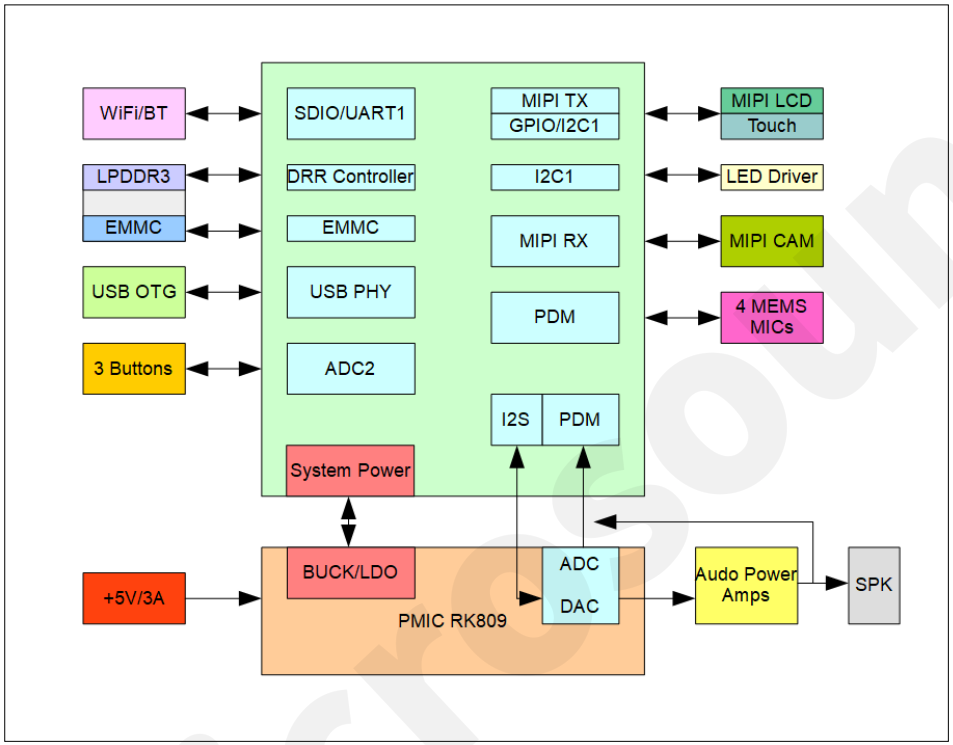
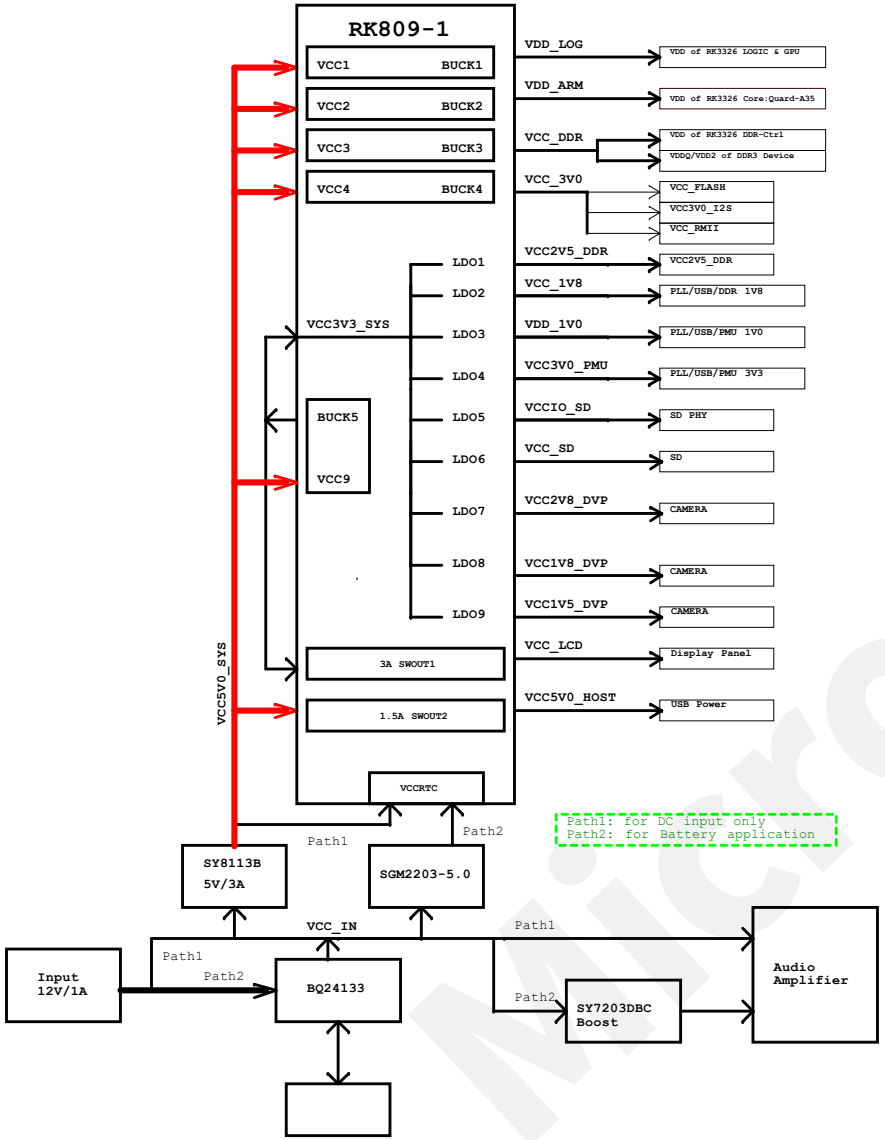
Block Diagram

