Model Name :
File Name :

Compal Confidential

ULC UMA M/B LA-A994P Schematics Document

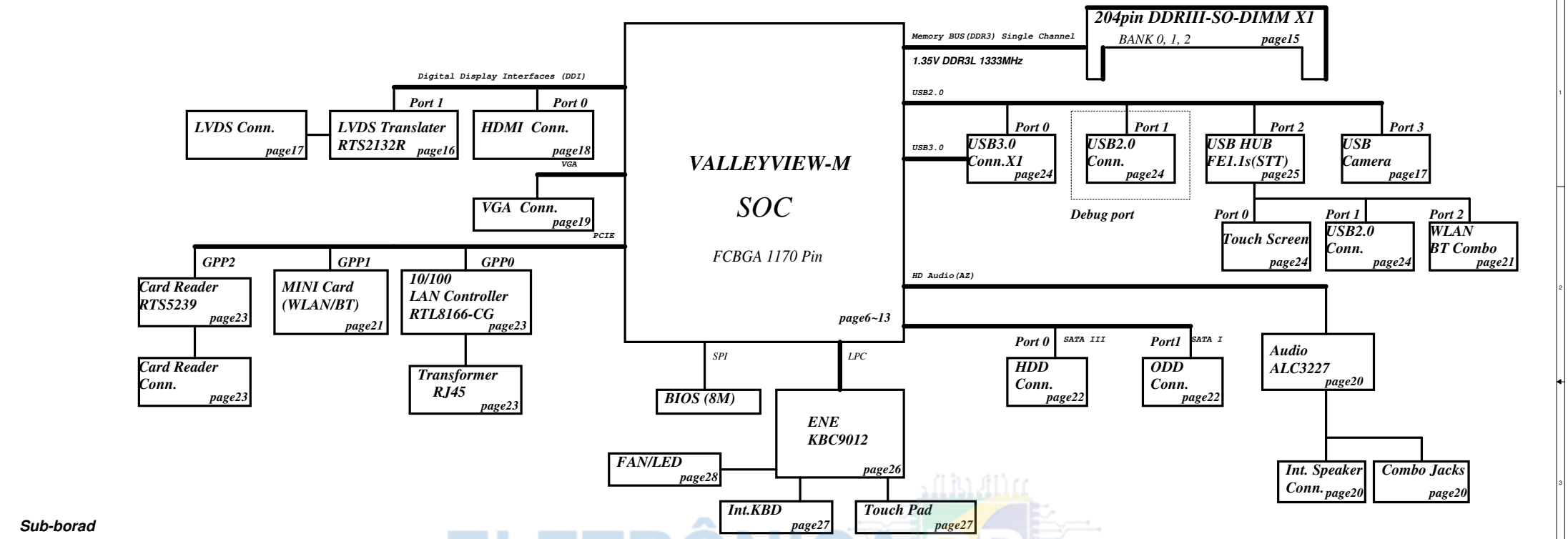
Intel Bay Trail M VC
Project Code : ZSO50
2014/02/05
MV Rev. 1.0

DAX ZSO50 BayTrail-M

Part Number	Description
DAZ14Z00200	PCB 14Z LA-A994P REV0 M/B 4

Security Classification	Compal Secret Data		
Issued Date	2012/12/01	Deciphered Date	2013/07/10

Compal Electronics, Inc.			
Title	*Cover Page*		
Size B	Document Number *LA-A994P*		Rev 0.1
Date: Friday, February 21, 2014	Sheet 1 of 43		



Sub-borad

- USB/B page24
- PWR BTN/B page28
- TP BTN/B page27

Security Classification	Compal Secret Data		
Issued Date	2012/12/01	Deciphered Date	2013/07/10

Compal Electronics, Inc.

Title: **Block Diagrams**

Size	Document Number	Rev
Custom	LA-A994P	0.1

Date: Friday, February 21, 2014 Sheet 2 of 43

Voltage Rails

Power Plane	Description	S0	S3	S4/S5
VIN	19V Adapter power supply	ON	ON	ON
BATT+	12V Battery power supply	ON	ON	ON
B+	AC or battery power rail for power circuit. (19V/12V)	ON	ON	ON
+VSB	+VSBP to +VSB always on power rail for sequence control	ON	ON	ON
+RTCVCC	RTC Battery Power	ON	ON	ON
+1.0VALW	+1.0v Always power rail	ON	ON	ON
+1.2VALW	+1.2v Always power rail	ON	ON	ON
+1.8VALW	+1.8v Always power rail	ON	ON	ON
+3VALW	+3.3v Always power rail	ON	ON	ON
+5VALW	+5.0v Always power rail	ON	ON	ON
+1.35V	+1.35V power rail for DDR3L	ON	ON	OFF
+SOC_VCC	Core voltage for SOC	ON	OFF	OFF
+SOC_VNN	GFX voltage for SOC	ON	OFF	OFF
+0.675VS	+0.675V power rail for DDR3L Terminator	ON	OFF	OFF
+1.0VS	+1.0v system power rail	ON	OFF	OFF
+1.05VS	+1.05v system power rail	ON	OFF	OFF
+1.35VS	+1.35v system power rail	ON	OFF	OFF
+1.5VS	+1.5v system power rail	ON	OFF	OFF
+1.8VS	+1.8v system power rail	ON	OFF	OFF
+3VS	+3.3v system power rail	ON	OFF	OFF
+5VS	+5.0v system power rail	ON	OFF	OFF

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

BOARD ID Table

Board ID	PCB Revision
DB	0.1
SI	0.2
PV	0.3
MV	1.0

BOM Option Table

BTO Item	BOM Structure
Unpop	@
Connector	CONN@
XDP (Debug Port)	XDP@
EMI requirement	EMI@
EMI requirement unpop	@EMI@
ESD requirement	ESD@
ESD requirement unpop	@ESD@
8161 LAN controller	8161@
8166 LAN controller	8166@
LVDS	LVDS@
LVDS LDO mode	LVDSLDO@
LVDS SWR mode	LVDSSWR@
Translator RTS2132S	2132S@
Translator RTS2132R	2132R@
Short Pad	RS@
Clean CMOS	CMOS@
Jump	JP@

USOC1 217@
B3 2.17G
SA00007E920

USOC1 186@
B3 1.86G
SA00007EO10

USOC1 CR1@
CeleronR N2815 Dual 7.5W 2C
SA00007EO30

USOC1 PR1@
PentiumR N3520 Quad 7.5W 4C
SA00007E940

USOC1 CR3@
CeleronR N2815 Dual 7.5W 2C
SA00007EO60

USOC1 PR3@
PentiumR N3520 Quad 7.5W 4C
SA00007E950

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b

EC SM Bus2 address

Device	Address

SOC SM Bus address

Device			Address	
ChannelA	DIMM0	A0	1010 000X	JDIMM1(SPD)

43 level BOM table

43 Level	Description	BOM Structure
4319P6BOL01	SMT MB AA231 V1UE3 HDMI	

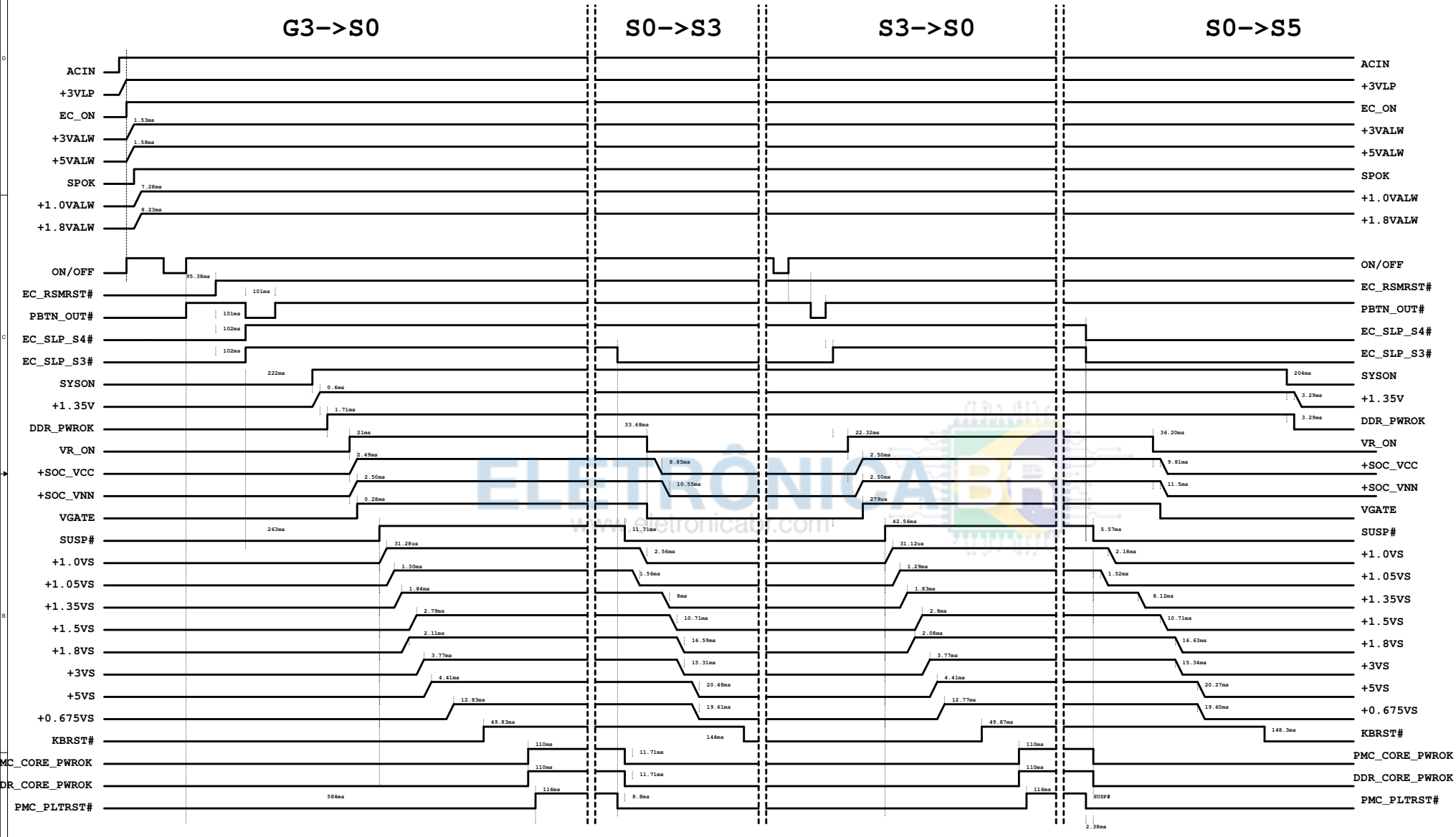
Security Classification	Compal Secret Data		
Issued Date	2012/12/01	Deciphered Date	2013/07/10

Compal Electronics, Inc.

Title: Notes List

Size	Document Number	Rev
B	LA-A994P	0.1

Date: Monday, February 24, 2014 Sheet 3 of 43

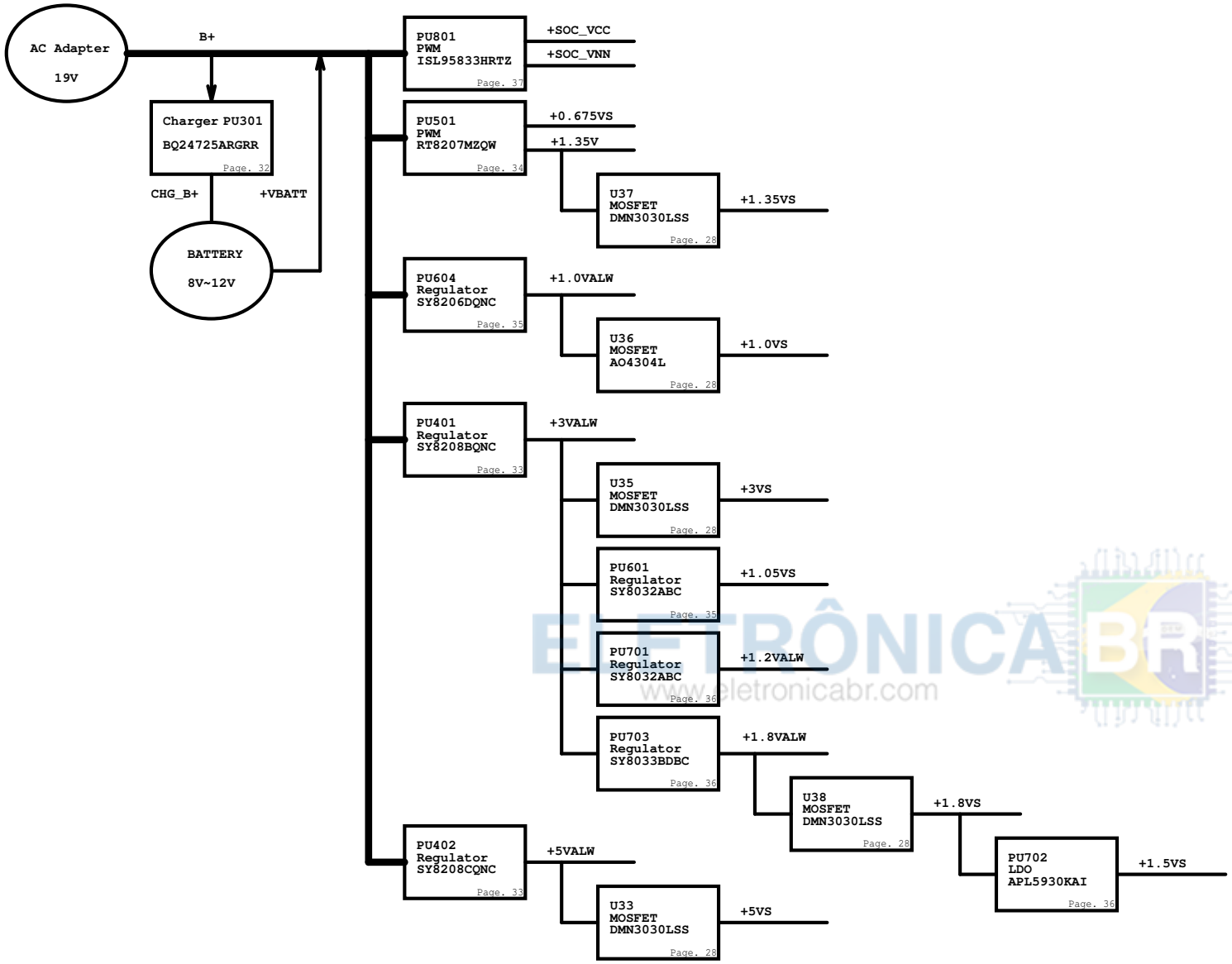


NOTE:
1. T1 and T2 are recommended time for all the VR rails unless specified otherwise. The VR ramp up time T2 and subsequent rail delay T3 are put in place to avoid inrush current which may be caused by multiple loads turning on simultaneously or fast charging of VR output decoupling.

2. Platform devices other than SOC sequencing are not explicitly shown as they are not limited by the SOC sequencing requirement.

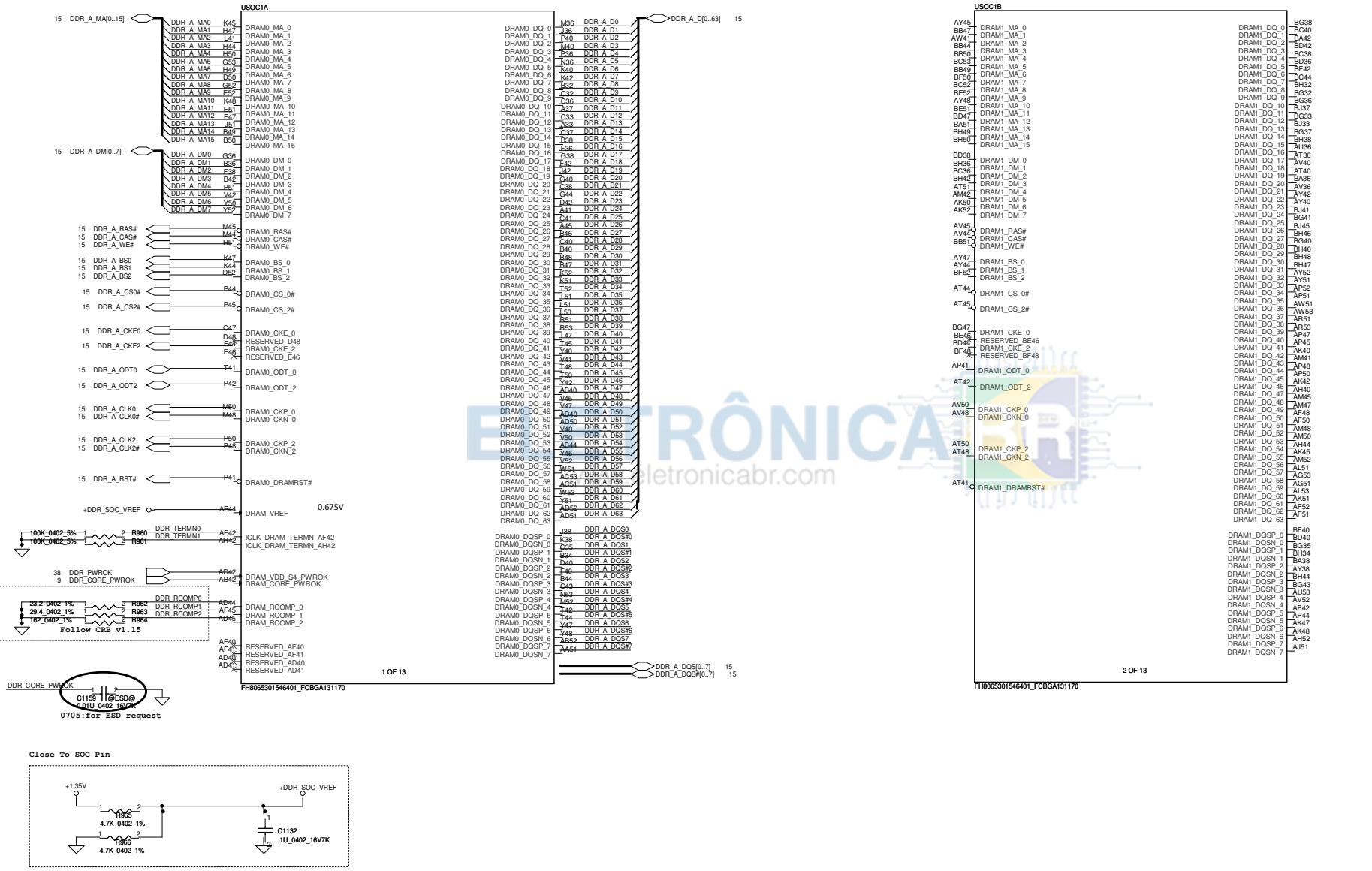
Security Classification	Compal Secret Data		
Issued Date	2012/12/01	Deciphered Date	2013/07/10

Compal Electronics, Inc.		
Title: Power Sequence		
Size: C	Document Number: LA-A994P	Rev: 0.1
Date: Friday, February 21, 2014	Sheet 4 of 43	



