Compal Confidential

L380 / Y580S

M/B Schematic Document

AMD Phoenix Processor with DDR5 SO- DIMM

2023-02-16
LA-M811P
REV:1A

Security Classification	Compal Secret Data		
Issued Date	2019/12/03	Deciphered Date	2021/12/03

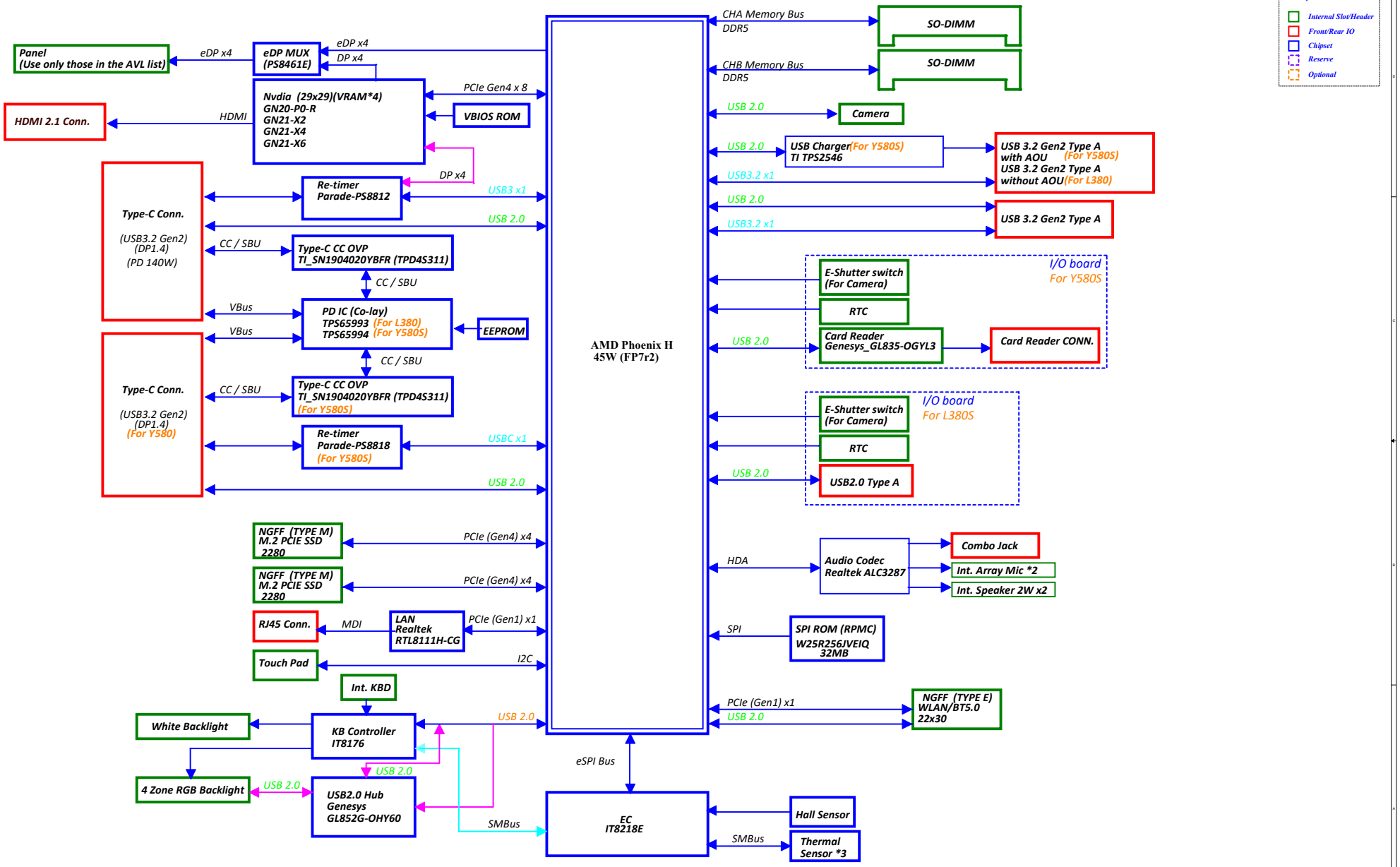
Compal Electronics, Inc.

Title: *Cover Page*

Size: Custom | Document Number: *LA-M811P* | Rev: 0.1

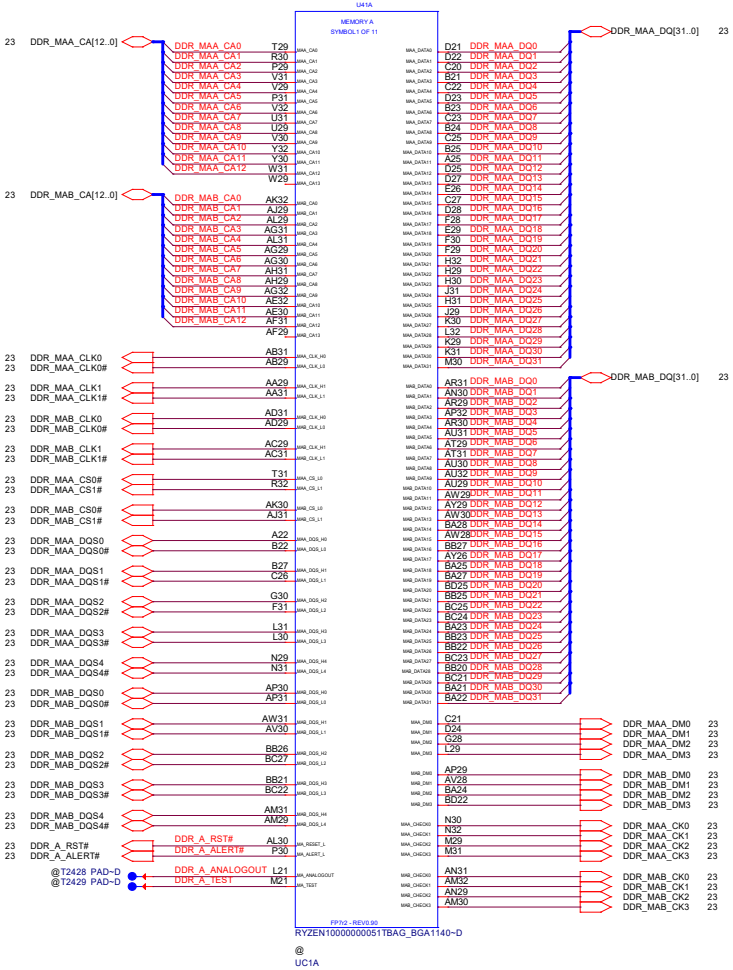
Date: Wednesday, March 01, 2023 | Sheet 1 of 121

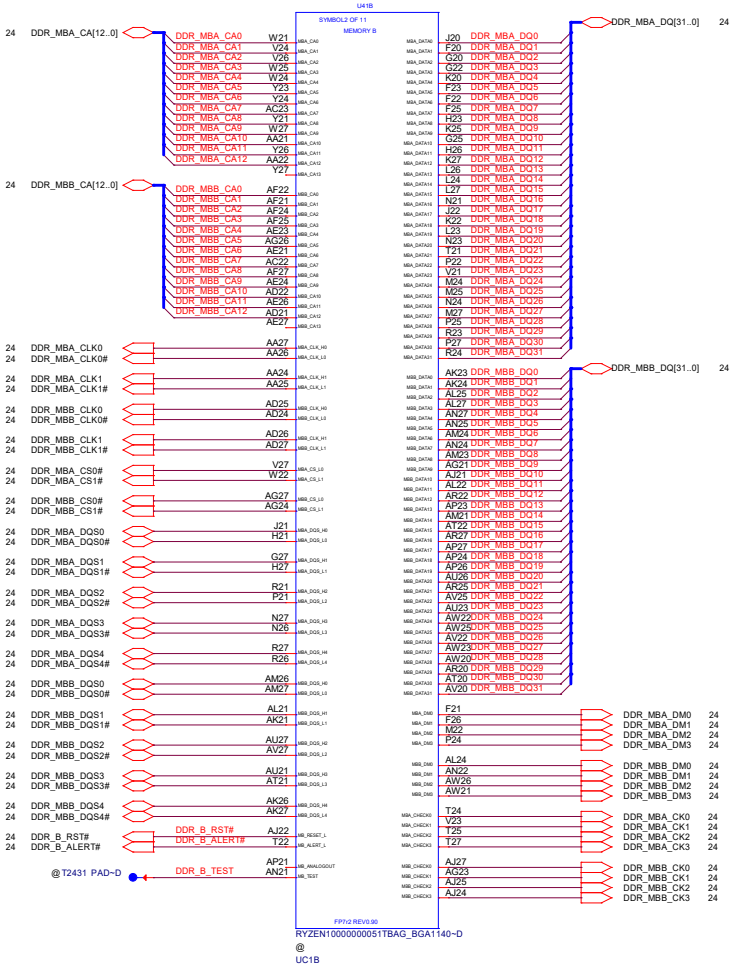
AMD Phoenix Block Diagram

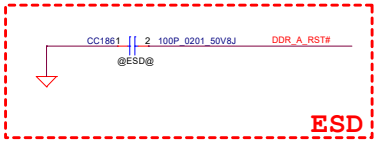


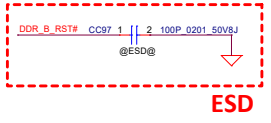
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2019/12/03	Deciphered Date	2021/12/03
Title	Block Diagram		
Size	Document Number		Rev
D	LA-M811P		0.1
Date:	Wednesday, March 01, 2023	Sheet	2 of 121

