

Compal Confidential

DCL51 Schematics Document

Banias uFCBGA/uFCPGA Package with Montara-GM Core Logic

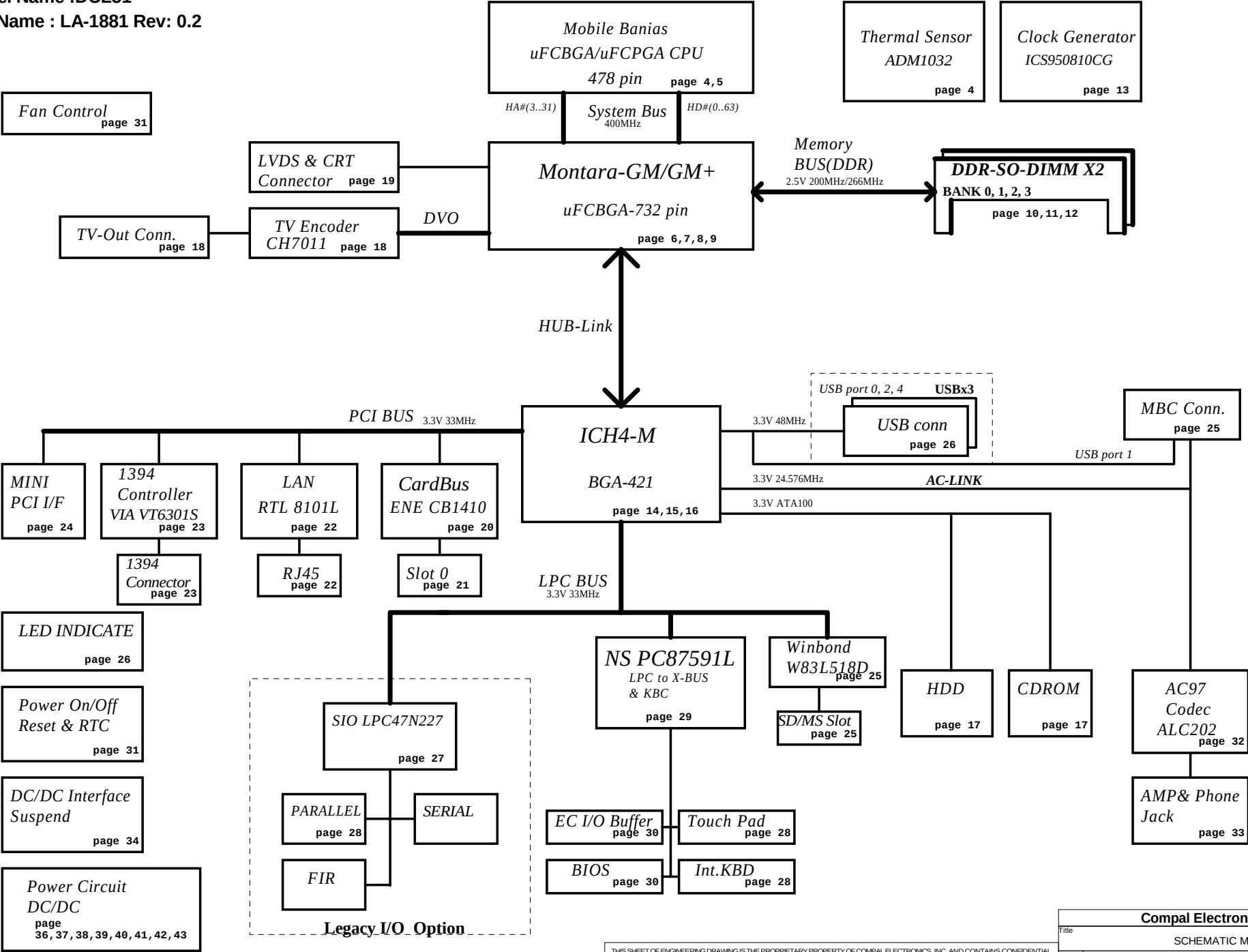
2003-06-12

REV: 1.0

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SCHEMATIC M/B LA-1881			
Size	Document Number		Rev
	401259		B
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	E		

Model Name :DCL51
File Name : LA-1881 Rev: 0.2



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Voltage Rails

Power Plane	Description	S0-S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+VCCP	1.05V rail for Processor I/O	ON	OFF	OFF
+1.2VS	1.2VS switched power rail for GMCH	ON	OFF	OFF
+1.25VS	1.25V switched power rail	ON	OFF	OFF
+1.5VALW	1.5V power rail	ON	ON	ON
+1.5V	1.5V power rail	ON	ON	OFF
+1.5VS	1.5V power rail for GMCH	ON	OFF	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+2.5V	2.5V power rail	ON	ON	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3V	3.3V power rail	ON	ON	OFF
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5V	5V power rail	ON	ON	OFF
+5VS	5V switched power rail	ON	OFF	OFF
+12VALW	12V always on power rail	ON	ON	ON*
RTCVCC	RTC power	ON	ON	ON

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

Board ID Table

BID2	BID1	BID0	PCB Revision
0	0	0	0.1 (For 030)
0	0	1	0.2 (For 030)
0	1	0	0.3 (For 030)
0	1	1	1.0 (For 030)
1	0	0	0.1 (For ABO)
1	0	1	0.2 (For ABO)
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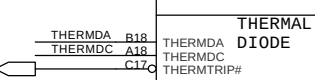
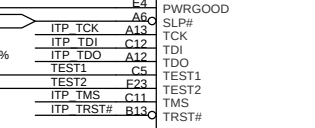
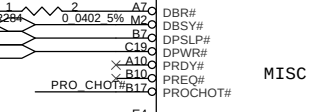
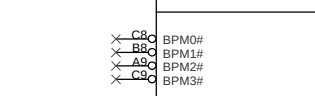
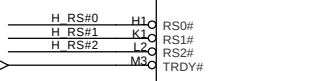
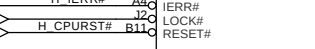
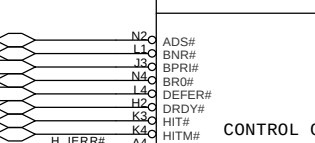
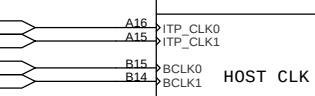
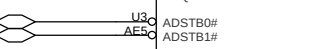
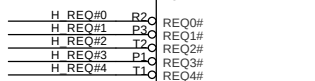
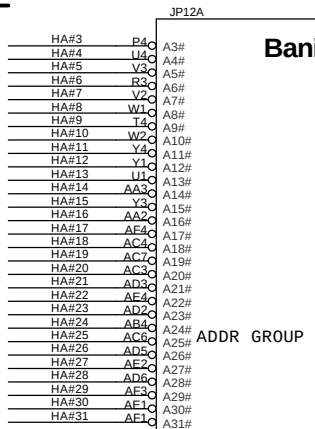
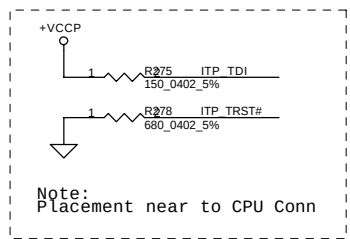
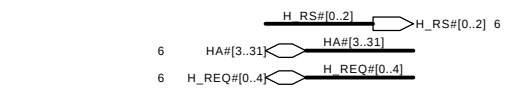
*

External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
CardBus	AD20	2	PIRQA
LAN	AD17	3	PIRQF
Mini-PCI	AD18/AD20	1/4	PIRQG/PIRQH
1394	AD16	0	PIRQE

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AMP_1473129-1

Banias

ADDR GROUP

DATA GROUP

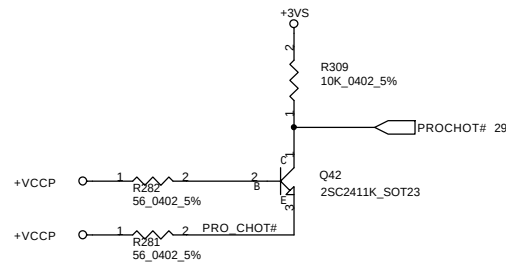
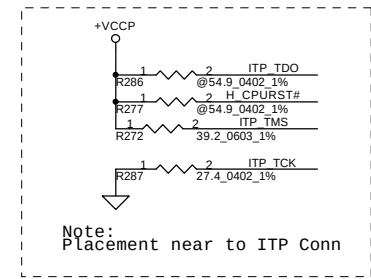
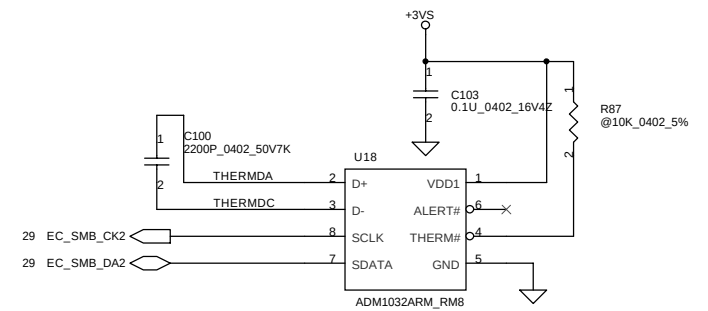
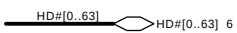
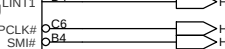
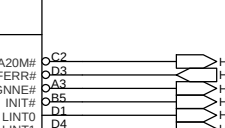
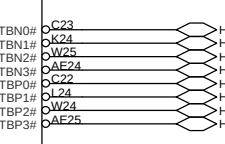
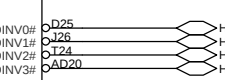
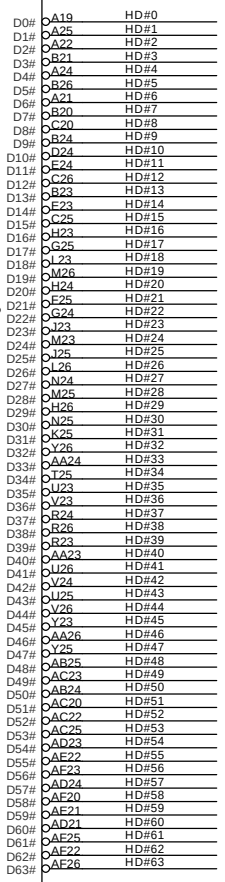
HOST CLK

CONTROL GROUP

MISC

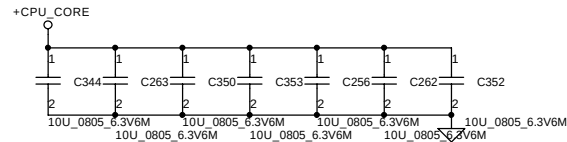
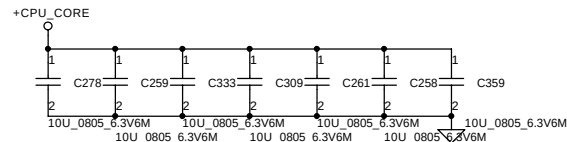
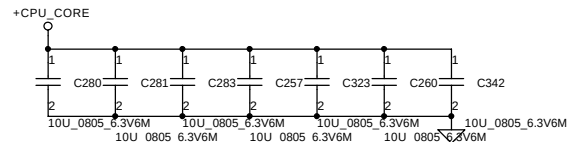
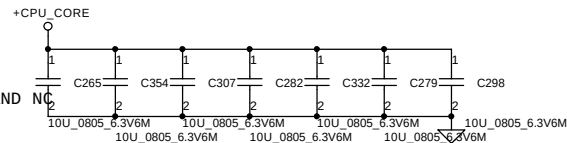
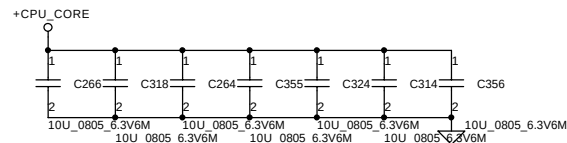
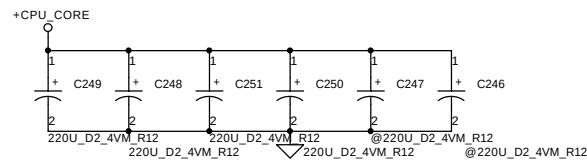
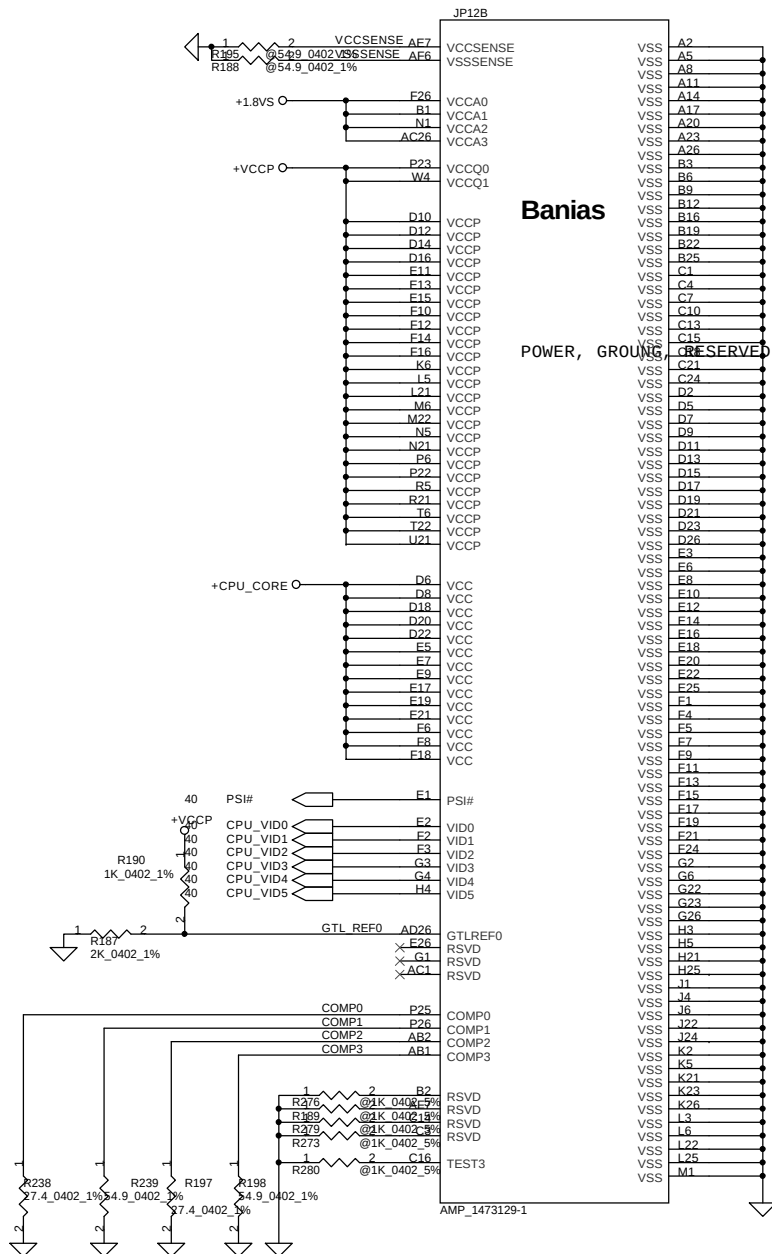
THERMAL DIODE

LEGACY CPU

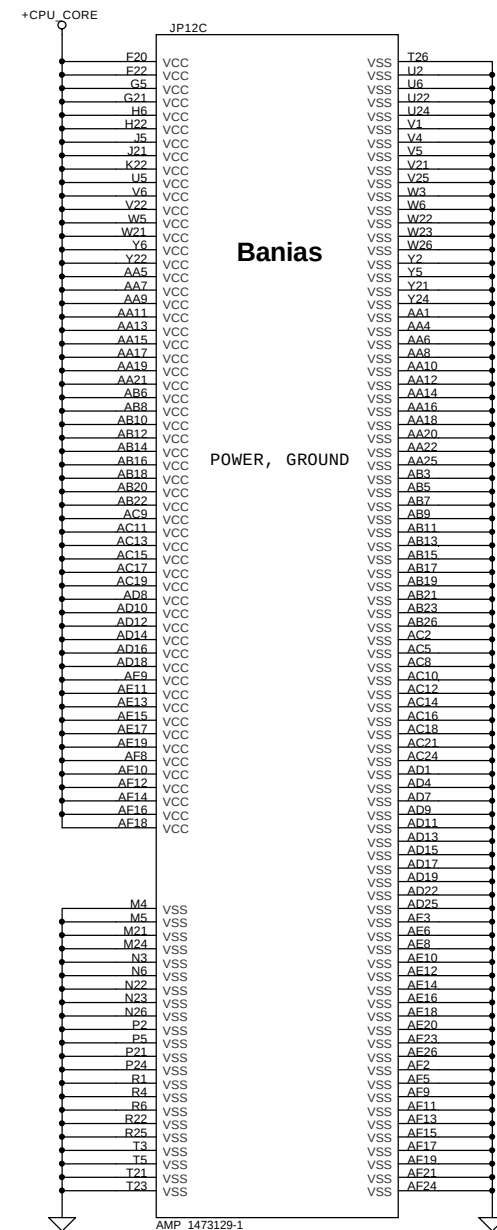
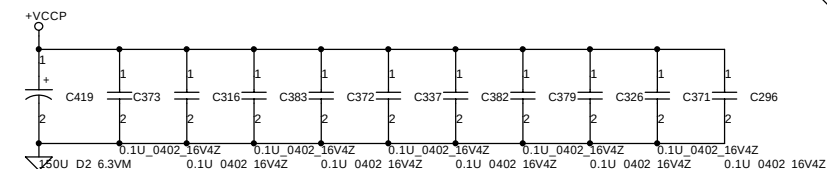
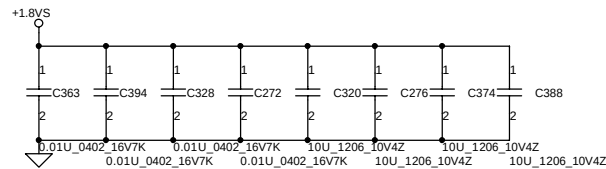


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Vcc-core Decoupling	C, uF	ESR, mohm	ESL, nH
SPCAP, Polymer	4X220uF	12m ohm/4	3.5nH/4
MLCC 0805 X5R	35X10uF	5m ohm/35	0.6nH/35



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4 HA#[3..31] HA#[3..31]
4 H_REQ#[0..4] H_REQ#[0..4]
14 HUB_PD#[0..10] HUB_PD#[0..10]

HA#3 P23C
HA#4 T25C
HA#5 T28C
HA#6 R27C
HA#7 U22C
HA#8 U24C
HA#9 R24C
HA#10 U28C
HA#11 V28C
HA#12 U27C
HA#13 T27C
HA#14 U25C
HA#15 U25C
HA#16 V26C
HA#17 Y24C
HA#18 V25C
HA#19 V23C
HA#20 W25C
HA#21 Y25C
HA#22 AA27C
HA#23 W24C
HA#24 W23C
HA#25 W27C
HA#26 Y27C
HA#27 AA28C
HA#28 W28C
HA#29 AB27C
HA#30 Y26C
HA#31 AB28C