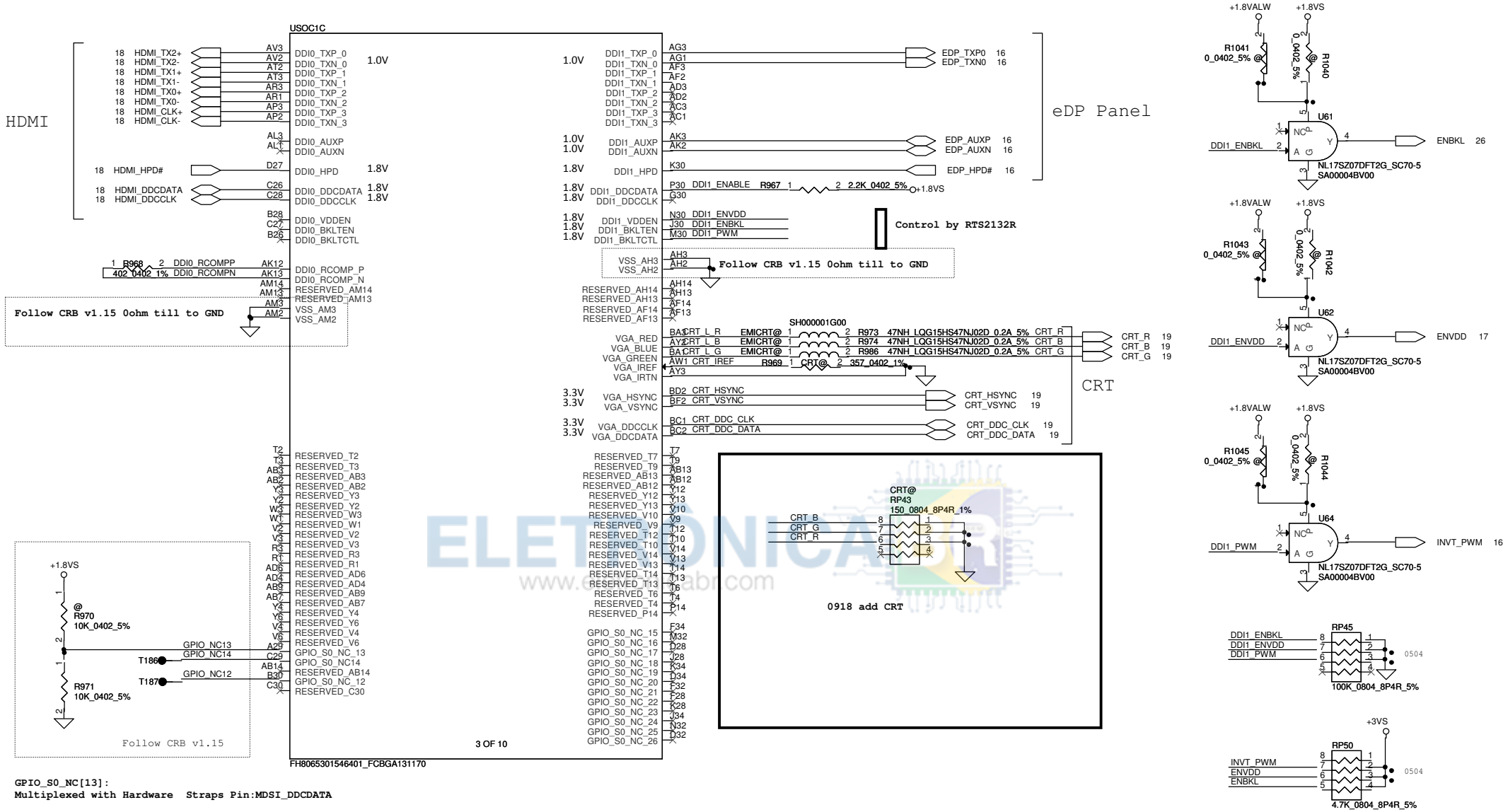
Security Classification	Compal Secret Data		
Issued Date	2012/12/01	Deciphered Date	2013/07/10

Compal Electronics, Inc.			
Title: Power Map			
Size: B	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014	Sheet 5 of 43		



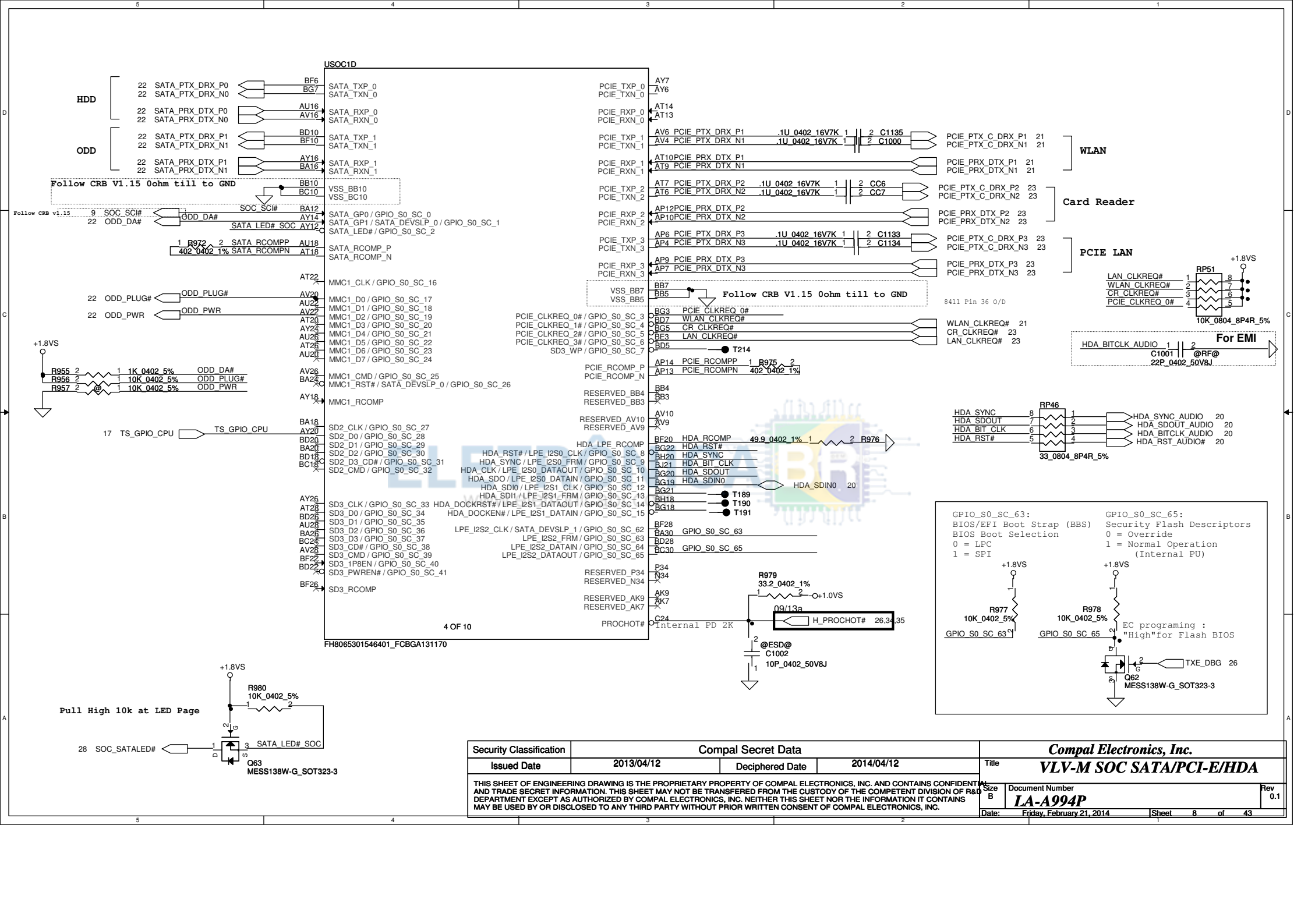
Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.	
Title	VLV-M SOC Memory DDR3L
Size	C
Document Number	LA-A994P
Rev	0.1
Date:	Friday, February 21, 2014
Sheet	6 of 43



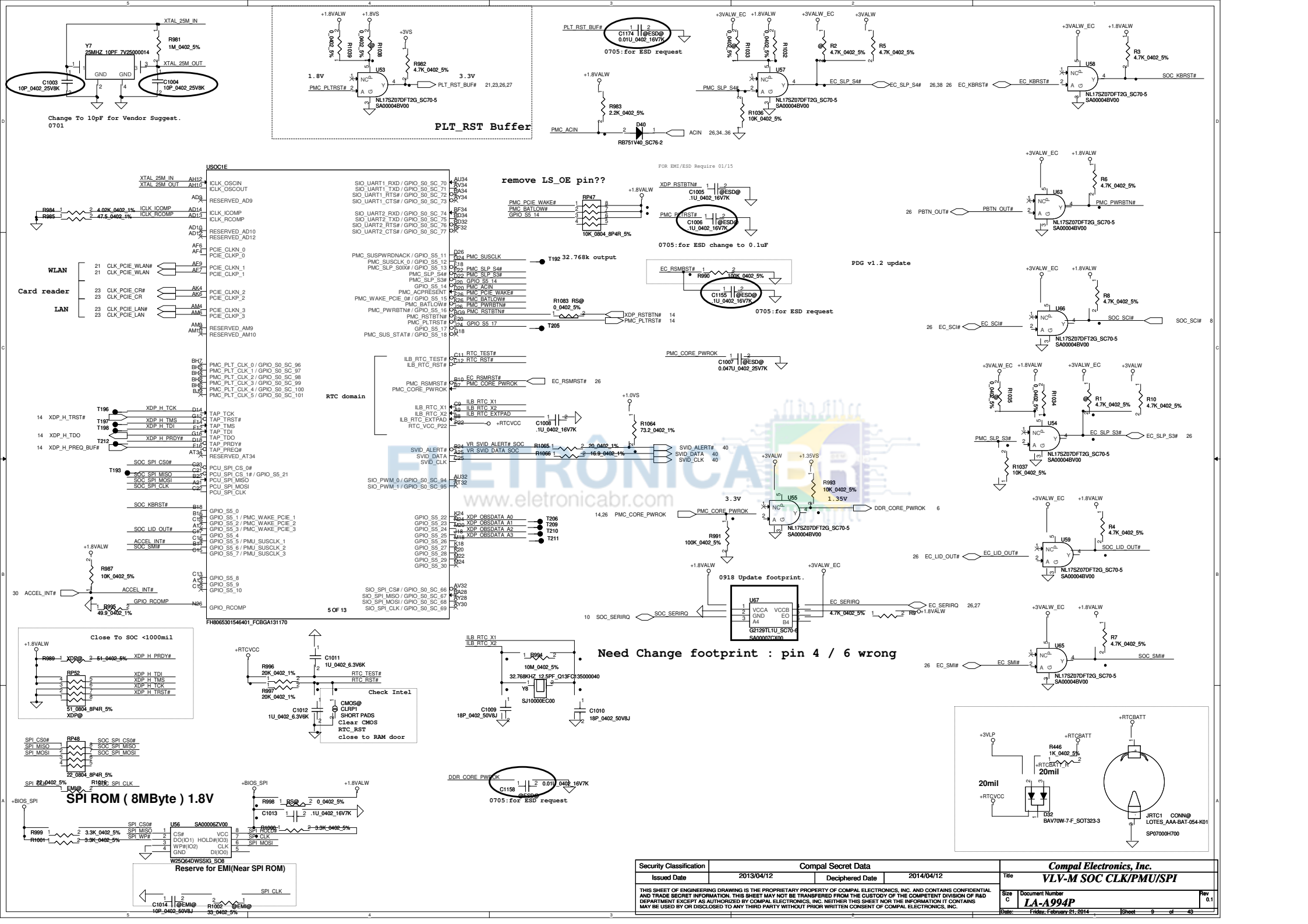
Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.			
Title: VLV-M SOC Display			
Size: Custom	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014	Sheet 7 of 43		



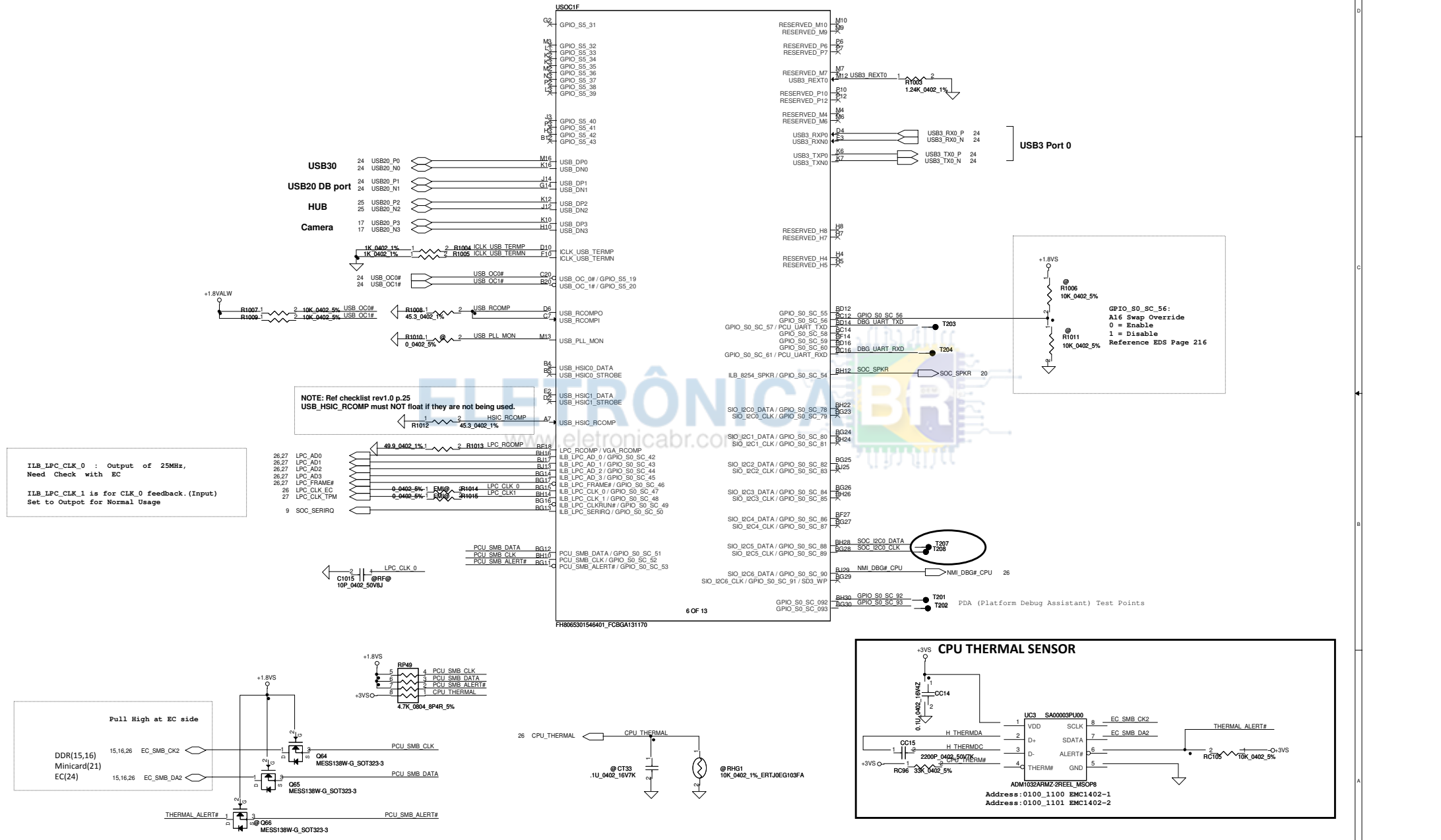
Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.			
Title	VLV-M SOC SATA/PCI-E/HDA		
Size B	Document Number LA-A994P		Rev 0.1
Date: Friday, February 21, 2014	Sheet 8 of 43		



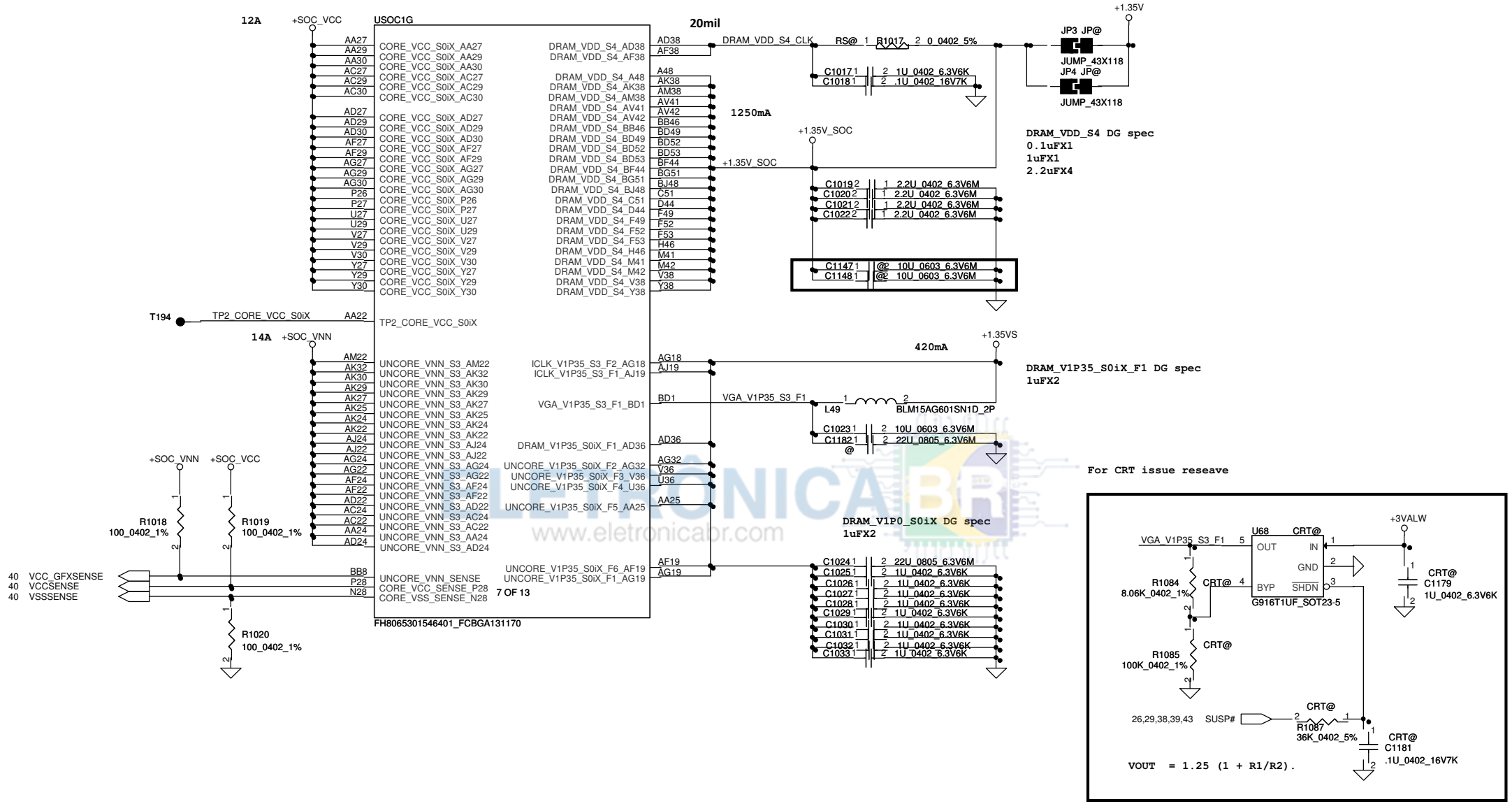
Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.			
Title: VLV-M SOC CLK/PMU/SPI			
Size: C	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014		Sheet 9 of 43	



