

Service Manual

(This document is only for reference)

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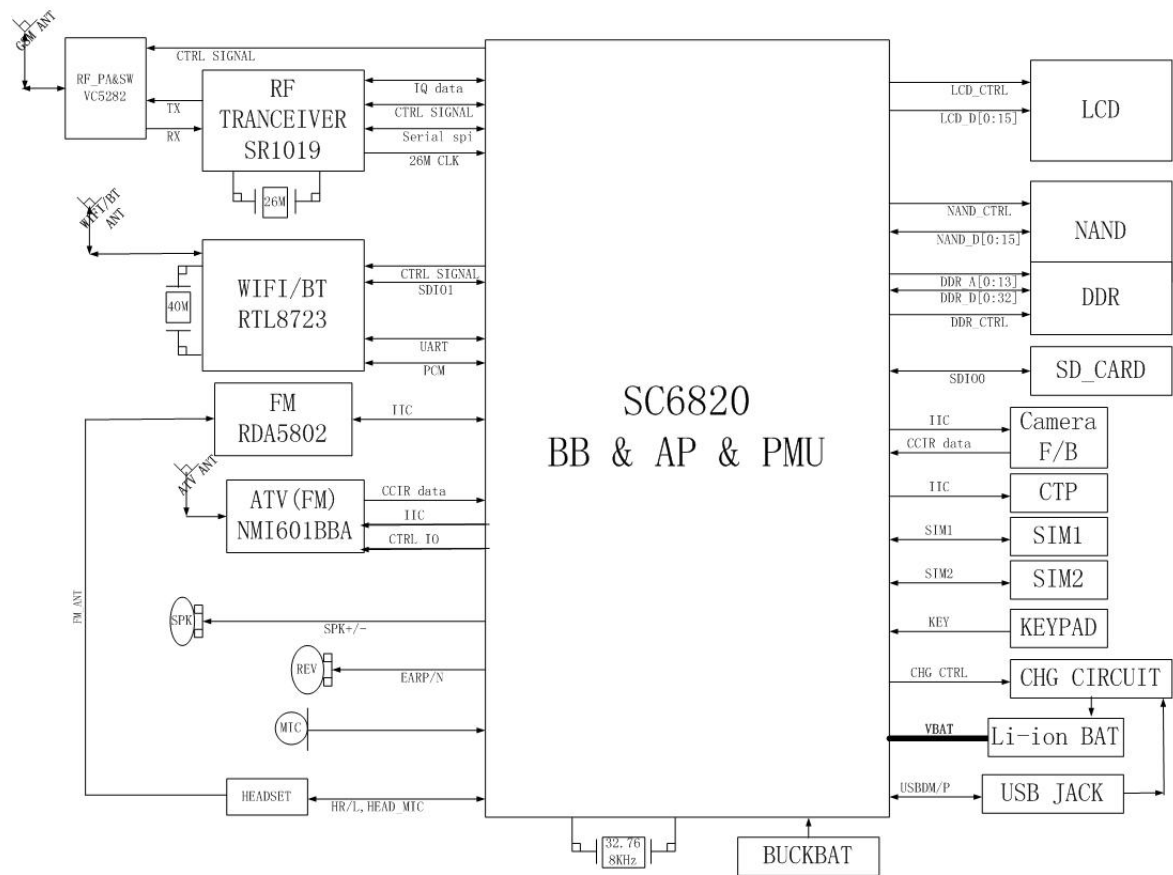
Chart of Troubleshooting

Safety Precautions

Specification

Base Chip Set	BB	SC6820	
	PMIC	SC6820	
	Transceiver	SR1019	
	RFPA	VC5282	
	FM	RD5802	
	BT	RTL8723AS	
	Memory	4Gb NAND+2Gb DDR	
	TP IC	FT6206	
Peripheral Configuration	LCD	3.5"	
	CAMERA	0.3+2 Mega Pixel	
	Memory card	Micro SD	
	Antenna	PIFA	
Basic Performance Indicators	Leakage current	$\leq 150\mu A$	
	Standby current	$\leq 7mA$	
	Call current as maximum power	$\leq 280mA$	
	Board-level power	GSM	32.5dBm
		DCS	29.5dbm
	Board-level receiver sensitivity	GSM	-109dBm
		DCS	-108dBm
	TRP	GSM	27dbm
		DCS	25dbm
	TIS	GSM	-102dbm
		DCS	-102dbm

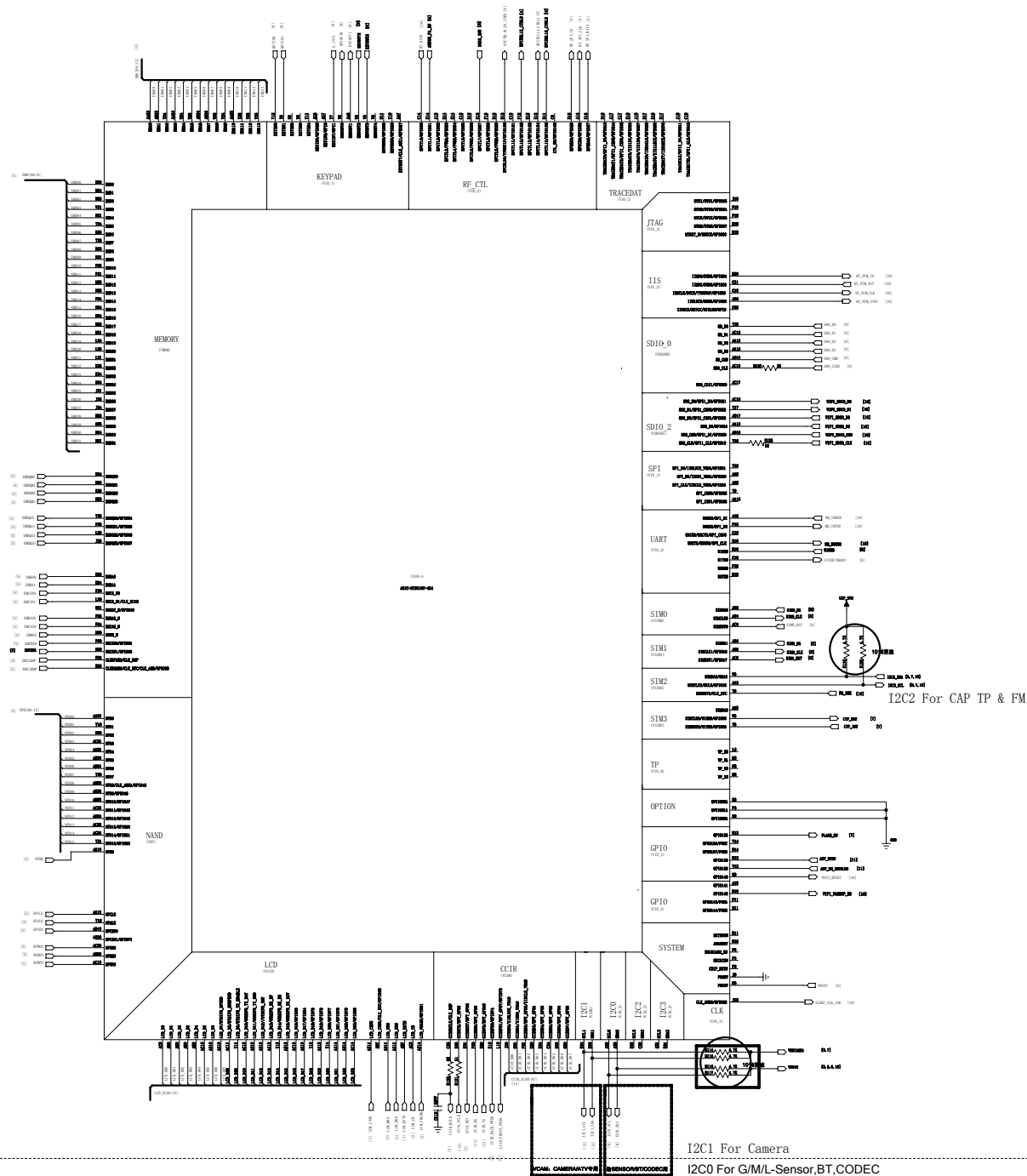
Block Diagrams



MB Components Distribution

OPTION BOARD			
LINE	REF ID	FUNCTION	VALUE

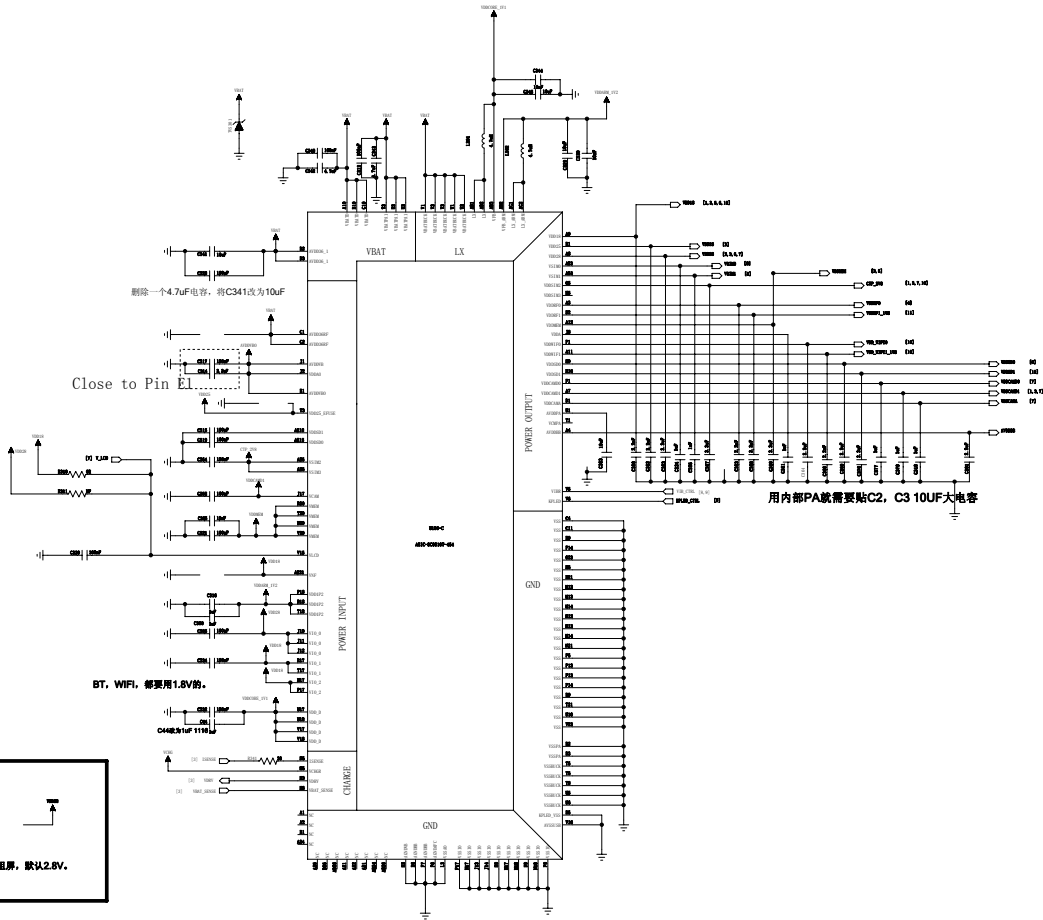
BB_DIGITAL



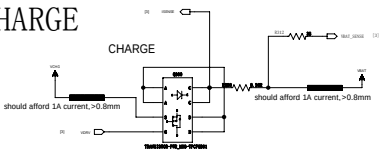
OPTION BOARD			
LINE	REF ID	FUNCTION	VALUE

REV: 1.0	DATE: 10/10/2010	DESIGNER: Hardware DEPT.

