

Bitland Electronics Co.,LTD

Board name: Mother Board Schematic

Project name: BM5999

Version: REV:1.3

initial Date: 2010-04-21

New update:

1. System Block Diagram & Schematic page description;
2. Power Block Diagram & Discription;
3. Annotations & information;
4. Schematic modify Item and history;
5. Power on & off Sequence;
6. ACPI Mode Switch Timings;
7. Power On Sequence Map;
8. CLOCK Distribution;
9. Power Distribution;

Bitland Confidential

Hardware drawing by:

Hardware check by:

EMI Check by:

Power drawing by:

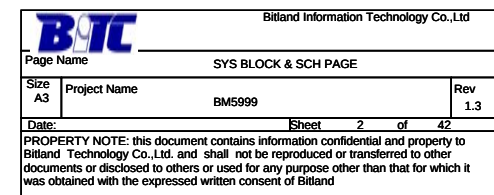
Power check by:

Manager Sign by:

		Bitland Information Technology Co.,Ltd	
Page Name		Title	
Size A3	Project Name BM5999	Rev 1.3	
Date:		Sheet 1 of 42	
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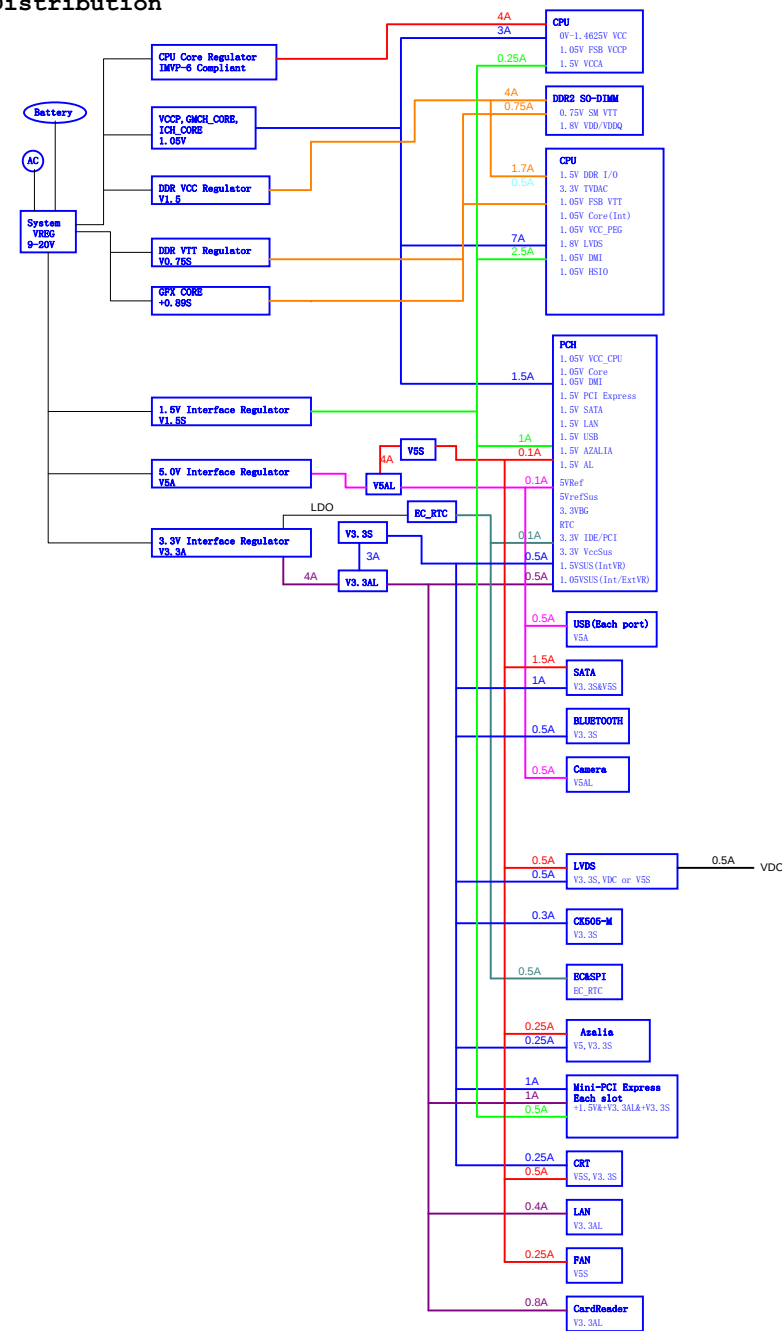
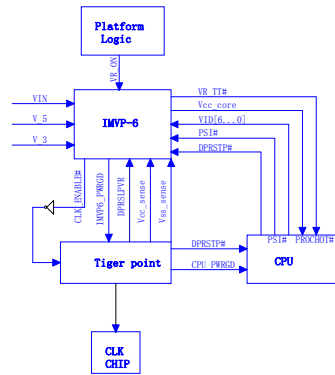
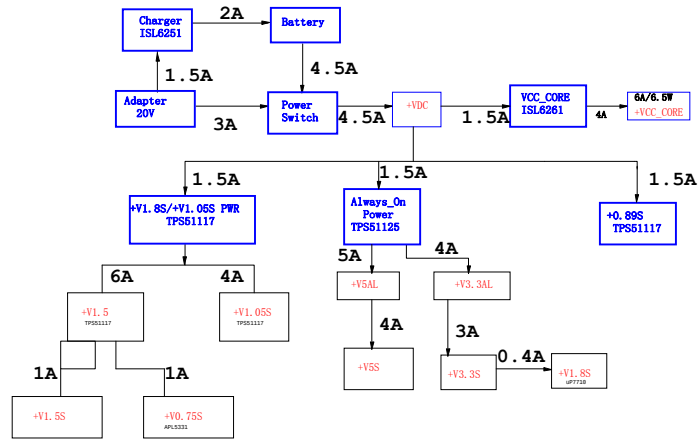
SYSTEM BLOCK Ver:C

- 1 Title
- 2 System Block & Index
- 3 PWR Block & description
- 4 NOTE
- 5 Sch Modify and history
- 6 CK-505



POWER Distribution

S18 POWER BLOCK Ver:A



Voltage Rails

+VDC	Primary DC system power supply (9V-20V)
+VBATTERY	Battery Power supply (9-20V)
+VCC_CORE	Core Voltage for CPU
+V1.05S	1.05V for Pineview & Tiger point core / FSB VTT
+V1.5	1.5V power rail for DDR3
+V0.75S	0.75V DDR3 Termination voltage
+V3.3AL	3.3V always on power rail
+V5AL	5V for ICH7-M's VCC5 Refsus
+V3.3S	3.3V main power rail
+V5S	5V main power rail
+V0.89S	0.89V for GFX

Board stack up description

PCB Layers	Trace Impedence:55ohm +/-15%
Top(Signal1)	
Power	
Ground	
Bottom(Signal4)	

USB Table

USB Port#	Function Description
0	
1	
2	
3	
4	
5	
6	
7	

I2C SMB Address

Device	Address	Hex	Master
Clock Generator	1101 001x	D2	ICH7-M
SO-DIMMO	1010 000x	A0	ICH7-M
CPU Thermal Sensor	1001 100x	98	KBC
Smart Battery	0001 011x	16	KBC
PCIE Slot	TBD	TBD	ICH7-M

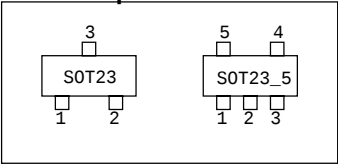
Power States

Signal	SLP_S3#	SLP_S4#	SLP_S5#	+V*ALW	+V*	+V*S	Clock
S0 (Full On)	HIGH	HIGH	HIGH	ON	ON	ON	ON
S3 (STM)	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (STD)	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (SoftOff)	LOW	LOW	LOW	ON	OFF	OFF	OFF

Wake up Events

LID switch from EC
Power switch from EC

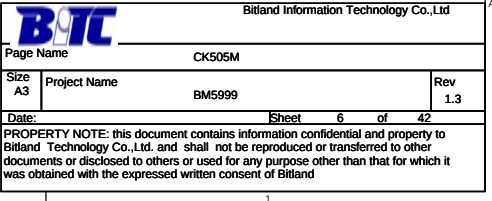
PCB Footprints

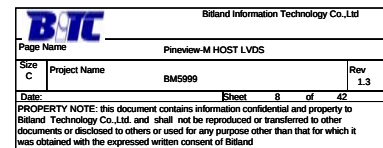


ns: Component marked "ns" is not stuff

Schematic modify Item and history:

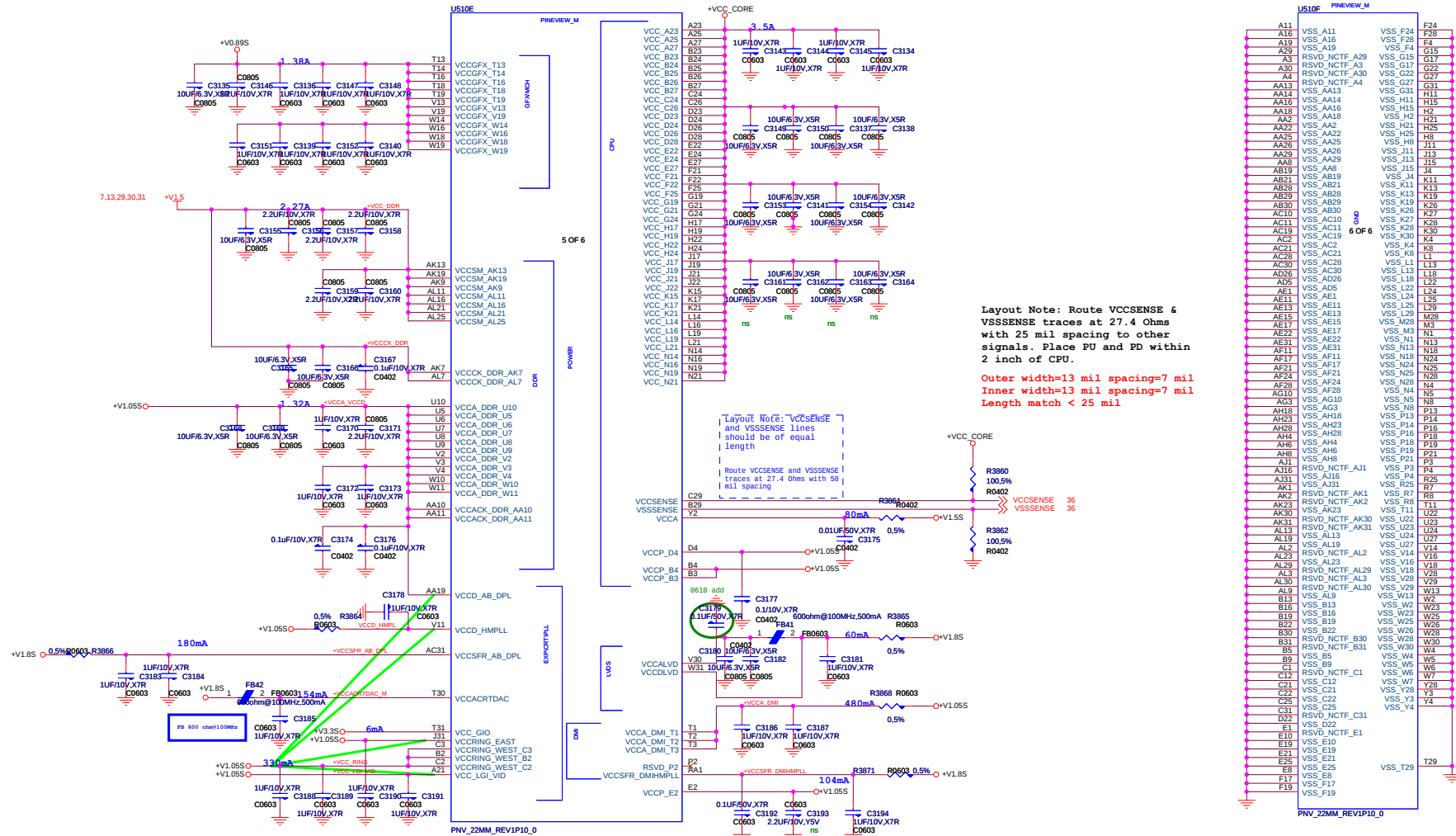
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Page Name		Sch Modify and history	
Size A3	Project Name	BM5999	Rev 1.3
Date:		Sheet 5 of 42	
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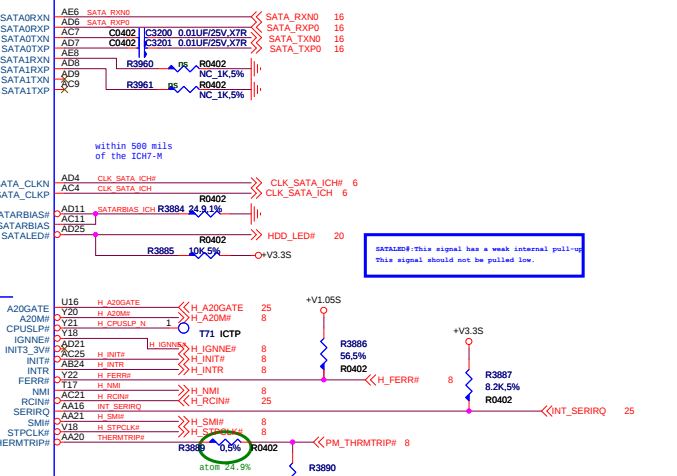
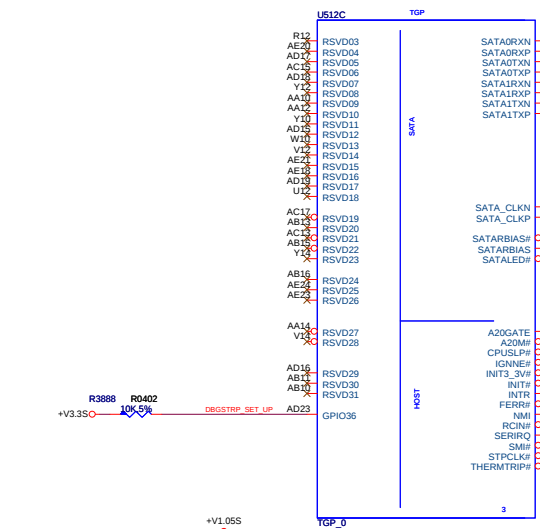
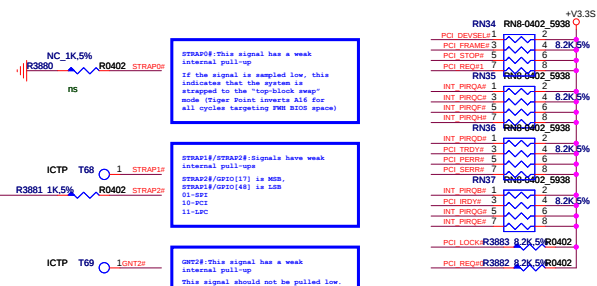
+V3.3S 6,7,8,10,11,12,13,14,15,17,18,19,20,21,22,23,25,26,29,30,36
 +VCC_CORE 36
 +V1.05S 6,8,10,11,12,29,34
 +V1.5S 12,22,29,30
 +V0.89S 29,32
 +V1.8S 34