H_REQ#0 R28C
H_REQ#1 P25C
H_REQ#2 R23C
H_REQ#3 R25C
H_REQ#4 T23C
H_ADSTB#0 T26C
H_ADSTB#1 AA26C

AD29C BCLK#
AE29C BCLK#
K28 HYSWING
B18 HXSWING
H28 HYRCOMP
B20 HXRCOMP
K21 HVREF0
J21 HVREF1
J17 HVREF2
Y28 HCCVREF
Y22 HAVREF

H_DSTBN#0 J28C
H_DSTBN#1 C27C
H_DSTBN#2 E22C
H_DSTBN#3 D18C
H_DSTBP#0 K27C
H_DSTBP#1 D26C
H_DSTBP#2 E21C
H_DSTBP#3 E18C
H_DINV#0 J25C
H_DINV#1 E25C
H_DINV#2 B25C
H_DINV#3 G19C

CPURST# F15C

HUB_PD0 U7
HUB_PD1 U4
HUB_PD2 U3
HUB_PD3 V3
HUB_PD4 W2
HUB_PD5 W6
HUB_PD6 V6
HUB_PD7 W7
HUB_PD8 T3
HUB_PD9 V5
HUB_PD10 V4
HI_PSTRB W3
HI_PSTRB# V2C
HUB_VSWING U2
HUB_VREF W1

14 HUB_PSTRB
14 HUB_PSTRB#
R269 27.4 0402 1%

1270hm For GM+

Montara-GM(L)

K22 HD#0
H27 HD#1
K25 HD#2
L24 HD#3
J27 HD#4
G28 HD#5
L27 HD#6
L23 HD#7
L25 HD#8
J24 HD#9
K23 HD#10
G27 HD#11
K26 HD#12
J23 HD#13
H26 HD#14
E25 HD#15
E26 HD#16
B27 HD#17
H23 HD#18
E27 HD#19
G25 HD#20
E28 HD#21
D27 HD#22
G24 HD#23
C28 HD#24
B26 HD#25
G22 HD#26
C26 HD#27
E26 HD#28
G23 HD#29
B28 HD#30
B21 HD#31
H23 HD#32
G21 HD#33
C24 HD#34
C23 HD#35
D22 HD#36
E24 HD#37
D24 HD#38
B22 HD#39
B23 HD#40
E21 HD#41
C20 HD#42
C21 HD#43
G18 HD#44
E19 HD#45
E20 HD#46
G17 HD#47
D20 HD#48
F19 HD#49
C19 HD#50
C17 HD#51
E17 HD#52
B19 HD#53
G16 HD#54
E16 HD#55
C16 HD#56
E17 HD#57
D16 HD#58
D16 HD#59
C18 HD#60
HD#61
HD#62
HD#63

HREQ#0
HREQ#1
HREQ#2
HREQ#3
HREQ#4
HADSTB#0
HADSTB#1
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BCLK#
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HXSWING
HYRCOMP
HXRCOMP
HVREF0
HVREF1
HVREF2
HCCVREF
HAVREF

AD29C BCLK#
AE29C BCLK#
K28 HYSWING
B18 HXSWING
H28 HYRCOMP
B20 HXRCOMP
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J21 HVREF1
J17 HVREF2
Y28 HCCVREF
Y22 HAVREF

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H_DSTBN#2 E22C
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H_DSTBP#3 E18C
H_DINV#0 J25C
H_DINV#1 E25C
H_DINV#2 B25C
H_DINV#3 G19C

CPURST# F15C

HUB_PD0 U7
HUB_PD1 U4
HUB_PD2 U3
HUB_PD3 V3
HUB_PD4 W2
HUB_PD5 W6
HUB_PD6 V6
HUB_PD7 W7
HUB_PD8 T3
HUB_PD9 V5
HUB_PD10 V4
HI_PSTRB W3
HI_PSTRB# V2C
HUB_VSWING U2
HUB_VREF W1

14 HUB_PSTRB
14 HUB_PSTRB#
R269 27.4 0402 1%

1270hm For GM+

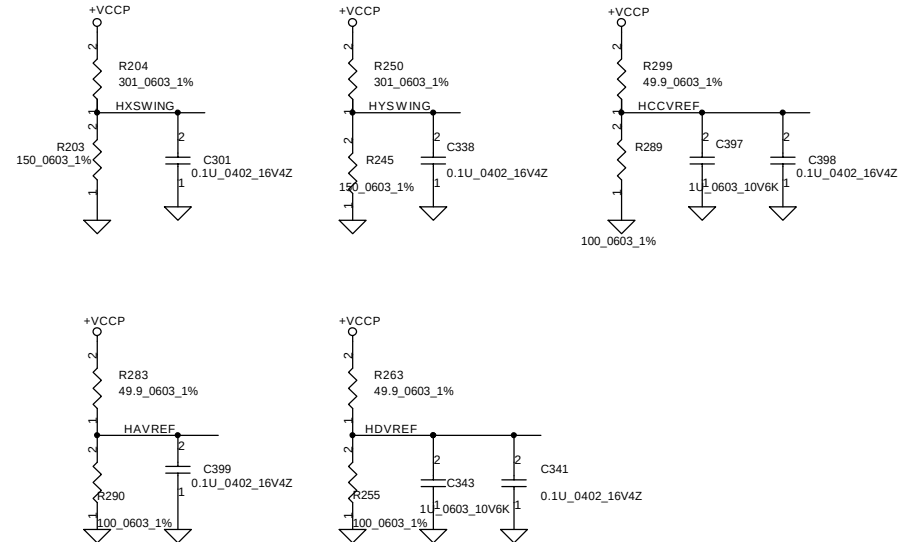
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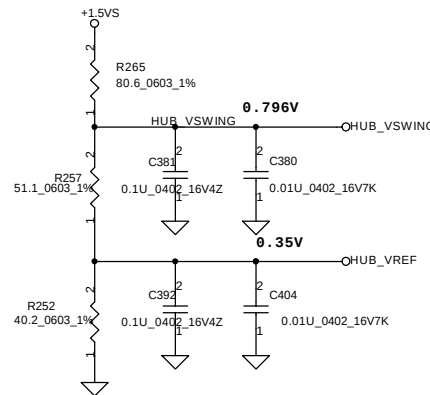
HUB I/F

HD#[0..63] HD#[0..63] 4

HOST REF VOLTAGE



HUB I/F REF VOLTAGE



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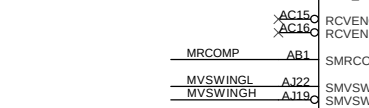
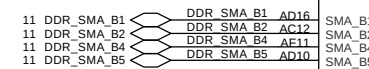
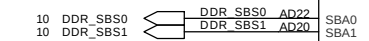
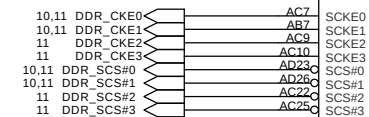
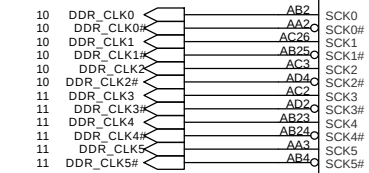
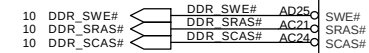
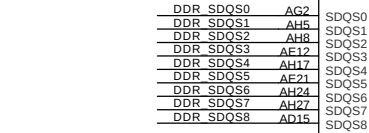
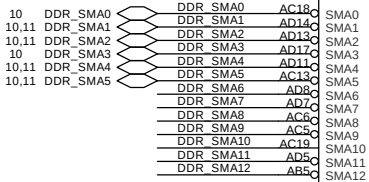
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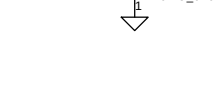
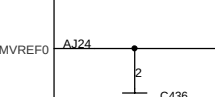
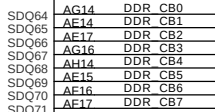
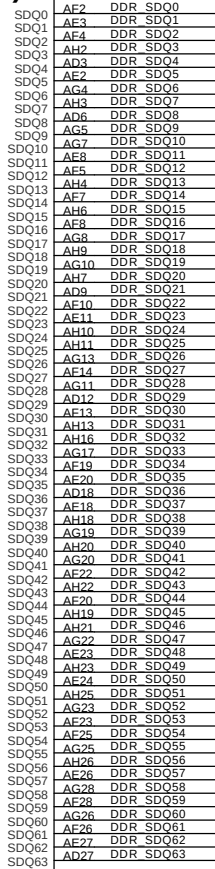
U12C

Montara-GM(L)

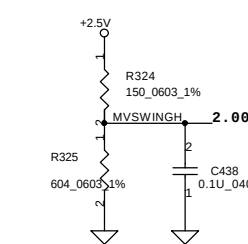
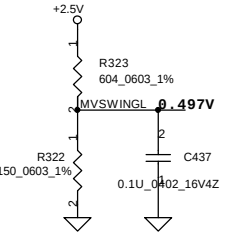
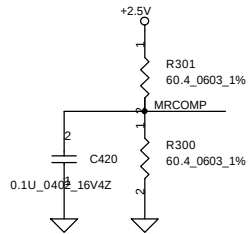
MEMORY



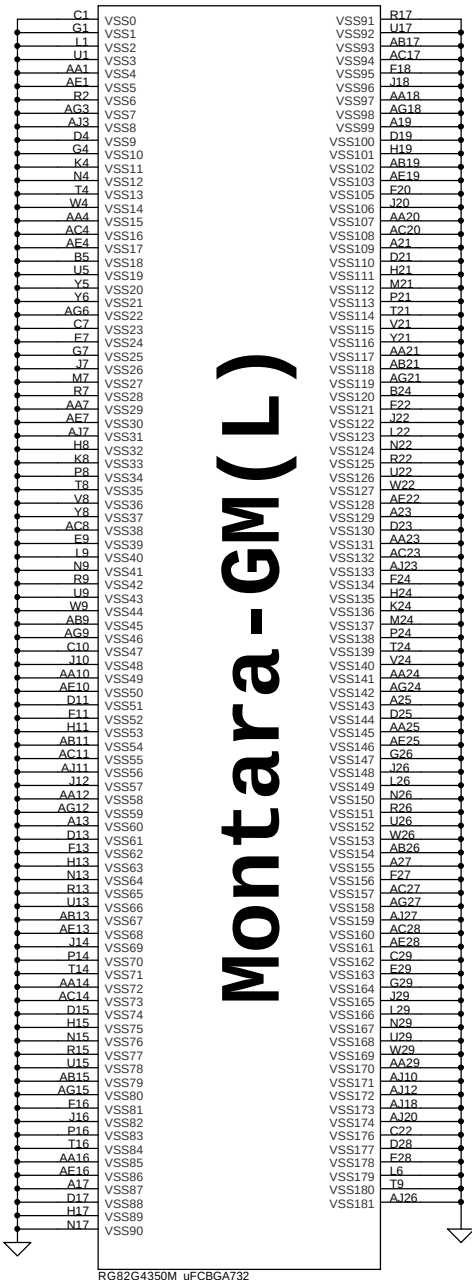
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DDR REF & SWING VOLTAGE



U12D



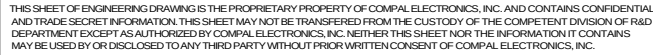
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Montara-GM(L)

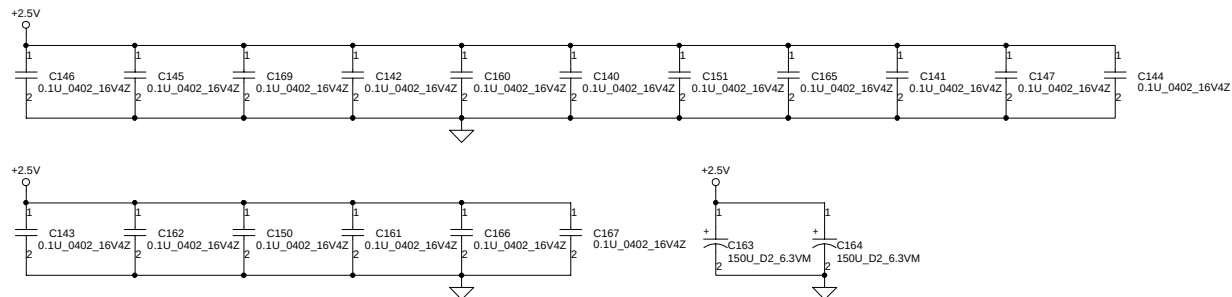
Compal Electronics, Inc.

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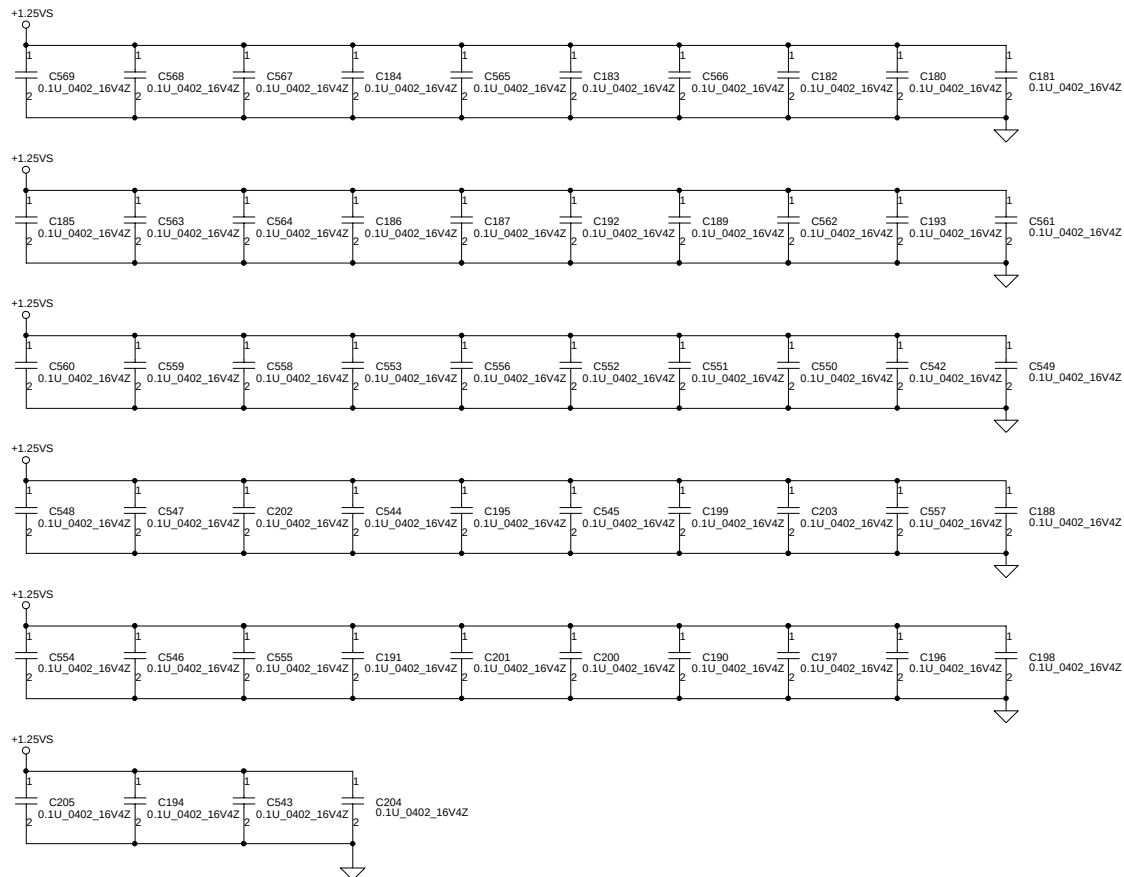
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Layout note :
Distribute as close as possible
to DDR-SODIMM.



Layout note :
Place one cap close to every 2 pull up resistors termination to
+1.25V



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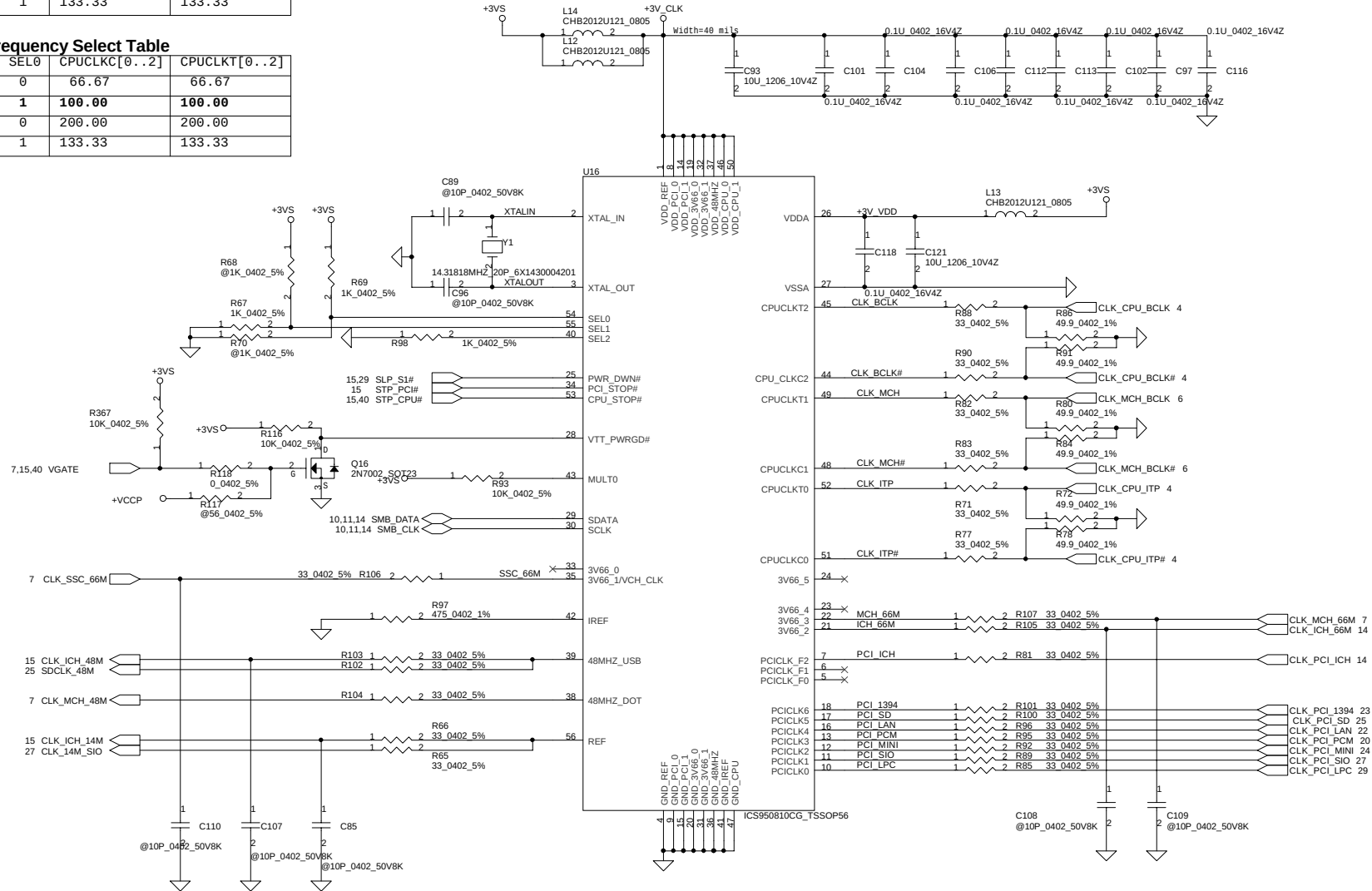
Clock Generator