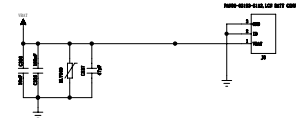
BB_POWER



CHARGE



CHARGE(Only for Li-ion Battery)



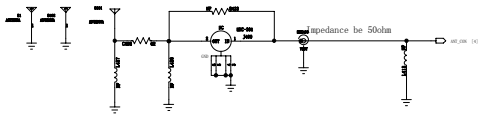
External DCDC

LD0	Output Voltage (V)	Output Current	Used Voltage
VDD18	1.2/1.5/1.8/2.8	200mA	1.8V
VDD25	2.5/2.75/2.9/3.0	60mA	2.5V
VDD28	1.8/2.65/2.8/3.0	200mA	2.8V
VSIM0	1.8/2.9/3.0/3.1	60mA	1.8/3.0V
VSIM1	1.8/2.9/3.0/3.1	60mA	1.8/3.0V
VDDSIM2	1.2/1.8/2.8/3.0	200mA	2.8V
VDDSIM3	1.2/1.8/2.8/3.0	200mA	N/A
VDDRF0	1.8/2.75/2.85/2.95	200mA	2.85V
VDDRF1	1.8/2.5/2.85/2.95	200mA	1.8V
VDDMEM	1.8	300mA	1.8V
VDDA	1.8	80mA	1.8V
VDDWIFI0	1.2/1.8/2.8/3.3	200mA	3.3V
VDDWIFI1	1.2/1.8/2.8/3.3	200mA	1.8V
VDDSD0	1.8/2.5/2.8/3.0	150mA	3.0V
VDDSD1	1.8/2.5/2.8/3.0	150mA	1.8V
VDDCAMD0	1.3/1.5/1.8/2.8	100mA	1.8V
VDDCAMD1	1.2/1.8/2.8/3.3	100mA	1.8V
VDDCAMA	1.8/2.5/2.8/3.0	150mA	2.8V
AVDDBB	2.8/2.9/3.0/3.1	60mA	3.0V
AVDDVB	2.9/3.2/3.3/3.4	100mA	3.3V
VDDUSB	3.1/3.2/3.3/3.4	60mA	3.3V
VBATBK	2.6/2.8/3.0/3.2		2.8V
VDDRTC	1.5/1.6/1.7/1.8		1.8V
VDDCORE	0.7/0.8/0.9/1.1/1.2/1.3	400mA	1.1V
VDDARM	0.7/0.8/0.9/1.1/1.2/1.3	500mA	1.2V

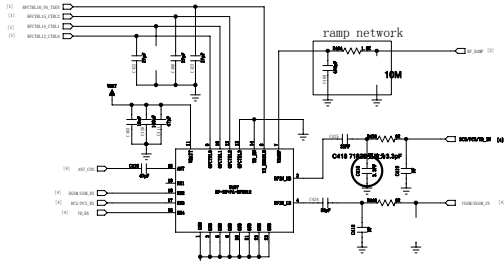
REVISION HISTORY			
REV	REV NO.	DESCRIPTION	DATE

RF TRANSCEIVER

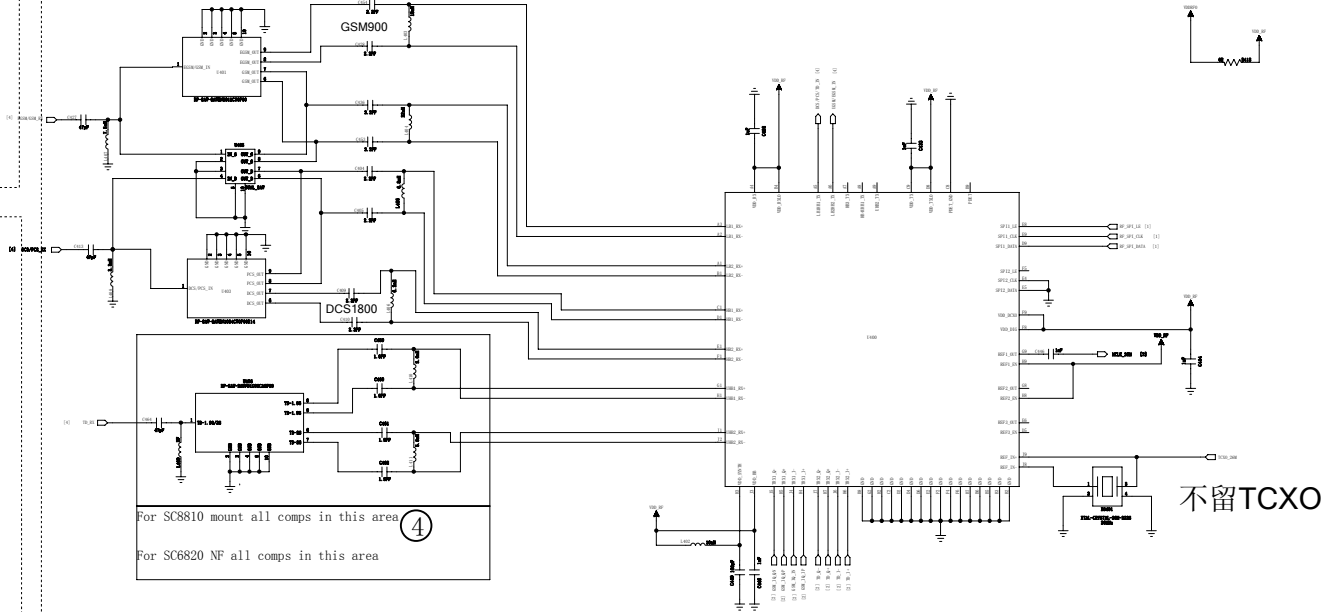
RF ANT



PA MODULE



① TD+EDGE:U0407 ->RF9812/VC7810E
EDGE QBand:U0407 ->RF9802
EDGE DBand:U0407 ->RF9801
GSM QBand:U0407 ->RF7182D



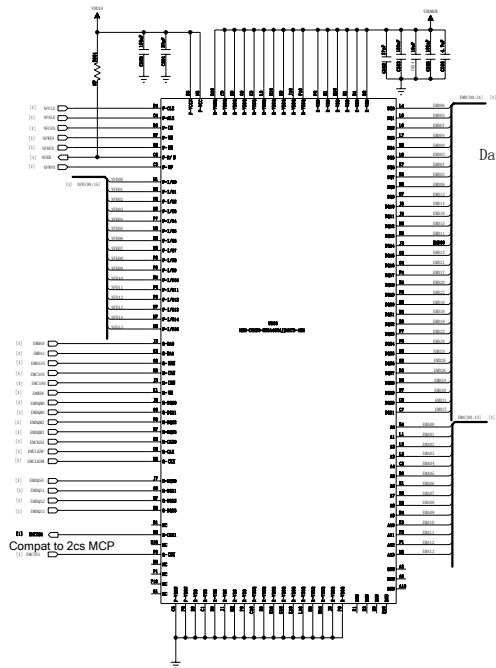
RF9812

RF9802

TITLE & INFO			
SC6810 Platform Reference SCH_V1.0.0			
REVISION NO. 1			
DESIGNER	Author: Yu	DATE	2011-06-09
DESIGN	Hardware DEPT.	DATE	2011-06-09
APPV	Robin Zhang	DATE	2011-06-09
APPV	Robert Liang	DATE	2011-06-09
APPROVAL AND VERIFICATION		Checked: 6 Sep 10	

REVISION HISTORY			
REV	REV NO.	DESCRIPTION	DATE

NAND + DDR



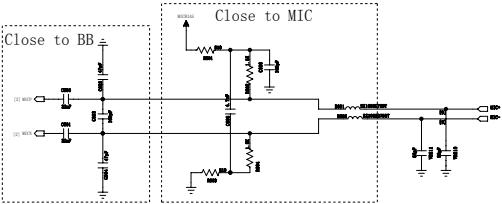
Data can be switched in Each Group

VDDNF = 1.8V
VDD_MEM = 1.8V

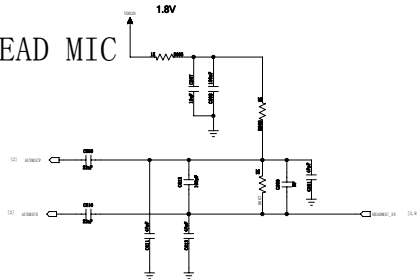


R32 NF: USB2.0 HIGH SPEED DOWNLOAD
R32 MOUNTED: USB2.0 FULL SPEED DOWNLOAD
USB Download Mode Select

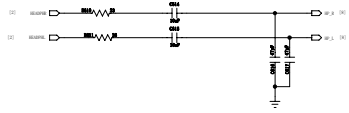
MIC CIRCUIT



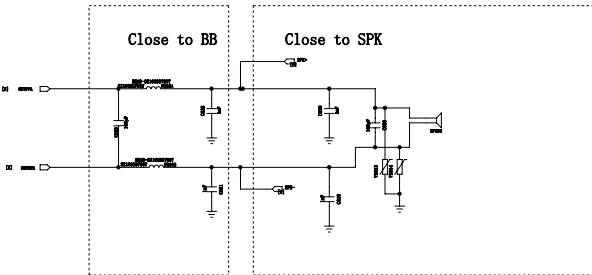
HEAD MIC



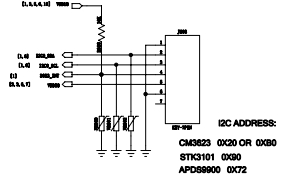
HEAD EAR



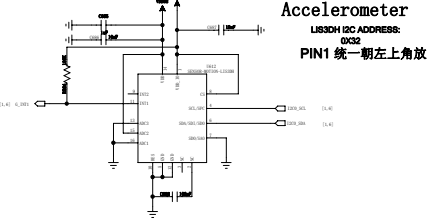
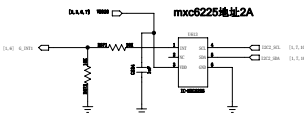
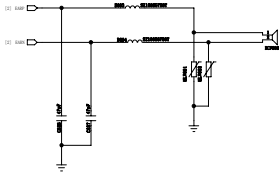
SPEAKER CIRCUIT



