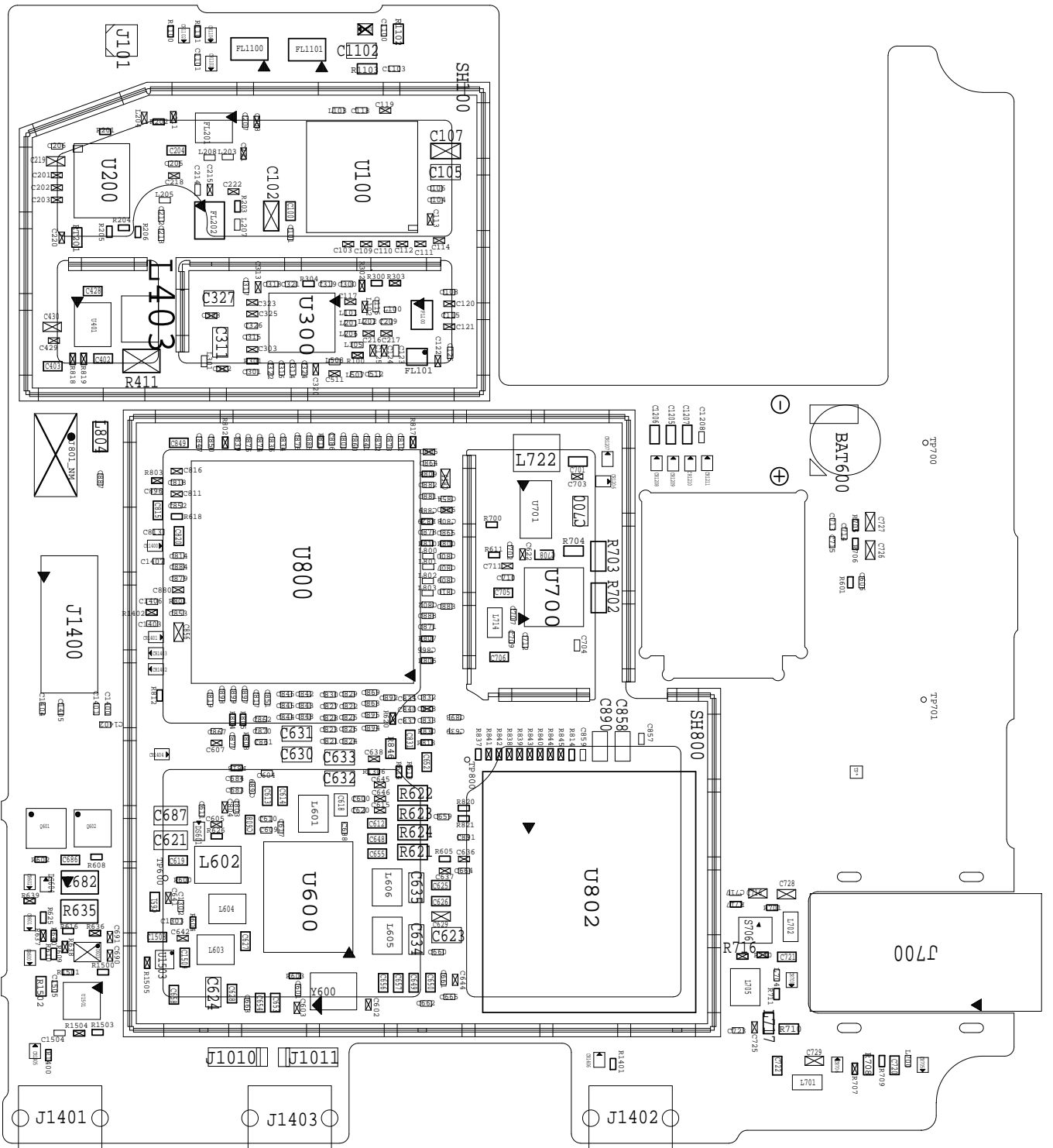


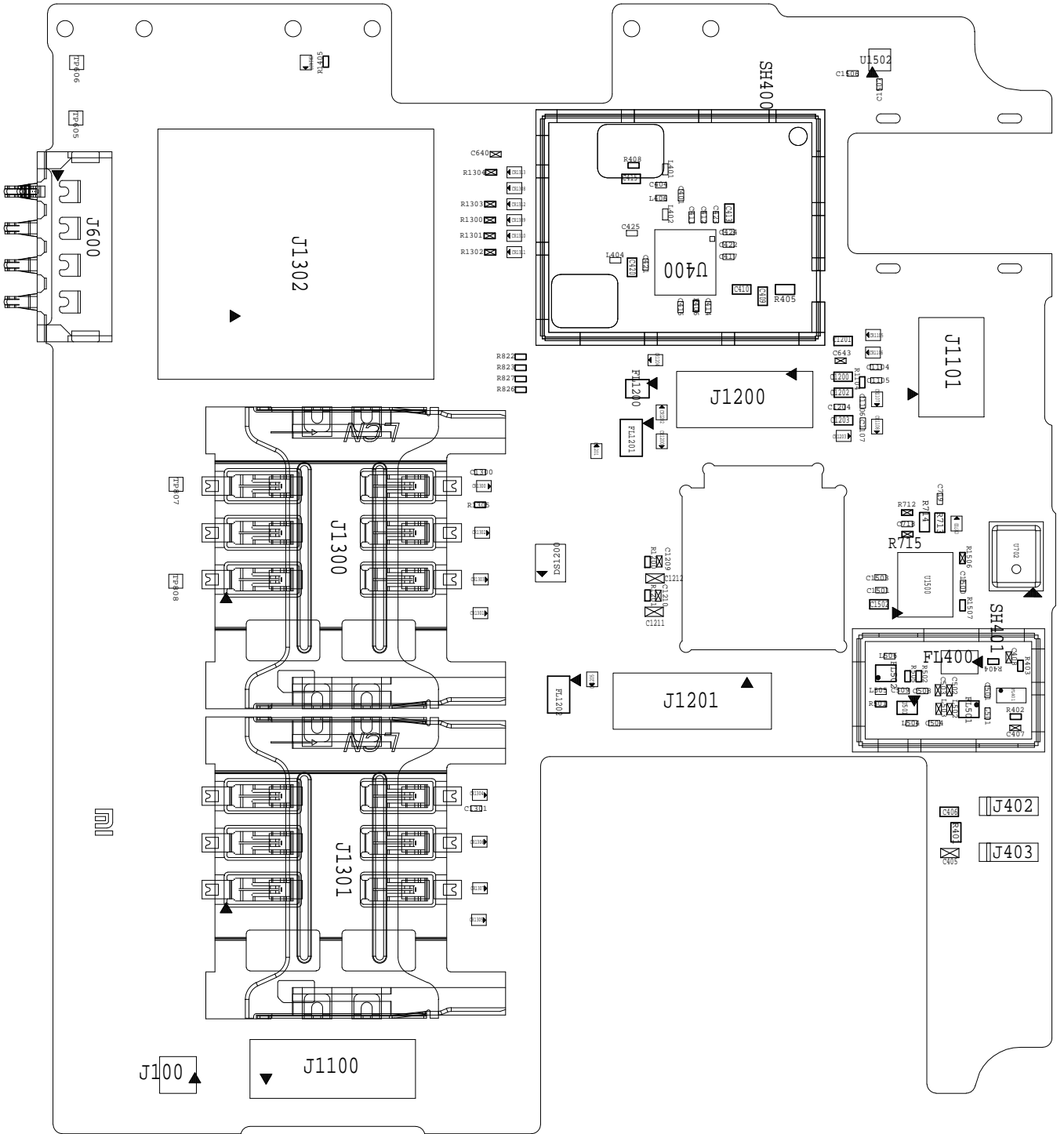
VIETMOBILE.VN

3501H2AP200_HM2A_TOP_LAYER_P2_CDMA



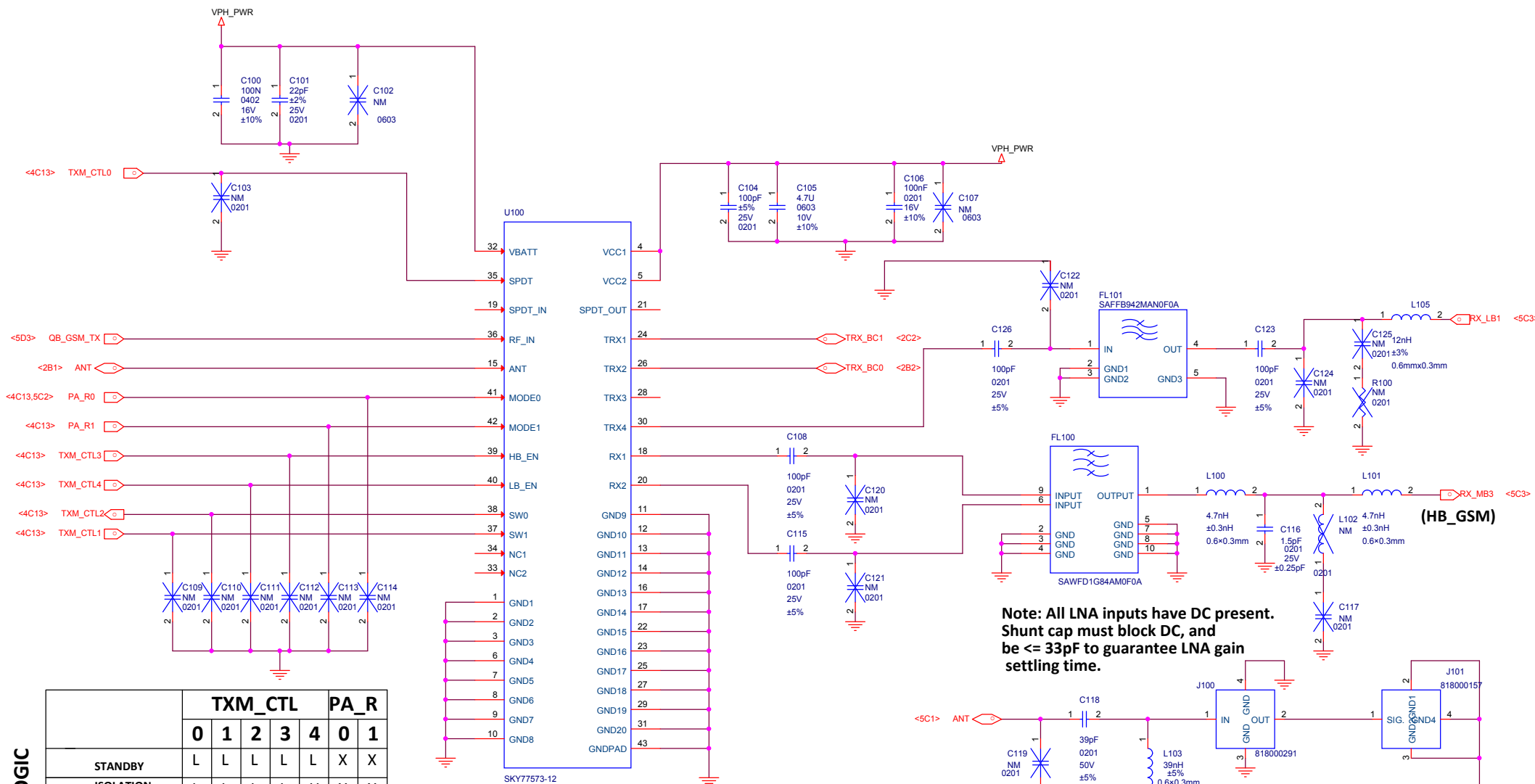
VIETMOBILE.VN

3501H2AP200_HM2A_BOT_LAYER_P2_CDMA



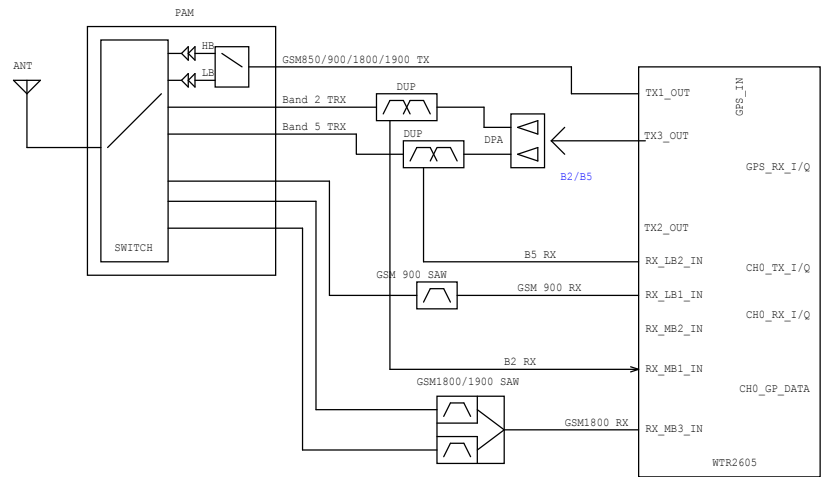
TXM BAND SELECT LOGIC

	TXM_CTL					PA_R	
	0	1	2	3	4	0	1
STANDBY	L	L	L	L	L	X	X
ISOLATION	L	L	L	L	H	X	X
LB_SPDT_10_HPM	L	L	H	L	H	L	L
LB_SPDT_10_MPM	L	L	H	L	H	L	H
LB_SPDT_10_LPM	L	L	H	L	H	H	L
LB_SPDT_10_ULPM	L	L	H	L	H	H	H
HB_SPDT_10_HPM	L	H	L	L	H	L	L
HB_SPDT_10_MPM	L	H	L	L	H	L	H
HB_SPDT_10_LPM	L	H	L	L	H	H	L
HB_SPDT_10_ULPM	L	H	L	L	H	H	H
TRX1_SPDT_0	H	L	L	L	H	X	X
TRX2_SPDT_0	H	L	L	H	H	X	X
TRX3_SPDT_0	H	L	H	L	H	X	X
TRX4_SPDT_0	H	L	H	H	H	X	X
RX1	H	H	H	H	L	X	X
RX2	H	H	H	H	H	X	X

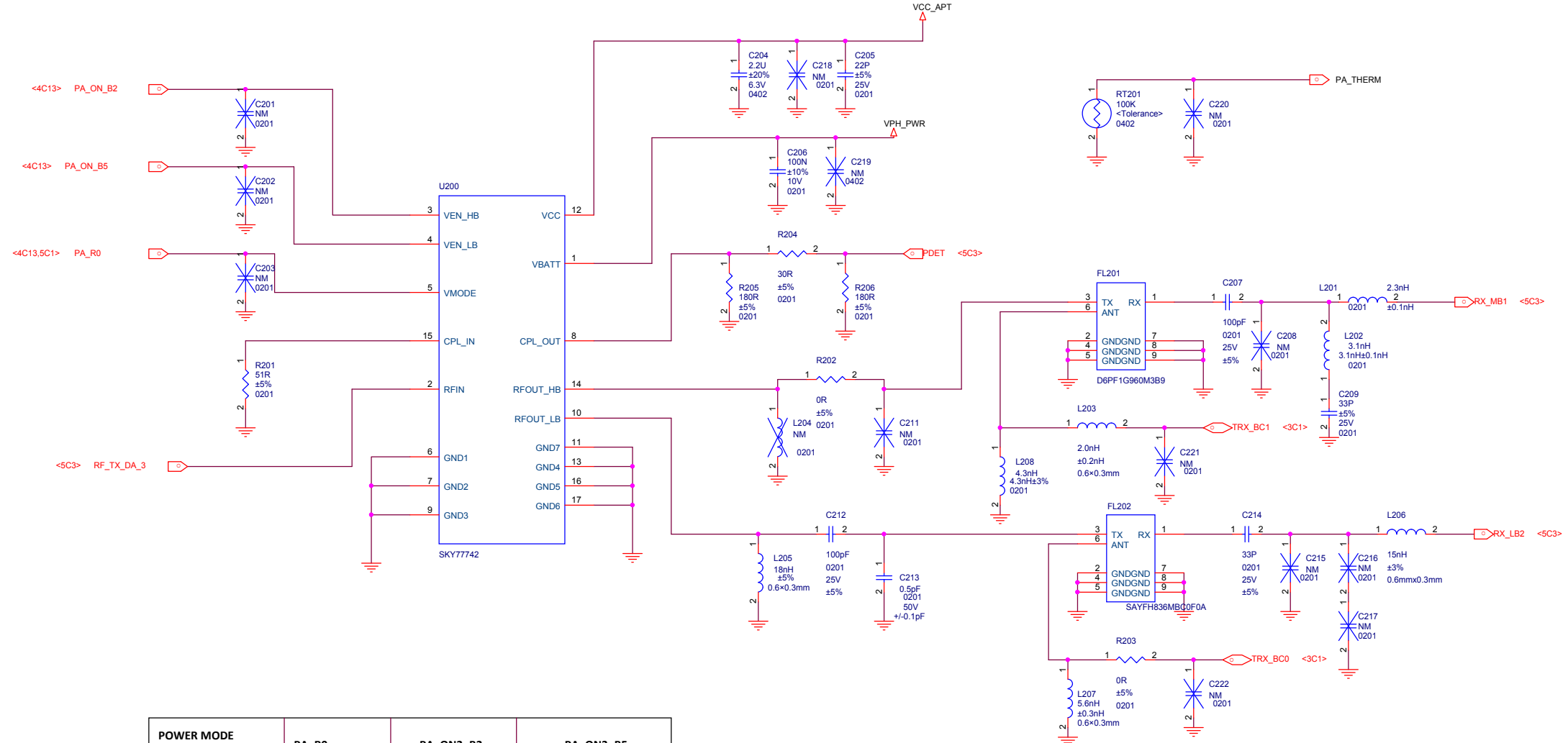


Note: All LNA inputs have DC present. Shunt cap must block DC, and be <= 33pF to guarantee LNA gain settling time.