ICS950810 Frequency Select Table

SEL2	SEL1	SEL0	CPUCLKC[0..2]	CPUCLKT[0..2]
0	0	0	166.67	166.67
0	0	1	100.00	100.00
0	1	0	200.00	200.00
0	1	1	133.33	133.33

CY28346-2 Frequency Select Table

SEL2	SEL1	SEL0	CPUCLOCK[0..2]	CPUCLOCK[0..2]
0	0	0	66.67	66.67
0	0	1	100.00	100.00
0	1	0	200.00	200.00
0	1	1	133.33	133.33

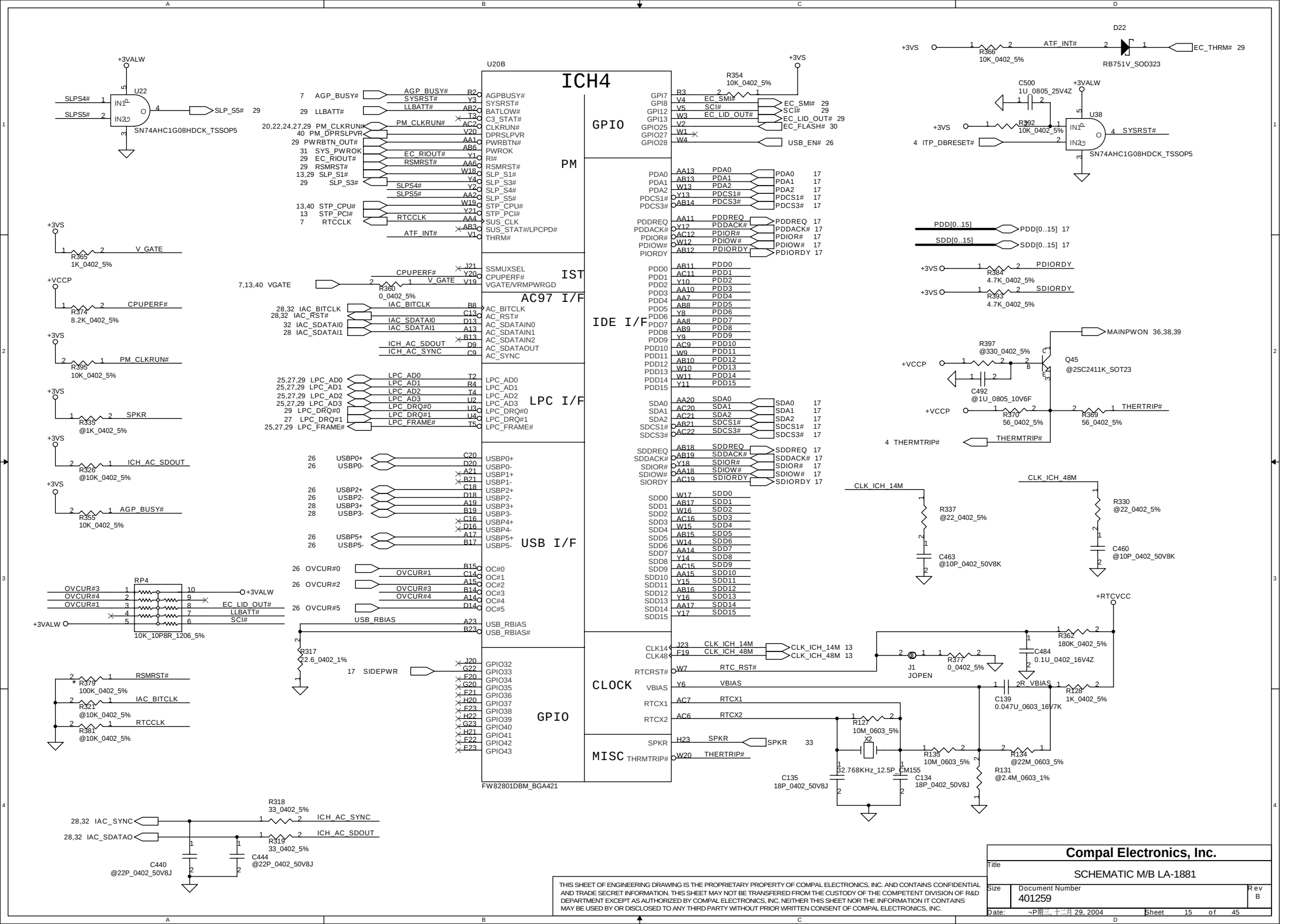


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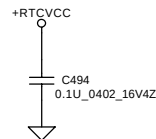
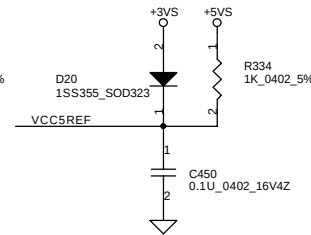
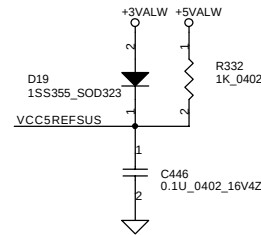
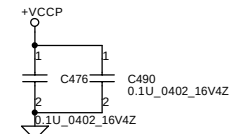
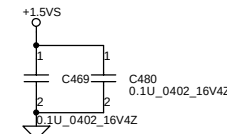
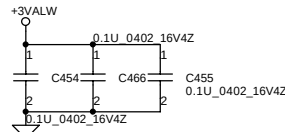
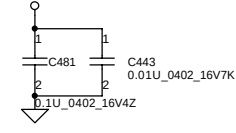
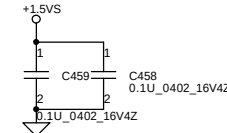
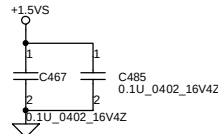
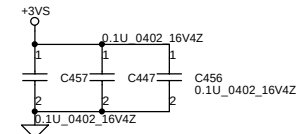
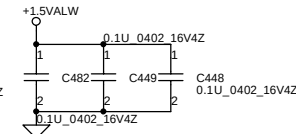
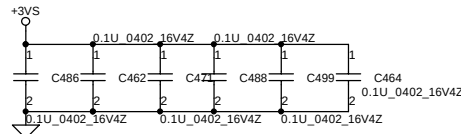


U20C

ICH4

GND POWER

FW82801DBM_BGA421



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Rev

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Date:

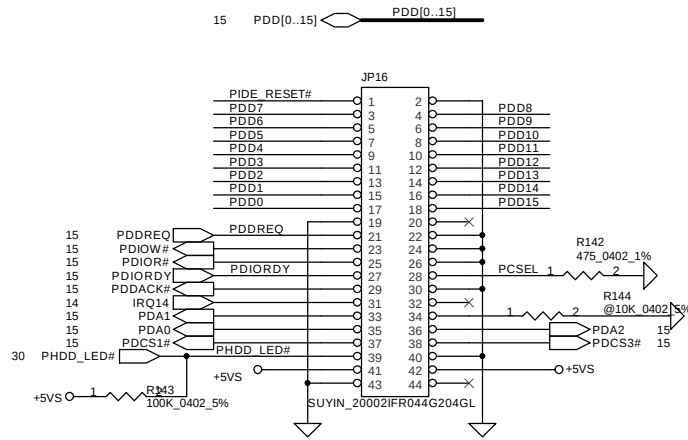
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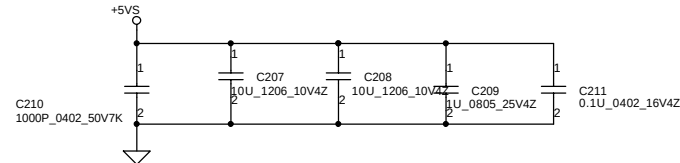
16

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HDD Connector

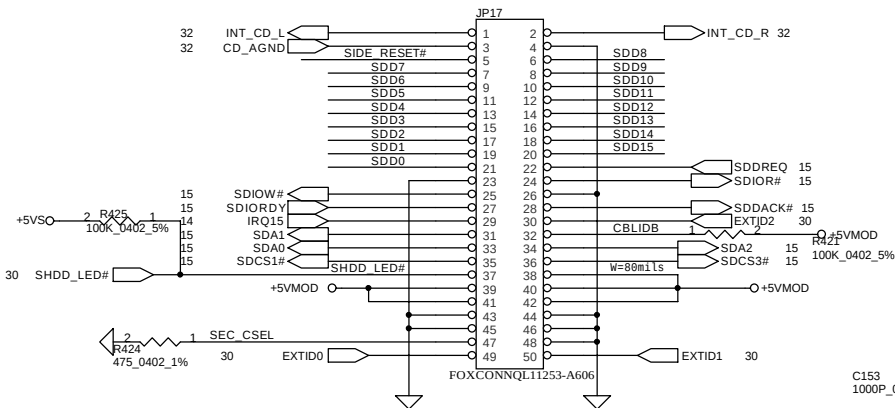


Placea caps. near HDD
CONN.

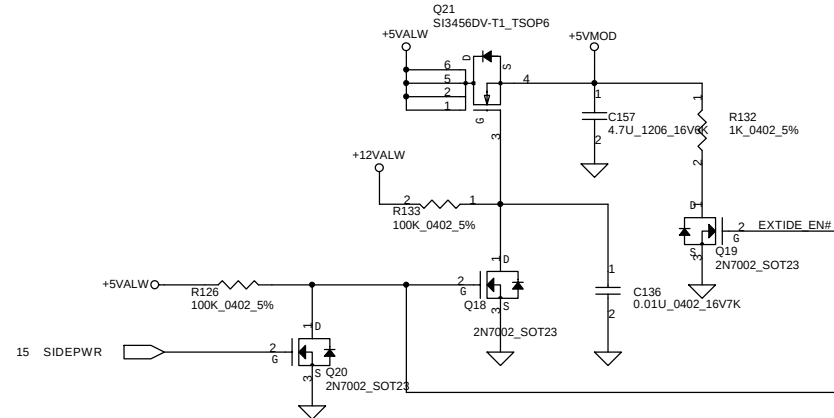
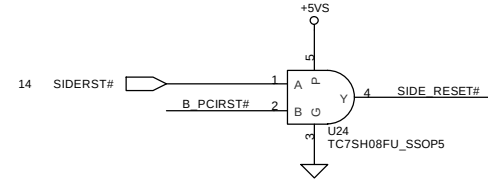
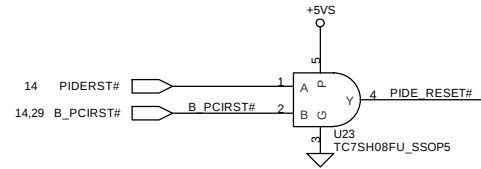
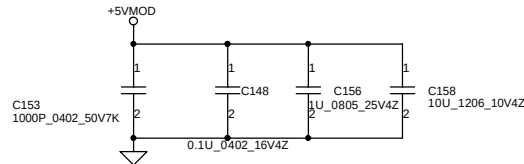


CD-ROM Connector

SDD[0..15]



Placea caps. near CDROM
CONN.



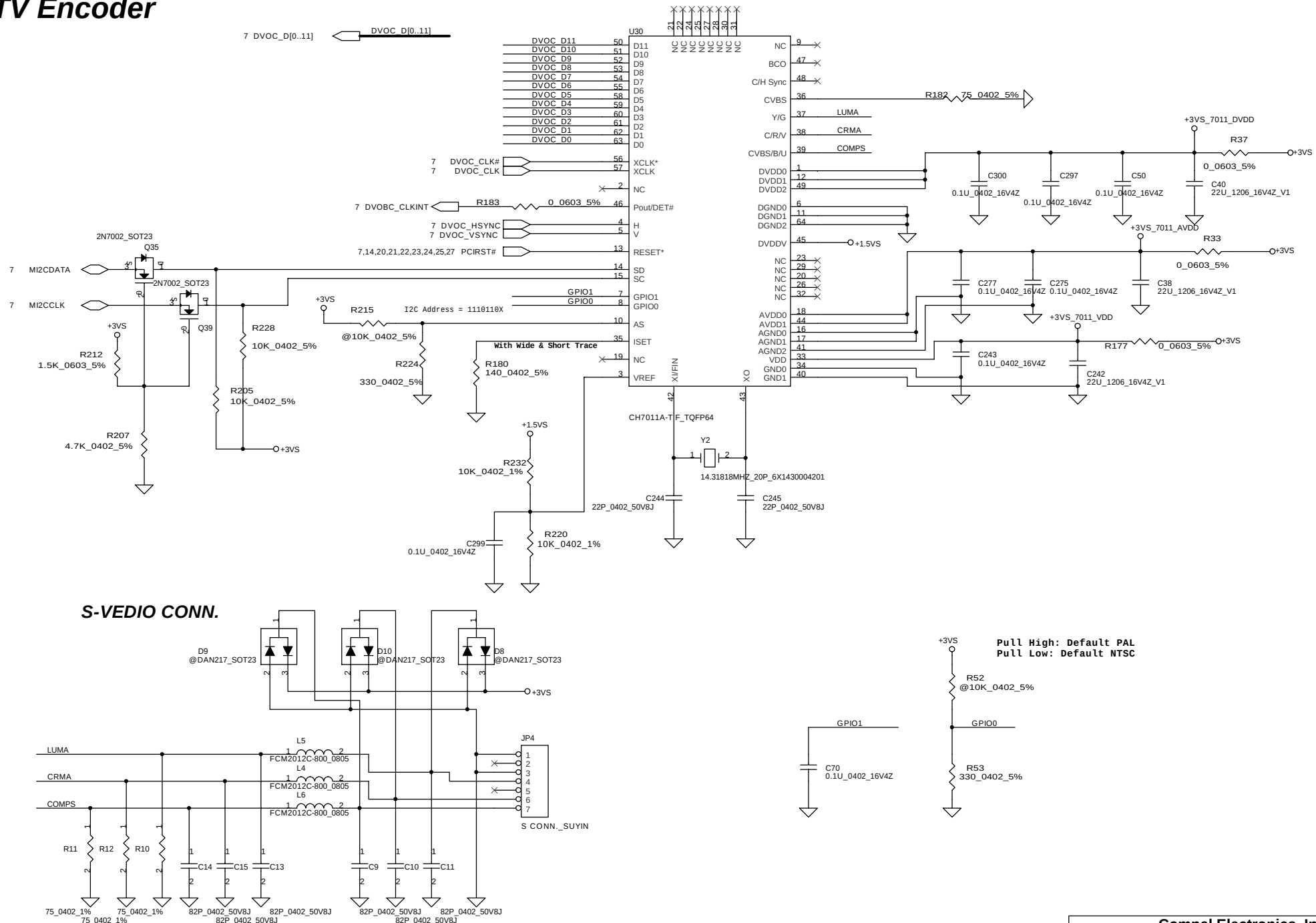
SI3456DV: N CHANNEL
VGS: 4.5V, RDS: 65 mOHM
Id(MAX): 5.1A
VGS,+20V

Compal Electronics, Inc.

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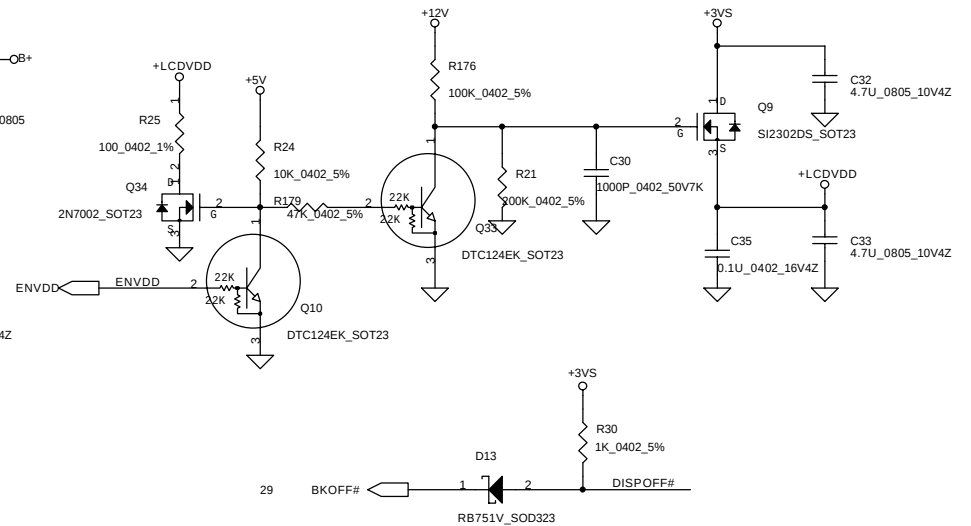
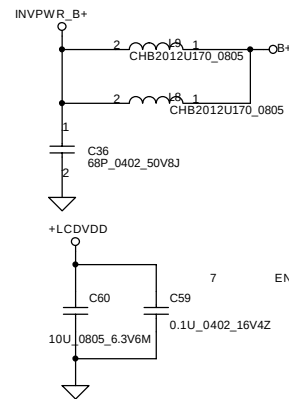
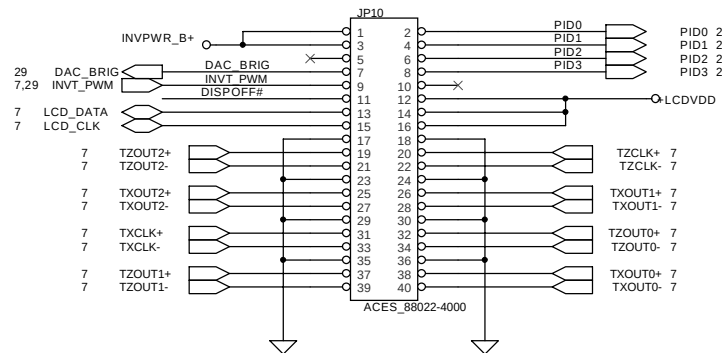
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TV Encoder

