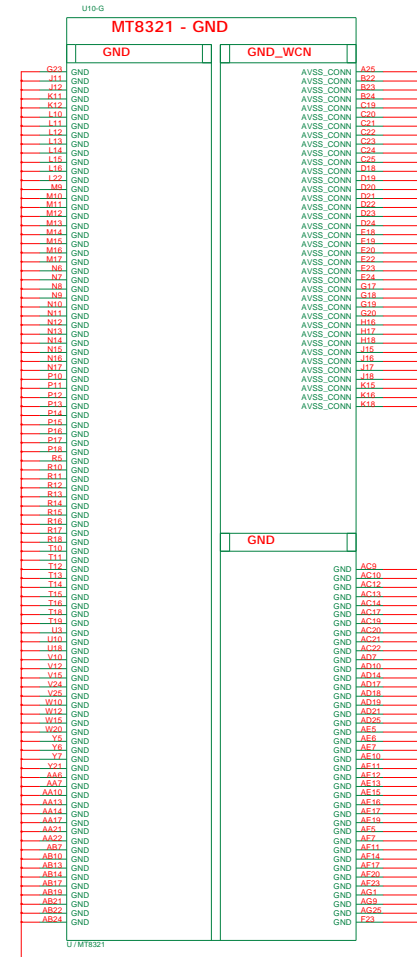
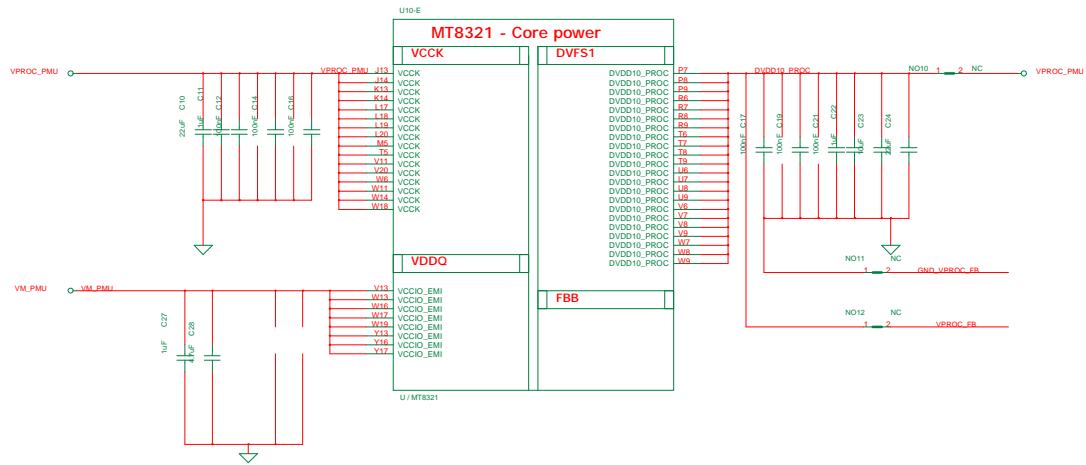
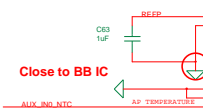
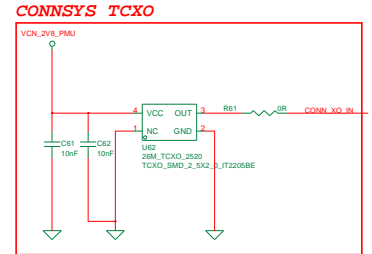
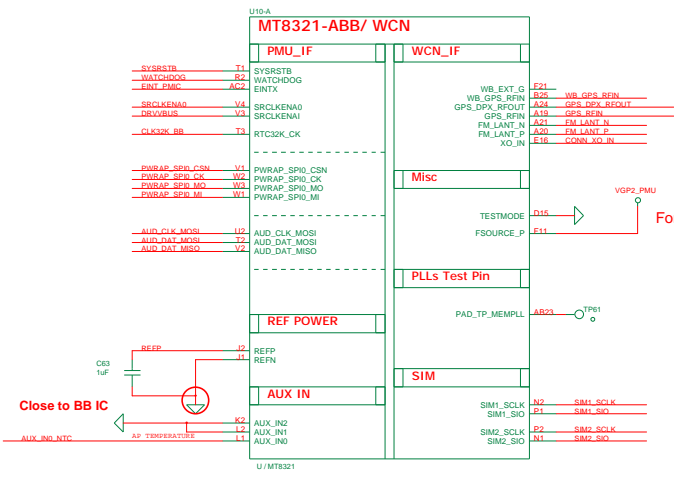
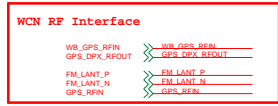
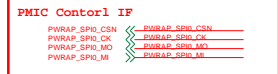


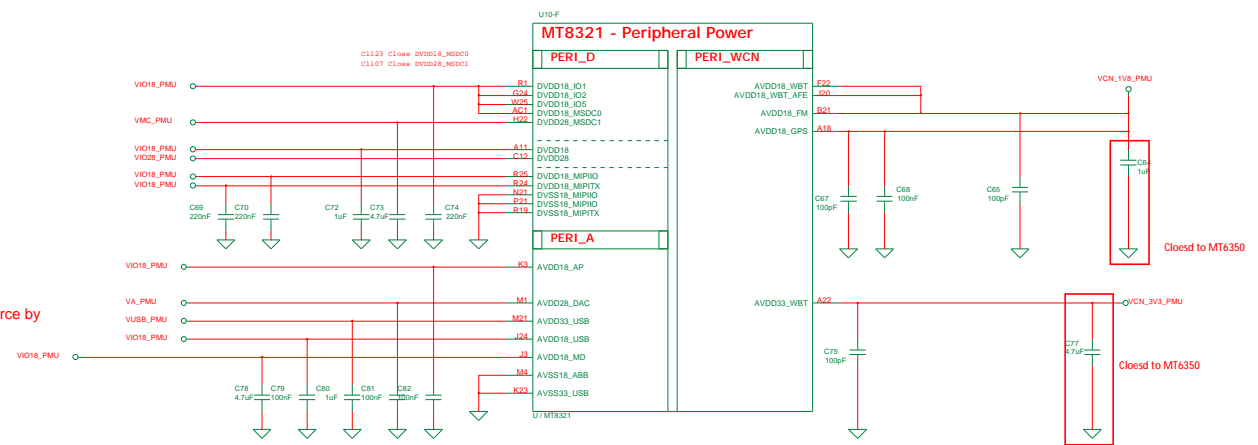
Power Feedback

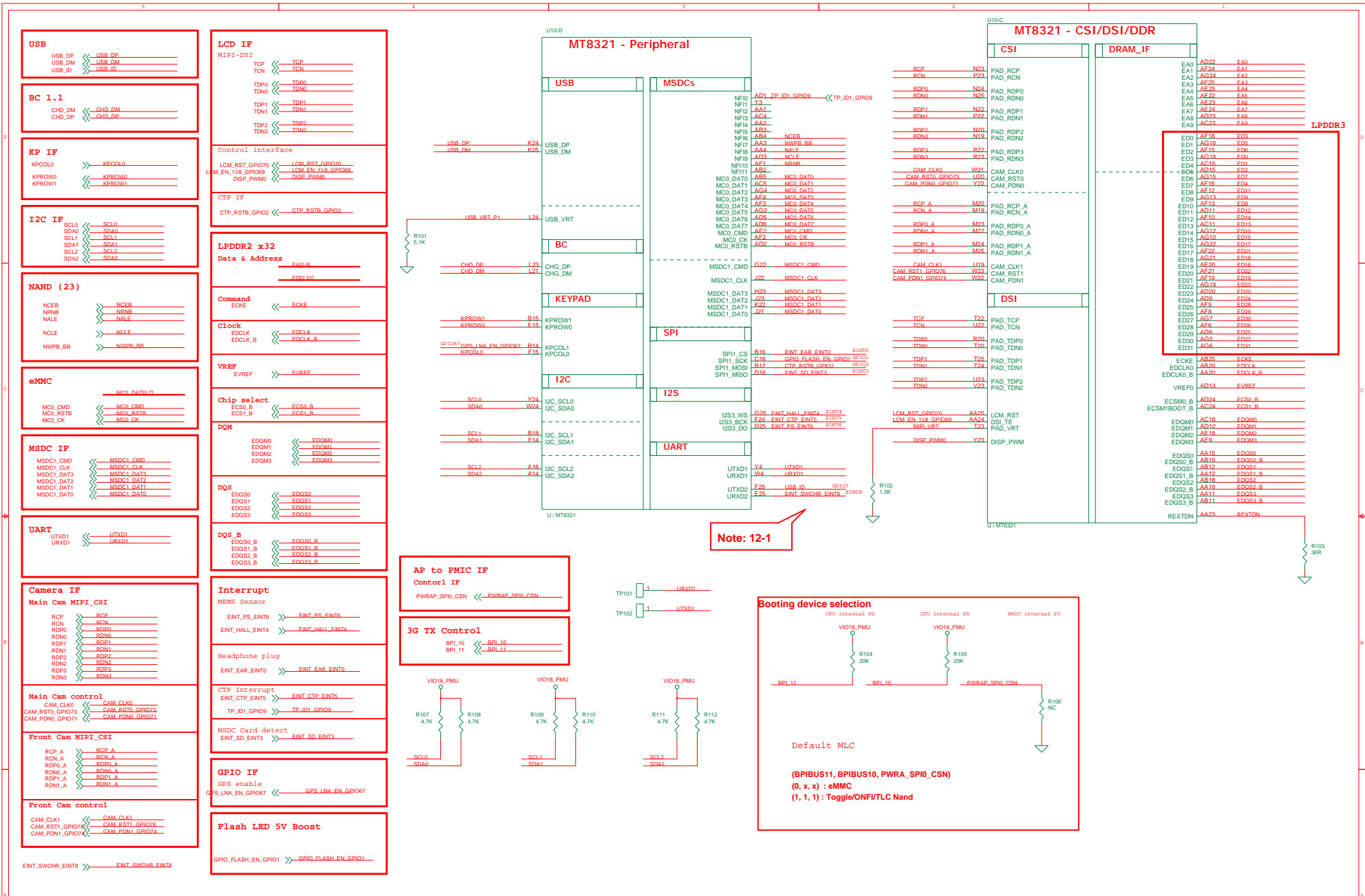


File: 10_BB_POWER_1
Date: MTK Confidential
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AVDD28_DAC change power source by "VA_PMU".