Main Func = CPU









Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

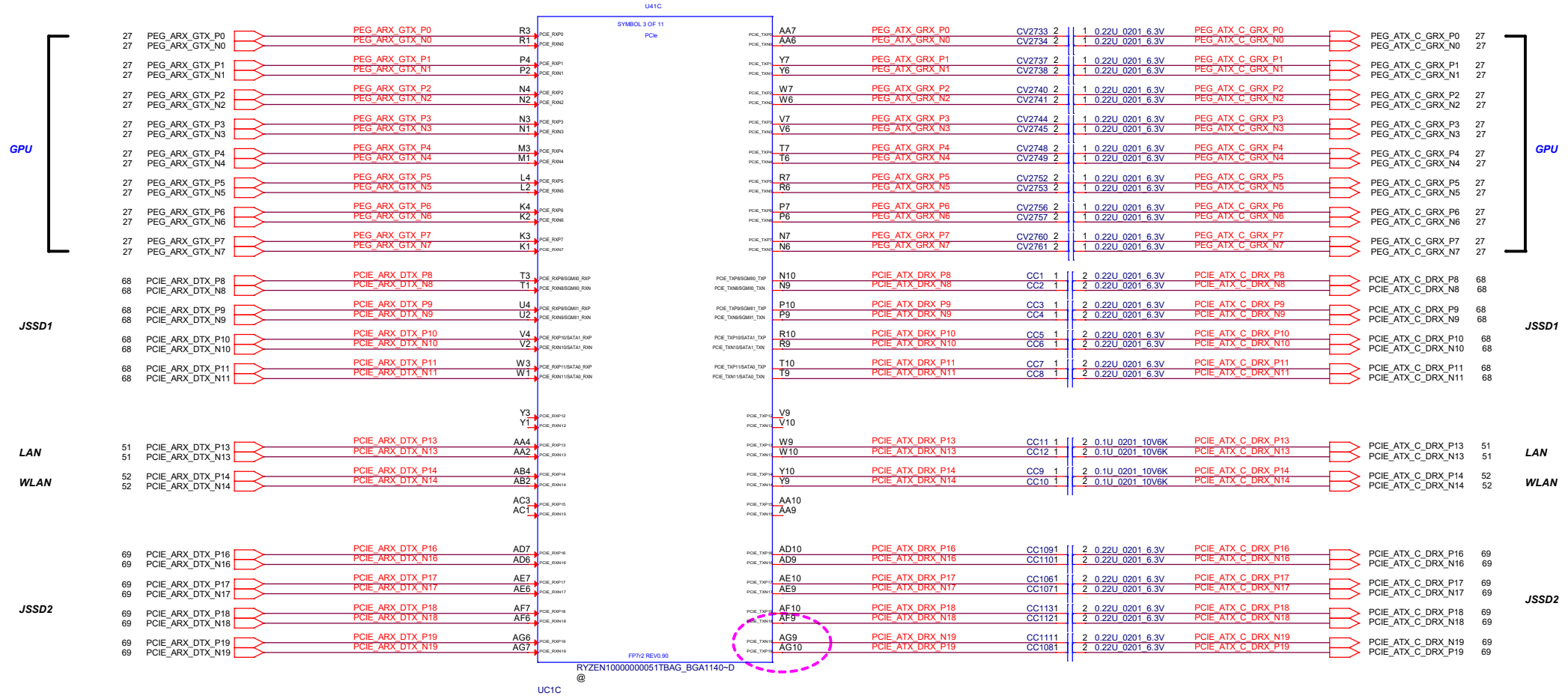
Compal Electronics, Inc.

Title: FP7r2 DDR5 MEMORY I/F

Size	Document Number	Rev
Custom	LA-M811P	0.1

Date: Wednesday, March 01, 2023 | Sheet 6 of 121

Main Func = CPU



Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

Compal Electronics, Inc.

Title: FP7r2_PCIE/SATA

Size: Custom | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 7 of 121

Main Func = CPU

DP0: eDP
DP1: HDMI
DP2: Type-C
DP3: N/A

eDP

+LCDVDD_CONN PWR switch enable pin VIH=1.2V

eDP

TYPE-C PS8818

ESD

HDT+ (debug + HDT@)

Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

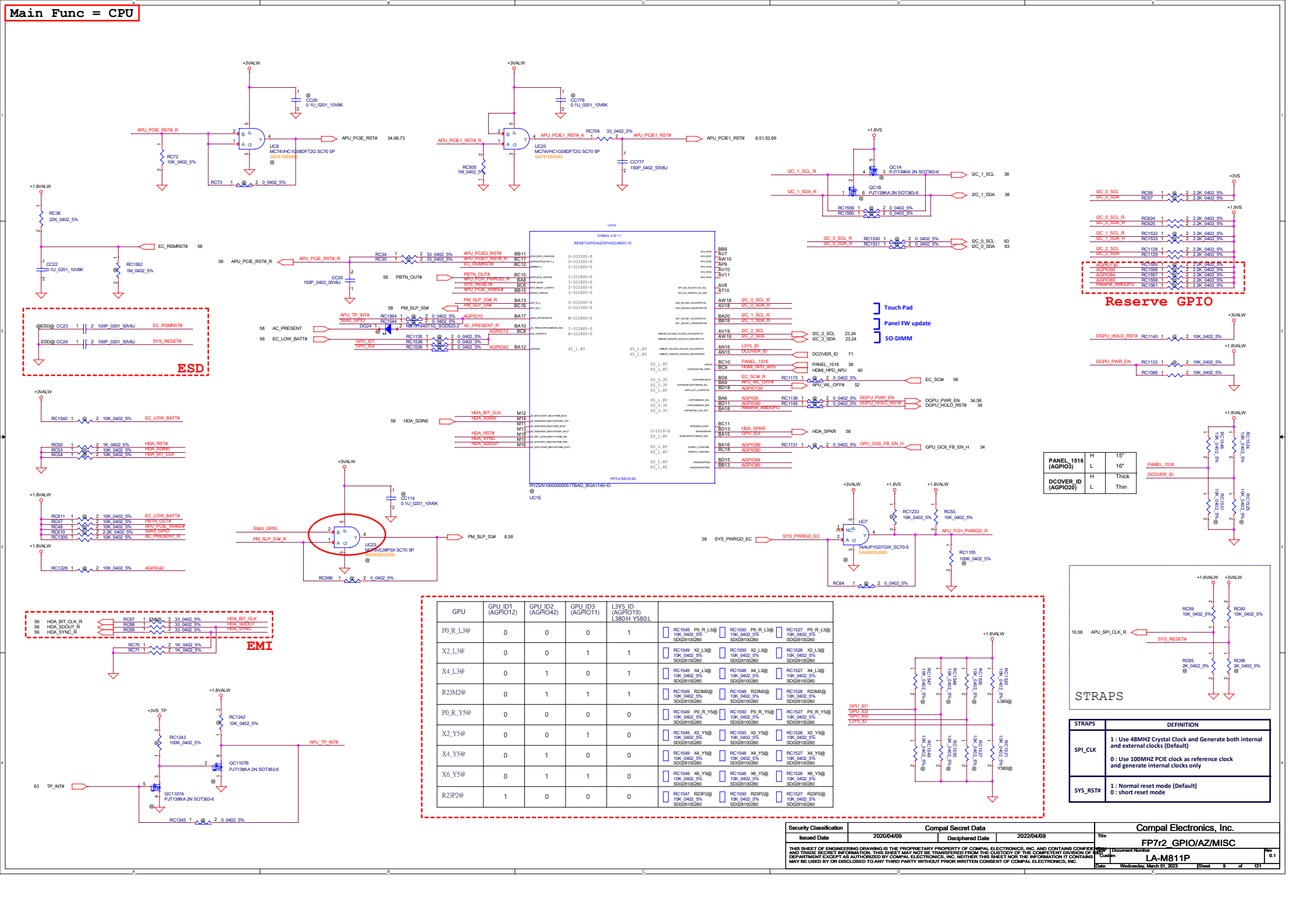
Compal Electronics, Inc.