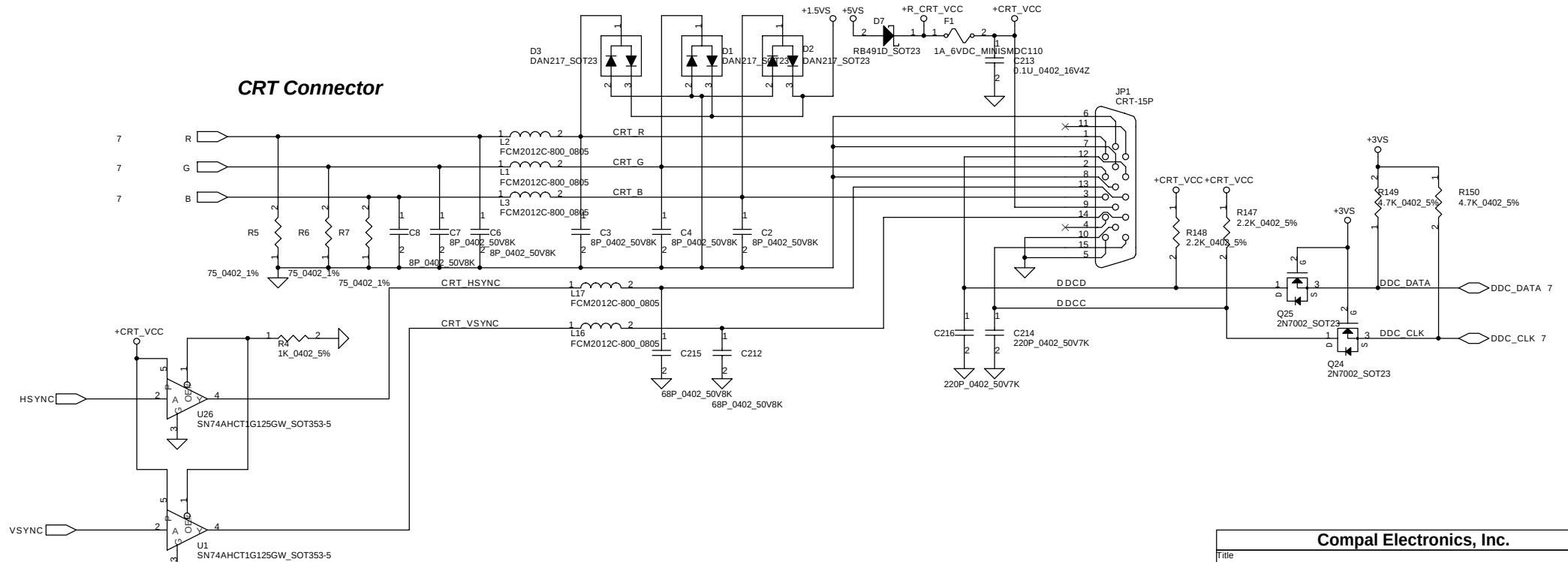


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LVDS Connector

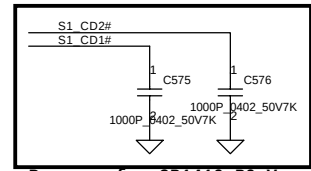


CRT Connector



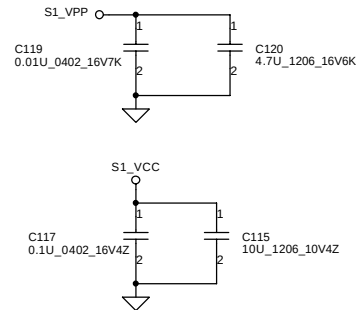
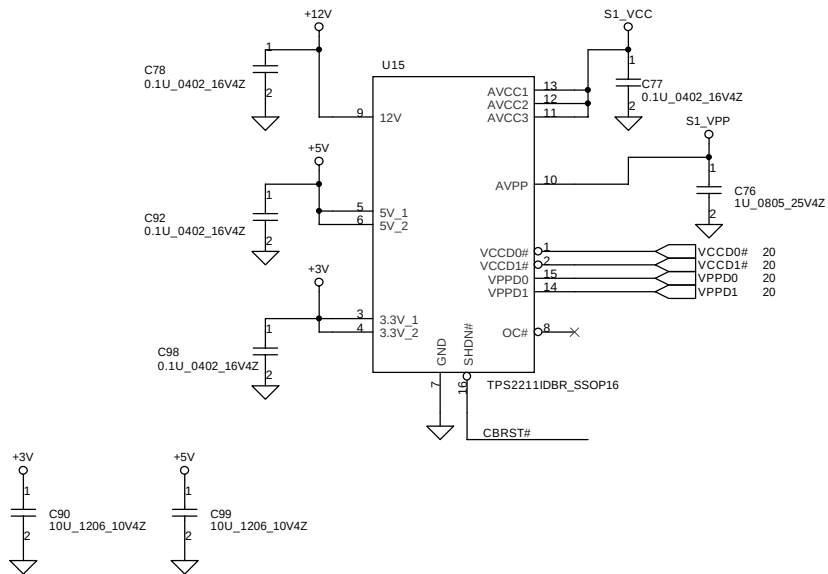
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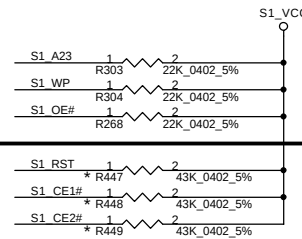
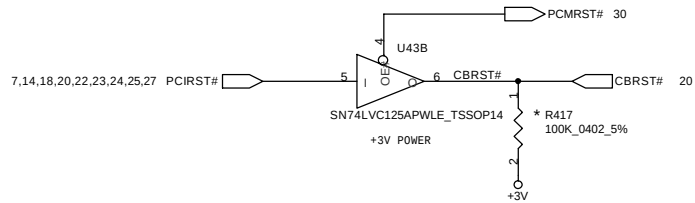
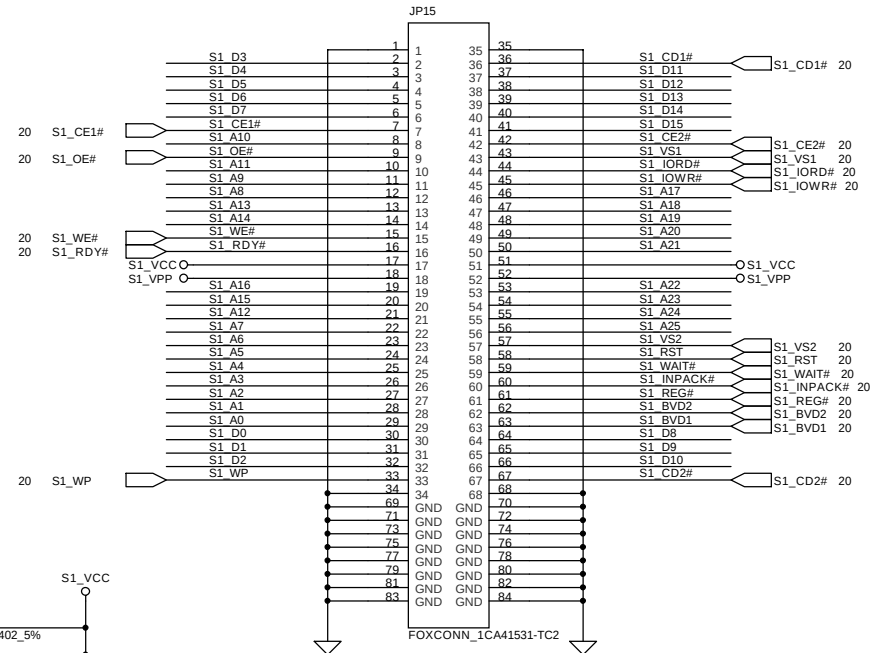


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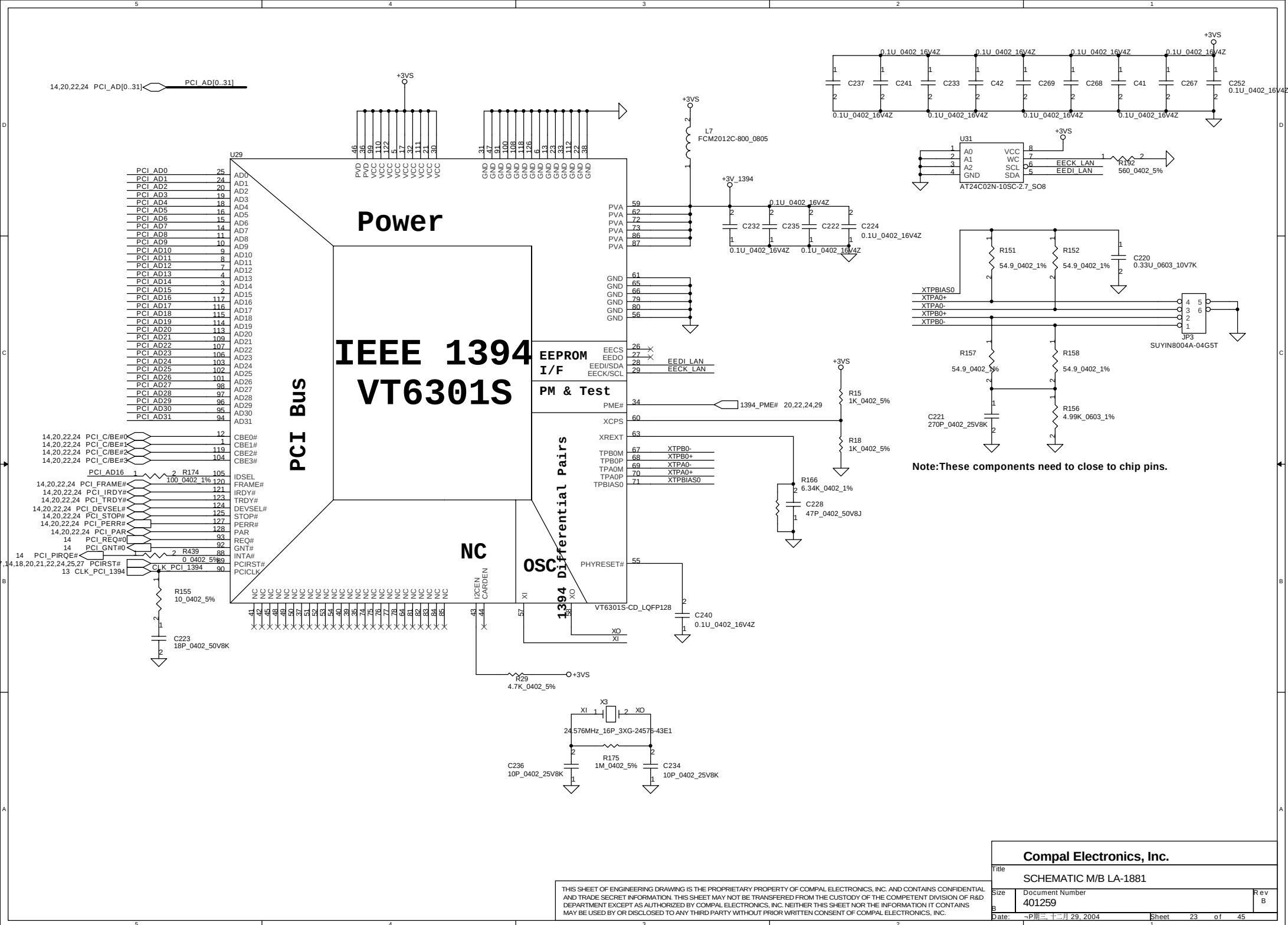
PCMCIA Power Controller

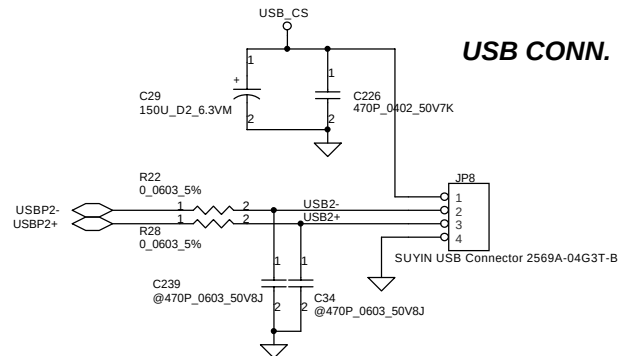


CardBus Socket

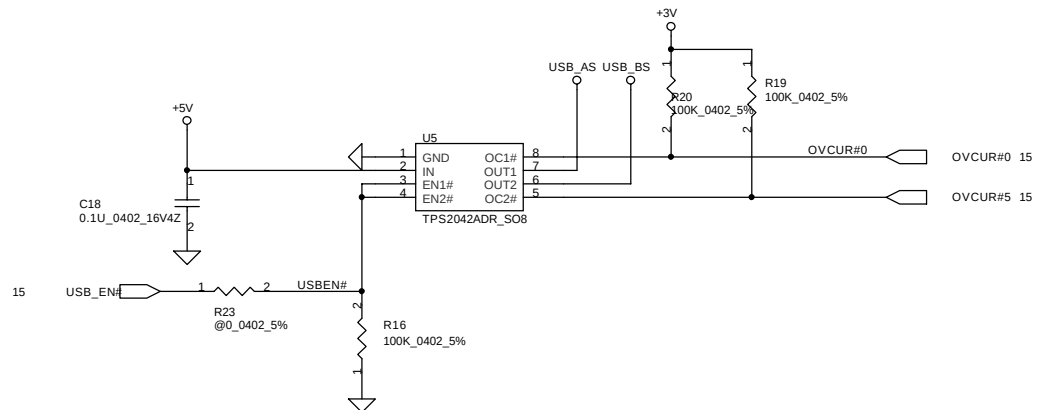
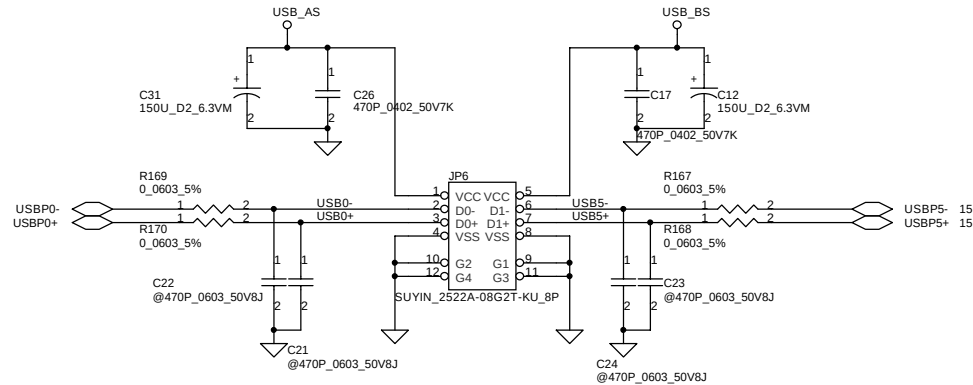


Reserve for CB1410 B0 Version

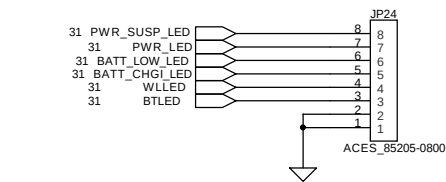
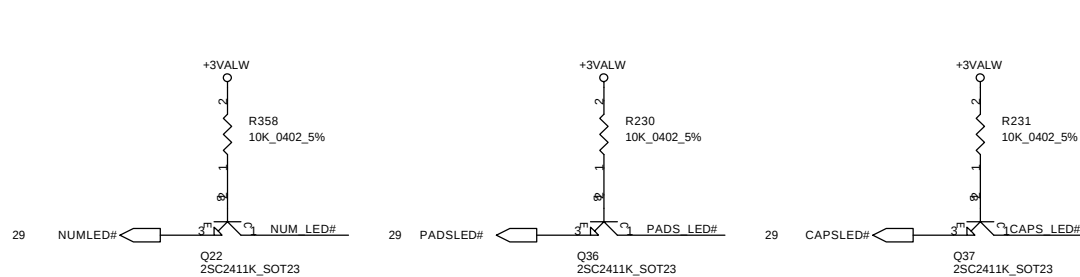




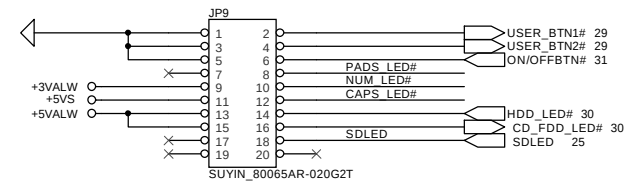
USB CONN.



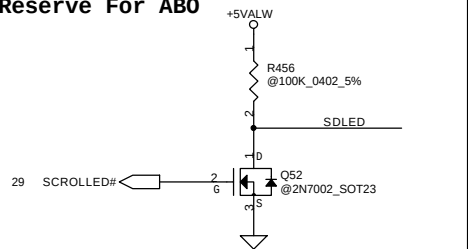
LED/B CONN.



POWER/B CONN.



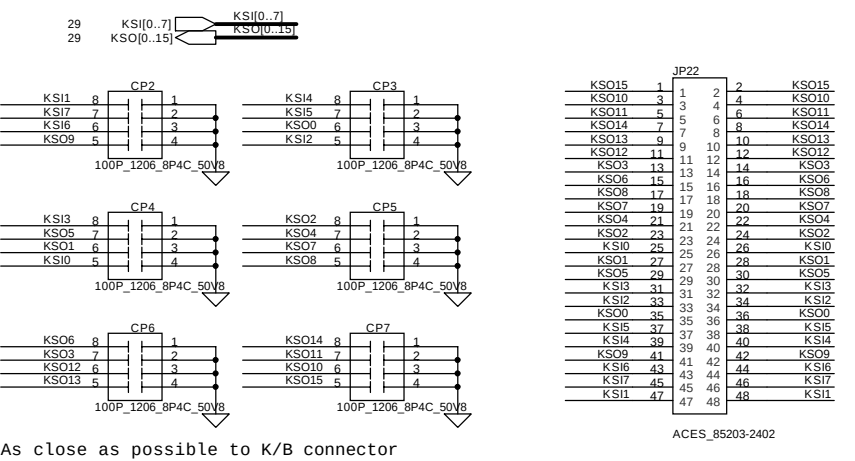
Reserve For ABO



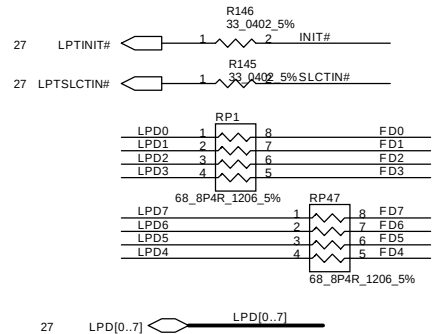
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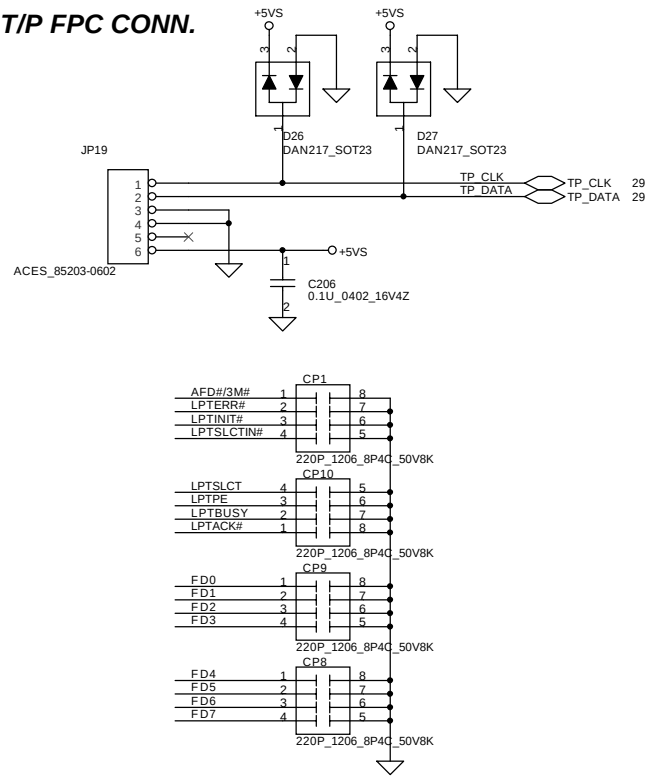
INT_KBD CONN.