Schematic design notice of "12_BB_2" page.

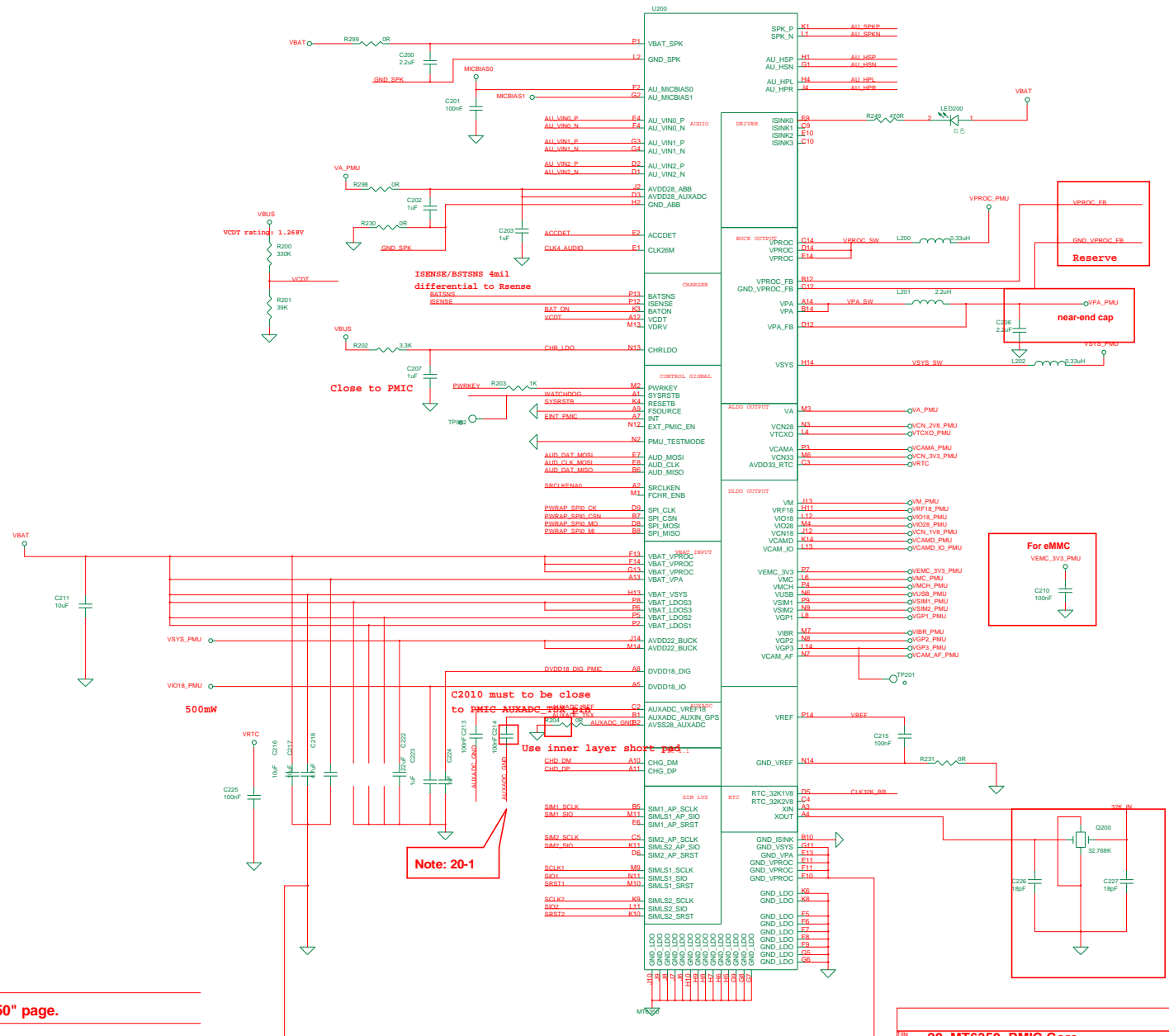
Note 12-1:

Do not use UART1 as Power solution enable.

Do not use UART2 as power solution enable, if select UART1 as D/L or calibration path,

Audio IF	
Downlink	
AU_SPKP	← AU_SPKP
AU_SPKN	← AU_SPKN
AU_HPL	← AU_HPL
AU_HPR	← AU_HPR
AU_HSN	← AU_HSN
AU_HSN	← AU_HSN
Uplink	
AU_VIND_P	← AU_VIND_P
AU_VIND_N	← AU_VIND_N
AU_VIND_P	← AU_VIND_P
AU_VIND_N	← AU_VIND_N
AU_VIND_P	← AU_VIND_P
AU_VIND_N	← AU_VIND_N
HP detect	
ACCDT	← ACCDET
Vcore FB	
VPROC_FB	← VPROC_FB
GND_VPROC_FB	← GND_VPROC_FB
AP to PMIC IF	
Audio IF	
AUD_CLK_MOSI	← AUD_CLK_MOSI
AUD_DAT_MOSI	← AUD_DAT_MOSI
AUD_DAT_MISO	← AUD_DAT_MISO
PMIC SPI IF	
PWRAP_SPD_CS_N	← PWRAP_SPD_CS_N
PWRAP_SPD_CLK	← PWRAP_SPD_CLK
PWRAP_SPD_M0	← PWRAP_SPD_M0
PWRAP_SPD_M1	← PWRAP_SPD_M1
Misc	
SRCLKENAG	← SRCLKENAG
ENT_PMIC	← ENT_PMIC
WATCHDOG	← WATCHDOG
SYSTRB	← SYSTRB
CLK	
CLK4_AUDIO	← CLK4_AUDIO
CLK30K_FB	← CLK30K_FB
OUT_30K	← OUT_30K
BC 1.1	
CHD_DM	← CHD_DM
CHD_DP	← CHD_DP
CO-TSX	
AUXADC_REF	← AUXADC_REF
AUXADC_TSX	← AUXADC_TSX
AUXADC_GND	← AUXADC_GND
SIM IF	
SIM1_SCLK	← SIM1_SCLK
SIM1_SIO	← SIM1_SIO
SIM2_SCLK	← SIM2_SCLK
SIM2_SIO	← SIM2_SIO
SCLK1	← SCLK1
SIO1	← SIO1
SRST1	← SRST1
SCLK2	← SCLK2
SIO2	← SIO2
SRST2	← SRST2
PWRKEY	← PWRKEY
ISENSE	
ISENSE	← ISENSE
BATNS	
BATNS	← BATNS
AUXADC_REF	← AUXADC_REF
BAT_ON	← BAT_ON

Add Zener Diode
Place on the path
from VBAT to IC
(Battery connector
or test point or IO
connector)

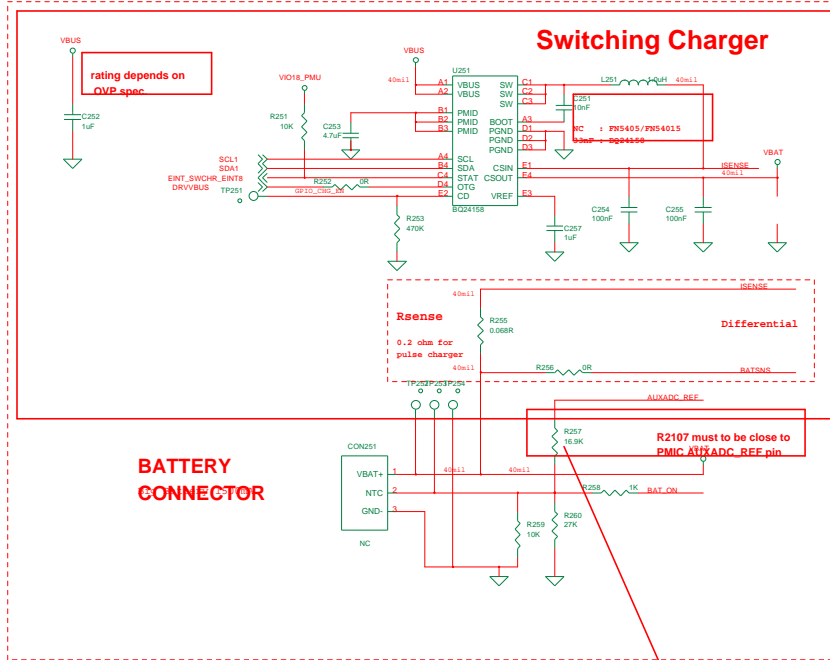
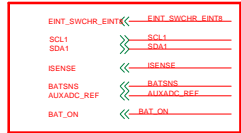


Schematic design notice of "20_Power_MT6350" page.

Note 20-1: Connect TMS GND (Pin2) to PMIC AUXADC_GND (Pin B2) first. Then connect to main GND by inner layer short pad (i.e., layer 2).