- SH400
WT-23007-WIFI-HONGMI2A
- SH401
WT_93007_GPS_HONGMI2A
- SH100
RF Shielding Base-HONGMI2A
- SH800
BB Shielding Base-HONGMI2A



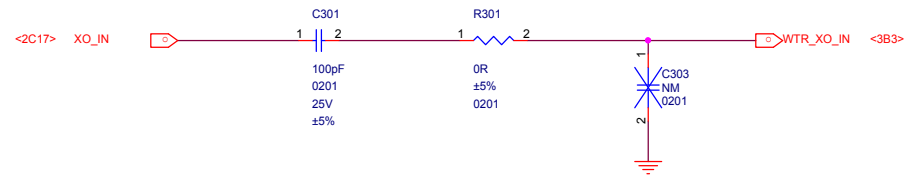
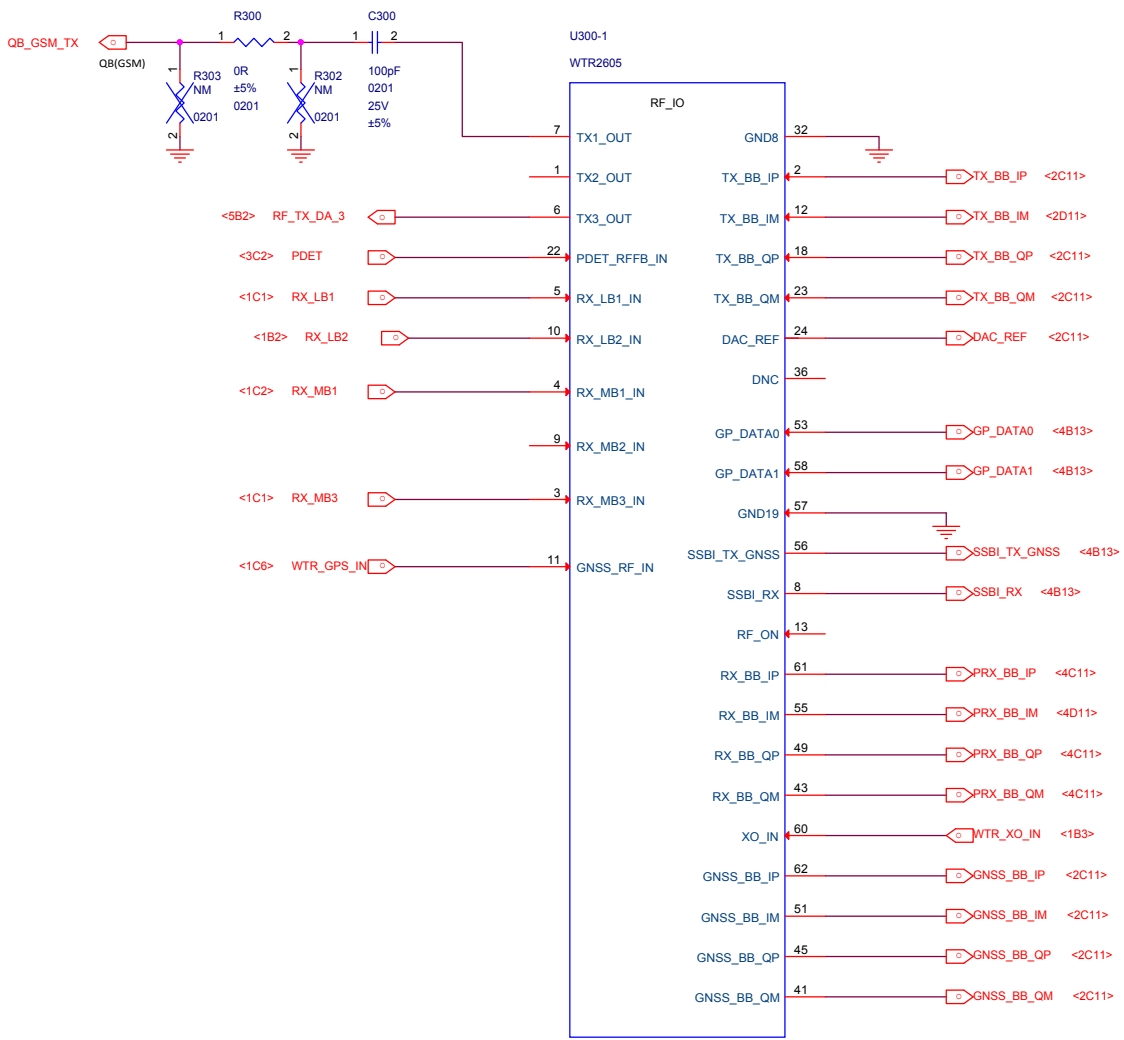
Title		
2013028		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 1 of 1



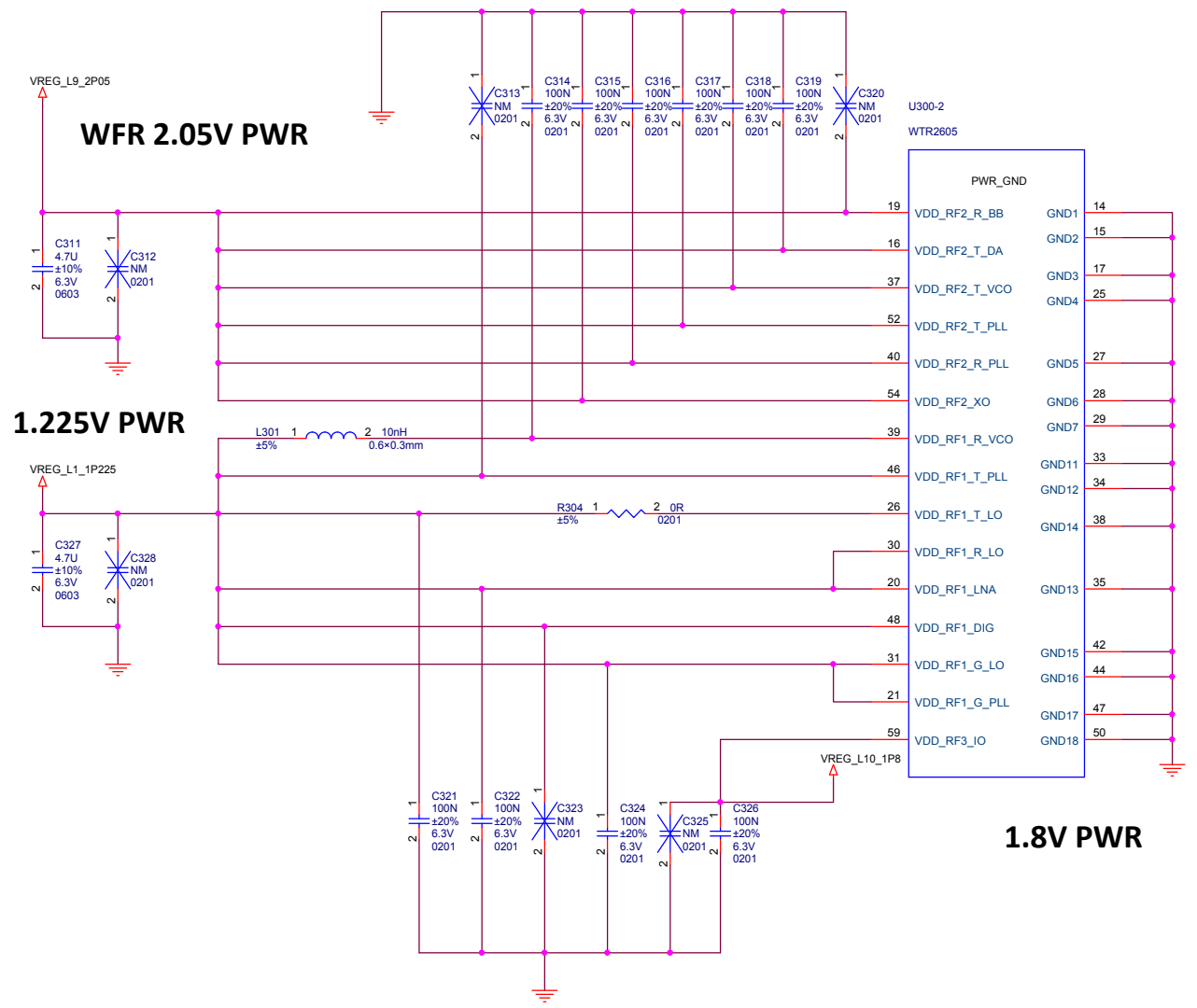
POWER MODE	PA_R0	PA_ON2_B2	PA_ON3_B5
B2 HIGH POWER	L	H	L
B2 LOW POWER	H	H	L
B5 HIGH POWER	L	L	H
B5 LOW POWER	H	L	H
SHUT DOWN	L	L	L

Note: All LNA inputs have DC present. Shunt cap must block DC, and be <= 33pF to guarantee LNA gain settling time.

Title		2013028
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 2 of 28



Title		2013028
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 3 of 28

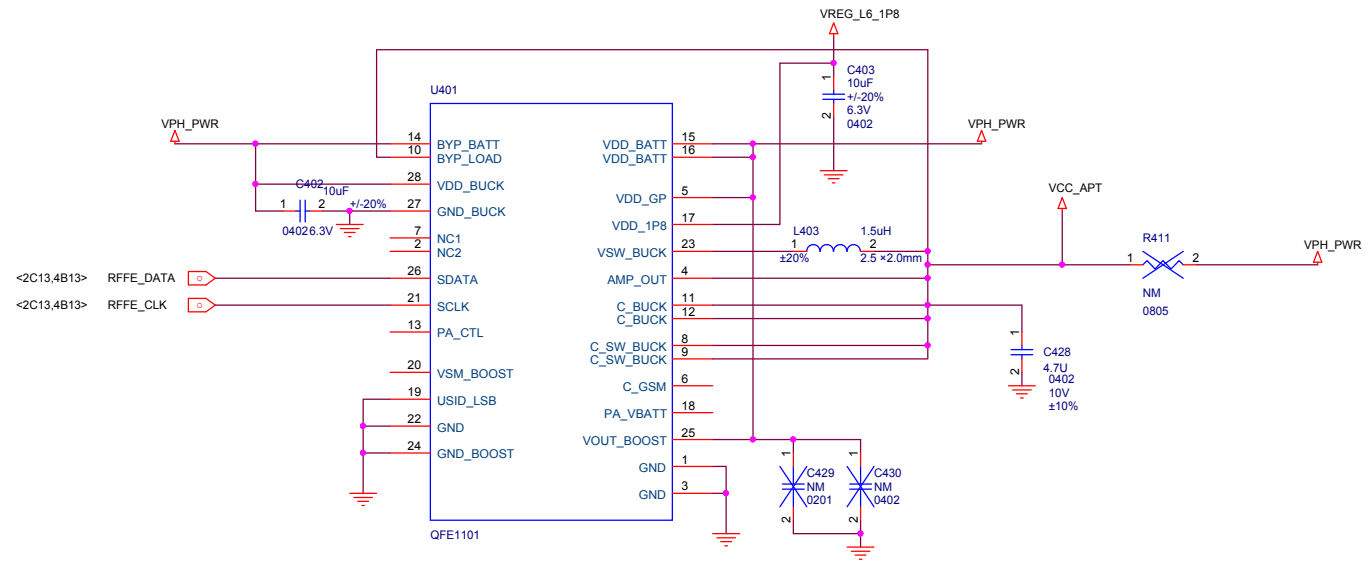


WFR 2.05V PWR

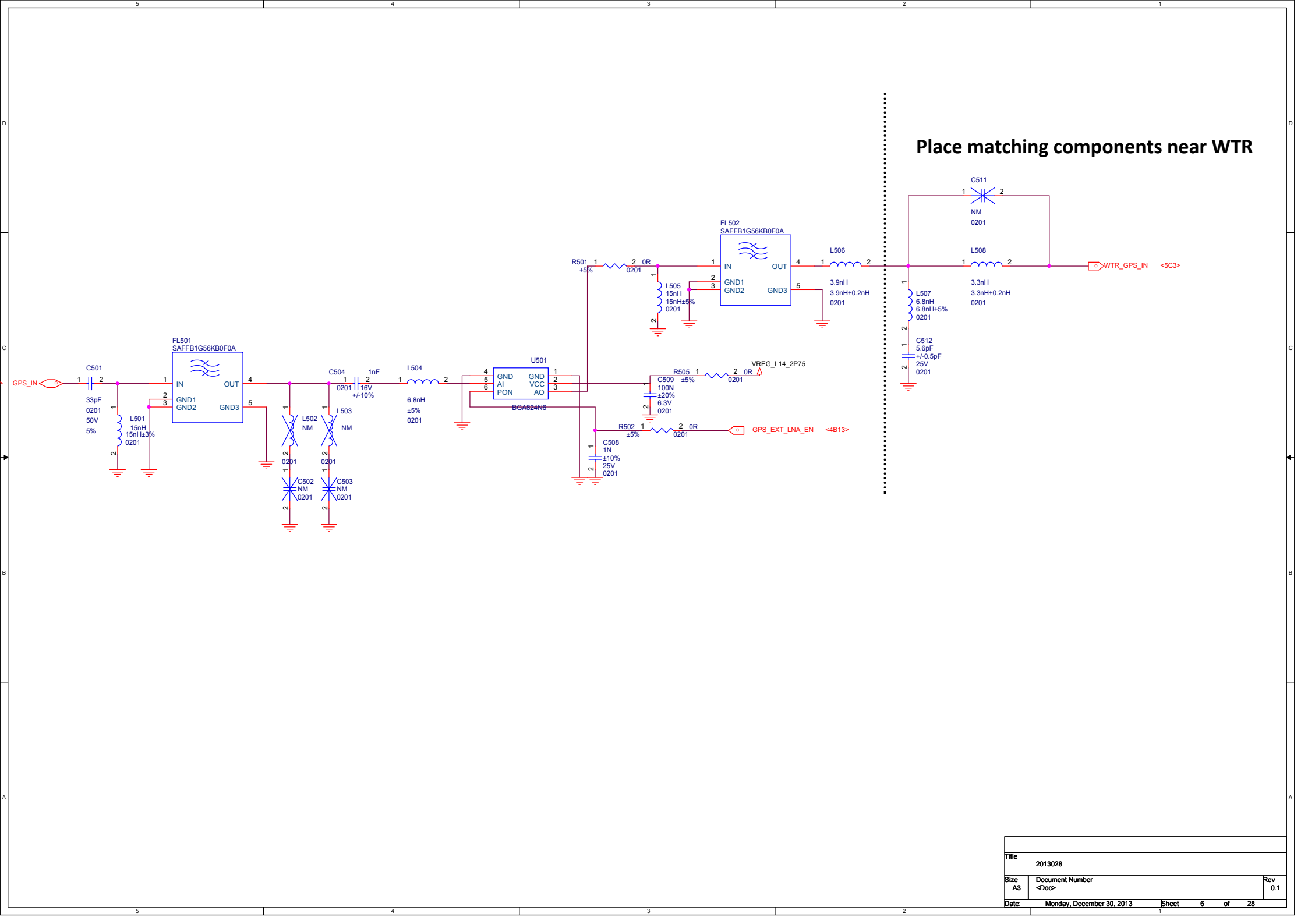
1.225V PWR

1.8V PWR

Title		
2013028		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 4 of 28

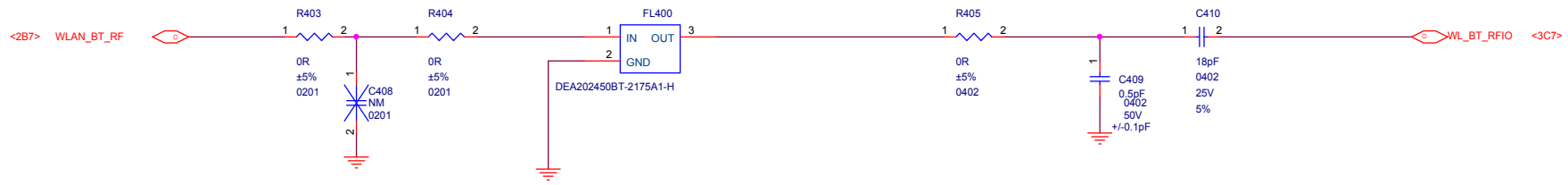
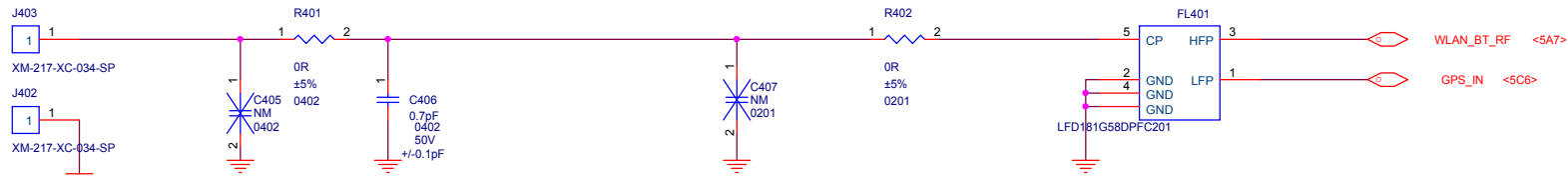
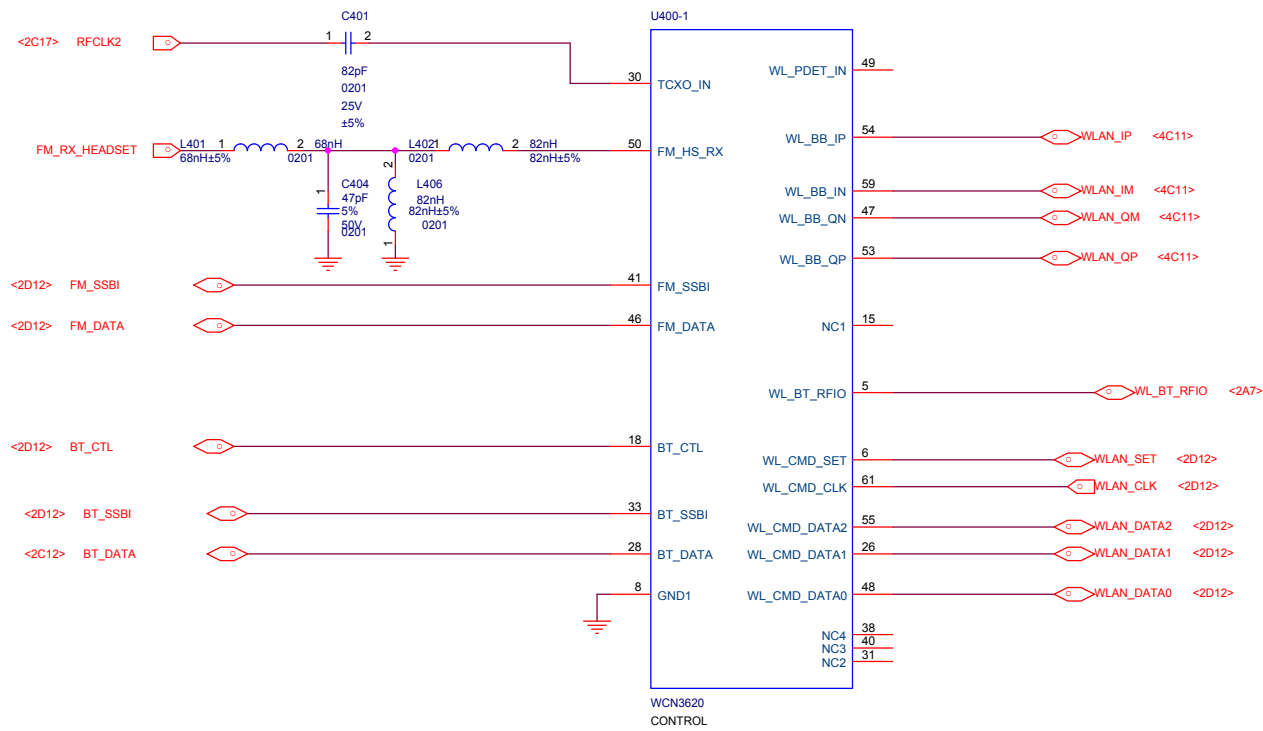


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2013028		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 5 of 28