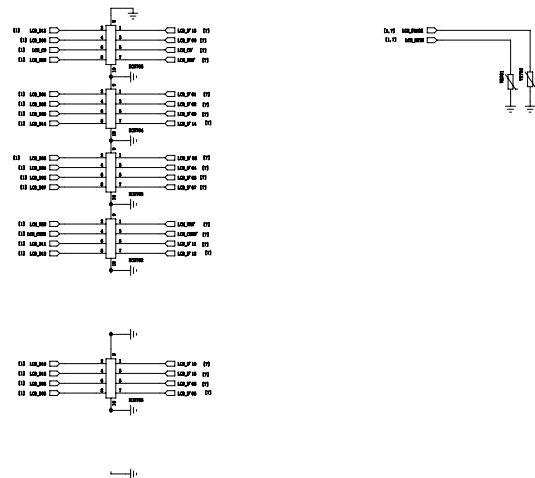
SENSOR
LIGHT & DISTANCE SENSOR



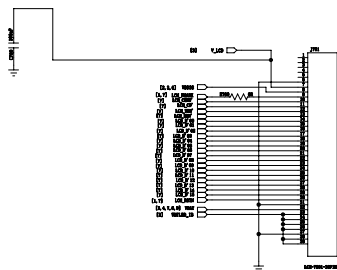
RECEIVER CIRCUIT



REV	DESCRIPTION		DATE
	BY	CHKD	

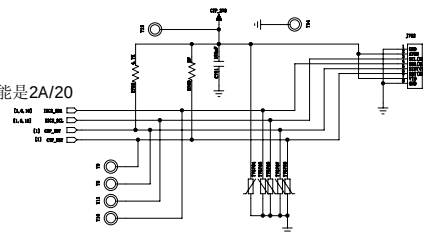


LCD



TP COF

IIC地址不能是2A/20

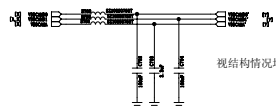


BB POWER SUPPLY

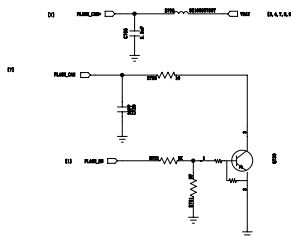
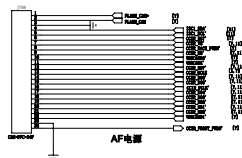
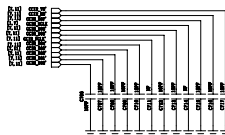
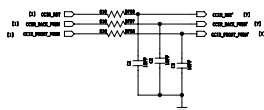
Output pin	POWER	V _o (V)	I _o (mA)	Type	APP
L1	VDDCAM1	3.3	150	1.00	SENSOR
A2	VDDCAM0	1.5	100	1.00	SENSOR
B9	VDDCAM0	1.8	100	1.00	SENSOR

CAMERA

前后摄像头二合一FPC



视结构情况增加电源上的电容

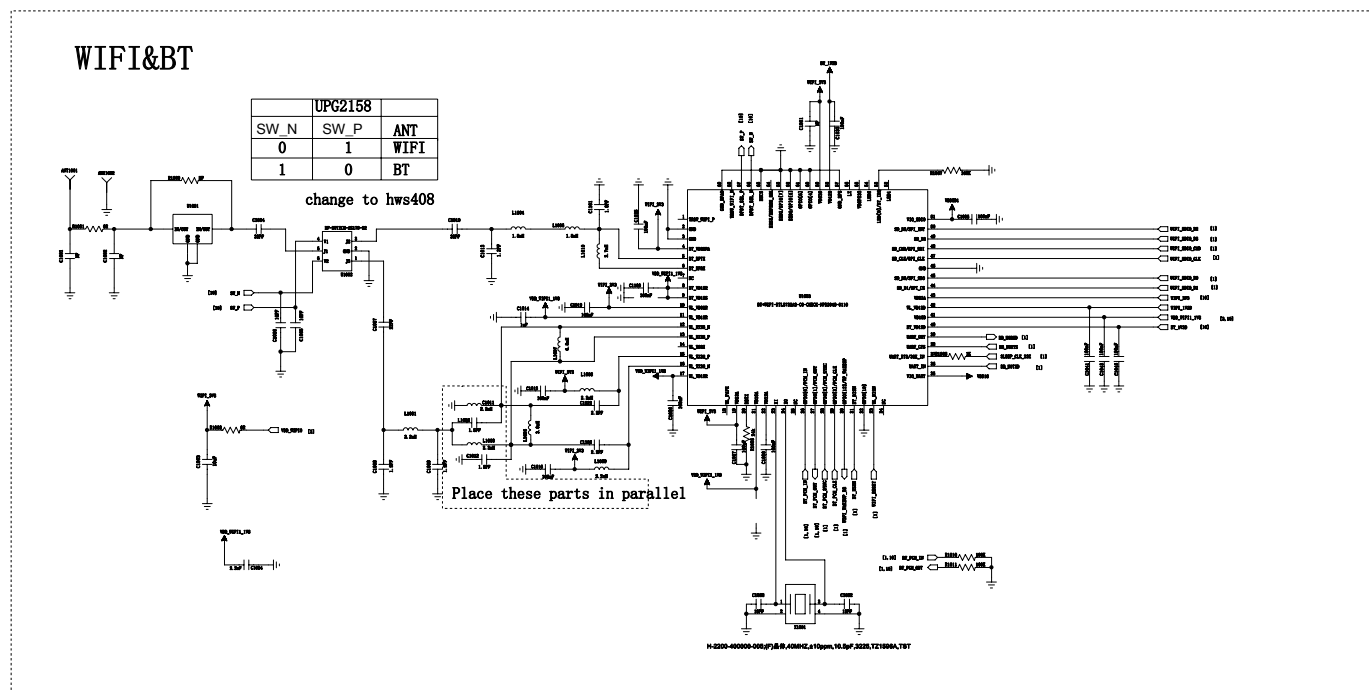
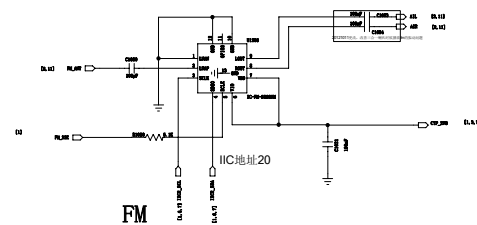


TP COB

TOTAL 4 PIN
SCH610 Platform Reference SCH_V1.0.0

DESIGNER	DATE	REVISION
Berkley Yu	2011-06-09	Hardware DEPT.
Rubin Zhang	2011-06-09	Spreadtrum communications, Inc.
Robert Liang	2011-06-09	CONFIDENTIAL AND PROPRIETARY

NOTATION RECORD			
LTB	REQ NO.	APPROVED	DATE



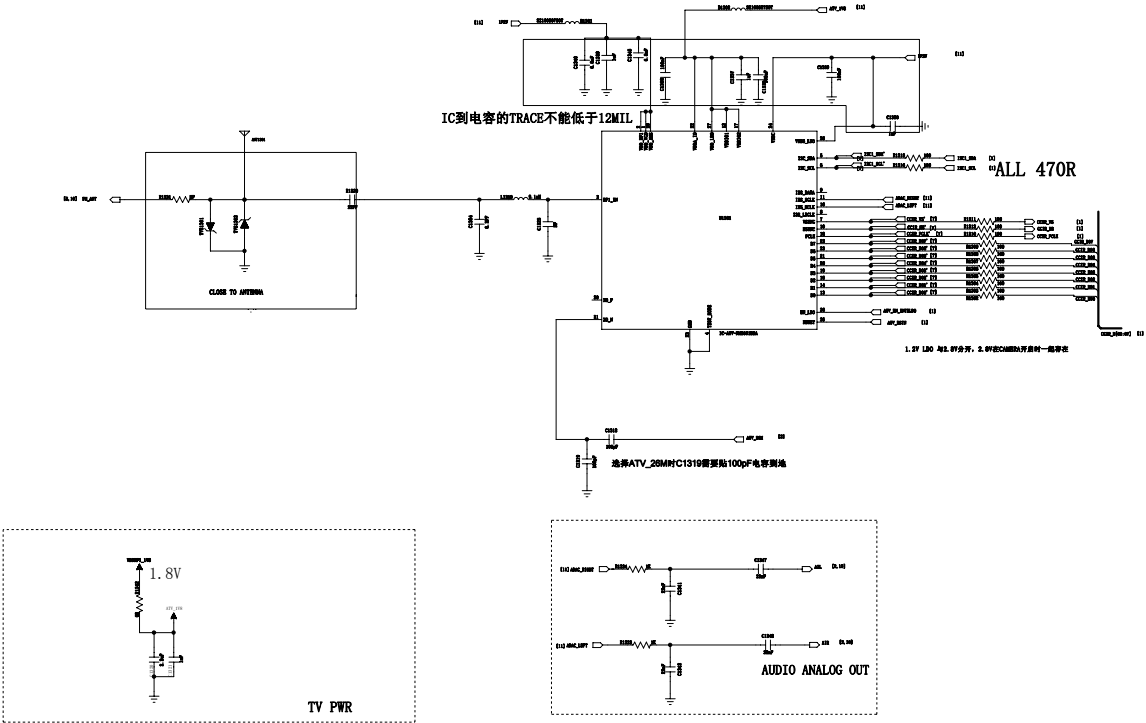
	UPG2158	
SW_N	SW_P	ANT
0	1	WIFI
1	0	BT

change to hws408

Place these parts in parallel

H-2202-400109-000 JF1 晶振 40MHZ,±10ppm,10.5pF,3225,TZ1898A,TZ

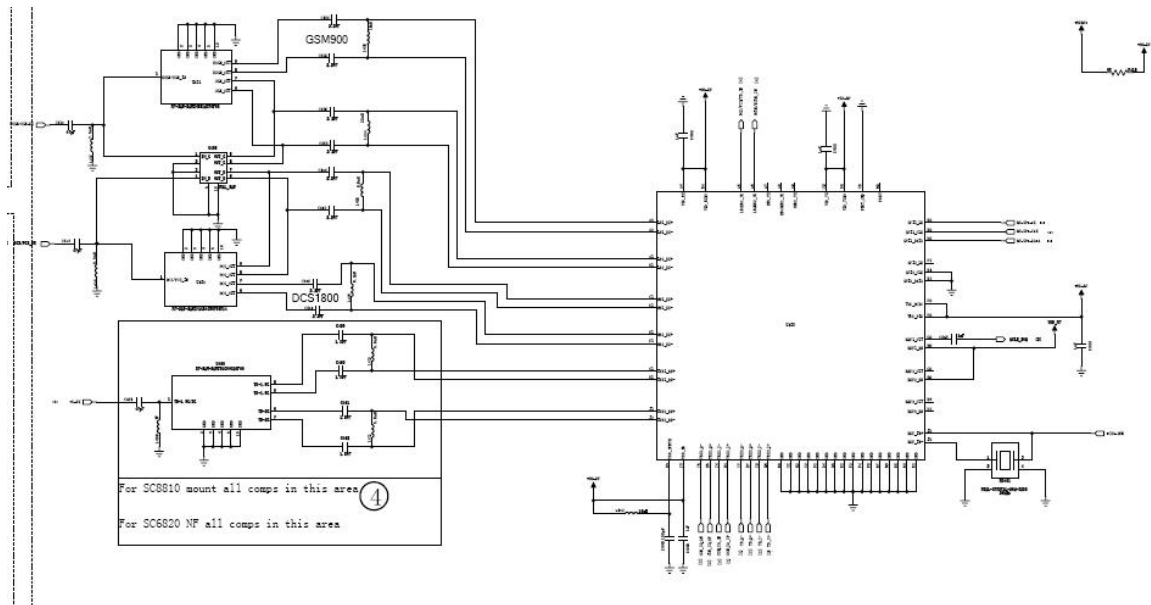
REVISION RECORD			
REV	REV NO.	REVISION	DATE