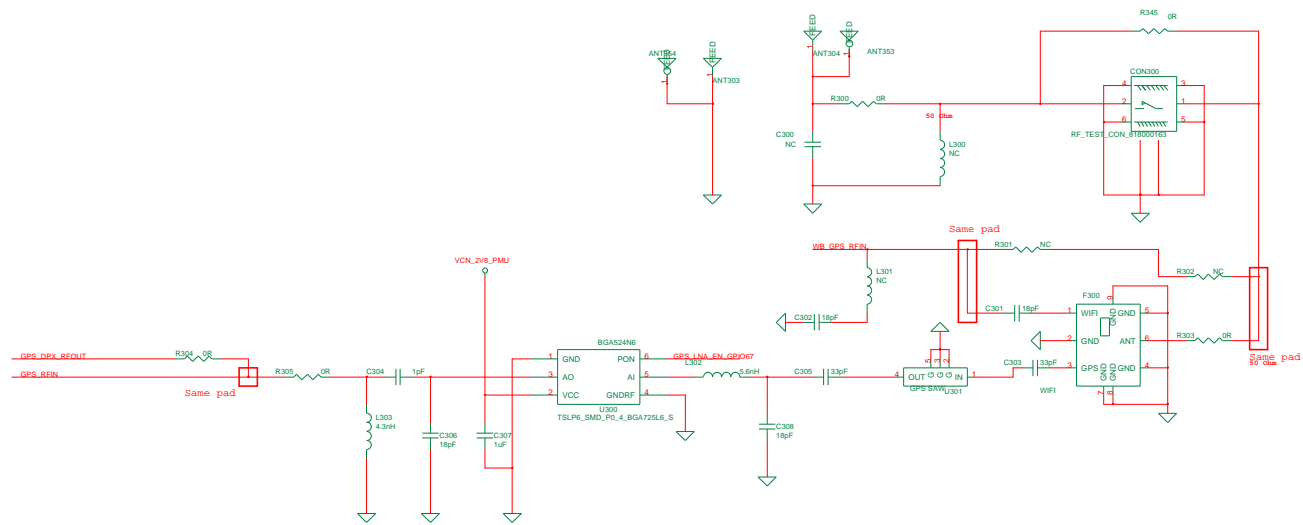
File: 20_MT6350_PMIC Core
 MTK Confidential
 Date: Thursday, November 12, 2015
 Sheet: 8 of 26

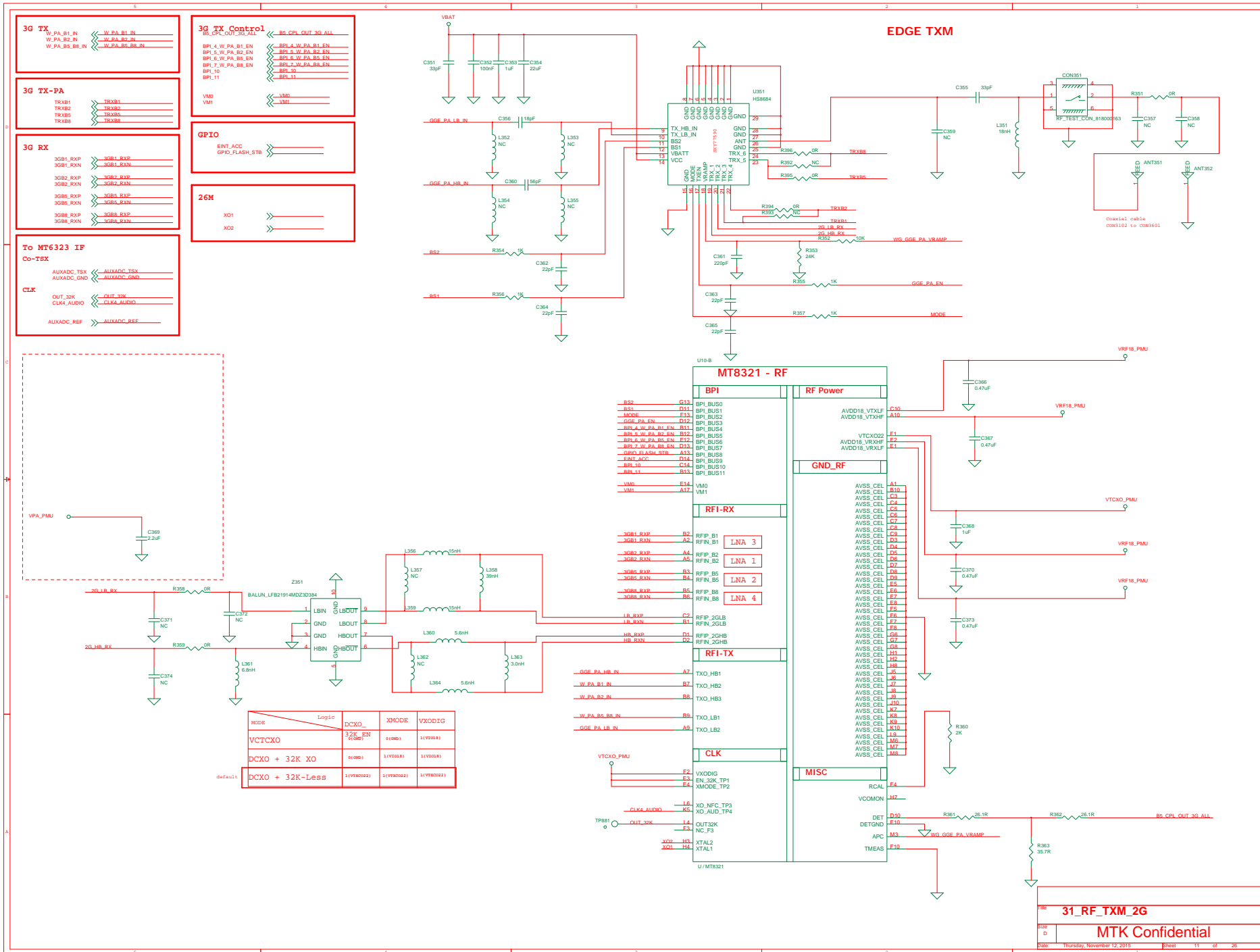
Charger IP



if battery NTC is 10kohm, R310=16.9K, R312=27K
 if battery NTC is 47kohm, R310=61.9K, R312=100K
 Refer to MT6350 HW design notice

WCN RF Interface





MODE	Logic	DCXO_	XMODE	VXODIG
VTCXO		32K_XO 1(V1001)	0(00)	1(V1001)
DCXO + 32K XO		0(00)	1(V1001)	1(V1001)
default		DCXO + 32K-Less	1(V1002)	1(V1002)

NAND & eMMC	
MCS_CSD	MCS_CSD0
MCS_DTRW	MCS_CSD1
MCS_CX	MCS_CSD2

LPDDR2 x32	
Data & Address	DP0D01
	DP0D02

VREF ← VREF

Chip select	
CSEL0_B	CSEL0_B
CSEL1_B	CSEL1_B

CS0 ← CS0

DQM	
DQM0	DQM0
DQM1	DQM1
DQM2	DQM2
DQM3	DQM3

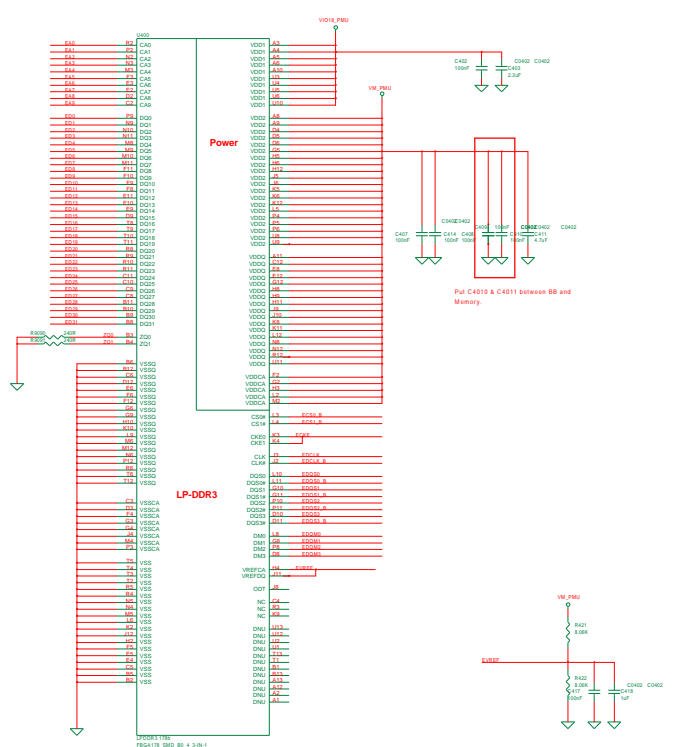
VDF	
ED00	ED00
ED01	ED01
ED02	ED02
ED03	ED03