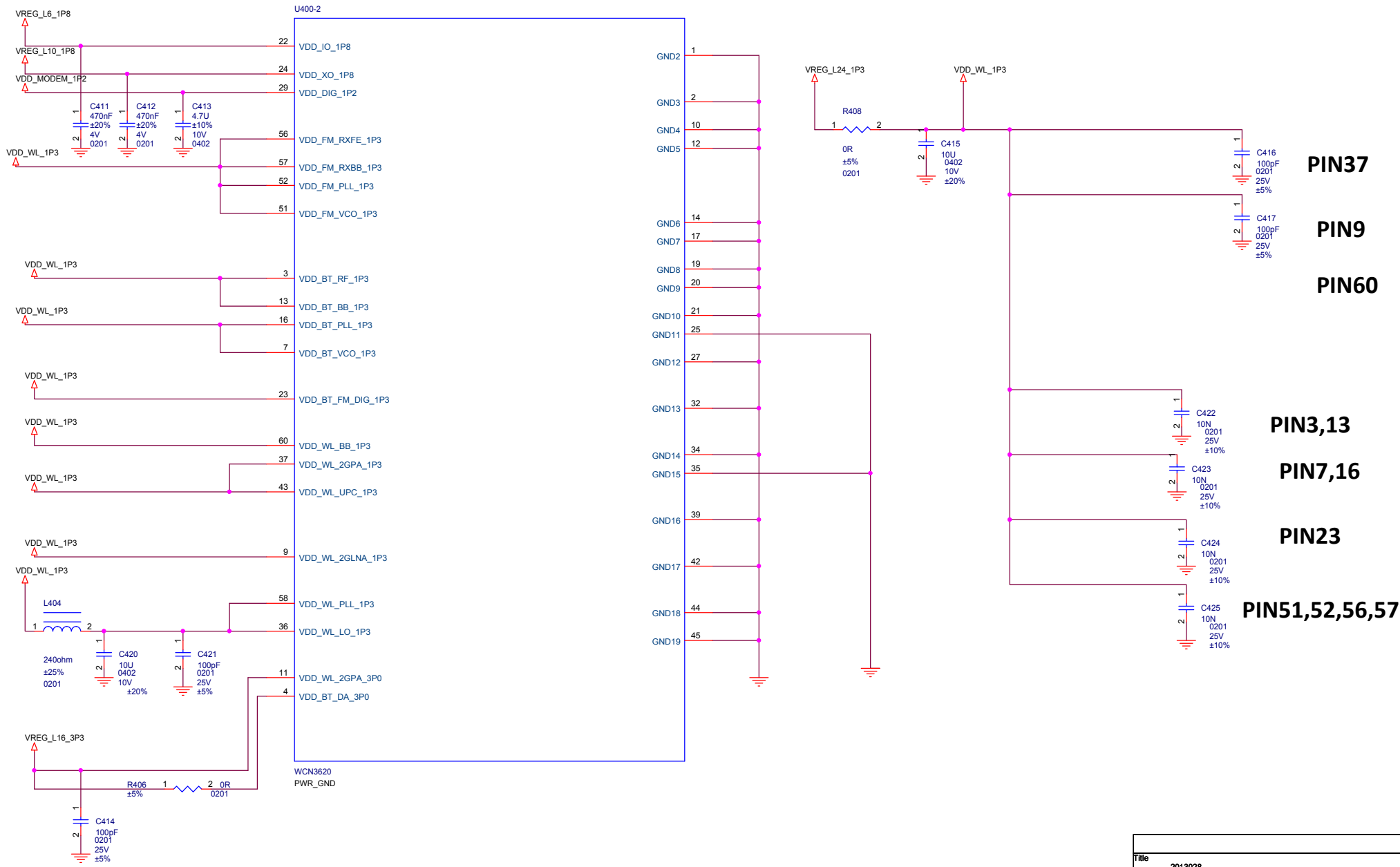


Place matching components near WTR

Title		
2013028		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 6 of 28



Title	2013028	
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 7 of 28



PIN37

PIN9

PIN60

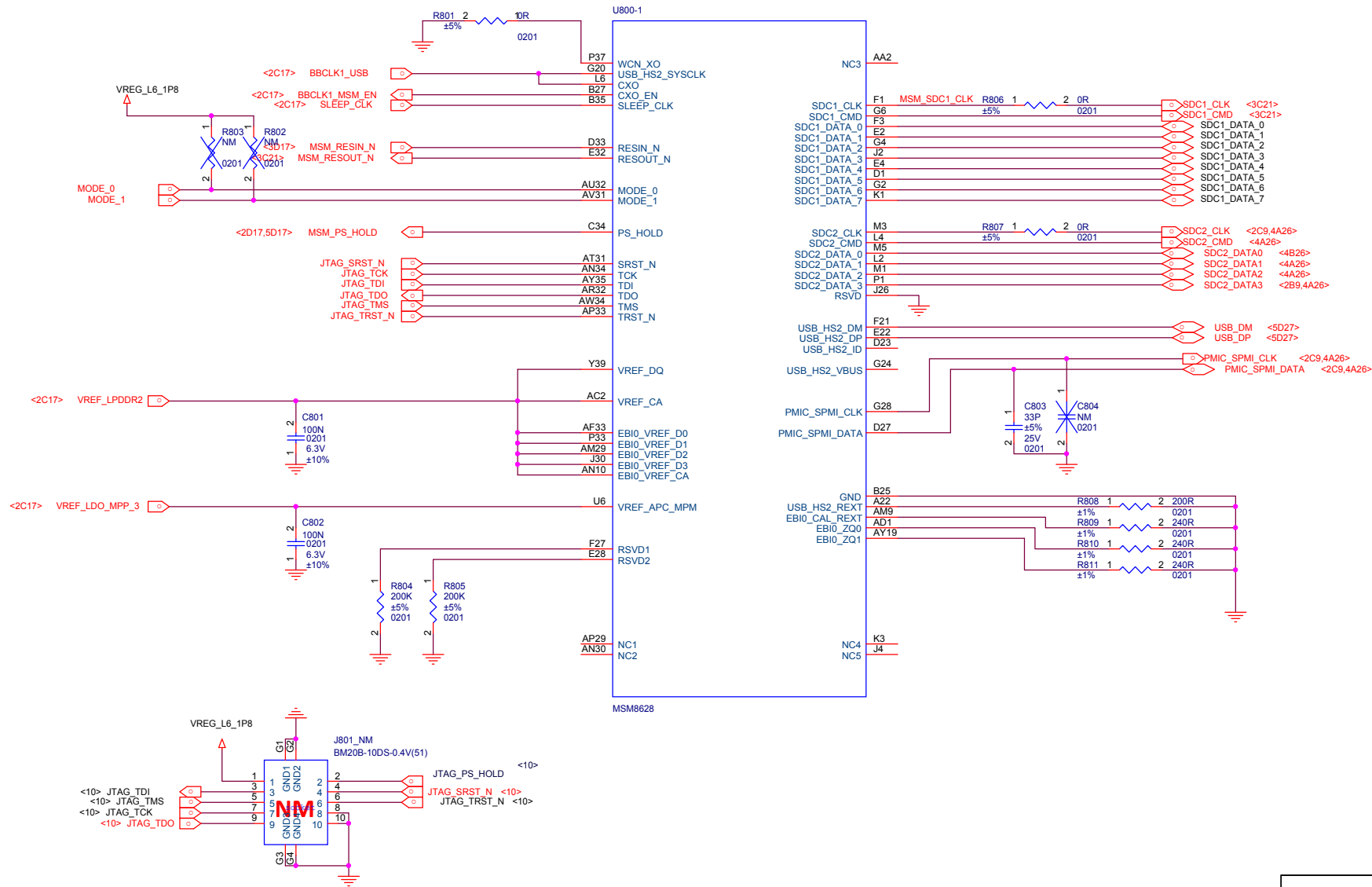
PIN3,13

PIN7,16

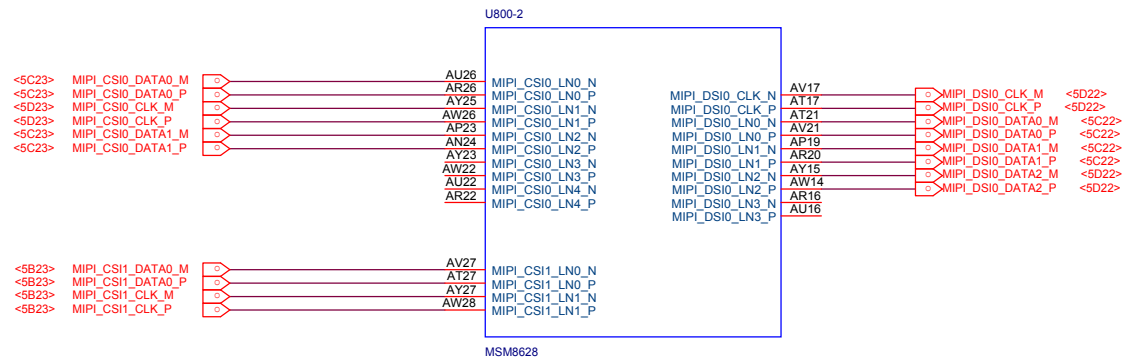
PIN23

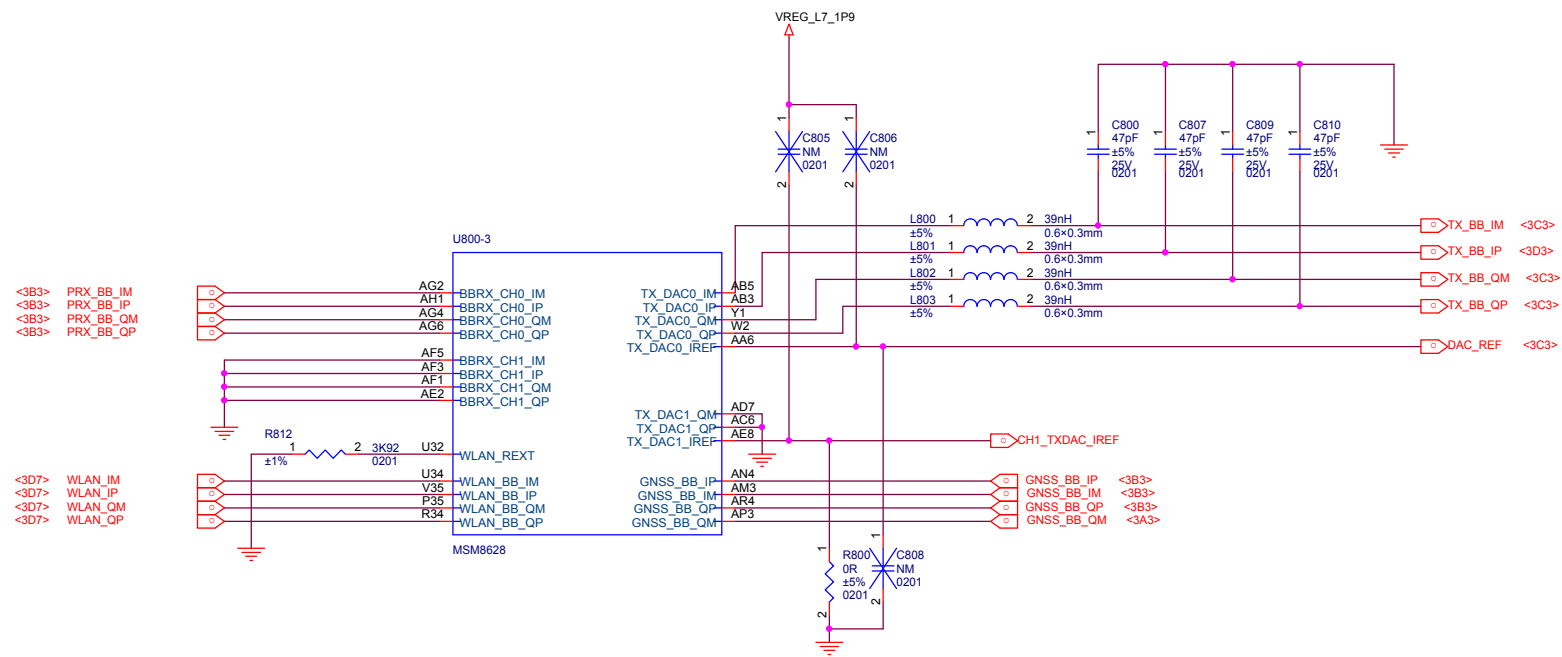
PIN51,52,56,57

Title		
2013028		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 8 of 28

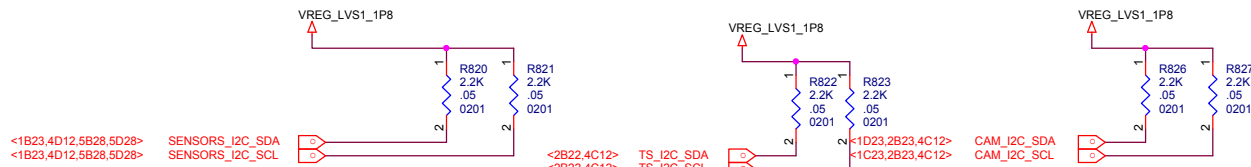
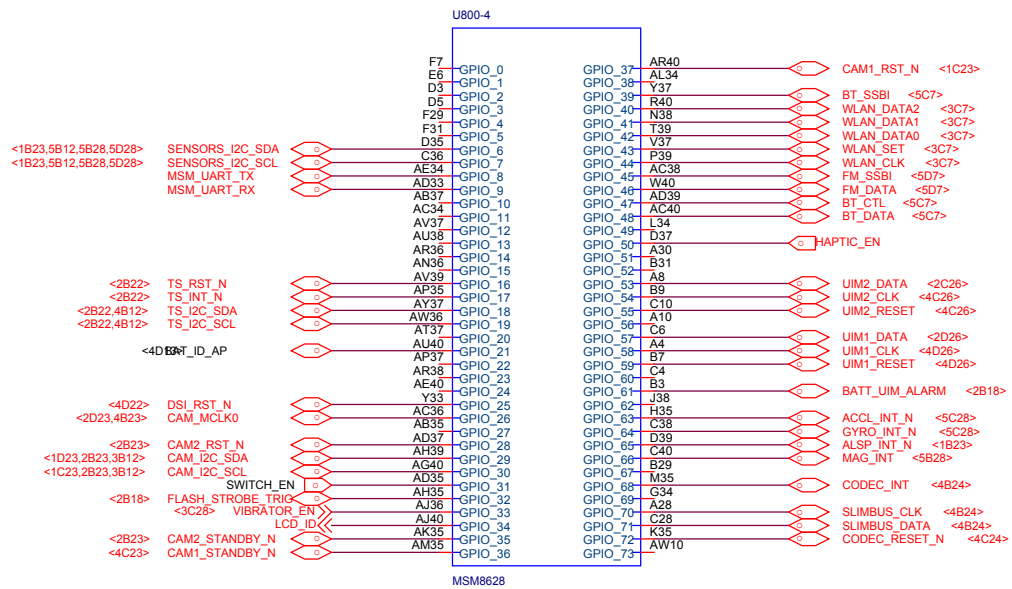


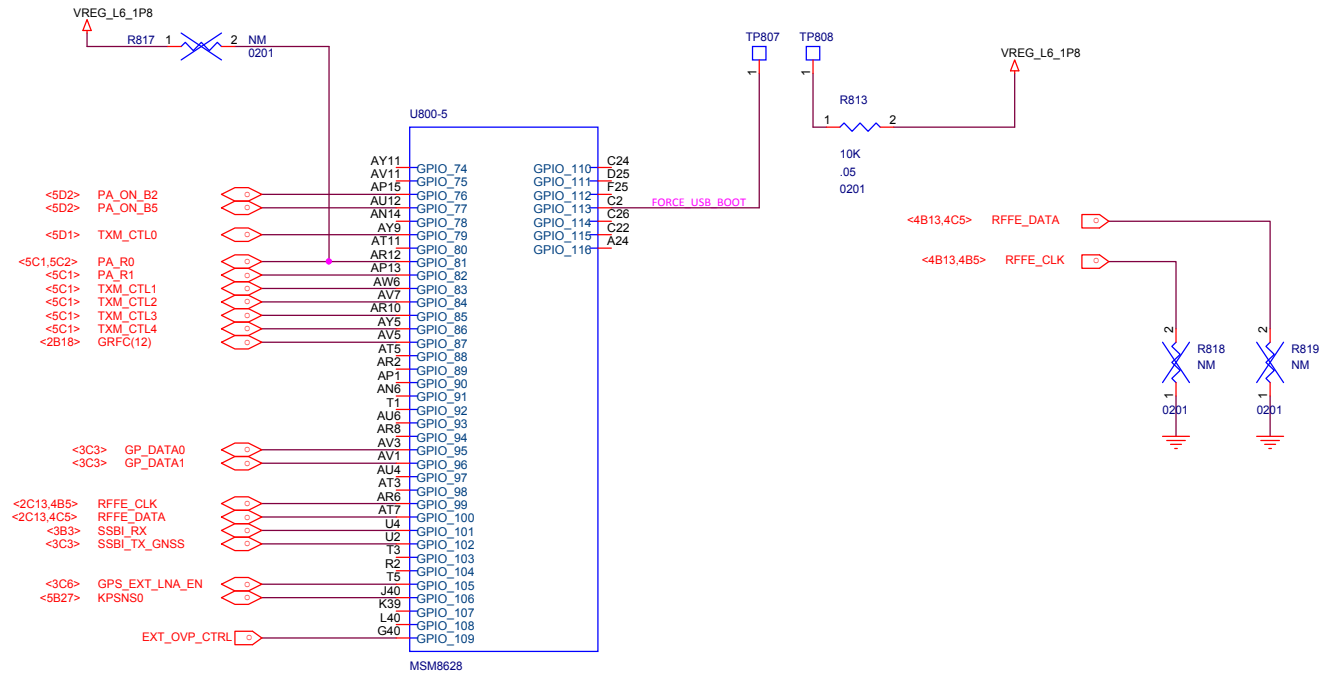
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 9 of 28

