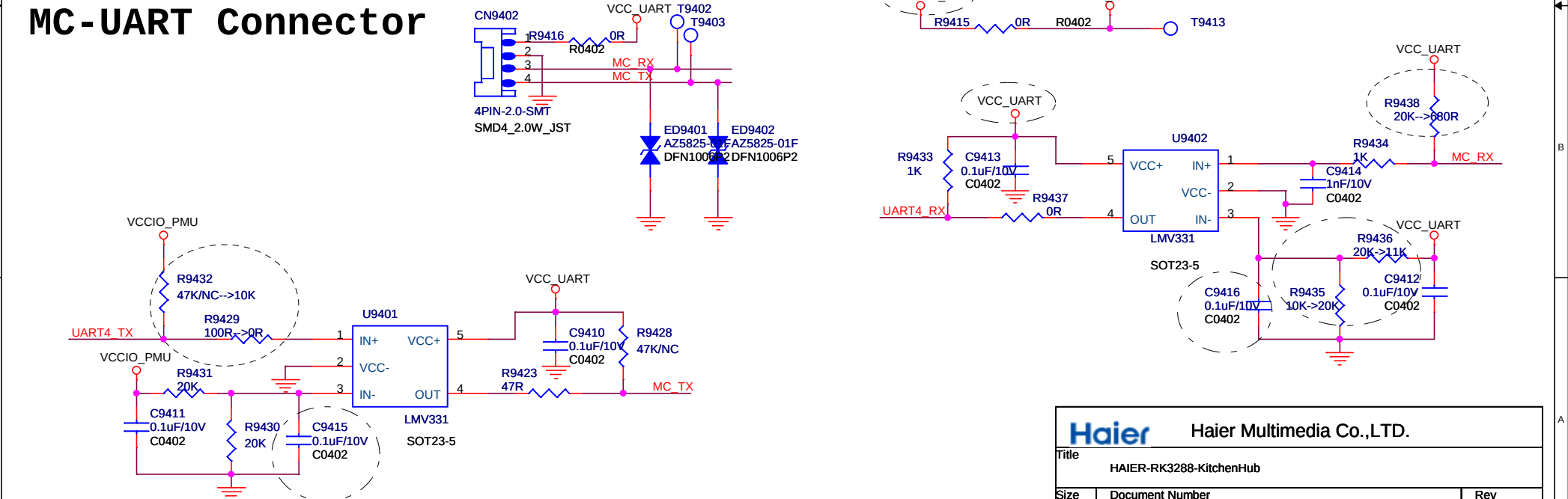


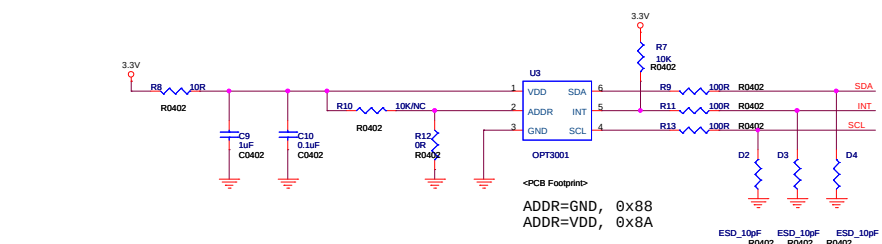
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Rev	HAIER-RK3288-KitchenHub			
Size	Document Number	Rev		
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Sensors & MC-UART Connectors