VDF_B	
ED00_B	ED00_B
ED01_B	ED01_B
ED02_B	ED02_B
ED03_B	ED03_B

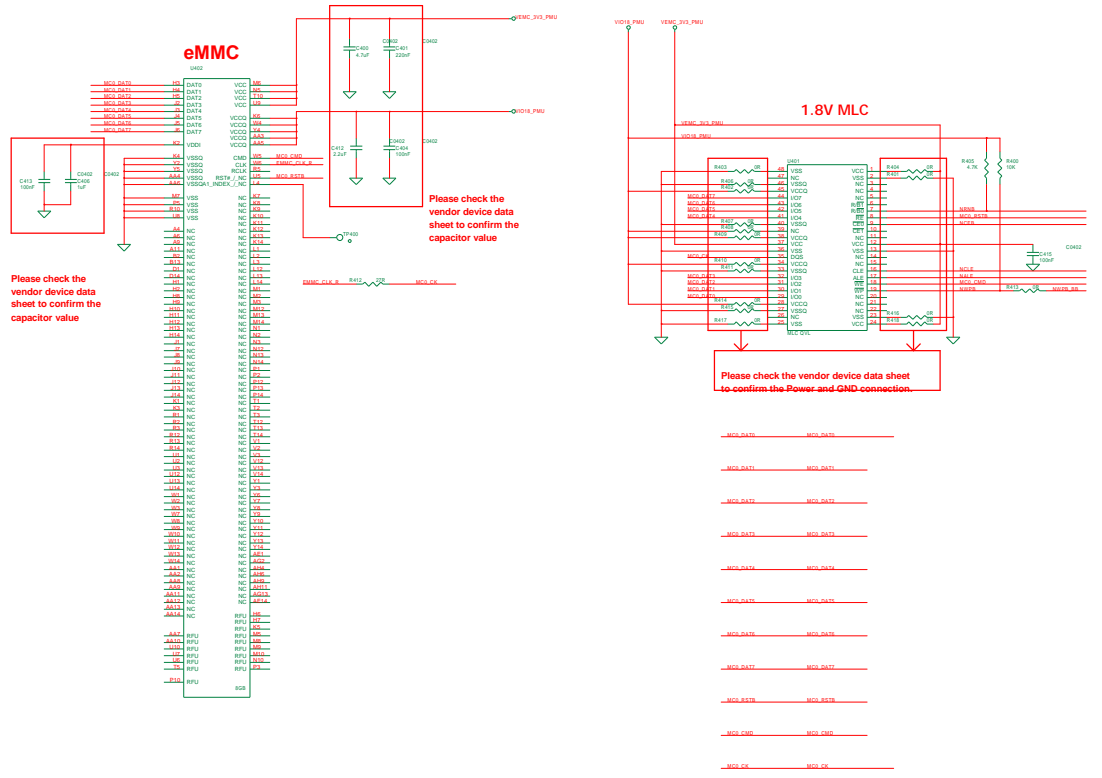
Clock	
ED04	ED04
ED05	ED05

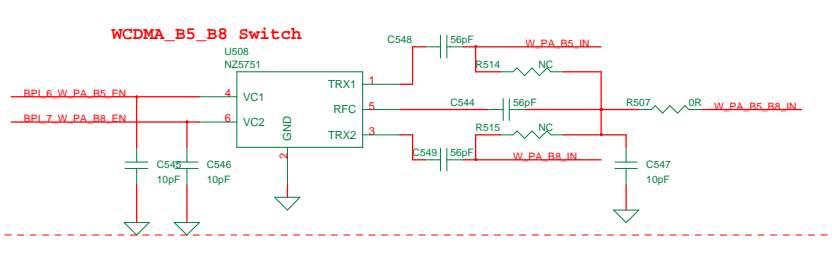
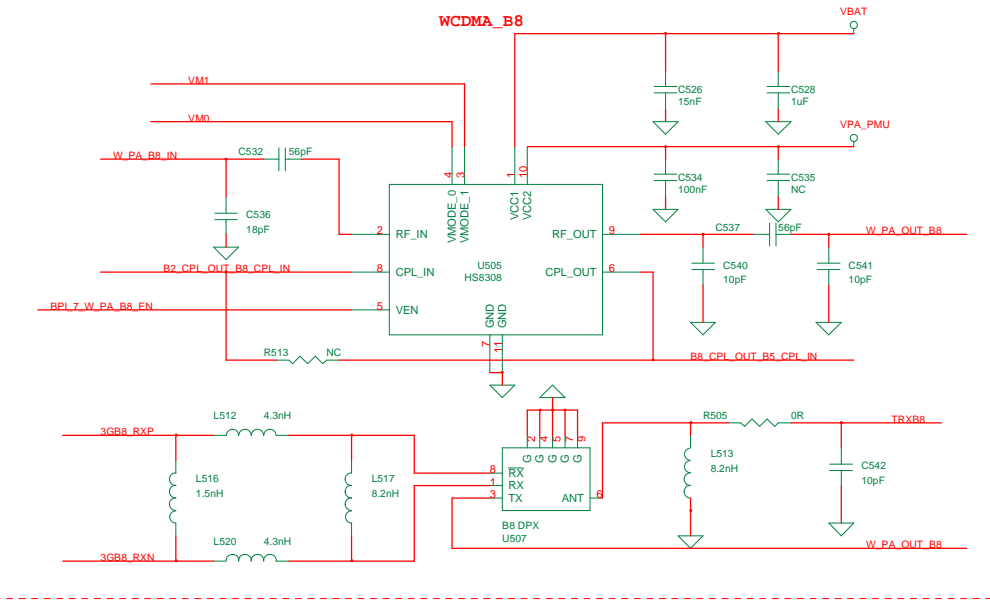
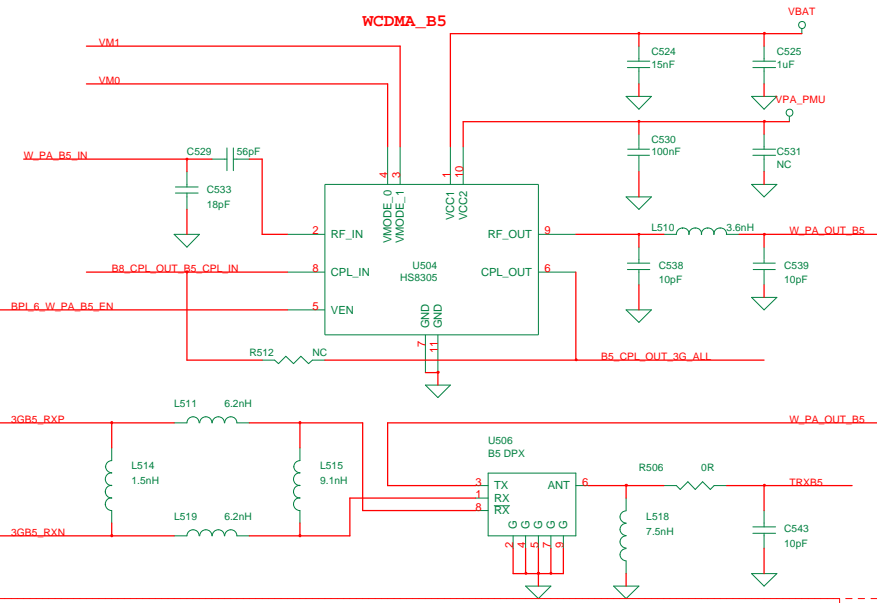
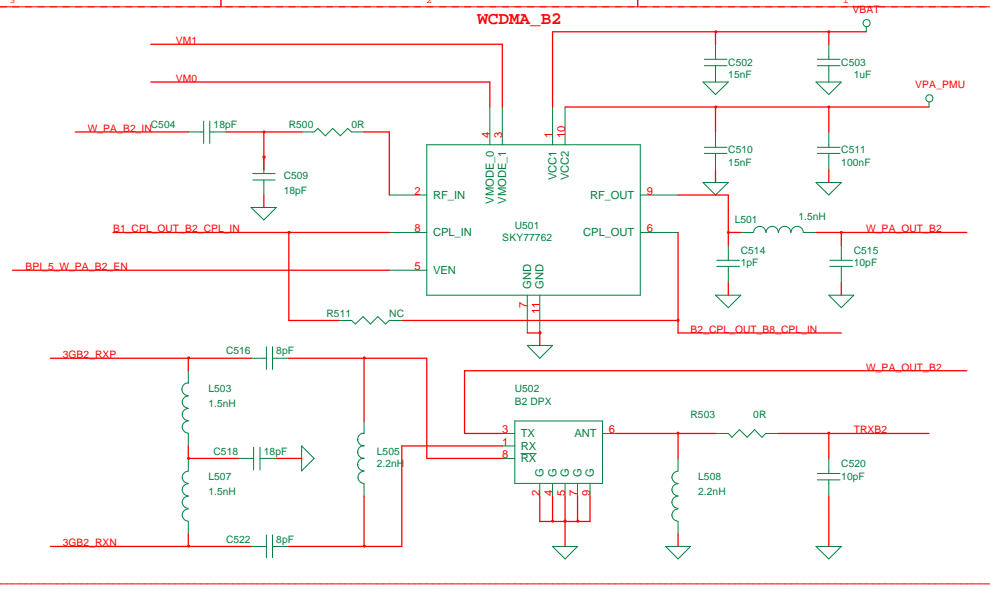
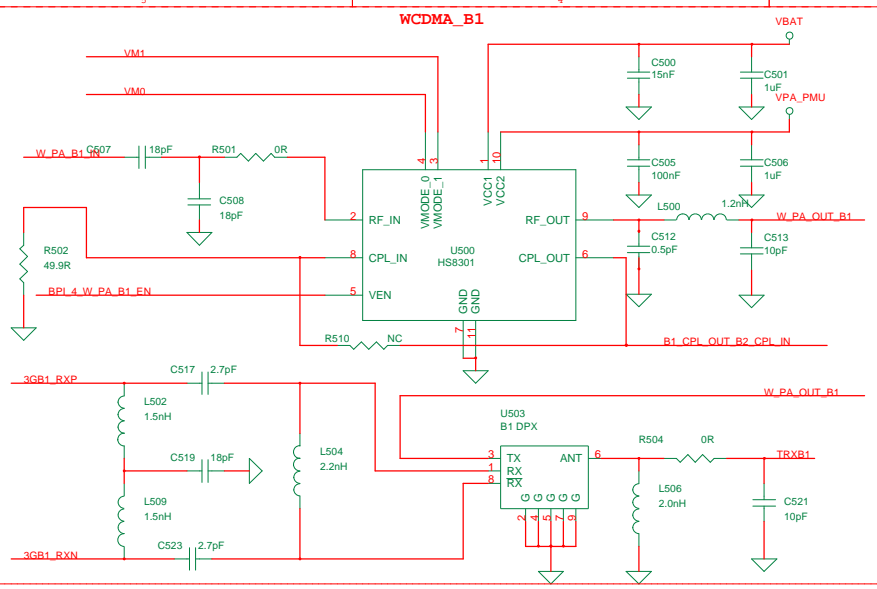
MISC ← MISC000