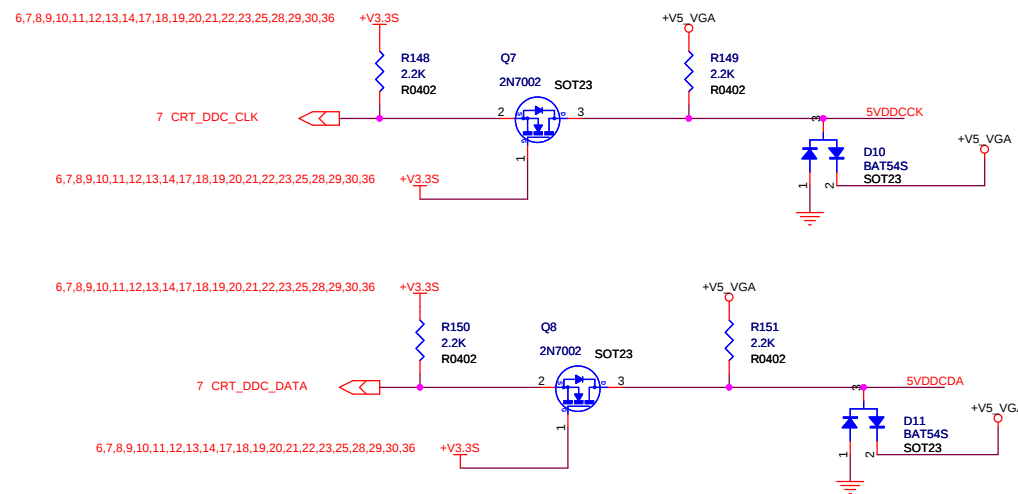
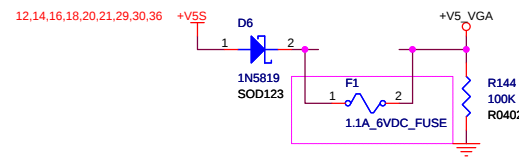
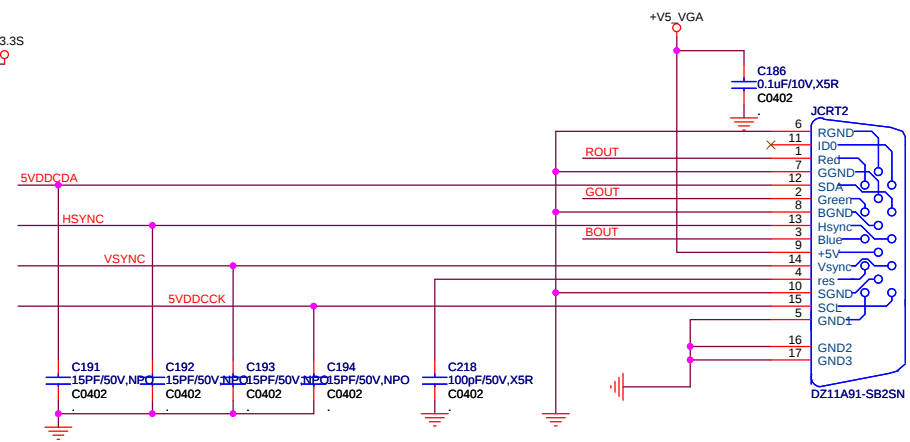
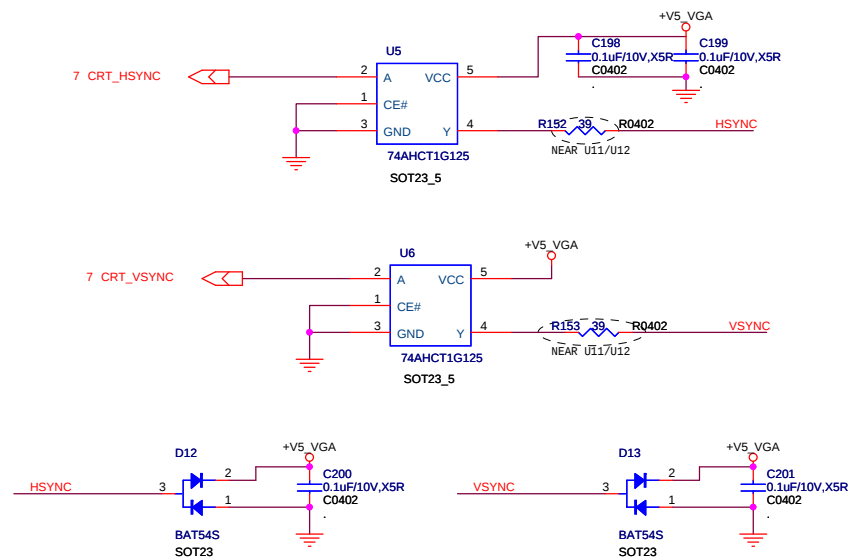
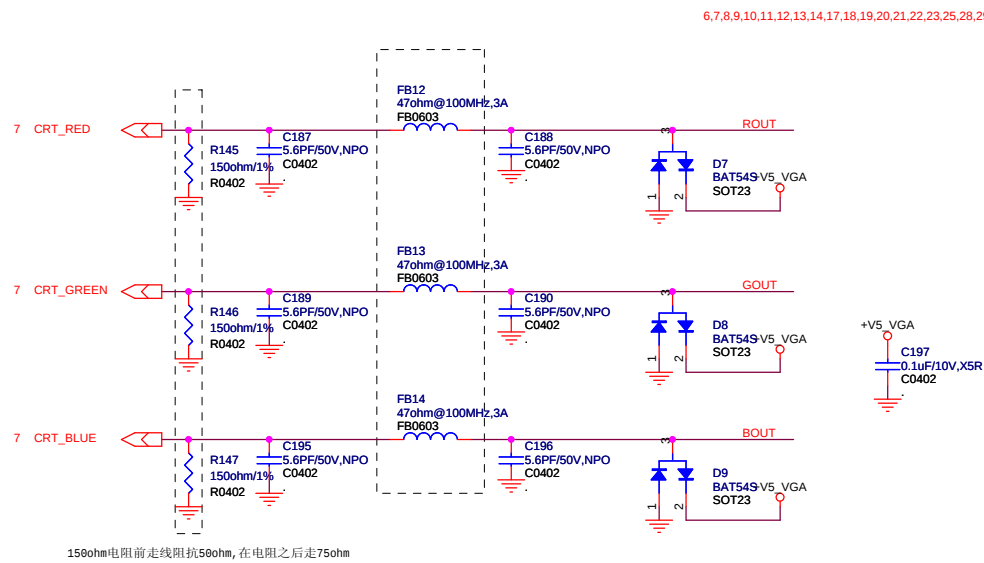
6,7,8,10,11,12,13,14,15,17,18,19,20,21,22,23,25,26,29,30,36 +V3.3S +V3.3S



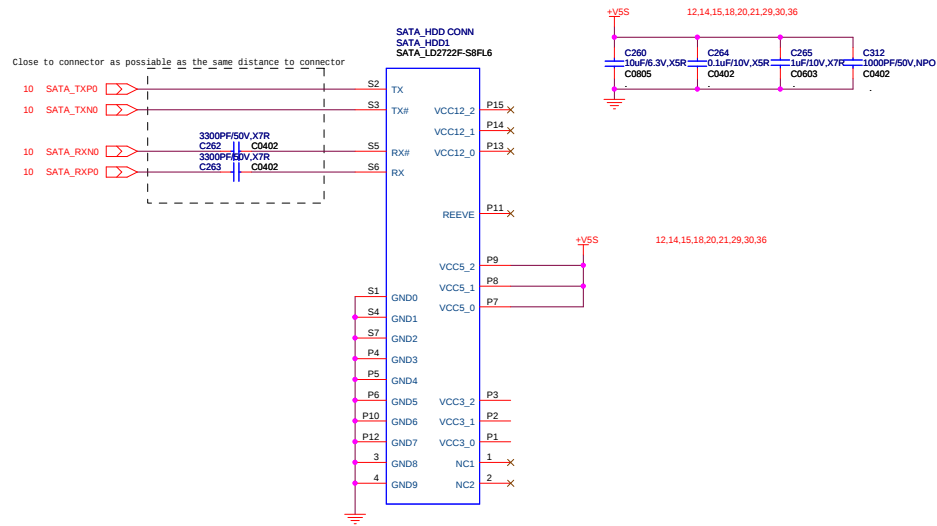
Layout Note: Route VCCSENSE & VSSSENSE traces at 27.4 Ohms with 25 mil spacing to other signals. Place PU and PD within 2 inch of CPU.
 Outer width=13 mil spacing=7 mil
 Inner width=13 mil spacing=7 mil
 Length match < 25 mil

Layout Note: VCCSENSE & VSSSENSE lines should be of equal length
 Route VCCSENSE and VSSSENSE traces at 27.4 Ohms with 25 mil spacing