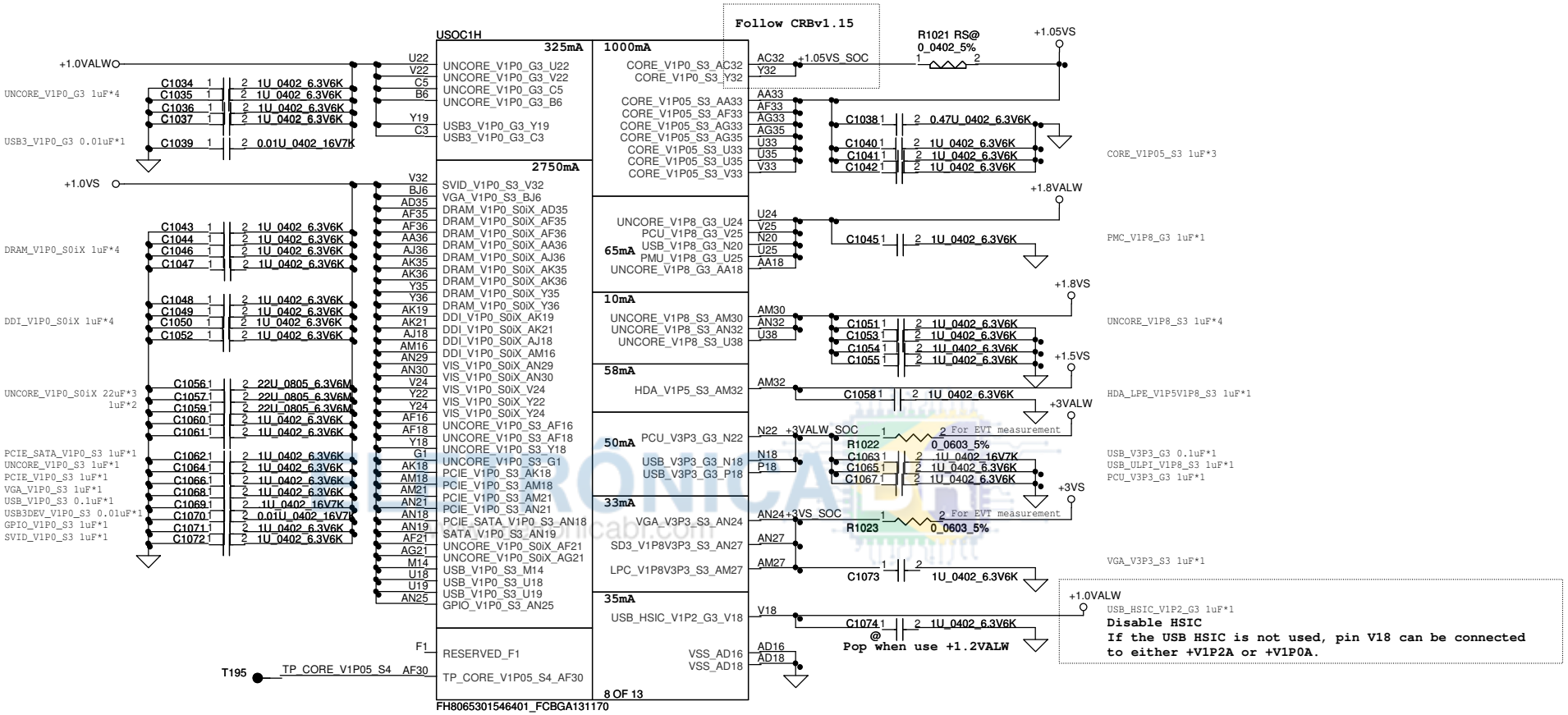
Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.			
Title: VLV-M SOC USB/LPC/SMBus			
Size: C	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014		Sheet 10 of 43	



Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.			
Title: VLV-M SOC Power			
Size: B	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014	Sheet 11 of 43		

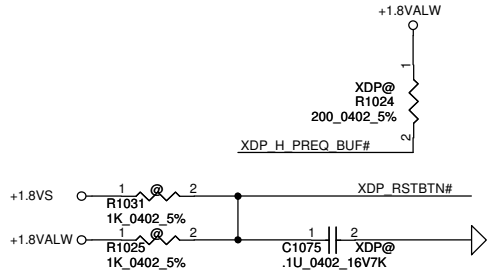


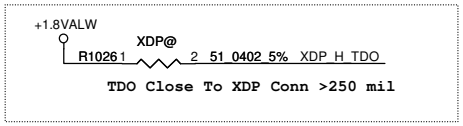
Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.			
Title: VLV-M SOC Power			
Size: B	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014	Sheet 12 of 43		

Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

Compal Electronics, Inc.			
Title	VLV-M SOC GND		
Size: B	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014	Sheet 13 of 43		





XDP-SFF-26Pin

9 XDP_H_PREQ_BUF# — XDP_H_PREQ_BUF#

26,9 EC_RSMRST# — EC_RSMRST#

26,9 PMC_CORE_PWROK — PMC_CORE_PWROK

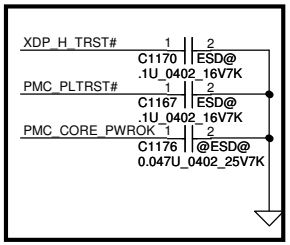
9 PMC_PLTRST# — PMC_PLTRST#

9 XDP_RSTBTN# — XDP_RSTBTN#

9 XDP_H_TDO — XDP_H_TDO

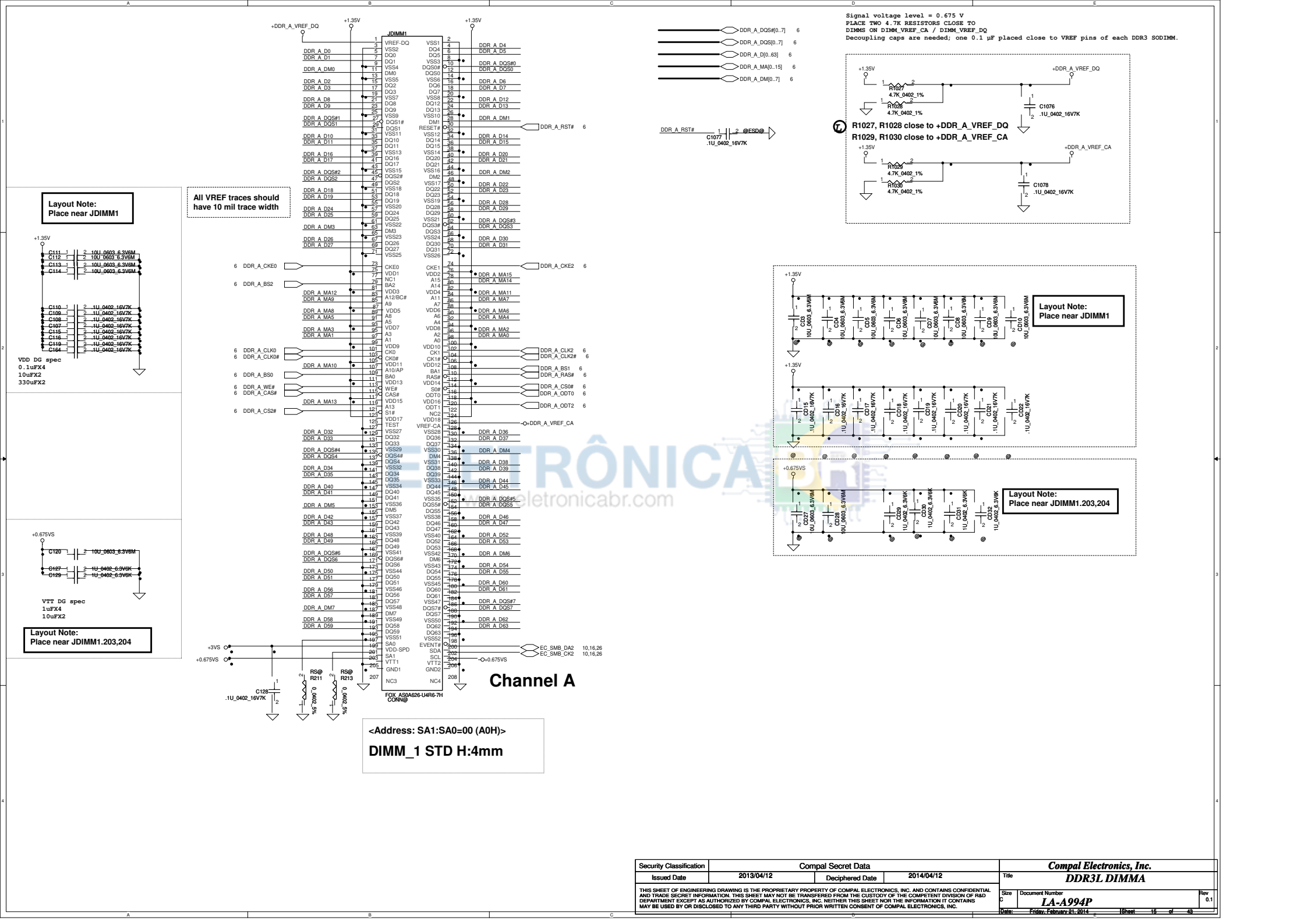
9 XDP_H_TRST# — XDP_H_TRST#

0927:for ESD request



Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

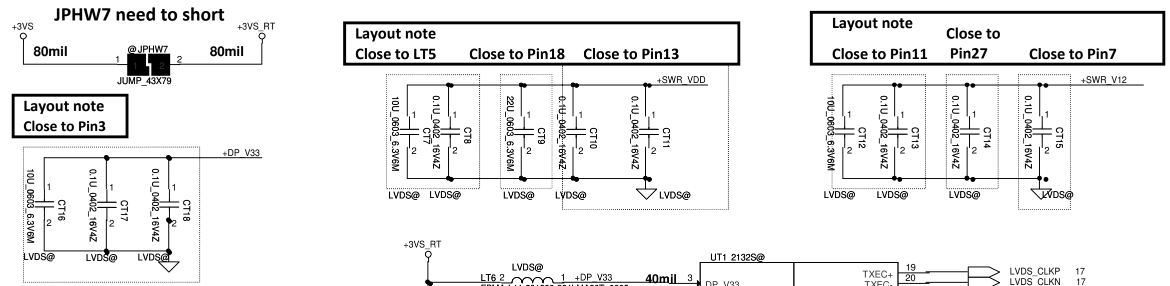
Compal Electronics, Inc.			
Title	VLV-M SOC Debug		
Size B	Document Number LA-A994P		Rev 0.1
Date: Friday, February 21, 2014	Sheet 14 of 43		



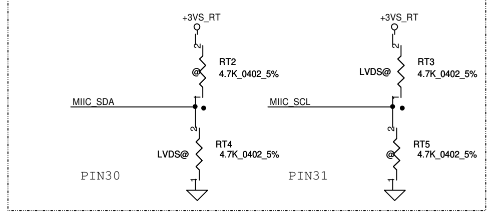
Security Classification	Compal Secret Data		
Issued Date	2013/04/12	Deciphered Date	2014/04/12

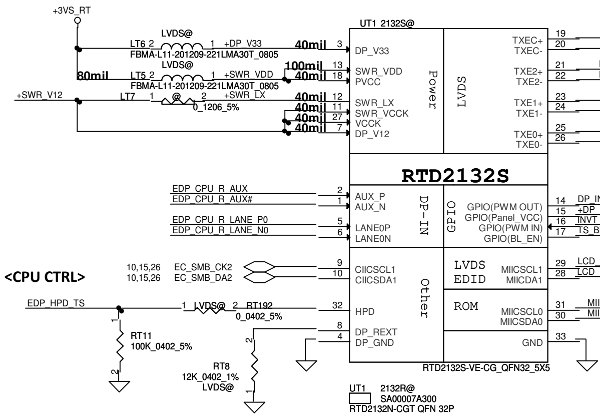
Compal Electronics, Inc.			
Title	DDR3L DIMMA		
Size: C	Document Number: LA-A994P		Rev: 0.1
Date: Friday, February 21, 2014		Sheet 15 of 43	

JPHW7 need to short



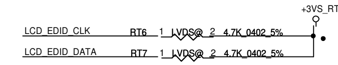
※ROM only mode : PIN 30 4.7k pull low, Pin 31 4.7k pull high.
EP mode : PIN 30 4.7k pull high, Pin 31 4.7k pull low.
EEPROM : PIN 30 4.7k pull high, Pin 31 4.7k pull high.
〈 ※Default mode 〉





UT1 2132S@
RTD2132S
DP_V33
SWR_VDD
PVCC
SWR_LX
SWR_VCCK
VCCK
DP_V12
Power
LVDS
TXEC+
TXEC-
TXE2+
TXE2-
TXE1+
TXE1-
TXE0+
TXE0-
LVDS_CLKP
LVDS_CLKN
LVDS_R_TXP2
LVDS_R_TXN2
LVDS_TXP1
LVDS_TXN1
LVDS_TXP0
LVDS_TXN0
AUX_P
AUX_N
LANE0P
LANE0N
DP-IN
GPIO
GPIO(PWM OUT)
GPIO(Panel_VCC)
GPIO(PWM IN)
GPIO(BL_EN)
DP_INT_PWM
+DP_ENVDD
INVT_PWM
TS_BKOFF#
CIICSCL1
CIICSDA1
LVDS EDID
MIICSCL1
MIICDA1
LCD_EDID_CLK
LCD_EDID_DATA
HPD
DP_REXT
DP_GND
Other
ROM
MIICSCL0
MIICSDA0
MIIC_SCL
MIIC_SDA
GND
EDP_CPU_R_AUX
EDP_CPU_R_AUX#
EDP_CPU_R_LANE_P0
EDP_CPU_R_LANE_N0
EC_SMB_CK2
EC_SMB_DA2
EDP_HPD_TS
RT11
100K_0402_5%
RT192
RT8
12K_0402_1%
LT6
LT5
LT7
FBMA-L11-201209-221LMA30T_0805
0_1206_5%
40mil
100mil
80mil
RTD2132S-VE-CG_QFN32_5X5
UT1 2132R@
SA00007A300
RTD2132N-CGT QFN 32P

<CONN>



<CONN>
<CPU>
<CPU CTRL>

SWR / LDO Mode select

	LDO	SWR
2132S	Do not support	mount LT7
2132R	Use 0 ohm	mount LT7

※ If use 2132R, please select LDO mode as default.

	PIN15
2132S	TL_ENVDD
2132R	+LCD_VDD *

* Version R internal Power Switch, can output 1A, Rds(on)=0.2 ohm

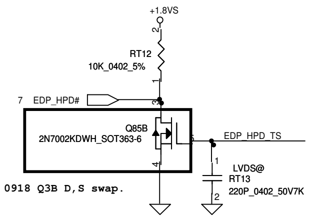
PIN16	Accept voltage input (high level)
2132S	3.3V
2132R	1.5~3.3V

* Version R has internal level shifter, remove level shifter circuit on AMD platform

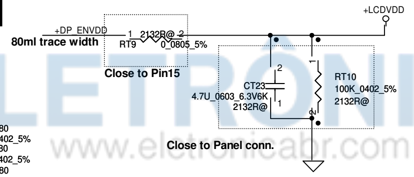
Different between 2132S and 2132R

2132S	2132R
1. Support SWR mode	1. Support LDO mode and SWR mode 2. Internal ROM 3. Support LCD_VDD(internal Power switch) 4. Integrates Level shifter

<CPU 1.8V level>



Layout note
Close to Pin8



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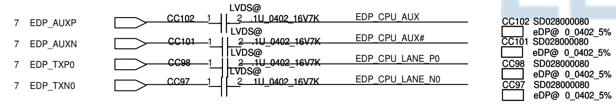
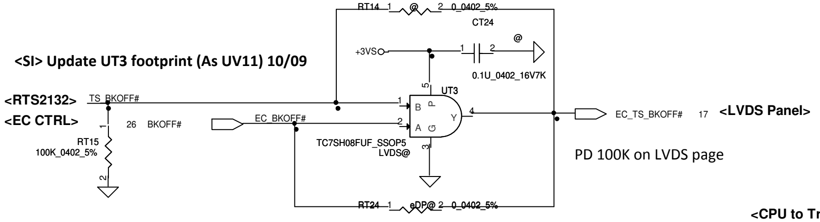


<SI> Update UT3 footprint (As UV11) 10/09



<RTS2132>
<EC CTRL>
<LVDS Panel>

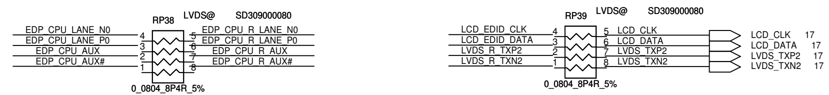
PD 100K on LVDS page

131111 add RT15 for power sequence

<CPU to Translator>

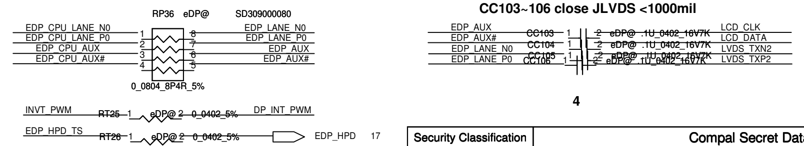
<Translator to Conn>

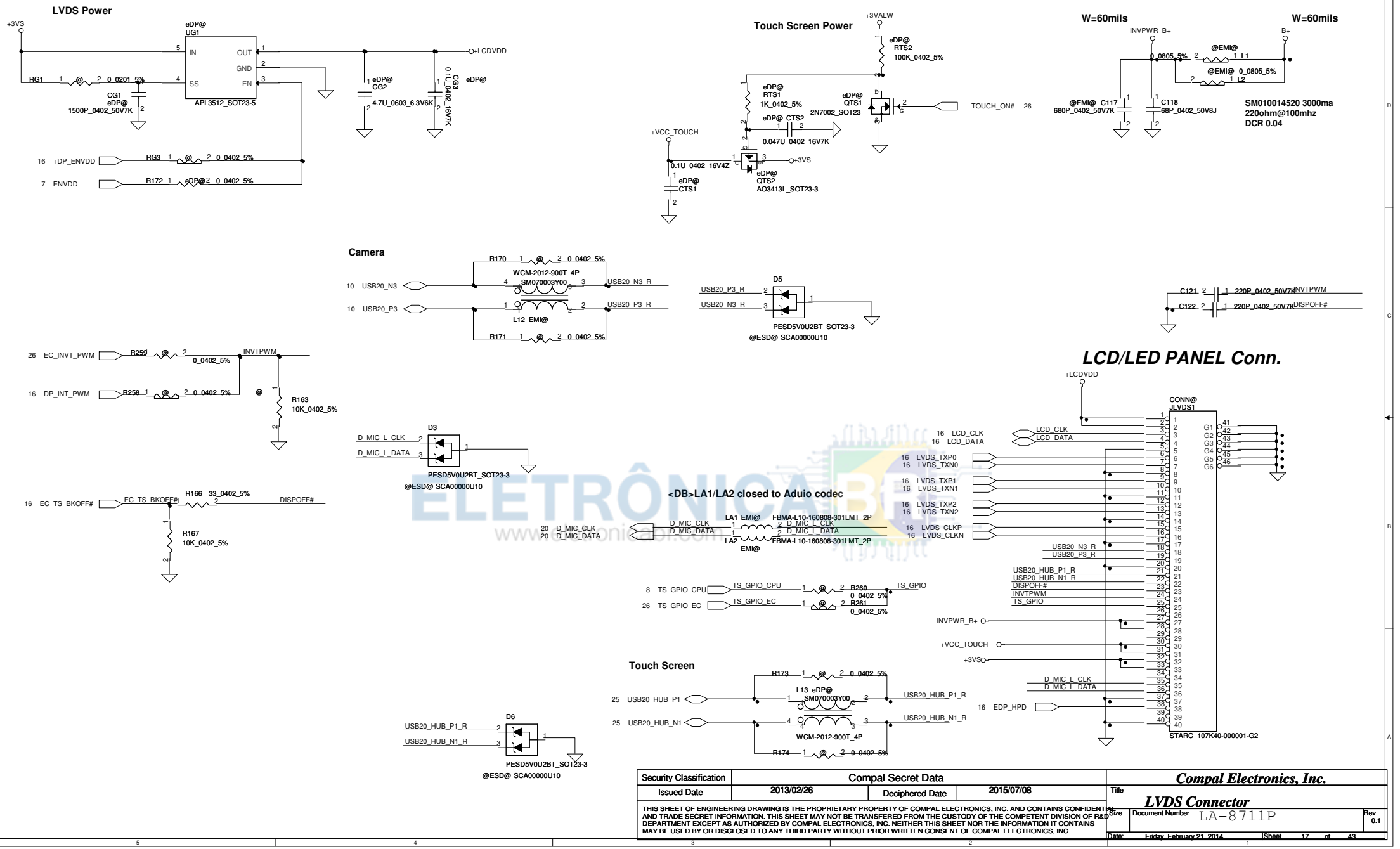
<LVDS panel> ==>



CC103~106 close JLVDS <1000mil

<eDP panel> ==>





Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

Compal Electronics, Inc.			
Title: LVDS Connector			
Size	Document Number: LA-8711P		Rev: 0.1
Date: Friday, February 21, 2014		Sheet 17 of 43	

<CPU>

D2 D1 D0 CLK

7 HDMI_TX2+ HDMI_TX2+ 0.1U_0402_16V7K 1 2 CG27 HDMI_C_TX2+
7 HDMI_TX2- HDMI_TX2- 0.1U_0402_16V7K 1 2 CG28 HDMI_C_TX2-
7 HDMI_TX1+ HDMI_TX1+ 0.1U_0402_16V7K 1 2 CG29 HDMI_C_TX1+
7 HDMI_TX1- HDMI_TX1- 0.1U_0402_16V7K 1 2 CG30 HDMI_C_TX1-
7 HDMI_TX0+ HDMI_TX0+ 0.1U_0402_16V7K 1 2 CG31 HDMI_C_TX0+
7 HDMI_TX0- HDMI_TX0- 0.1U_0402_16V7K 1 2 CG32 HDMI_C_TX0-
7 HDMI_CLK+ HDMI_CLK+ 0.1U_0402_16V7K 1 2 CG33 HDMI_C_CLK+
7 HDMI_CLK- HDMI_CLK- 0.1U_0402_16V7K 1 2 CG34 HDMI_C_CLK-

R1071 619_0402_1% R1072 619_0402_1% R1073 619_0402_1% R1074 619_0402_1% R1075 619_0402_1% R1076 619_0402_1% R1077 619_0402_1% R1078 619_0402_1%

DMN66D0LDW-7_SOT363-6 QG1A
+3VS

+1.8VS
RG47 1M_0402_5%
7 HDMI_HPD#
DMN66D0LDW-7_SOT363-6 QG1B
HP_DETECT
5V Level
20K_0402_5% RG56
CM17@ 220P_0402_50V7K

10/21 BOM change SM070003K00

HDMI_C_CLK+ RG59 @ 0_0402_5% HDMI_R_CK+
EMI@ SM070003K00 WCM-2012-900T_0805 LM13
HDMI_C_CLK- RG60 @ 0_0402_5% HDMI_R_CK-
HDMI_C_TX0- RG61 @ 0_0402_5% HDMI_R_D0-
EMI@ SM070003K00 LM14 WCM-2012-900T_0805
HDMI_C_TX0+ RG63 @ 0_0402_5% HDMI_R_D0+
HDMI_C_TX1+ RG64 @ 0_0402_5% HDMI_R_D1+
EMI@ SM070003K00 WCM-2012-900T_0805 LM15
HDMI_C_TX1- RG65 @ 0_0402_5% HDMI_R_D1-
HDMI_C_TX2+ RG66 @ 0_0402_5% HDMI_R_D2+
EMI@ SM070003K00 WCM-2012-900T_0805 LM16
HDMI_C_TX2- RG70 @ 0_0402_5% HDMI_R_D2-

+1.8VS
7 HDMI_DDCCLK HDMI_DDCCLK HDMI_SCLK Q57 MESS138W-G_SOT323-3
+1.8VS
7 HDMI_DDCDATA HDMI_DDCDATA HDMI_SDATA Q58 MESS138W-G_SOT323-3

+HDMI_5V_OUT
+1.8VS
RG105
HDMI_SDATA HDMI_SCLK HDMI_DDCDATA HDMI_DDCCLK
2.2K_0804_8P4R_5%

ZZZ2 45@
HDMI Logo
RO0000003HM

HDMI Conn.