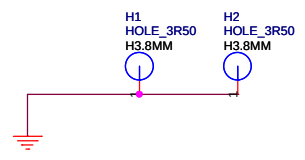
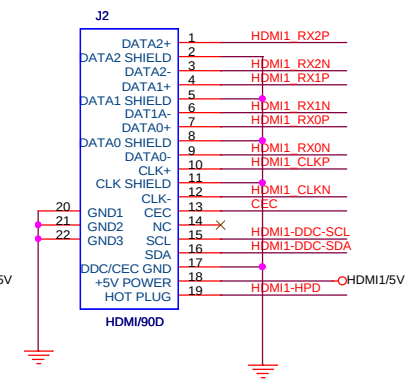
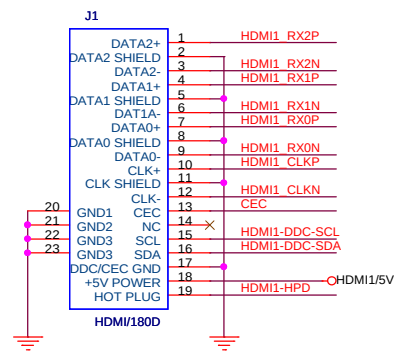
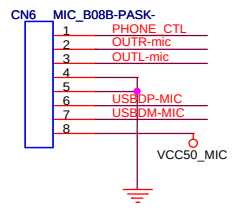
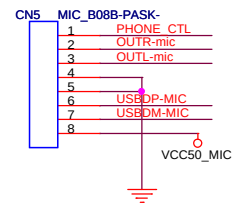
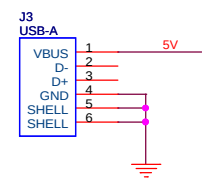
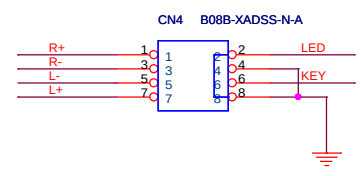
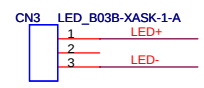
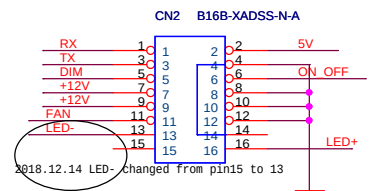
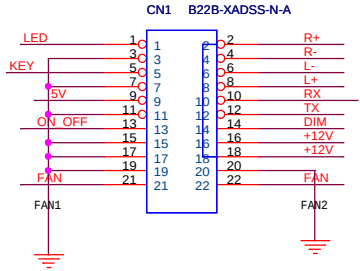


MC-UART Connector



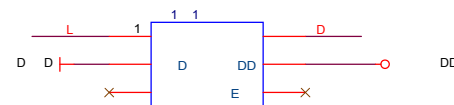
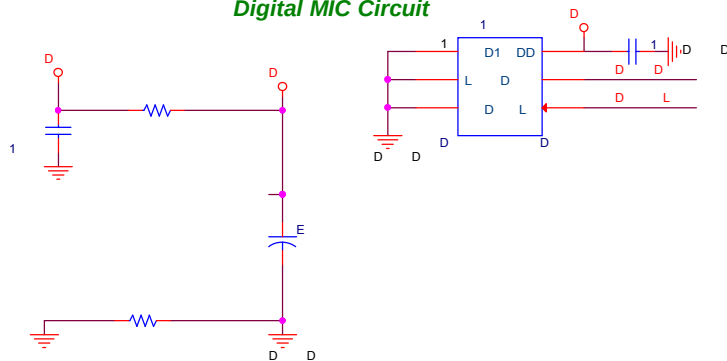


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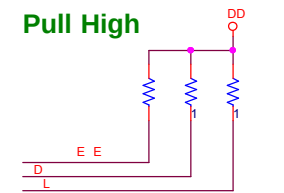