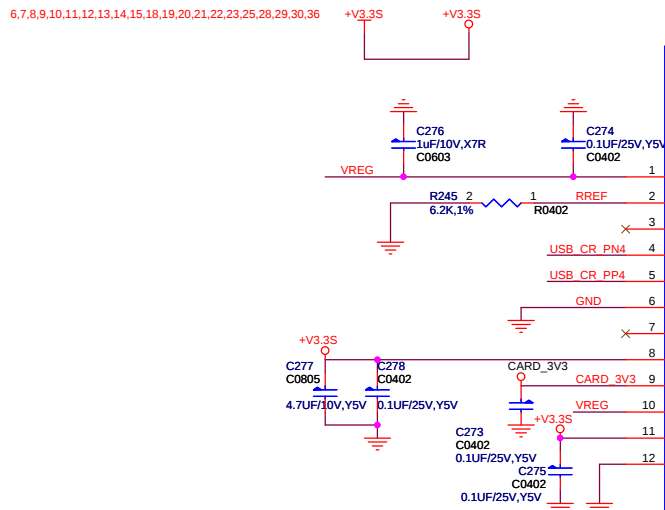


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PAGE DETAIL	<Doc>	ID	CRT
		Date	Rev 1.3
			Size A3
			Sheet 15 of 42

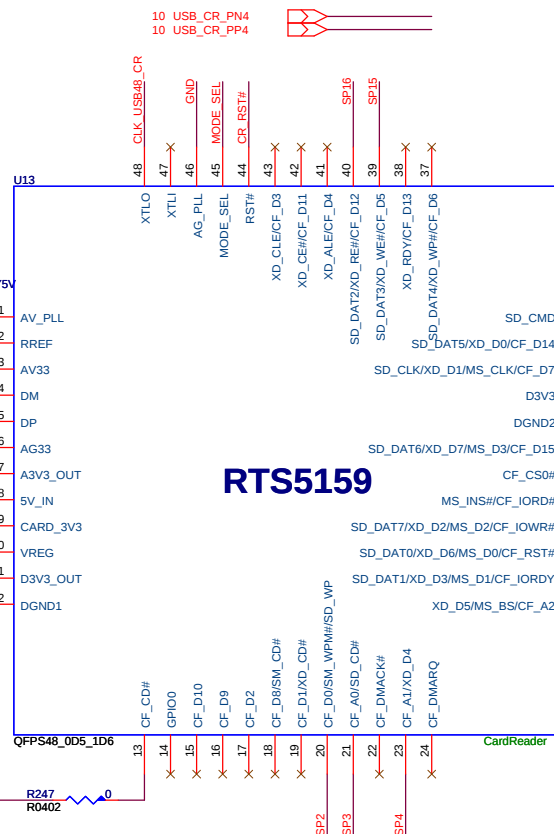
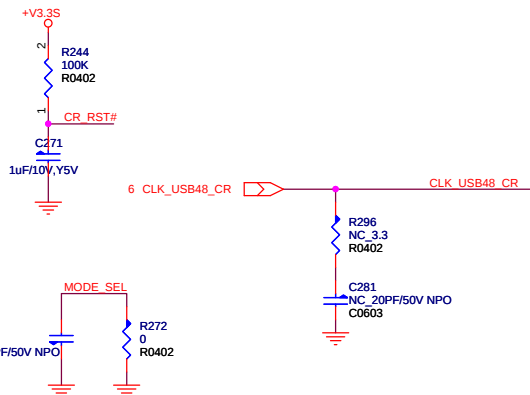


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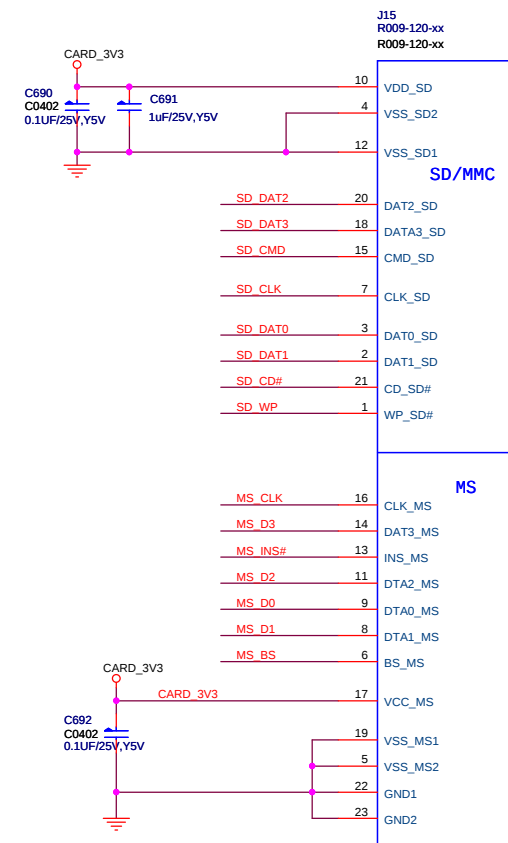


If R236 is ON, external 48MHz clock input mode is choosed;
If R236 is off, external 12MHz clock input or crystal 12MHz input mode is choosed



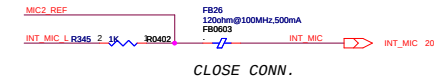
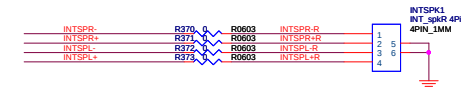
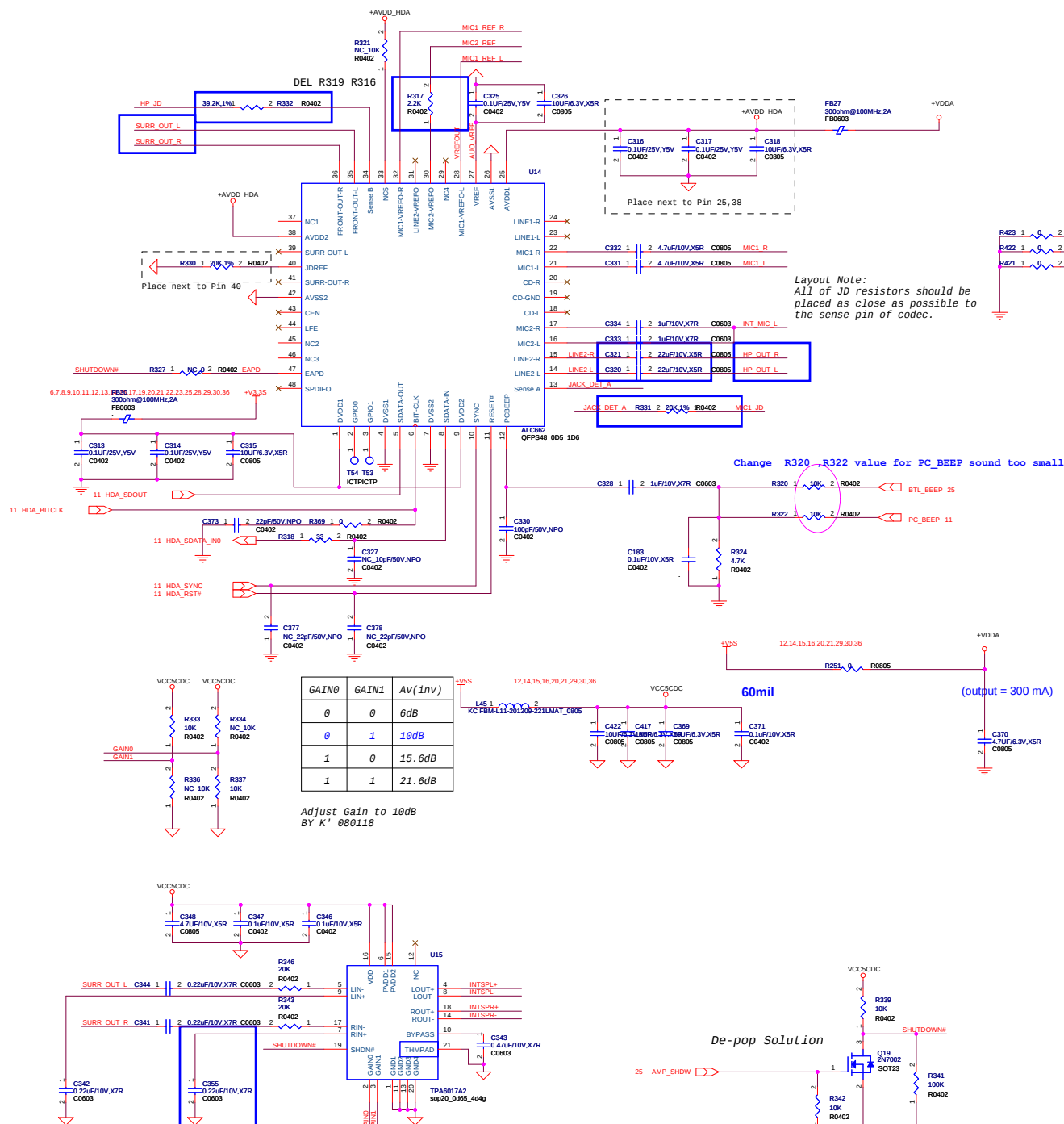
SP2	SD_WP
SP3	SD_CD#
SP5	MS_BS
SP6	MS_D1
SP7	SD_DAT0
SP8	MS_D2
SP9	MS_INS#
SP10	MS_D3
SP11	
SP15	SD_DAT3
SP16	SD_DAT2

SP4 SD_DAT1

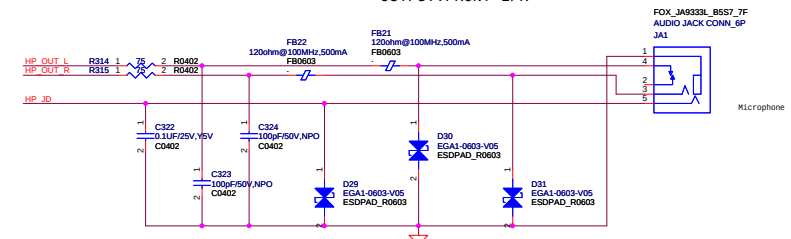


Bitland Information Technology Co.,Ltd. 4-6F, #7 Building, Xili Tongfuyu Industrial Town Nanshan District, Shenzhen			
BITC_PN	BM5999	Rev	1.3
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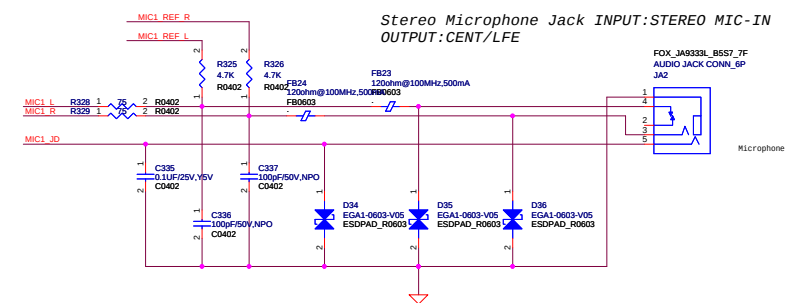
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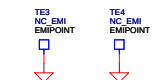
Headphone Jack INPUT:HEADPHONE/LINE-OUT
OUTPUT:FRONT L/R