Title: FP7r2_DISP/MISC/HDT

Size: Custom | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 8 of 121

Main Func = CPU



PANEL_1516 (AGPIO3)	H	15"
	L	16"
DCOVER_ID (AGPIO20)	H	Thick
	L	Thin

GPU	GPU_ID1 (AGPIO12)	GPU_ID2 (AGPIO42)	GPU_ID3 (AGPIO11)	L3Y5_ID (AGPIO19) L380:H Y580:L			
P0_R_L3@	0	0	0	1	RC1549 P0_R_L3@ 10K_0402_5% SD028100280	RC1550 P0_R_L3@ 10K_0402_5% SD028100280	RC1527 P0_R_L3@ 10K_0402_5% SD028100280
X2_L3@	0	0	1	1	RC1549 X2_L3@ 10K_0402_5% SD028100280	RC1550 X2_L3@ 10K_0402_5% SD028100280	RC1526 X2_L3@ 10K_0402_5% SD028100280
X4_L3@	0	1	0	1	RC1549 X4_L3@ 10K_0402_5% SD028100280	RC1548 X4_L3@ 10K_0402_5% SD028100280	RC1527 X4_L3@ 10K_0402_5% SD028100280
R23M2@	0	1	1	1	RC1549 R23M2@ 10K_0402_5% SD028100280	RC1548 R23M2@ 10K_0402_5% SD028100280	RC1526 R23M2@ 10K_0402_5% SD028100280
P0_R_Y5@	0	0	0	0	RC1549 P0_R_Y5@ 10K_0402_5% SD028100280	RC1550 P0_R_Y5@ 10K_0402_5% SD028100280	RC1527 P0_R_Y5@ 10K_0402_5% SD028100280
X2_Y5@	0	0	1	0	RC1549 X2_Y5@ 10K_0402_5% SD028100280	RC1550 X2_Y5@ 10K_0402_5% SD028100280	RC1526 X2_Y5@ 10K_0402_5% SD028100280
X4_Y5@	0	1	0	0	RC1549 X4_Y5@ 10K_0402_5% SD028100280	RC1548 X4_Y5@ 10K_0402_5% SD028100280	RC1527 X4_Y5@ 10K_0402_5% SD028100280
X6_Y5@	0	1	1	0	RC1549 X6_Y5@ 10K_0402_5% SD028100280	RC1548 X6_Y5@ 10K_0402_5% SD028100280	RC1526 X6_Y5@ 10K_0402_5% SD028100280
R23P2@	1	0	0	0	RC1547 R23P2@ 10K_0402_5% SD028100280	RC1550 R23P2@ 10K_0402_5% SD028100280	RC1527 R23P2@ 10K_0402_5% SD028100280

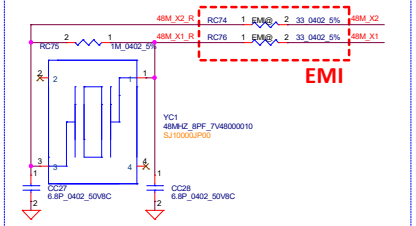
STRAPS	DEFINITION
SPI_CLK	1 : Use 48MHZ Crystal Clock and Generate both internal and external clocks (Default) 0 : Use 100MHZ PCIE clock as reference clock and generate internal clocks only
SYS_RST#	1 : Normal reset mode (Default) 0 : short reset mode

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2020/04/09	Deciphered Date 2022/04/09	Title: FP7r2_GPIO/AZ/MISC

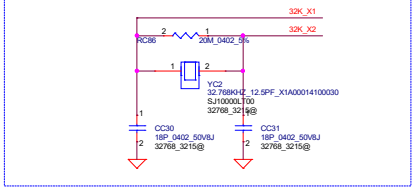
Size	Document Number	Rev
Custom	LA-M811P	0.1
Date: Wednesday, March 01, 2023	Sheet 9 of 121	

Main Func = CPU

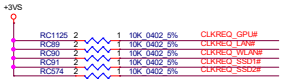
48MHz CRYSTAL

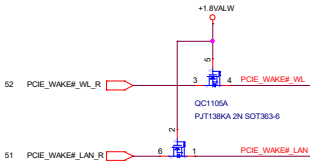


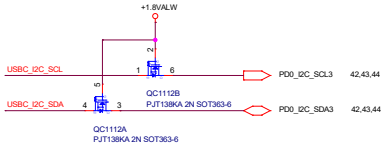
32.768KHz CRYSTAL

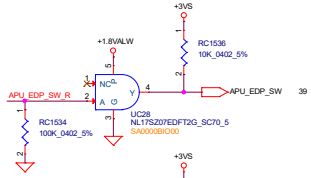


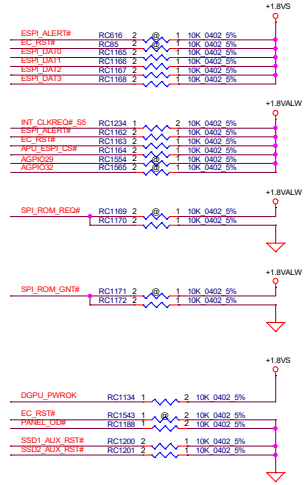
Co-lay 32.768KHZ

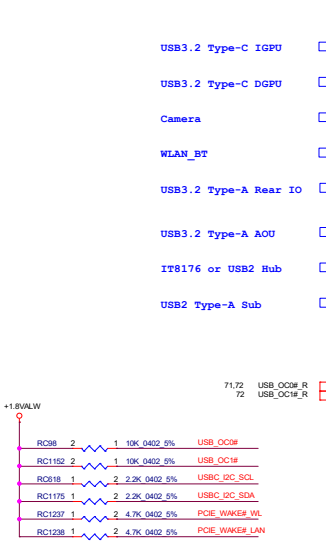


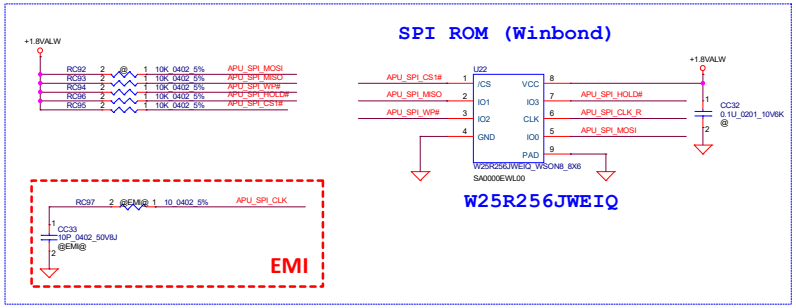






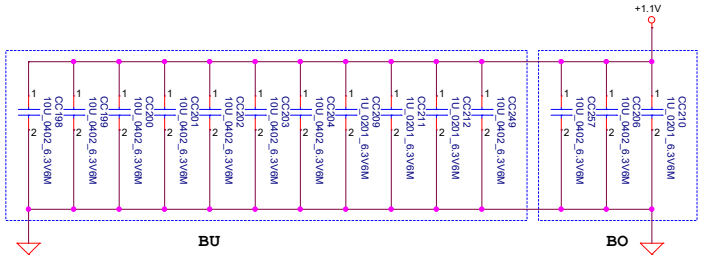


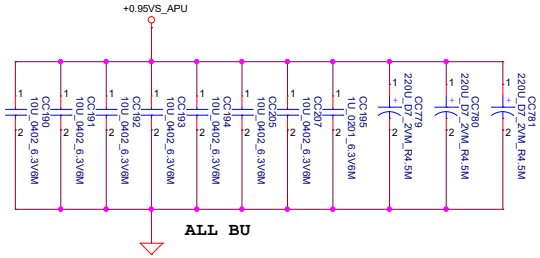




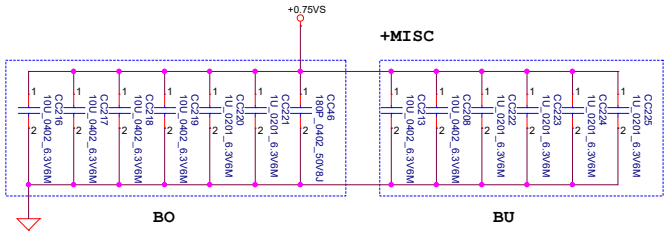
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2020/04/09	Deciphered Date 2022/04/09	Title: FP7r2_CLK/USB/SPI/TPM
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			Size: Custom; Document Number: LA-M811P; Rev: 0.1
			Date: Wednesday, March 01, 2023; Sheet 10 of 121