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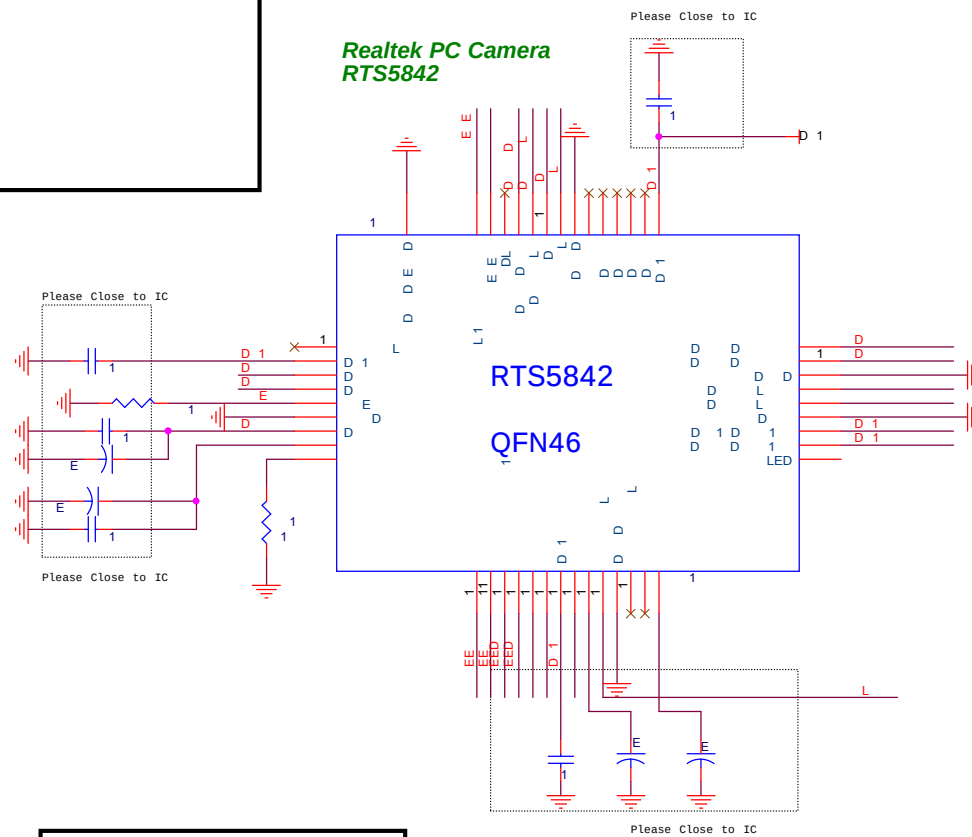
Digital MIC Circuit



Pull High



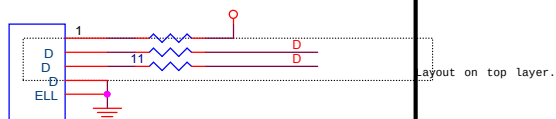
Realtek PC Camera RTS5842



Power For Sensor

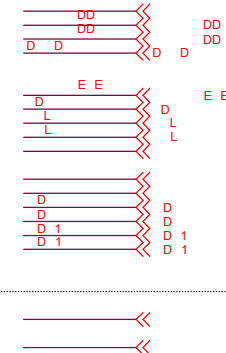


USB Connector



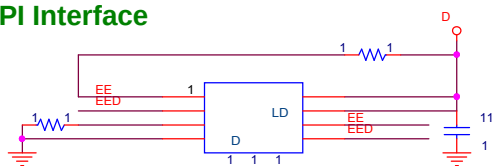
DM/DP differential impedance $Z_{diff} = 90 \text{ ohm}$
R9/R10 Footprint is compatibal both to Choke & Resister!!