W=40mils
FG1 +HDMI_5V_OUT
+5VS IN OUT GND
AP2330W-7_SC59-3
CG46 0.1U_0402_16V7K

SC300002800
@ESD@ DG1
HP_DETECT HDMI_SDATA HDMI_SCLK
IP4292CZ10-TB

HP_DETECT +HDMI_5V_OUT HDMI_SDATA HDMI_SCLK
@ CM26 10P_0402_50V8J
@ CM27 10P_0402_50V8J

JHDMI1
HP_DET +5V DDC/CEC_GND SDA SCL Reserved CEC CK- CK_shield CK+ D0- D0_shield D0+ D1- D1_shield D1+ D2- D2_shield D2+ GND GND GND
HDMI_R_CK- HDMI_R_CK+ HDMI_R_D0- HDMI_R_D0+ HDMI_R_D1- HDMI_R_D1+ HDMI_R_D2- HDMI_R_D2+
CONCR_099AKAC19NBLCNF
CONN@

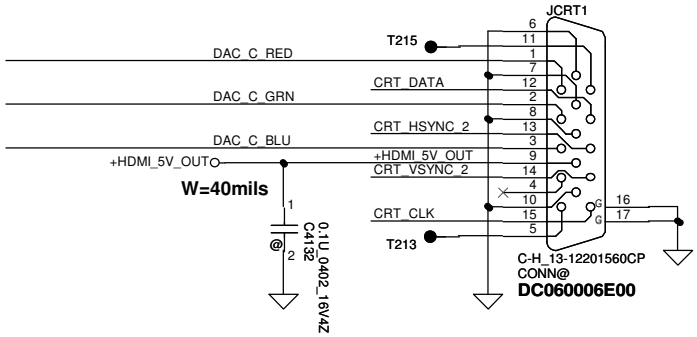
Security Classification	Compal Secret Data		
Issued Date	2011/06/29	Deciphered Date	2011/06/29

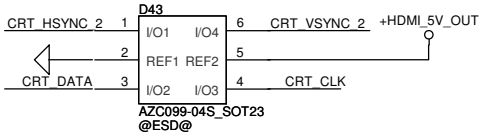
Compal Electronics, Inc.

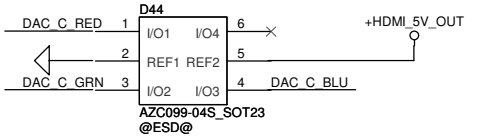
Title: HDMI Conn/Level shift

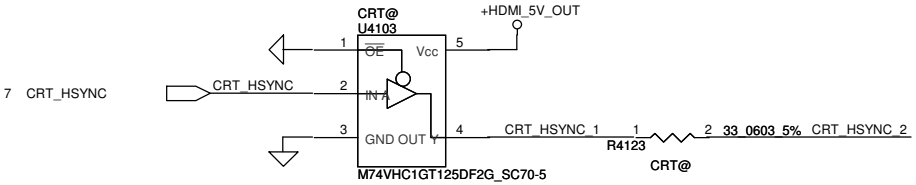
Size	Document Number	Rev
	LA-A992P	0.1

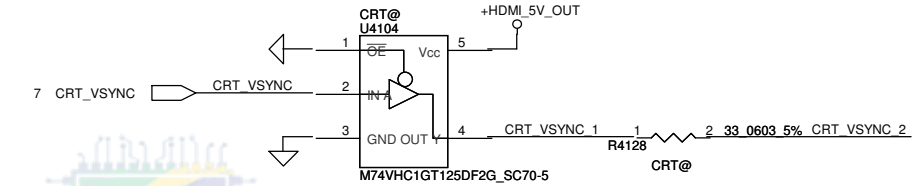
Date: Friday, February 21, 2014 Sheet 18 of 43

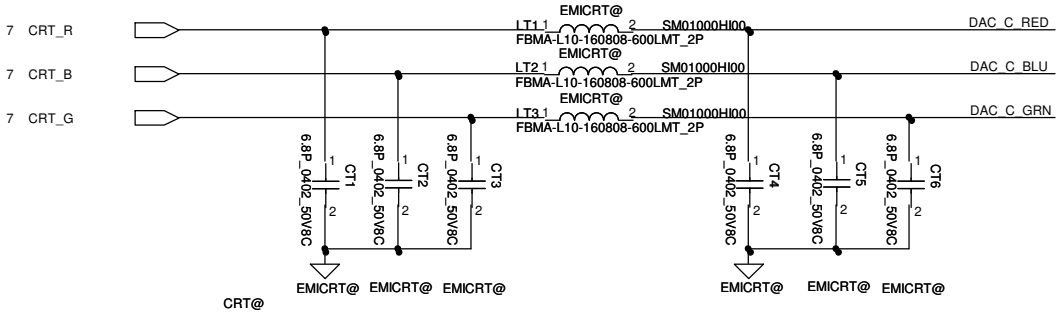


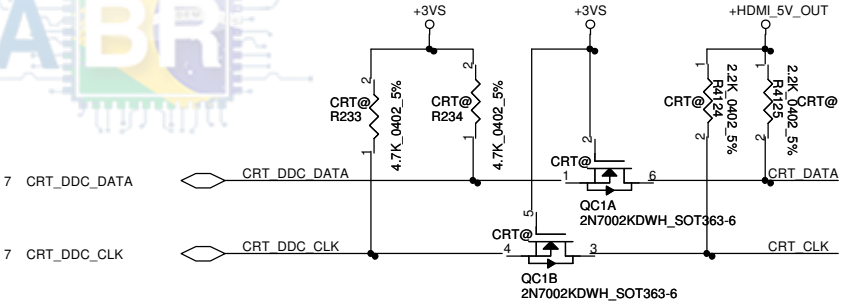


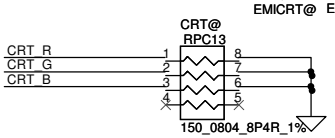












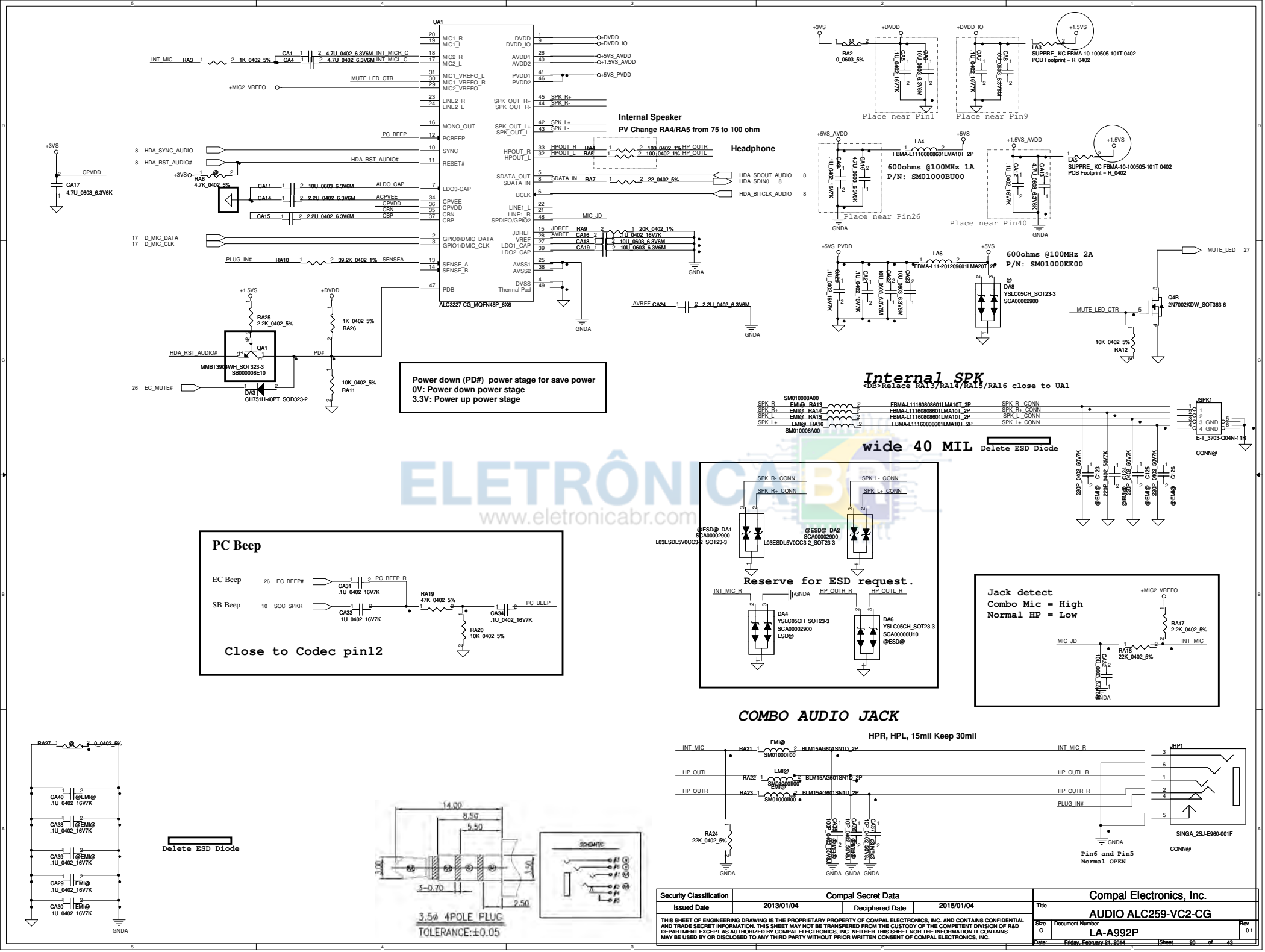
Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

Compal Electronics, Inc.

Title: CRT Connector

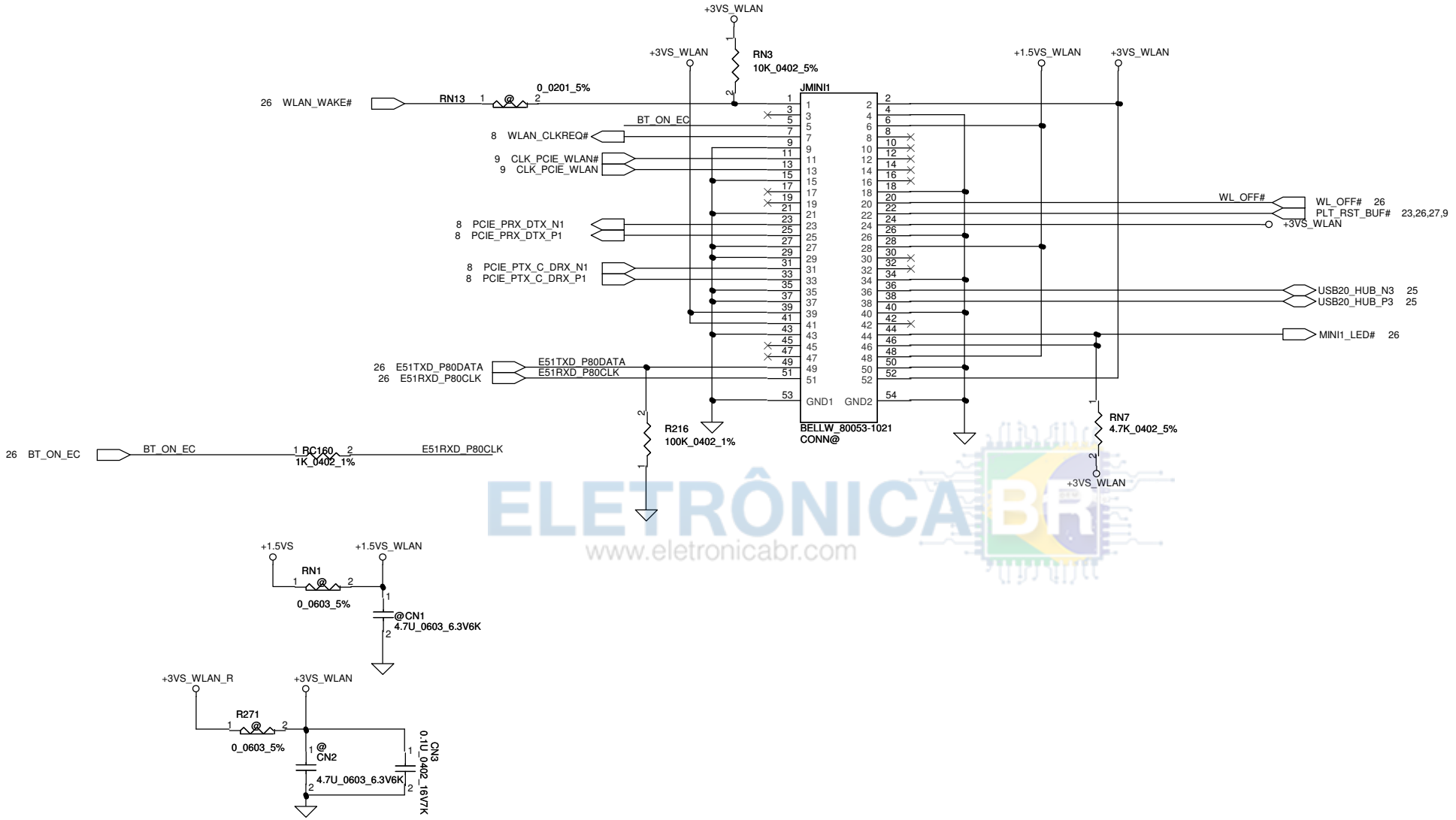
Size: B | Document Number: LA-A994P | Rev: 0.1

Date: Friday, February 21, 2014 | Sheet 19 of 43



Security Classification	Compal Secret Data		
Issued Date	2013/01/04	Deciphered Date	2015/01/04

Compal Electronics, Inc.	
Title	AUDIO ALC259-VC2-CG
Size C	Document Number LA-A992P
Rev	0.1
Date: Friday, February 21, 2014	Sheet 20 of 43



Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

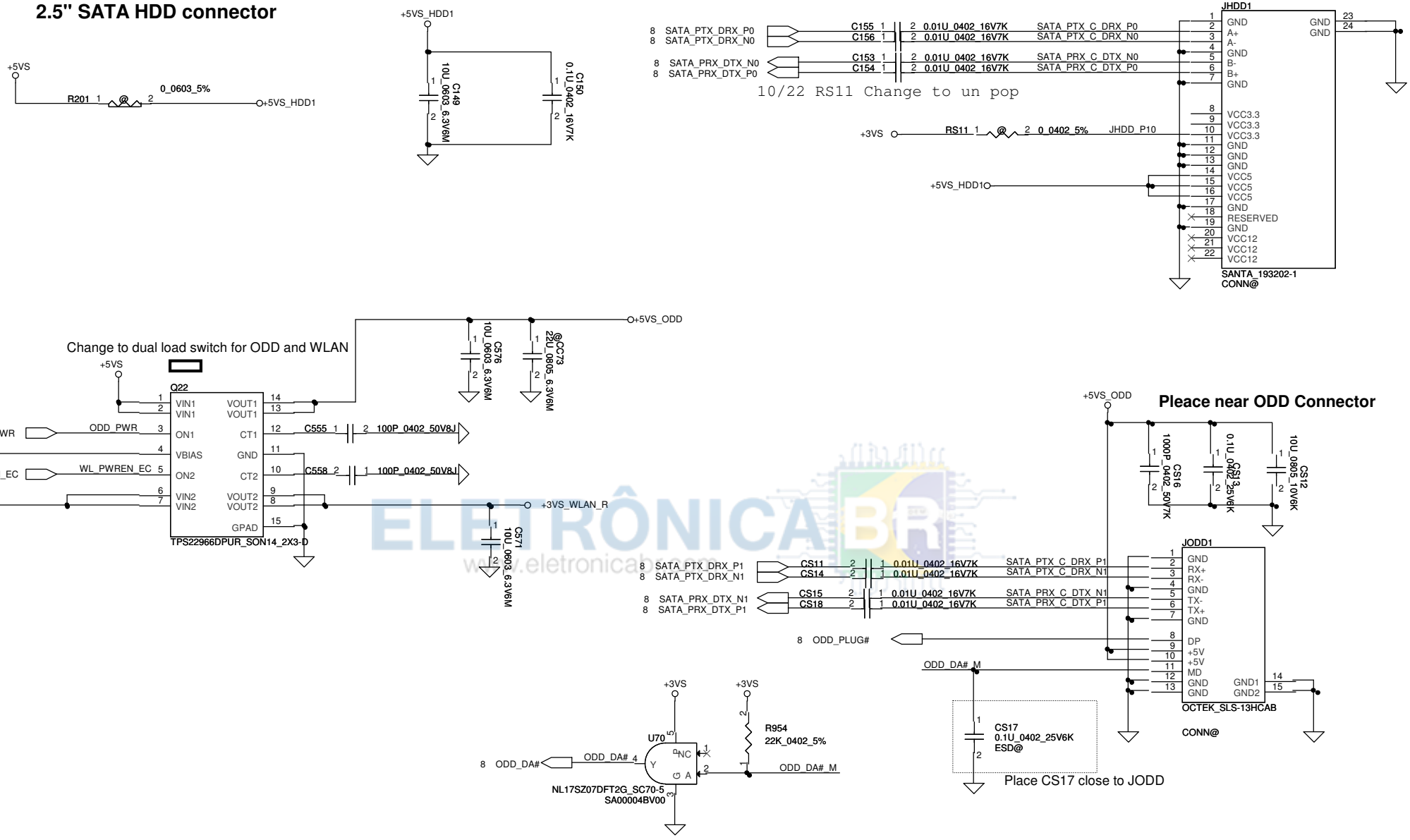
Compal Electronics, Inc.