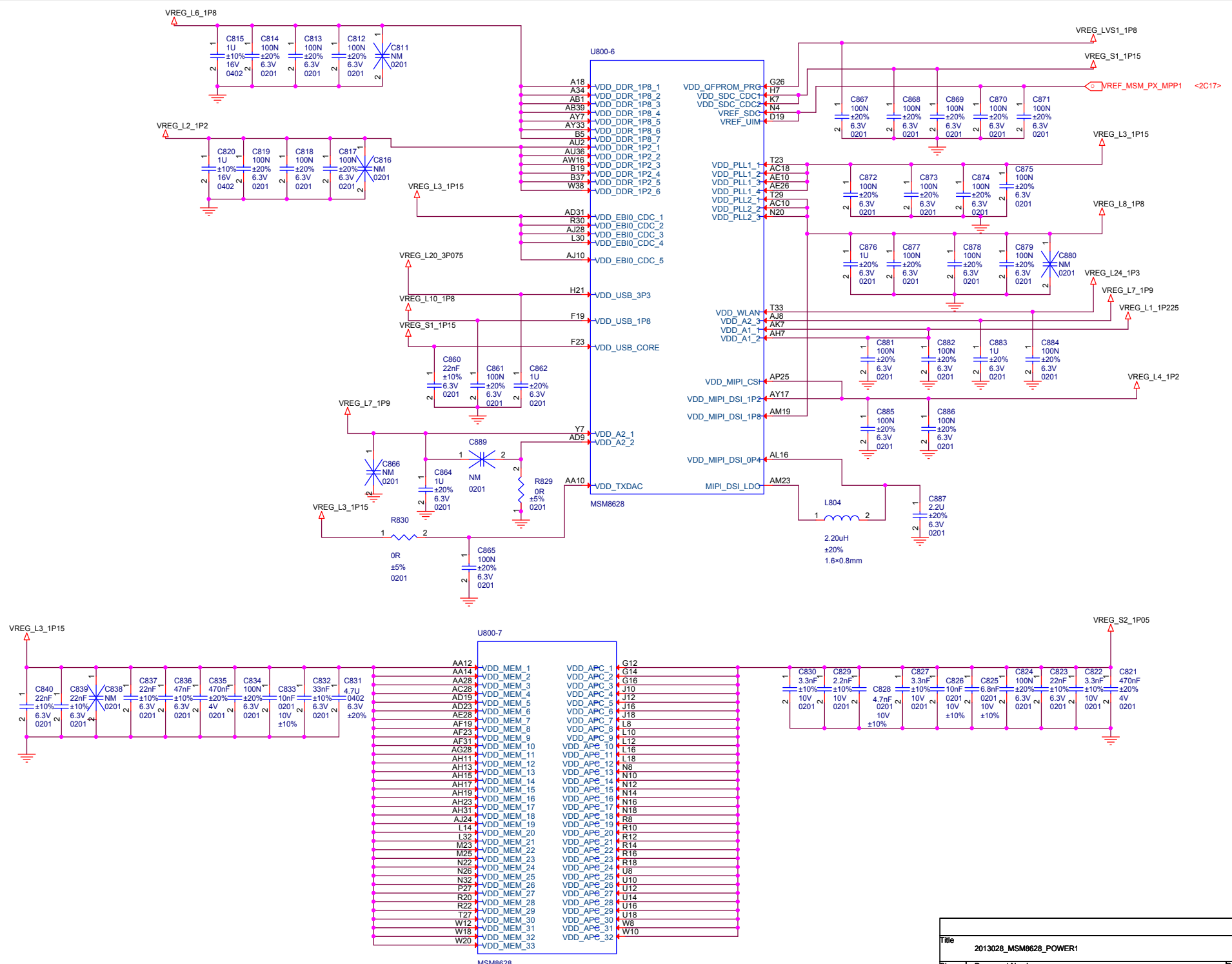




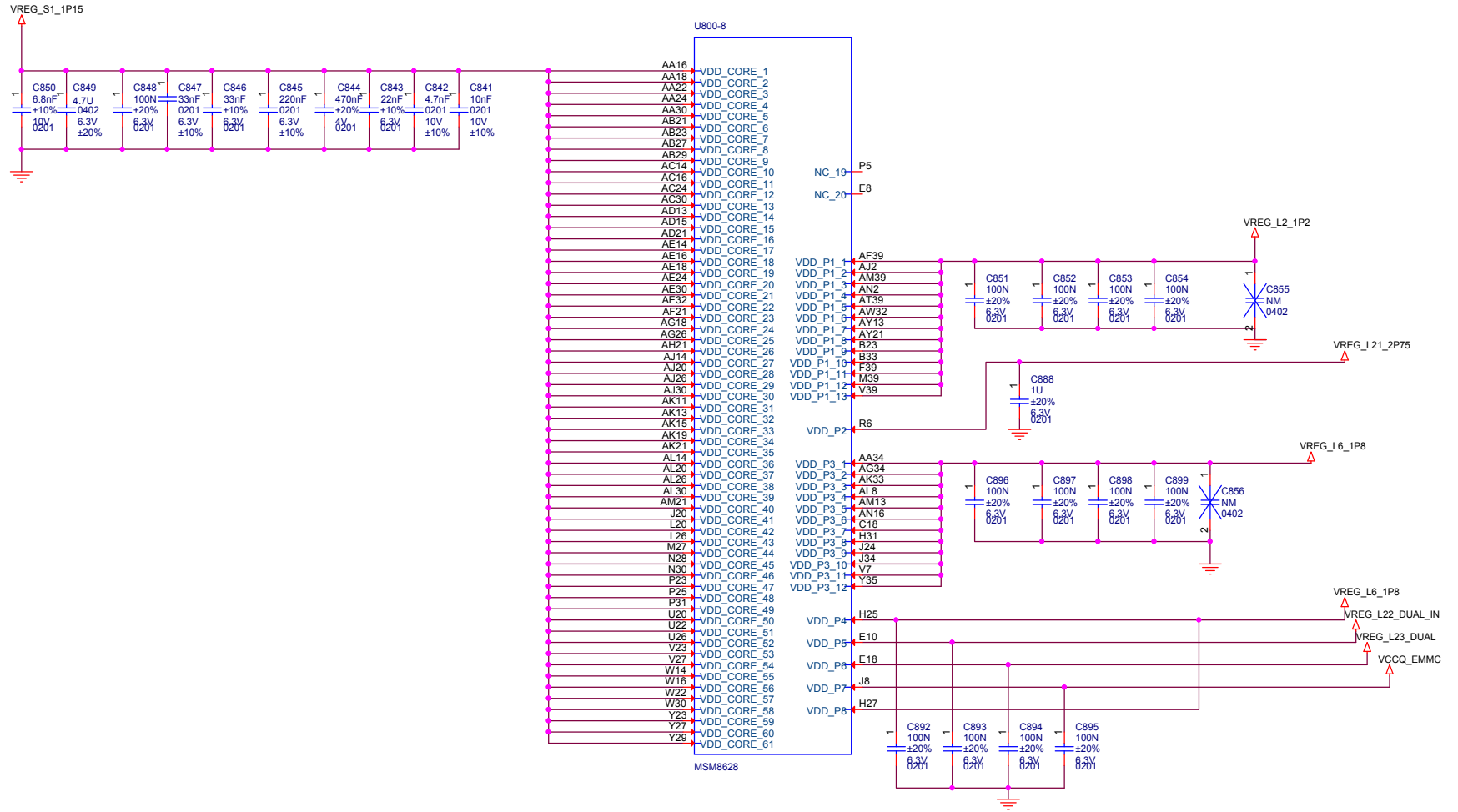
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 11 of 28



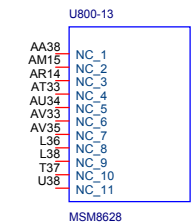
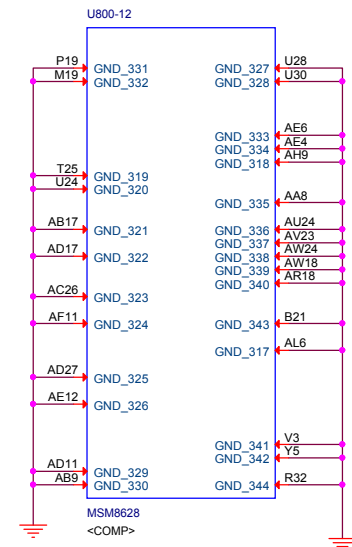
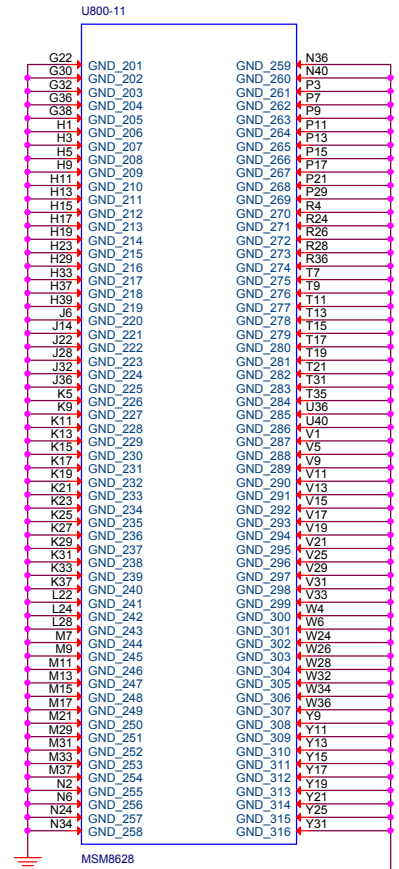
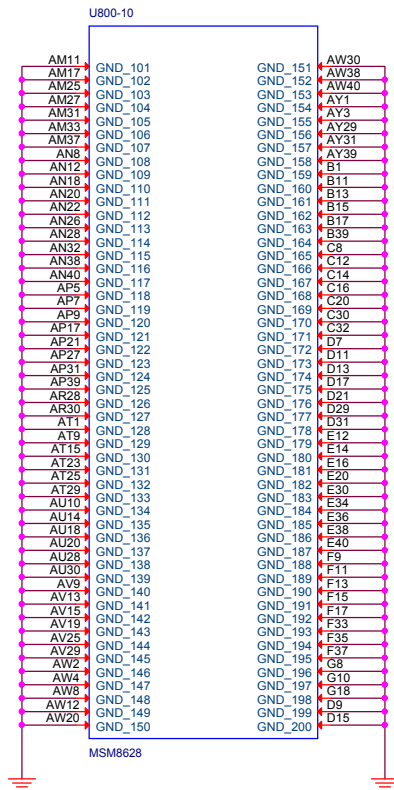
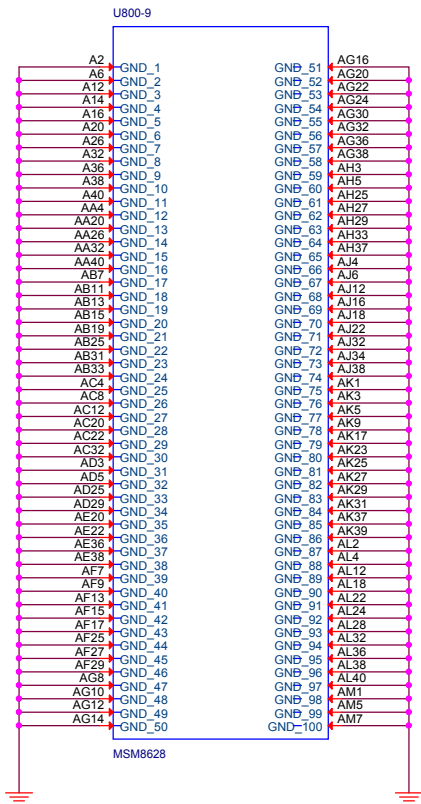




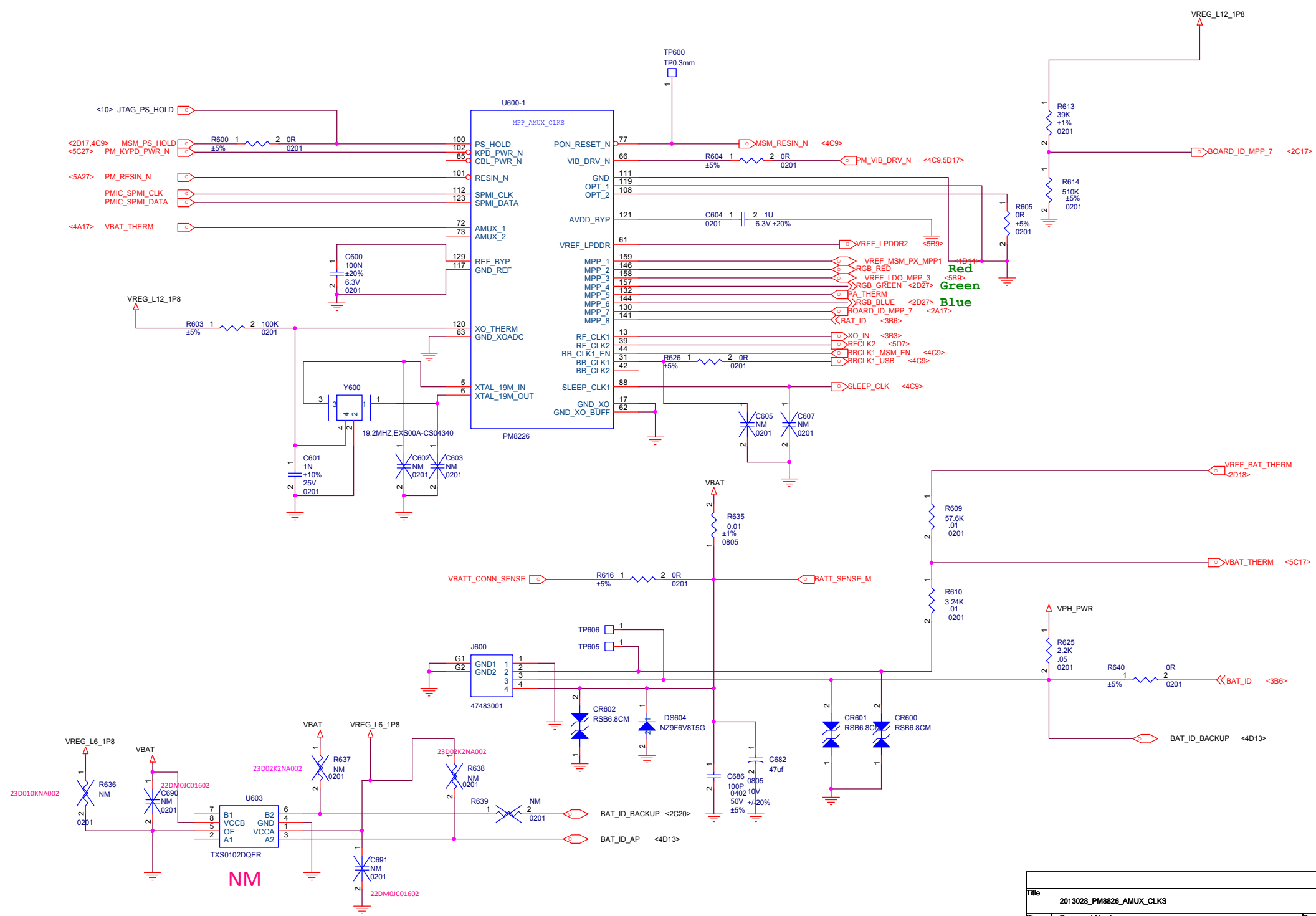
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 14 of 28



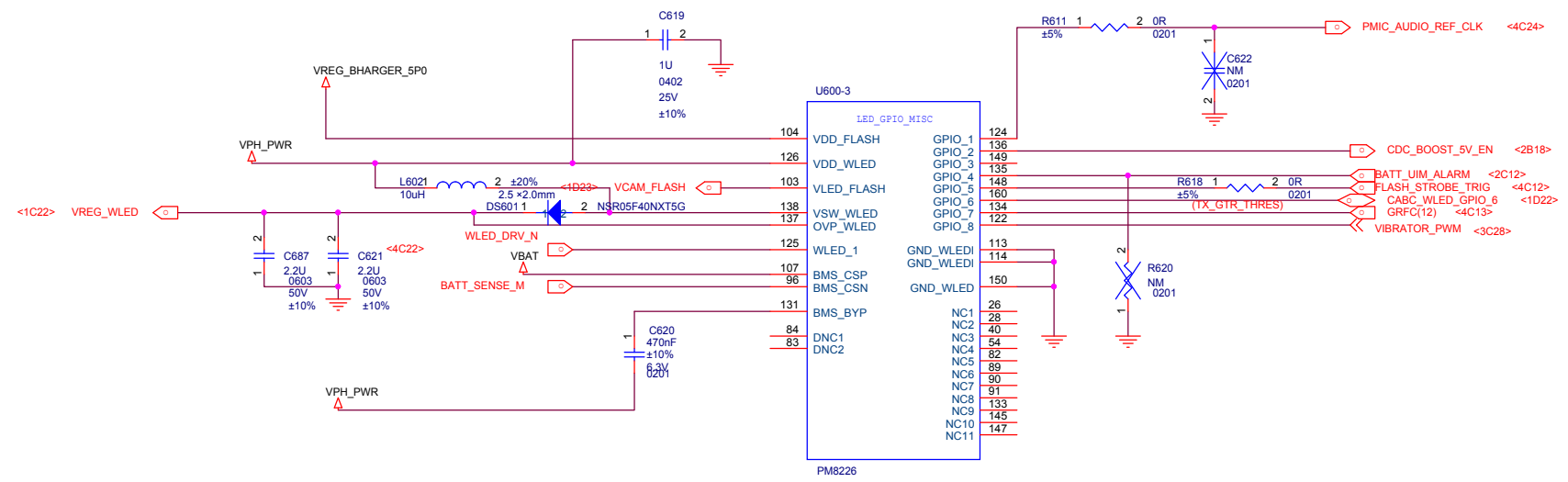
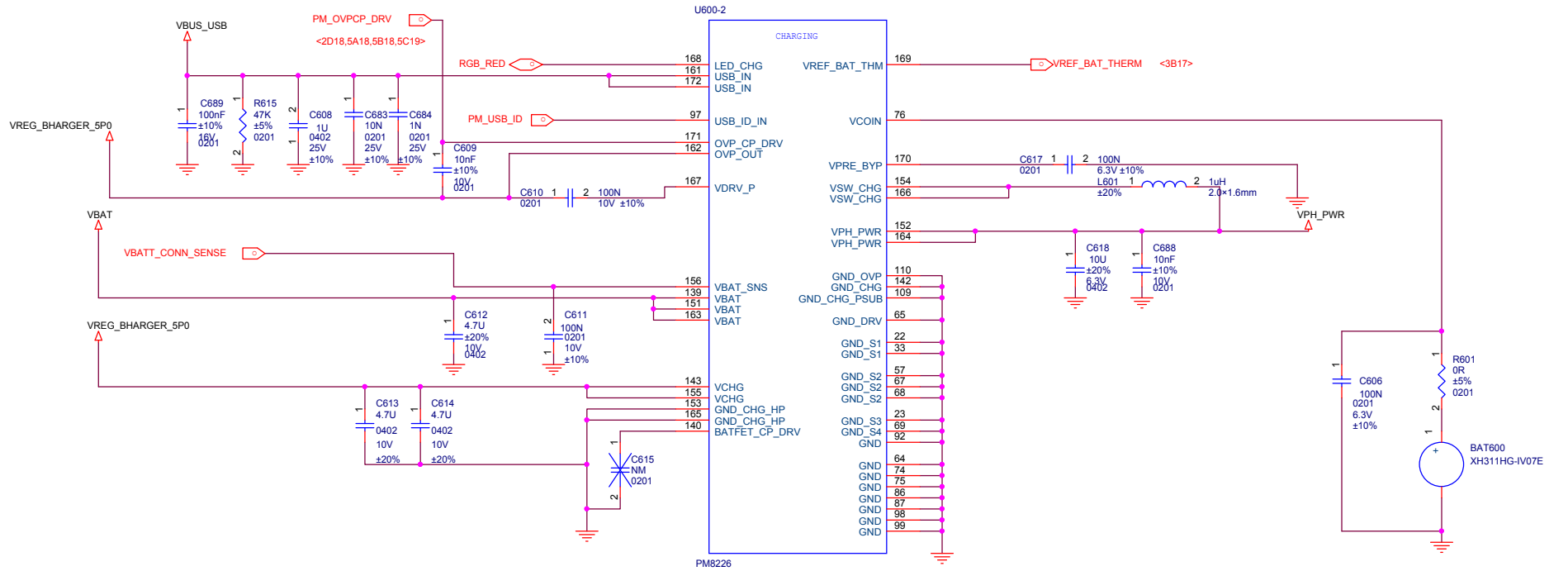
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 15 of 28