Off-Page Sensor Interface

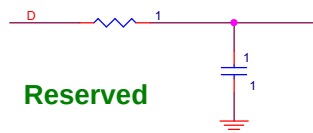


GPIO Function
GPIO0: SF WP control
GPIO_AL[1]: Sensor Reset control

SPI Interface

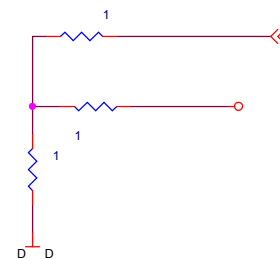
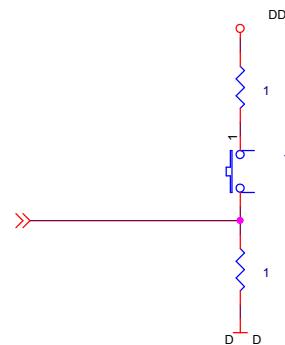
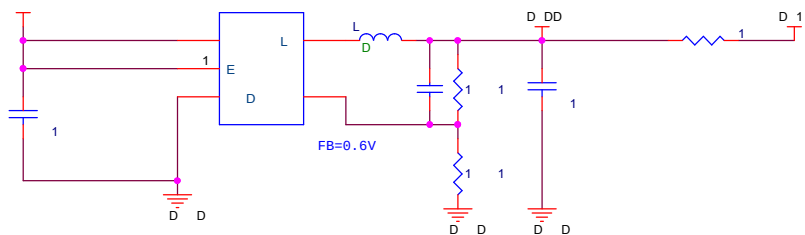
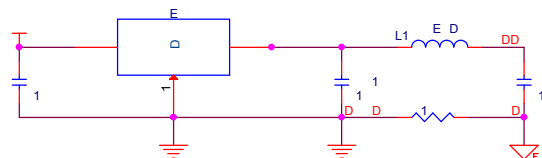
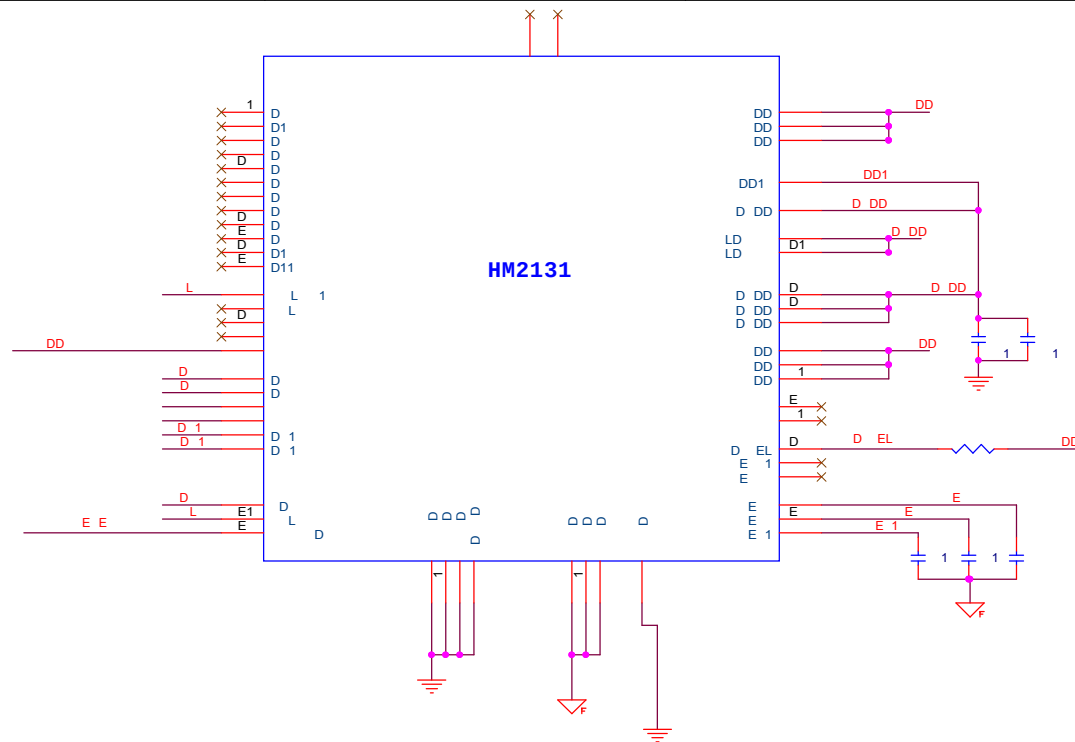
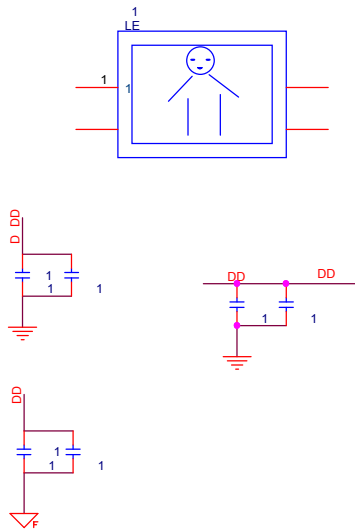
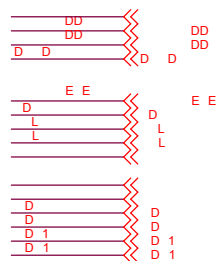