COMPANY: <Company Name>			
TITLE: <Title>			
DESIGN: <Drawn By>	DATE: <Drawn Date>	CODE: <Code>	REV: <Revision>
CHECKED: <Checked By>	CHECKED DATE: <Checked Date>	CODE: <Code>	REV: <Revision>
DESIGN CHECKED: <QC By>	QC DATE: <QC Date>	CODE: <Code>	REV: <Revision>
RELEASED: <Released By>	RELEASED DATE: <Release Date>	CODE: <Code>	REV: <Revision>

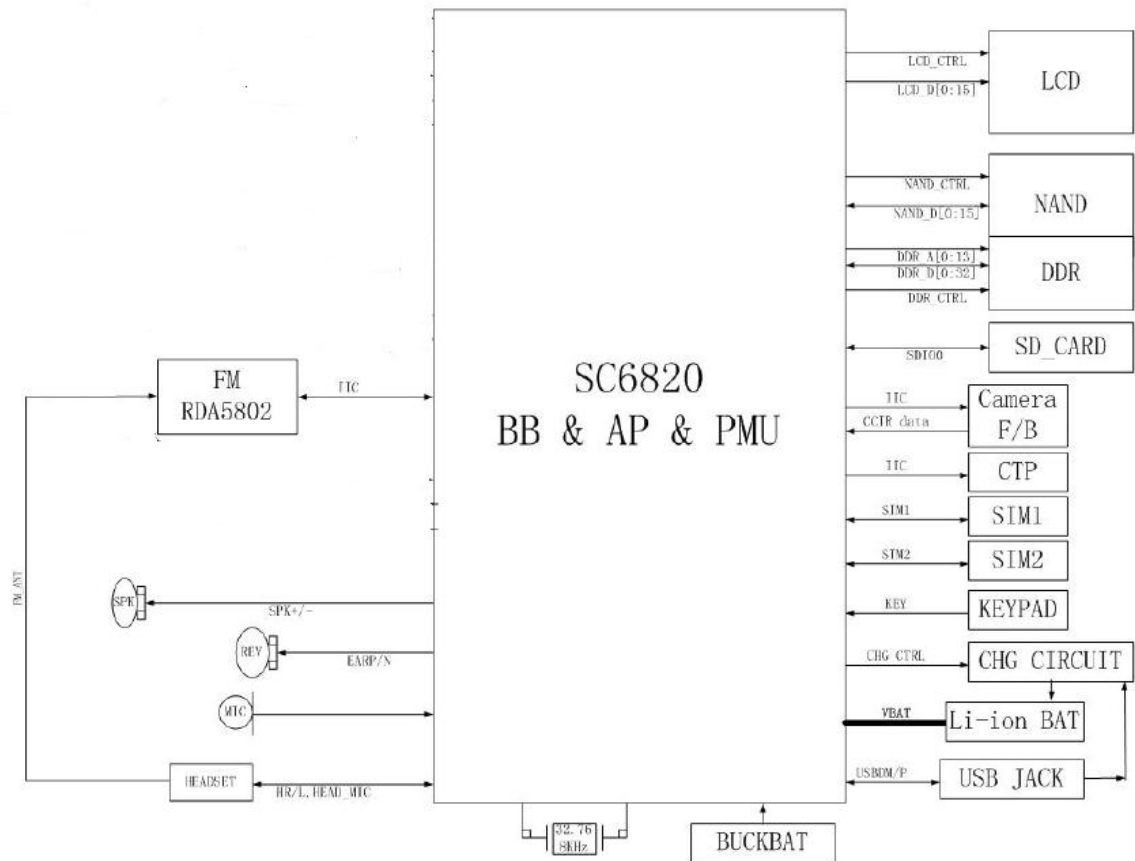
Signal Flow of the RF Receiving Part

Receiving path is shown in the following figure:



Baseband part

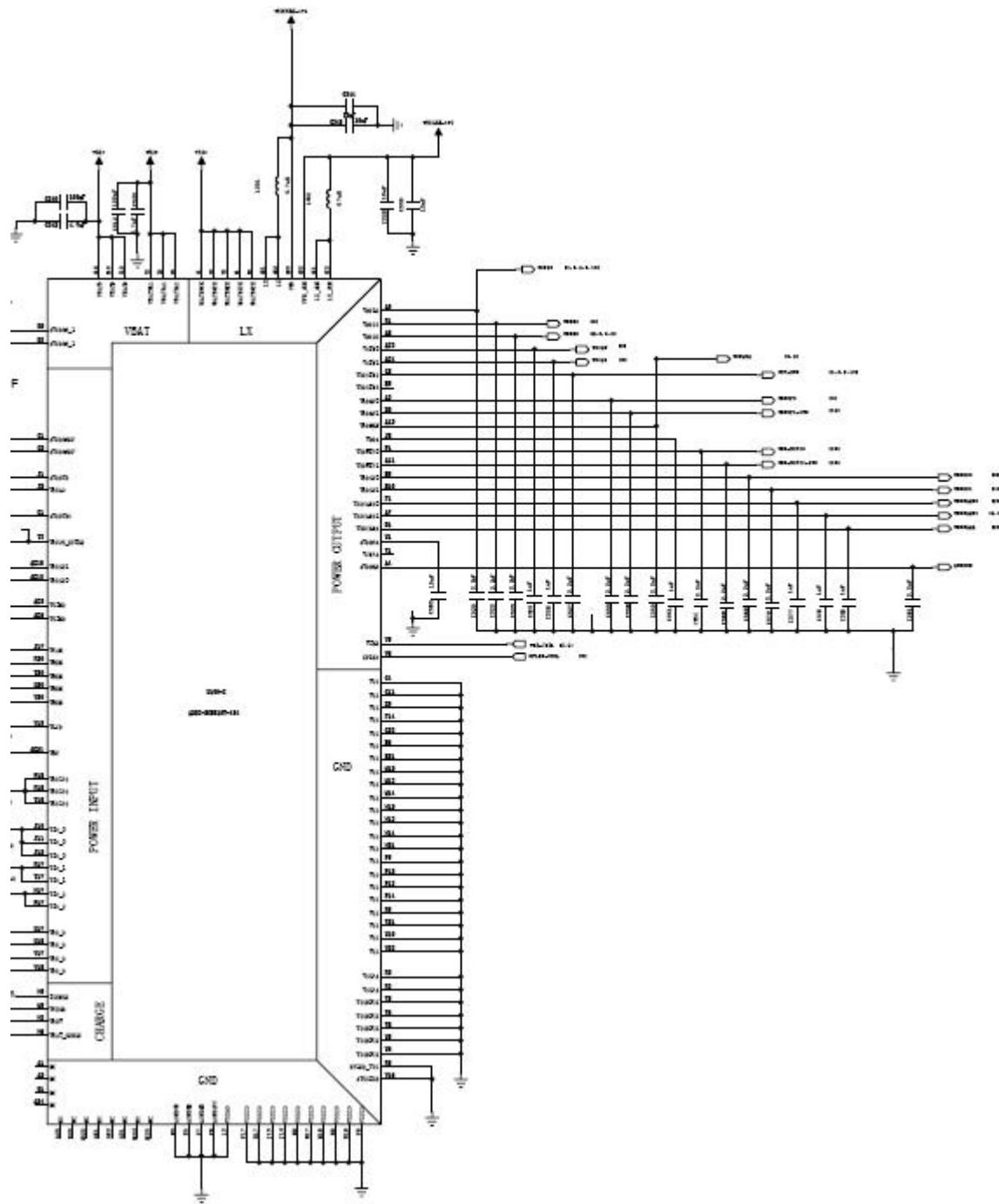
1, Block diagram of the Baseband part



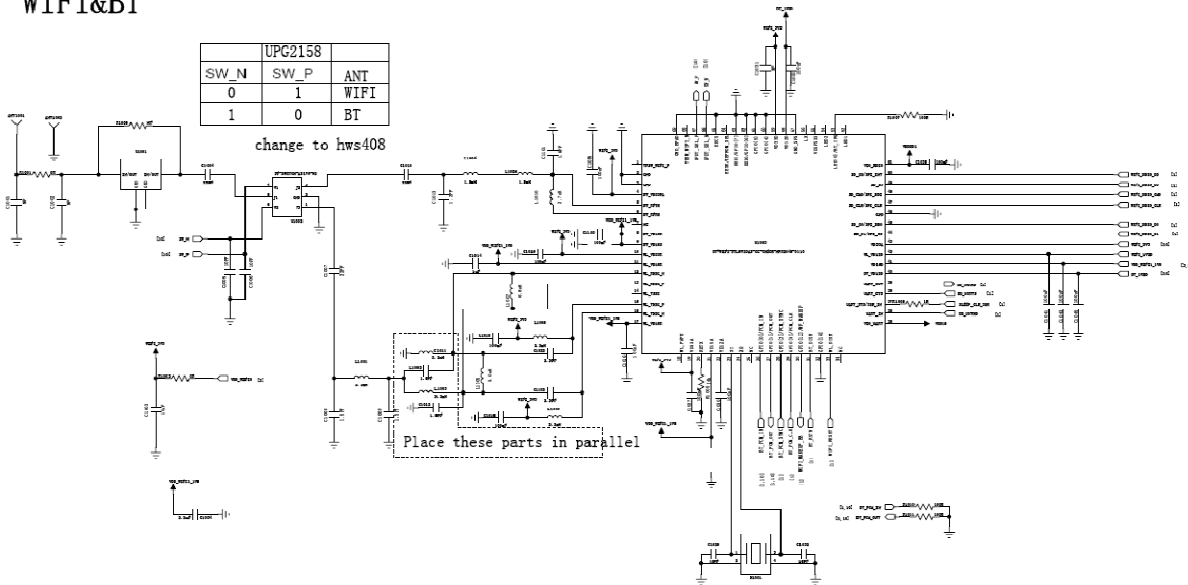
2, Power Management

Mobile power supply system

LDO	Output Voltage (V)	Output Current	Used Voltage
VDD18	1.2/1.5/1.8/2.8	200mA	1.8V
VDD25	2.5/2.75/2.9/3.0	60mA	2.5V
VDD28	1.8/2.65/2.8/3.0	200mA	2.8V
VSIM0	1.8/2.9/3.0/3.1	60mA	1.8/3.0V
VSIM1	1.8/2.9/3.0/3.1	60mA	1.8/3.0V
VDDSIM2	1.2/1.8/2.8/3.0	200mA	2.8V
VDDSIM3	1.2/1.8/2.8/3.0	200mA	N/A
VDDRF0	1.8/2.75/2.85/2.95	200mA	2.85V
VDDRF1	1.8/2.5/2.85/2.95	200mA	1.8V
VDDMEM	1.8	300mA	1.8V
VDDA	1.8	80mA	1.8V
VDDWIFI0	1.2/1.8/2.8/3.3	200mA	3.3V
VDDWIFI1	1.2/1.8/2.8/3.3	200mA	1.8V
VDDSD0	1.8/2.5/2.8/3.0	150mA	3.0V
VDDSD1	1.8/2.5/2.8/3.0	150mA	1.8V
VDDCAMD0	1.3/1.5/1.8/2.8	100mA	1.8V
VDDCAMD1	1.2/1.8/2.8/3.3	100mA	1.8V
VDDCAMA	1.8/2.5/2.8/3.0	150mA	2.8V
AVDDBB	2.8/2.9/3.0/3.1	60mA	3.0V
AVDDVB	2.9/3.2/3.3/3.4	100mA	3.3V
VDDUSB	3.1/3.2/3.3/3.4	60mA	3.3V
VBATBK	2.6/2.8/3.0/3.2		2.8V
VDDRTC	1.5/1.6/1.7/1.8		1.8V
VDDCORE	0.7/0.8/0.9/1.1/1.2/1.3	400mA	1.1V
VDDARM	0.7/0.8/0.9/1.1/1.2/1.3	500mA	1.2V