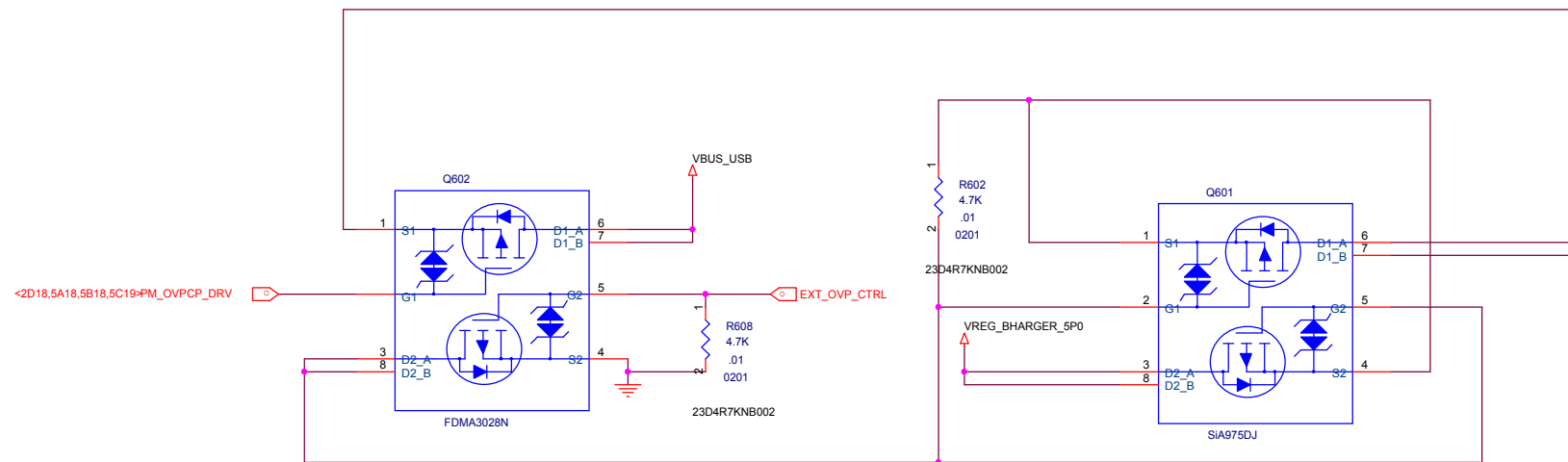
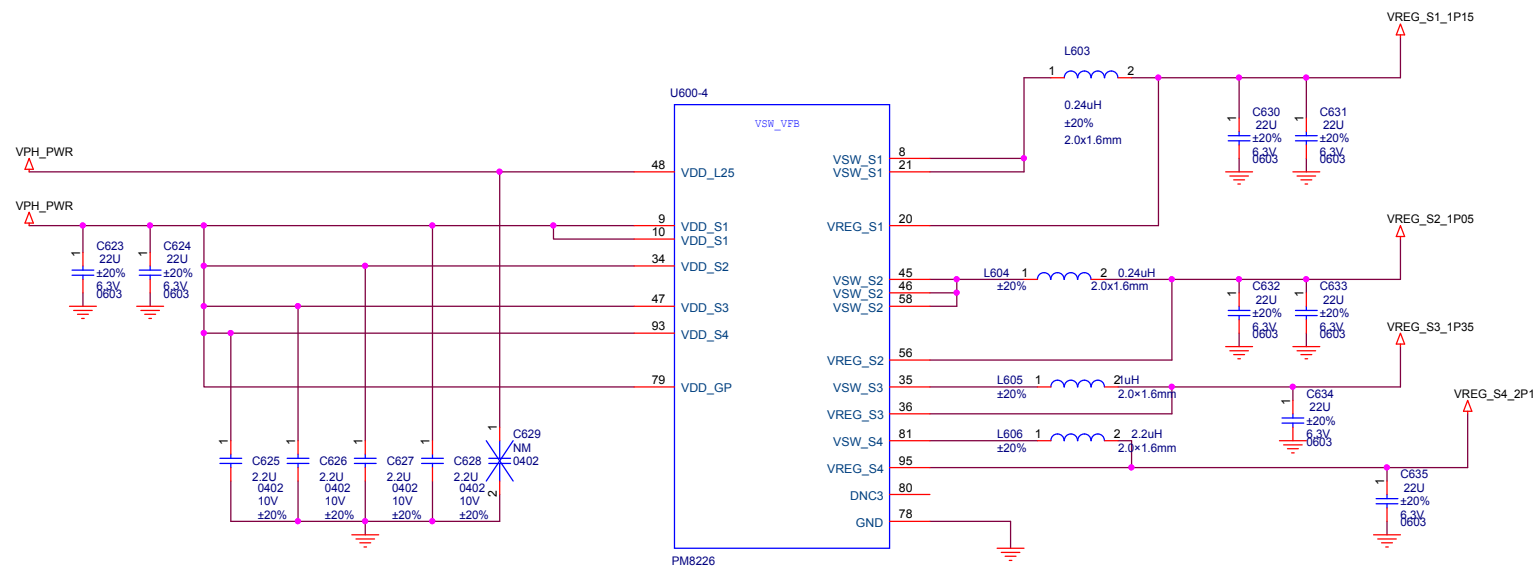
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Size	Document Number	Rev	
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Date:	Monday, December 30, 2013	Sheet	16 of 28



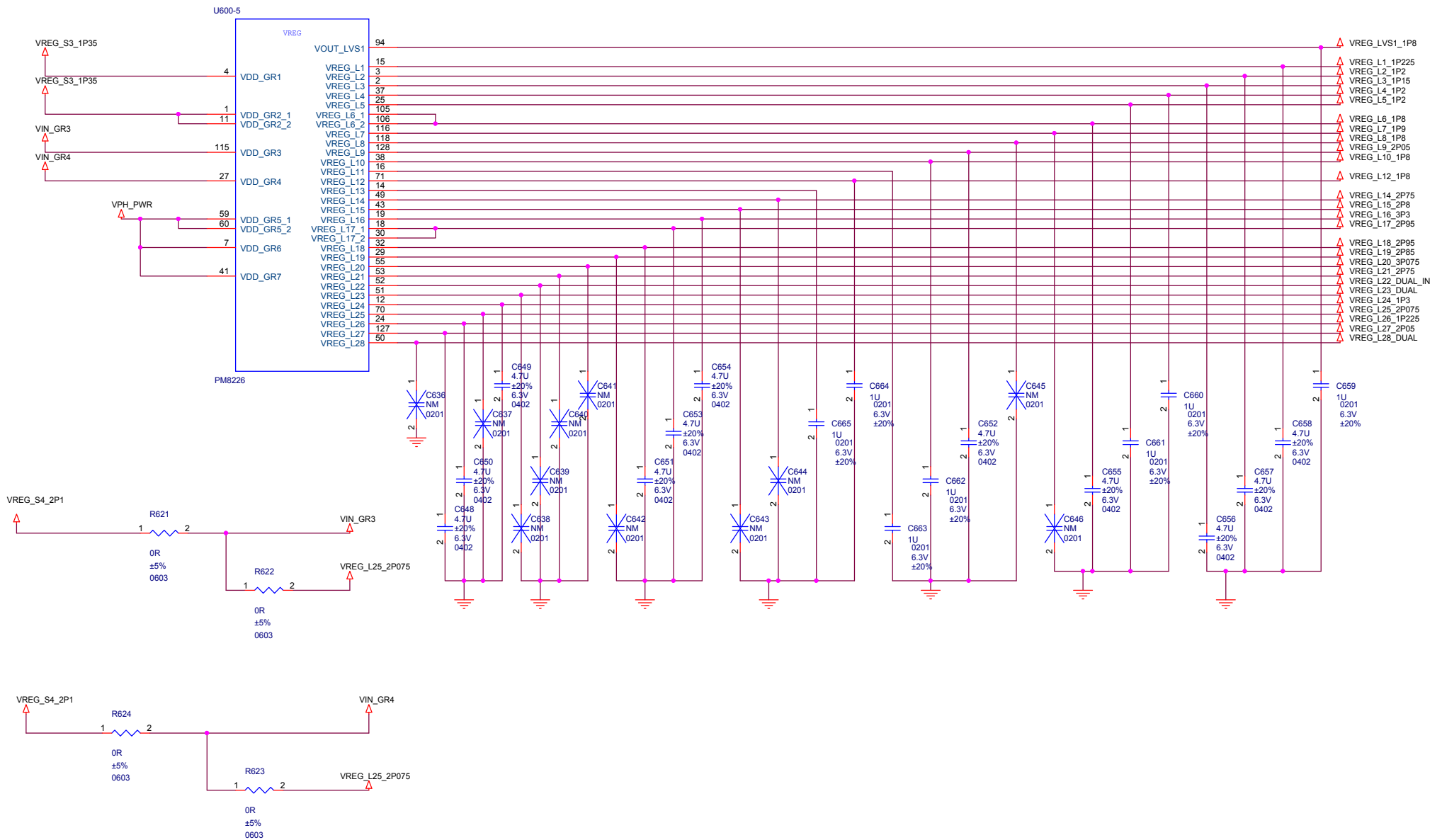
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 17 of 28



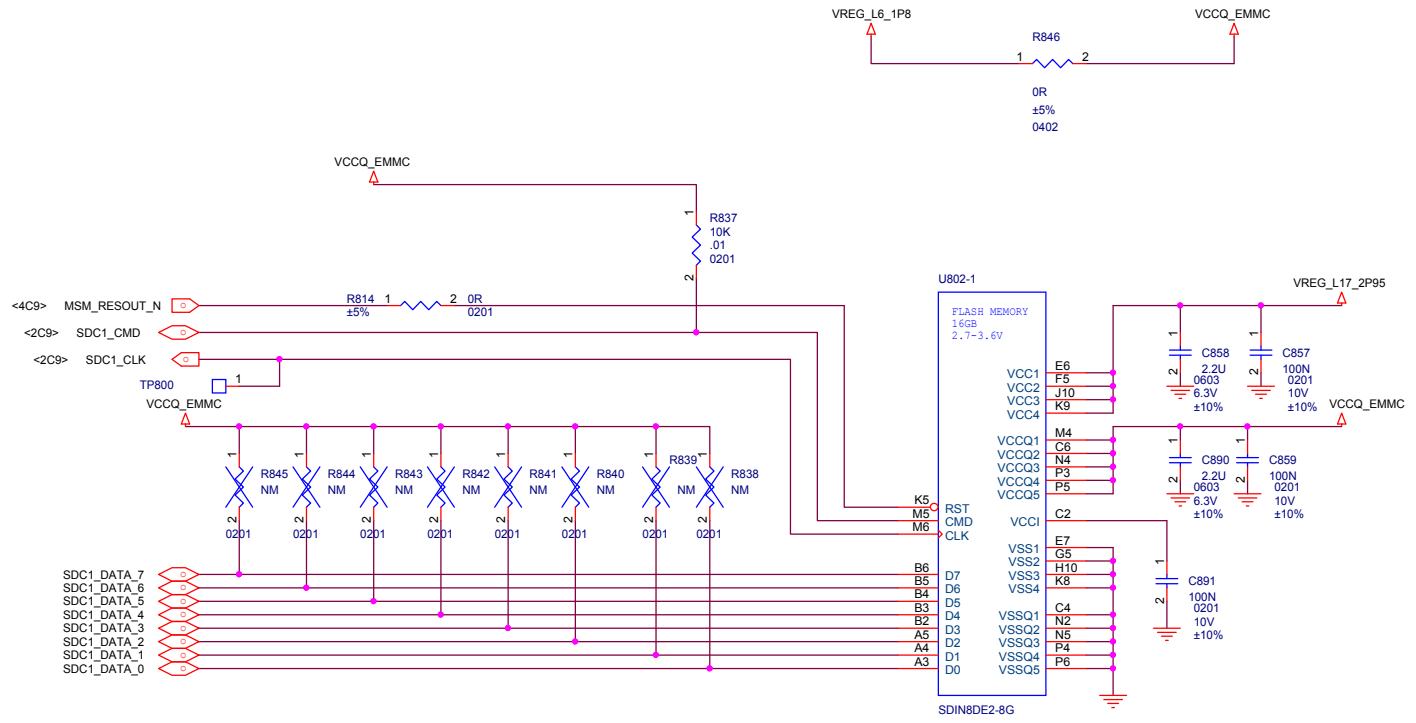
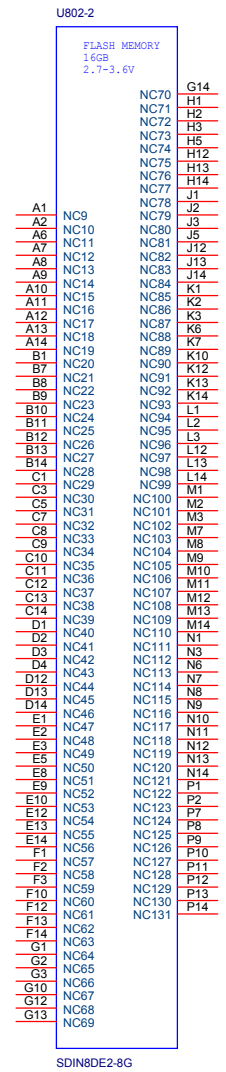
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 18 of 28



Title		
2013028_PM8226_SMPS		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 19 of 28



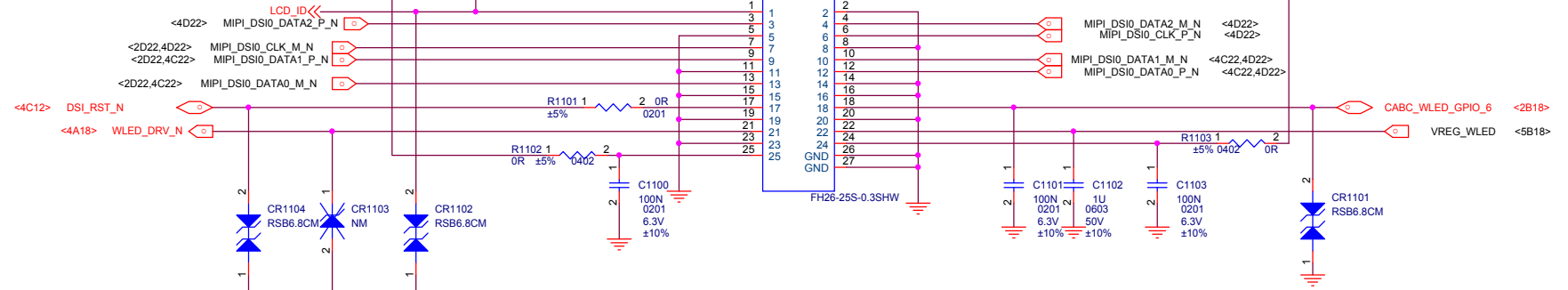
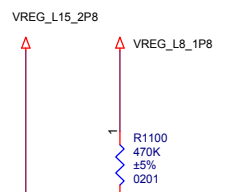
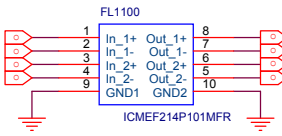
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 20 of 28



Title		
2013028_MEMORY_EMMC		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 21 of 28

Main LCM

- <3C10> MIPI_DSI0_CLK_P
- <3C10> MIPI_DSI0_CLK_M
- <3C10> MIPI_DSI0_DATA2_P
- <3C10> MIPI_DSI0_DATA2_M

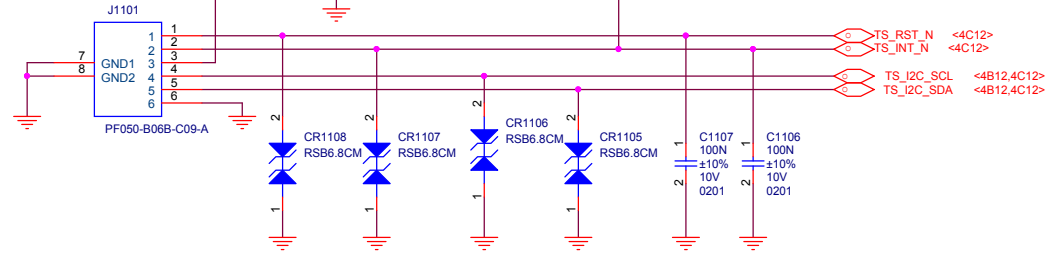
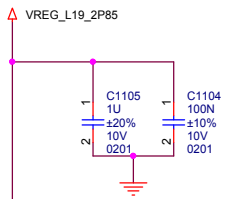
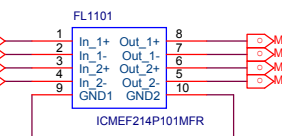


**P0.1 CR1100, CR1103
不贴**

**P0.1 CR1100, CR1103
不贴**

CTP

- <3C10> MIPI_DSI0_DATA0_P
- <3C10> MIPI_DSI0_DATA0_M
- <3C10> MIPI_DSI0_DATA1_P
- <3C10> MIPI_DSI0_DATA1_M



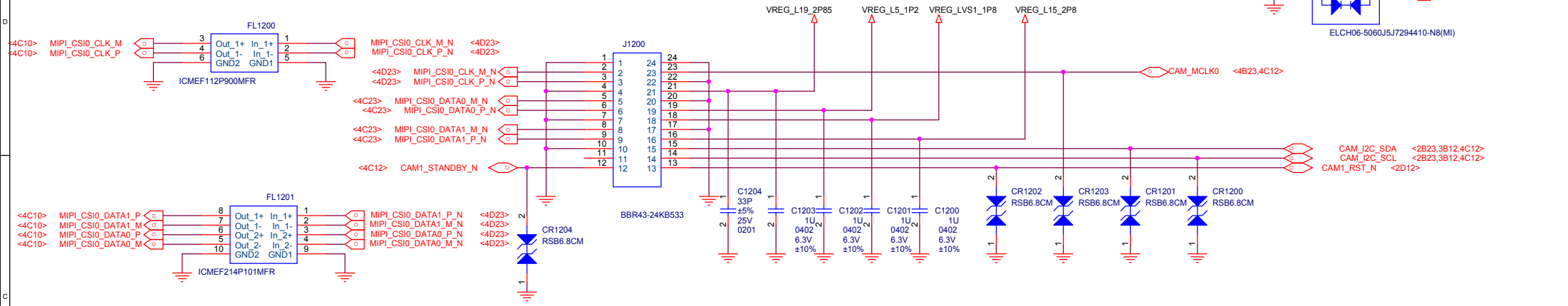
I2C ID
0xBA (power on @INT=low)
0x28 (power on @INT=high)

Sensor ID (identify different TP module)
OPT1/OPT2 need to connect to TP
(please refer to Goodix design notice)

Title		2013028_LCD_CTP
Size	Document Number	<Doc>
A3	Date:	Monday, December 30, 2013
Sheet	22	of 28