Title: **WLAN**

Size	Document Number	Rev
	LA-A992P	0.1

Date: Friday, February 21, 2014 Sheet 21 of 43

2.5" SATA HDD connector



Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

Compal Electronics, Inc.

Title: ODD/SATA Conn

Size	Document Number	Rev
B	LA-A992P	0.1

Date: Friday, February 21, 2014 Sheet 22 of 43

JHW1 need to short

+LAN_VDD_3V3 Rising time need>0.5mS and <100mS

	LDO mode	Switcing mode
LL1	SMT	@
CL21	SMT	@
LL2	@	SMT
CL8	@	SMT

RTL8151G (LDO mode)

CL14 & CL15 close UL1 Pin22
CL26 & CL27 close UL1 Pin30

Place CL11~CL13 close UL1 Pin 3, 8 , 22

LL2, CL8, CL23 for 8161
CL8 & CL18 close LL2

8151/8166 Co-Lay

+LAN_VDD_3V3=40mil
+VDDREG=40mil
+LAN_REGOUT=60mil

CL9 & CL5 close to UL1: Pin 11,32
CL19 close to UL1: Pin 32
CL20 close to UL1: Pin 11

CL10& CL16 close to UL1: Pin 23

SP050005L00 Footprint

(SP050003P00) 10/100
(SP050006800) Giga

S X'FORM_ NS892404 ETHERNET 10/100

SP050003P00

RTS5239

Card Reader Connector

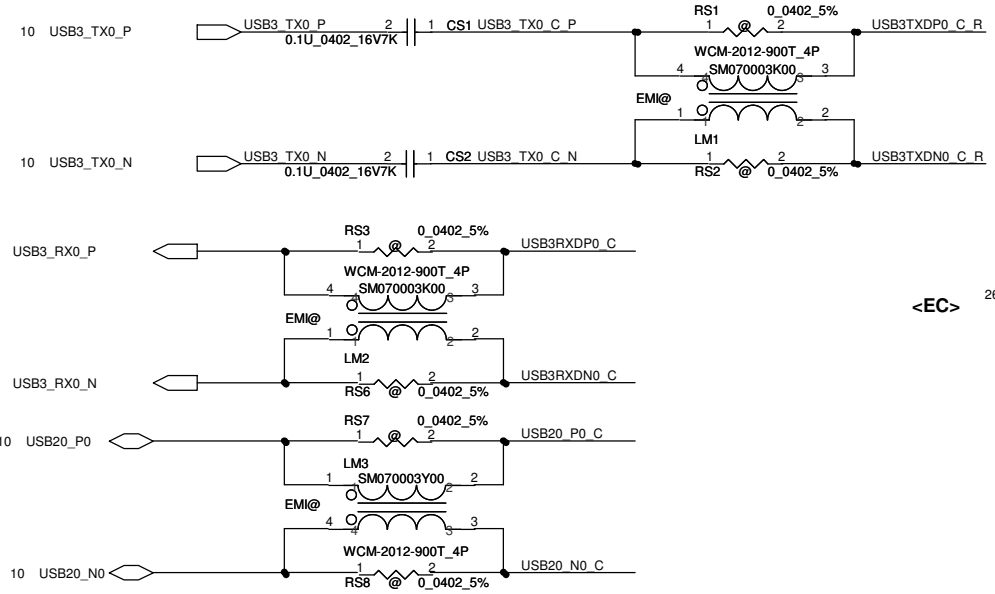
Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

Compal Electronics, Inc.

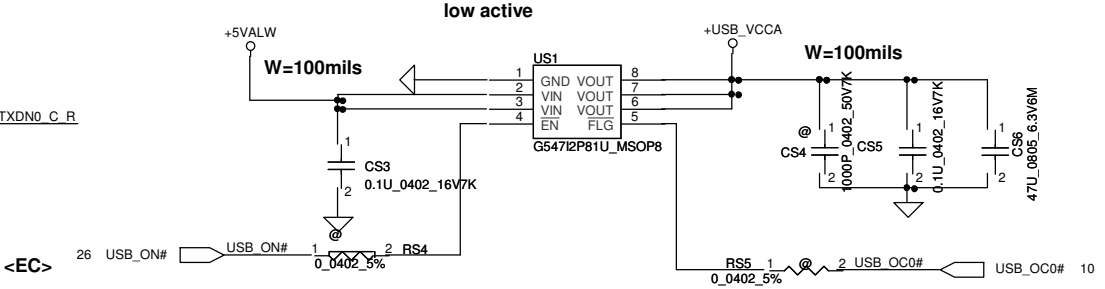
Title: **LAN 8111G**

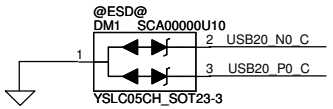
Size	Document Number	Rev
	LA-A992P	0.1

Date: Friday, February 21, 2014 | Sheet 23 of 43

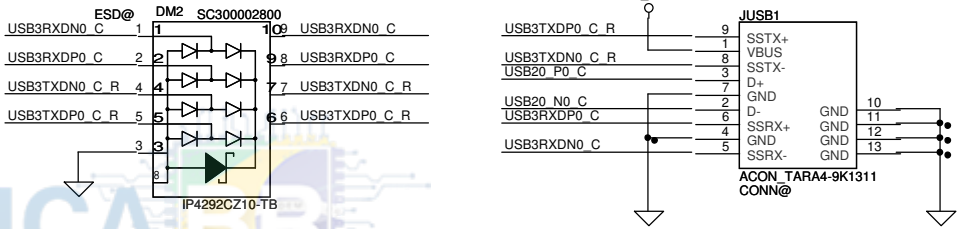


USB3.0 need support 2.5A
change USB PWR SW SA00003TV00
low active

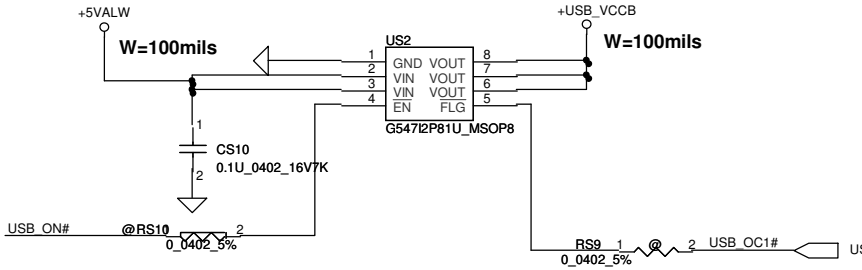


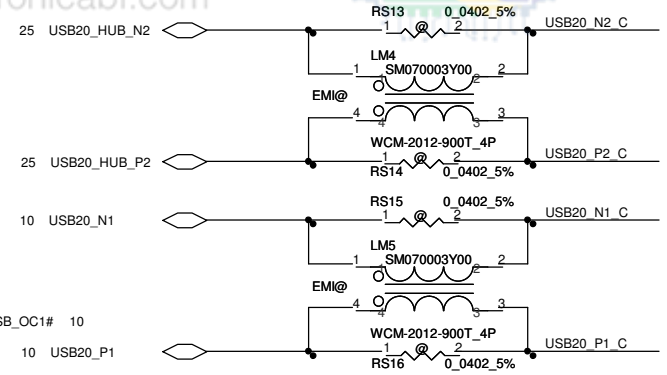


USB2.0/USB3.0 port 1

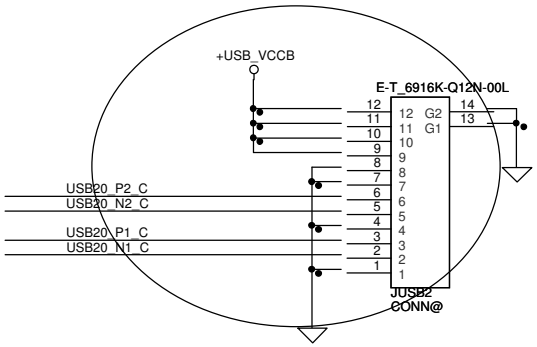


USB2.0 port x 2





131109 Follow 15" Haswell LA-A992PR02



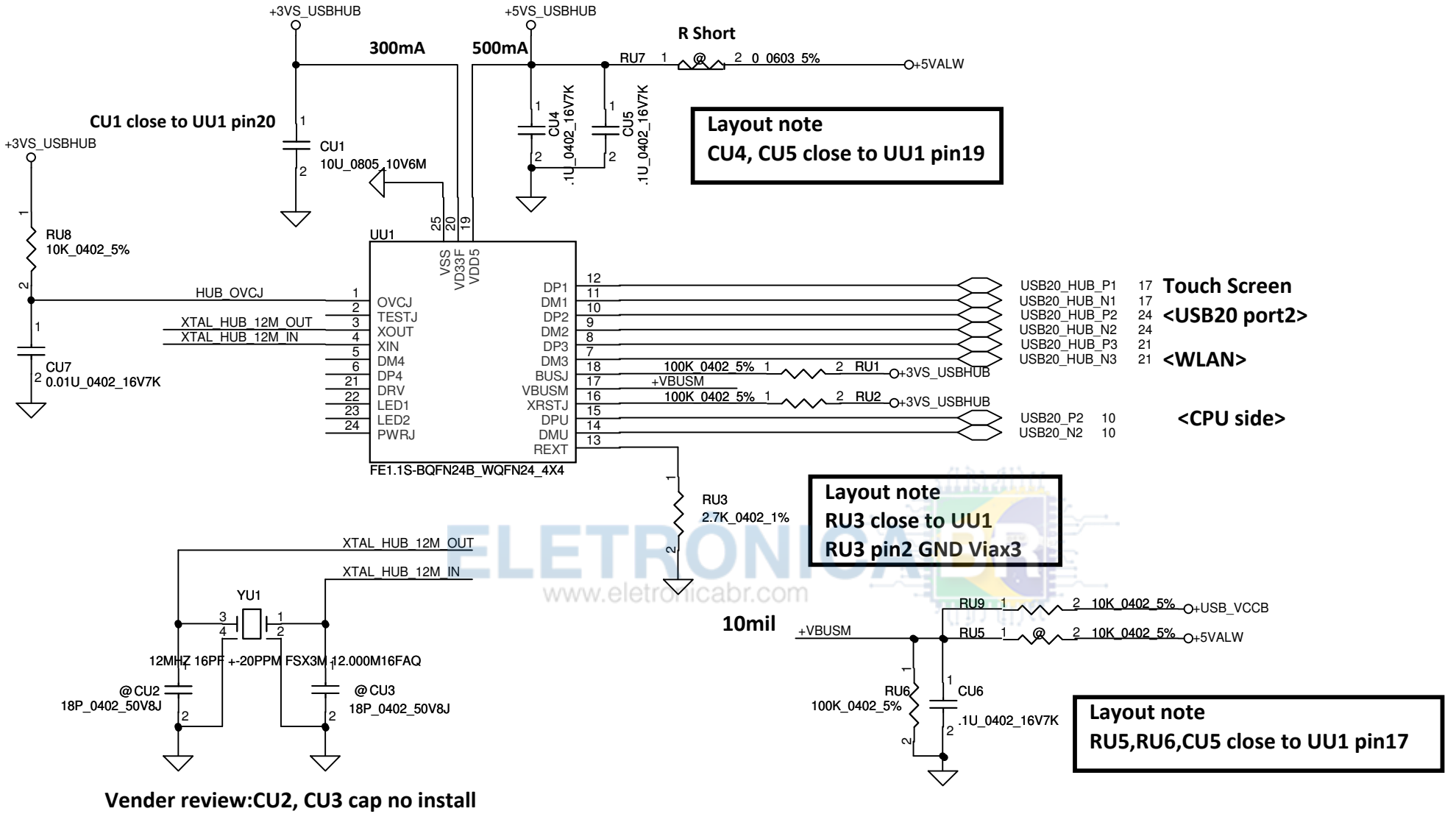
Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

Compal Electronics, Inc.

Title: USB 3.0/2.0 conn

Size	Document Number	Rev
B	LA-A992P	0.1

Date: Friday, February 21, 2014 Sheet 24 of 43



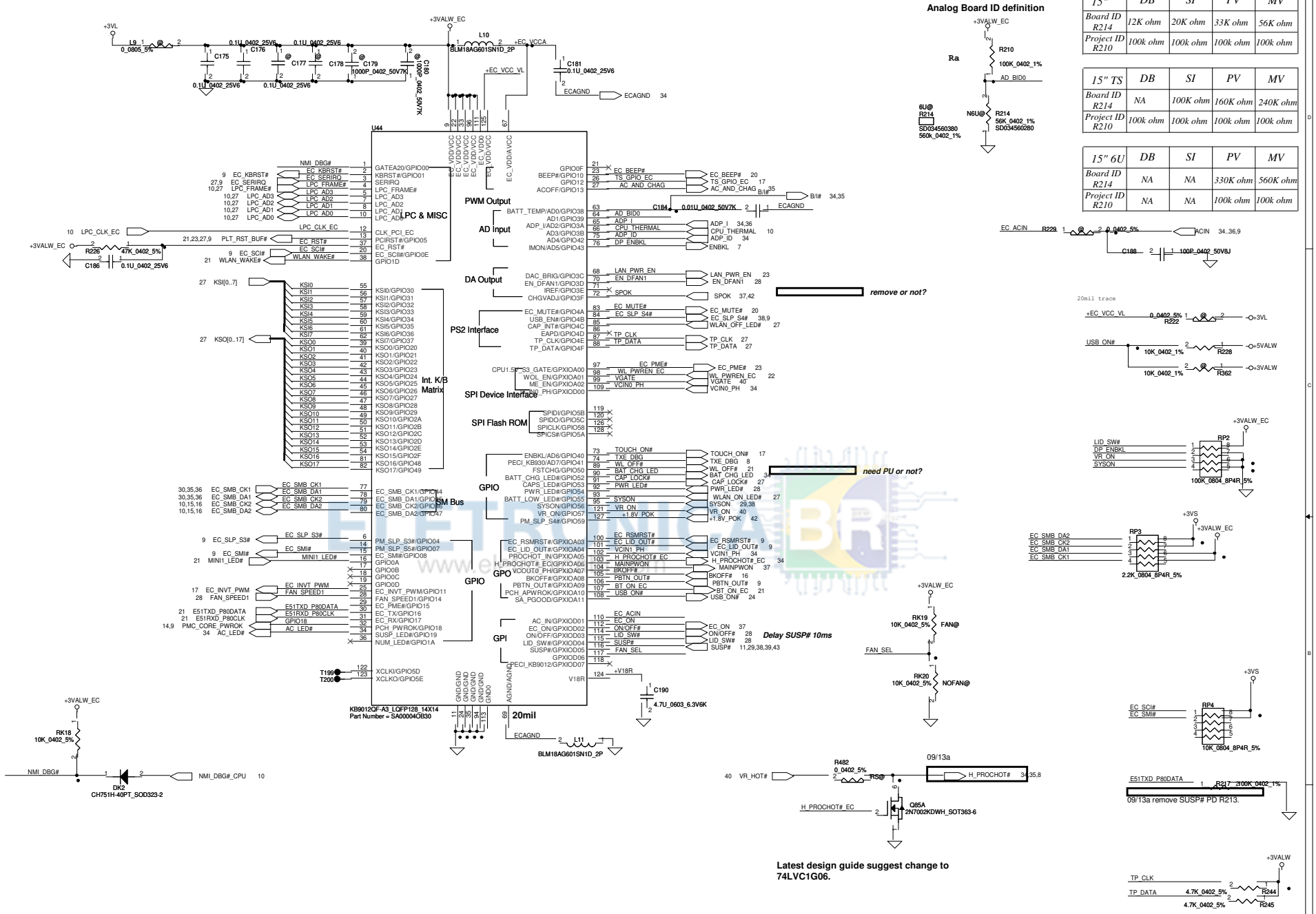
Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

Compal Electronics, Inc.

Title: USB2.0 Hub

Size	Document Number	Rev
Custom	LA-A994P	0.1

Date: Friday, February 21, 2014 Sheet 25 of 43



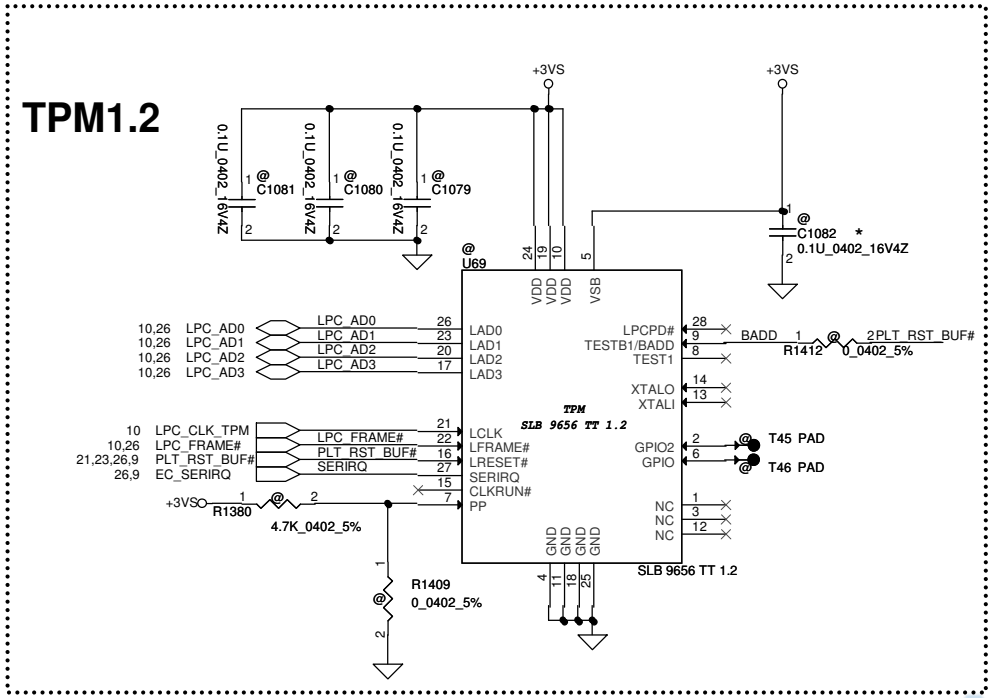
Security Classification	Compal Secret Data		
Issued Date	2011/07/08	Deciphered Date	2015/07/08

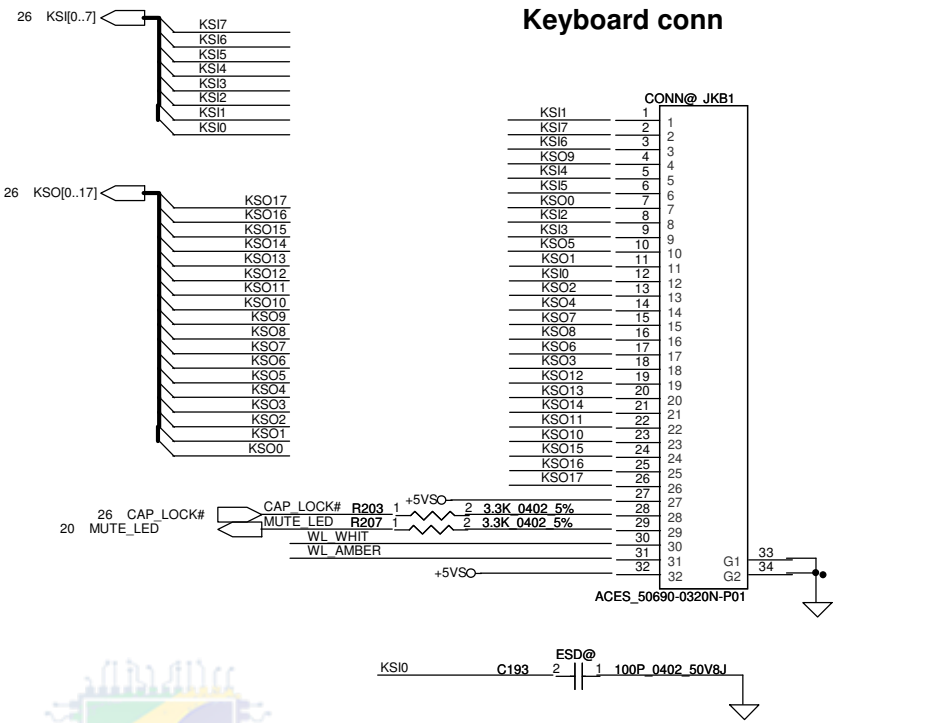
Compal Electronics, Inc.