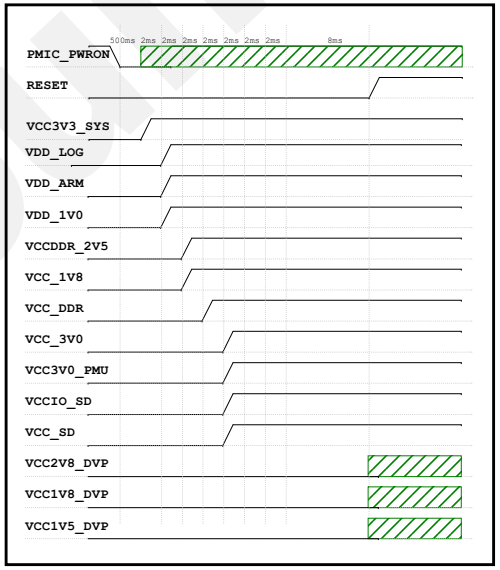


RK809-1 Power Diagram and Sequence

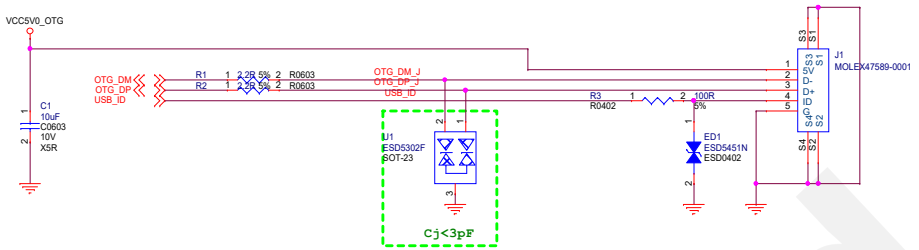


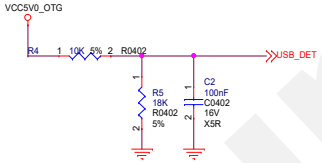
RK809-1 Power-on Sequence

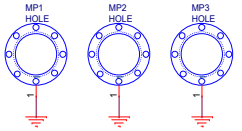
PowerName	PMIC Channel	Time Slot (step 2mS)	Default voltage	Supply Limit	Default ON/OFF	Sleep ON/OFF	Peak Current
VDD_ARM	BUCK1	Slot:2	1.0V	2.5A	ON	OFF	1.5A
VDD_LOG	BUCK2	Slot:2	1.0V	2.5A	ON		1.4A
VCC_DDR	BUCK3	Slot:4	FB=0.6V	1.5A	ON	ON	1.5A
VCC_3V0	BUCK4	Slot:5	3.0V	1.5A	ON	ON	1.5A
VCC3V3_SYS	BUCK5	Slot:1	3.3V	1.5A	ON	ON	
VCCDDR_2V5	LDO1	Slot:3	2.5V	500mA	ON	ON	
VCC_1V8	LDO2	Slot:3	1.8V	500mA	ON	ON	
VDD_1V0	LDO3	Slot:2	1.0V	500mA	ON	ON	
VCC3V0_PMU	LDO4	Slot:5	3.0V	100mA	ON	ON	12mA
VCCIO_SD	LDO5	Slot:5	3.0V	50mA	ON		
VCC_SD	LDO6	Slot:5	3.0V	500mA	ON		400mA
VCC2V8_DVP	LDO7		2.8V	500mA	OFF	OFF	
VCC1V8_DVP	LDO8		1.8V	500mA	OFF	OFF	
VCC1V5_DVP	LDO9		1.5V	500mA	OFF	OFF	
RESET	RESETB	Slot:11	OD				



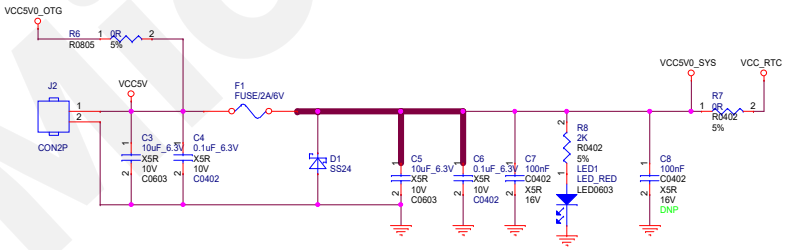
USB Port



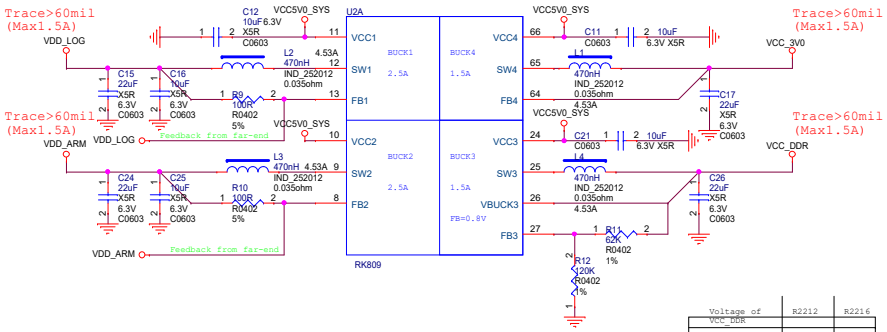




+5V DC IN

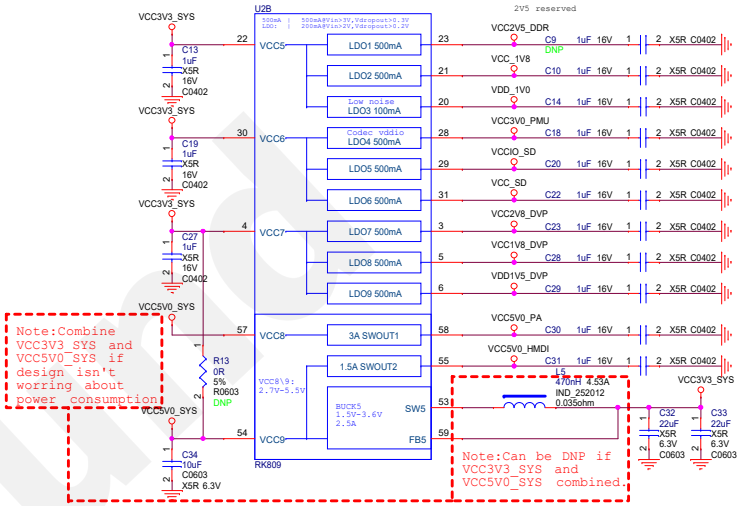


PMIC RK809-1 DCDC

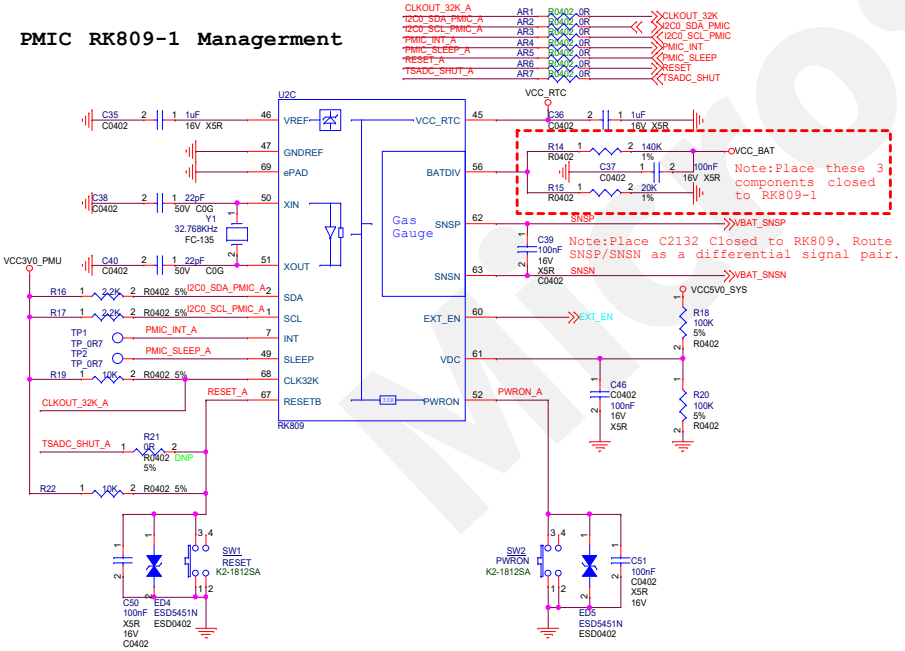


Voltage of VCC_DDR	R2212	R2216
1.25V	68K	120K
1.35V	82K	120K
1.5V	110K	120K
1.21V	62K	120K