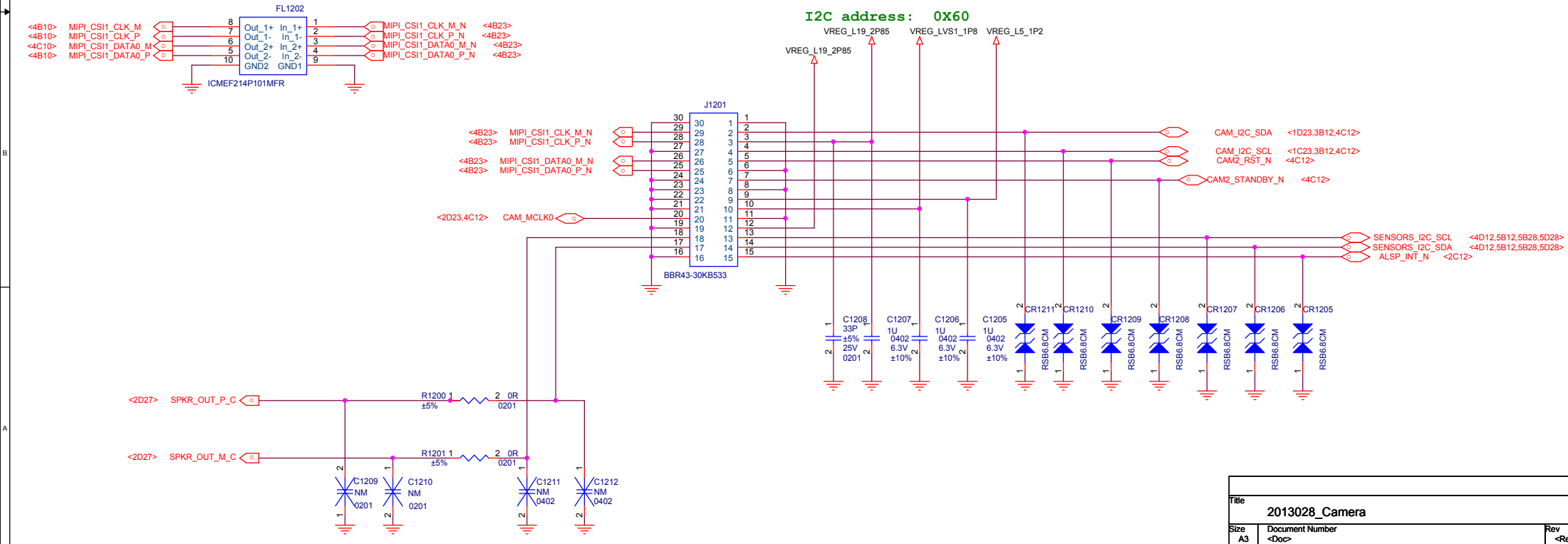
Main Camera

FlashLED

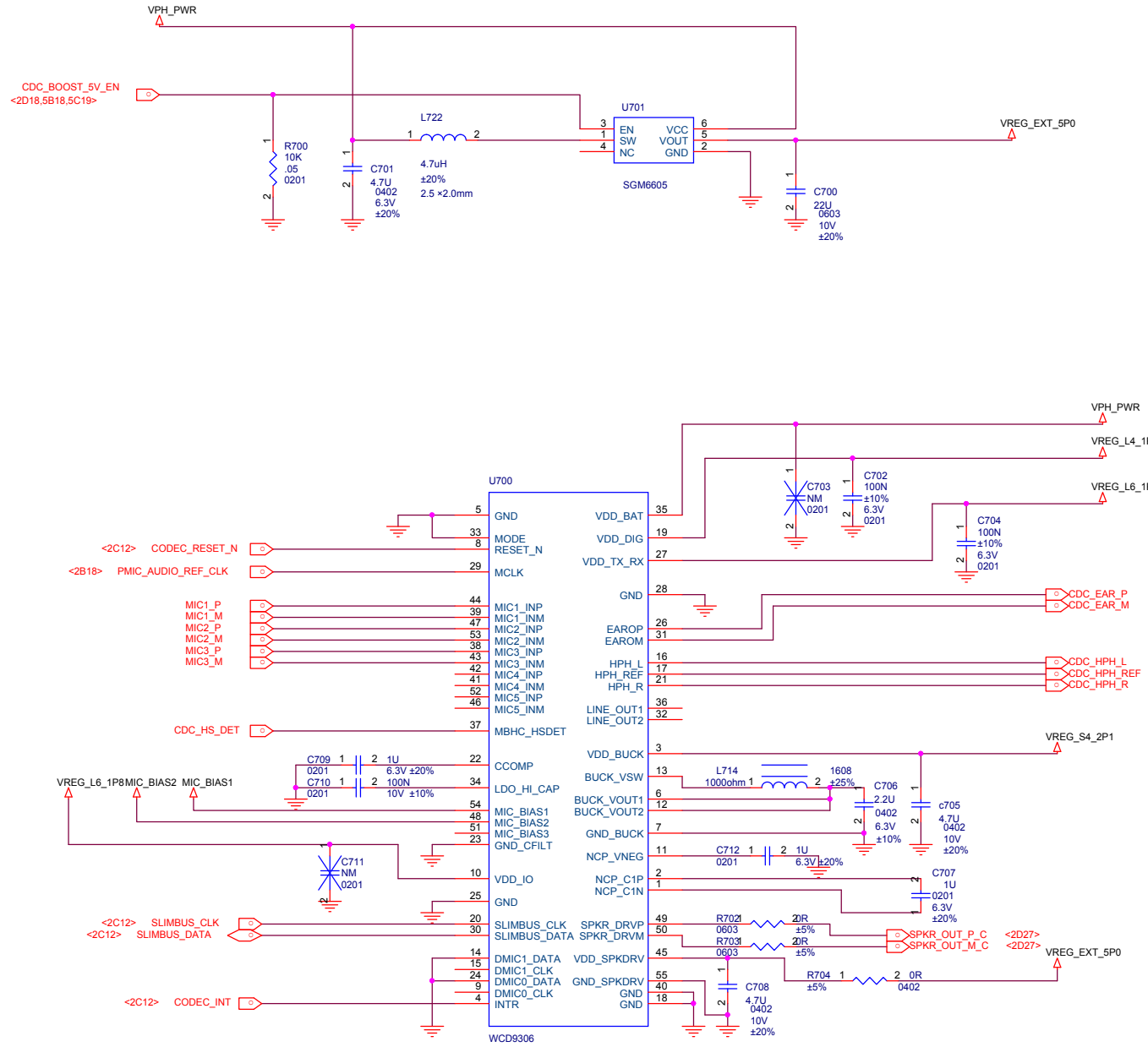


Sub Camera

ALS & PS Sensor

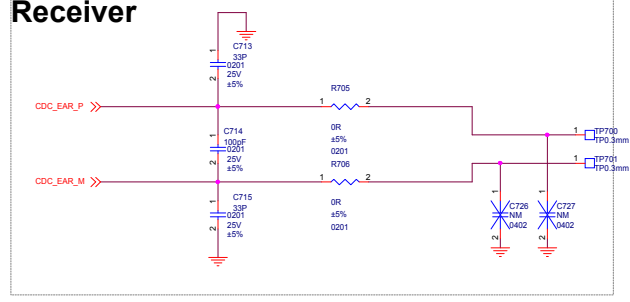


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Size	Document Number	<Doc>
Date:	Monday, December 30, 2013	Sheet 23 of 28

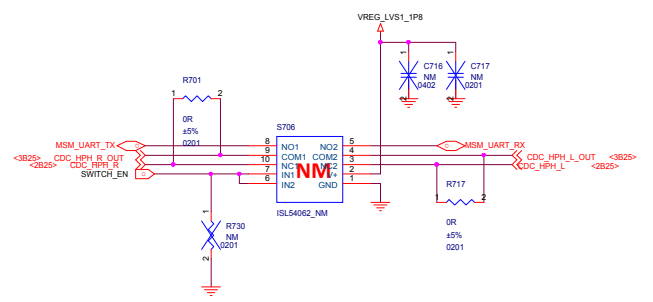


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2013028_WCD9306		
Size	Document Number	Rev
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Date:	Monday, December 30, 2013	Sheet 24 of 28

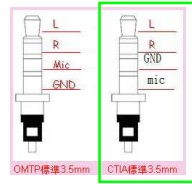
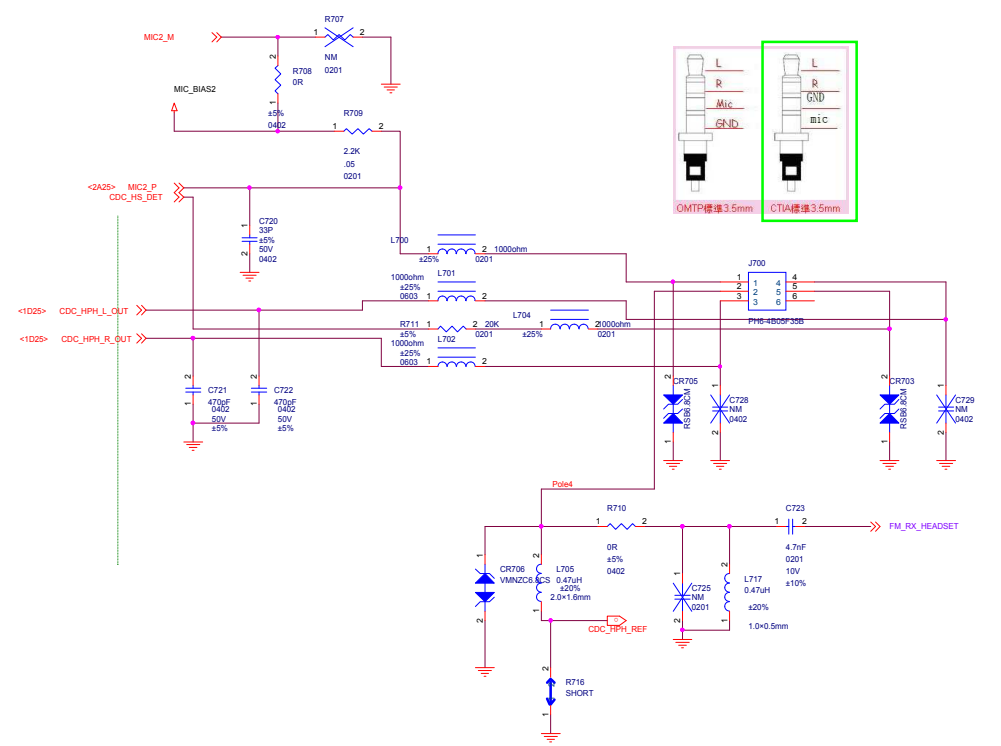
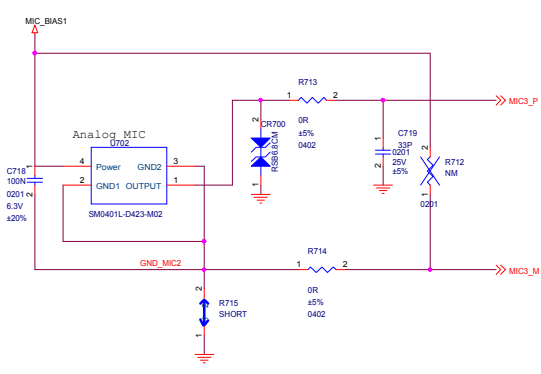
Receiver

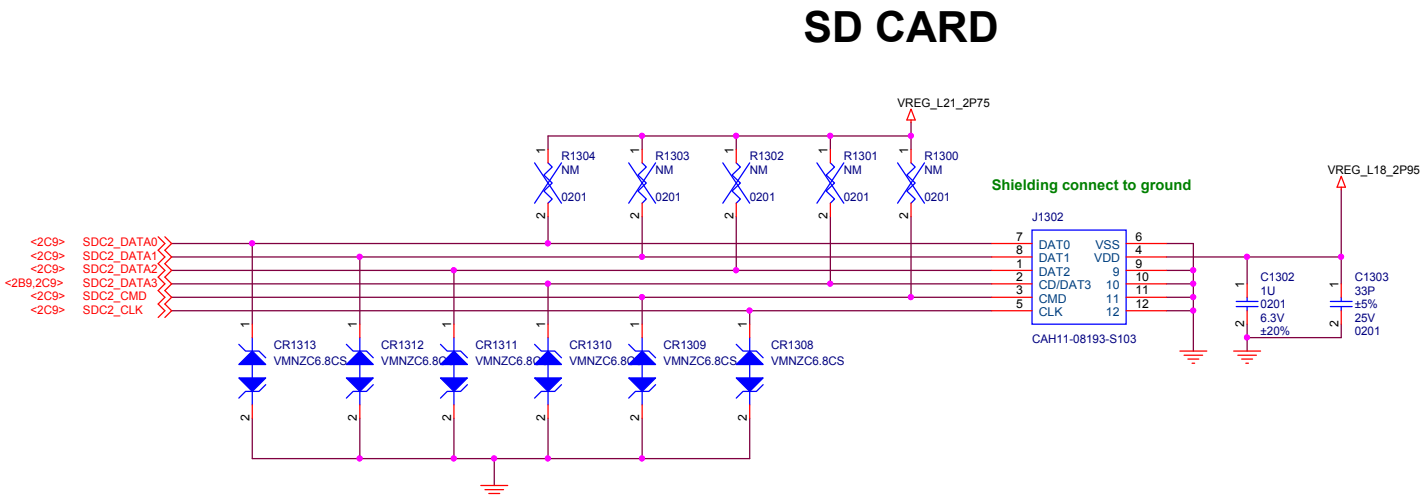
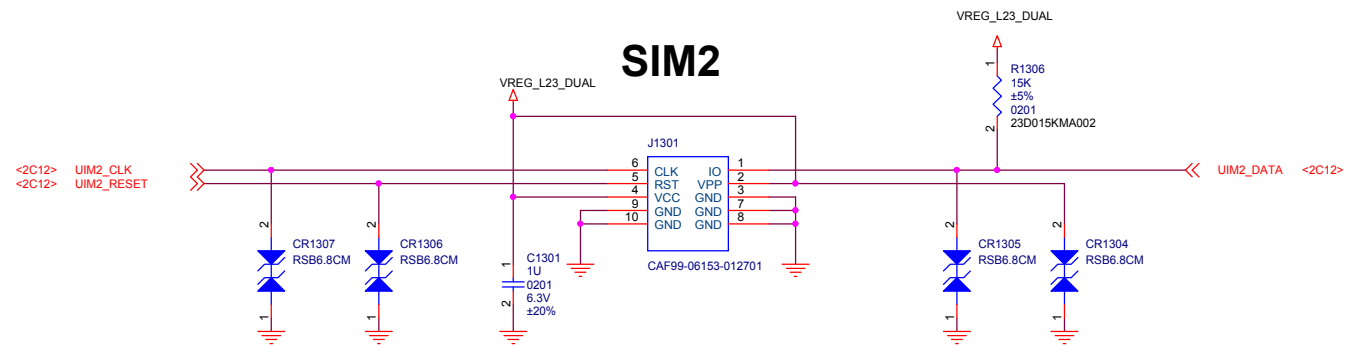
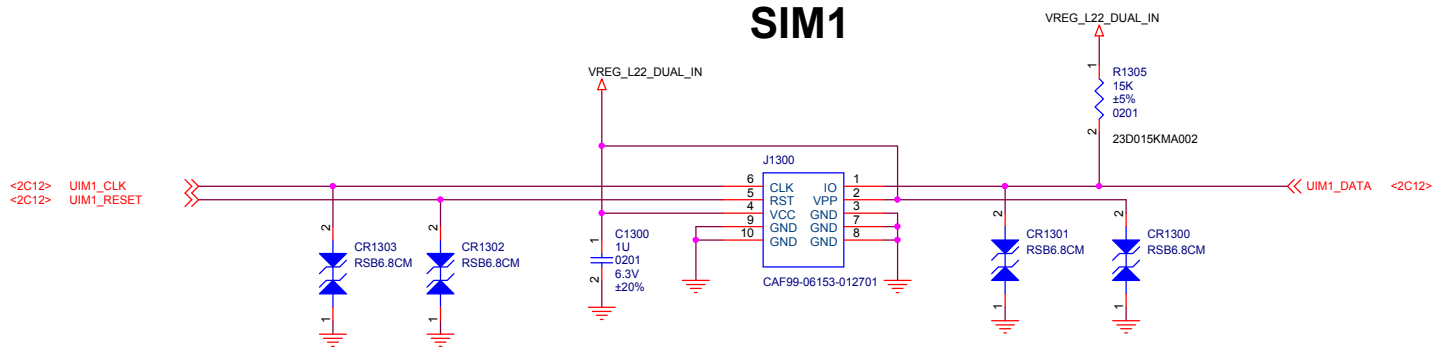


Earphone Audio



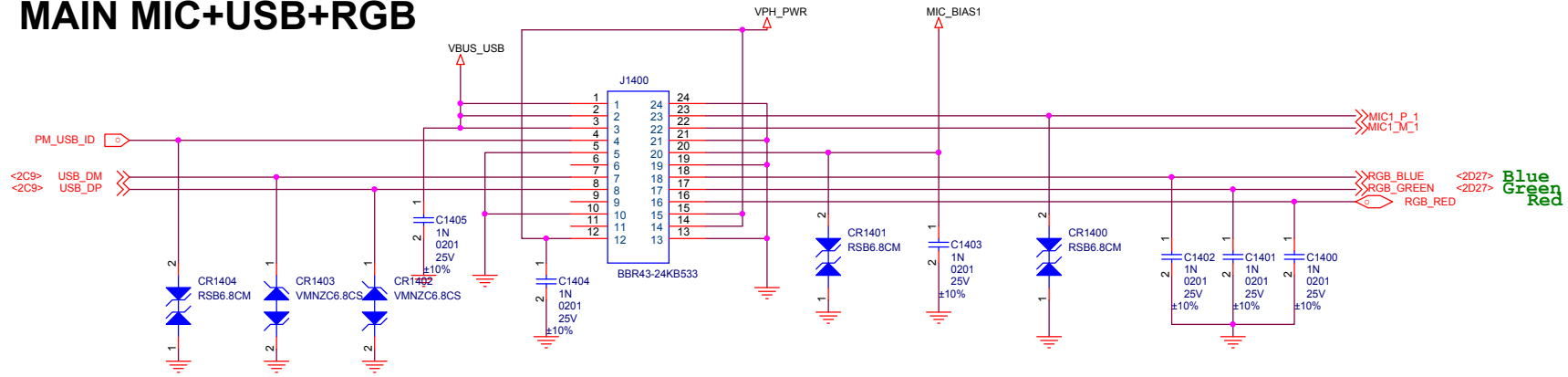
Handset Microphone



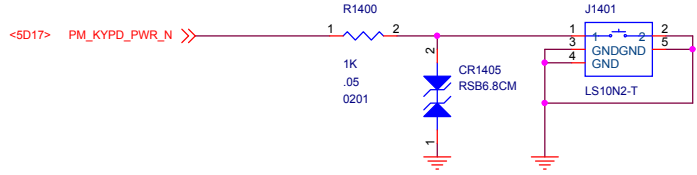


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2013028_SIM&SDCARD		
Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 26 of 28