NIN0	NIN0
NIN1	NIN1
NIN2	NIN2
NIN3	NIN3
NIN4	NIN4
NIN5	NIN5
NIN6	NIN6
NIN7	NIN7
NIN8	NIN8
NIN9	NIN9
NIN10	NIN10
NIN11	NIN11
NIN12	NIN12
NIN13	NIN13
NIN14	NIN14
NIN15	NIN15
NIN16	NIN16
NIN17	NIN17
NIN18	NIN18
NIN19	NIN19
NIN20	NIN20
NIN21	NIN21
NIN22	NIN22
NIN23	NIN23
NIN24	NIN24
NIN25	NIN25
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NIN89	NIN89
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NIN91	NIN91
NIN92	NIN92
NIN93	NIN93
NIN94	NIN94
NIN95	NIN95
NIN96	NIN96
NIN97	NIN97
NIN98	NIN98
NIN99	NIN99



eMMC / MLC Co-Layout



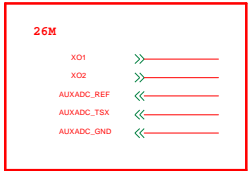


3G TX	
W_PA_B1_IN	W_PA_B1_IN
W_PA_B2_IN	W_PA_B2_IN
W_PA_B5_B8_IN	W_PA_B5_B8_IN

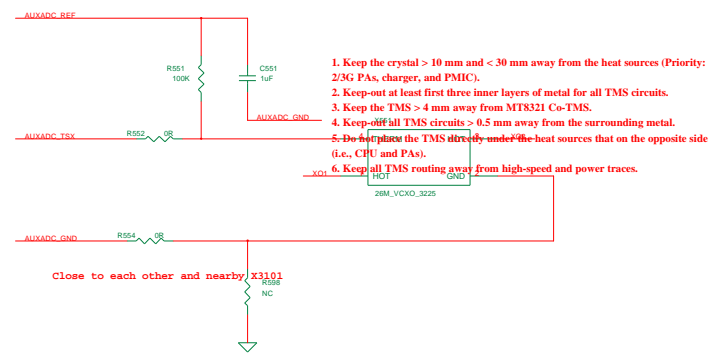
3G TX-PA	
TRXB1	TRXB1
TRXB2	TRXB2
TRXB5	TRXB5
TRXB8	TRXB8

3G RX	
3GB1_RXP	3GB1_RXP
3GB1_RXN	3GB1_RXN
3GB2_RXP	3GB2_RXP
3GB2_RXN	3GB2_RXN
3GB5_RXP	3GB5_RXP
3GB5_RXN	3GB5_RXN
3GB8_RXP	3GB8_RXP
3GB8_RXN	3GB8_RXN

3G TX Control	
B5_CPL_OUT_3G_ALL	B5_CPL_OUT_3G_ALL
BPL_4_W_PA_B1_EN	BPL_4_W_PA_B1_EN
BPL_5_W_PA_B2_EN	BPL_5_W_PA_B2_EN
BPL_6_W_PA_B5_EN	BPL_6_W_PA_B5_EN
BPL_7_W_PA_B8_EN	BPL_7_W_PA_B8_EN
VM0	VM0
VM1	VM1



- 1.Route AUXADC_REF/AUXADC_TSX with 3mil trace width
- 2.Route AUXADC_REF/AUXADC_TSX as differential trace with well GND shielding
- 3.Route AUXADC_GND with 15mil trace width under AUXADC_REF/AUXADC_TSX trace to provide return current path



1. Keep the crystal > 10 mm and < 30 mm away from the heat sources (Priority: 2/3G PAS, charger, and PMIC).
2. Keep-out at least first three inner layers of metal for all TMS circuits.
3. Keep the TMS > 4 mm away from MTK321 Co-TMS.
4. Keep-off all TMS circuits > 0.5 mm away from the surrounding metal.
5. Do not place the TMS directly under the heat sources that on the opposite side (i.e., CHU and PAS).
6. Keep all TMS routing away from high-speed and power traces.

Flash LED 5V Boost

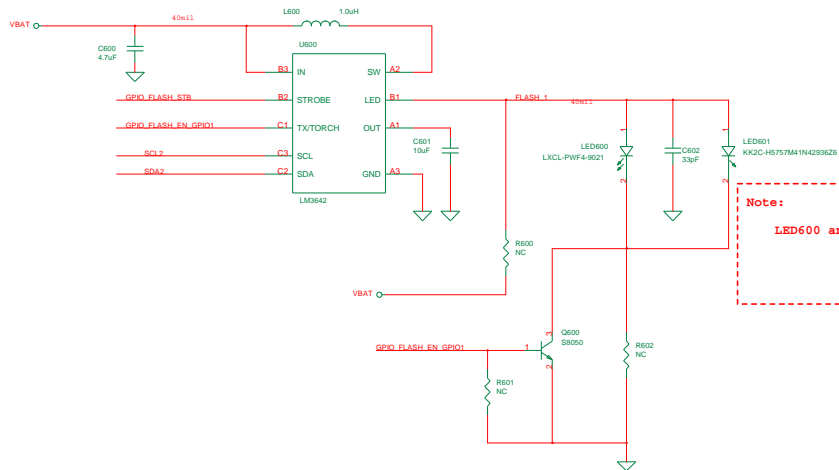
GPIO_FLASH_STB <<> GPIO_FLASH_STB
 GPIO_FLASH_EN_GPIO1 <<> GPIO_FLASH_EN_GPIO1
 SCL2 <<> SCL2
 SDA2 <<> SDA2

LCM Backlight Driver

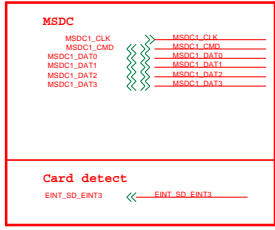
LCM_LED_A <<> LCM_LED_A
 LCM_LED_K <<> LCM_LED_K
 DISP_PWM0 <<> DISP_PWM0

Flash LED 5V Boost

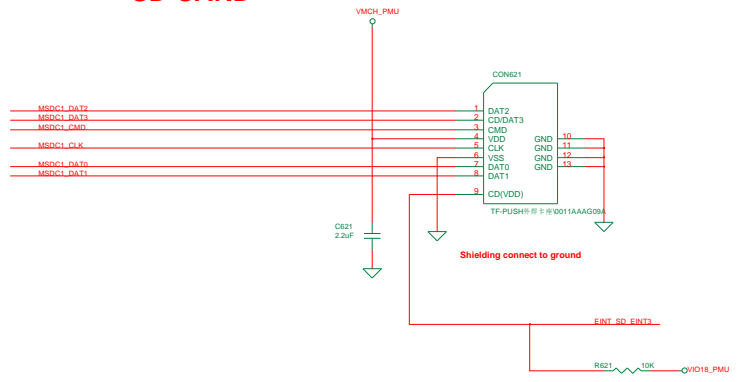
Flash LED I2C address: 0X63 (Write:0xC6, Read:0xC7)



Note:
 LED600 and LED601 dual layout!!



SD CARD



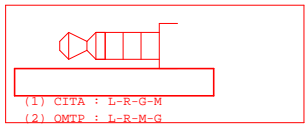
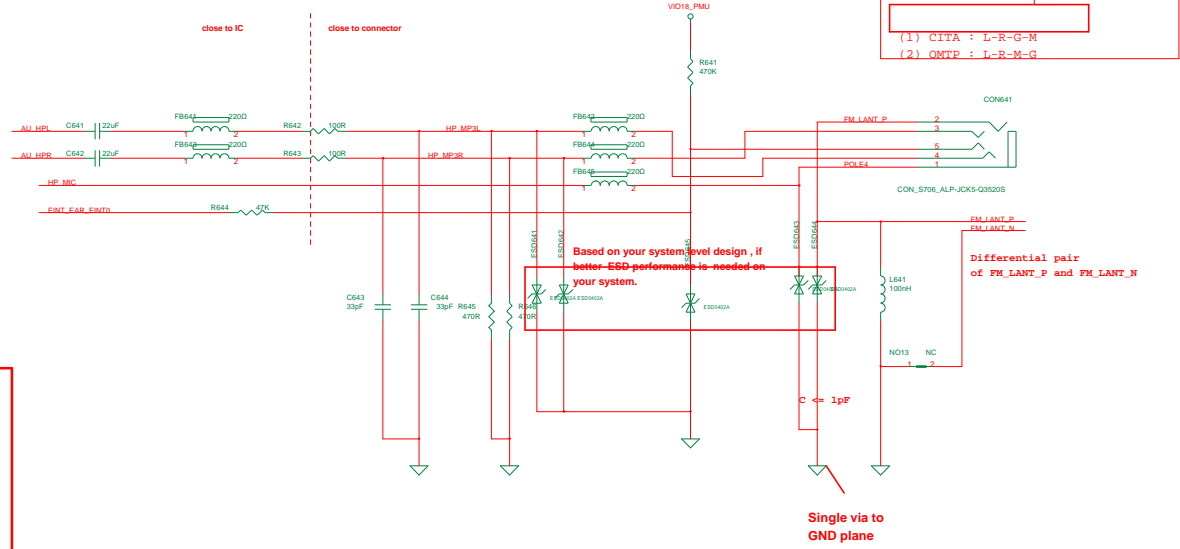
Based on your system level design , if better ESD/desense performance is needed on your system.