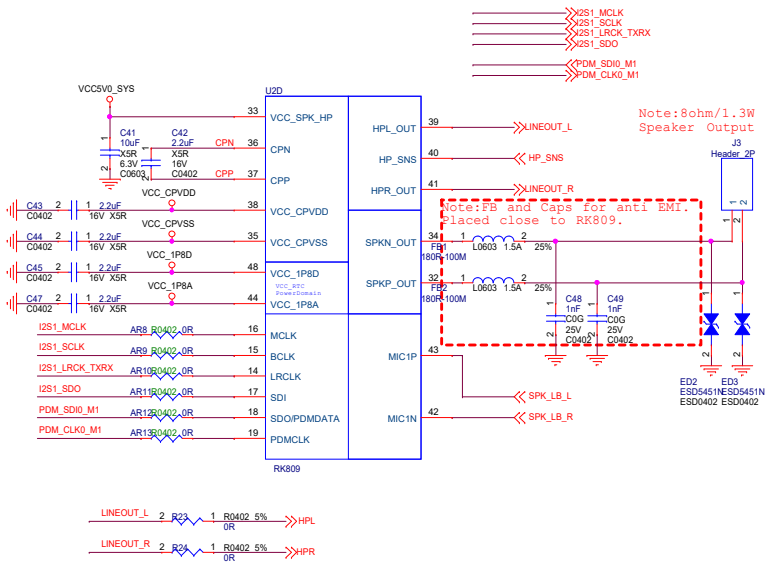
PMIC RK809-1 LDO



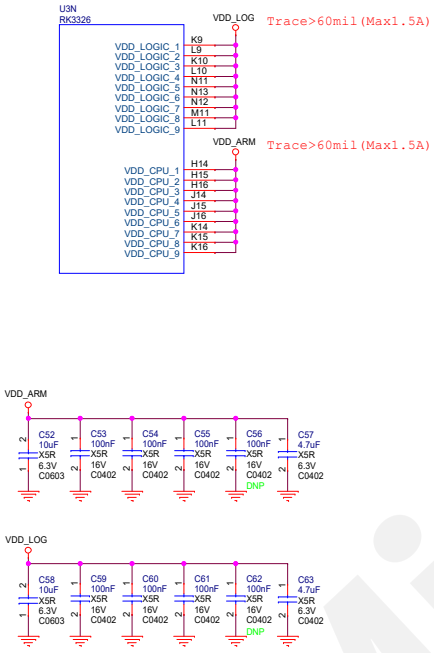
PMIC RK809-1 Managerment



PMIC RK809-1 CODEC

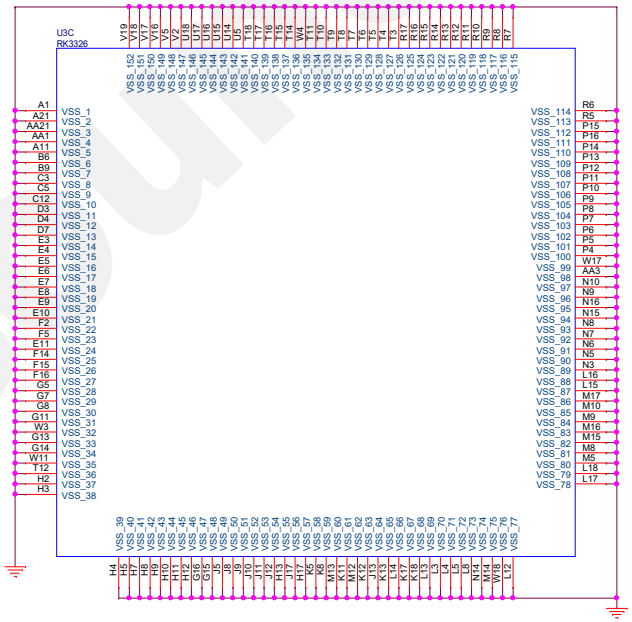


RK3326 Part-N

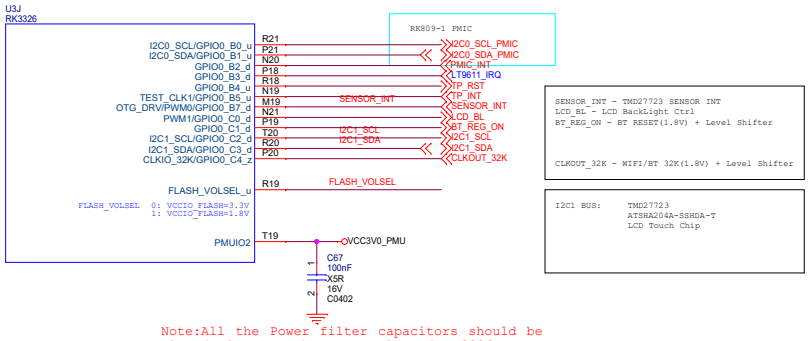


Note:All the Power filter capacitors should be placed close to the power pins of RK3326

RK3326 Part-C



RK3326 Part-J

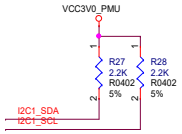


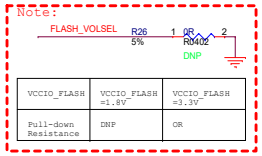
SENSOR_INT - TMD27723 SENSOR INT
LCD_BL - LCD BackLight Ctrl
BT_REG_ON - BT RESET(1.8V) + Level Shifter

CLKOUT_32K - WIFI/BT 32K(1.8V) + Level Shifter

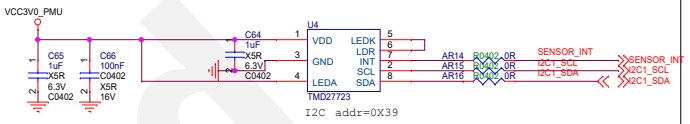
I2C1 BUS: TMD27723
ATSHA204A-SSHDA-T
LCD Touch Chip

Note:All the Power filter capacitors should be placed close to the power pins of RK3326





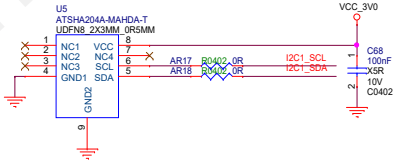
Proximity & Ambient sensor



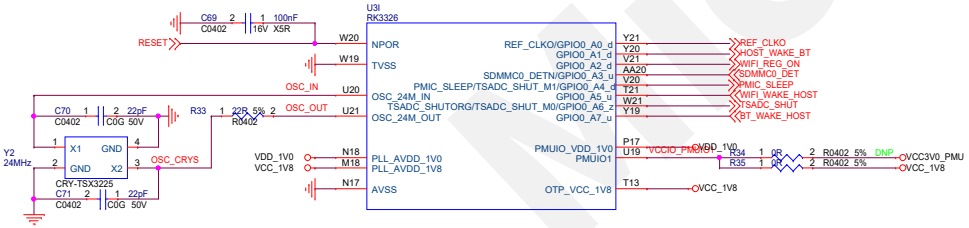
Note:All the Power filter capacitors should be placed close to the sensor.

Encryption chip (Reserved)

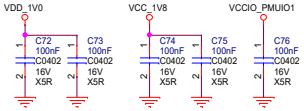
Note:
For MicArray Algorithm Use Only



RK3326 Part-I



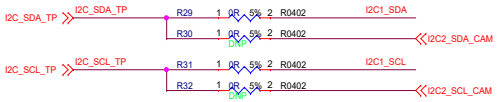
Note:If share clk source with WiFi, Accuracy <= 10ppm. Otherwise <=20ppm for Independent crystal design



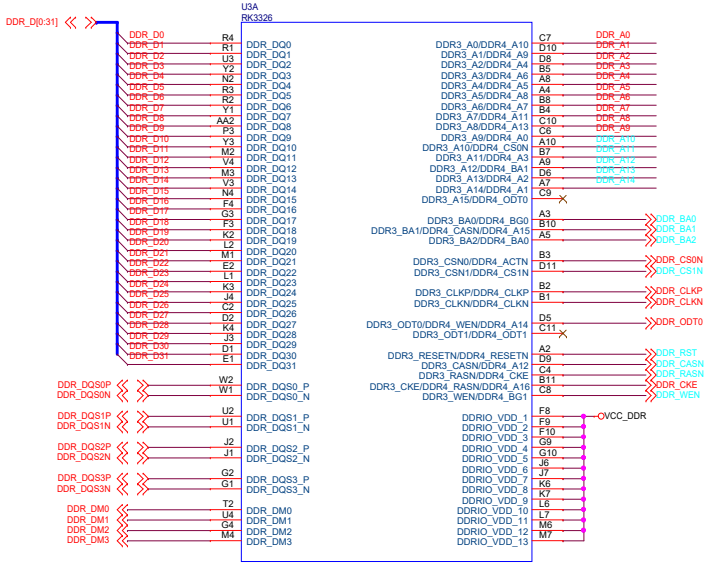
Note:All the Power filter capacitors should be placed close to the power pins of RK3326