As close as possible to K/B connector

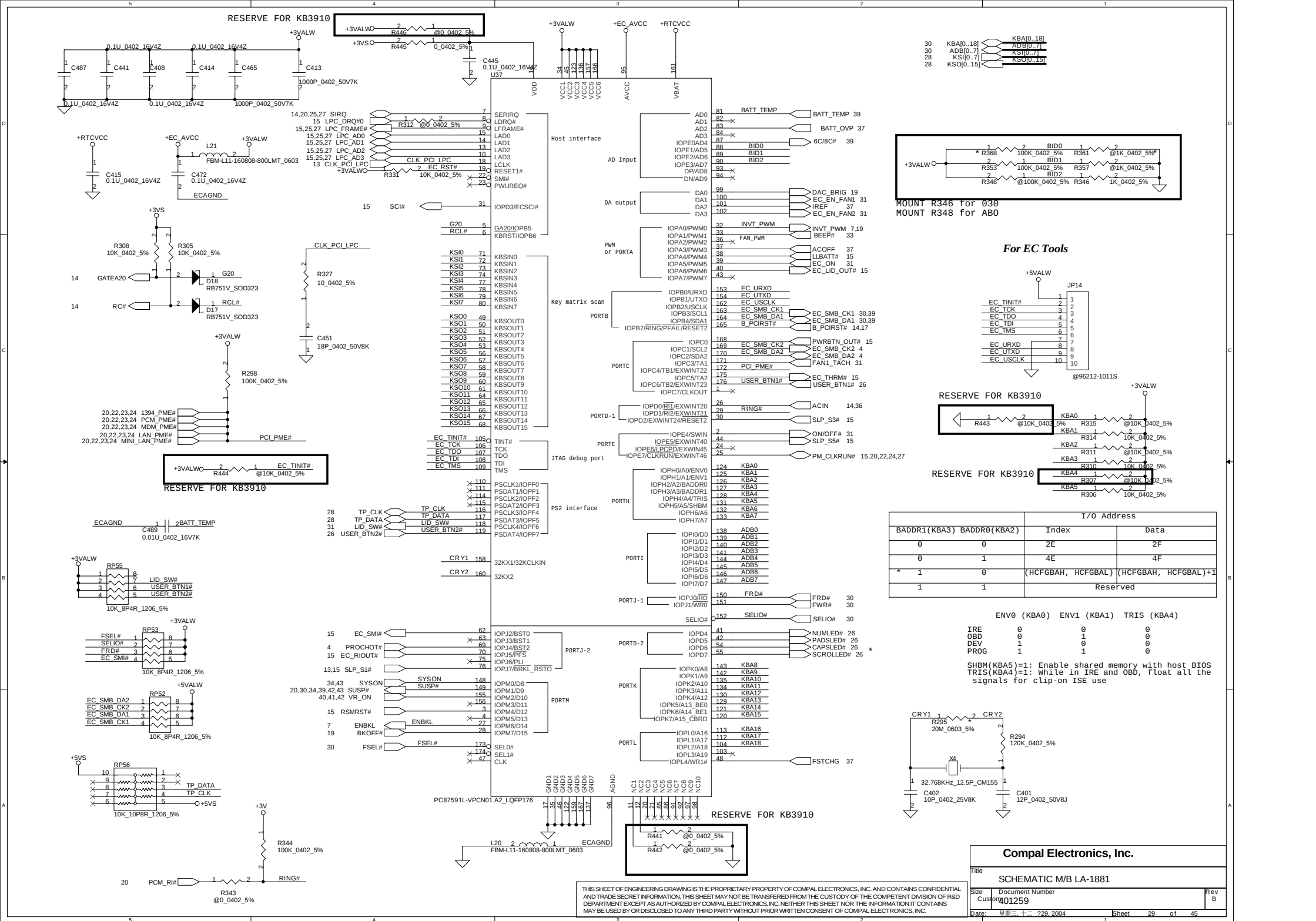


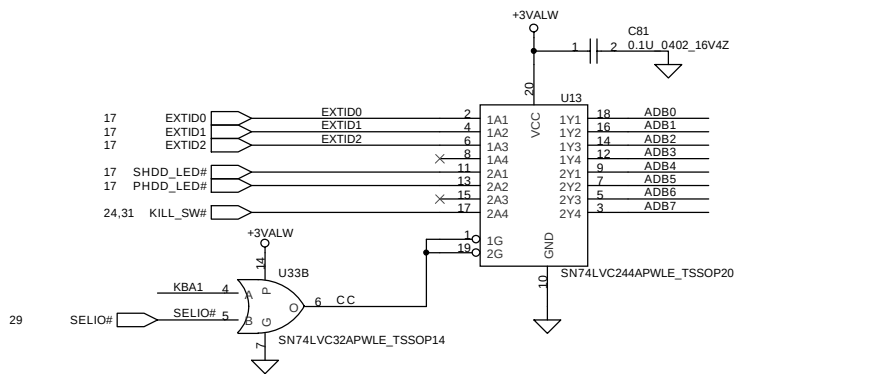
T/P FPC CONN.



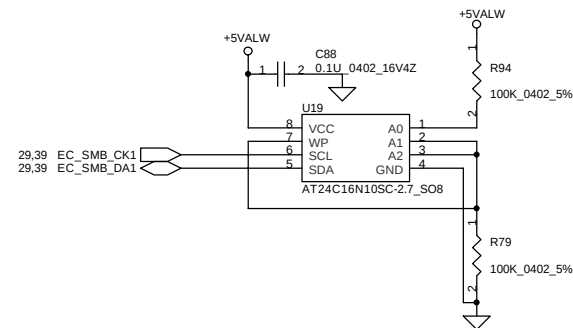
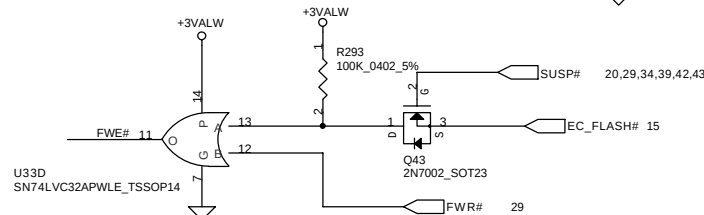
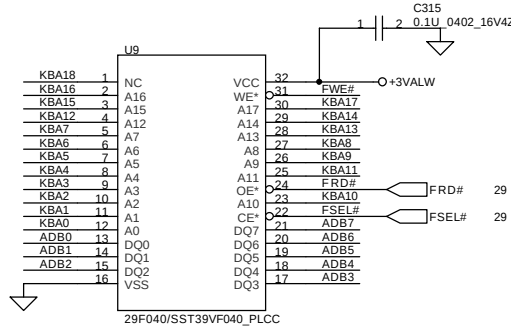
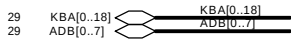
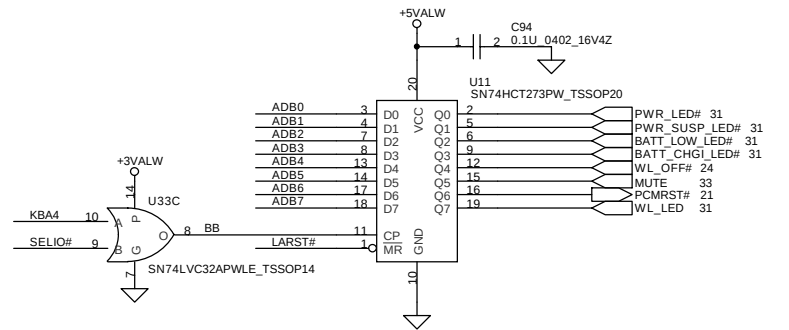
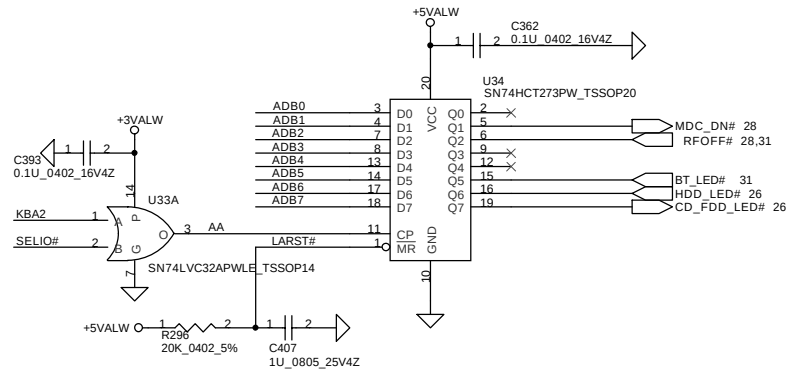
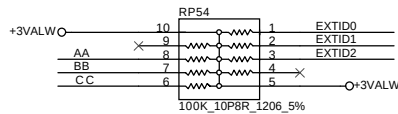
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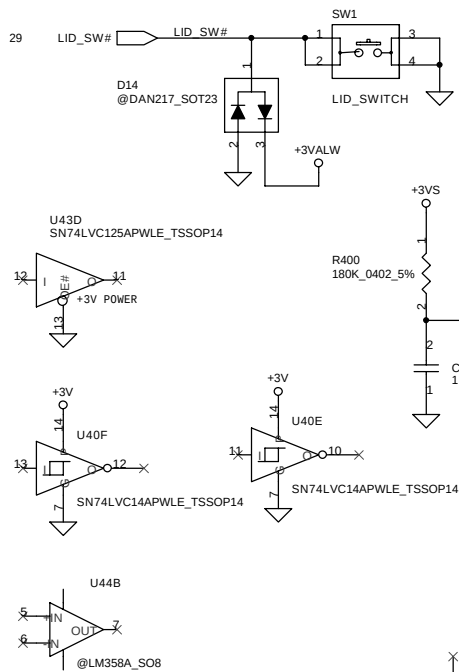


EXTID2	EXTID1	EXTID0	Module
0	0	0	FDD
0	0	1	CDROM
0	1	1	2ndHDD
1	1	1	NO Module

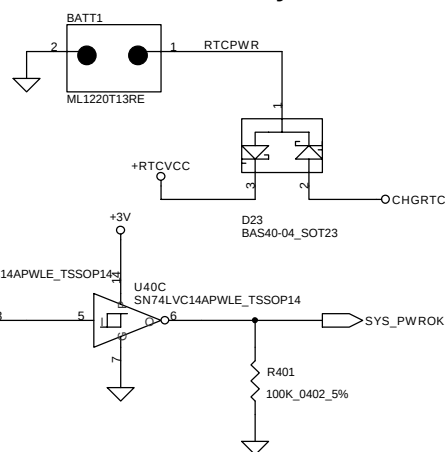


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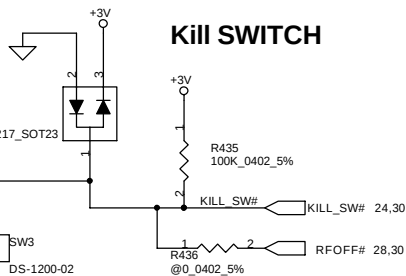
Power ON Circuit



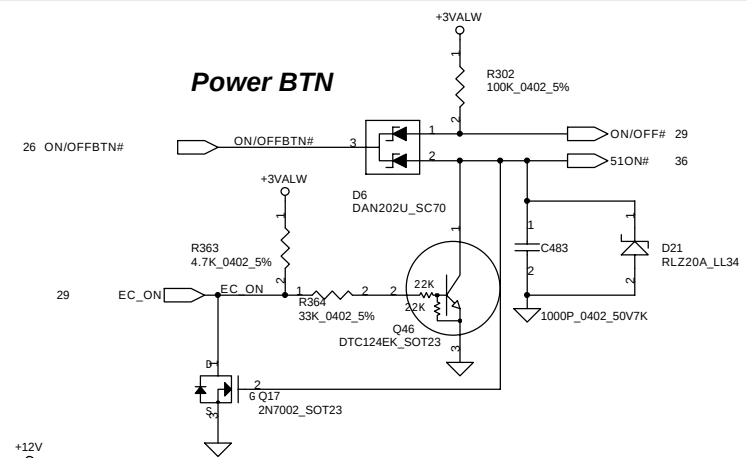
RTC Battery



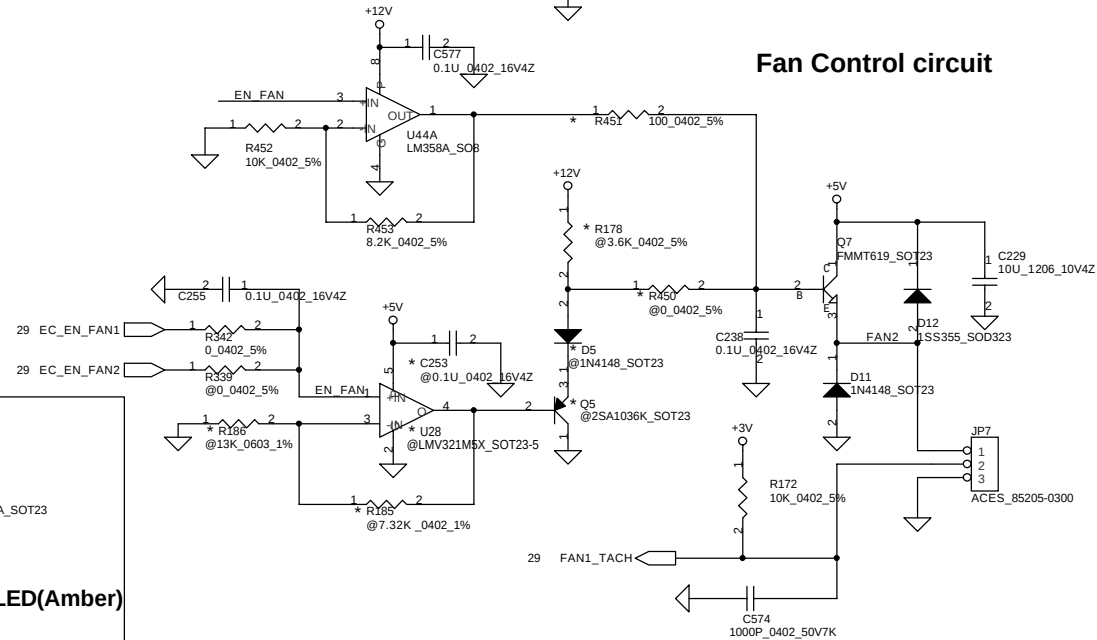
Kill SWITCH



Power BTN



Fan Control circuit

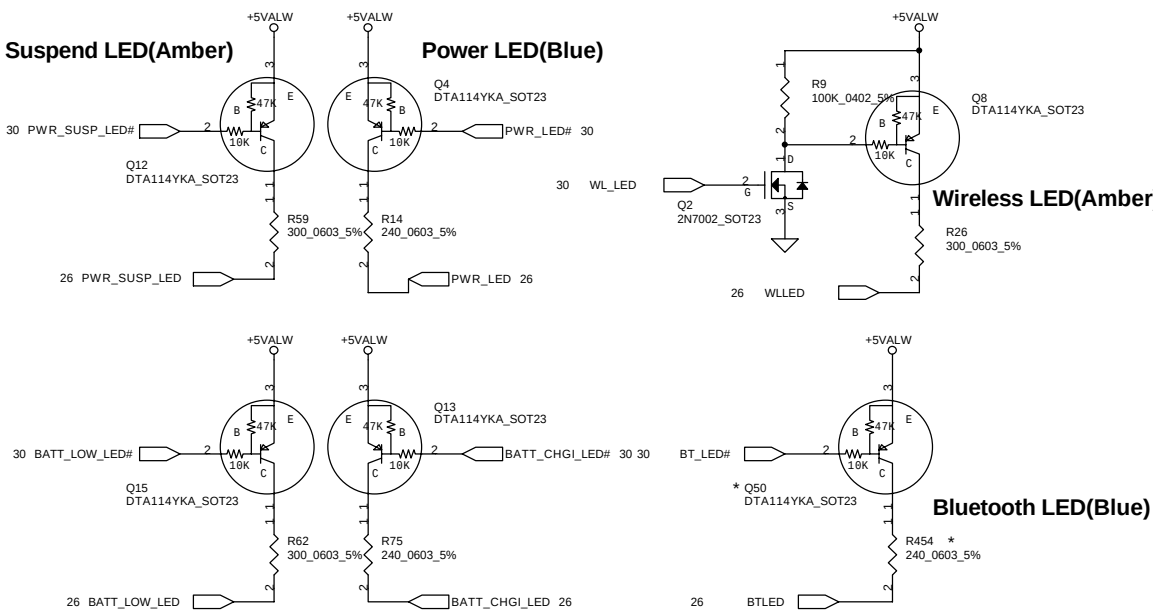


Suspend LED(Amber)

Power LED(Blue)

Wireless LED(Amber)

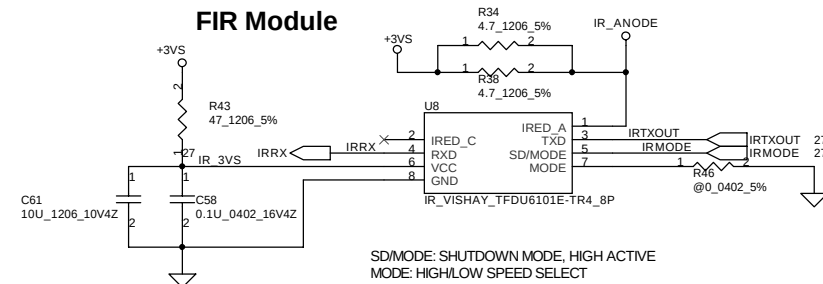
Bluetooth LED(Blue)