Schematic design notice of "41_MEMORY_SD Card" page.

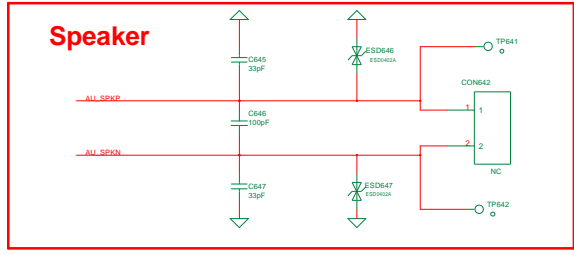
- Note 41-1: The equivalent capacitance of ESD protection device must be <=1pF
-- otherwise it will result in NFC card mode function fail.
- Note 41-2: Depends on system design to add ESD protection component or not.

Audio IP	
Downlink	
AU_SPKP	AU_SPKP
AU_SPKN	AU_SPKN
AU_HPL	AU_HPL
AU_HPR	AU_HPR
AU_HSP	AU_HSP
AU_HSN	AU_HSN
Uplink	
AU_VIND_P	AU_VIND_P
AU_VIND_N	AU_VIND_N
AU_VINI_N	AU_VINI_N
AU_VINI_P	AU_VINI_P
HP detect	
ACCDET	ACCDET
EINT_EAR_EINT0	EINT_EAR_EINT0
FM Antenna	
FM_LANT_P	FM_LANT_P
FM_LANT_N	FM_LANT_N

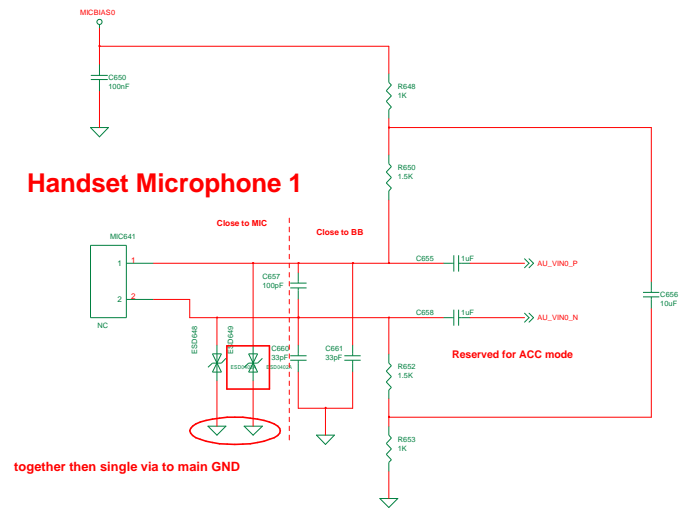
Earphone Audio



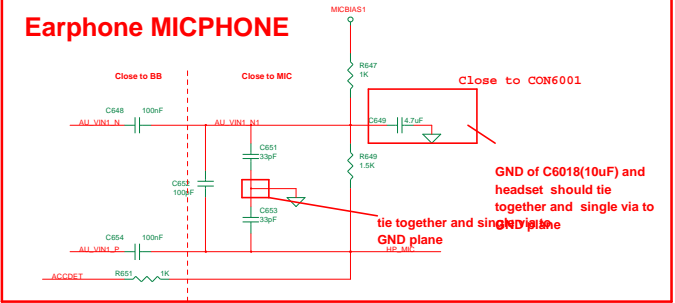
Speaker



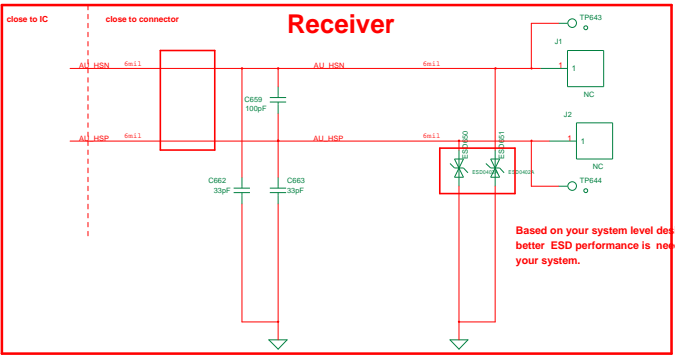
Handset Microphone 1



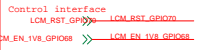
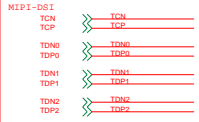
Earphone MICPHONE



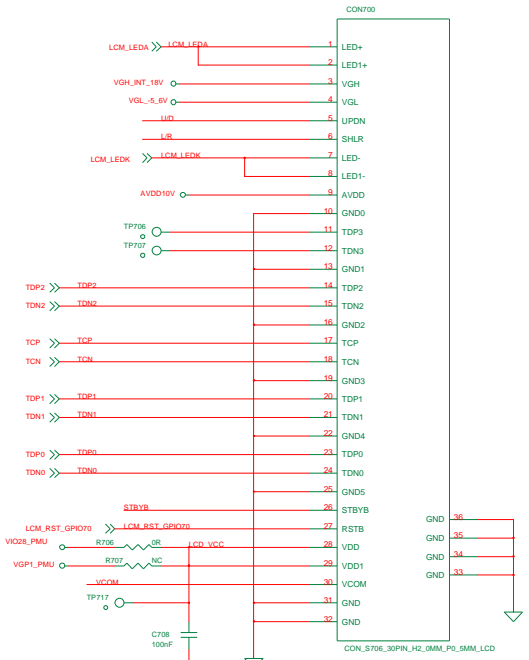
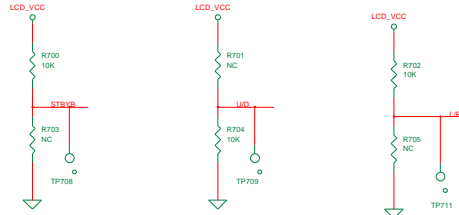
Receiver



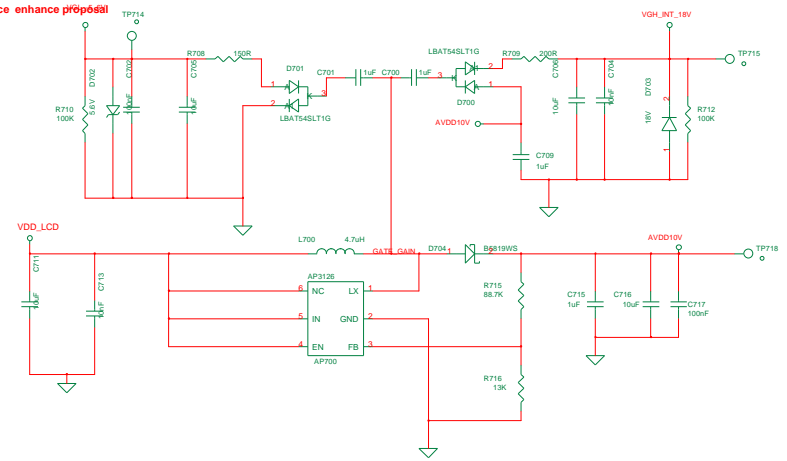
LCD interface



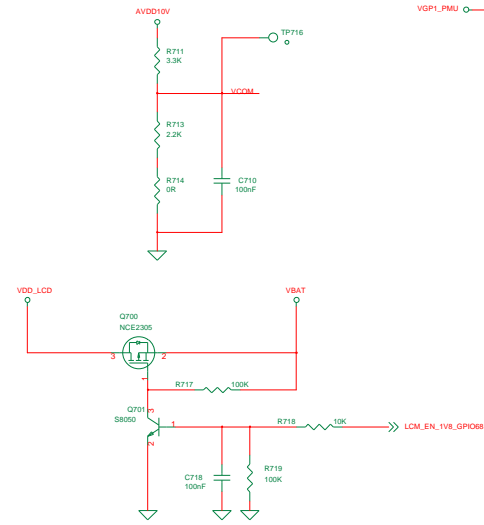
Backlight IF



Based on your system level design , if better desense performance is needed on your system , please refer to desense performance enhance prepptdial



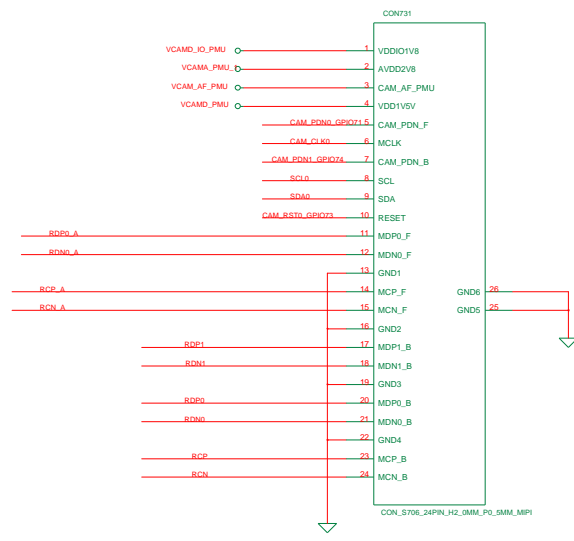
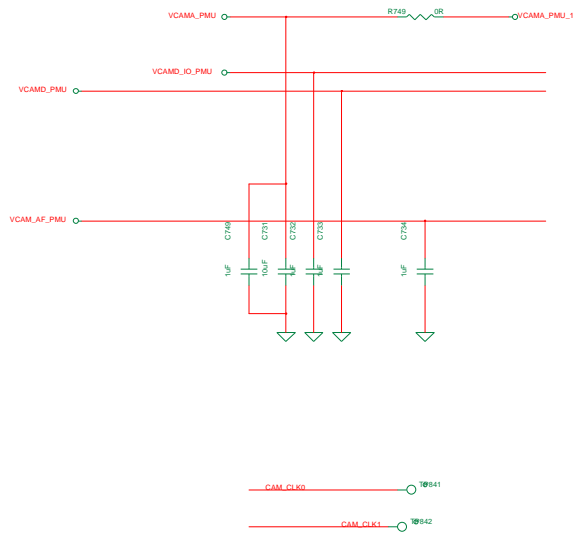
LCM Backlight LED Driver