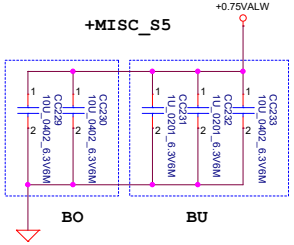
Main Func = CPU

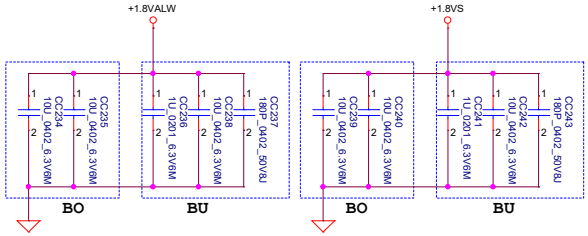


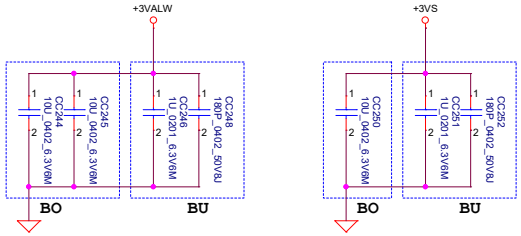


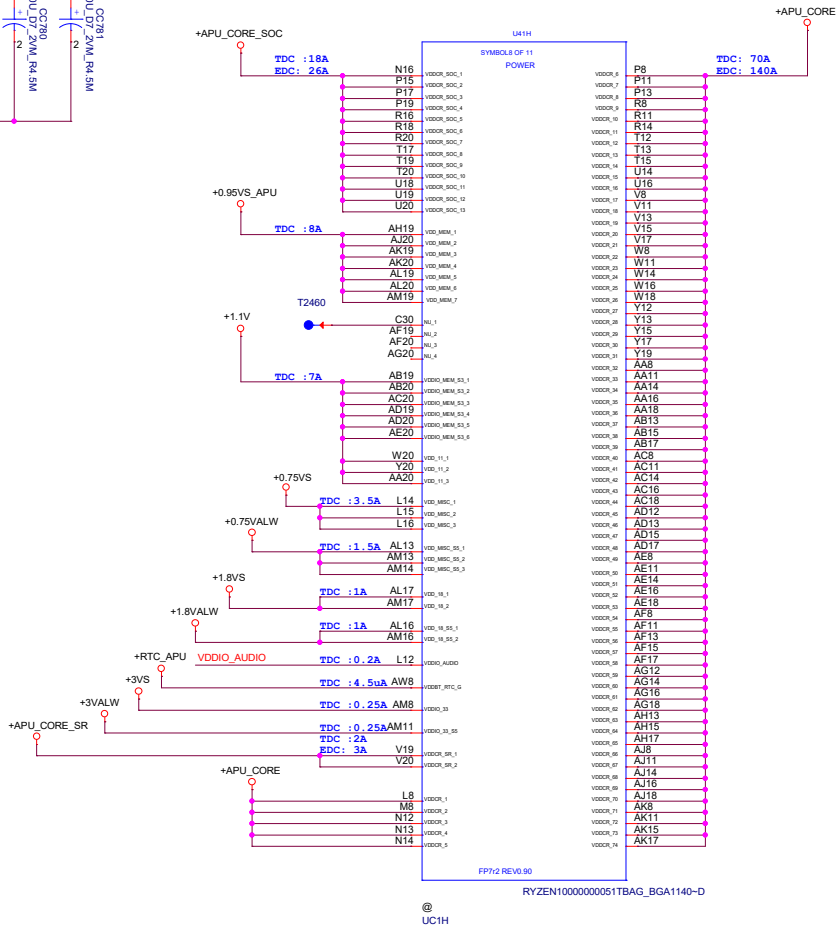
BU = Bottom, Under the processor
BO = Bottom, Outside of the processor



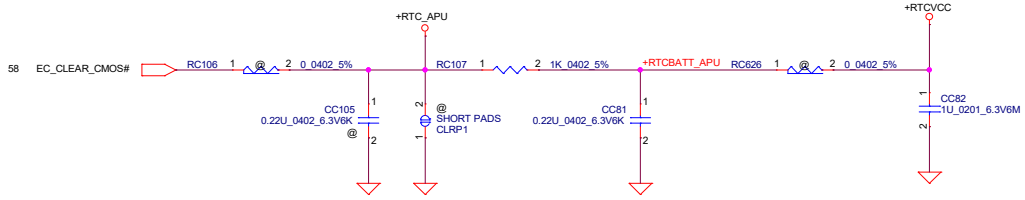


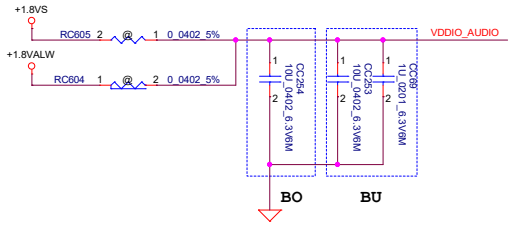






Note : Cap placemet need to close APU





Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

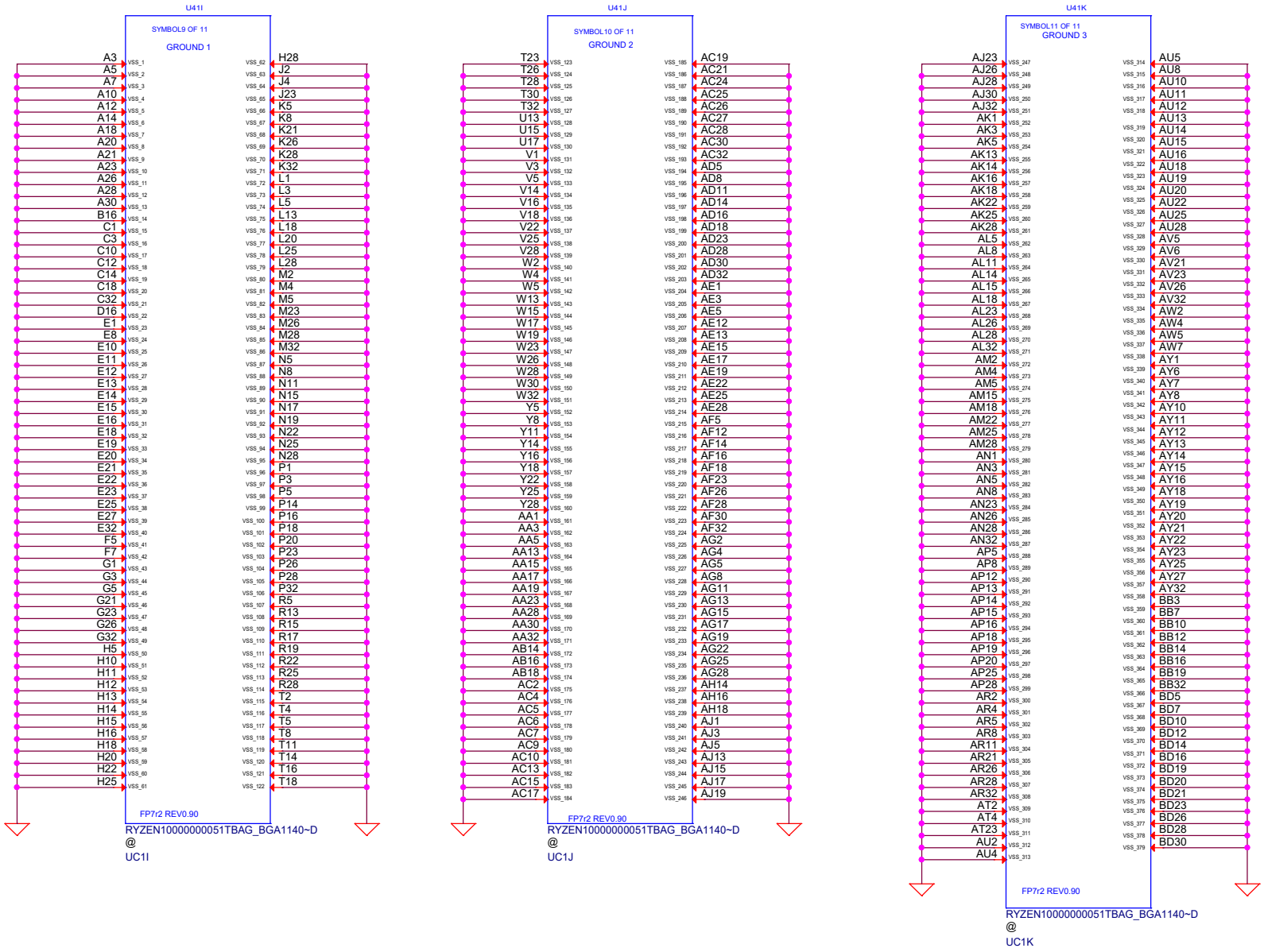
Compal Electronics, Inc.