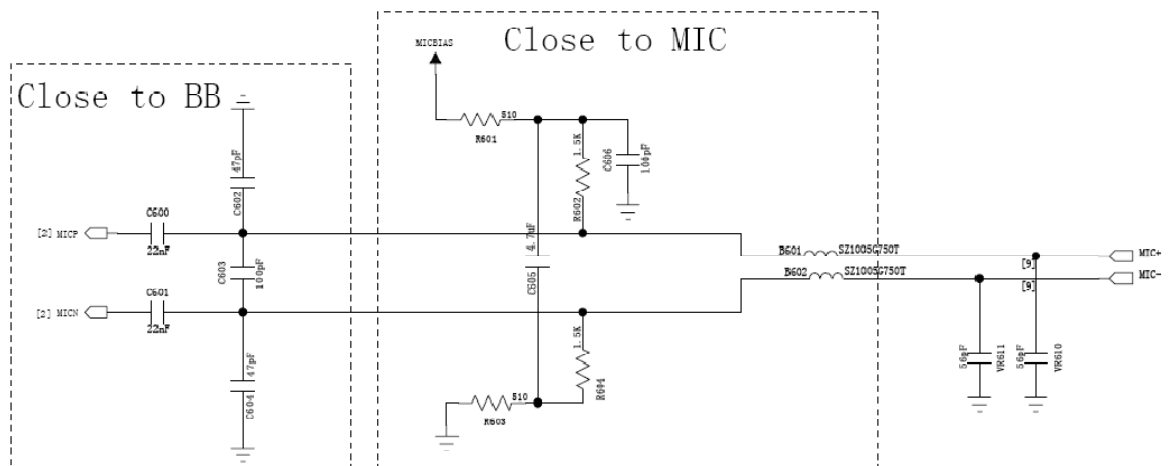


WIFI/BT PART



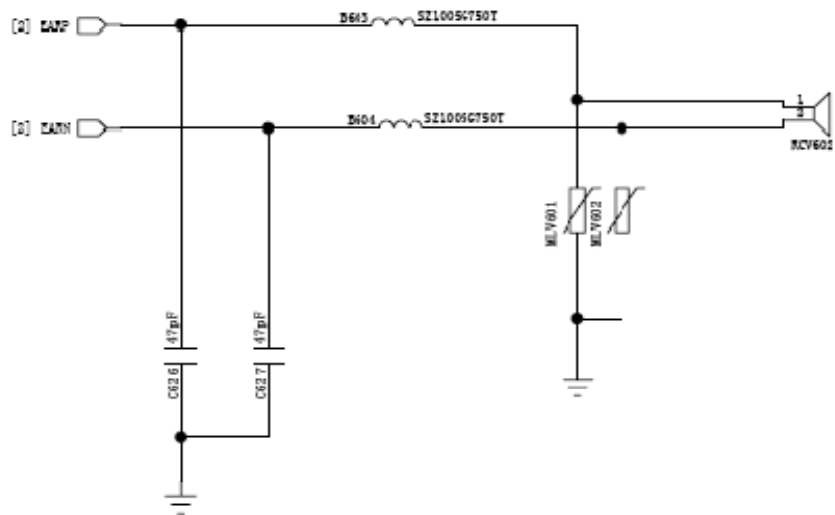
Audio Section

MIC Circuit

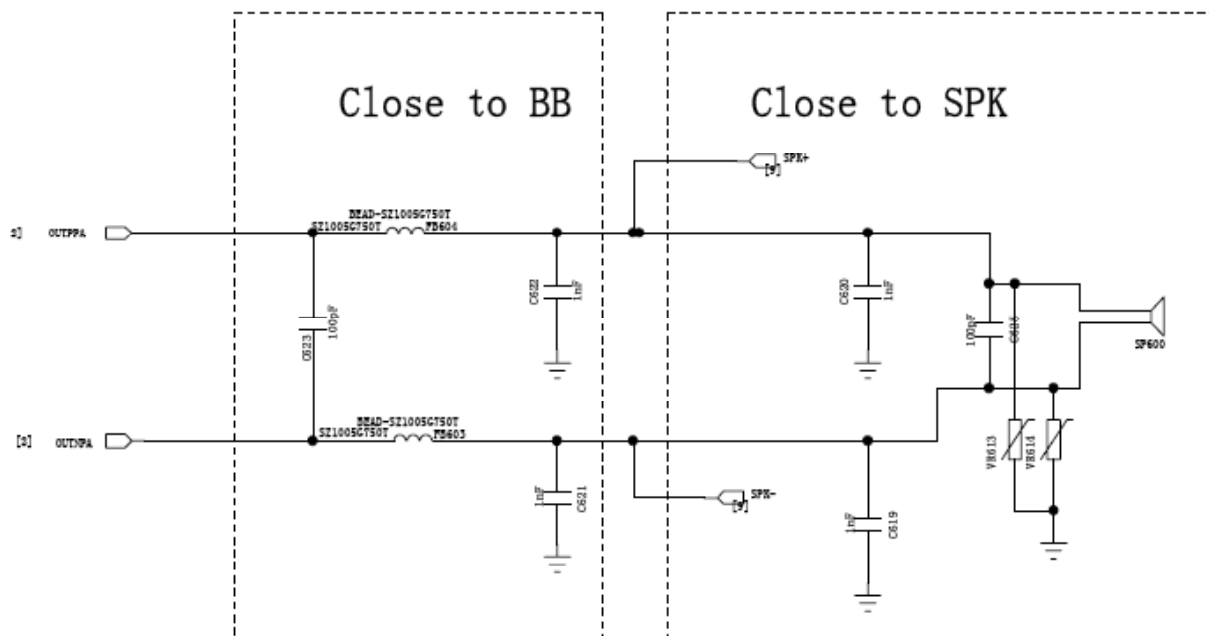


MIC must have a bias voltage in order to operate. When MIC is in good condition but loop MIC has no echo, then you need to check the basic bias voltage signal of the MICBIASP and MICBIASSP, the language signals of the RECEIVER and MIC also need to be checked.

Receiver Circuit



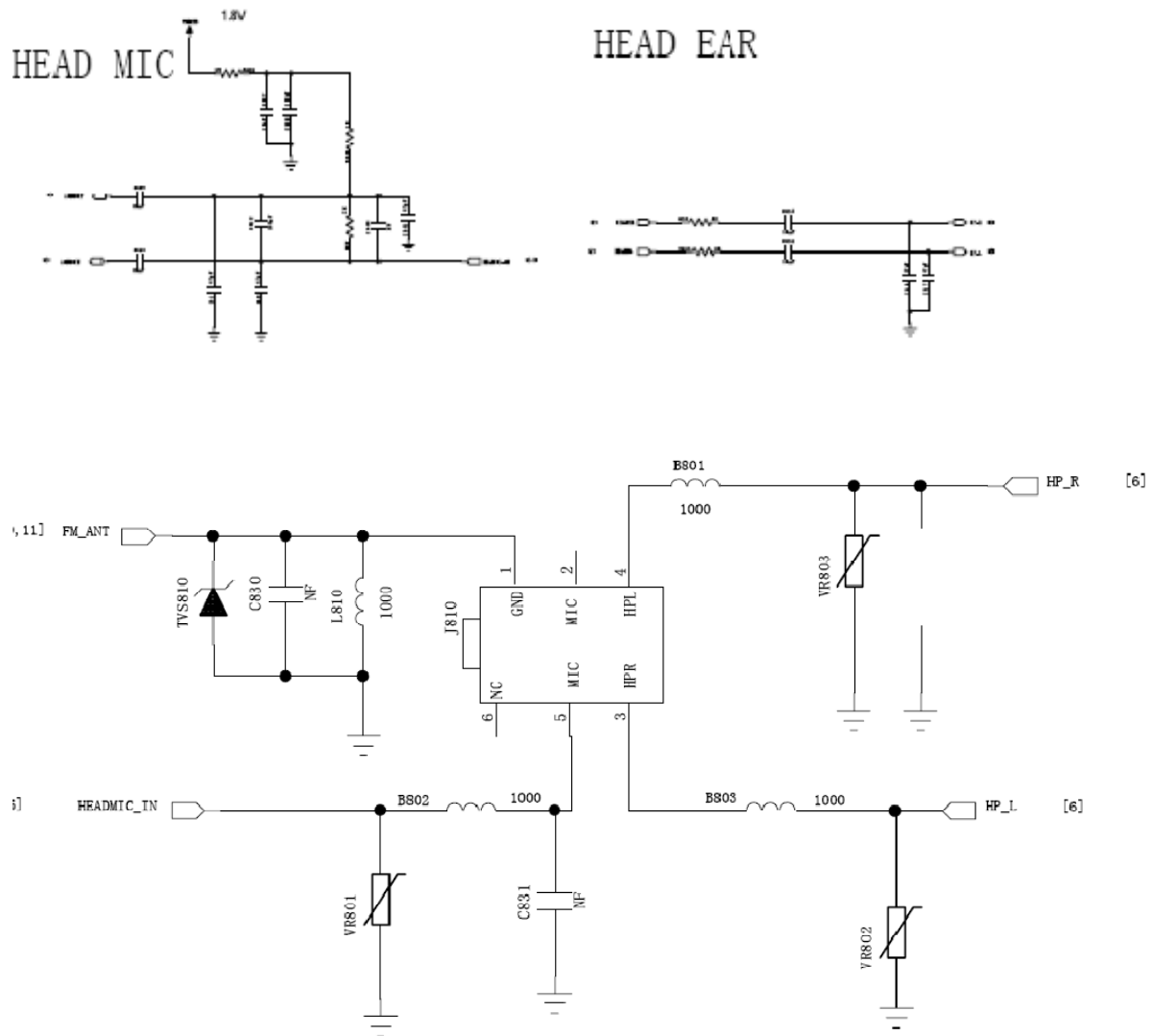
Speaker Circuit



The audio PA (in SC6820) driveSpeaker directly through Filter and ESD protected network,.