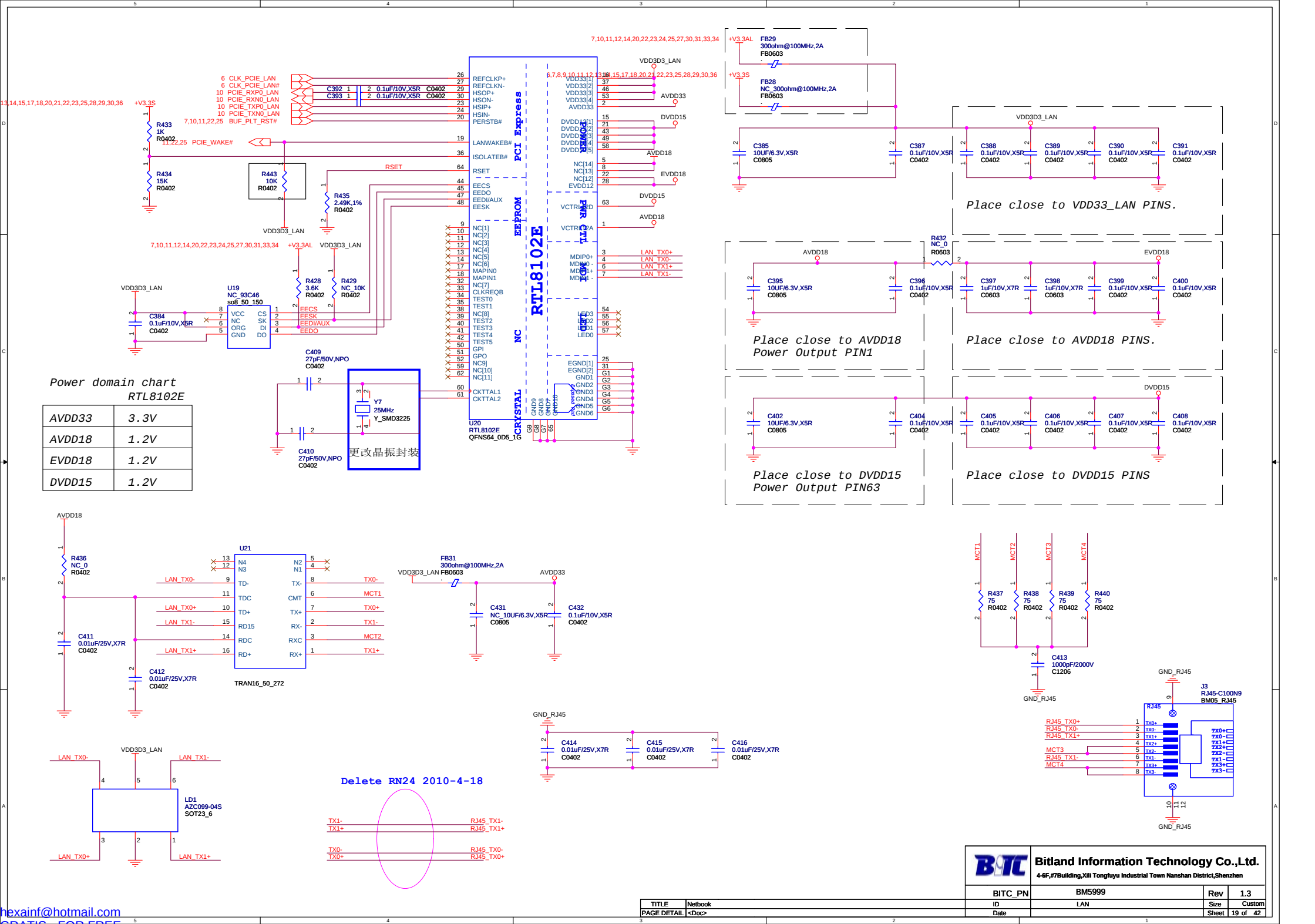


Stereo Microphone Jack INPUT:STEREO MIC-IN
OUTPUT:CENT/LFE

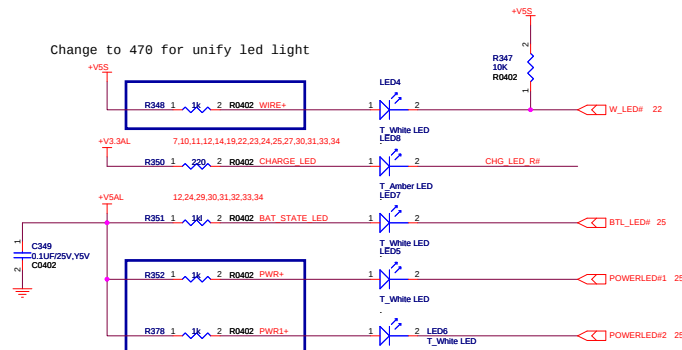


Layout Note:
Tied at three points under the
codec and near the codec



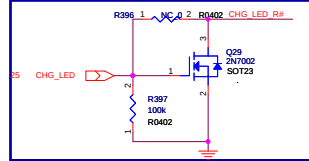


Change to 470 for unify led light



Change to 470 for unify led light

增加MOS, 高电平有效, 解决上电LED闪烁问题

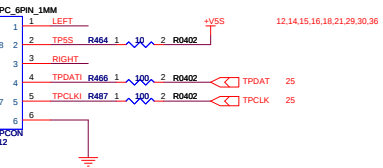
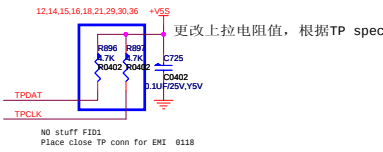


LED MB.

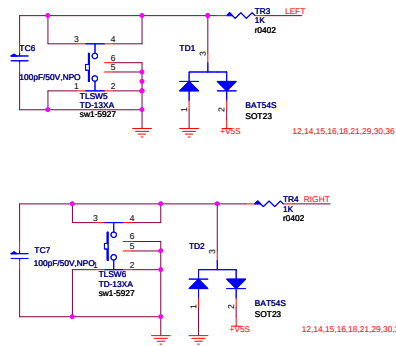
增加上拉电阻, 避免上电时指示灯瞬间闪烁

TOUCHPAD CONN.

更改上拉电阻值, 根据TP spec

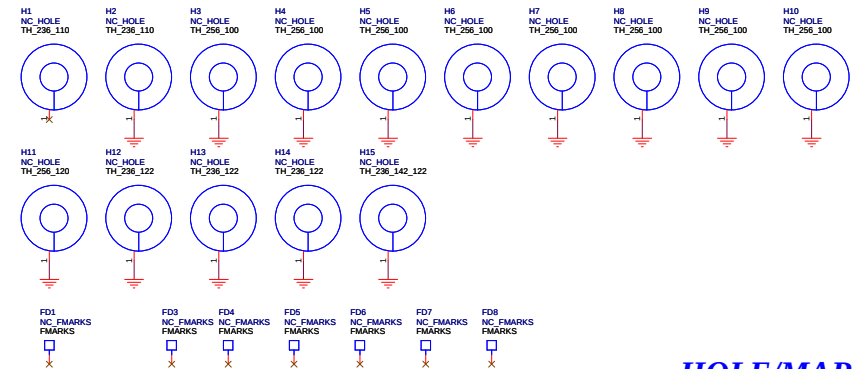


12,14,15,16,18,21,29,30,36

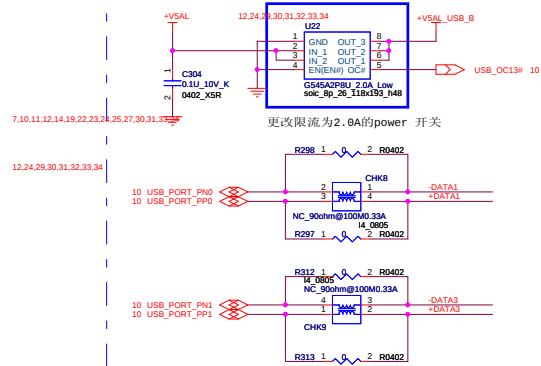


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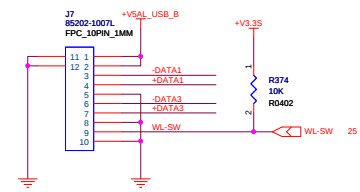
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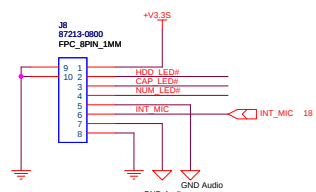
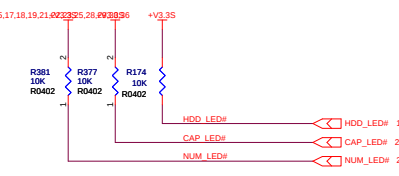
HOLE/MARK

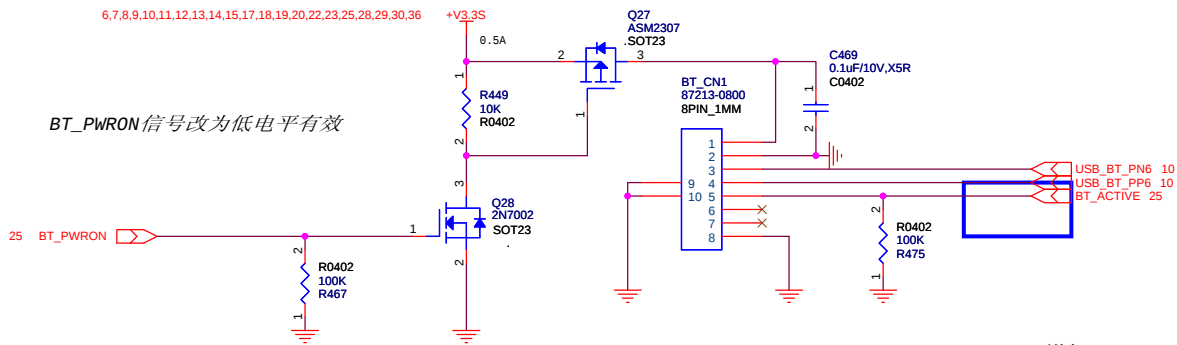


USB DB CONN.

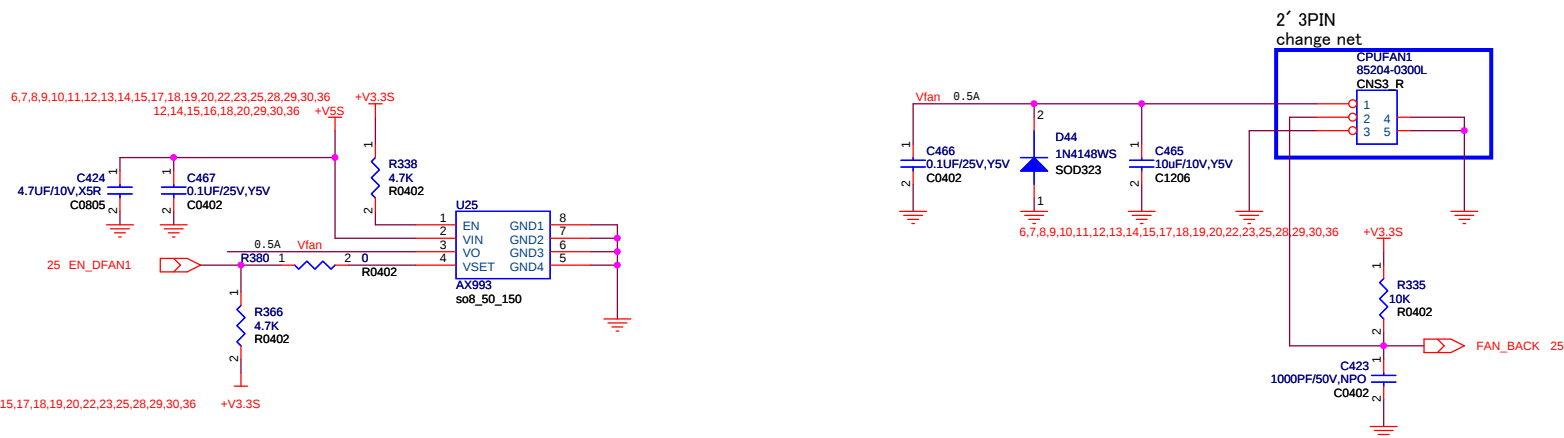


LED DB CONN.