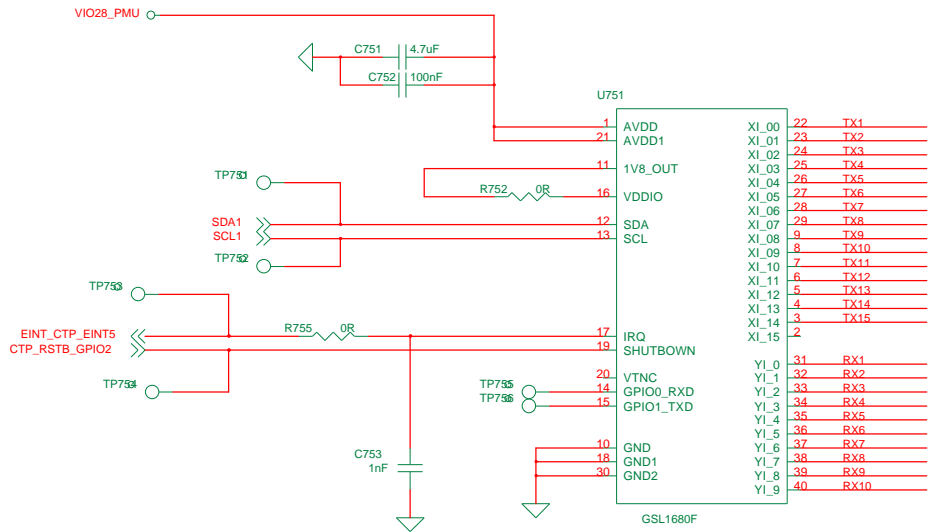
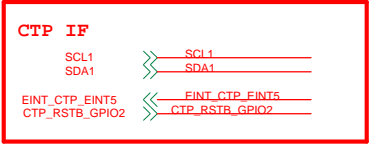


VOVT max. : 38V
 Switch Frequency : 5KHz~100KHz
 VFB : 200mV

Camera IF	
Main Cam MIPI CSI	
RCN	RCN
RCP	RCP
RDND	RDND
RDP0	RDP0
RDN1	RDN1
RDP1	RDP1
Main Cam control	
CAM_PDN0_GPIO71	CAM_PDN0_GPIO71
CAM_RST0_GPIO73	CAM_RST0_GPIO73
CAM_CLK0	CAM_CLK0
Front Cam MIPI CSI	
RCP_A	RCP_A
RCL_A	RCL_A
RDP0_A	RDP0_A
RDN1_A	RDN1_A
RDND_A	RDND_A
Front Cam control	
CAM_CLK1	CAM_CLK1
CAM_PDN1_GPIO74	CAM_PDN1_GPIO74
CAM I2C	
SCL0	SCL0
SDA0	SDA0

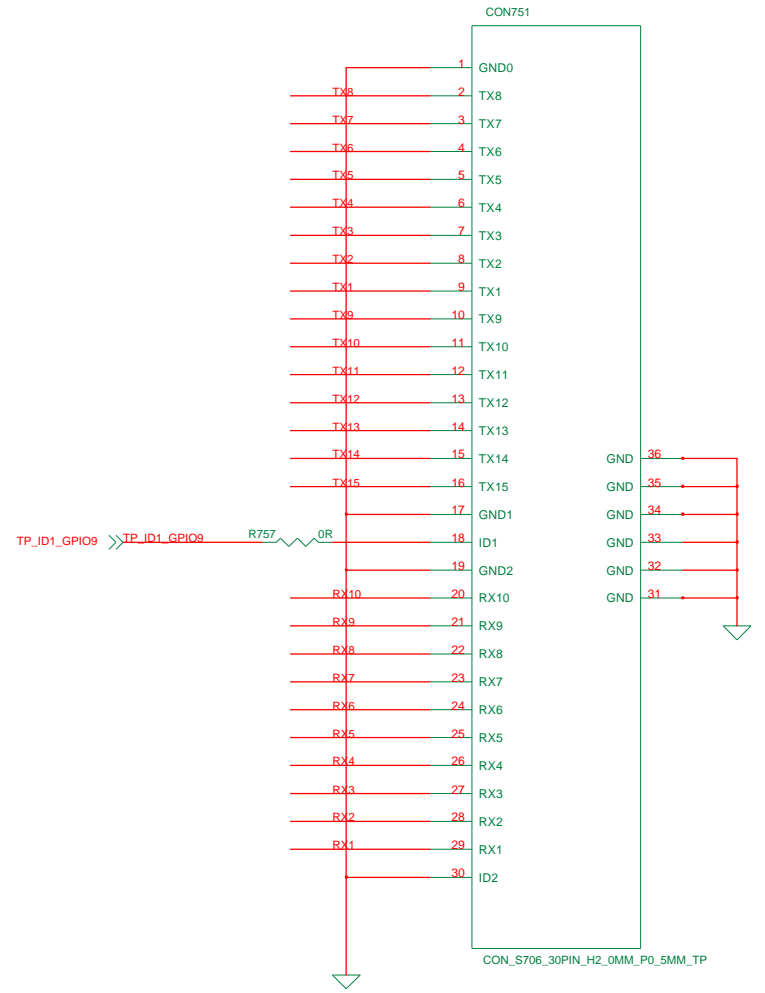
Rear camera (IMX179) I2C address: 0x10 (Write:0x20, Read:0x21)
 AF driver (F8N03C) I2C address: 0x0C (Write:0x18, Read:0x19)





U751
GSL1680F

1	AVDD	XI_00	22	TX1
21	AVDD1	XI_01	23	TX2
11	1V8_OUT	XI_02	24	TX3
16	VDDIO	XI_03	25	TX4
12	SDA	XI_04	26	TX5
13	SCL	XI_05	27	TX6
		XI_06	28	TX7
		XI_07	29	TX8
		XI_08	9	TX9
		XI_09	8	TX10
		XI_10	7	TX11
		XI_11	6	TX12
		XI_12	5	TX13
		XI_13	4	TX14
		XI_14	3	TX15
		XI_15	2	
17	IRQ	YI_0	31	RX1
19	SHUTBOWN	YI_1	32	RX2
20	VTNC	YI_2	33	RX3
14	GPIO0_RXD	YI_3	34	RX4
15	GPIO1_TXD	YI_4	35	RX5
		YI_5	36	RX6
		YI_6	37	RX7
10	GND	YI_7	38	RX8
18	GND1	YI_8	39	RX9
30	GND2	YI_9	40	RX10



Title **62_PERI_CAMERA**

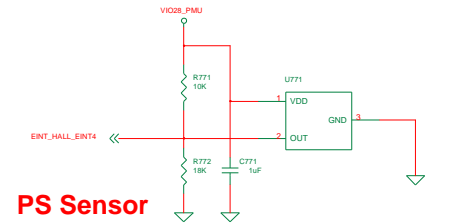
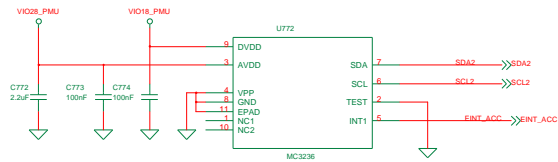
Size D **MTK Confidential**

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Sensor Interrupt	
ENT_HALL_ENT4	ENT_HALL_ENT4
ENT_ACC	ENT_ACC
ENT_PS_ENT6	ENT_PS_ENT6
Tmp sensor	
AUX_IN0_NTC	AUX_IN0_NTC
control IF	
SCL2	SCL2
SDA2	SDA2

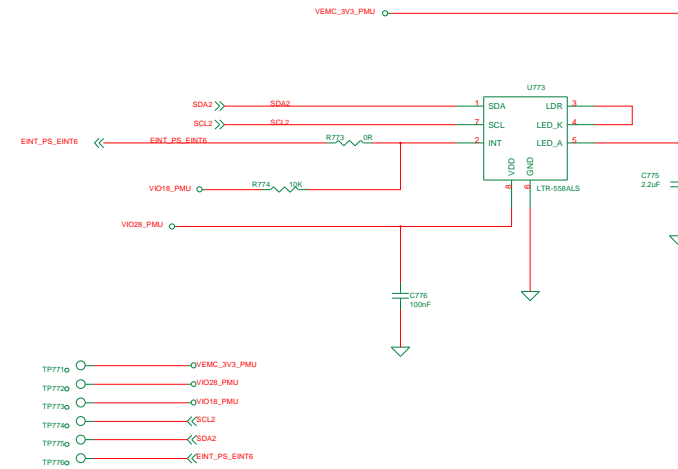
Accelerometer

MC3233 / Accelerometer I2C address: 0x4C (Write:0x98, Read:0x99)

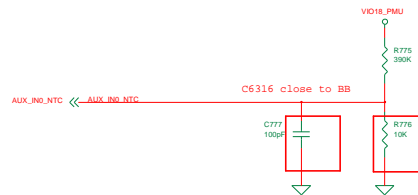


PS Sensor

CM36652 / RGB + PS I2C address: 0X60 (Write:0xC0, Read:0xC1)