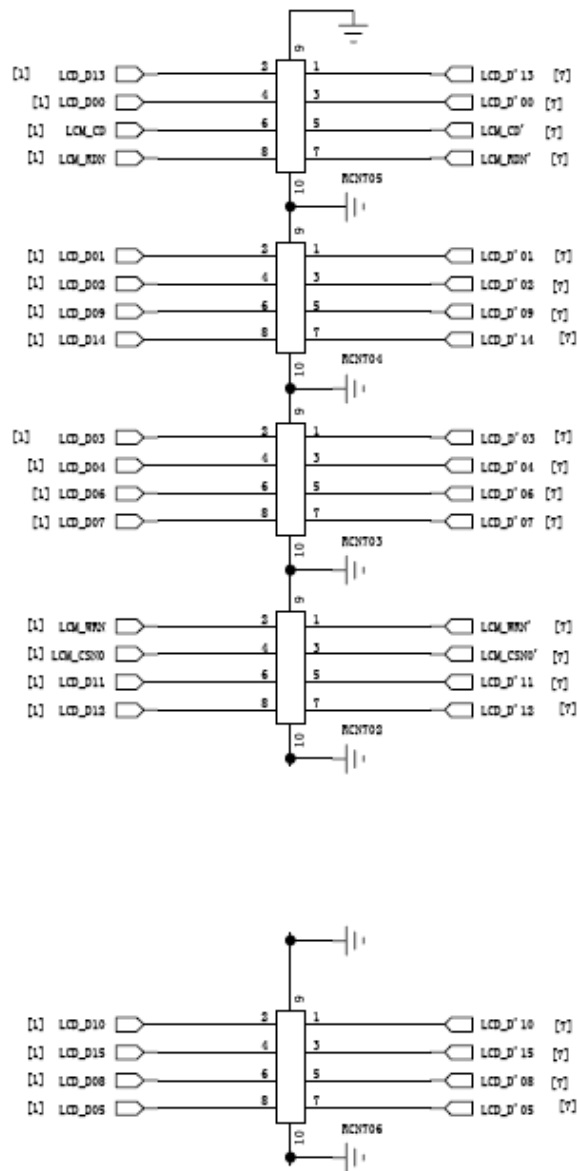
Headset Loop

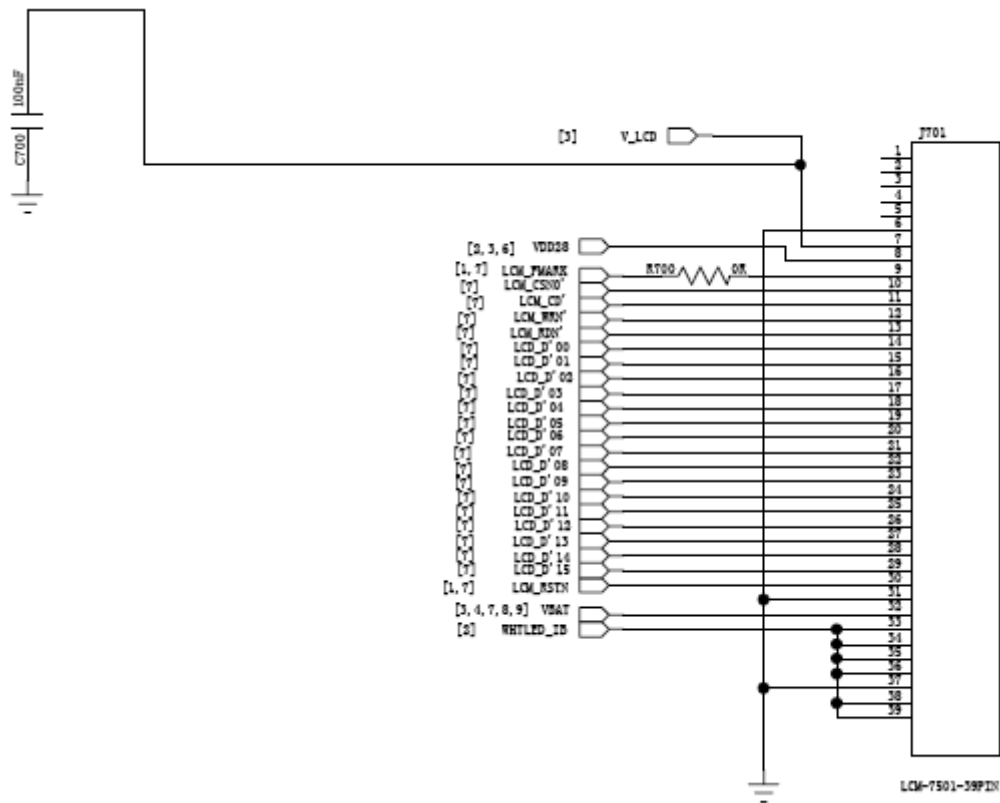
Headset loop includes two signals: Headset speaker and MIC, If the headset fitting were in good condition, when the headset plug in, it appears abnormal, such as: The Headset speaker has no sound、the MIC is invalid. All this need to check the access conditions of the circuit blow:



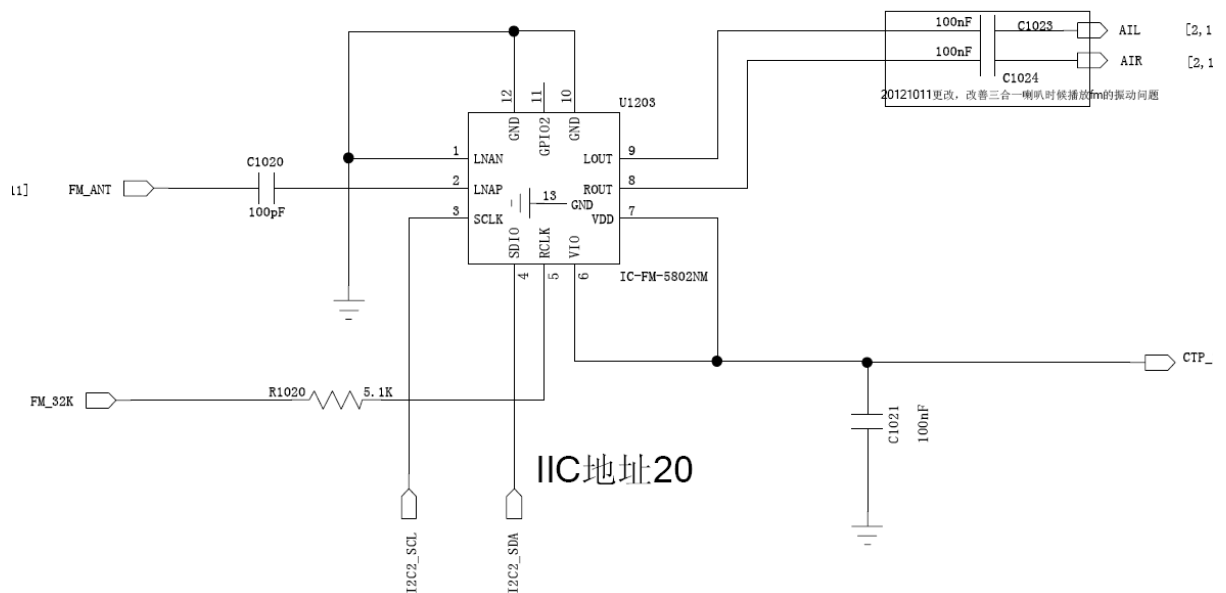
2.2.1.1 LCD Display module circuit

Display module use the 3.5" HVGA LCD.

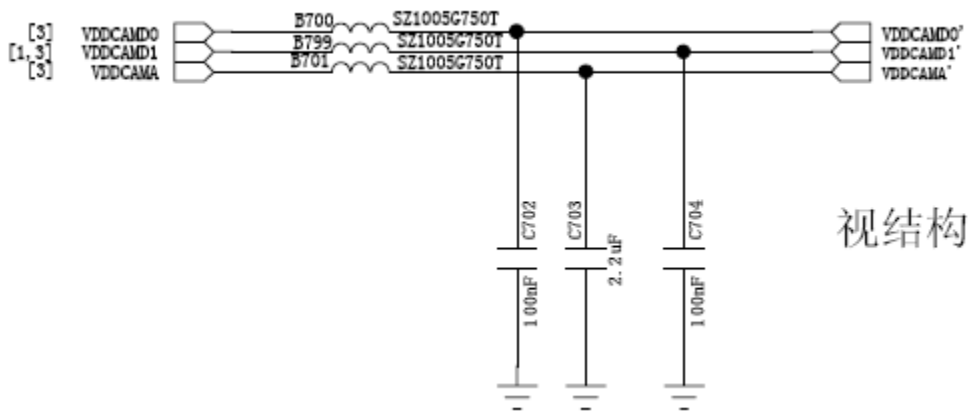
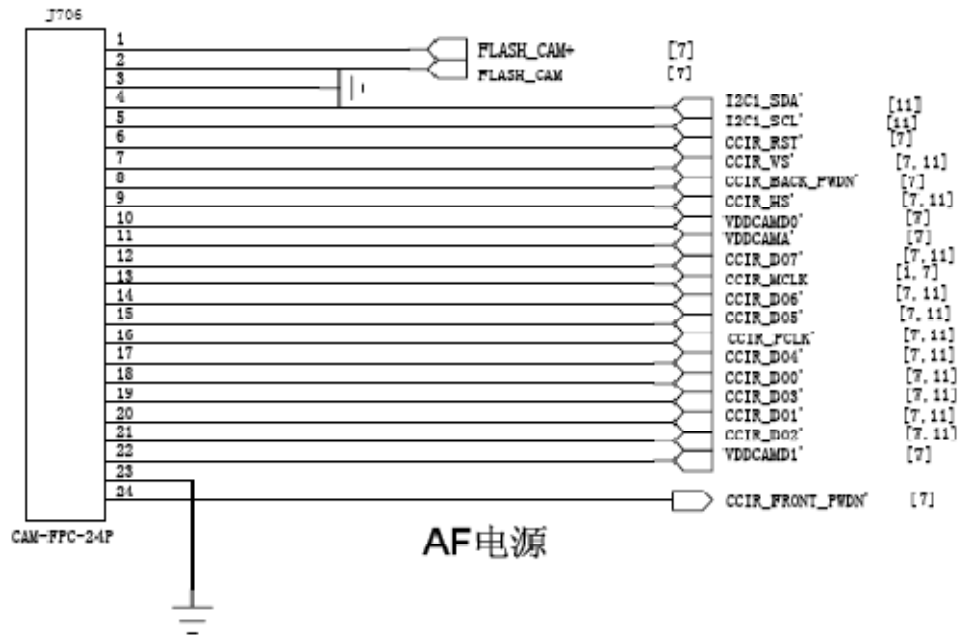