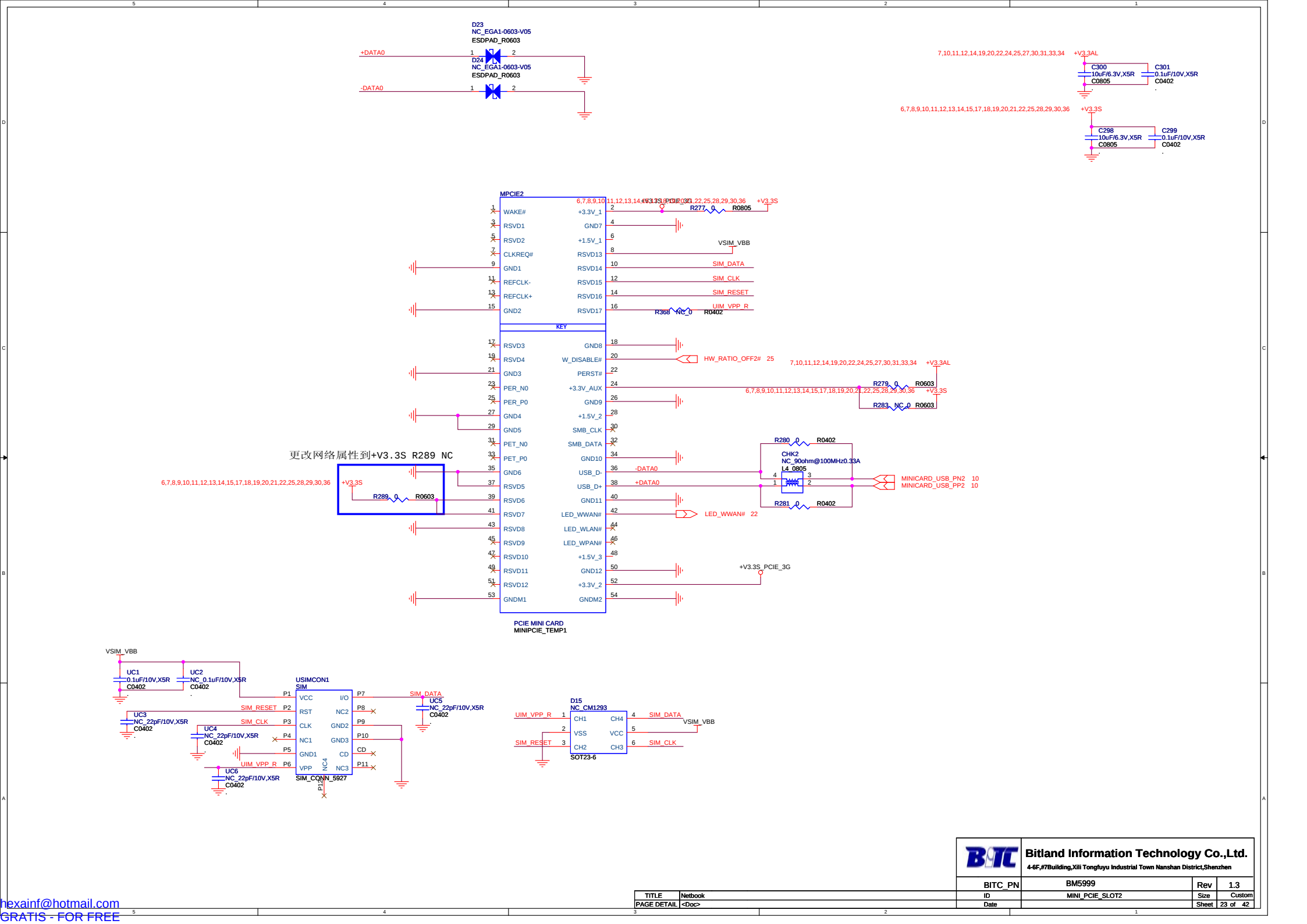
BLUE TOOTH



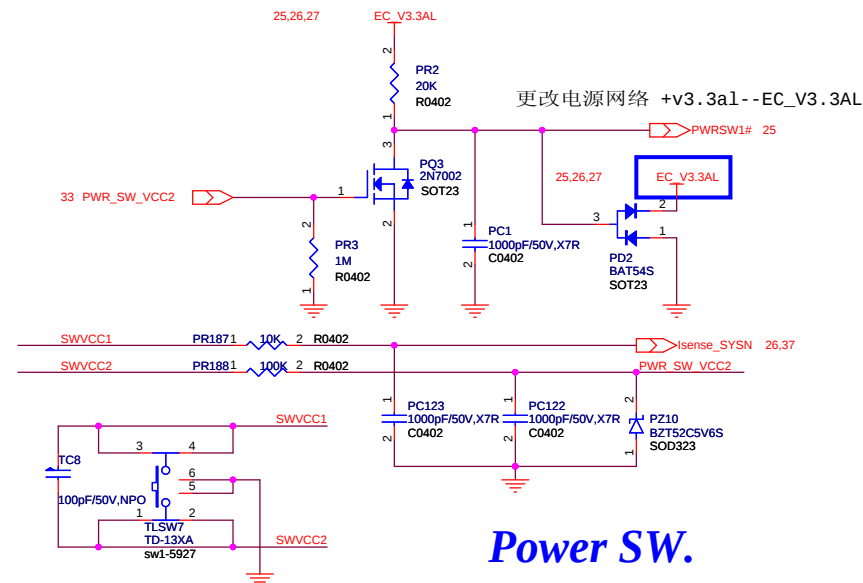
FAN

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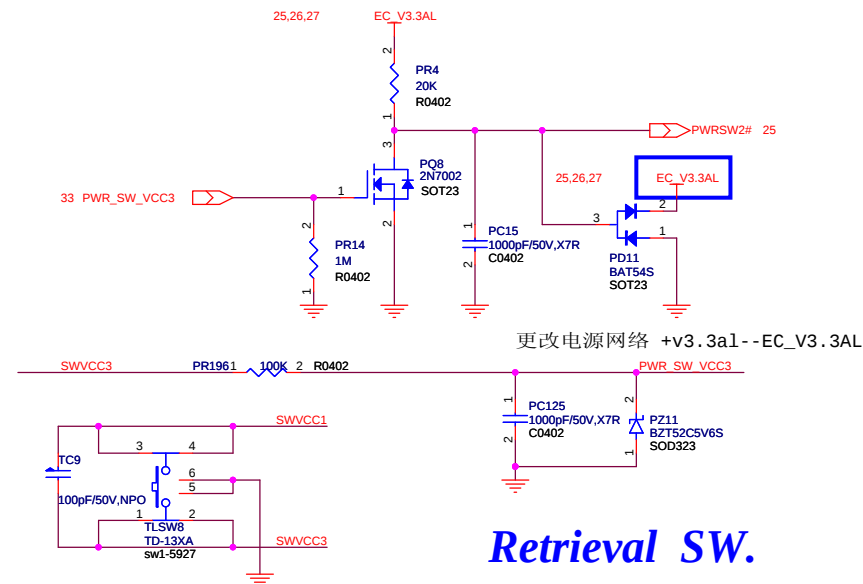
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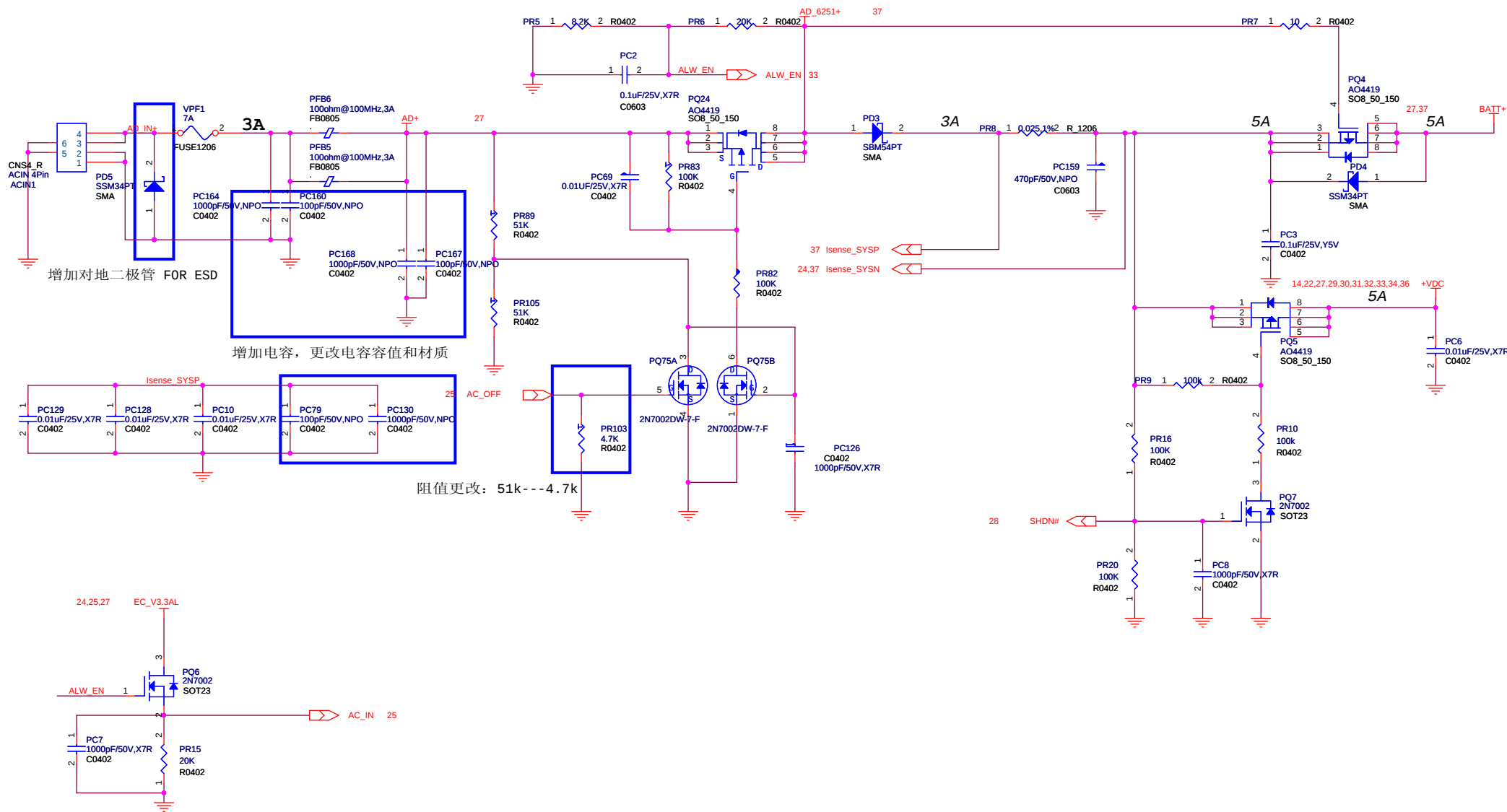