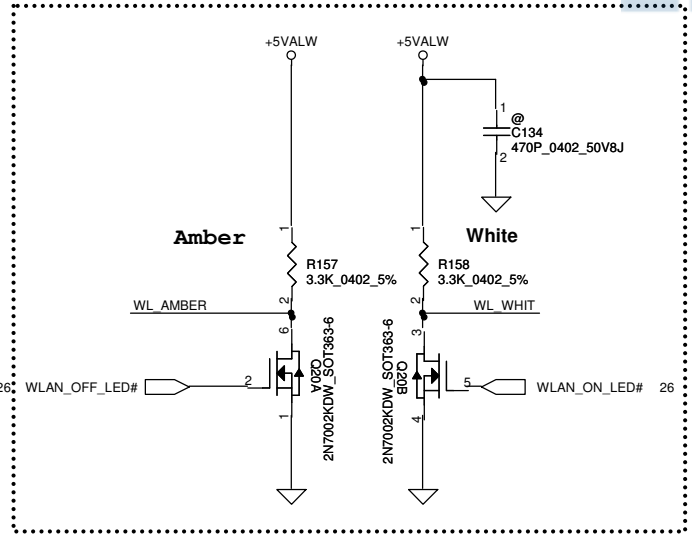
Title: EC ENE KB9012 A3

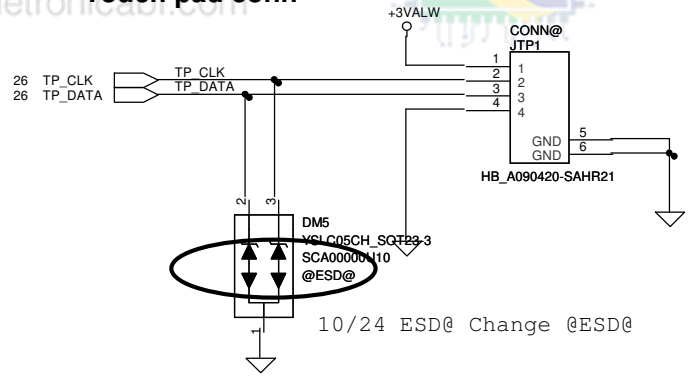
Size	Document Number	Rev
C	LA-A994P	0.1

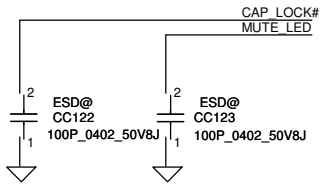
Date: Monday, February 24, 2014 Sheet 26 of 43











Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

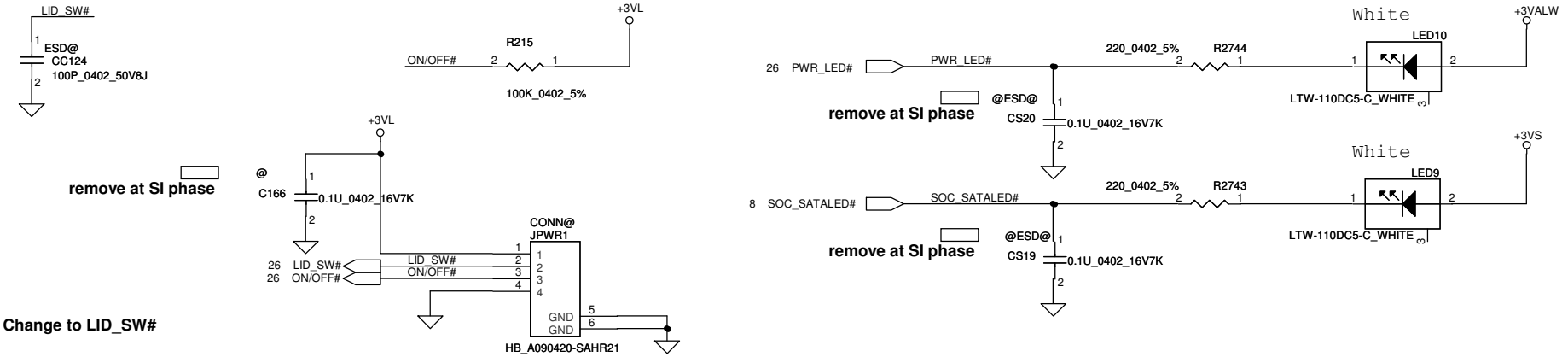
Compal Electronics, Inc.

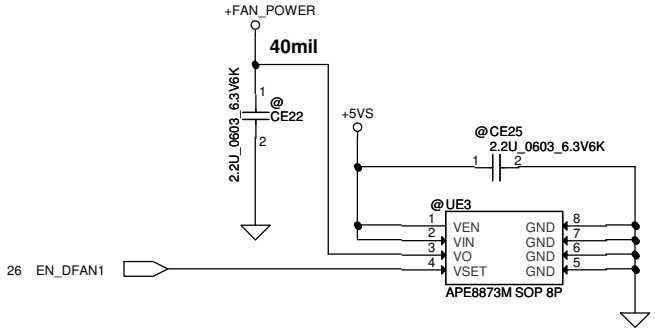
Title: KB/TP

Size: B | Document Number: LA-A992P | Rev: 0.1

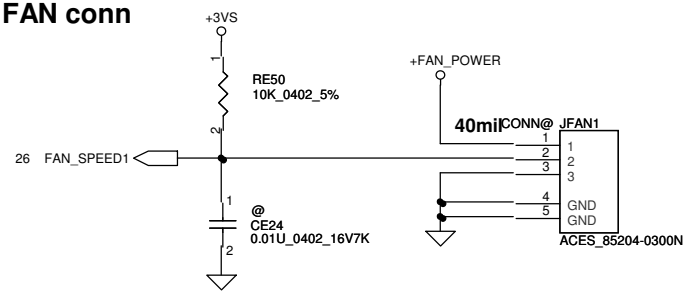
Date: Friday, February 21, 2014 | Sheet 27 of 43

Powert Button Connector





FAN conn



Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

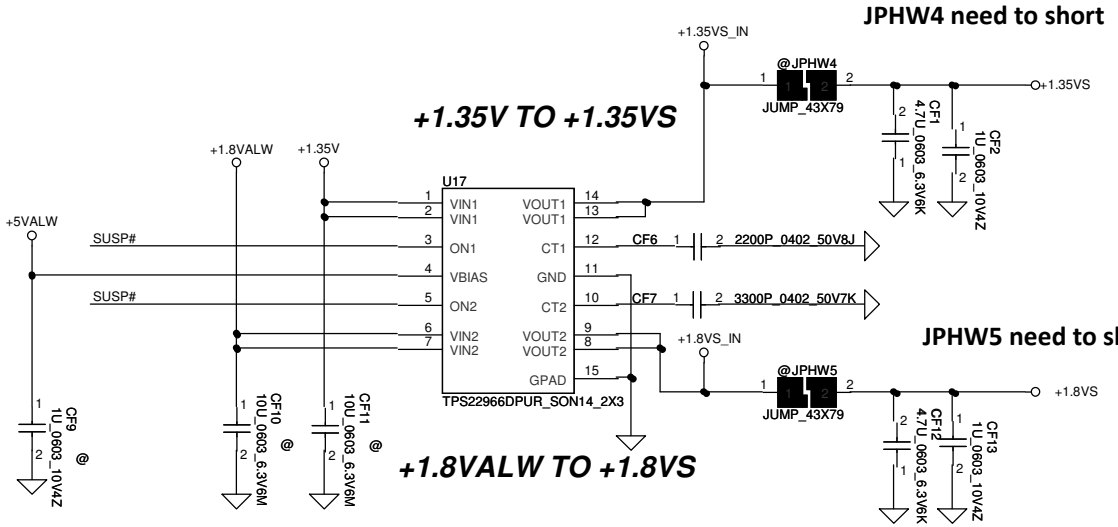
Compal Electronics, Inc.

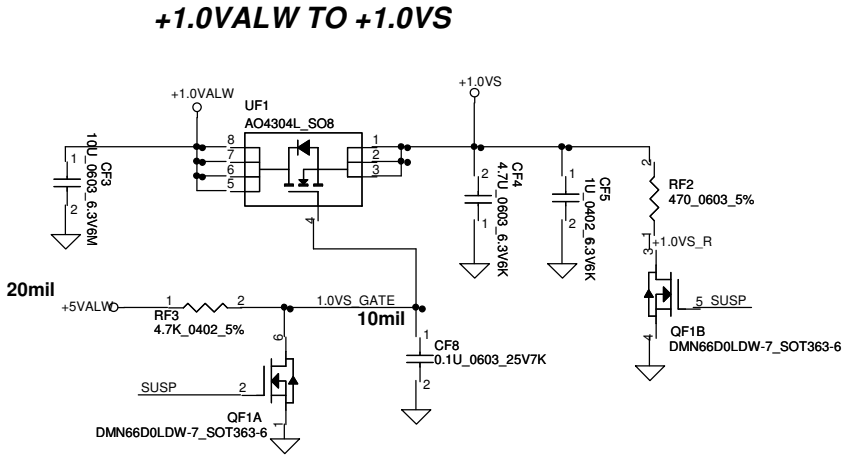
Title: PWRBTN/FAN

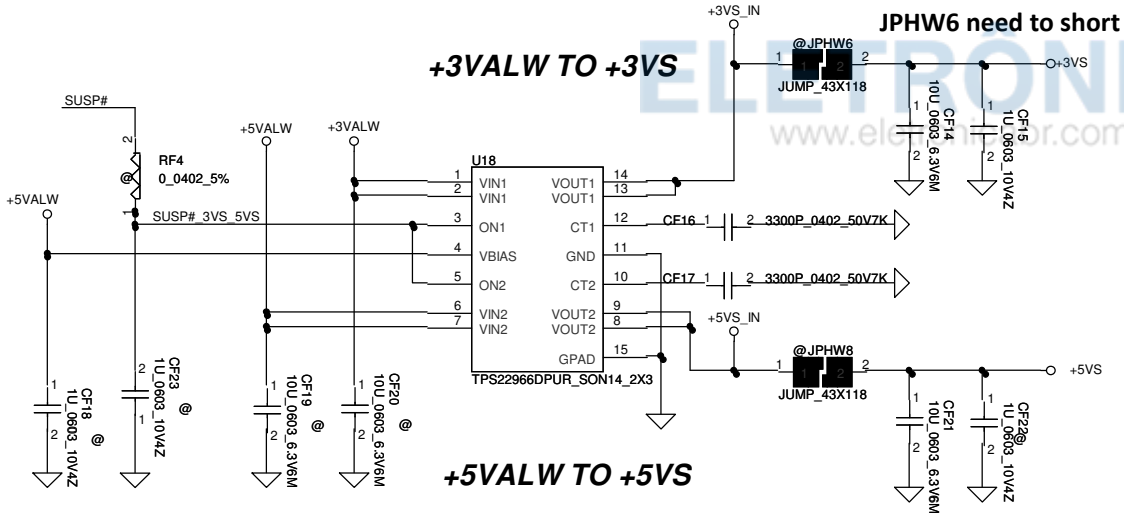
Size	Document Number	Rev
B	LA-A992P	0.1

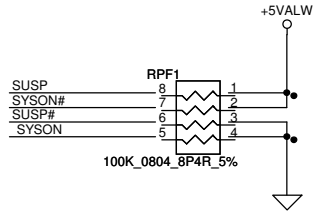
Date: Friday, March 14, 2014 Sheet 28 of 43

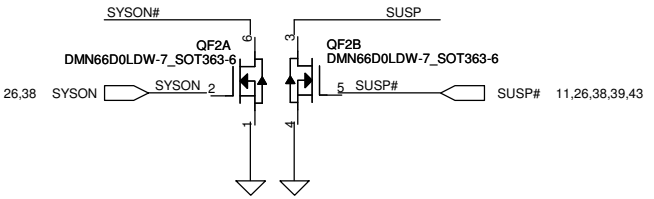
Bay trail M new power up sequence











Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

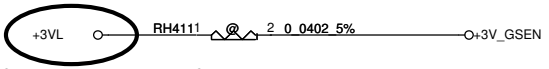
Compal Electronics, Inc.

Title: DC Interface

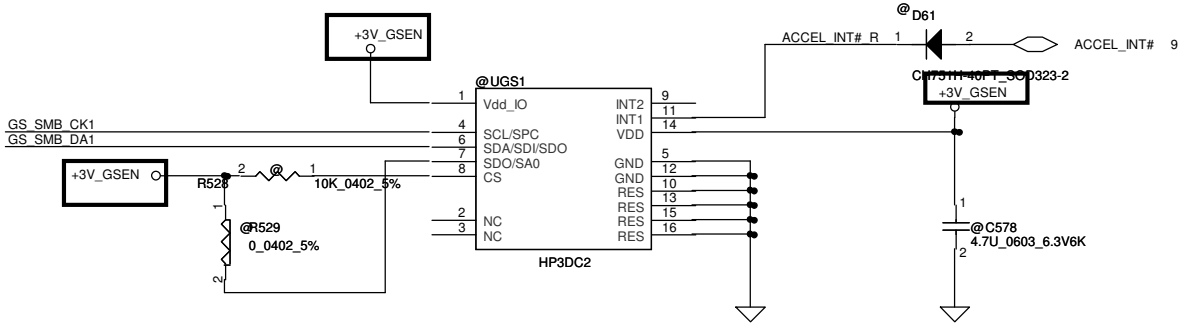
Size: B | Document Number | Rev: 0.1

Date: Friday, February 21, 2014 | Sheet 29 of 43

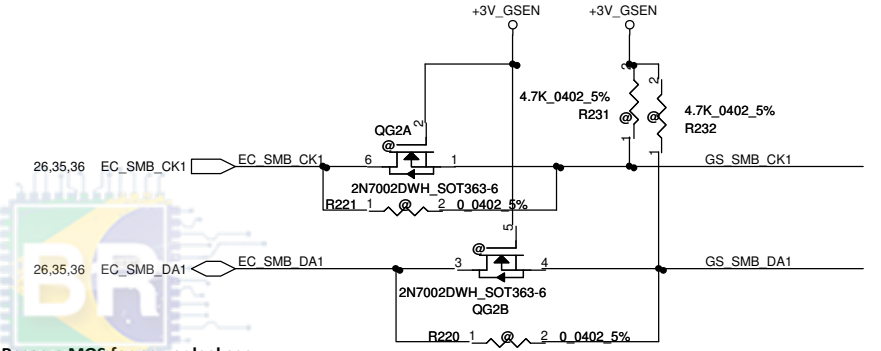
ACCELEROMETER



10/21 +3VALW Change +3VL



Must be placed in the center of the system.



Reserve MOS for power leakage

FD1 FIDUCIAL_C40M80
FD2 FIDUCIAL_C40M80
FD3 FIDUCIAL_C40M80
FD4 FIDUCIAL_C40M80

H4 H_2P8 HOLEA
H5 H_2P8 HOLEA
H6 H_2P8 HOLEA
H22 H_2P8 HOLEA
H8 H_2P8 HOLEA
H14 H_2P8 HOLEA
H1 H_2P8 HOLEA
H2 H_2P8 HOLEA
H12 H_2P8 HOLEA
H17 H_2P8 HOLEA
H18 H_2P0 HOLEA
H19 H_2P0X2P5 HOLEA
H9 H_5P0 HOLEA
H10 H_5P0 HOLEA
H11 H_5P0 HOLEA
H13 H_5P0 HOLEA

Security Classification	Compal Secret Data		
Issued Date	2013/02/26	Deciphered Date	2015/07/08

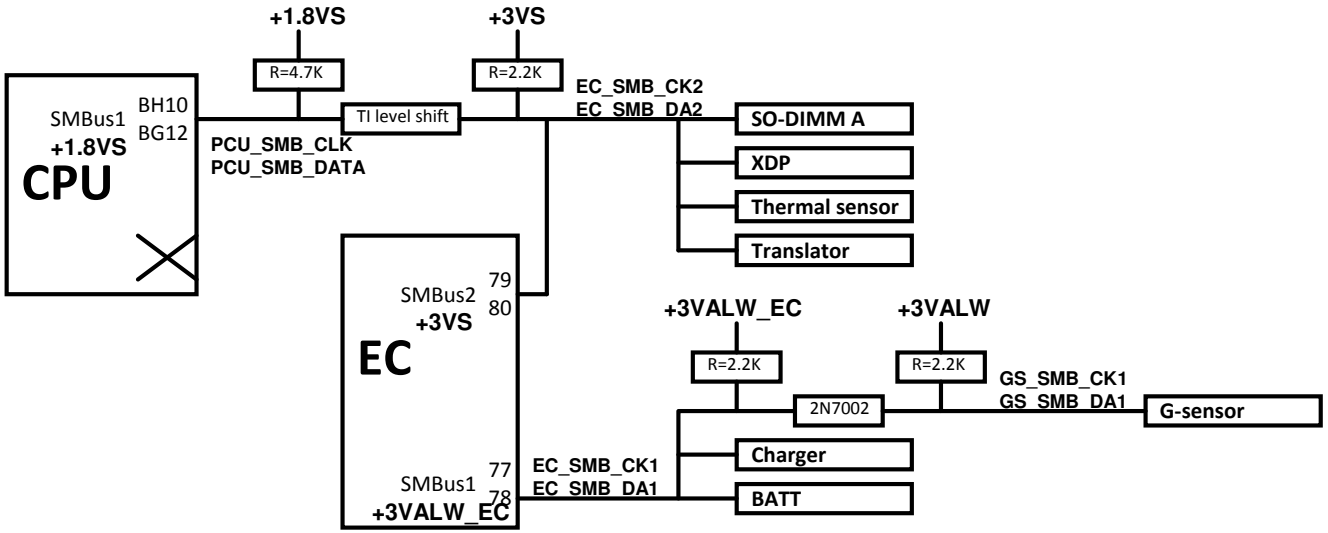
Compal Electronics, Inc.

Title: LED/Screw hole

Size | Document Number: LA-A992P | Rev: 0.1

Date: Friday, February 21, 2014 | Sheet 30 of 43

<SMBus Routing>



<USB2.0/3.0 port>

USB2.0	USB3.0	Function	Note
0	X	Left port (USB2.0)	
1	0	Right port-1 (USB2.0/3.0)	
2	X	Right port-2 (USB2.0	
3	X	WLAN	USB2.0x4 Hub
4	X	Touch screen	USB2.0x4 Hub
5	X	Camera	USB2.0x4 Hub
6	X	NC	USB2.0x4 Hub

<PCI-E port>

PCI-E	Function	Note
0	LAN	
1	WLAN	
2	Card reader	
3	NC	

<SATA port>

PCI-E	Function	Note
0	HDD	
1	NC	

Security Classification	Compal Secret Data		
Issued Date	2013/3/1	Deciphered Date	2015/3/1

Compal Electronics, Inc.