FM Module

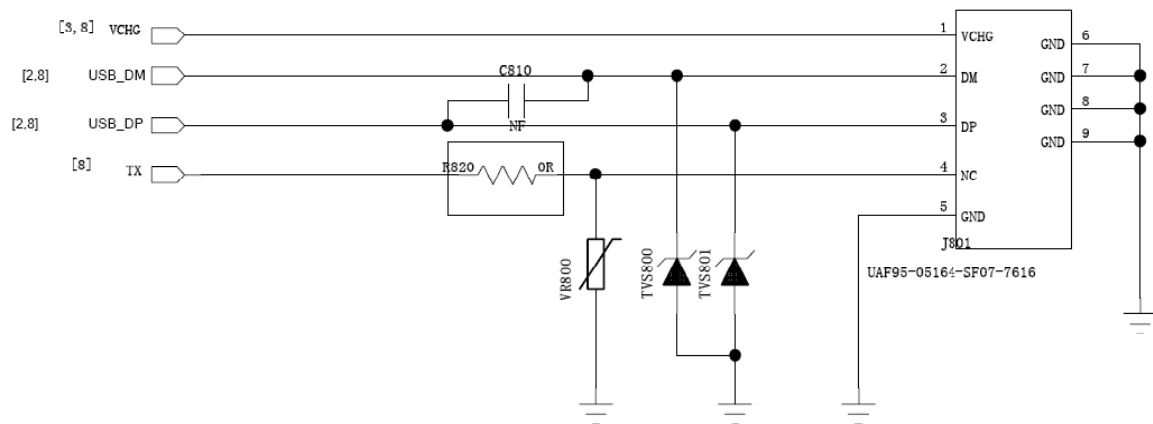


Camera Module



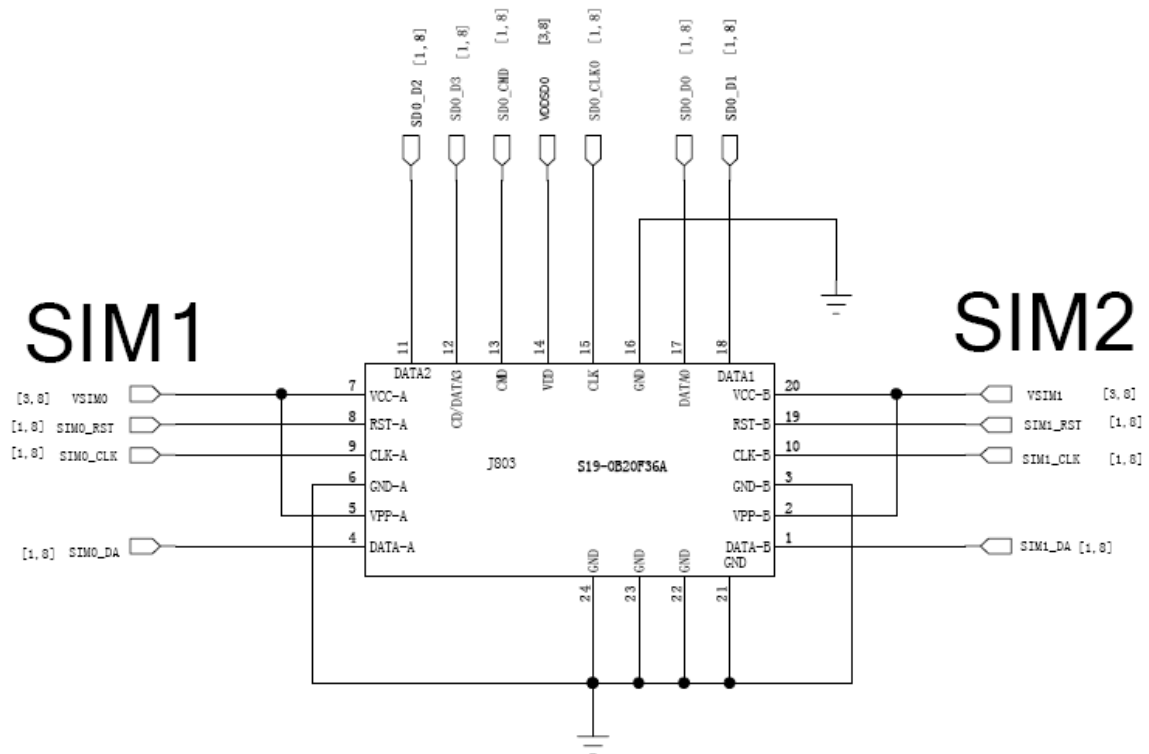
IO Interface

IO applies 5pin standard interface, which realize the functions of USB, charging and download.



SIM /T Card Circuit

Switch of dual SIM cards is integrated into baseband. use 3 in 1 socket for sim &T card



G-sensor Circuit

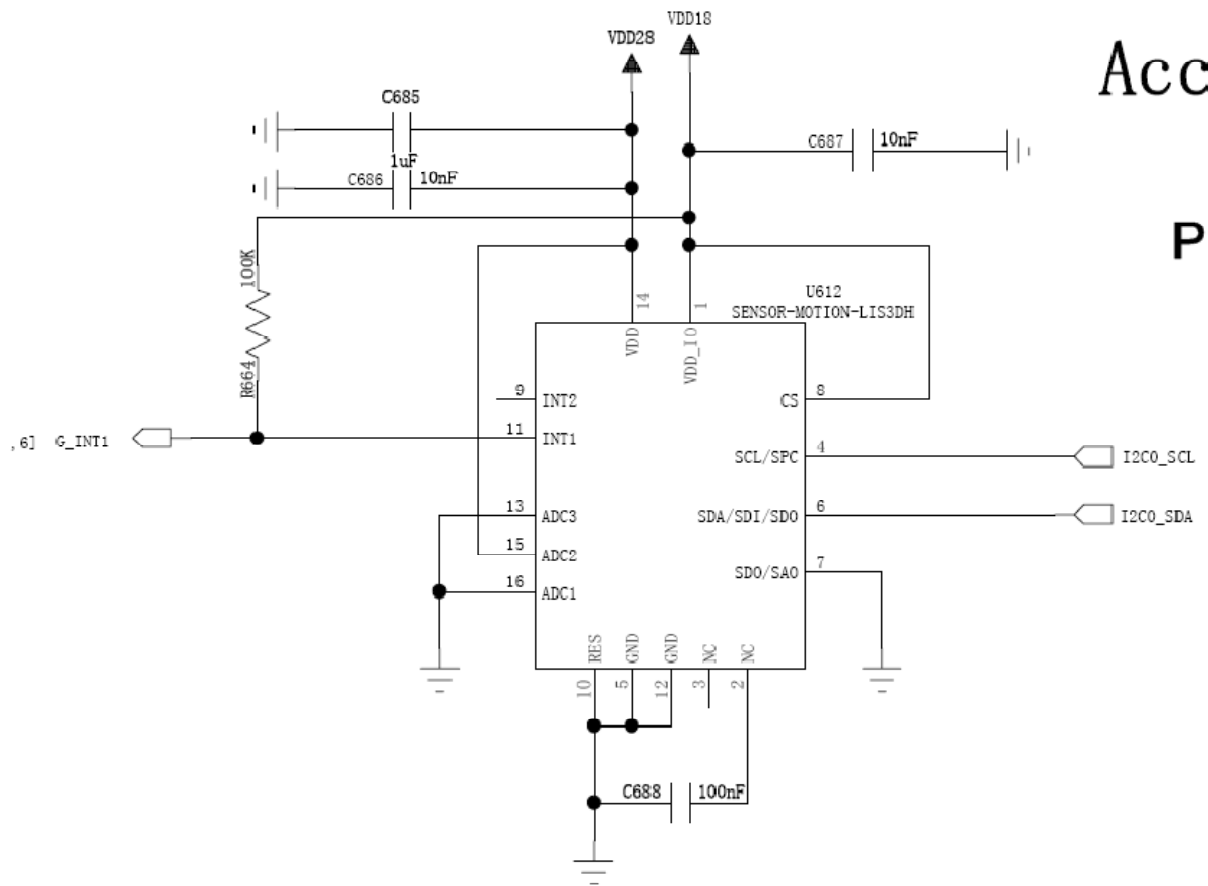
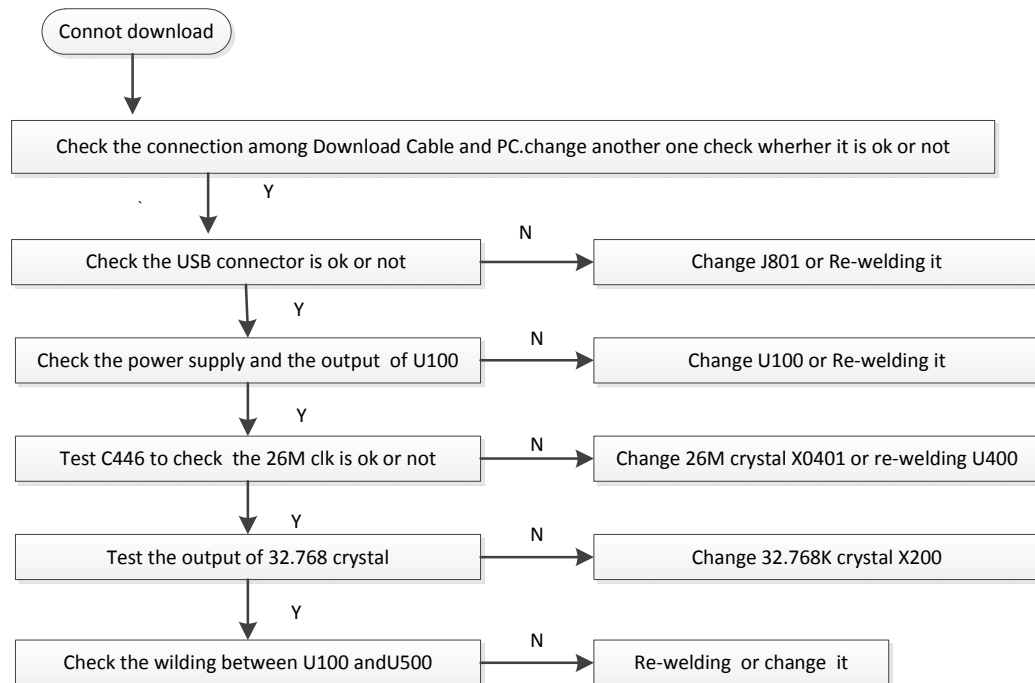
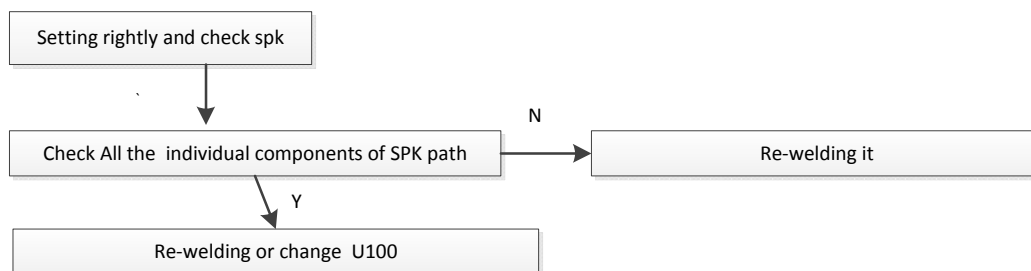