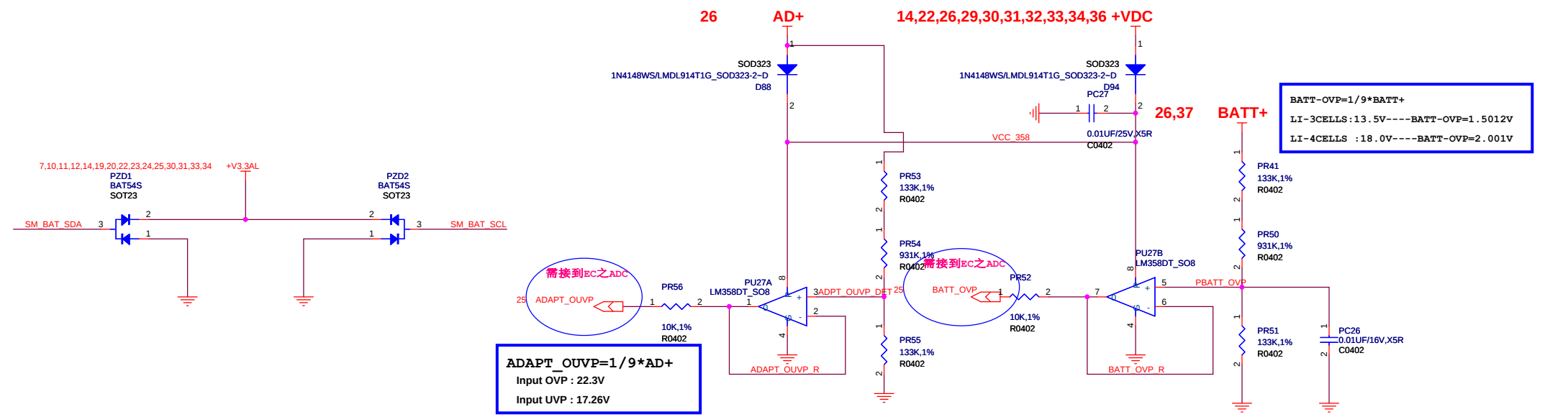
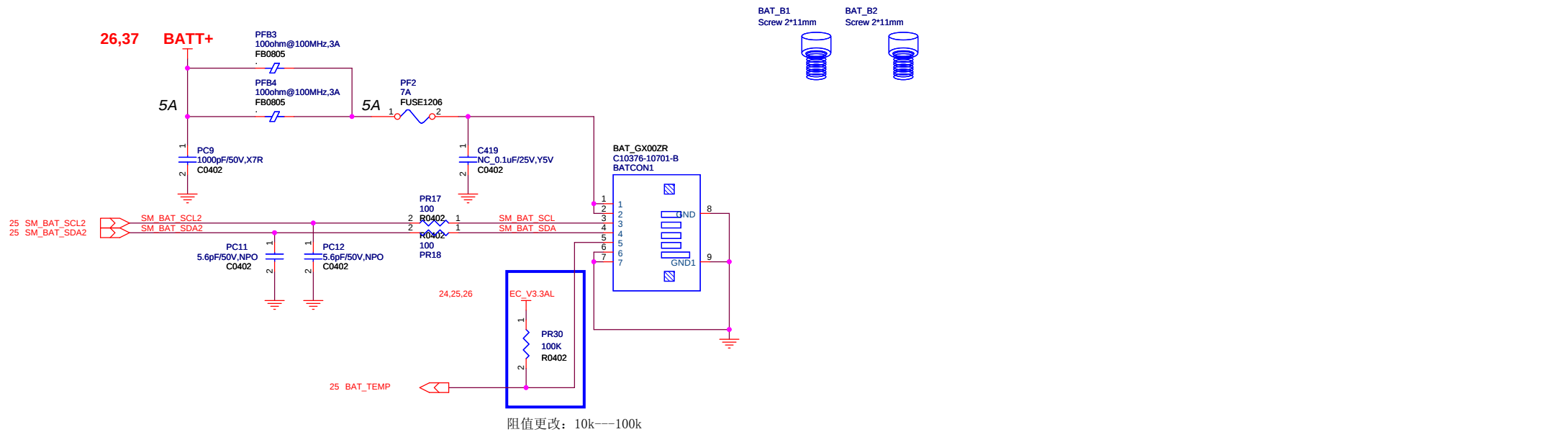
Power SW.



Retrieval SW.

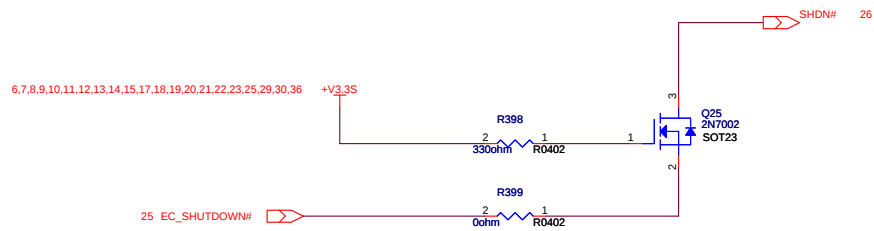






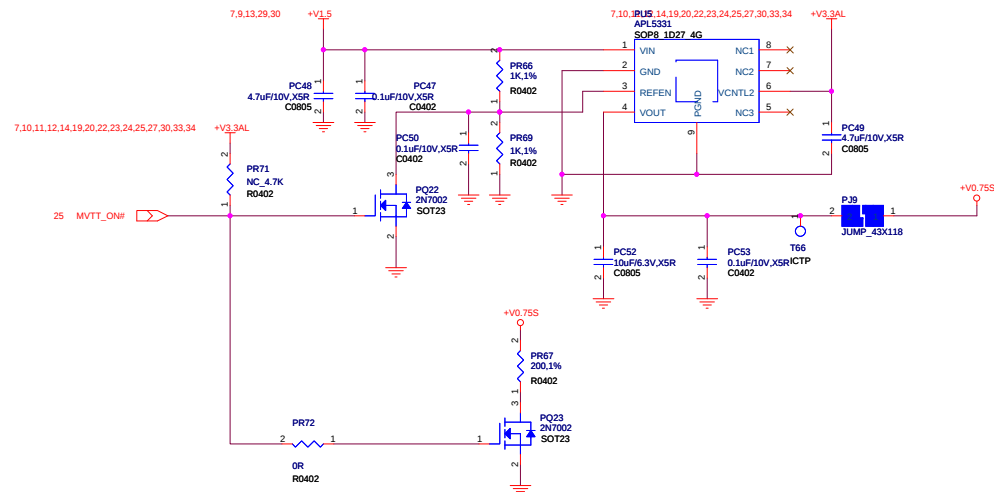
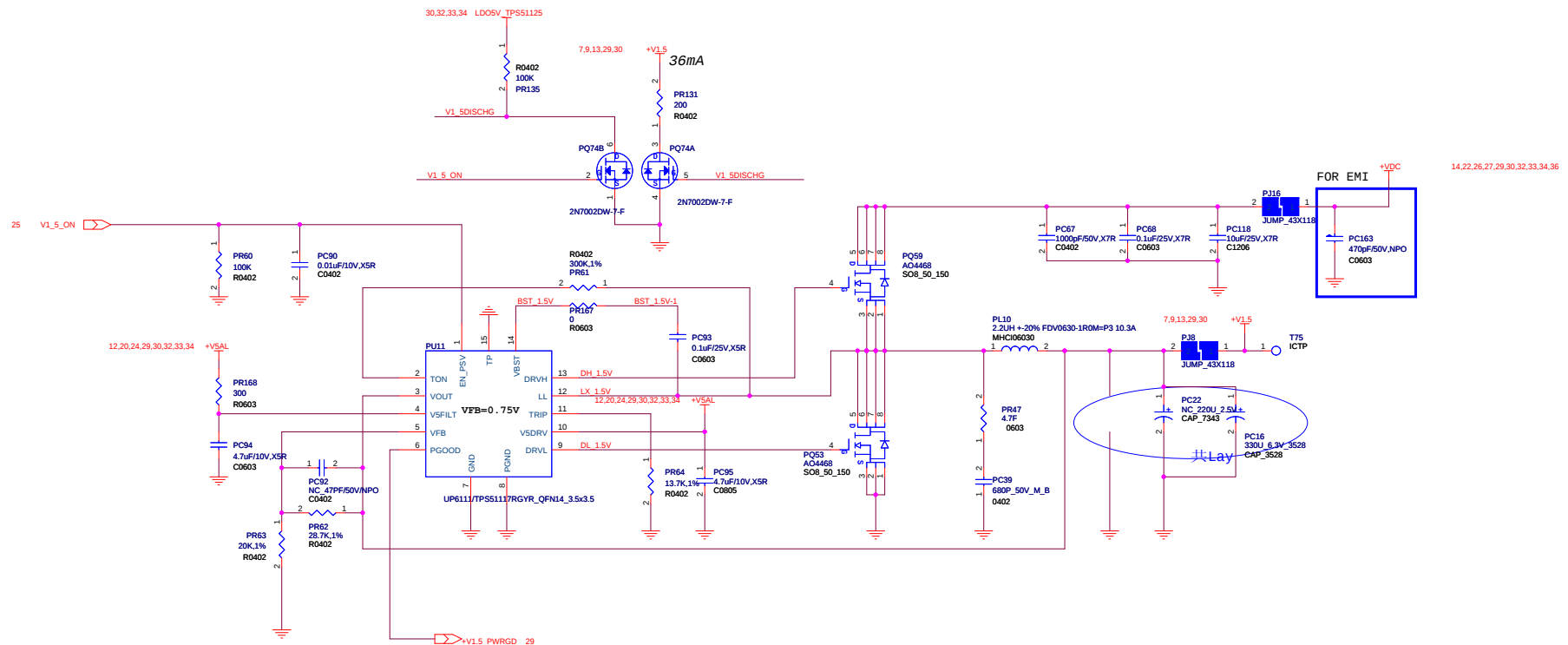
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Date	BATTERY	Size	A3
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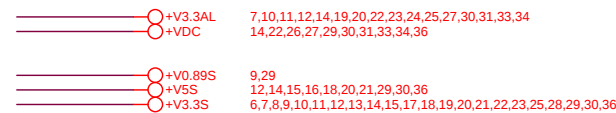
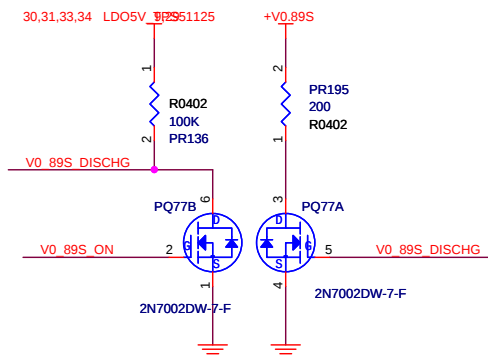