Reserved



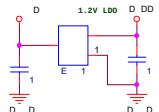
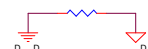
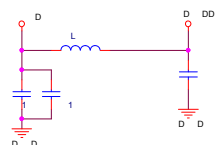
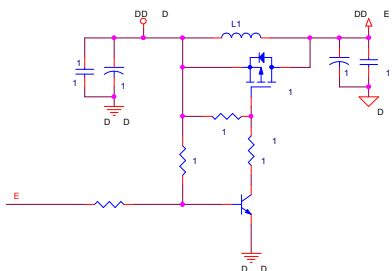
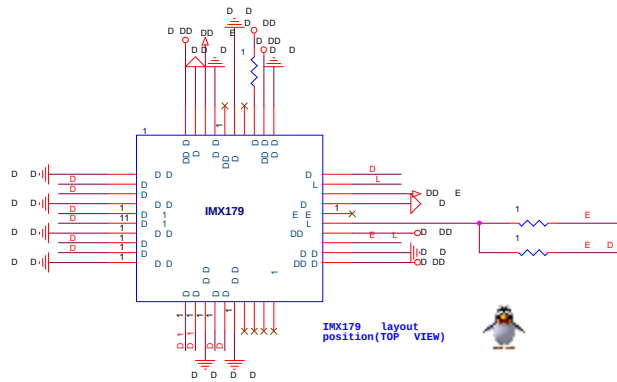
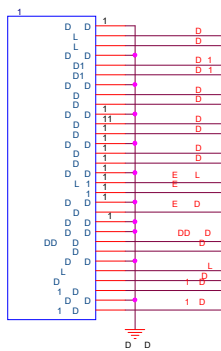
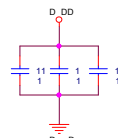
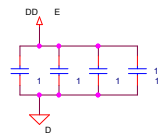
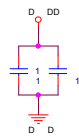
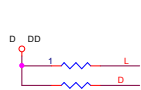
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Off-Page Sensor Interface