Title: *Reserve*

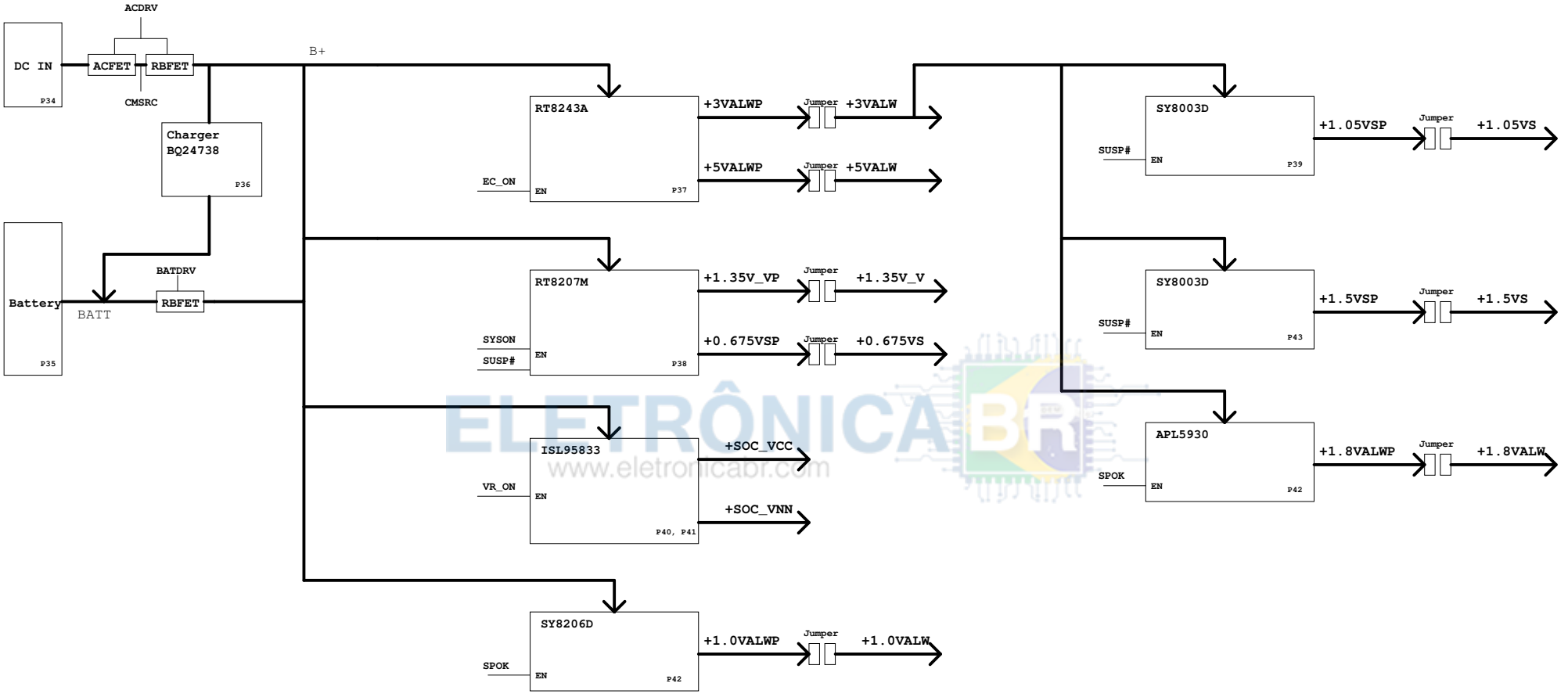
Size: B | Document Number: LA-A994P | Rev: 0.1

Date: | Sheet 31 of 43

Version Change List (P. I. R. List) Page 1

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	29		131107		1.Change PN of RPF1 from SD302100380 to SD309100380		
2	28		131109		1.Change Control pin of LID from NEW_LID_SW(R218) to LID_SW#(R219)		
3	24		131109		1.Follow 14" Haswell LA-A993PR02's JUSB2 Conn.		
4	16		131111		1.Update UT3 footprint follow Haswell platform		
5	22		131111		1.Delete R954 ,Q84 for ODD_DA# 2.unpop RS11		
6	18		131111		1.Change PN of LM13,LM14,LM15 & LM16 from SM070001V00 to SM070003K00		
7	30		131111		1.Change Power Rail of G sensor from +3VALW to +3VL & unpop QG2		
8	30		131111		1.pop DM5		
9	26		131111		1.change Board ID to SI phase		
10	16		131111		1.add PD 100K RT15K for power sequence		

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2013/04/12	Deciphered Date 2014/04/12	Title: HW PIR
			Size: Custom; Document Number: LA-A994P; Rev: 0.1
			Date: Friday, February 21, 2014; Sheet 32 of 43



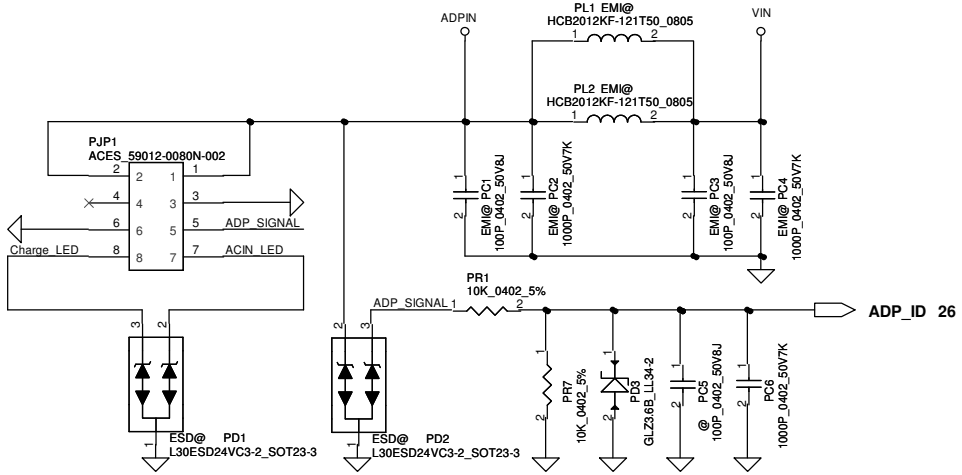
Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

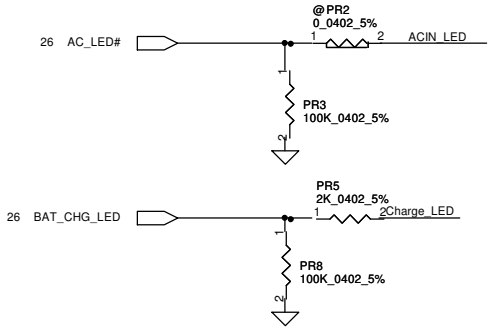
Compal Electronics, Inc.

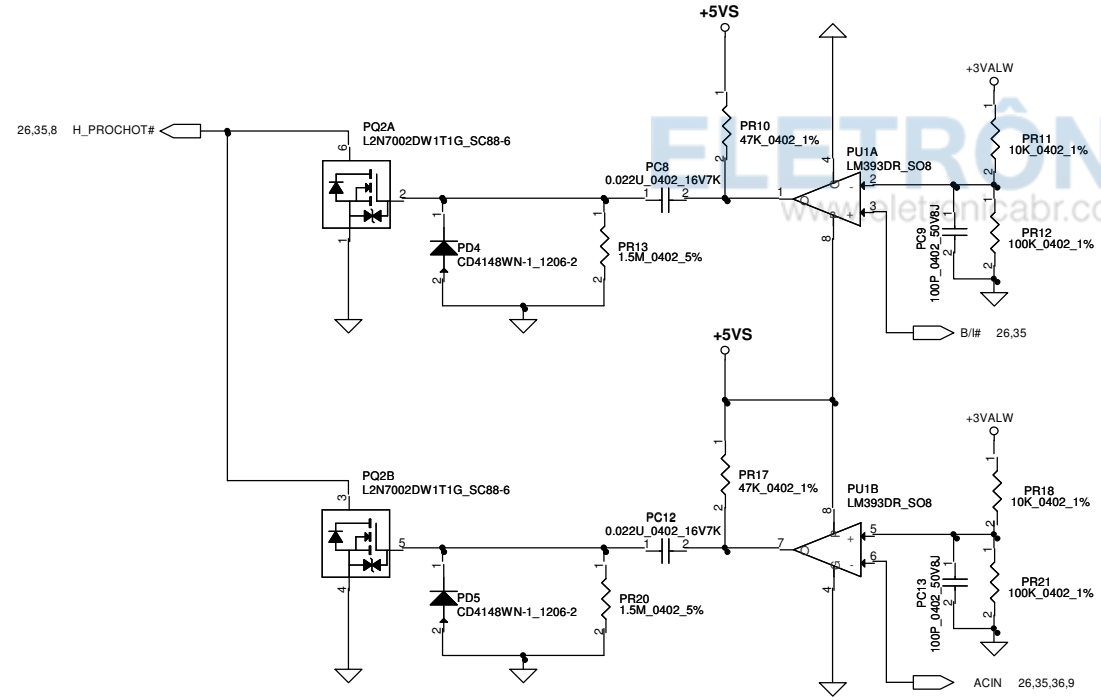
Title: ***Power Block Diagram***

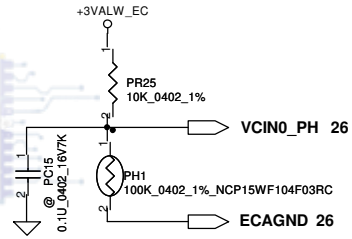
Size	Document Number	Rev
	LAA994P/LAA995P	0.1

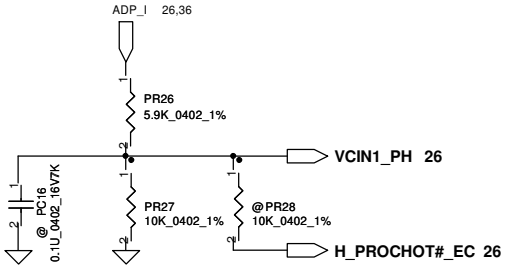
Date: Monday, February 24, 2014 Sheet 33 of 43











Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.

Title: ***DC Conn***

Size | Document Number: **LAA994P/LAA995P** | Rev: 0.1

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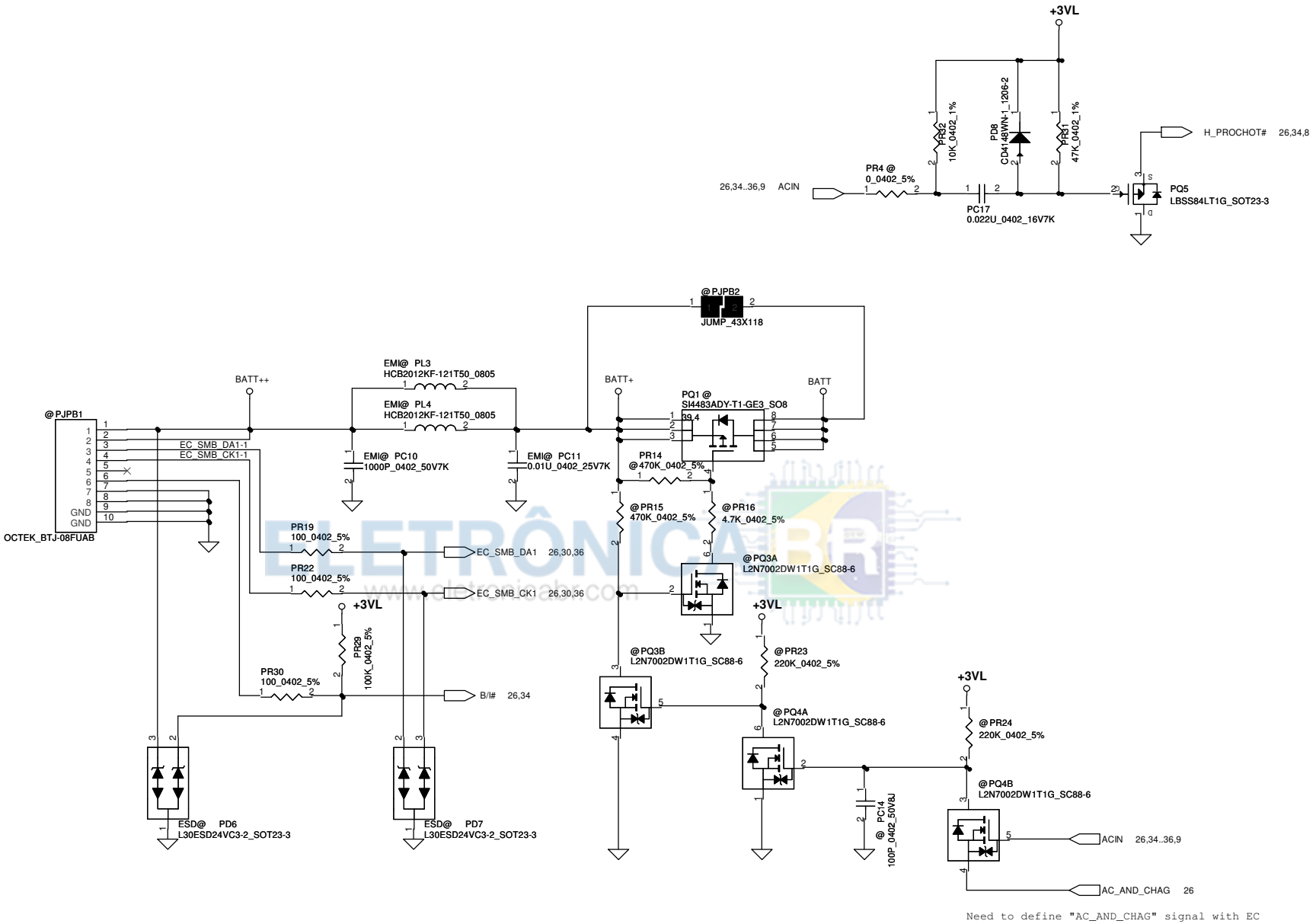


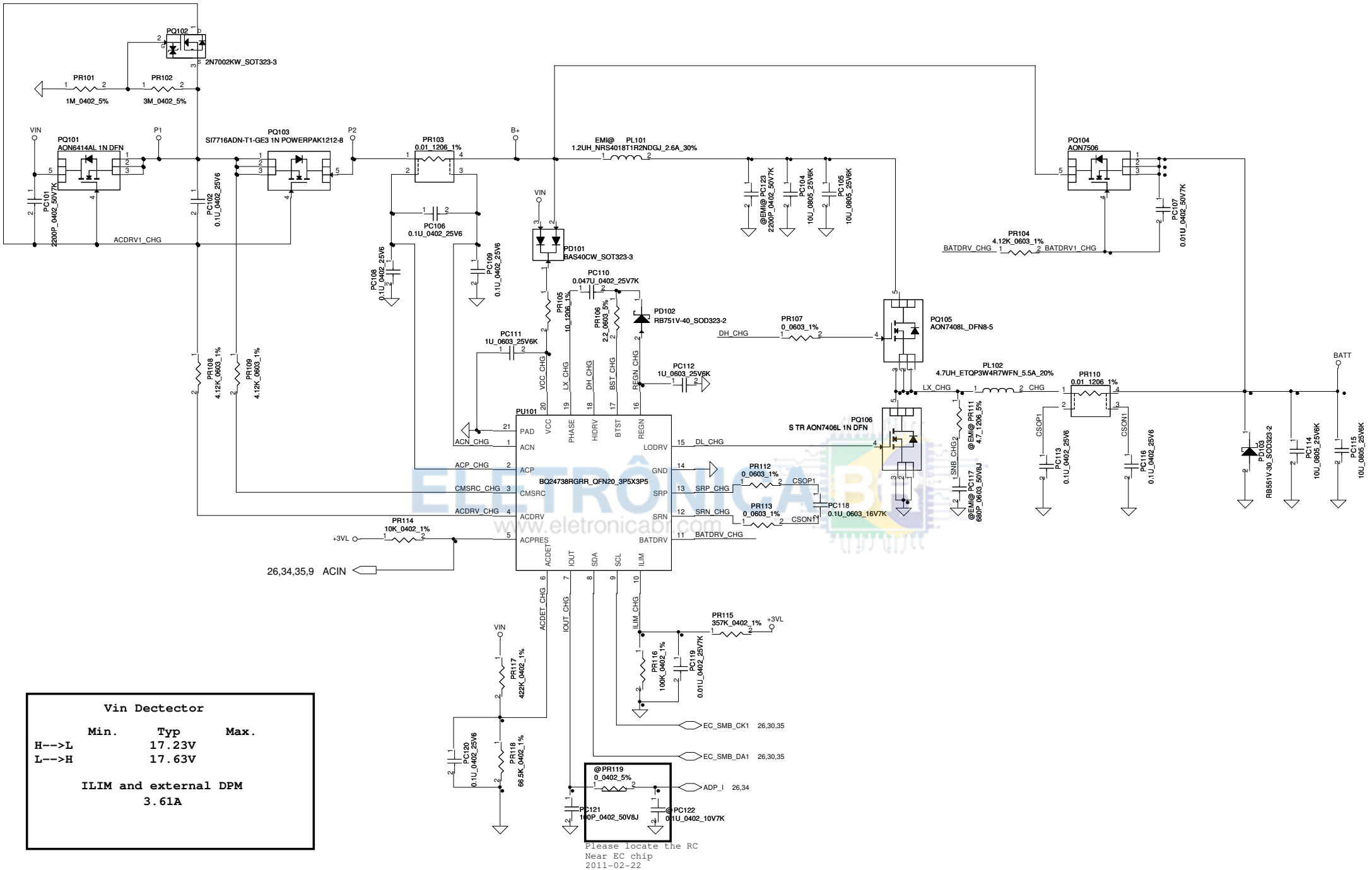
Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.

Title: ***BATT Conn***

Size | Document Number: **LAA994P/LAA995P** | Rev: 0.1

Date: Monday, February 24, 2014 | Sheet 35 of 43



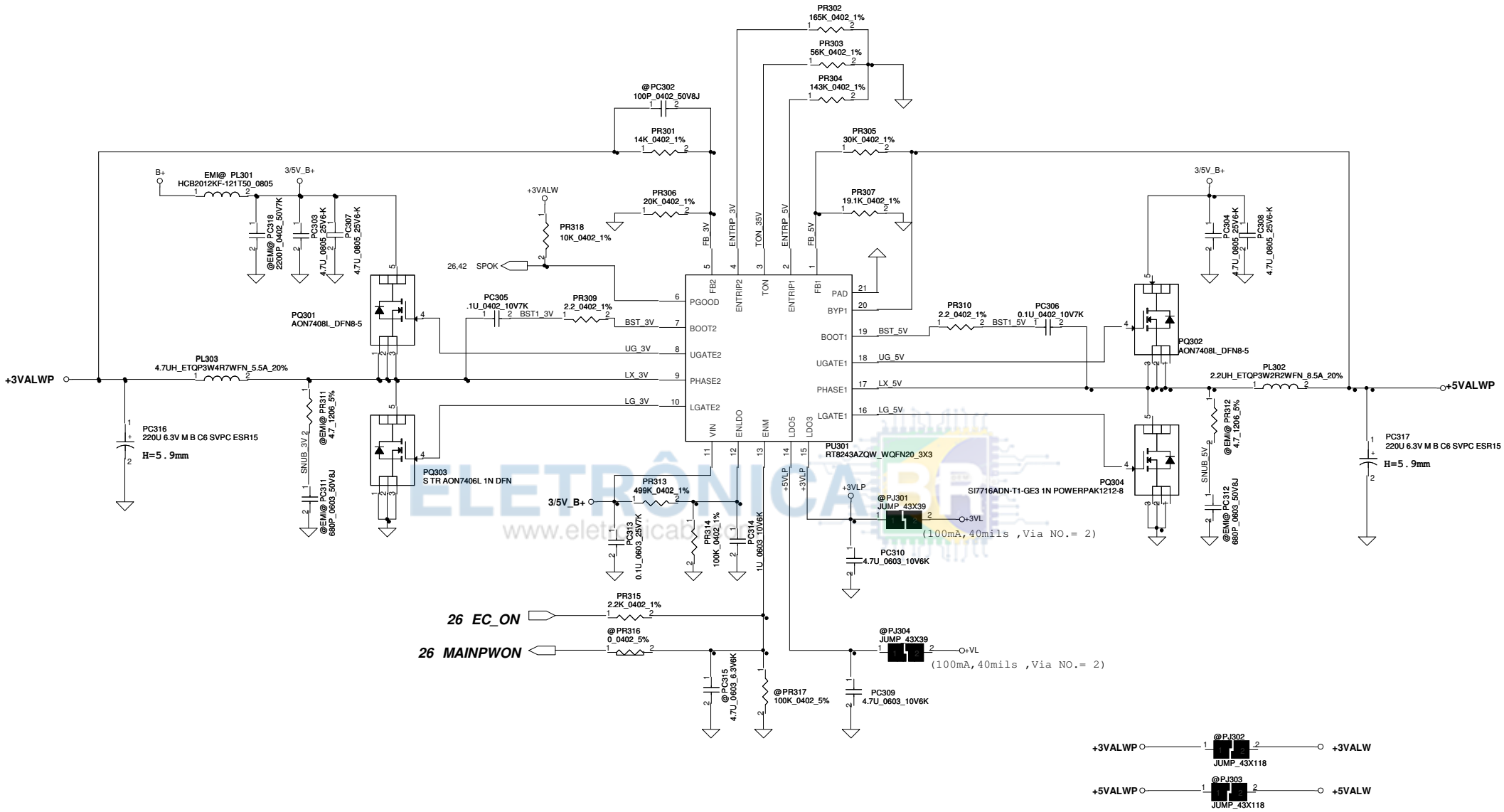
Vin Dectector			
	Min.	Typ	Max.
H-->L		17.23V	
L-->H		17.63V	