REF_CLKO - WIFI/BT REF CLK Not Connect
HOST_WAKE_BT - WiFi/BT Module
WIFI_REG_ON - WiFi/BT Module

PMIC_SLEEP - RK809-1:1.8V
WIFI_WAKE_HOST - WiFi Module
TSADC_SHUT - RK809-1: 1.8V
BT_WAKE_HOST - WiFi/BT Module

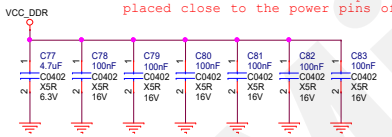


RK3326 Part-A

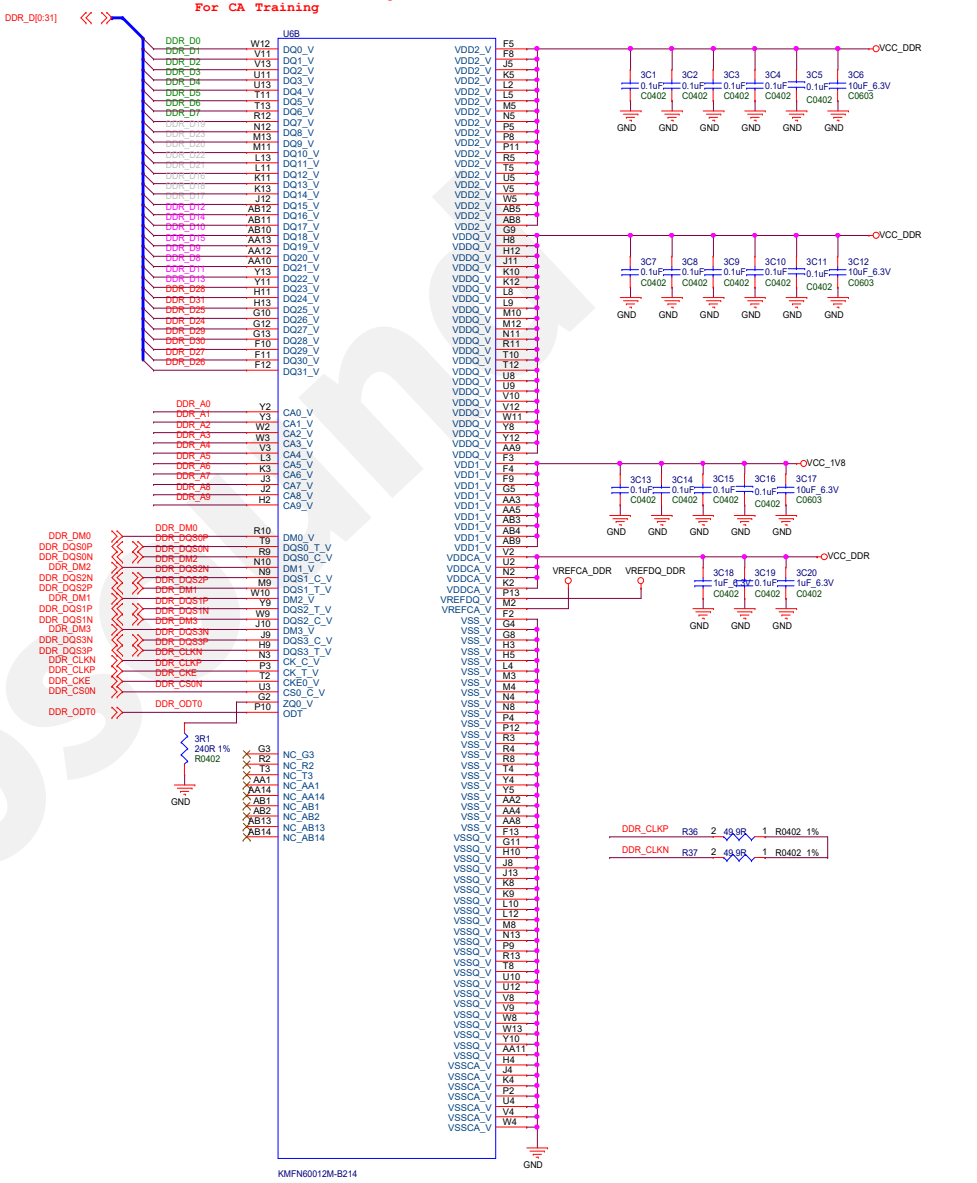


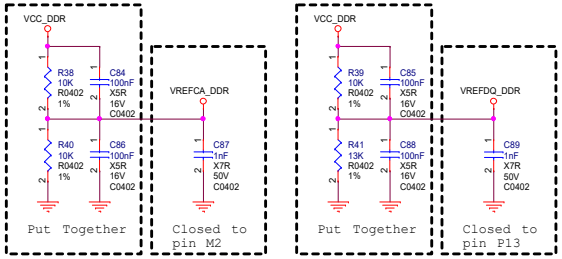
Power Filter

Note:All the Power filter capacitors should be placed close to the power pins of RK3326



DATA BYTE0 can not change order,
For CA Training

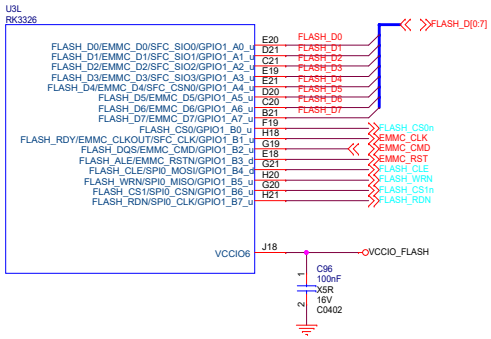




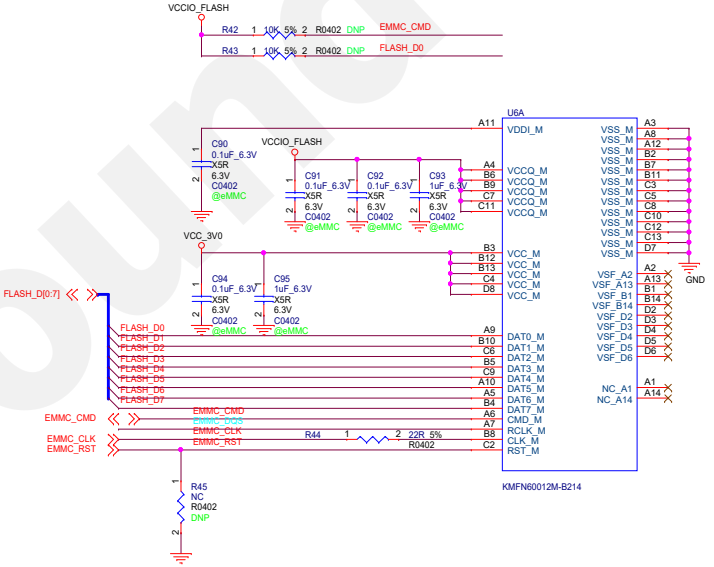
Note:
Vih=VCC
Vil=VCC*Ron/(Ron+Rodt)
VREFDQ_DDR=(Vih+Vil)/2

eg:VCC=1.2V,Ron=34ohm,Rodt=240ohm
so,Vih=1.2V,Vil=0.149V,VREFDQ_DDR=0.674V

RK3326 Part-L

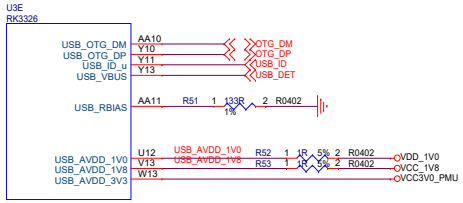


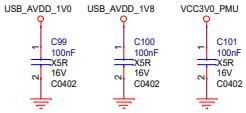
Note:All the Power filter capacitors should be placed close to the power pins of RK3326



Note:
Reserve TestPoint for firmware update.
If EMMC_CLK=0V at power-on reset,
then system will enter into Maskrom mode.