Title: FP7r2 PWR

Size: Custom | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 11 of 121

Main Func = CPU



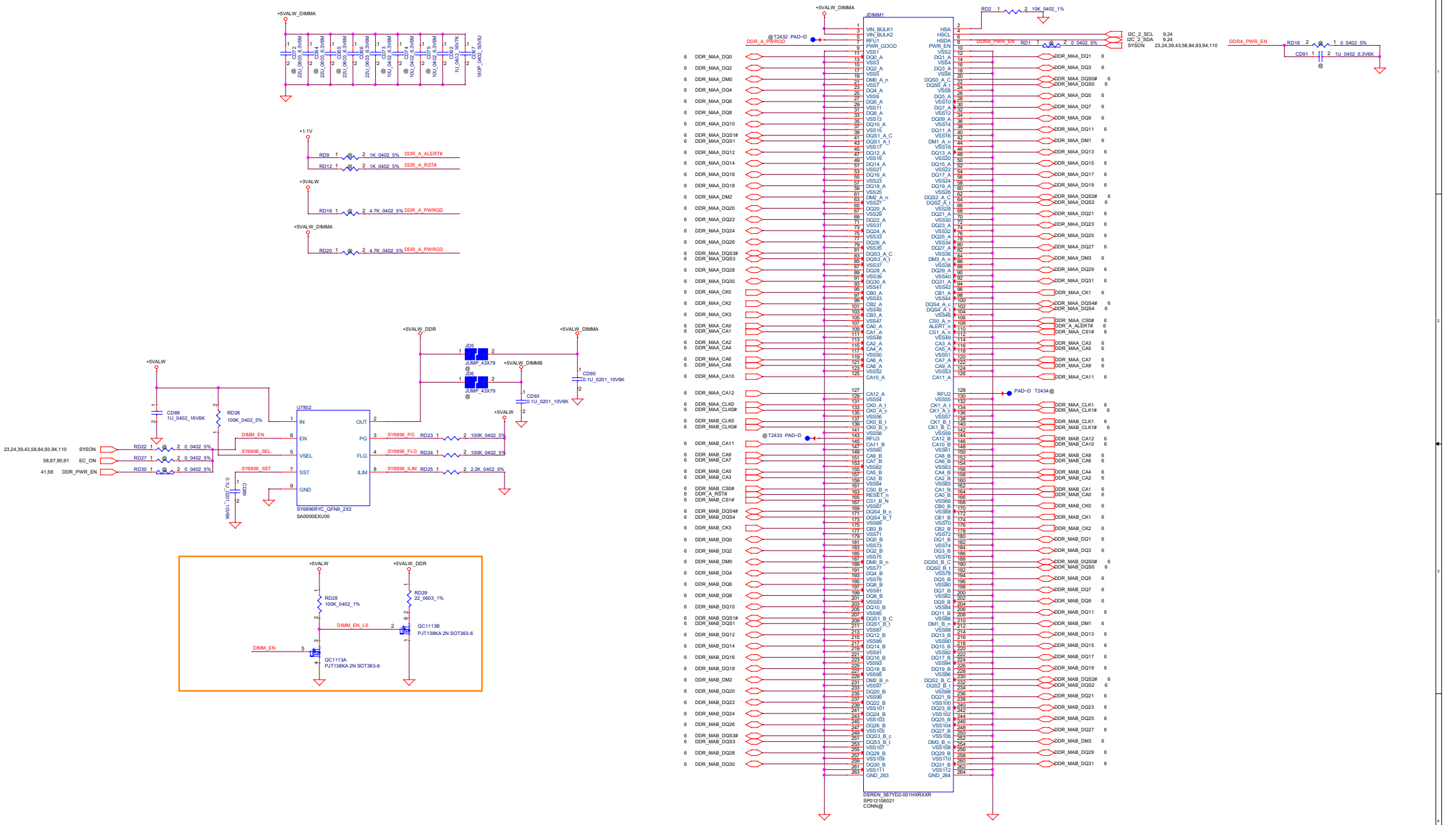
Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

Compal Electronics, Inc.

Title: FP7r2 GND

Size	Document Number	Rev
Custom	LA-M811P	0.1

Date: Wednesday, March 01, 2023 Sheet 12 of 121



Security Classification	Compal Secret Data		
Issued Date	2019/08/01	Deciphered Date	2018/10/01

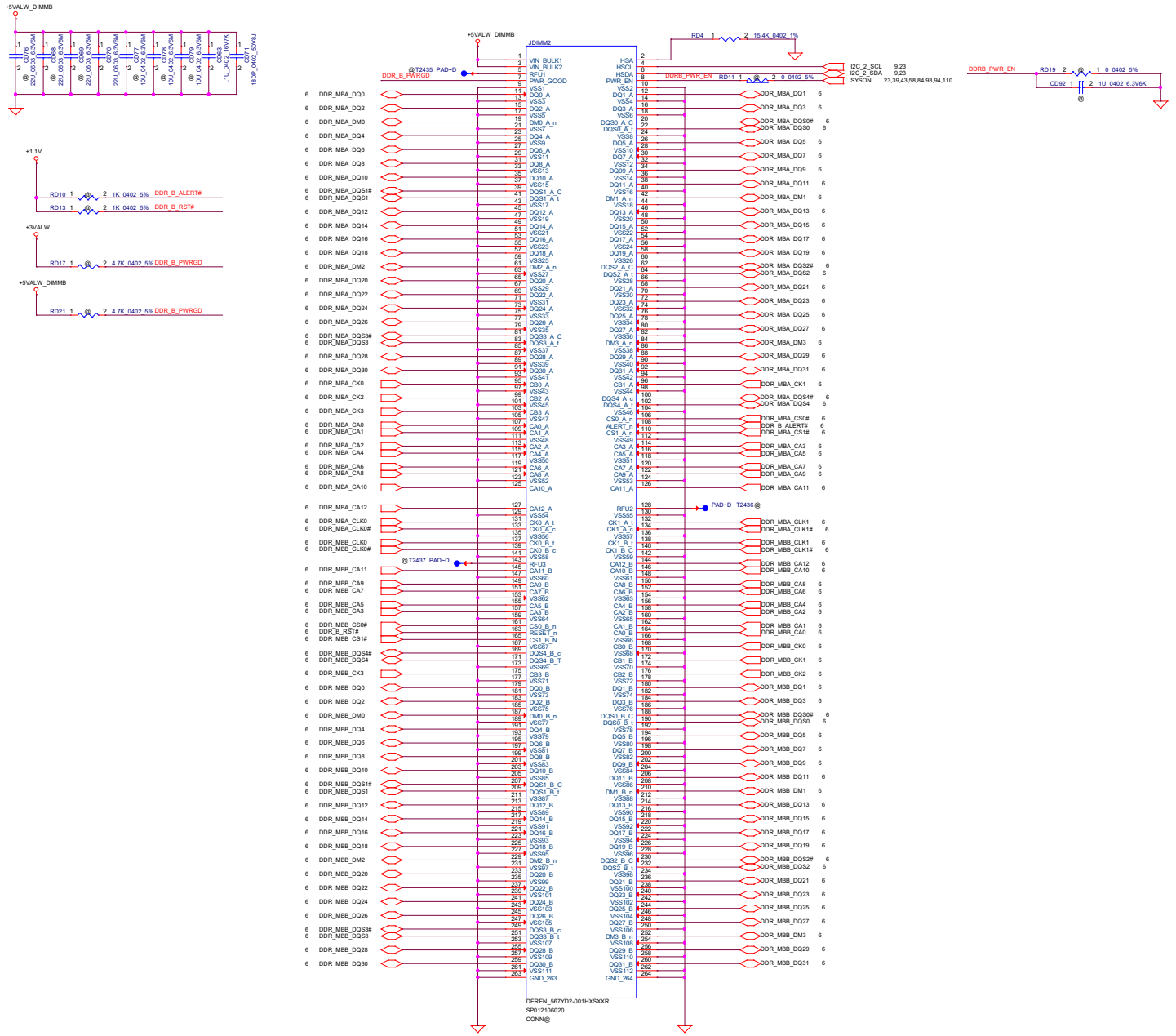
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title: ***DDR5_DIMMA***