Chart of Troubleshooting

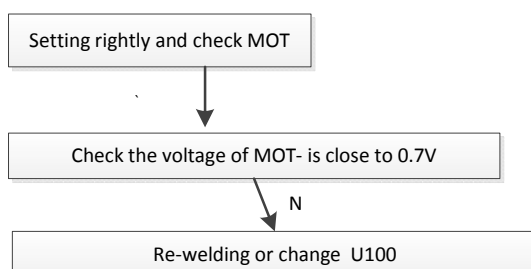
1, Cannot download



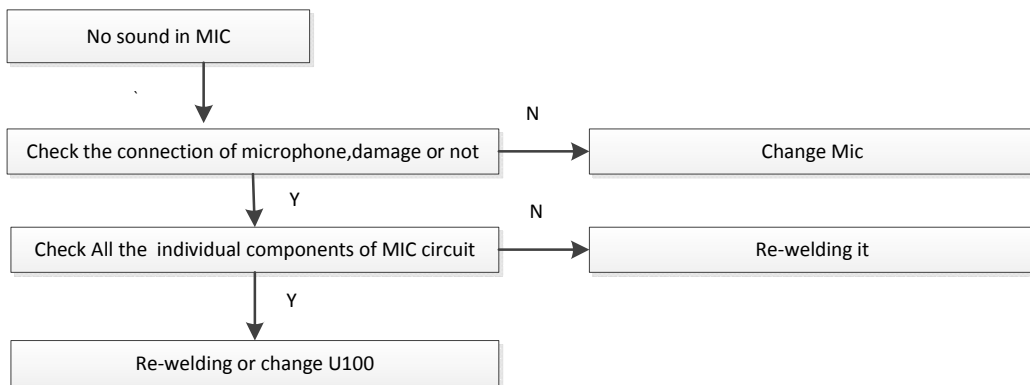
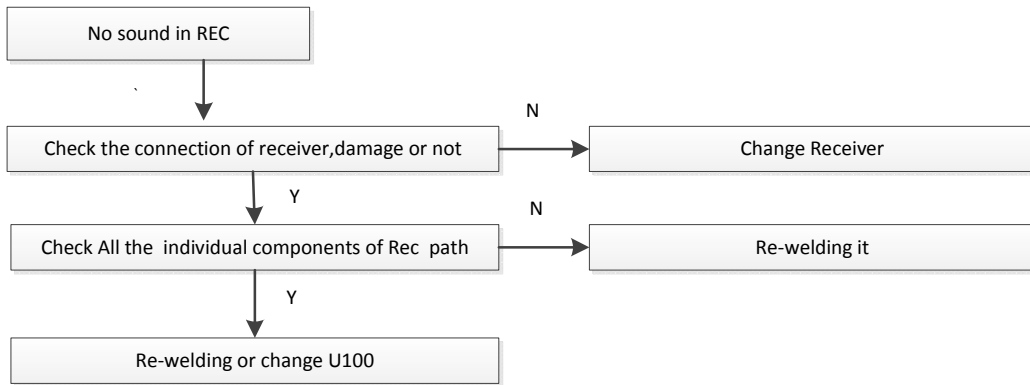
2, No ring



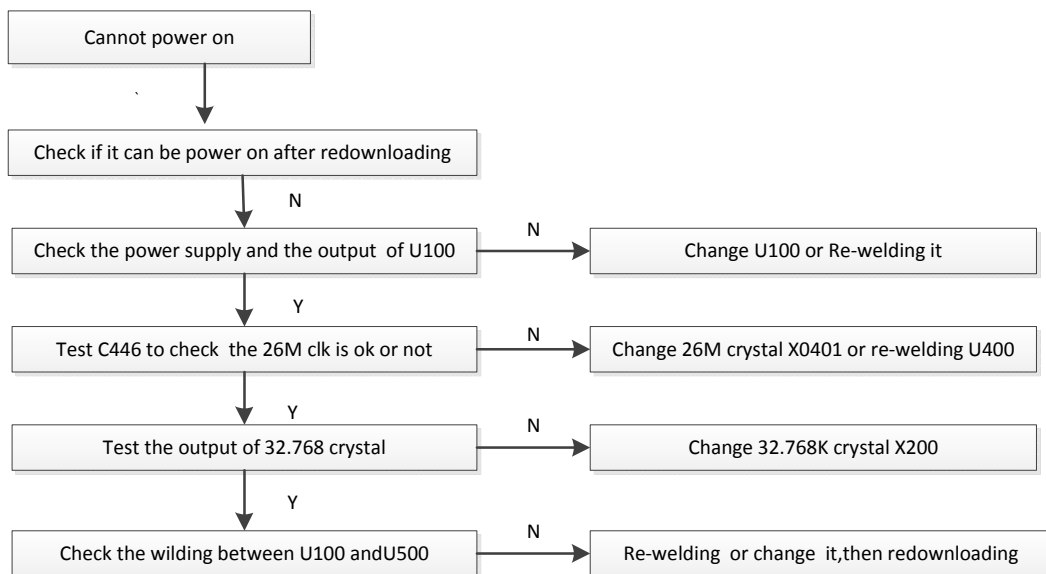
3, No Vibration



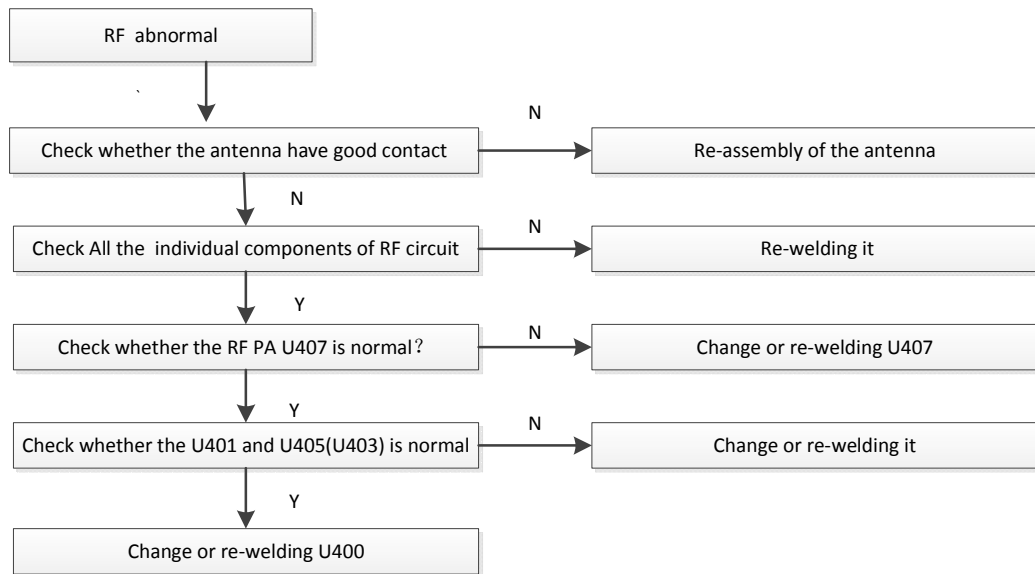
4, During a call can not hear each other's voices



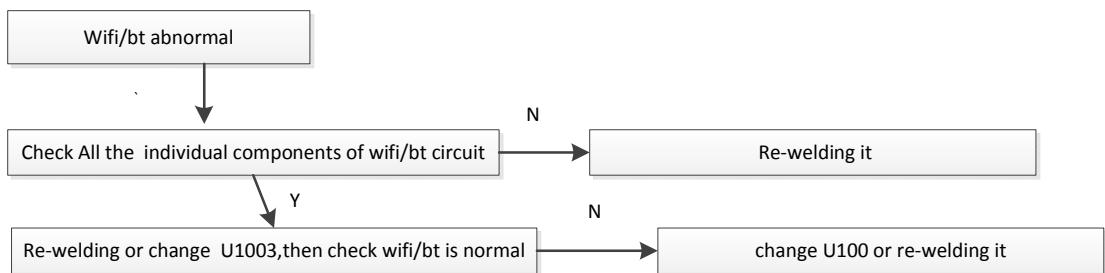
5, Can not power-on



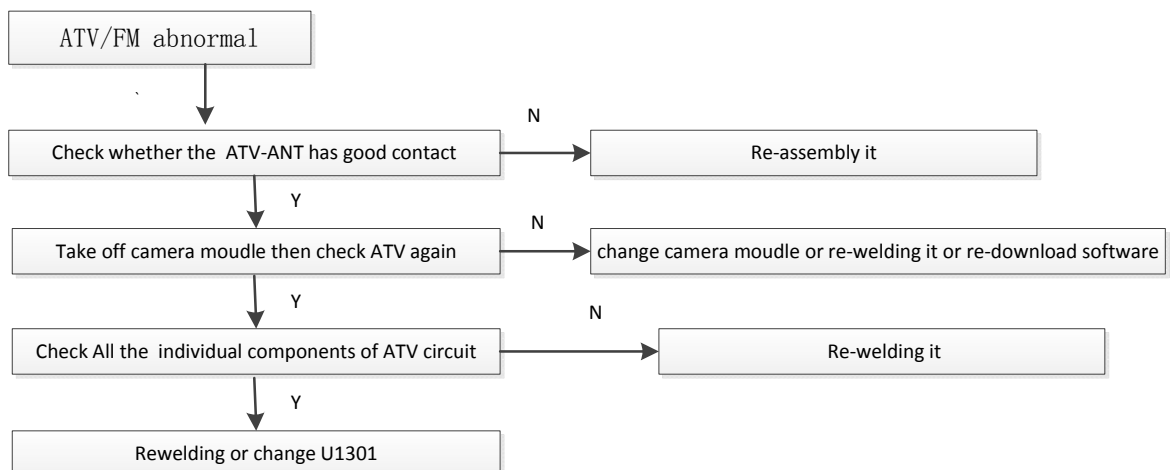
6, RF abnormal



7, WIFI/BT abnormal



8, ATV/FM abnormal



Safety Precautions

Repair Precaution

Repair in Shield Box, during detailed tuning.
Take specially care of tuning or test,
because specipicty of cellular phone is sensitive for surrounding
interference(RF noise).

Be careful to use a kind of magnetic object or tool,
because performance of parts is damaged by the influence of manetic
force.

Surely use a standard screwdriver when you disassemble this product,
otherwise screw will be worn away.

Use a thicken twisted wire when you measure level.
A thicken twisted wire has low resistance, therefore error of measurement
is few.

Repair after separate Test Pack and Set because for short danger (for
example an overcurrent and furious flames of parts etc) when you repair
board in condition of connecting Test Pack and tuning on.

Take specially care of soldering, because Land of PCB is small and
weak
in heat.

Surely tune on/off while using AC power plug, because a repair of
battery
charger is dangerous when tuning ON/OFF PBA and Connector after
disassembling charger.

Don't use as you pleases after change other material than
replacement
registered on SEC System.
Otherwise engineer in charge isn't charged with problem that you don't
keep this rules.

ESD(Electrostatically Sensitive Devices)

Precaution

Several semiconductor may be damaged easily by static electricity. Such parts are called by ESD(Electrostatically Sensitive Devices),for example IC,BGA chip etc. Read Precaution below.You can prevent from ESD damage by static electricity.

Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.

Use earthed soldering steel when you connect or disconnect ESD.

Use soldering removing tool to break static electricity. Otherwise ESD will be damaged by static electricity.

Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power,they are prevented from static electricity.

You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board