BATT Low LED(Amber)

BATT Charge LED(Blue)

FIR Module

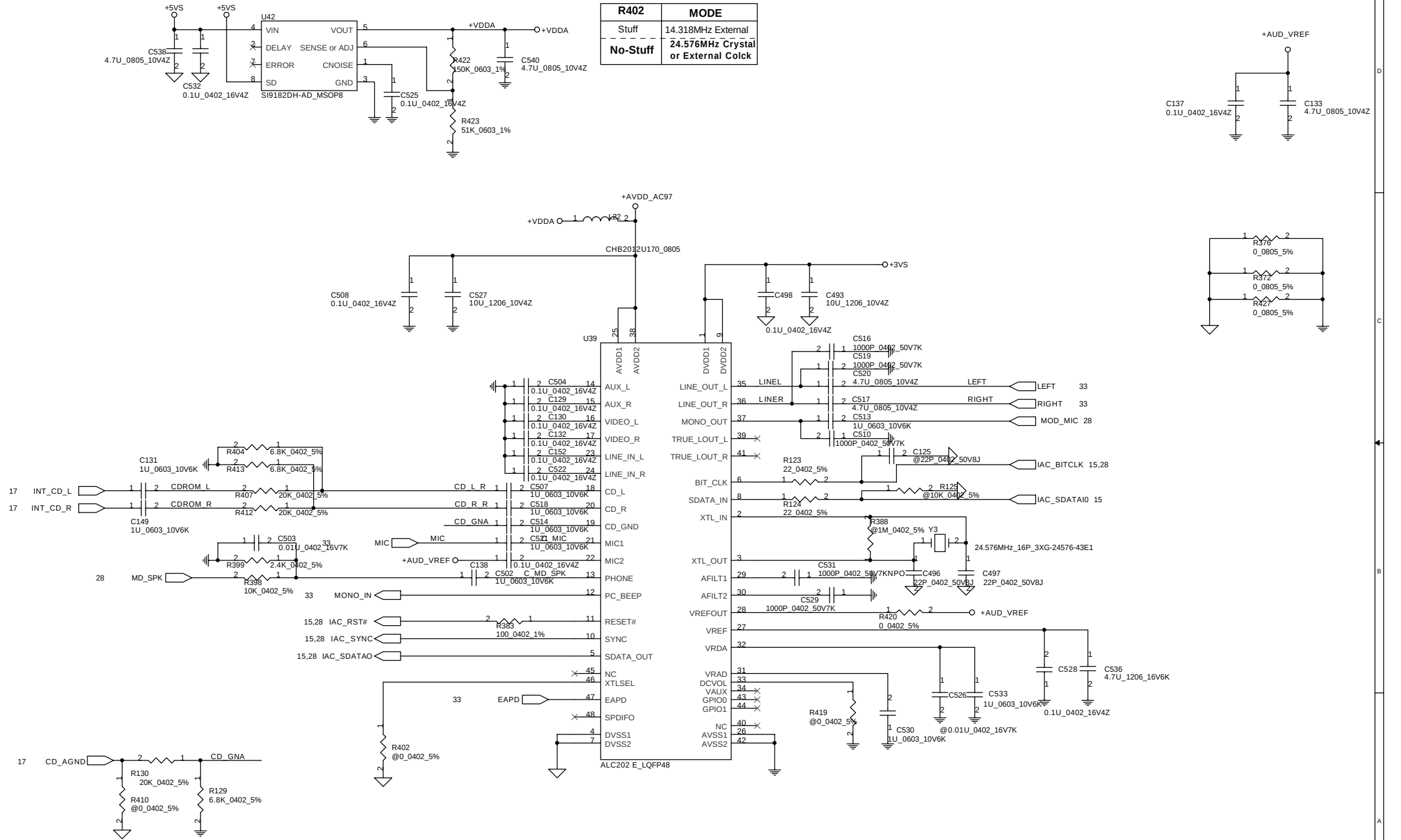


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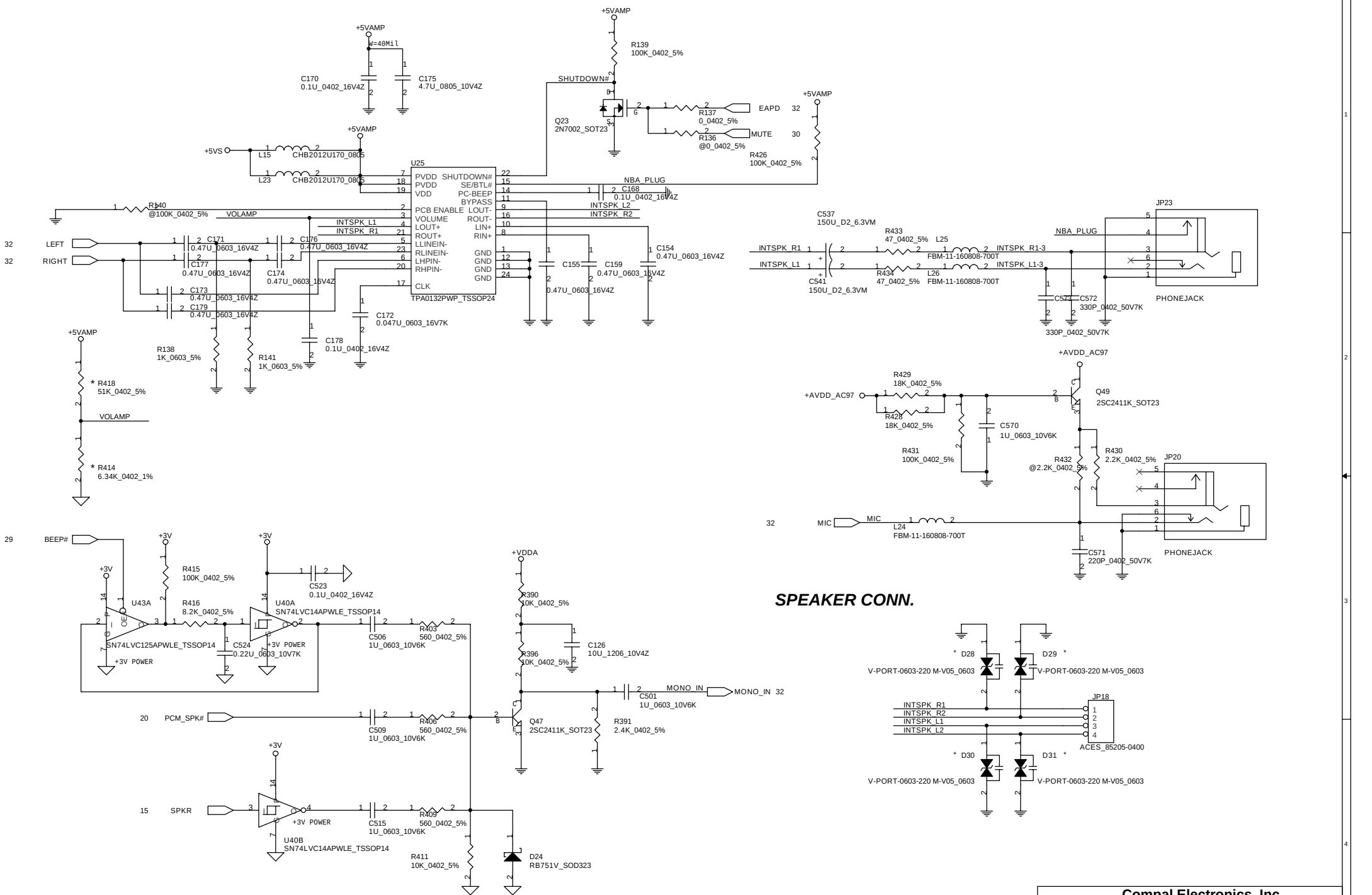
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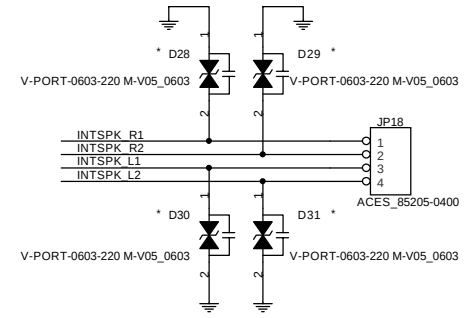
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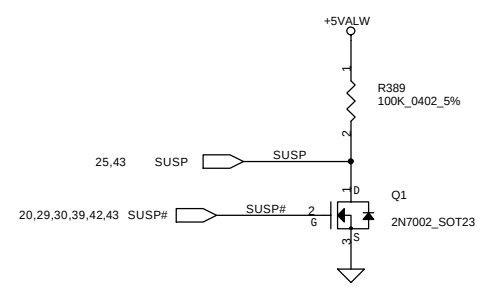
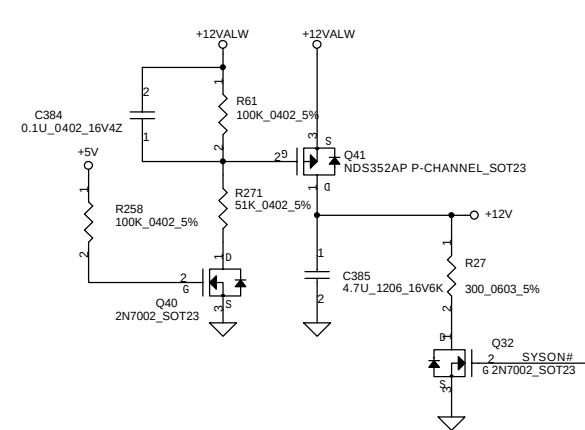
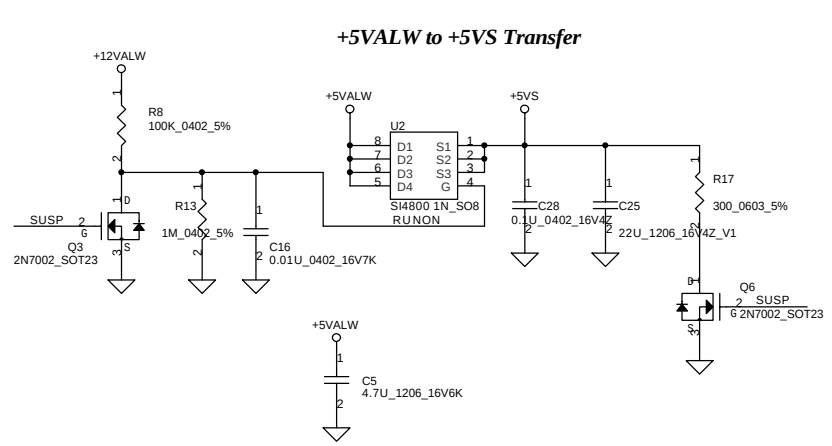
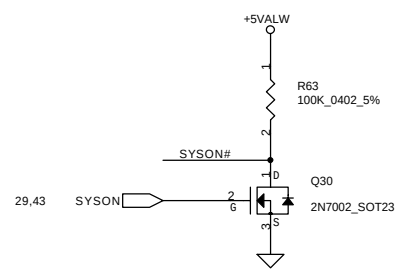
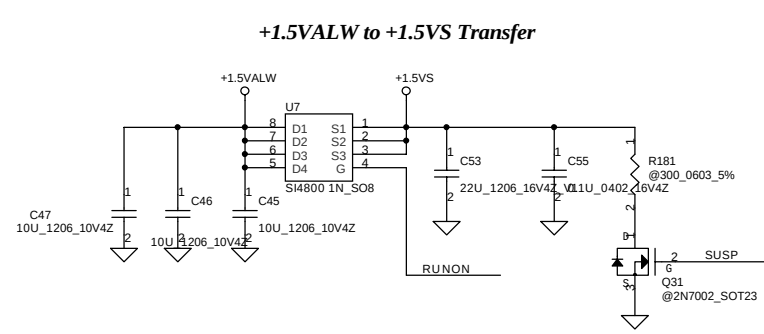
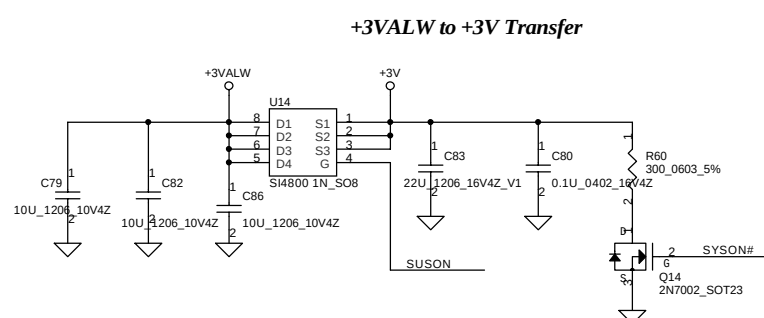
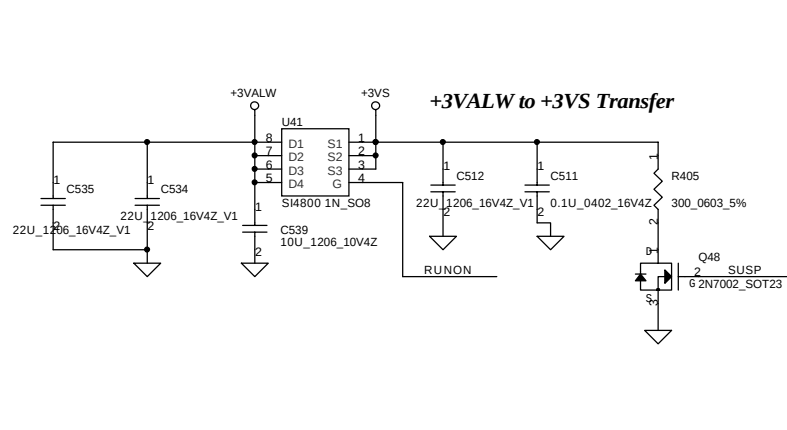
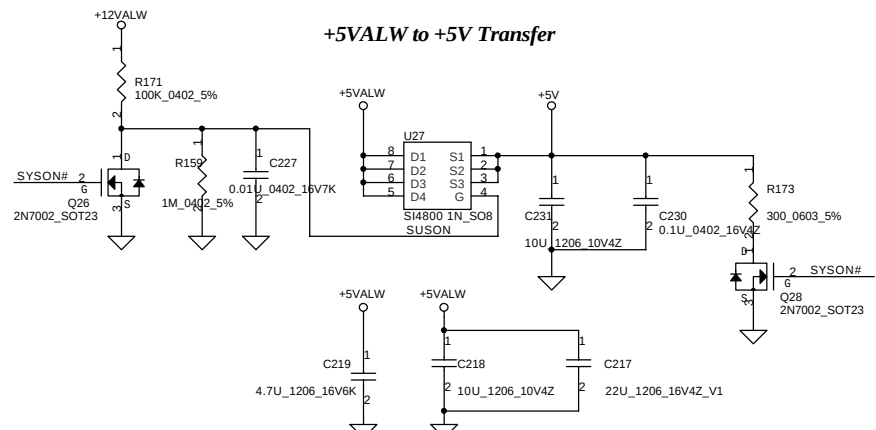