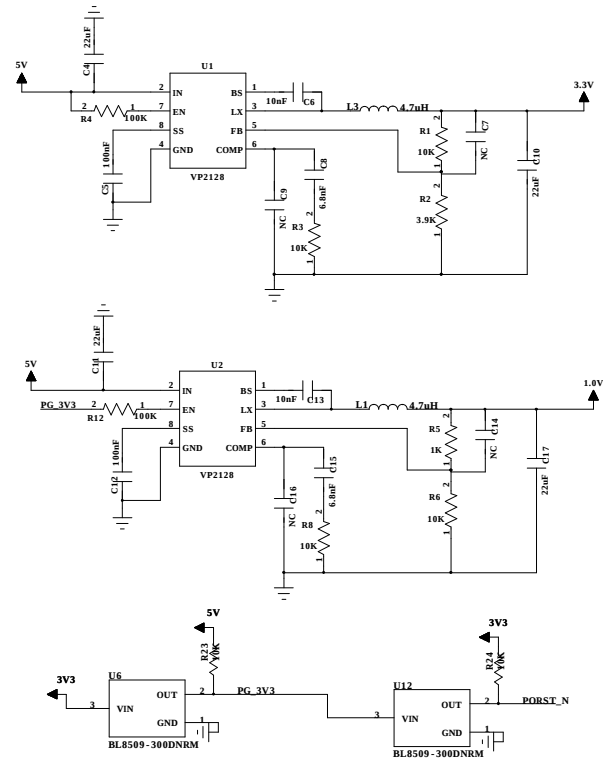


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Version	Date	Description																	
V1.0		Initial Version																	
REALTEK Semiconductor Corp. <table><tr><td colspan="2"></td><td>E</td></tr><tr><td colspan="2"></td><td>E L E</td></tr><tr><td></td><td>D</td><td>1</td></tr><tr><td colspan="2">D1</td><td></td></tr></table>										E			E L E		D	1	D1		
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	D	1																	
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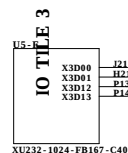
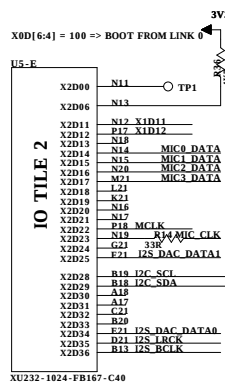
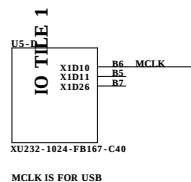