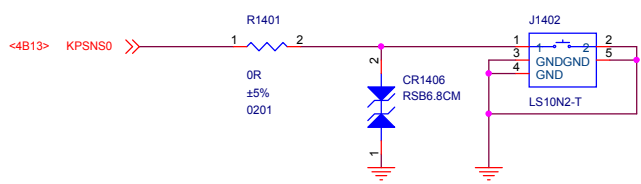
MAIN MIC+USB+RGB



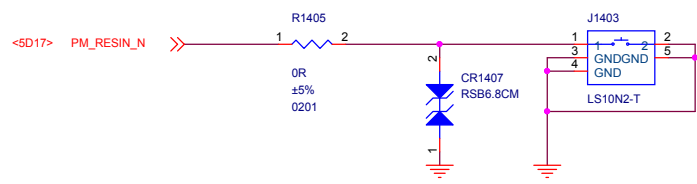
Power Key



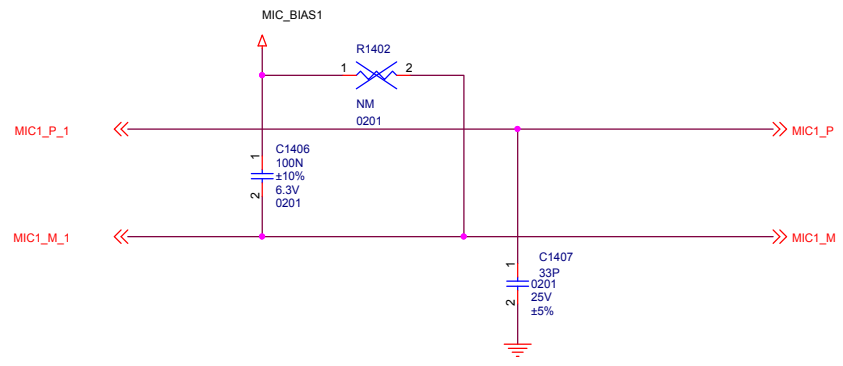
Volume Up



Volume Down

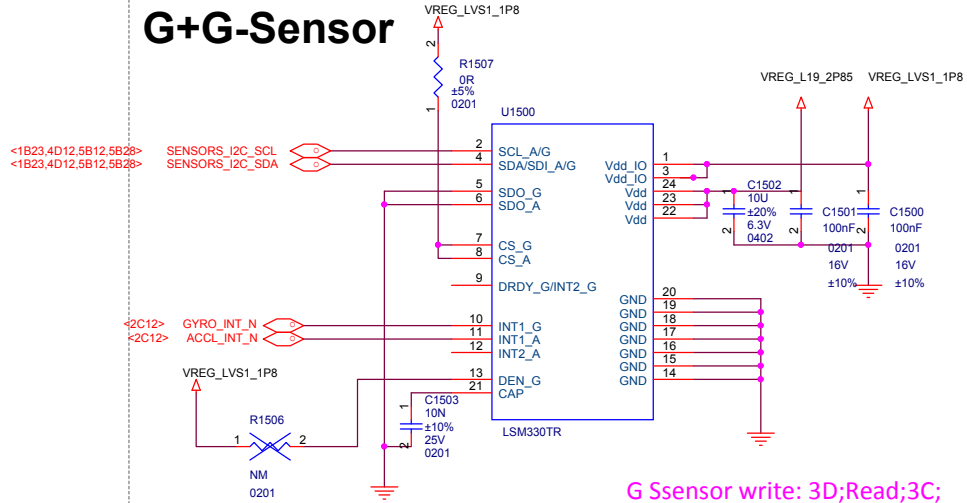


Handset Microphone 1



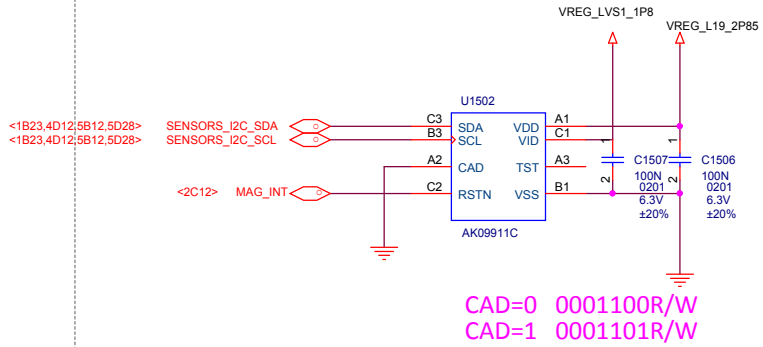
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Size	Document Number	Rev
A3	<Doc>	0.1
Date:	Monday, December 30, 2013	Sheet 27 of 28

G+G-Sensor



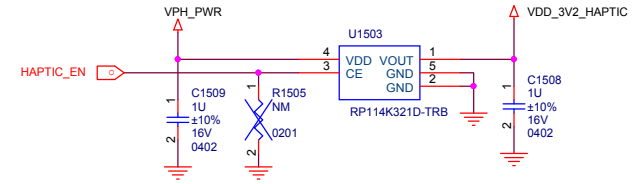
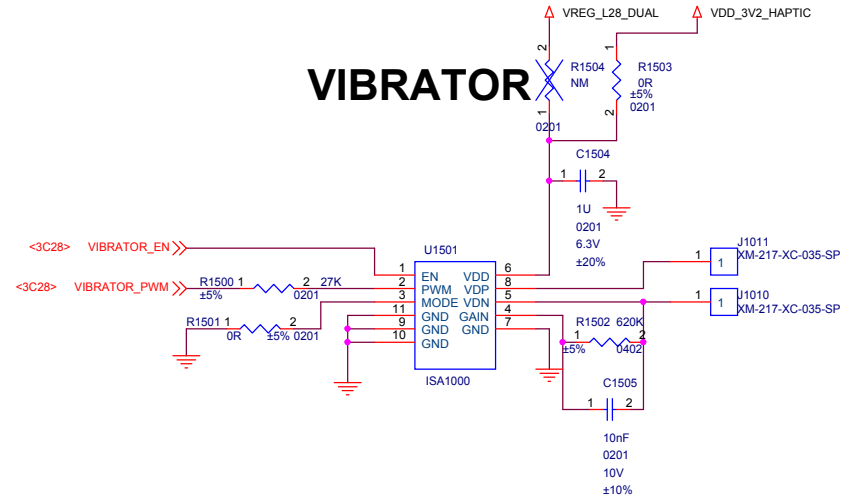
G Sensor write: 3D;Read:3C;
GYRO sensor: write:D5h; Read:D4h

Compass Sensor



CAD=0 0001100R/W
CAD=1 0001101R/W

VIBRATOR



红米1S (TD) 三级维修指导

文档名称：

TSIMMPHM1S
红米1S (TD) 三级
维修指导

文档目录：

1. 不开机故障

适用范围：

分析中心，各主板/整
机维修工厂

更新记录：

V01 2014-10-28

变更内容：初版

不开机故障

1. 主要芯片及供电

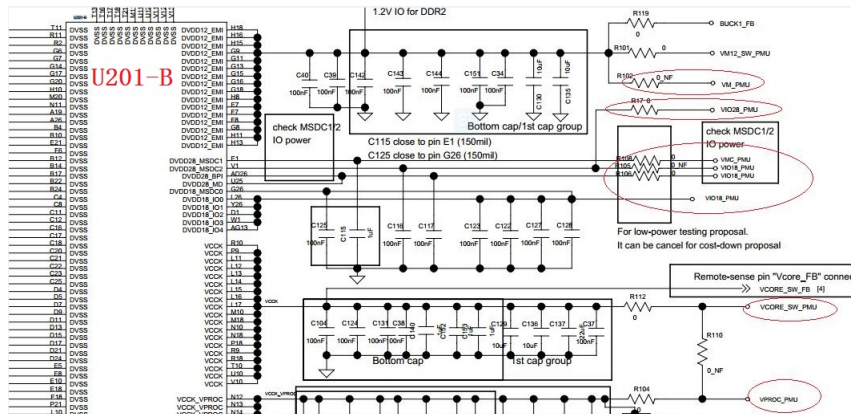
U201

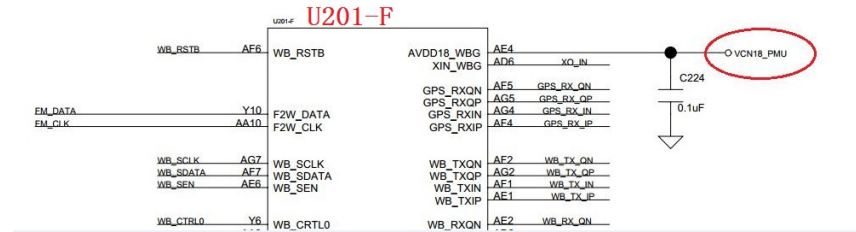
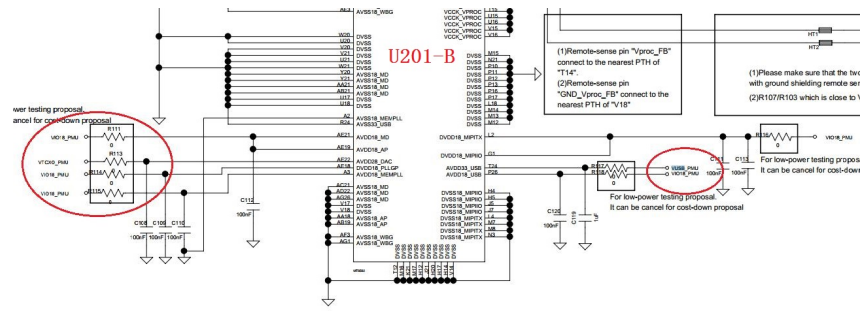
Symbol	标准数值	测量点	Application
VM_PMU	1.2V	R102	Core DDR2
VIO18_PMU	1.8V	C122	IO APP
VCORE_SW_PMU	1.2V	R110	MDSYS/digital core
VPROC_PMU	1.2V	R110	Processor (U201 内部)
VMC_PMU	3.3V	R108	T-Card CMD
VUSB_PMU	3.3V	R117	Usb model of u201
VTCXO_PMU	2.8V	R113	MDSYS

U201供电由U301产生，测量条件：

1) 在USB供电的时候，如果U201和U301工作正常，这些电压U301都会产生。

2) 在电池供电的时候按住开机键，即使没有U201没有焊在主板上，U301也会产生这些电压。



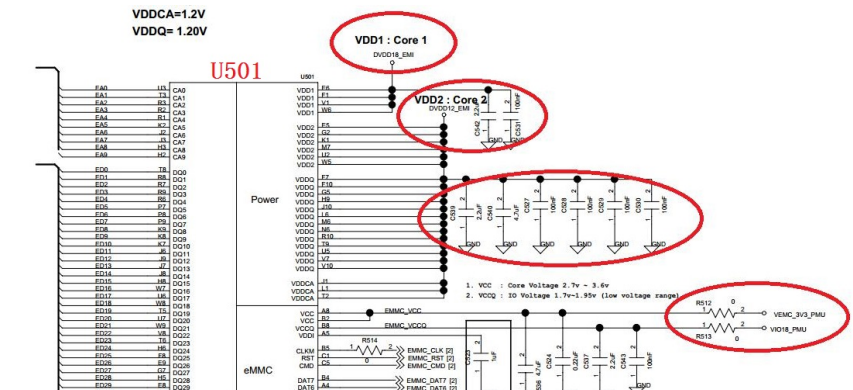


U501(LPDDR2+EMMC)

Symbol	标准数值	测量点	Application
VDD1: CORE1	1.8V	C542	IO LPDDR2 (U501 内部)
VDD2: CORE2	1.2V	C540	LPDDR2 (U501 内部)
VIO18_PMU	1.8V	R513	IO (U501 内部 EMMC)
VEMC_3V3_PMU	3.3V	R512	CORE (U501 内部 EMMC)

U501的供电由U301产生，测量条件:

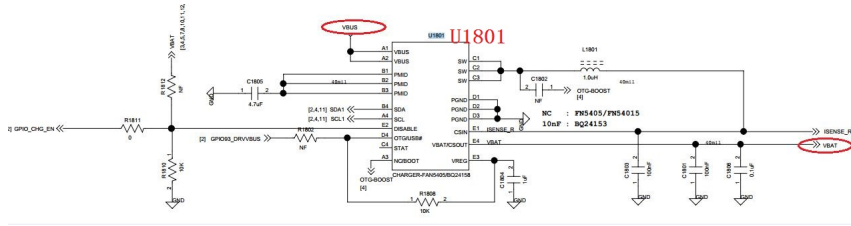
- 1) 在USB供电的时候这些电压都会产生，无论U501是否焊在主板上。
- 2) 在电池供电的时候按住开机键，无论U501是否焊在主板上，U301都会产生这些电压。



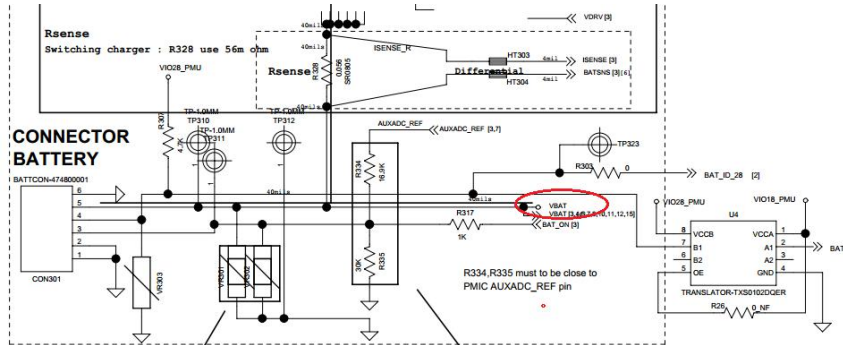
U301---电源管理芯片

U201、U501的供电都是由U301产生的，U301供电为VBAT。测量条件：

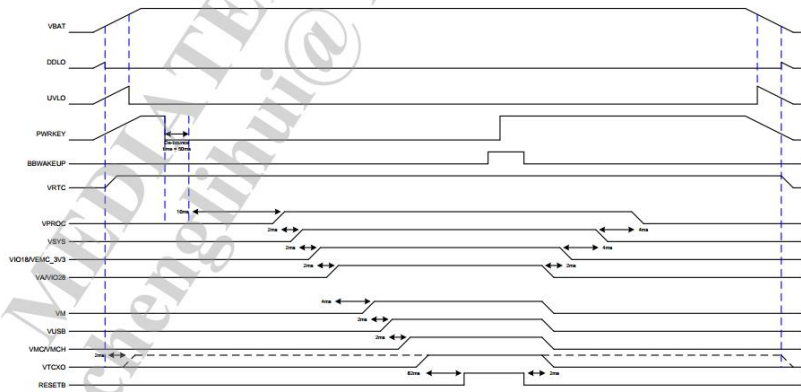
1) 在USB供电的时候由VBUS经U1801产生电压VBAT : 3.6V.



2) 在电池供电的时候VBAT为电池的正极输入电压。



Power on/off sequence



2. 故障分析

HM的LPDDR2和Emmc集成了在U501中，U501损坏可引起不开机、死机、定白米、定黄米等开机相关故障。

HM的不开机主板主要分为3类：

2.1 电流异常的，在不加显示屏的前提下，用电池供电按开机键大电流（ > 200MA ）或小电流（ < 40MA ）

2.1.1 大电流的考虑是否有电压对地。按照损坏比例最好先测量U201和U501的供电，观察是否有对地的。检查U301供给其他外设的电压是否有对地的。

故障分析：

- 1) U301输出的电压是否有短路
- 2) U201的供电容易出现短路现象
- 3) 蓝牙WIFI芯片容易烧毁

2.1.2 电流小的 (<40MA) 应该检查U301是否工作，VBAT是否加在了U301上。U301产生的U201和U501的供电是否产生齐全。

故障分析：

- 1) U301工作需要的VBAT是不是能供给U301
- 2) U301没有工作，电压产生不全

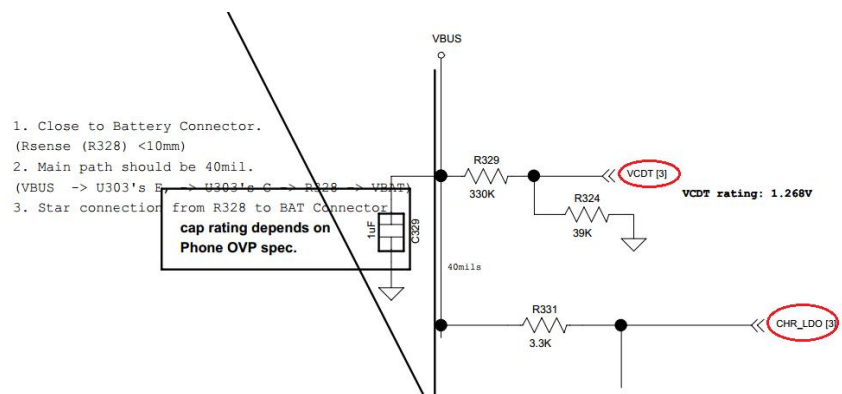
2.2 电池供电按开机键电流在40-200ma不能连机

测量DM、DP、ID的对地阻值是否正常，如不正常考虑J1101、U201。如果阻值正常，插上USB线依然不连机，按照以下方式判断：

2.2.1 插上USB线检查VBUS是否进入到U1801。U1801是否产生VBAT。U301是否产生了U201所用的供电。检查32KHz。

故障分析：

1) 在USB供电下主板是否可以正常判定为充电开机状态，要检查VCDT、CHR_LDO是否正常。



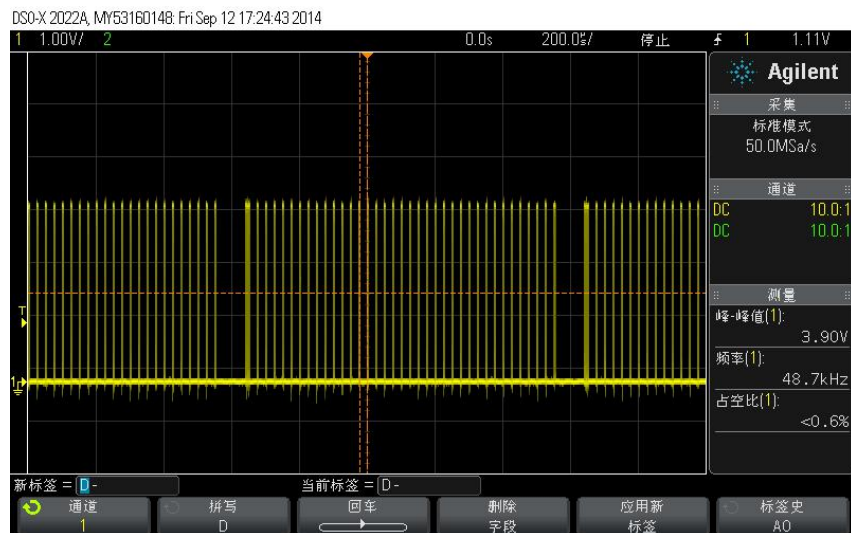
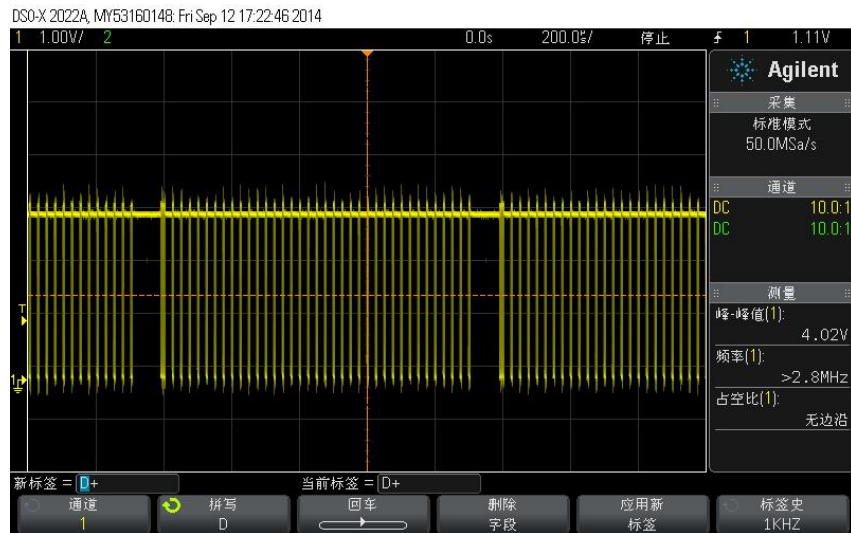
2) 在USB供电下U1801是否可以将VBAT供给到U301