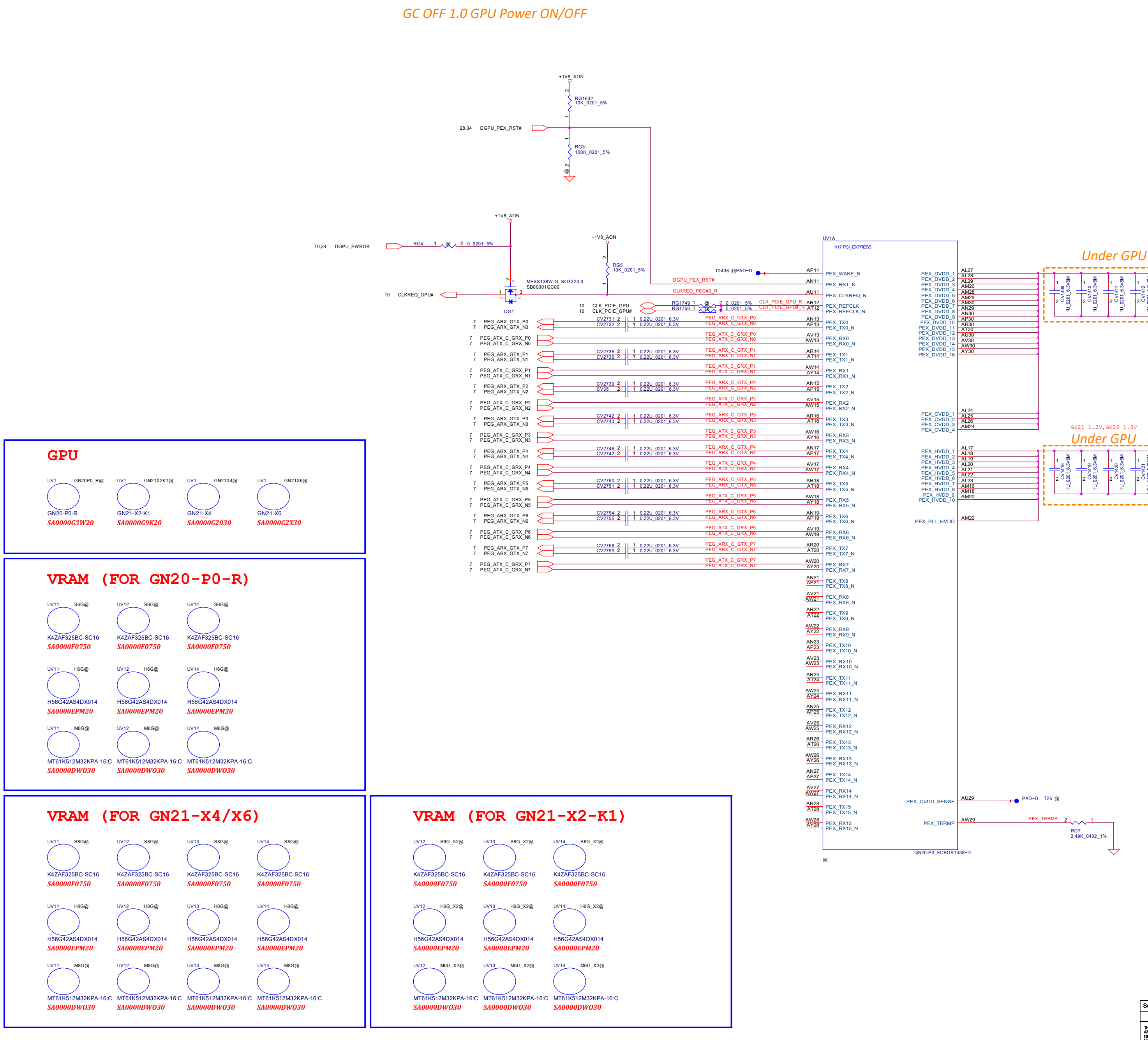
Size	Document Number	Rev
Custom	**LA-M811P**	0.1

Date: Wednesday, March 01, 2023 Sheet 23 of 121



Security Classification	Compal Secret Data		
Issued Date	2019/08/01	Deciphered Date	2018/10/01

Compal Electronics, Inc.			
Title	DDR5_DIMMB		
Size	Document Number		Rev
Custom	LA-M811P		0.1
Date:	Wednesday, March 01, 2023	Sheet	24 of 121



GC OFF 1.0 GPU Power ON/OFF
+1V8_AON
RG1632 10K_0201_5%
28,34 DGPU_PEX_RST#
RG3 100K_0201_5%
10,34 DGPU_PWROK
RG4 0_0201_5%
RG5 10K_0201_5%
MESS138W-G_SOT323-3 SB00001GC00
QG1
10 CLKREQ_GPU#
10 CLK_PCIE_GPU
10 CLK_PCIE_GPU#
RG1749 0_0201_5%
RG1750 0_0201_5%
T2438 @PAD~D
DGPU_PEX_RST#
CLKREQ_PEG#0_R
UV1A
1/17 PCI_EXPRESS
PEX_WAKE_N
PEX_RST_N
PEX_CLKREQ_N
PEX_REFCLK
PEX_REFCLK_N
PEX_DVDD
PEX_CVDD
PEX_HVDD
PEX_PLL_HVDD
PEX_CVDD_SENSE
PEX_TERM
RG7 2.49K_0402_1%
GN20-P3_FCBGA1358-D
GPU
GN20-P0-R SA0000G3W20
GN21-X2-K1 SA0000G9K20
GN21-X4 SA0000G2030
GN21-X6 SA0000G2X30
VRAM (FOR GN20-P0-R)
K4ZAF325BC-SC16 SA0000F0750
H56G42AS4DX014 SA0000EPM20
MT61K512M32KPA-16:C SA0000DW030
VRAM (FOR GN21-X4/X6)
VRAM (FOR GN21-X2-K1)