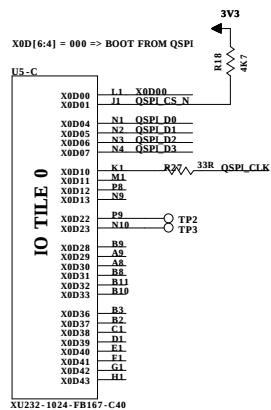
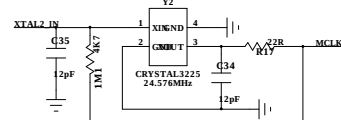
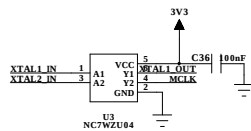
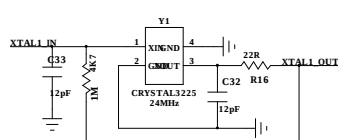
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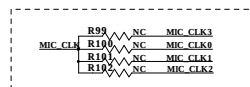
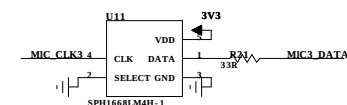
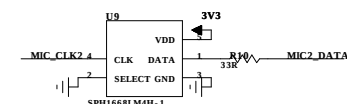
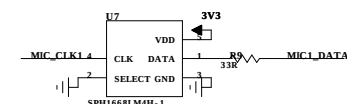
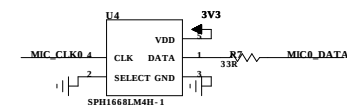
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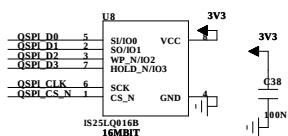
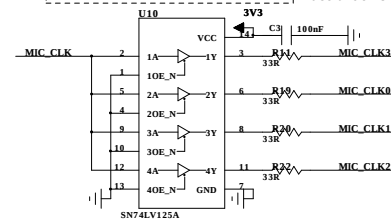
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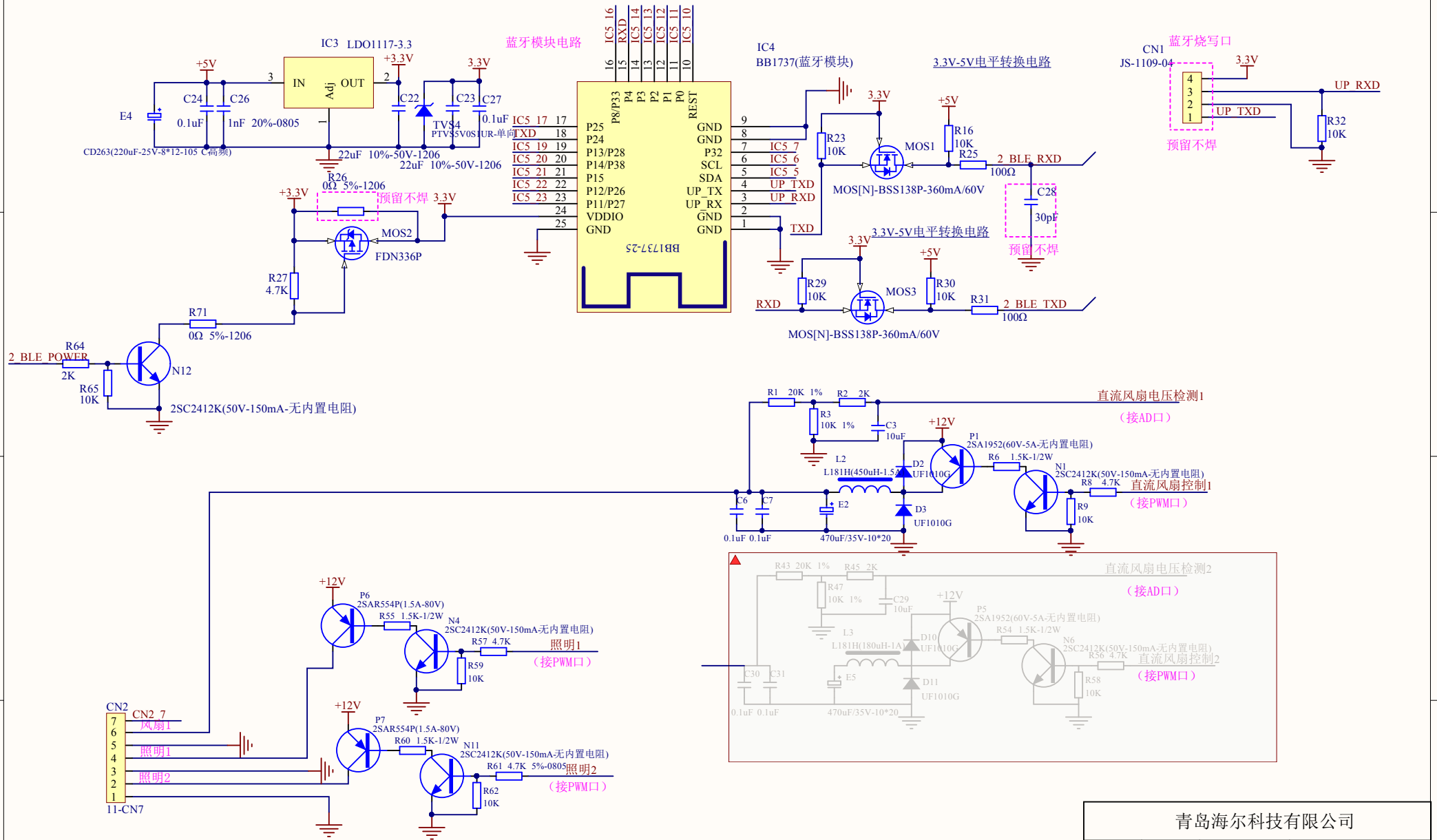