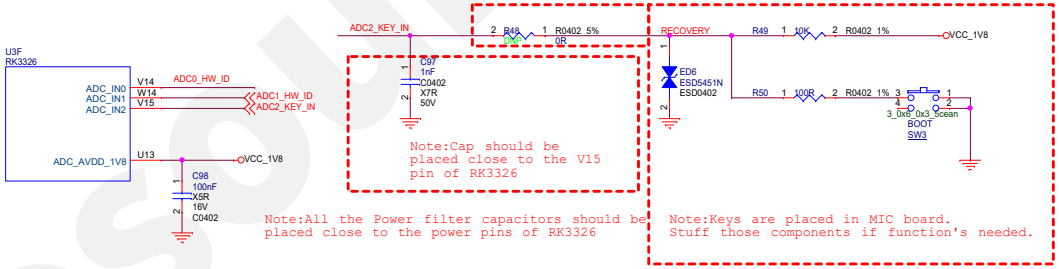
RK3326 Part-E



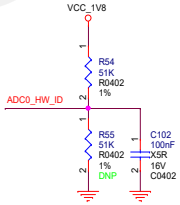


Note:All the Power filter capacitors should be placed close to the power pins of RK3326

RK3326 Part-F



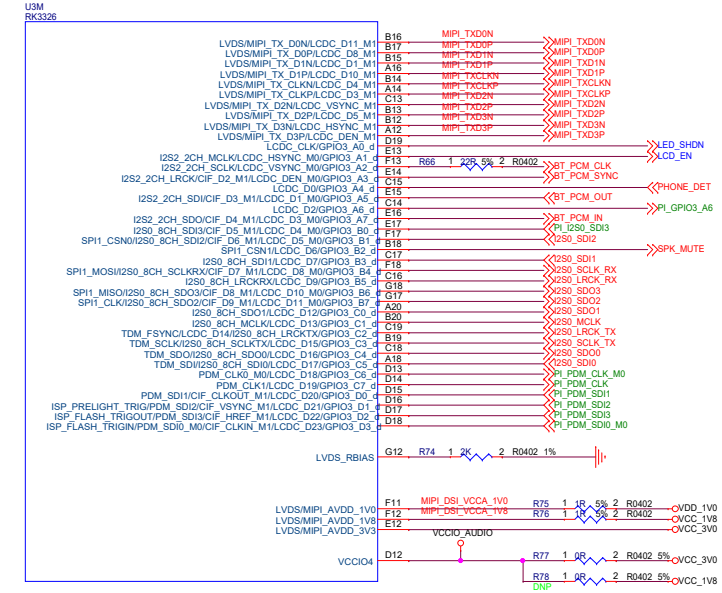
Note:All the Power filter capacitors should be placed close to the power pins of RK3326

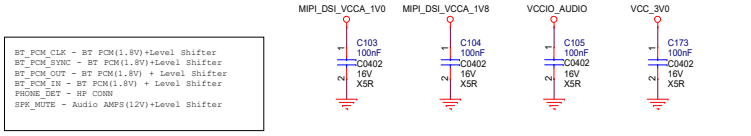


HW ID

ADC0_HW_ID	Pull-up Resistance	Pull-down Resistance	ADC Value
Version 0(Default)	51K	DNP	1024
Version 1	DNP	51K	0
Version 2	51K	51K	512
Version 3	100K	51K	346
Version 4	51K	100K	678

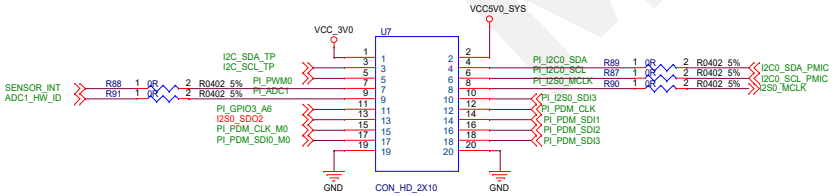
RK3326 Part-M



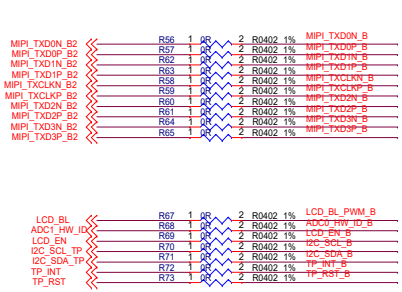


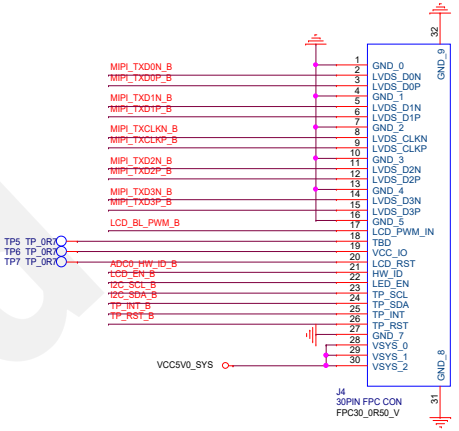
Note:All the Power filter capacitors should be placed close to the power pins of RK3326