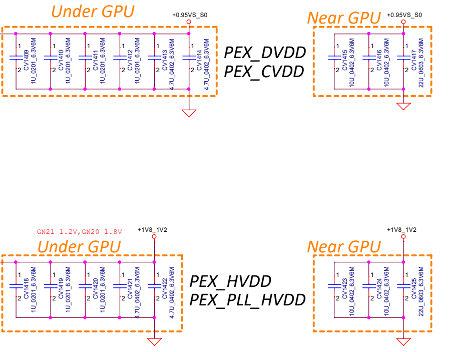


Table 5. PEX Core and IO Supply Decoupling and Filtering

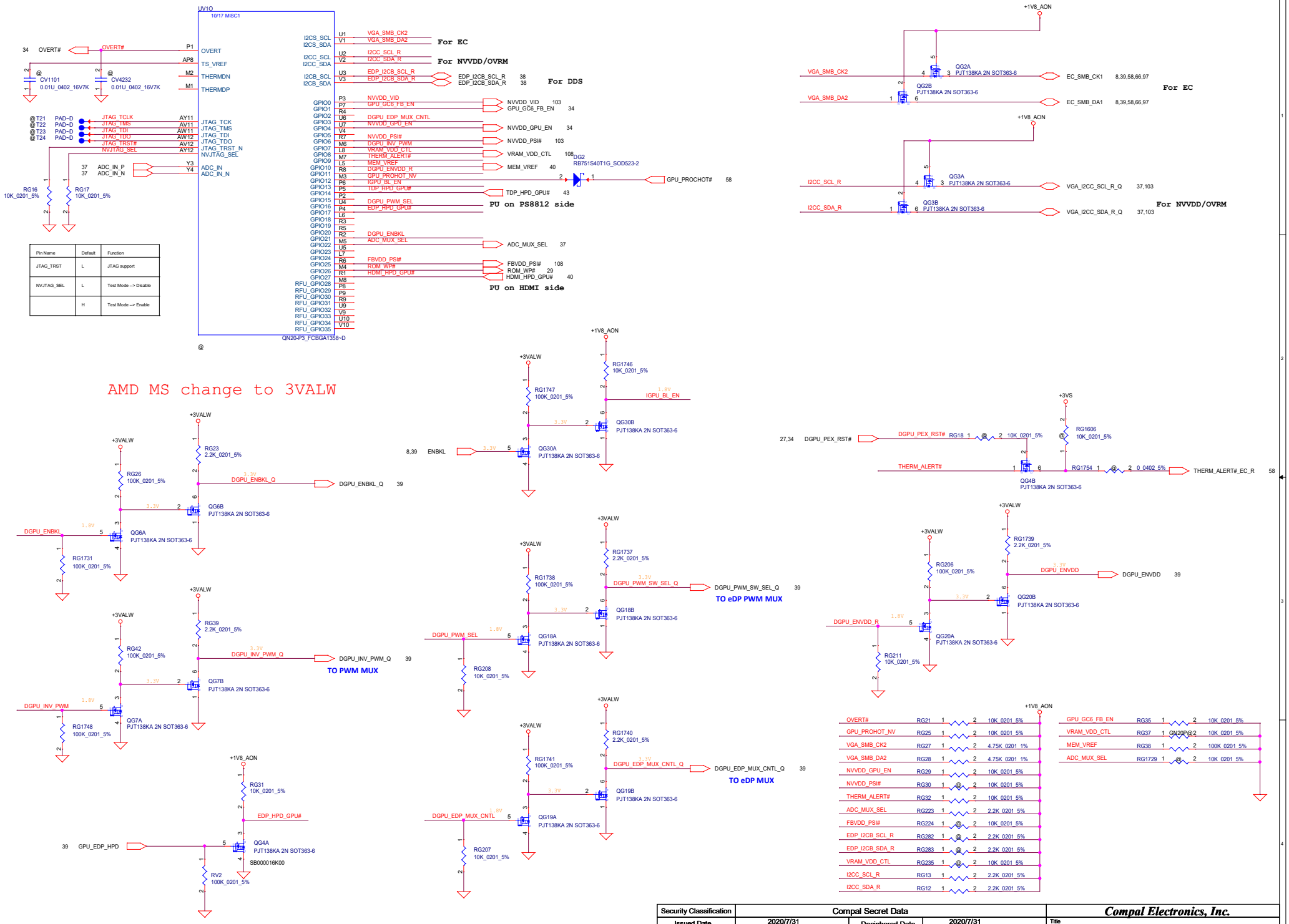
GPU	Capacitor Type		Footprint	Population		Location
				GB5-128	GB5B-128	
PEX_DVDD and PEX_CVDD Supply Rails						
GB5-128, GB5B-128	1.0 µF	X6S	0402 or 0201W	4	4	Under GPU
	4.7 µF	X6S	0603	2	2	Under GPU
	10 µF	X6S	0805	2	2	Near GPU
	22 µF	X6S	0805	1	1	Near GPU
PEX_HVDD and PEX_PLL_HVDD Supply Rails						
GB5-128, GB5B-128	1.0 µF	X6S	0402 or 0201W	3	3	Under GPU
	4.7 µF	X6S	0603	2	2	Under GPU
	10 µF	X6S	0805	2	2	Near GPU
	22 µF	X6S	0805	1	1	Near GPU

Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

Compal Electronics, Inc.

Title: **N18E(1/9) PCIE**

Size | Document Number: **LA-M811P** | Rev 0.1



Pin Name	Default	Function
JTAG_TRST	L	JTAG support
NVJTAG_SEL	L	Test Mode --> Disable
	H	Test Mode --> Enable

Security Classification	Compal Secret Data	
Issued Date	2020/7/31	Deciphered Date 2020/7/31

Compal Electronics, Inc.	
Title	N18E(2/9) GPIO
Size	Document Number: LA-M811P
Rev	0.1
Date:	Wednesday, March 01, 2023
Sheet	28 of 121

Table 7-3. RAMCFG

Strap Pins[1]			RAMCFG Setting Number
Strap2	Strap1	Strap0	For Down-Design, see Memory RVL for memory configs corresponding to these numbers.
L	L	L	0 (0x0000)
L	L	H	1 (0x0001)
L	H	L	2 (0x0002)
L	H	H	3 (0x0003)
H	L	L	4 (0x0004)
H	L	H	5 (0x0005)
H	H	L	6 (0x0006)
H	H	H	7 (0x0007)
L	L	M	8 (0x0008)
L	M	L	9 (0x0009)
L	M	H	10 (0x000A)
L	H	M	11 (0x000B)
M	L	L	12 (0x000C)
M	L	H	13 (0x000D)
M	H	L	14 (0x000E)
M	H	H	15 (0x000F)
L	L	M	16 (0x0010)
L	M	L	17 (0x0011)
L	M	H	18 (0x0012)
L	H	M	19 (0x0013)
M	L	M	20 (0x0014)
M	M	L	21 (0x0015)
M	M	H	22 (0x0016)
M	H	H	23 (0x0017)
M	H	M	24 (0x0018)
H	M	M	25 (0x0019)
M	M	M	26 (0x001A)

Note[1]: The ternary strap pins listed in the STRAP columns must be pulled to one of three voltage levels. "L" means Low level (GND), "M" means Middle level (0.6V). "H" means High level (1.8V).

Table 6. GN20-P0-R-K2 GDDR6 Recommended Memories

Memory Density	Allowed Memory Configuration	FBVDD/Q	Vendor	Manufacturer Part Number	Die Revision	Strap	Memory Speed Grade	Date Code Alert	Qual Plan	Status	Supported SKU Milestone
16 Gb	2Chx512Mx16	1.25V 1.2V	Samsung	K4ZAF325BC-SC16	C-die	0xA	16 Gbps	2216	Full	Production candidate	PS or later
			Hynix	H56G42AS4DX014	A-die	0x8	16 Gbps	N/A	Full	Production candidate	PS or later
			Micron	MT61K512M32KPA-16:C	C-die	0x7	16 Gbps	N/A	Full	Production candidate	TBD

Table 2. GN21-X6/X4/X2 GDDR6 Recommended Memories

Memory Density	Allowed Memory Configuration	FBVDD/Q	Vendor	Manufacturer Part Number	Die Revision	Strap	Memory Speed Grade	Date Code Alert	Qual Plan	Status	Supported SKU Milestone
16 Gb	2Chx512Mx16	1.35V 1.25V 1.2V 1.1V [1,4]	Samsung	K4ZAF325BC-SC16	C-die	0xA	16 Gbps	2216	Full	Production candidate	QS or later
			Hynix	H56G42AS4DX014	A-die	0x8	16 Gbps	N/A	Full	Production candidate	QS or later
			Micron	MT61K512M32KPA-16:C	C-die	0x9	16 Gbps	N/A	Full	Production candidate	PS or later

Notes:
[1] Refer to the *GN21 GeForce Product Specification* for memory voltages and clocks.
[2] 1.17V is only available for the Samsung memory.
[3] GN21-X6/X4/X2 with Base TGP between 35-50W will be single-sourced with Samsung K4ZAF325BC-SC16 for the foreseeable future until further notice from NVIDIA.
[4] For GN21-X6/X4/X2, the maximum allowable memory case temperature is 95°C.

GDDR6 VRAM	Strap2	Strap1	Strap0	RAMCFG
Samsung , K4ZAF325BC-SC16	L	M	H	0XA
Hynix , H56G42AS4DX014	L	L	M	0X8
Micron , MT61K512M32KPA-16:C (GN21-X2/X4/X6)	L	M	L	0X9
Micron , MT61K512M32KPA-16:C (GN20-P0-R)	H	H	H	0X7