ILIM and external DPM
3.61A

Please locate the RC
Near EC chip
2011-02-22

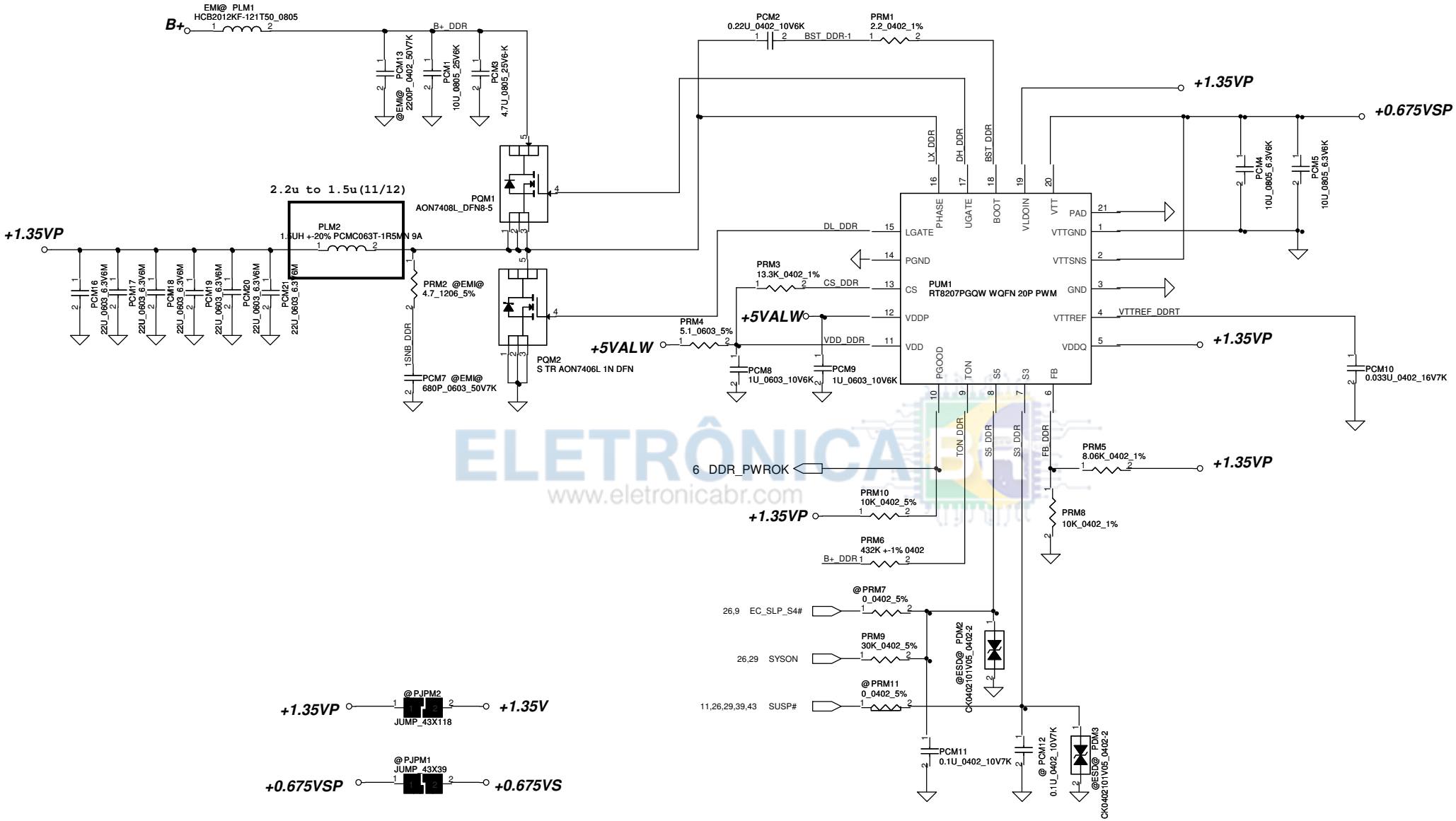
Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.	
Title	CHARGER
Size: Custom	Document Number: LAB151P
Rev	0.1
Date:	Sheet 36 of 43



Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.			
Title	3VALW/5VALW		
Size	Document Number		Rev
Custom	LAA994P/LAA995P		0.1
Date:		Sheet 37 of 43	



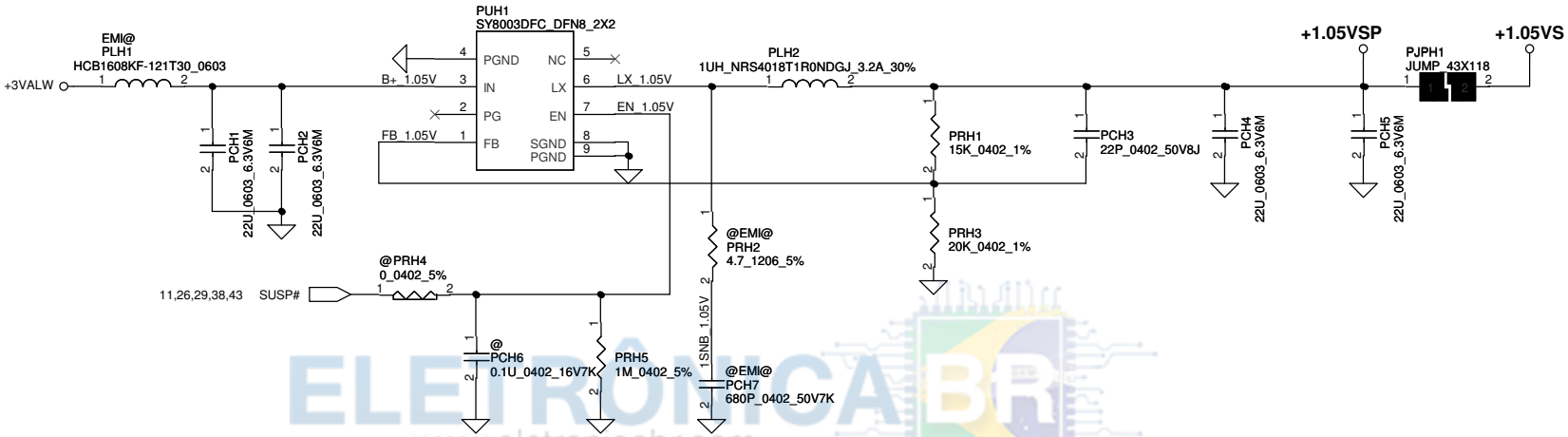
Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.

Title: **1.35V/0.675VS**

Size	Document Number	Rev
Custom	LA-A521P	0.1

Date: Monday, February 24, 2014 | Sheet 38 of 43



Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	2013/08/20	Deciphered Date	2016/08/31	Title: *1.05VS*
				Size: Document Number: LAB151P — Rev: 0.1
				Date: Monday, February 24, 2014 — Sheet 39 of 43

Design Note
This circuit is for ULC 1+1 7.5W.
CPU: Icc=12A
Loadline: -5.9 m V/A

GFX(GT2): Icc=14A
Loadline: -5.9 m V/A

Close GFX choke

Close GFX L/S MOS

Close CPU L/S MOS

Close CPU choke

PR18 and PR30
27.4K ohm for 100 degree
61.9K ohm for 110 degree

For VR_HOT#, already pull high at power side.

Layout Note
Reduce Acoustic Noise
1. The AL bulk capacitor of B+ should be very close to CPU_CORE MOSFET.
2. Input ceramic caps must place on symmetry same location on top side and bottom side.

MDV1525 Vds=30V
Rds(on)=11.5~14m ohm@Vgs=4.5V

MDU1511 Vds=30V
Rds(on)=2.7~3.3m ohm@Vgs=4.5V

OCP setting=~20A
0.22uH DCR= 0.97+-5% m ohm, Idc~Isat= 25~34A

OCP setting=~18A
0.22uH DCR= 0.97+-5% m ohm, Idc~Isat= 25~34A

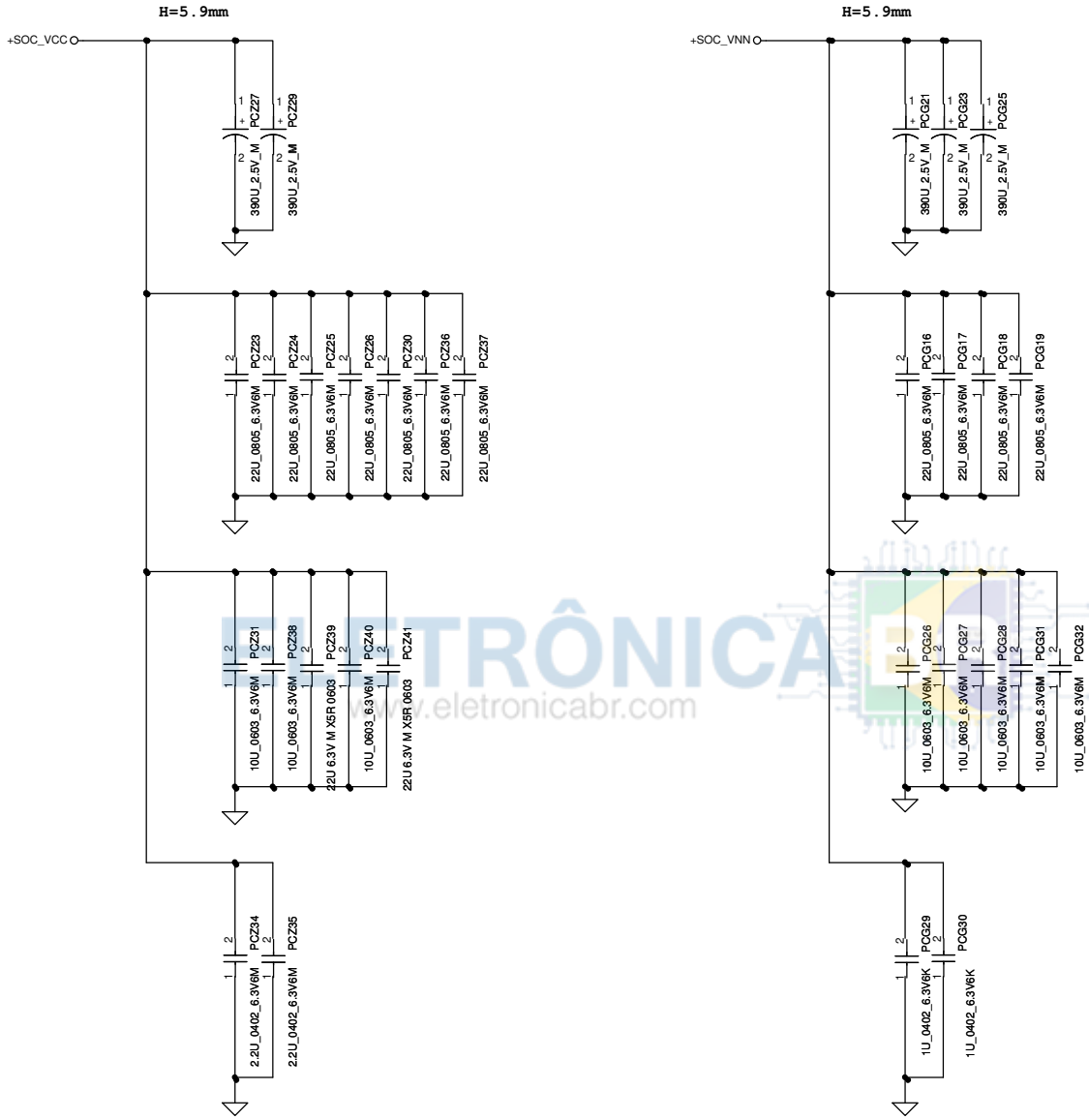
VDD source use +5VS and PGOOD source use +3VS
Please confirm power on and down sequence, make sure VGATE after CPU_CORE on.

Cn = L/((Rntcnet*Rsum)/(Rntcnet+Rsum))*DCR)
If Cn is correctly selected, when the load current has a square change, the output voltage also has a square response.

Layout Note
SVID routing
1. Alert# signal must be routed between the Clock and Date lines to reduce the cross talk between them. Signal order arrangement: mobile order is Clock-Alert-Date.
2. SVID spacing requirement is 18mils(0.475mm)
3. Maximum total microstrip routing length of each SVID signal must not exceed 6000mils(152.4mm).
4. The SVID bus must be ground reference, It cannot be referenced to input (Vbat or 12V) power plans as they can couple noise into the SVID bus as power states change.
5. Avoid routing under noisy circuit, e.g. switch node , Gate driver, B+, Vin, high speed signal.
6. When SVID signal changes Layer, GND return path may be changed also. We need add GND via for GND reference.

Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Title	Compal Electronics, Inc.		
	SOC_VCC/SOC_VNN		
Size: B	Document Number: LAB151P		Rev: 0.1
Date: Monday, February 24, 2014	Sheet 40 of 43		



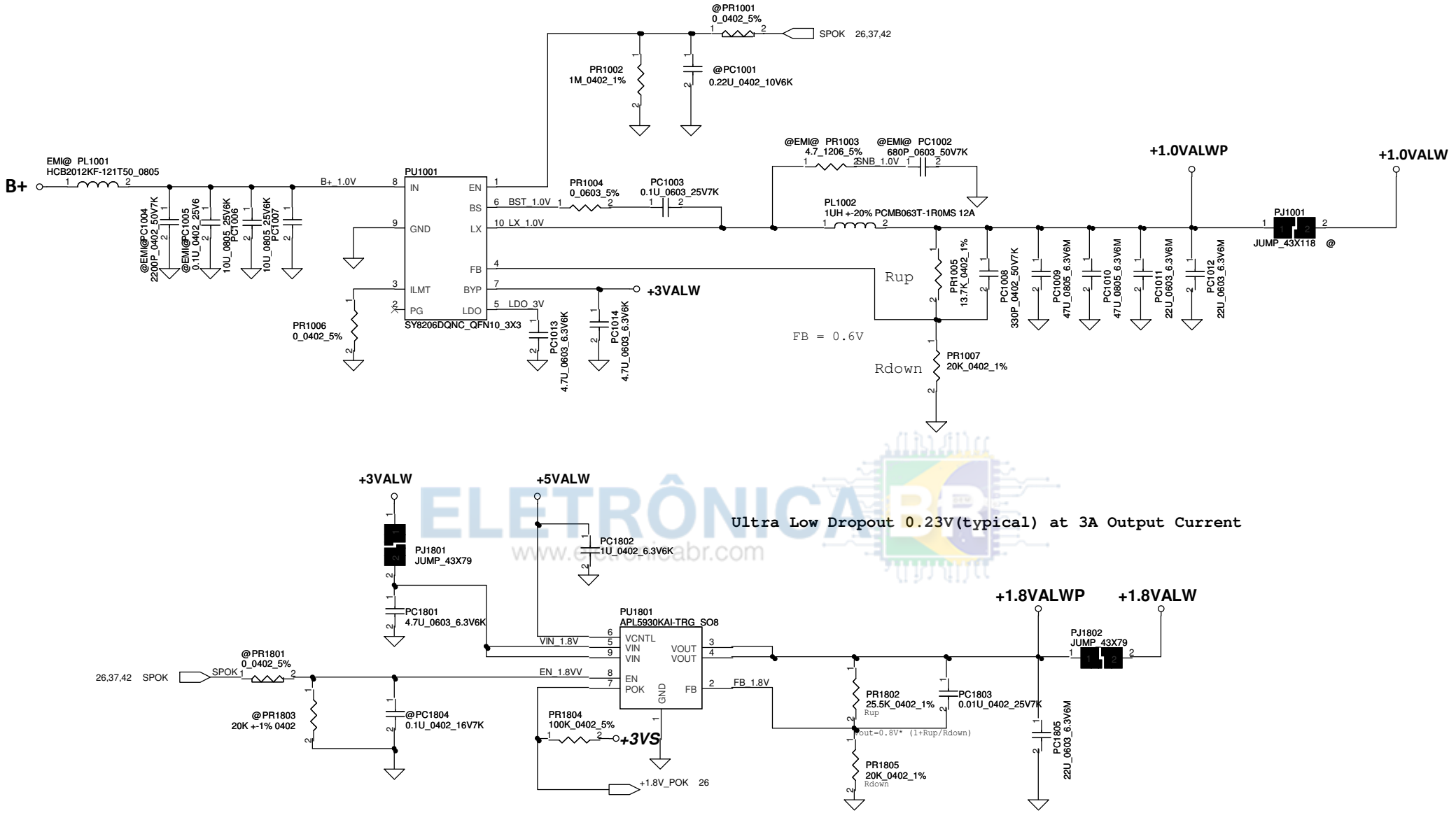
Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.

Title: ***PROCESSOR DECOUPLING***

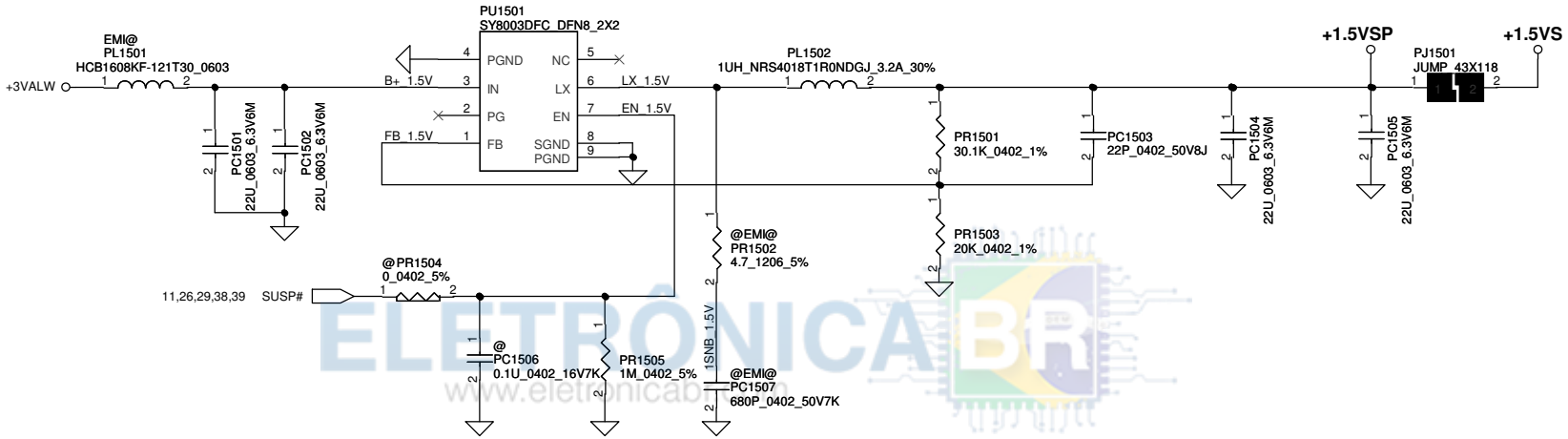
Size	Document Number	Rev
Custom		0.1

Date: | Sheet 41 of 43



Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.			
Title	*1.8VALW/1.5VS*		
Size	Document Number		Rev
B	LAB151P		0.1
Date:		Sheet 42 of 43	



LA-B151P Security Classification	Compal Secret Data		
Issued Date	2013/08/20	Deciphered Date	2016/08/31

Compal Electronics, Inc.			
Title: 1.0VALW			
Size: B	Document Number		Rev: 0.1
Date: Monday, February 24, 2014		Sheet 43 of 43	