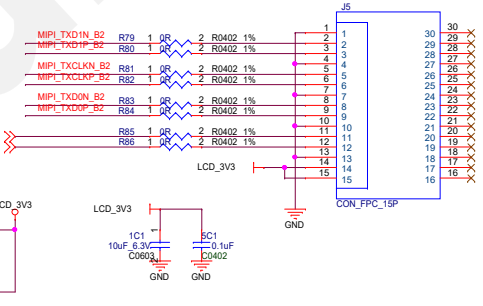
Header 2.54 Pitch

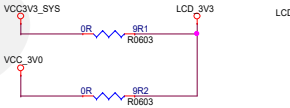


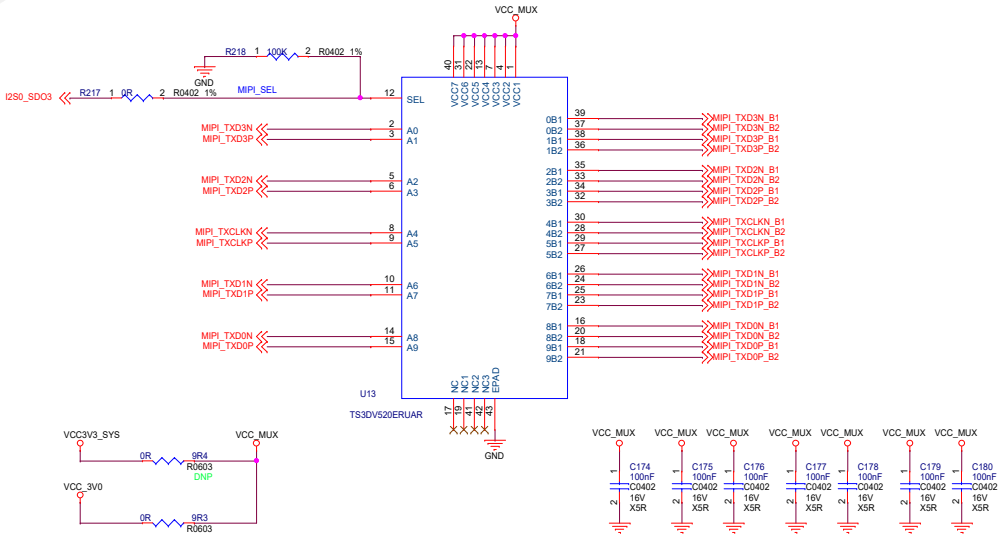
MIPI Panel





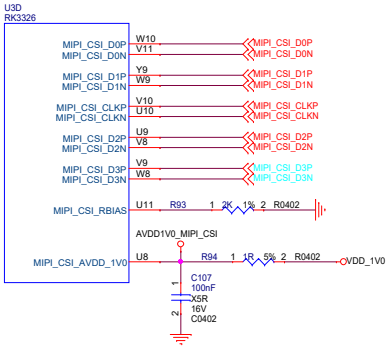




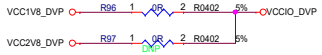


Note:SEL=0: MIPI to HDMI; SEL=1: MIPI to LCD

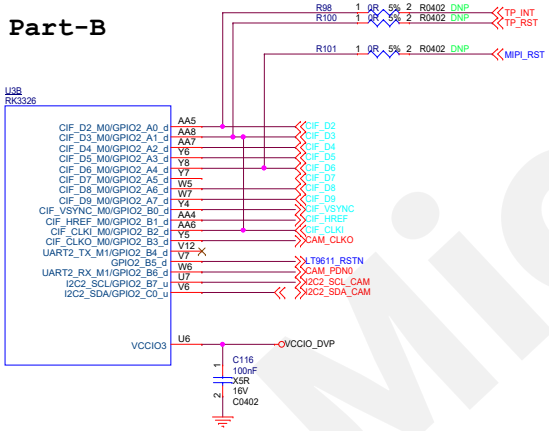
RK3326 Part-D



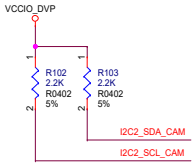
Note:All the Power filter capacitors should be placed close to the power pins of RK3326



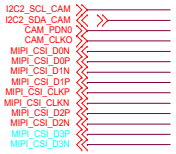
RK3326 Part-B

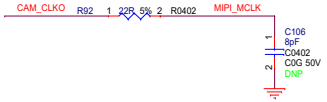


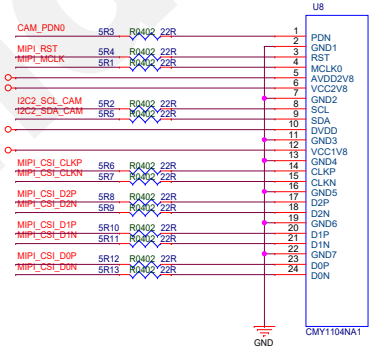
Note:All the Power filter capacitors should be placed close to the power pins of RK3326

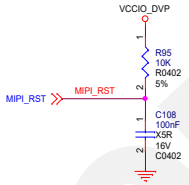


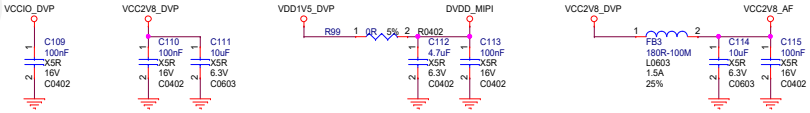
MIPI Camera





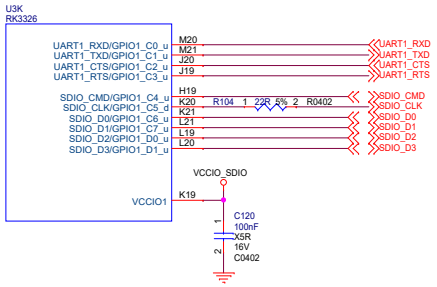






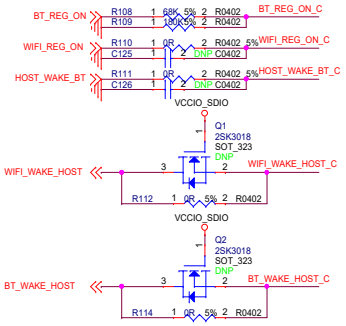
Note:All the Power filter capacitors should be placed close to the connector.

RK3326 Part-K



Note:All the Power filter capacitors should be placed close to the power pins of RK3326

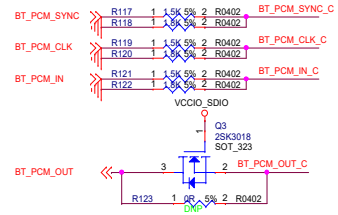
Level Shift for WIFI/BT control signals



Note:All the Power filter capacitors should be placed close to the connector.

Level Shift for PCM signals

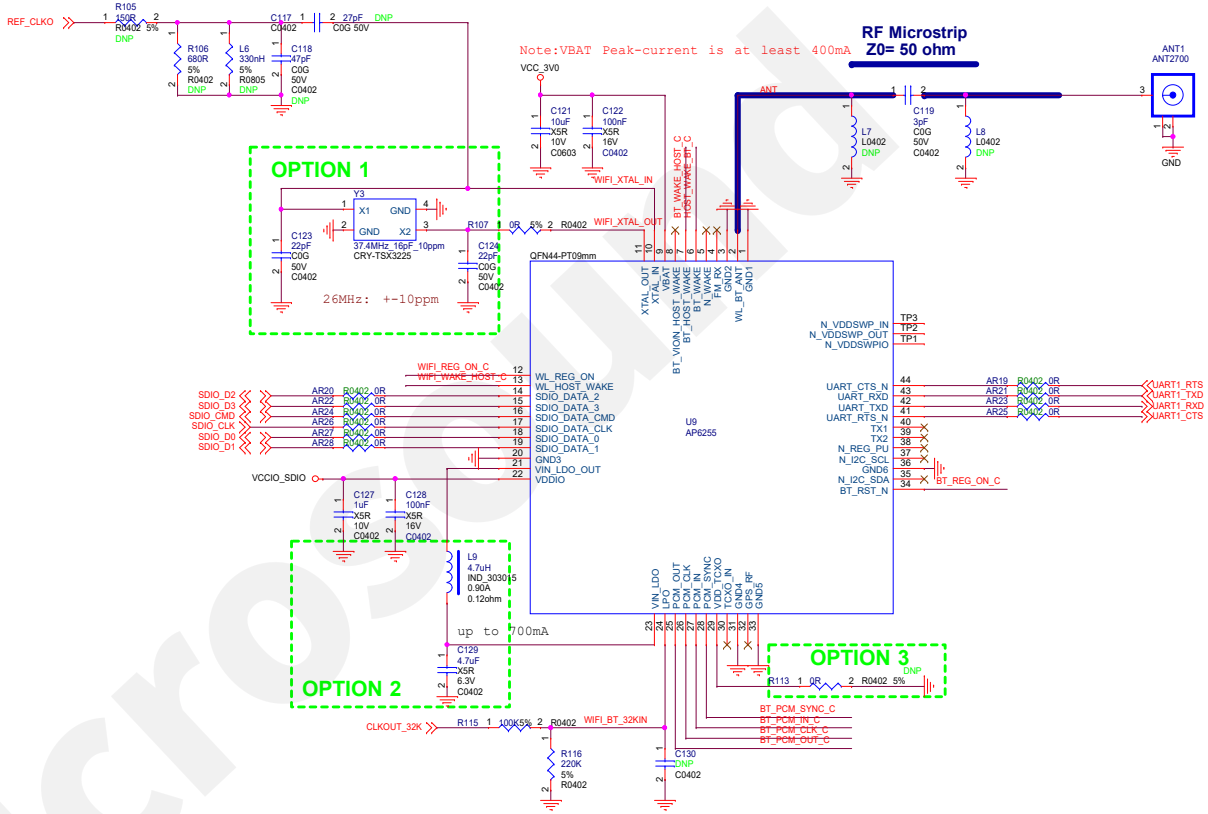
Note:Internal Pull -up Resistor



Module Power

Default SDIO3.0

WIFI/BT Module

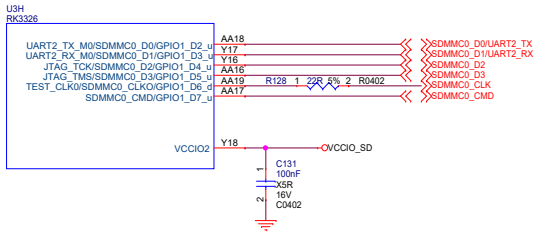


OPTION	WIFI				BT	Crystals	VCCIO_SDIO
	a	b/g/n	ac	5GHz			
AP6212	**No**	Yes	**No**	**No**	Yes	26MHz	1.71-3.6V
AP6255	Yes	Yes	Yes	Yes	Yes	37.4MHz	1.71-3.6V
RTL8723DS	**No**	Yes	**No**	**No**	Yes	Module Integrated	1.62-3.6V