3) 在USB供电下U301没有工作，电压产生不全

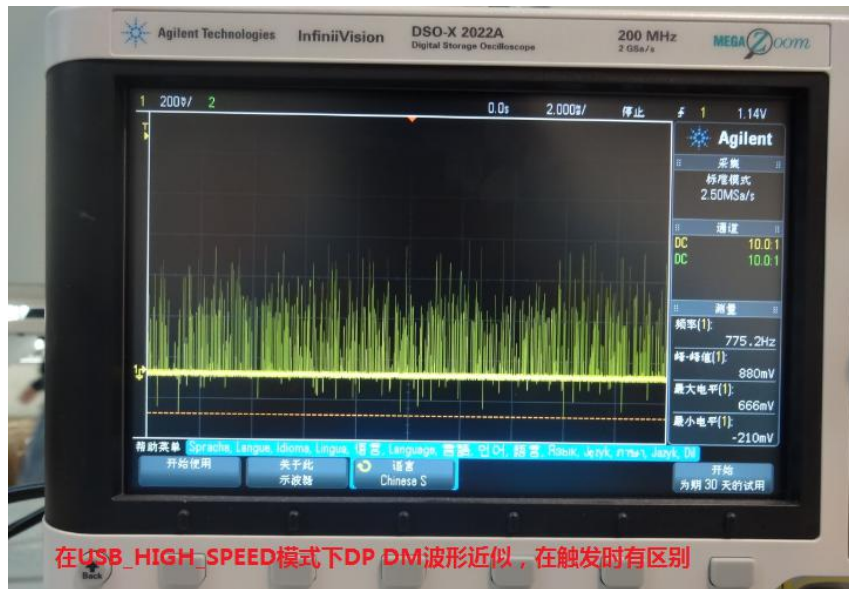
2.2.2 如果在USB供电下U301各个电压产生正常，检查DM DP上是否有下图所示的电平，USB_ID是否有1.8V电压。

注意：USB_FULL_SPEED和USB_HIGH_SPEED下的DM DP波形是不一样的。

更换过新的U501连机时是工作在USB_FULL_SPEED模式下，DP DM波形如下：



没有更换过U501并且U201能读取U501内部部分程序的，连机时是工作在USB_HIGH_SPEED模式下，DP DM波形如下：



故障分析：

- 1) U201是否正常工作
- 2) U201供电是否齐全，电压是否准确
- 3) U201的时钟26MHz是否正常

小经验：

- 1) 如果DP上有3V电压，没有上图的波形，主板不连机一般都是U201的故障。

2) 如果DP上没有电压，应先检查U1801是否有VBAT输出，再检查U201的工作电压是否全都正常。

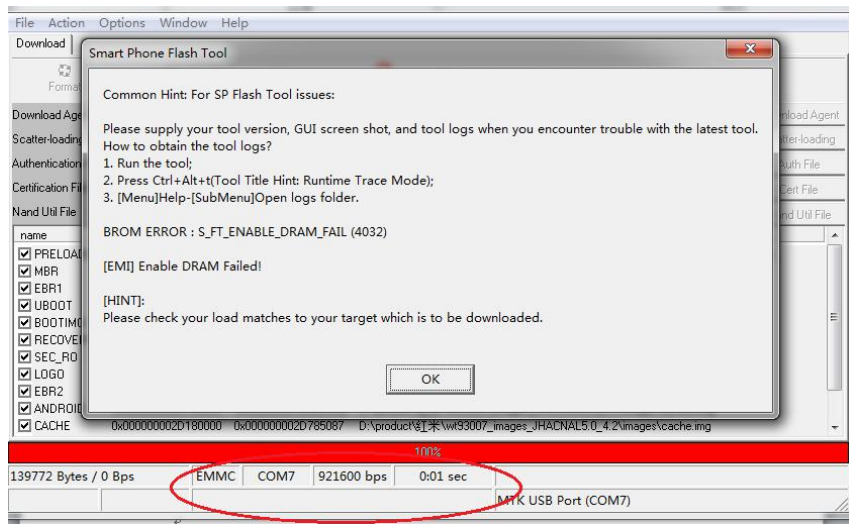
2.3 电池供电按开机键电流在40-200ma能连机刷机

这种情况大部分刷机不过更换U501就能解决。

注:经测试发现，正常主板在成功更换U501后未刷机的情况下，按住开机键电流维持在40-60MA，插入USB线是可以联机的。

更换U501后故障不能排除的难修主板可以参考以下分析步骤。

2.3.1 刷机报错信息1：刷机时红条到100%不走报错。下图红圈位置没有USB_HIGH_SPEED显示，也没有USB_FULL_SPEED。



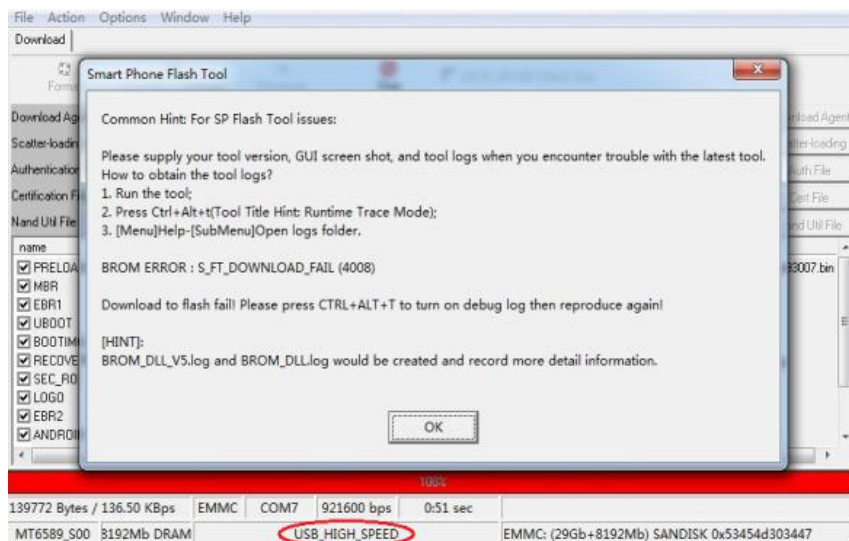
故障分析：

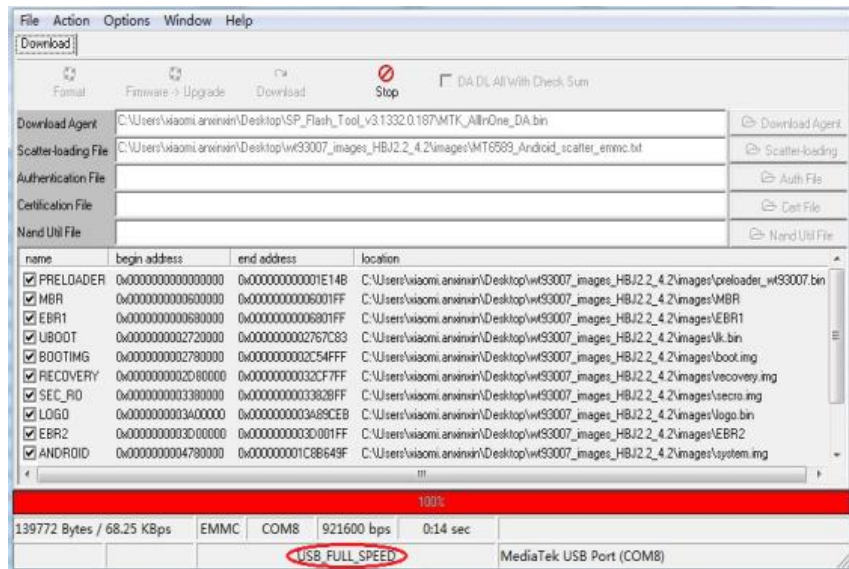
- 1) U501不能被识别
- 2) U501与U201通讯异常导致

这种故障是对U501的检测出现问题，由于U201未能检测到U501造成的。

- 1) 应该先测量U501是否焊好，检查U301供给 U501的电压是否都正常。
- 2) 判断是否由于U201的原因造成不识别U501，考虑U201与U501之间的通讯，数据线、地址线、控制线。

2.3.2 刷机报错信息2：刷机的时候在红色100%报错，有USB_HIGH_SPEED显示或有USB_FULL_SPEED。





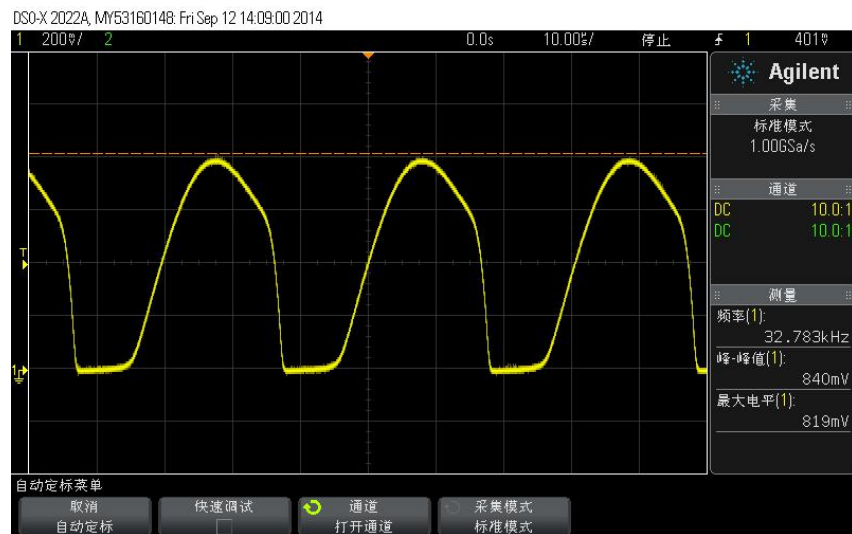
故障分析：

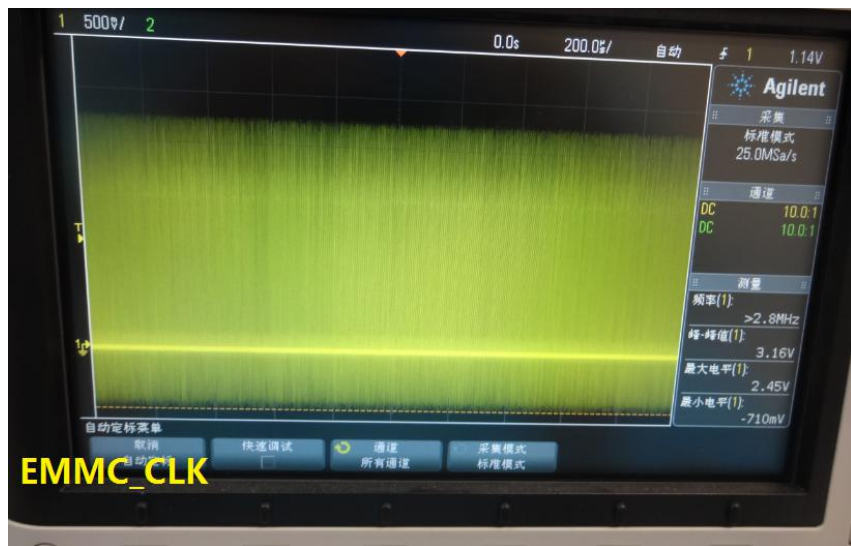
- 1) VIO1V8_PMU电压异常
- 2) EMMC_CLK波形异常

这种故障为U501能被识别但是不能刷程序。主要考虑U501的供电电压幅度是否正常，还要考虑U201是否可以向U501内刷程序。检查U201与U501之间的板线。检查EMMC_DAT数据线。

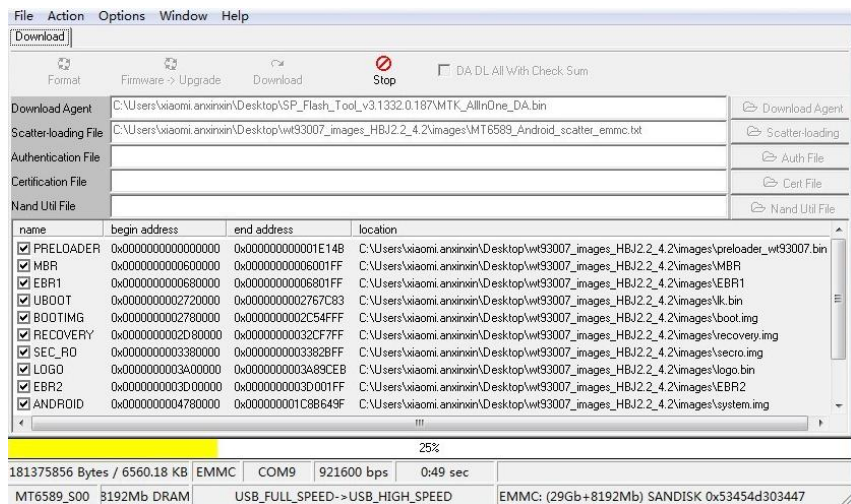
U501的供电VIO1V8_PMU没有的话，刷机机会停在这一步，一般是由U301引起。

刷机的时候如果EMMC_CLK没有波形也会停在这一步不刷机，需要考虑主板的32KHz是否幅度太低或没有，需要考虑32KHz产生电路（一般由32K晶振和U301引起）。正确的32KHz和刷机时的EMMC_CLK波形如下图：





2.3.3 刷机报错信息3：刷机到黄色进度条中报错的，或者到黄色进度条0%不写程序。



故障分析：

- 1) U501本身器件损坏或与U201之间某条数据线地址线有问题
- 2) USB接口焊接不良

这种故障是在往U501中的EMMC部分刷程序的过程出现问题造成的。主要考虑U501本身，U201与U501之间的数据线和地址线，重点应考虑EMMC部分的数据线和地址线。USB接口焊接不良，会出现有时能刷程序有时刷程序在黄条报错的问题。我们曾遇到一块一会能刷过一会刷不过的主板，是由于USB接口焊接不良造成的。

3. 案例分享

下面分享几个我们遇到的比较特殊的实例。

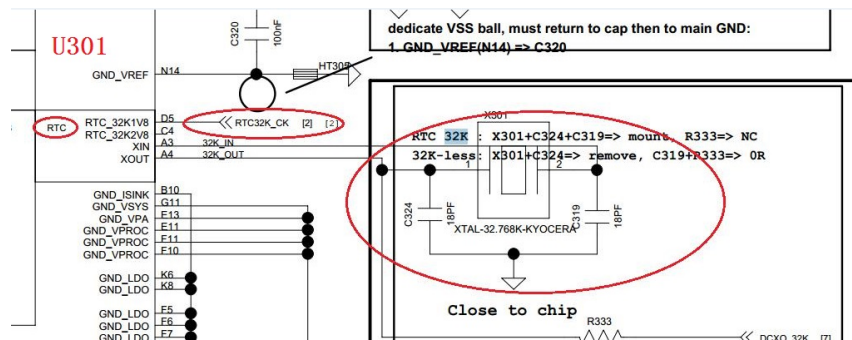
第一例：

故障现象：70ma不开机，端口为MTK。定在100%不能刷机报4001错误

故障器件：Y301

故障原理分析：

HM主板在刷机的过程中，U201需要32KHz才能匹配刷机时的数据传输。所以主板在更换完U501后，刷机时在很长的时间里报错4001，是因为U501的DDR2存储空间可以被识别，但是数据不能写入造成。所以此故障除了芯片问题还有很大的几率是32KHz的晶振Y301问题。此主板测量没有32khz，更换Y301后修复。同时在考虑32khz的问题时还要注意到32khz的供电VRTC是否有问题。



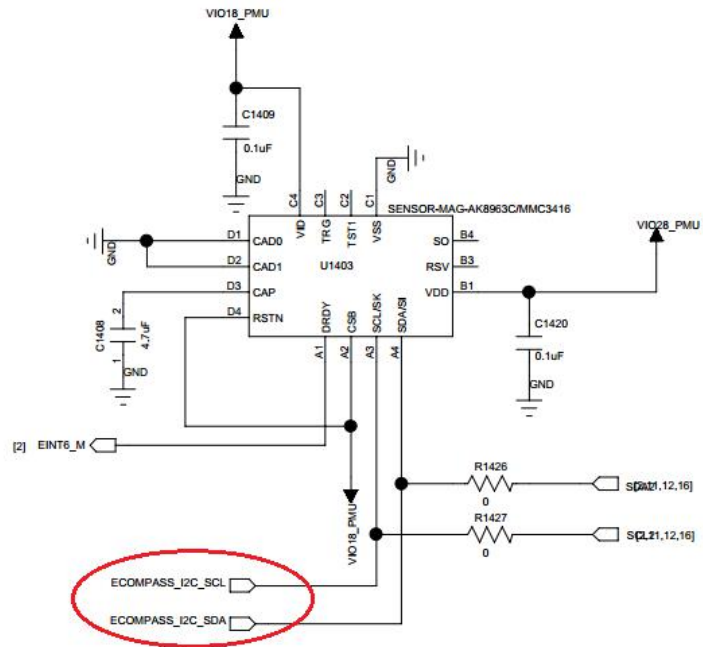
第二例：

故障现象：主板送修不开机，白米重启

故障器件：U1403

故障原理分析：

检测主板不开机，白米重启，可以刷机但是仍然白米重启，测量ECOMPASS_I2C_SCL没有电压，对地短路，更换U1403后主板修复。



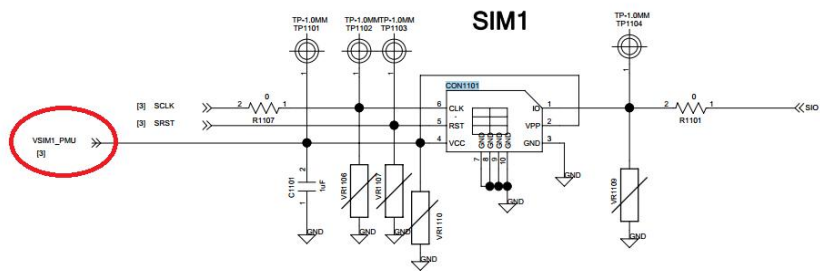
第三例：

故障现象：主SIM卡不识别

故障器件：U301

故障原理分析：

主板主SIM卡不读卡，测量VSIM1_PMU电压阻值低，更换U301后主板修复。



VSIM1_PMU 为SIM卡的供电。在判断的时候要考虑VSIM1_PMU 的电压是否有3V。

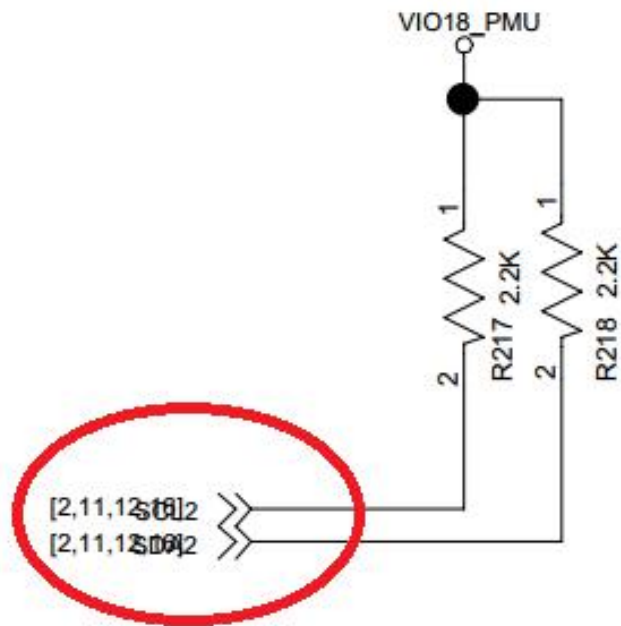
第四例：

故障现象：白米重启

故障器件：R217

故障原理分析：

白米重启考虑I2C总线，测量发现SCL2阻值异常，观察发现R217虚焊，重新焊接后修复。



小结：

遇到故障的时候应找准故障点，准确分析，手机不开机可能是由很多元件引起，但是只要我们把开机的必要条件检查不遗漏，就能找到故障点加以维修。