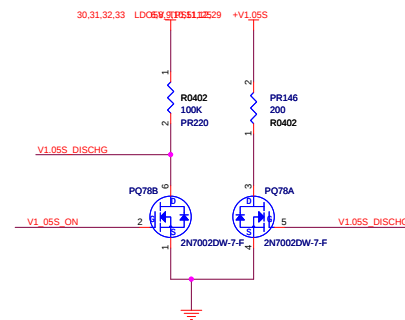
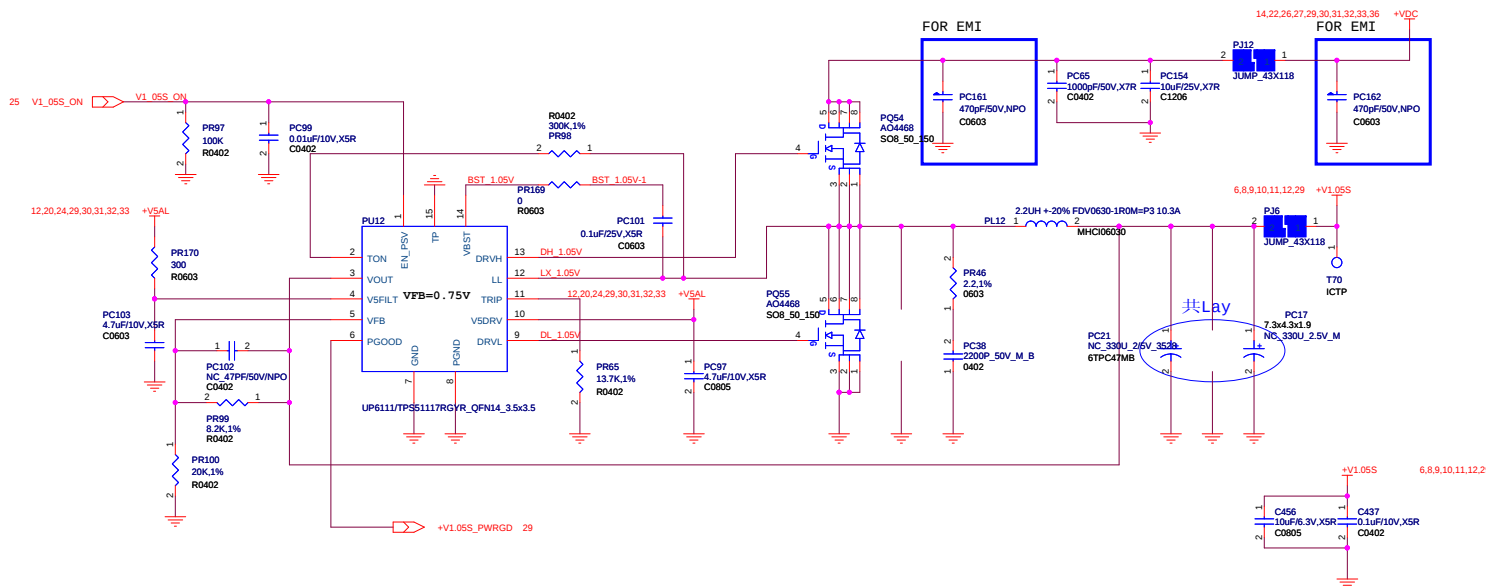
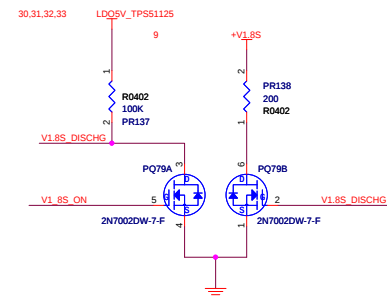
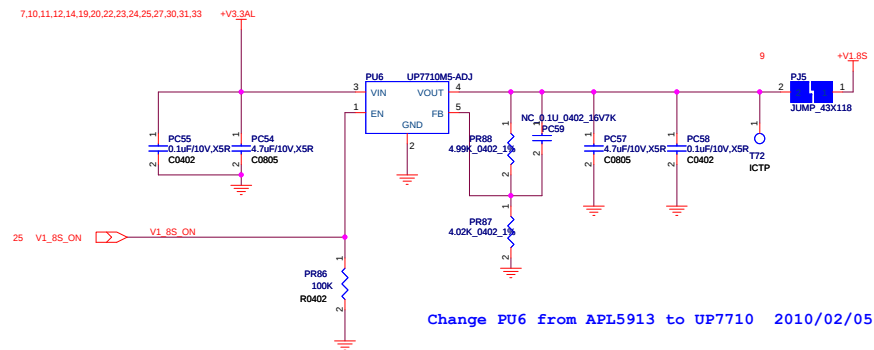
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ID		THERMAL PROTECT		Size	Custom
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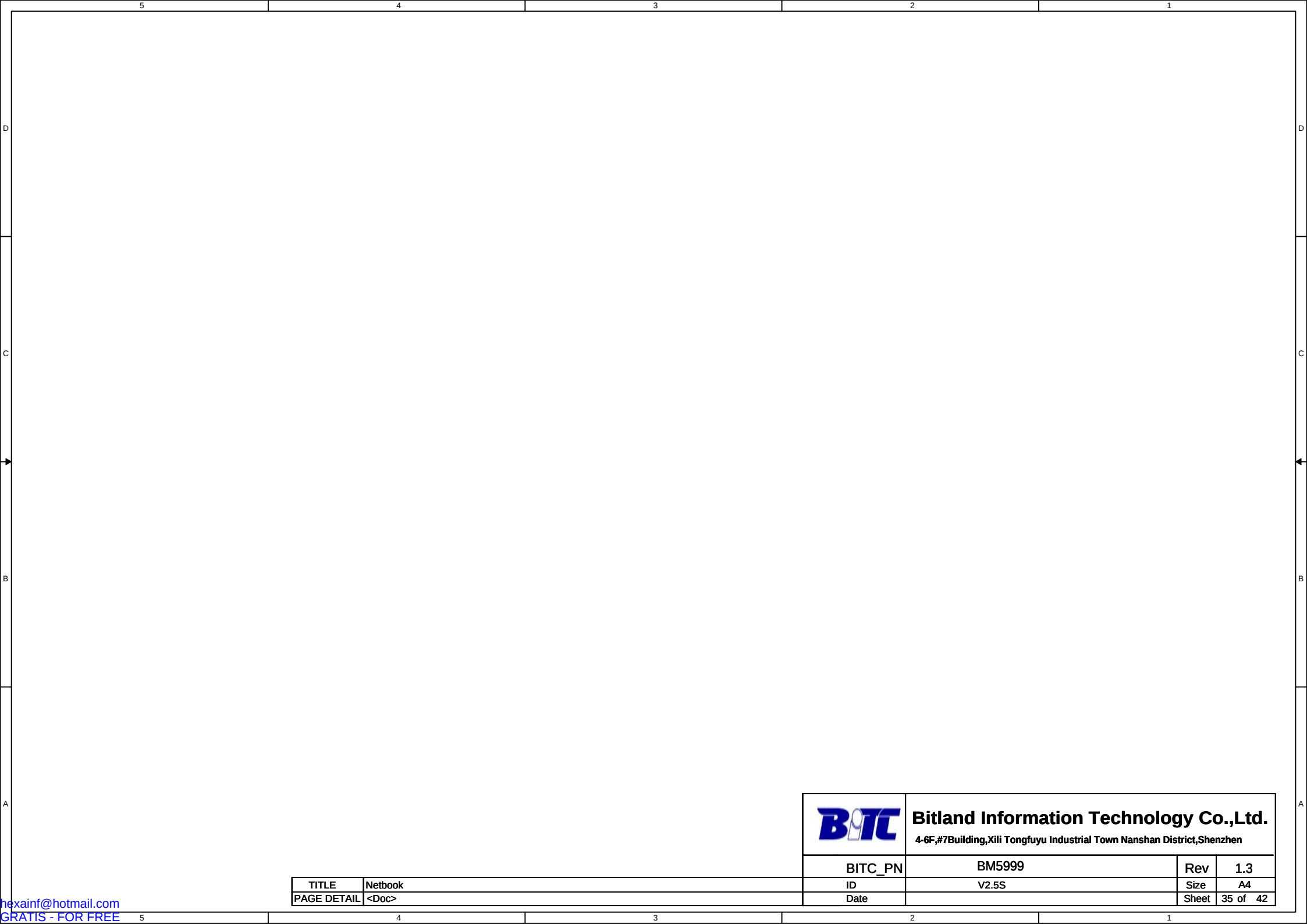
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BITC_PN	BM5999	Rev	1.3
ID	DDR POWER	Size	C
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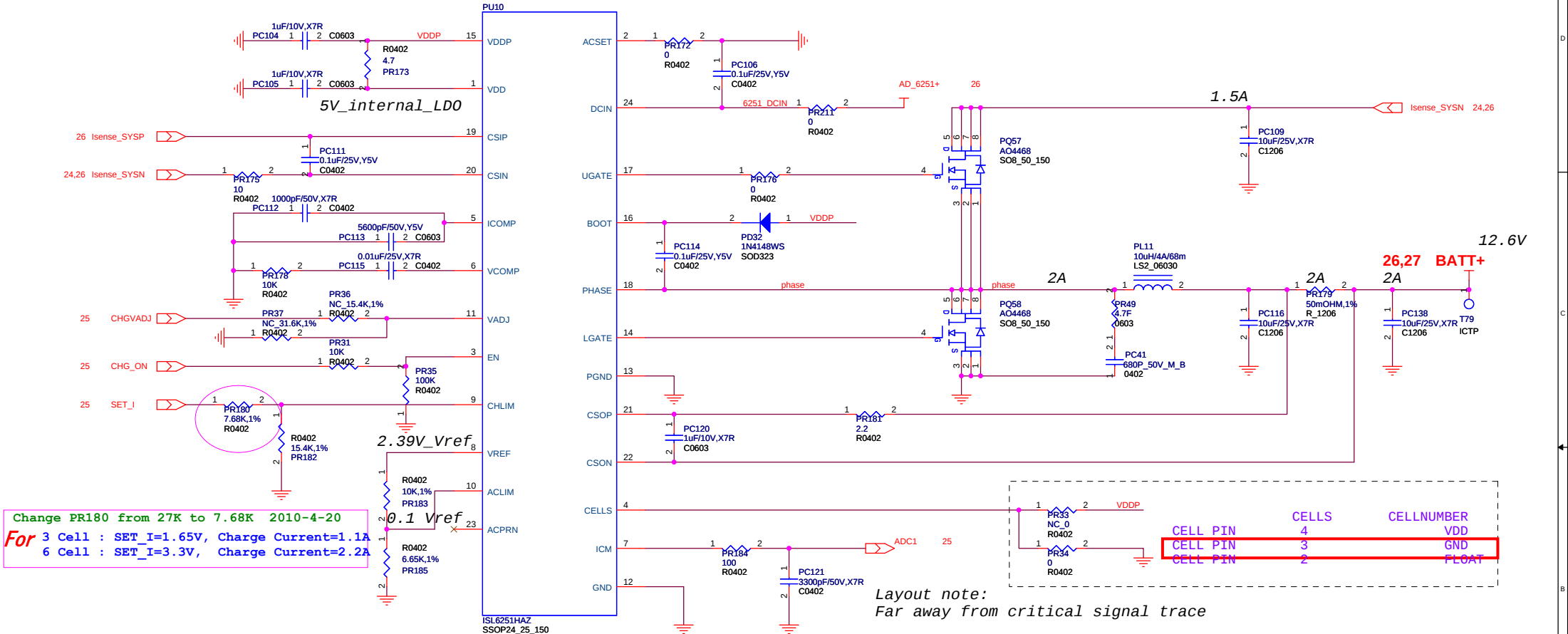
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ID	V1.5S V1.05S	Size	C
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PAGE DETAIL	<Doc>



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PAGE DETAIL	<Doc>

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Date		Sheet	35 of 42



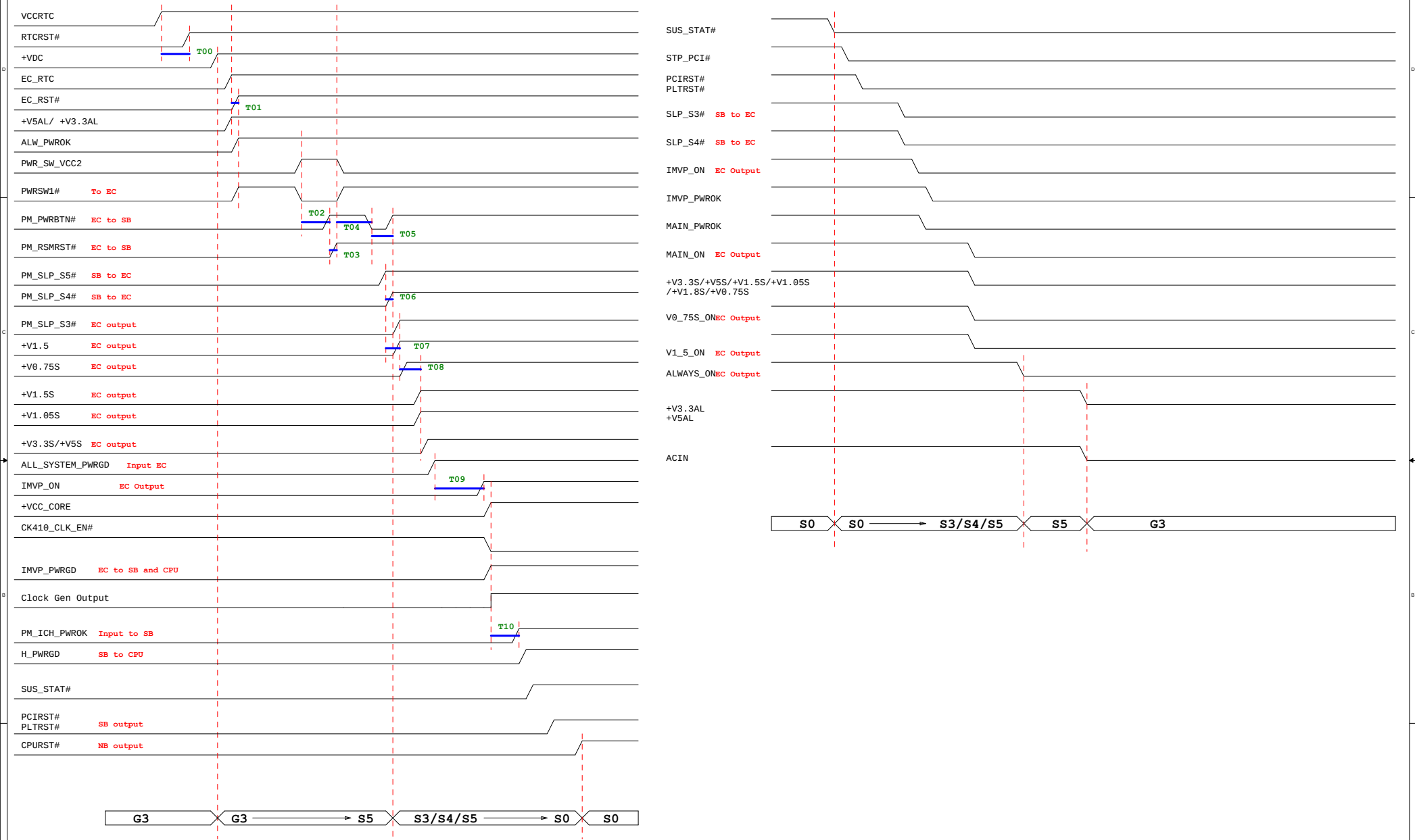
Change PR180 from 27K to 7.68K 2010-4-20
For 3 Cell : SET_I=1.65V, Charge Current=1.1A
6 Cell : SET_I=3.3V, Charge Current=2.2A