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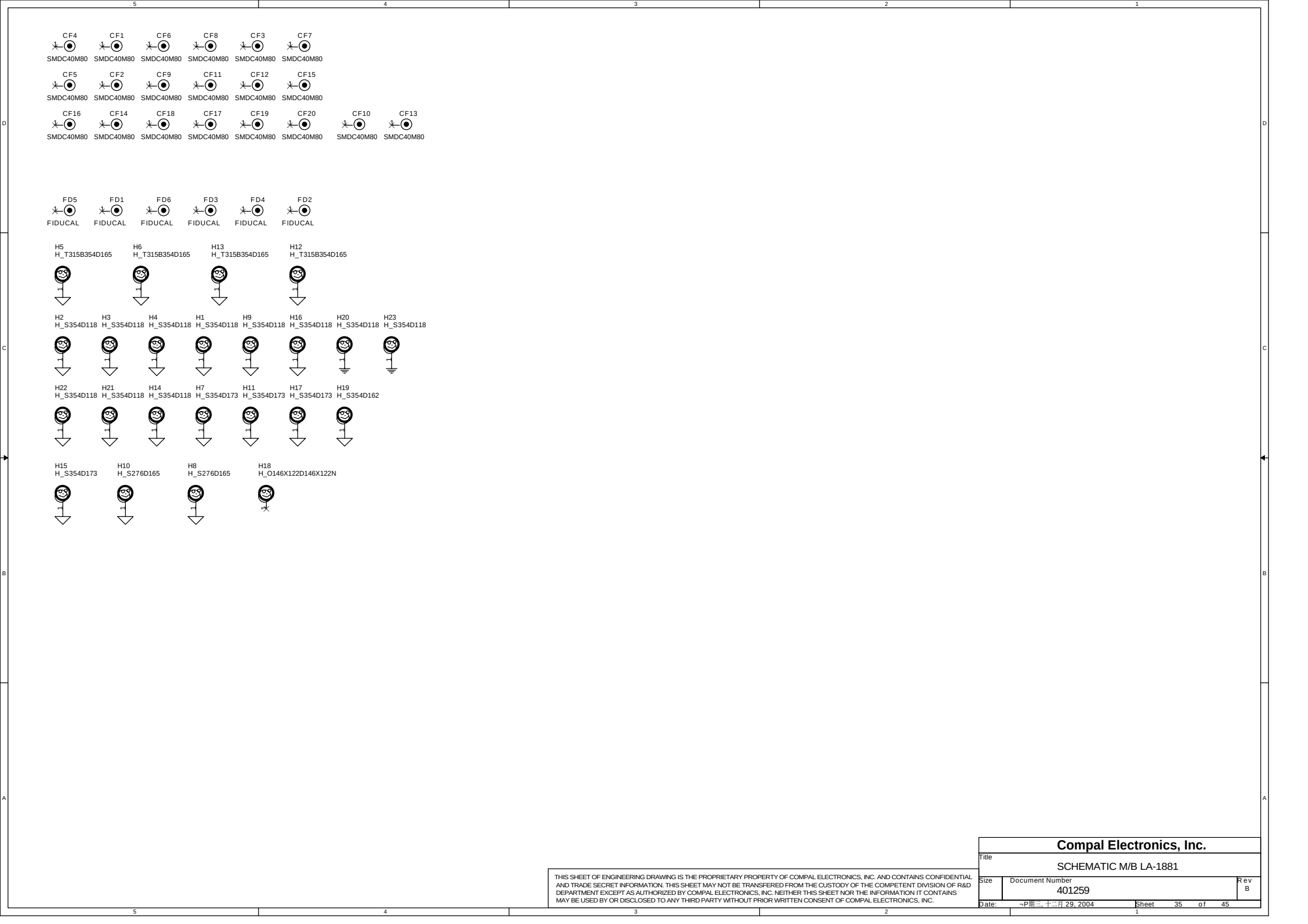
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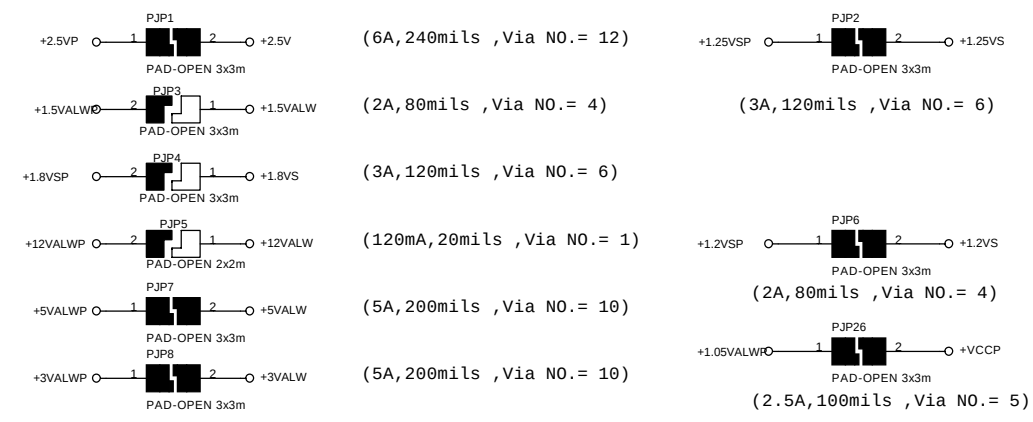
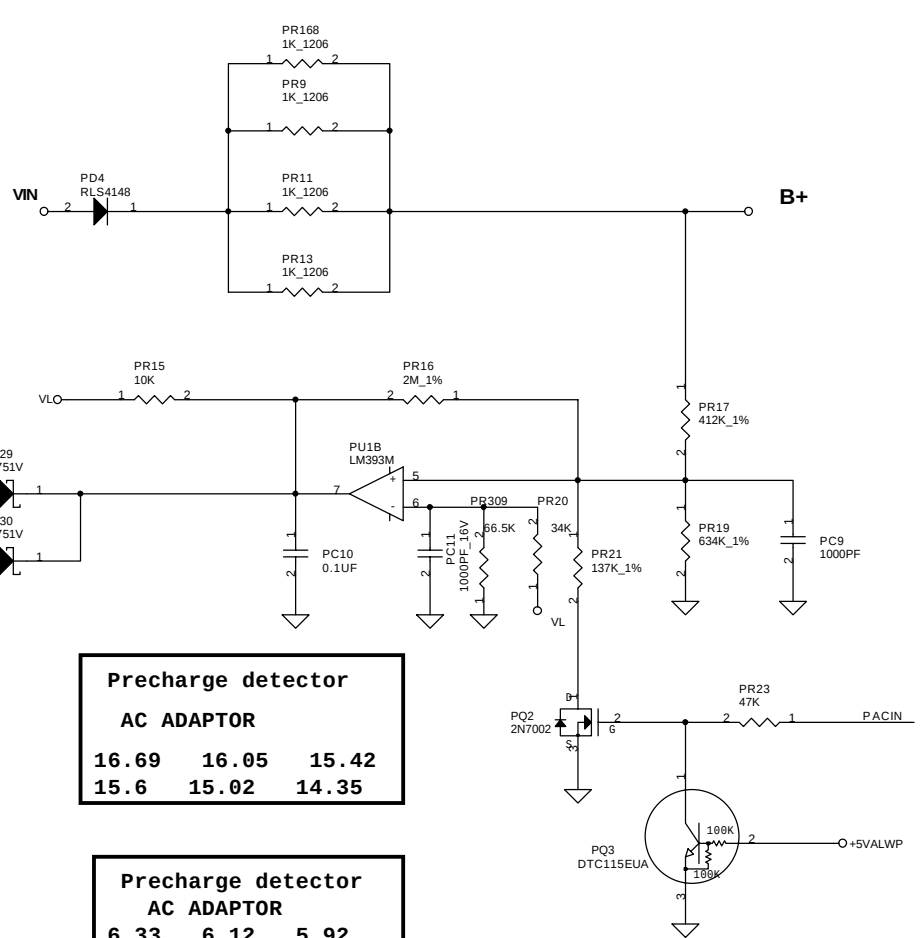
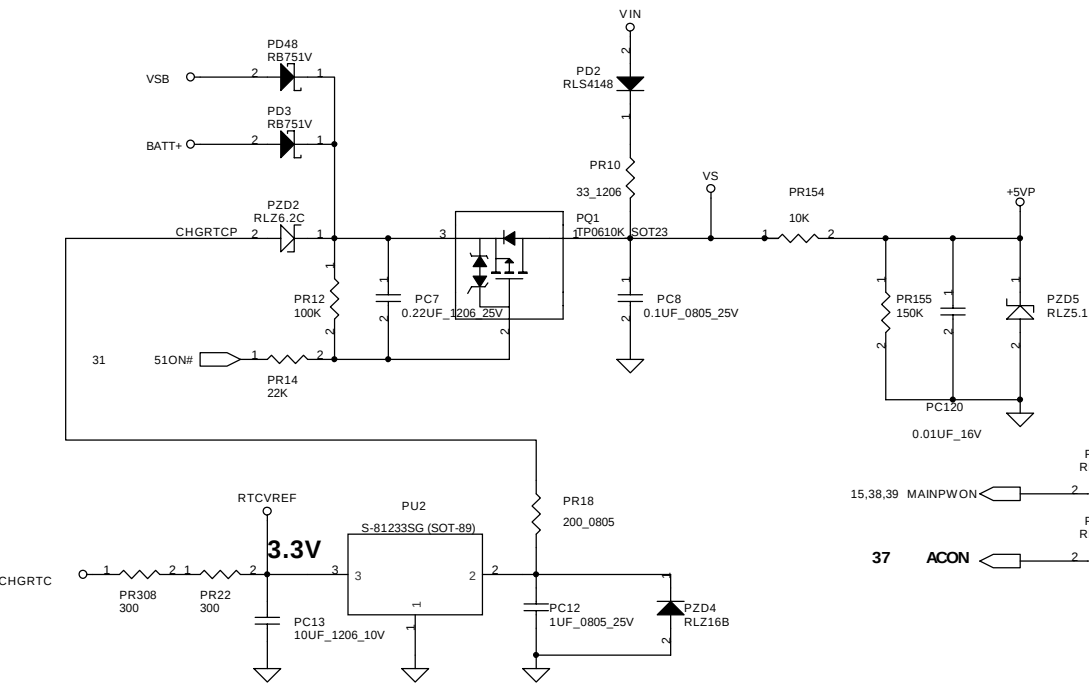
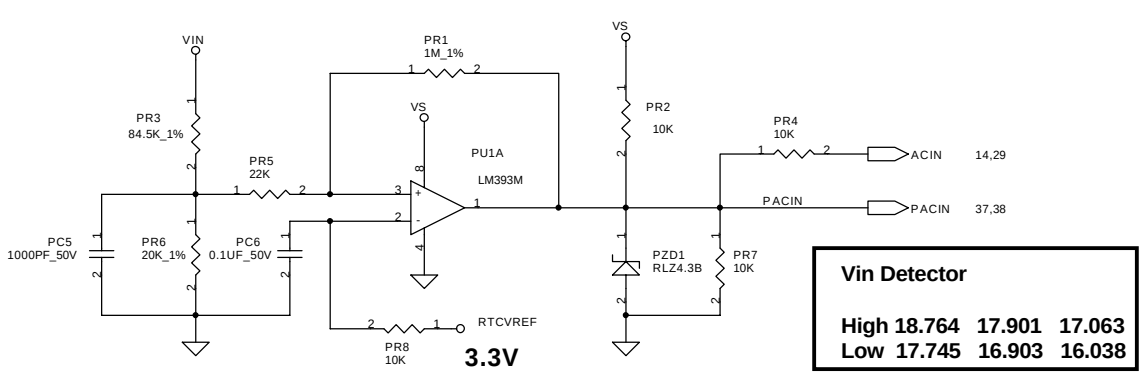
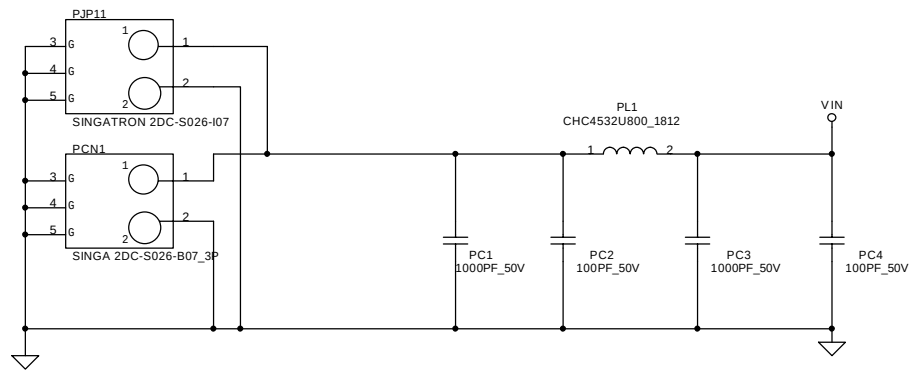
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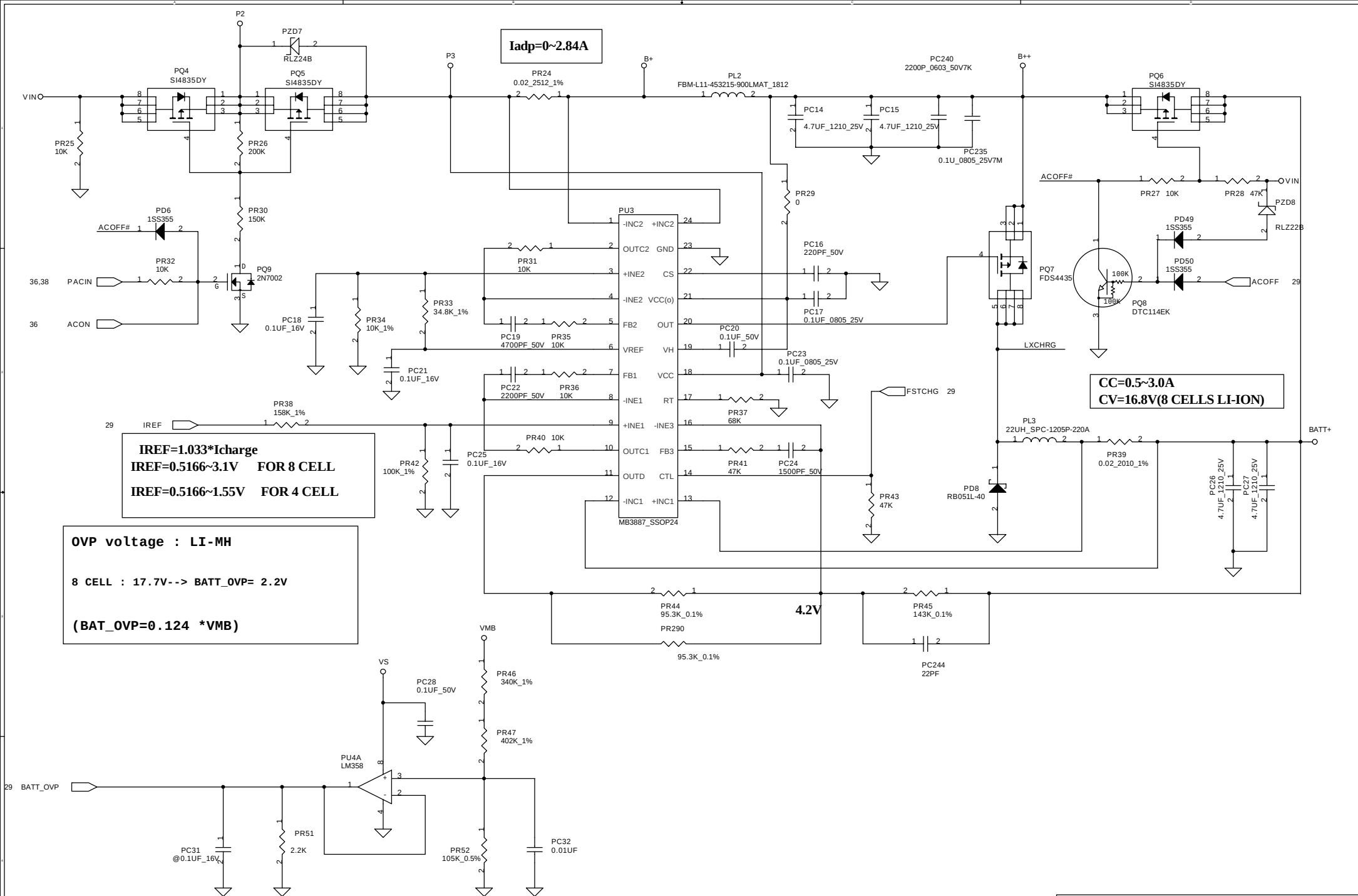


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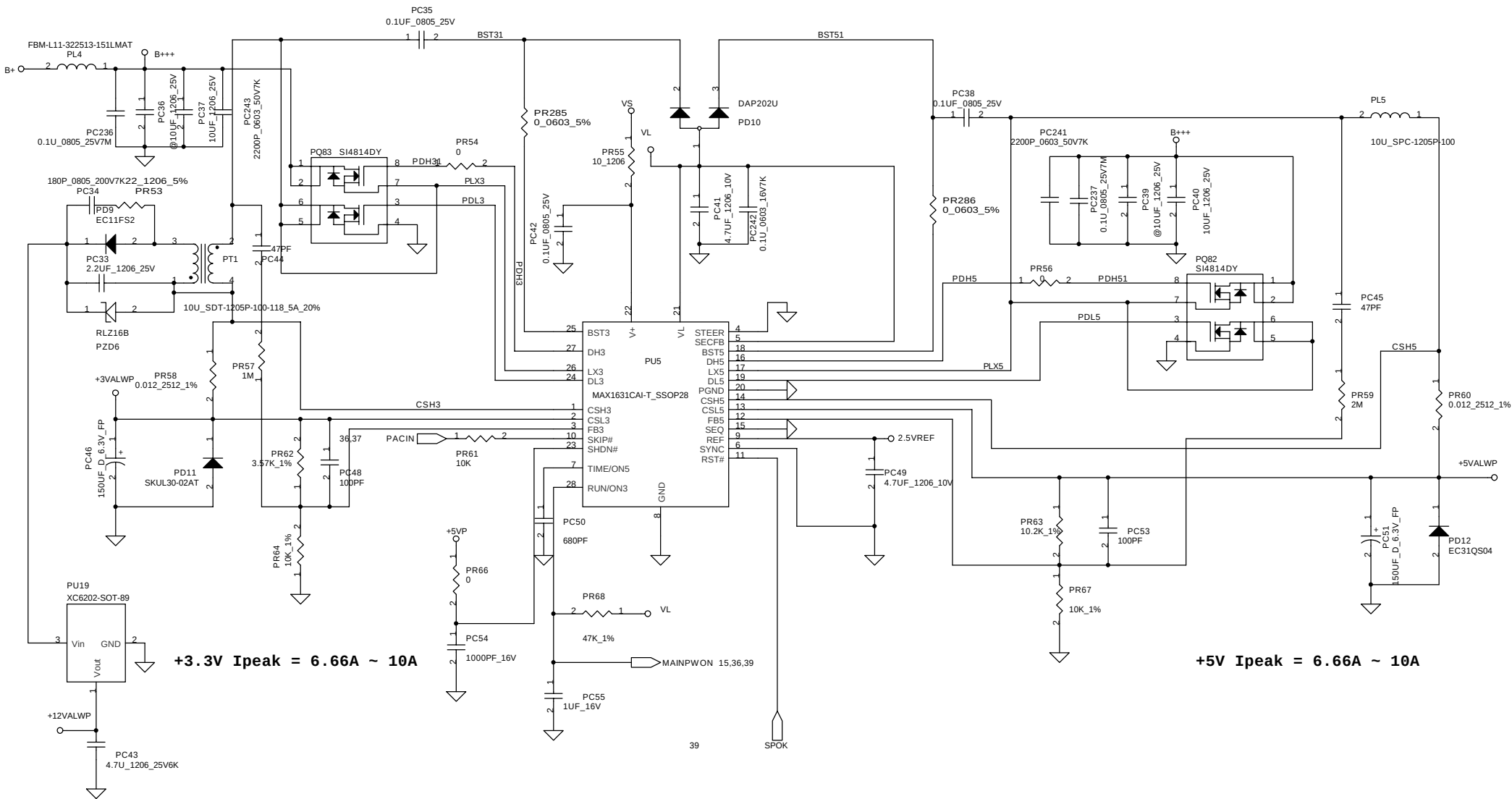
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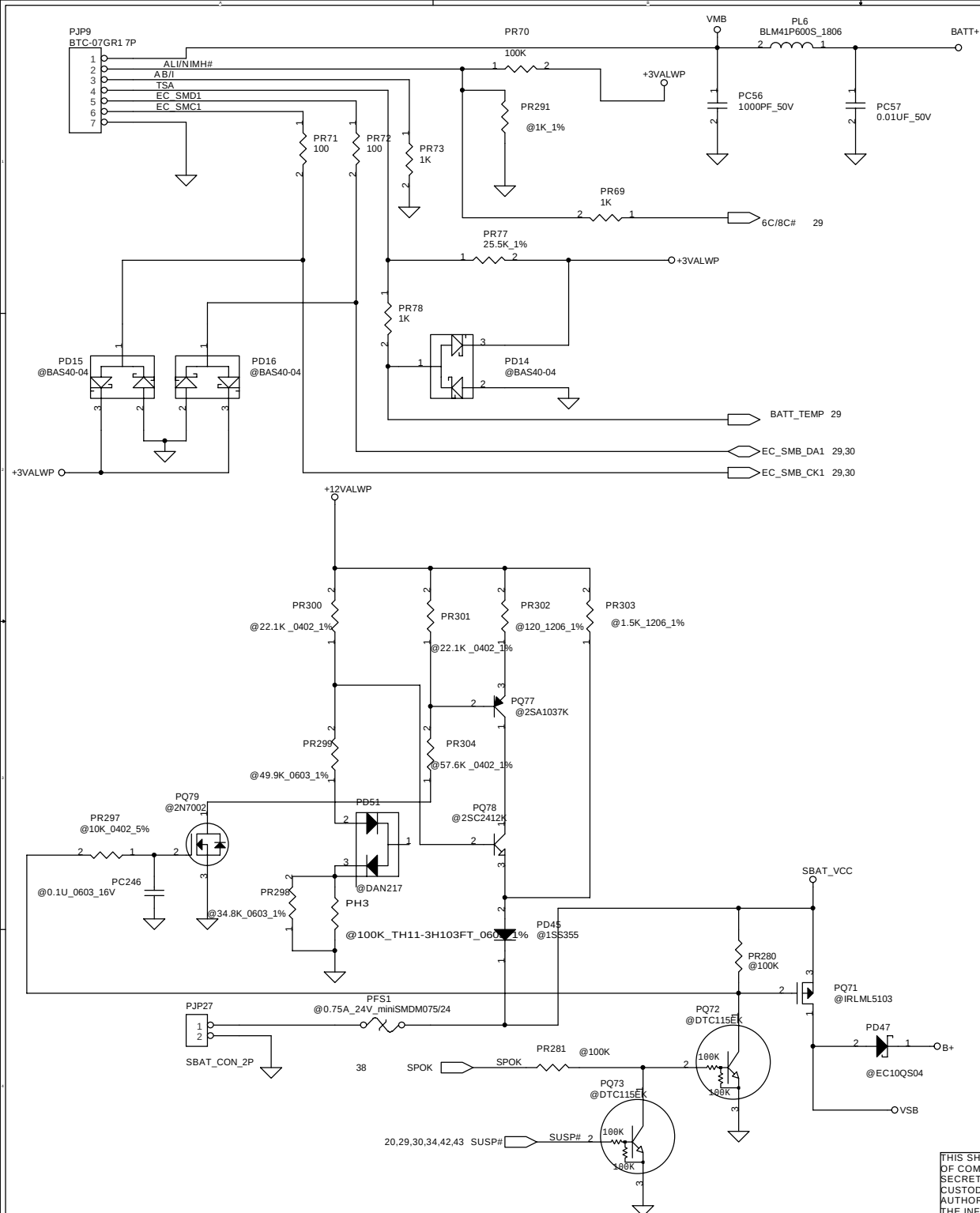
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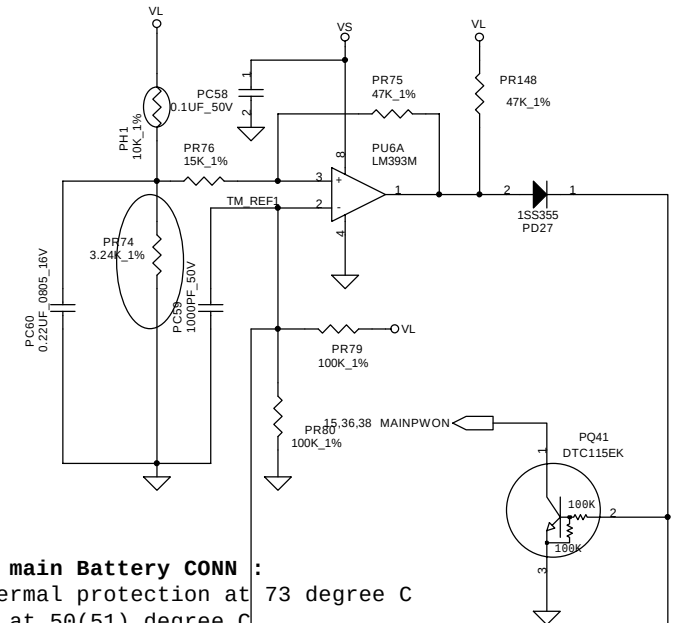
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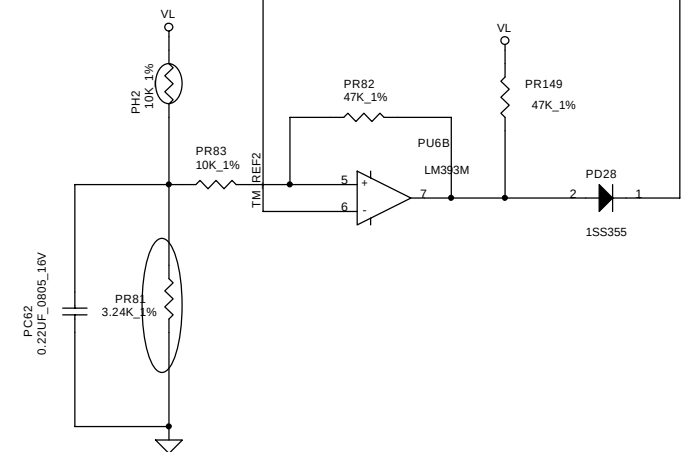
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PH1 under CPU botten side :
CPU thermal protection at 82 degree C
Recovery at 48 degree C