OPTION	1	2	3
AP6212	Yes	Yes	**No**
AP6255	Yes	Yes	Yes@SDIO2.0 No@SDIO3.0
RTL8723DS	**No**	**No**	**No**

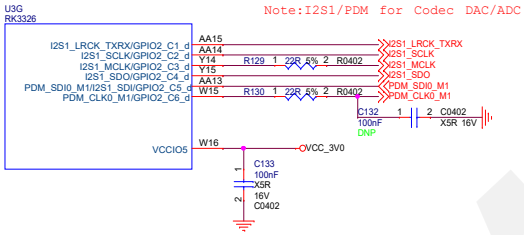
Note:
Yes: option circuit be mounted
No: option circuit not be mounted

RK3326 Part-H



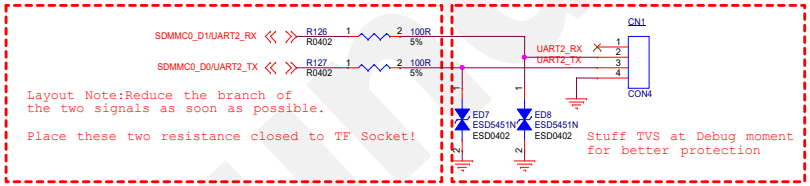
Note:All the Power filter capacitors should be placed close to the power pins of RK3327

RK3326 Part-G

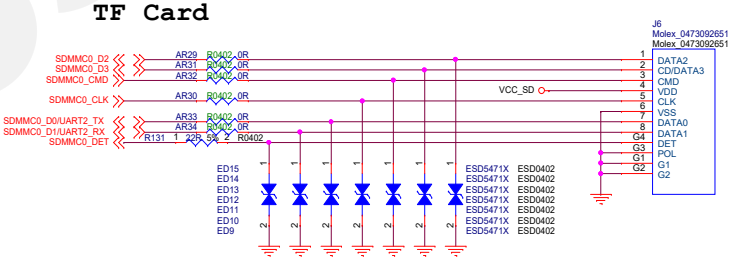


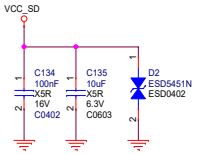
Note:All the Power filter capacitors should be placed close to the power pins of RK3326