Layout note:
Far away from critical signal trace

设置适配器限流值为
50mV/25m ohm=2.0A.
 $I_{aclim} = 1/PR8 * (0.05 * V_{aclim} / V_{ref} + 0.05)$
SET_I 充电电流
0V 0A
0.66V 400mA
3.3V 2A
 $ICHG = 165mV / PR179 * (V_{CHLIM} / 3.3V)$

5		4		3		2		1	
D									
C									
B									
A									
								</	

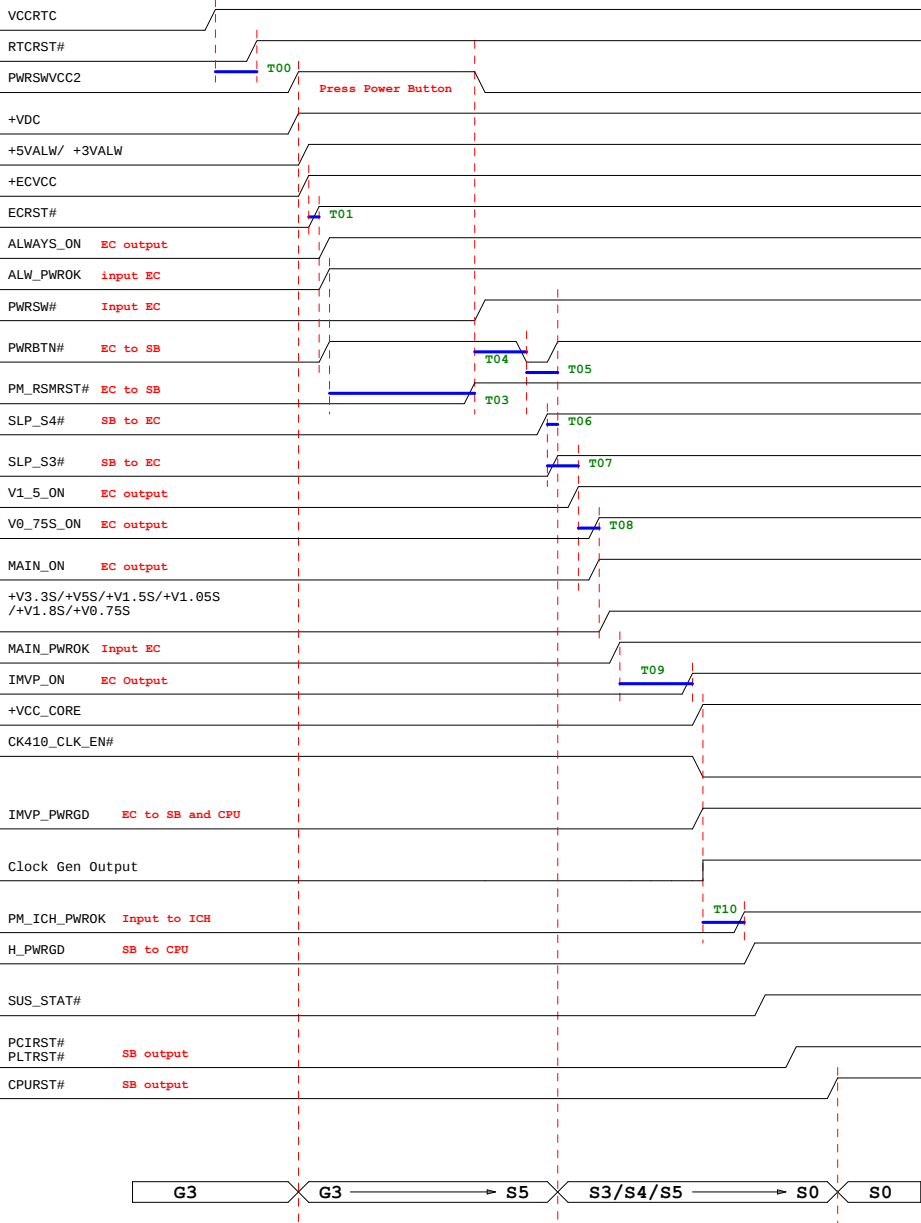
BM5999 Power On/Off Sequence Specification(Adapter Mode)



T00	T01	T02	T03	T04	T05	T06	T07	T08	T09	T10
no control	200 ms	700 ms	5 ms	100 ms	50 ms	>1 RTC CLK	2 ms	2 ms	150 ms	99 ms

BITC		Bitland Information Technology Co.,Ltd.	
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BITC_PN	BM5999	Rev	1.3
ID	Power On/Off Sequence1	Size	C
Date		Sheet	39 of 42

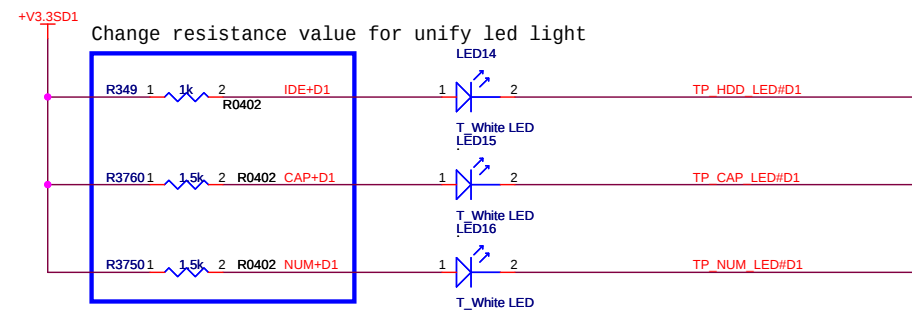
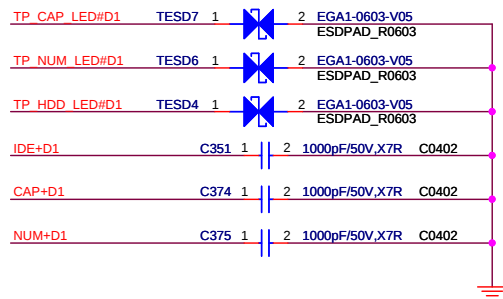
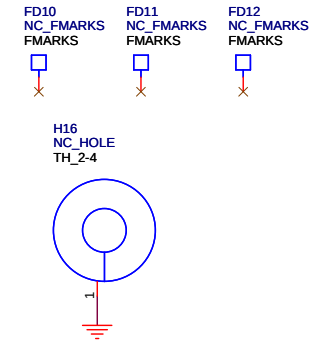
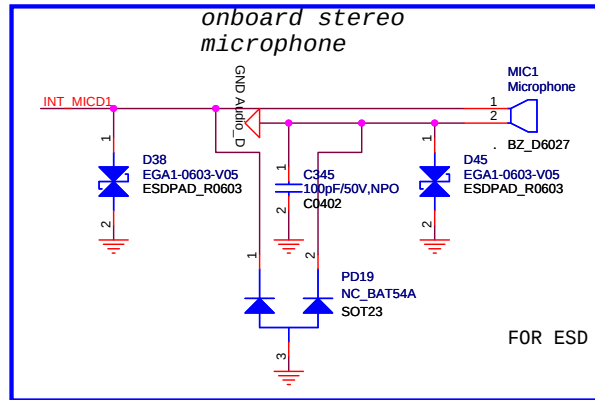
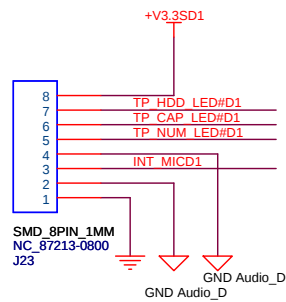
BM5999 Power On/Off Sequence Specification(Battery Mode)



T00	T01	T03	T04	T05	T06	T07	T08	T09	T10
no control	200 ms	no control	100 ms	50 ms	>1 RTC CLK	2 ms	2 ms	150 ms	99 ms

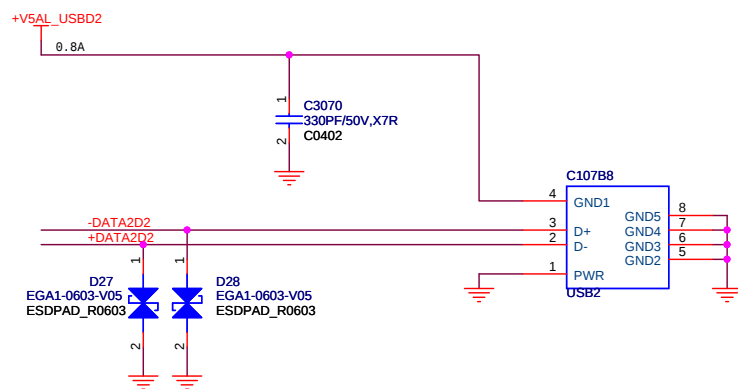
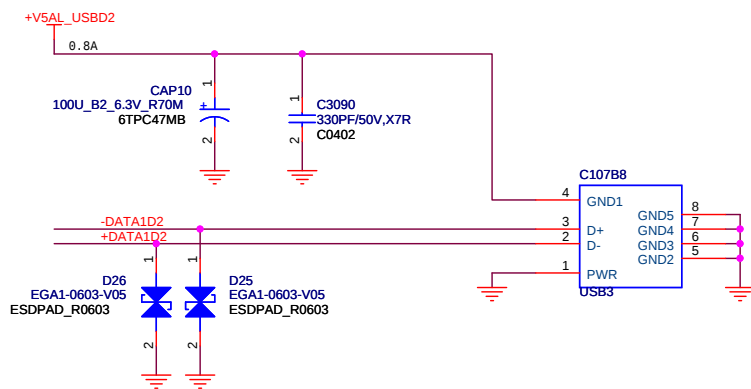
		Bitland Information Technology Co.,Ltd. 4-6F, #7 Building, Xili Tongshu Industrial Town Nanshan District, Shenzhen	
BITC_PN		BM5999	Rev 1.3
ID		Power On/Off Sequence2	Size C
PAGE DETAIL		Date	Sheet 40 of 42

TITLE	Netbook		
PAGE DETAIL	<Doc>		

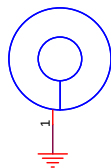


BITC Bitland Information Technology Co.,Ltd. 4-6F,#7Building,Xili Tongfuyu Industrial Town Nanshan District,Shenzhen			
BITC_PN	BH5999A	Rev	1.3
ID	DB LED/MIC	Size	B
Date		Sheet	41 of 42

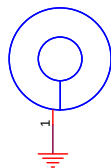
TITLE	Netbook
PAGE DETAIL	<Doc>



H17
NC_HOLE
TH_2-3



H18
NC_HOLE
TH_2-7

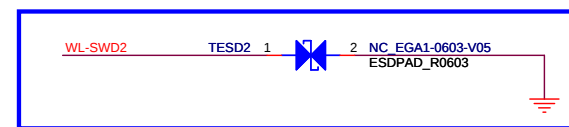
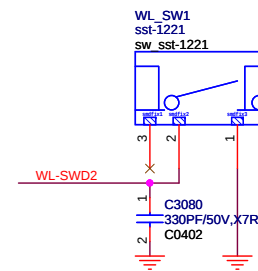
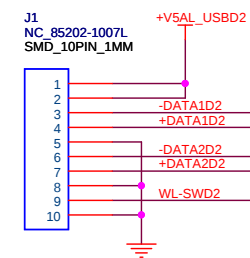


FD13
NC_FMARKS
FMARKS

FD14
NC_FMARKS
FMARKS

FD15
NC_FMARKS
FMARKS

FD16
NC_FMARKS
FMARKS



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BITC_PN	BH5999B	Rev	1.3
ID	DB USB/WL-SW	Size	B
Date		Sheet	42 of 42

TITLE	Netbook
PAGE DETAIL	<Doc>