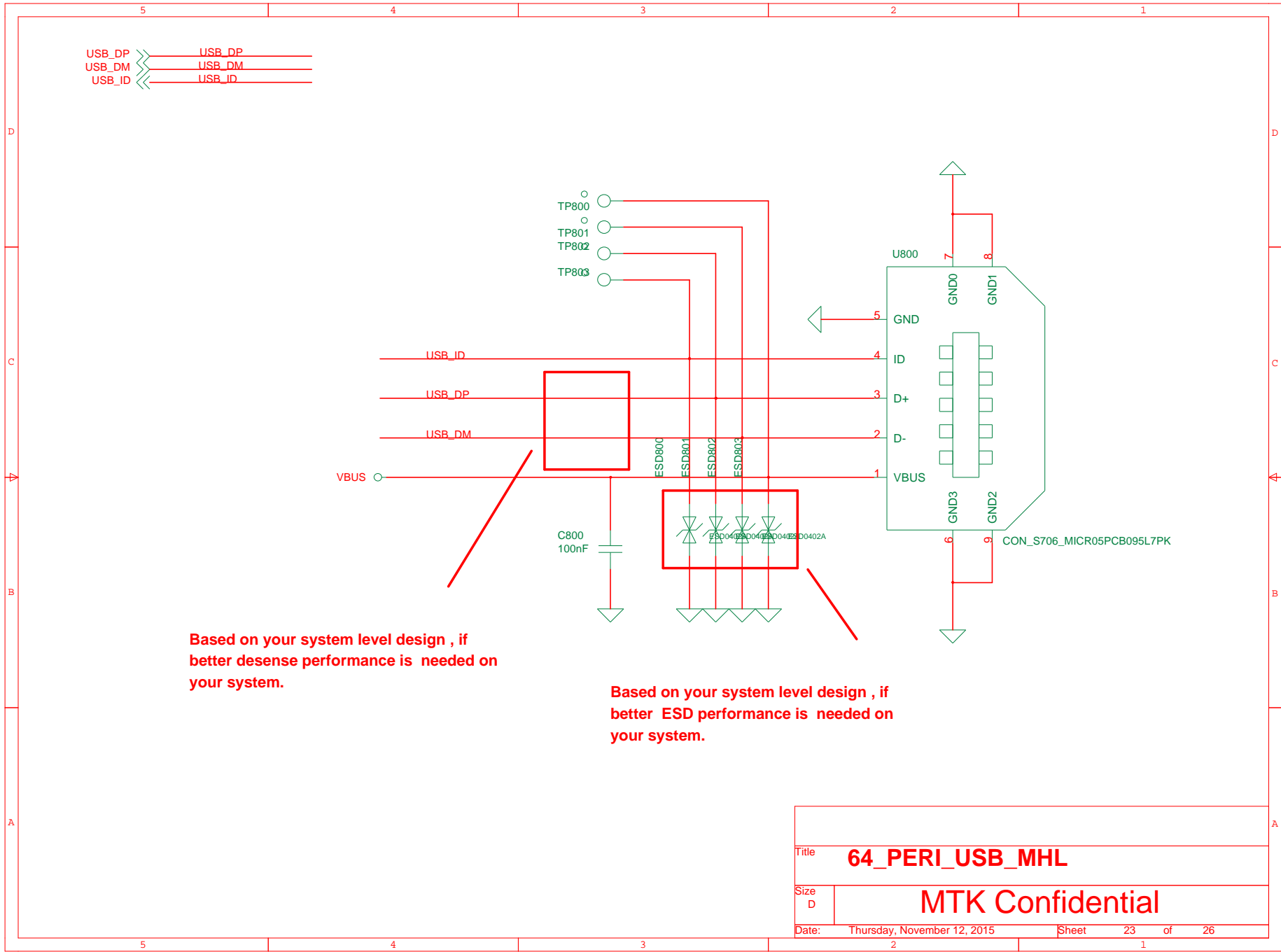


Thermistor / To sense board level temperature

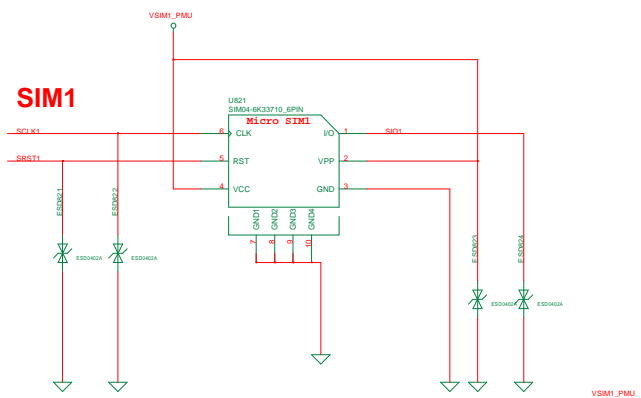


NTC6301 close to BB ,and located in the same layer (can refer to thermal design notice)

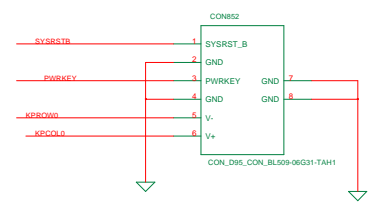
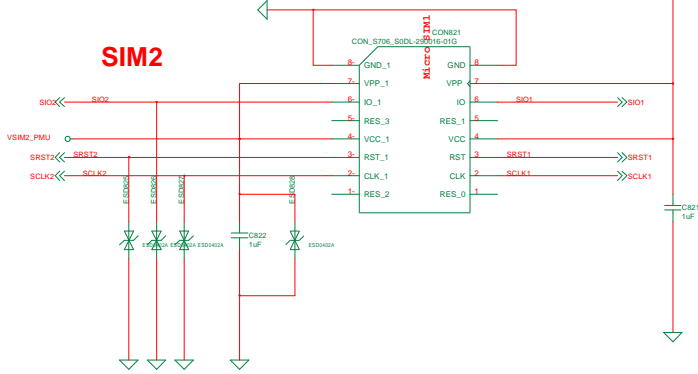
File:	63_PERI_SENSORS
Size:	MTK Confidential
Date:	Thursday, November 12, 2015 11:02 of 26



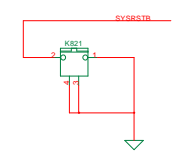
Title		64_PERI_USB_MHL	
Size	D		
Date:		Thursday, November 12, 2015	Sheet 23 of 26



Based on your system level design, if better ESD performance is needed on your system.

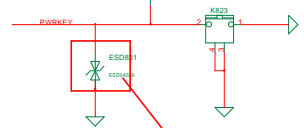


RESET KEY

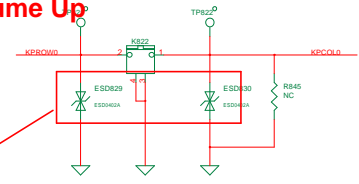


Power Key

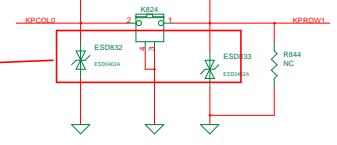
DO NOT put pull-up resistor on PWRKEY



Volume Up



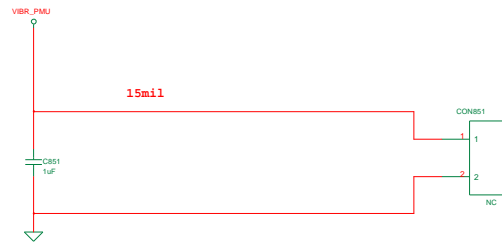
Volume Down



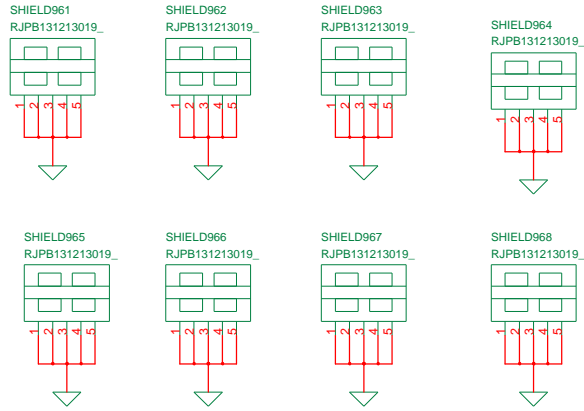
Based on your system level design, if better ESD performance is needed on your system, please refer to ESD performance enhance proposal

	KCOL0	KCOL1
KROW0	Up	
KROW1	Down	

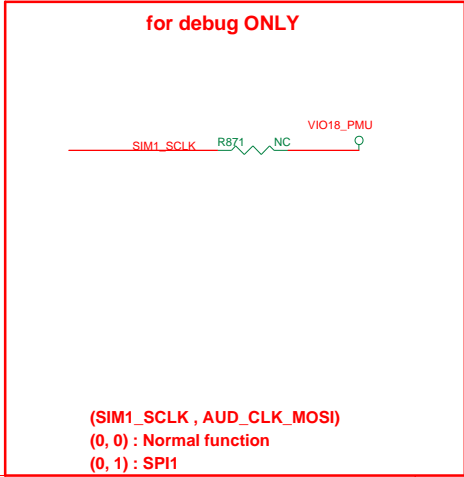
VIBRATOR



File:	66_PERI_VIBRATOR
Size:	MTK Confidential
Date:	Thursday, November 12, 2015 11:04 AM 25 of 26



JTAG



(SIM1_SCLK , AUD_CLK_MOSI)
 (0, 0) : Normal function
 (0, 1) : SPI1
 (1, 0) : MSDC1⁵
 (1, 1) : CAM

Title	90_DEBUG_IO		
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A B C D 4

A B C D 4