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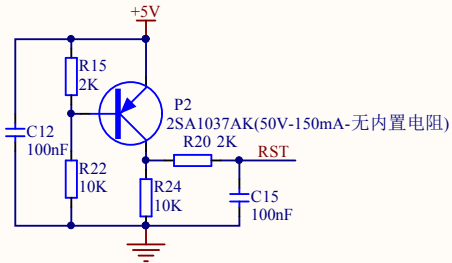


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SCALE: SHEET: 2 OF 3			

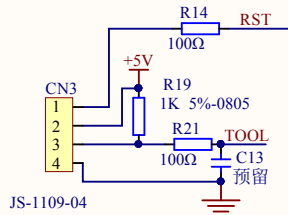
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RELEASED:	DATED:



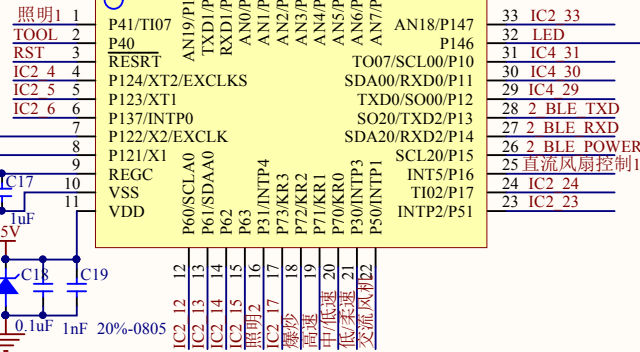
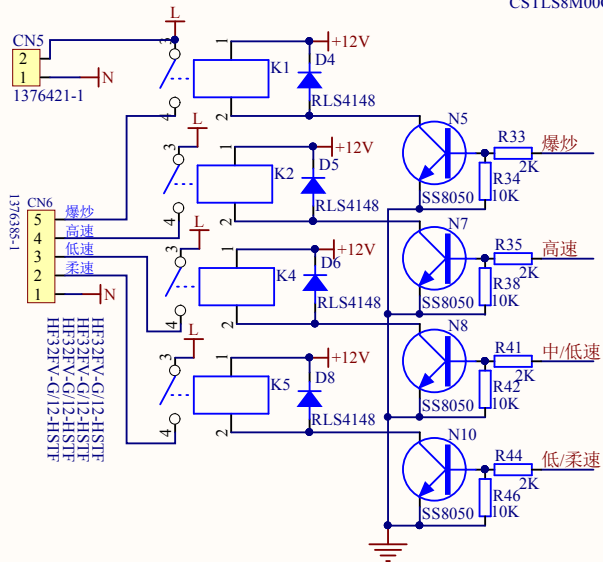
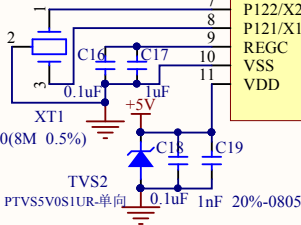
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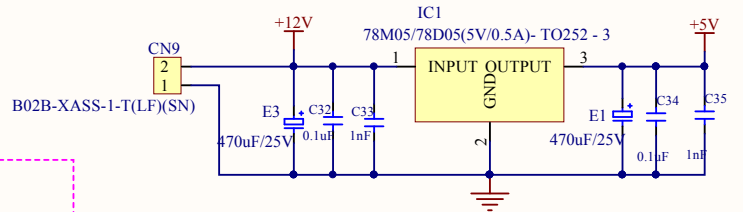
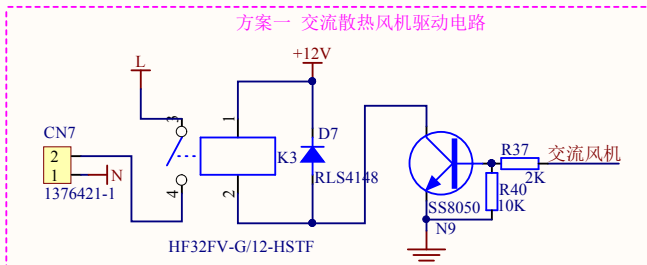
JS-1109-04



CSTLS8M00G56P20-A0(8M 0.5%)



方案一 交流散热风机驱动电路



青岛海尔科技有限公司

设计	李福梅	专用号	GE油烟机项目
审核	吴恩豪	版本号	V1.0
批准	范纪青	页码	第 1 页, 共 1 页