Debug UART2

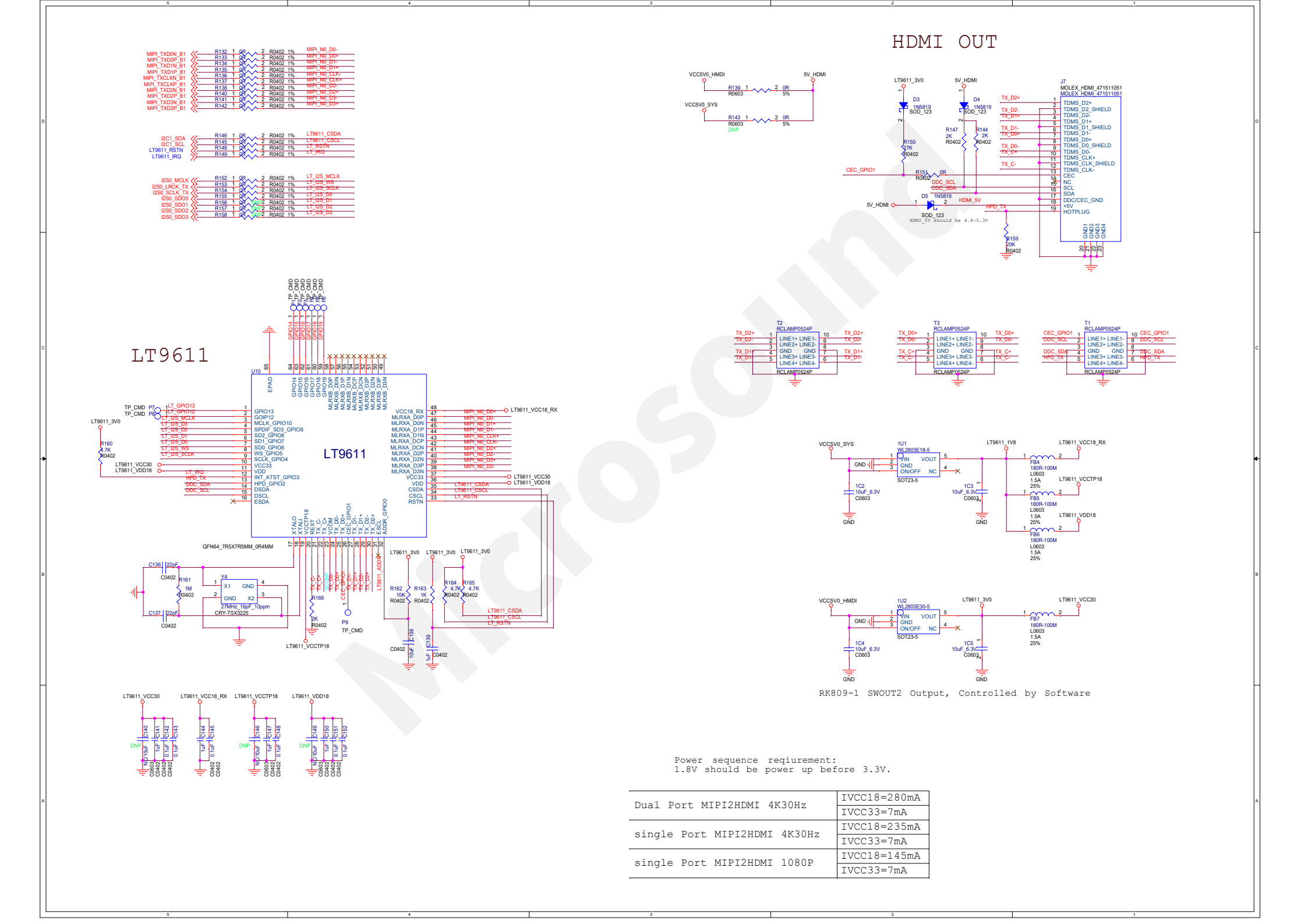


TF Card



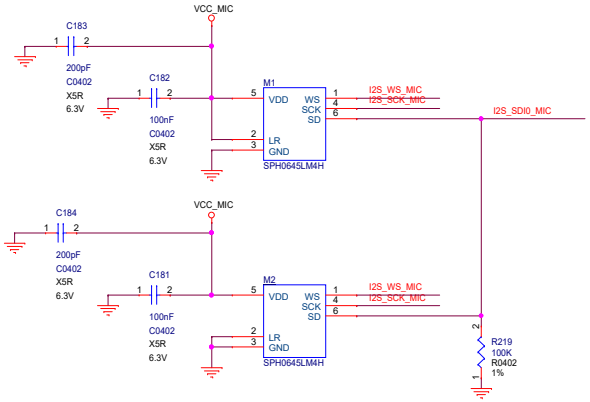


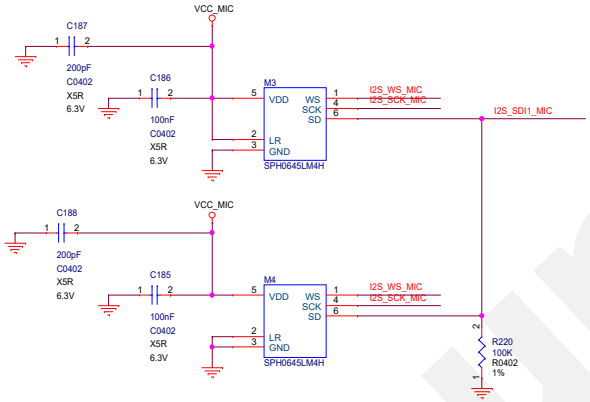
Note:All the Power filter capacitors should be placed close to the TF CARD Socket.

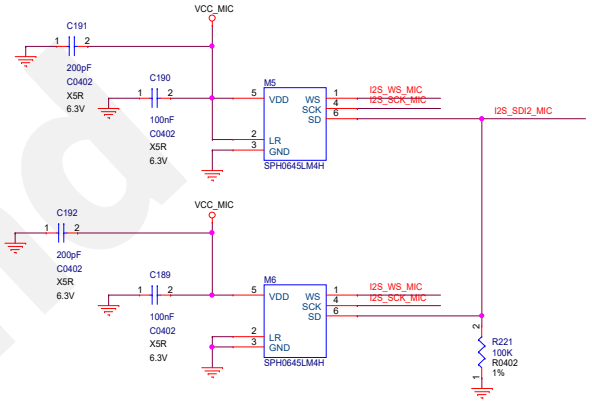

HDMI OUT
LT9611
LT9611
QFN64_7R5X7R5MM_0R4MM
RK809-1 SWOUT2 Output, Controlled by Software
Power sequence reqiurement:
1.8V should be power up before 3.3V.
Dual Port MIPI2HDMI 4K30Hz
IVCC18=280mA
IVCC33=7mA
single Port MIPI2HDMI 4K30Hz
IVCC18=235mA
IVCC33=7mA
single Port MIPI2HDMI 1080P
IVCC18=145mA
IVCC33=7mA
Microsound

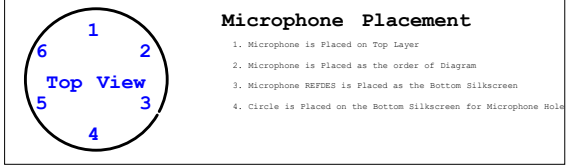
MIC Array-Digital Interface

PDM(Default)



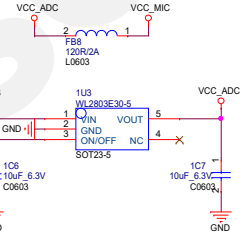


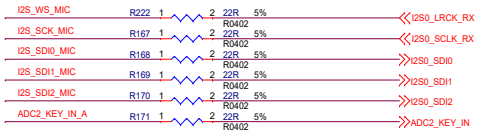


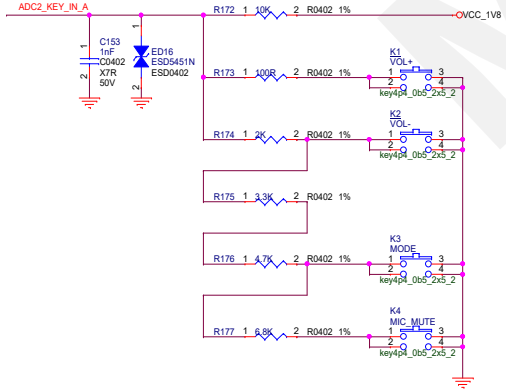


Microphone Placement

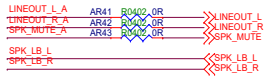
1. Microphone is Placed on Top Layer
2. Microphone is Placed as the order of Diagram
3. Microphone REFDES is Placed as the Bottom Silkscreen
4. Circle is Placed on the Bottom Silkscreen for Microphone Hole

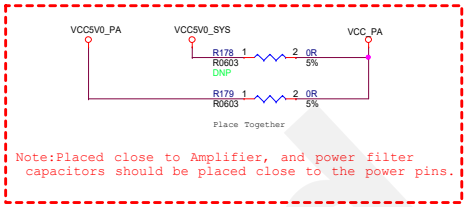


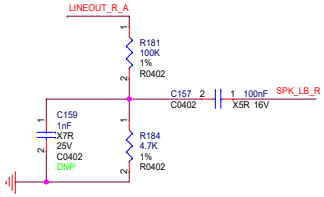


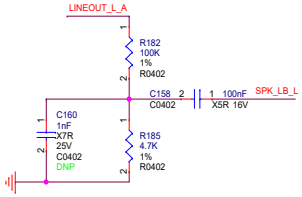


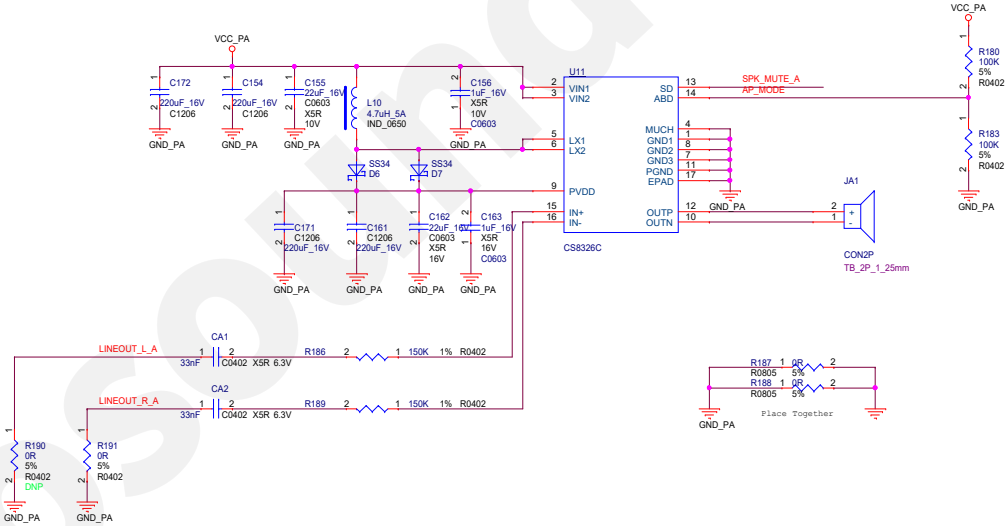
Key Name	SARADC
VOL+/RECOVERY	10
VOL-	170
Play-Pause	354
Mode	512
MIC_MUTE	641



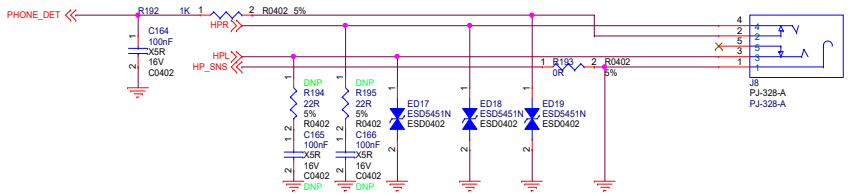








Headphone (Reserved)



Surrounding RGB LEDs

for Voice source localization