PH2 near main Battery CONN :
BAT. thermal protection at 73 degree C
Recovery at 50(51) degree C

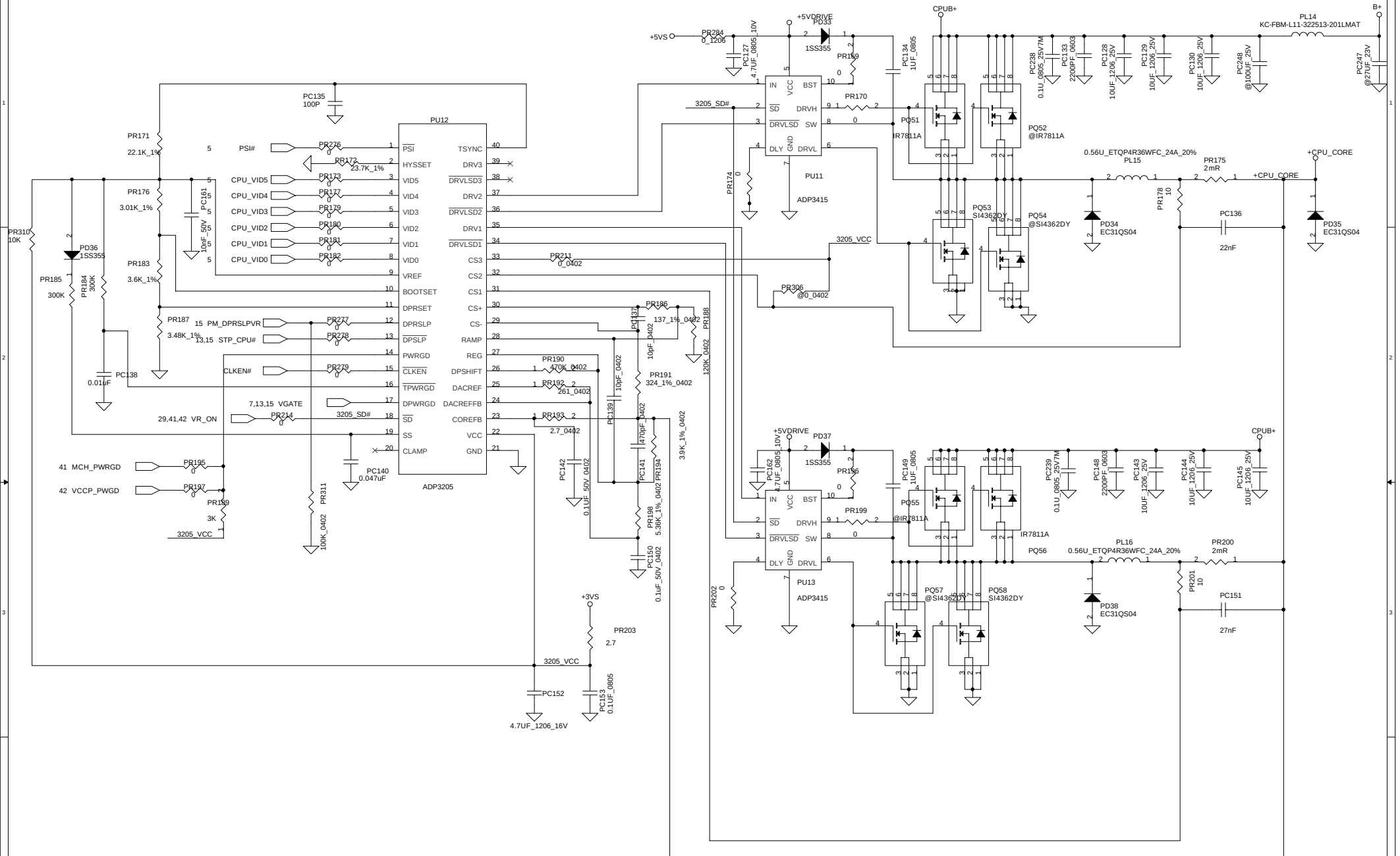


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CPU-CORE

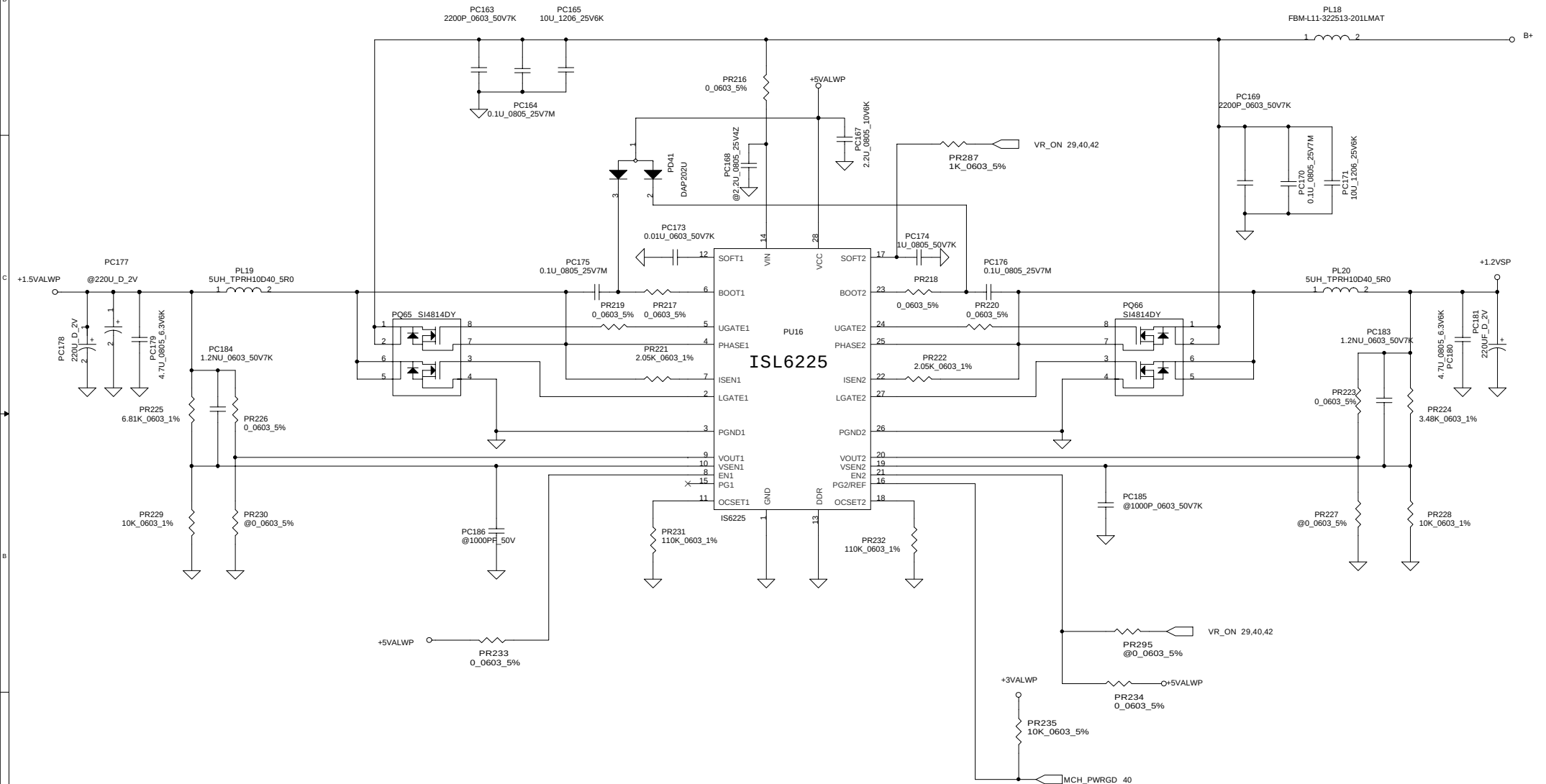


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+1.5VALWPV/+1.2VSP



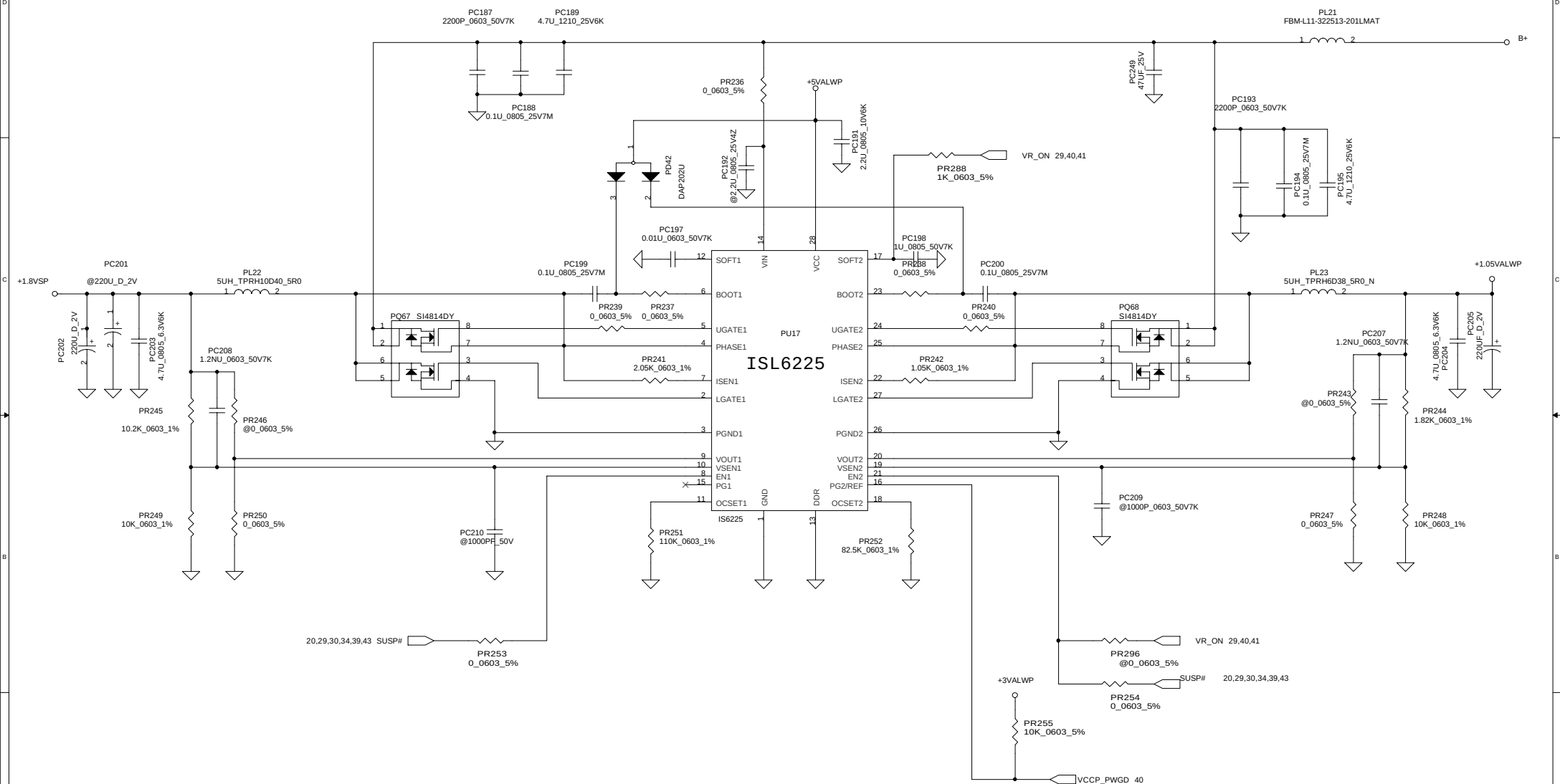
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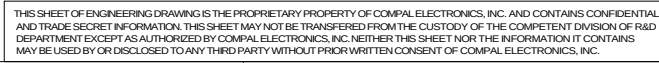
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Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG #	Modify List	VER	Phase
1.	+5VMOD leaked when AC-IN	Change EXTIDEPWR# to +5VALW	0.2	P17	Delete EXTIDEPWR# Add +5VALW to R126		DVT
2.	For ESD	For ESD	0.2	P28	Add D26, D27 on TP_DATA, TP_CLK		DVT
3.	For EMI	For EMI	0.2	P31	Add C574 on FAN1_TACH		DVT
4.	Reserve For ENE KB3910	Reserve For ENE KB3910	0.2	P29	Add R441, R442, R443, R444, R445		DVT
5.	Reserve For CB1410 Rev.B0	Reserve For CB1410 Rev.B0	0.2	P20,21	Add C575, C576, R447, R448, R449		DVT
6.	Reserve FAN Control Circuit	Reserve FAN Control Circuit	0.2	P31	Add U44, R450, R451, R452, R453, C577		DVT
7.	Bluetooth LED	Add Bluetooth LED	0.3	P31	Add Q50, R454		PVT
8.	Change LED Wire Connector	Change LED Wire Connector	0.3	P26	Change JP24 Connector Type		PVT
9.	Reserve SCROLL LED Circuit	Add LED Control Circuit	0.3	P26	Add Q51, Q52, R455, R456		PVT
10.	For ESD	For ESD	0.3	P33	Add D28, D29, D30, D31 close to Speaker Connector		PVT

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Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG #	Modify List	VER	Phase
1		delete 6 cell charger voltage		37	1.delete PQ75,PQ74,PR294,PC245		DVT
2		Adjust charger charge voltage:		37	1. change PU3 from MB3878 to MB3887, PR38 from 118K to 174k,PR33 from 26.1k to 34k, PR44 from 120k_1% to 9.3k_0.1%,PR45 from 243k_1% to 143k_1%, PR290 from 243k_1% to 143k_0.1%		
3		modify 1.5UH CHOKE footprint to be the same as all vender		42	Change PL26 fom old version:1.5UH TPRH6D38 to new version 1.5UH_TPRH6D38-N.		DVT
4		add pull low resistor PR311 to ground for hardware		39	add PR311		DVT
5		for cpu core current balance		40	change pc151 from 22n to 27n		PVT
6		for vender require , new DC JACKbe crease		36	increase PJP11		
7		for 1.2vs soft start rise time		41,42,43	change pc174,pc198,pc222, from 4.7u to 1u		
8		cost down		38,39,40,41	delete PC36,PC39,PC247,PC249 CHANGE PC195,PC189 FROM 10U 1206 TO 4.7U 1210		
9		TP0610C will be phase out		36	change TP0610C to TP0610K		

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