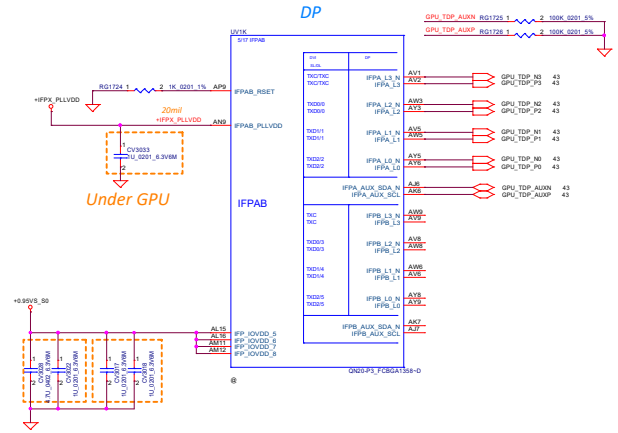
Samsung (GN21)	RG58 X76_GN21S@ 100K_0201_1%	RG46 X76_GN21S@ 200K_0201_1%	RG59 X76_GN21S@ 100K_0201_1%	RG47 X76_GN21S@ 200K_0201_1%
Hynix (GN21)	RG58 X76_GN21H@ 100K_0201_1%	RG59 X76_GN21H@ 100K_0201_1%	RG47 X76_GN21H@ 200K_0201_1%	RG60 X76_GN21H@ 100K_0201_1%
Micron (GN21)	RG58 X76_GN21M@ 100K_0201_1%	RG46 X76_GN21M@ 200K_0201_1%	RG59 X76_GN21M@ 100K_0201_1%	RG60 X76_GN21M@ 100K_0201_1%
Samsung (GN20-P0-R)	RG58 X76_GN20S@ 100K_0201_1%	RG46 X76_GN20S@ 100K_0201_1%	RG59 X76_GN20S@ 100K_0201_1%	RG47 X76_GN20S@ 100K_0201_1%
Hynix (GN20-P0-R)	RG58 X76_GN20H@ 100K_0201_1%	RG59 X76_GN20H@ 100K_0201_1%	RG47 X76_GN20H@ 100K_0201_1%	RG60 X76_GN20H@ 100K_0201_1%
Micron (GN20-P0-R)	RG45 X76_GN20M@ 100K_0201_1%	RG46 X76_GN20M@ 100K_0201_1%	RG47 X76_GN20M@ 100K_0201_1%	

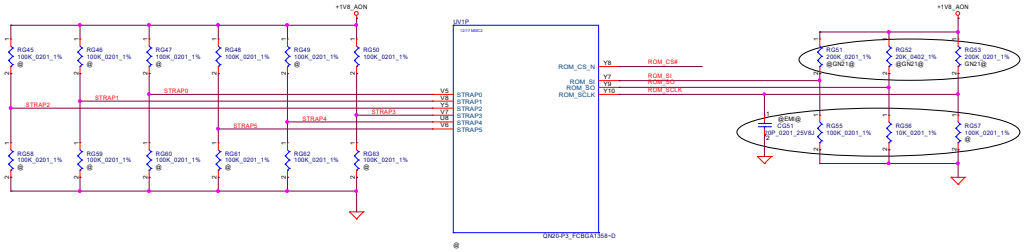
GN20 Middle 0.9V , GN21 Middle 0.6V

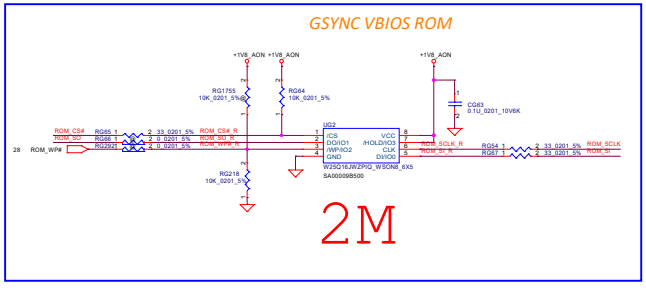
Table 11.4 FS_OVERT* Strap Enablement

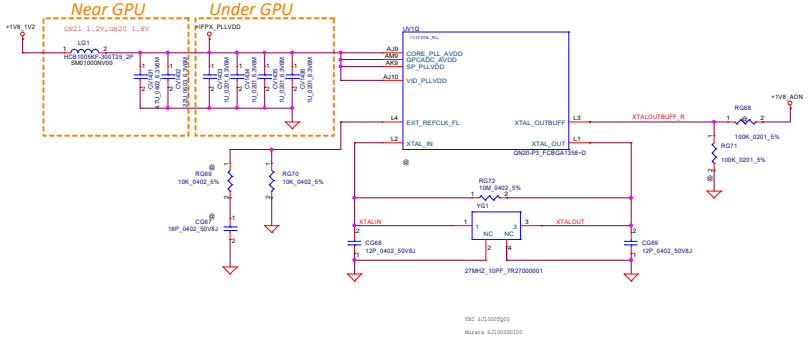
Strap Pins see Note			FS_OVERT* Function
ROM_SO	ROM_SI	ROM_SCLK	
L	L	L	FS_OVERT* function ENABLED
L	L	H	FS_OVERT* function DISABLED (Reserved; do not configure)
all other configurations			(Invalid; do not configure)

Note that configurations other than the two listed in Table 11.4 must be avoided, as otherwise damage to strap inputs may result.

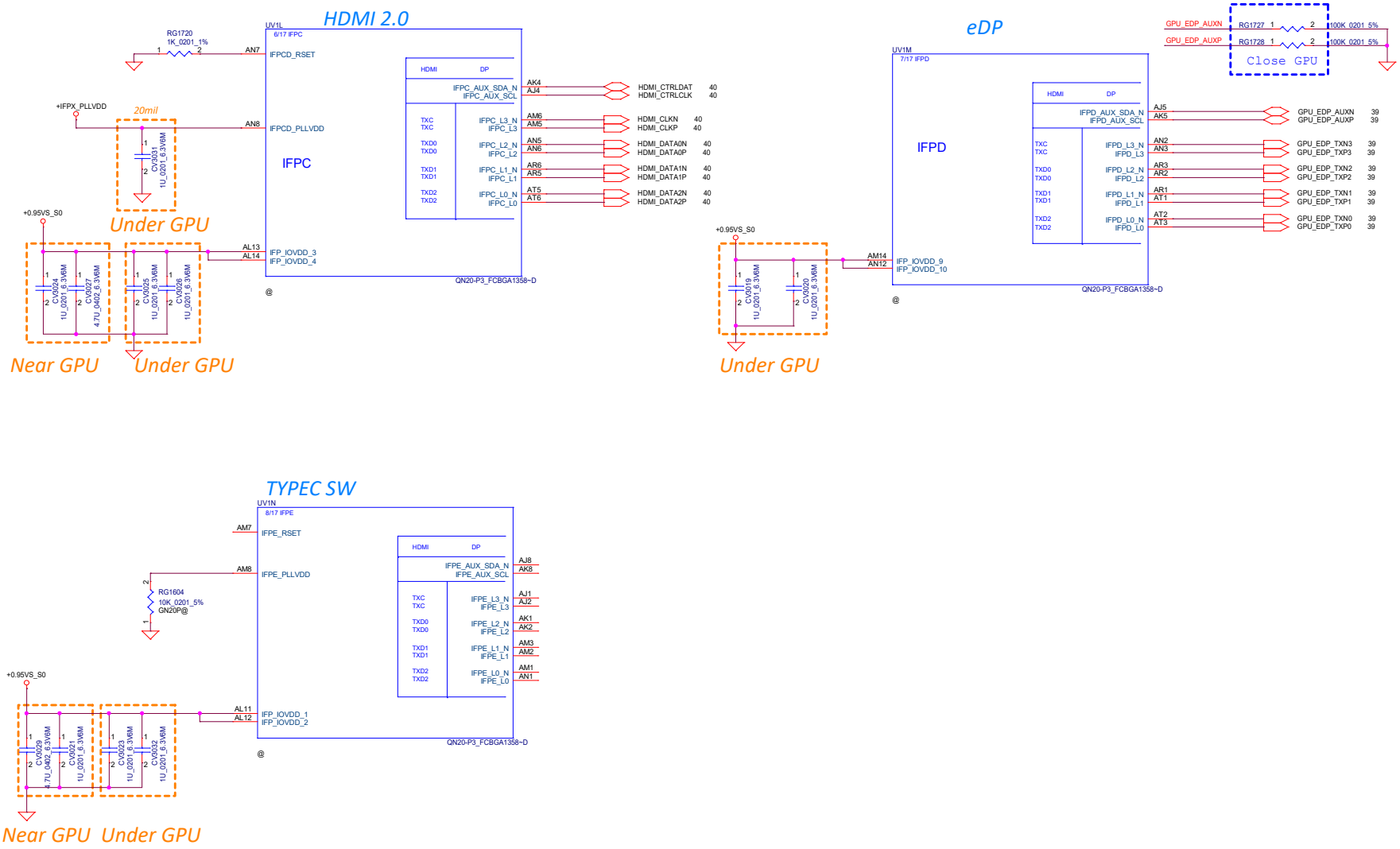








Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2020/7/31	Deciphered Date	2020/7/31	Title: N18E(3/9) Strap, XTAL, IFP
			Size: Document Number: LA-M811P Rev: 0.1
			Date: Wednesday, March 01, 2023 Sheet 29 of 121



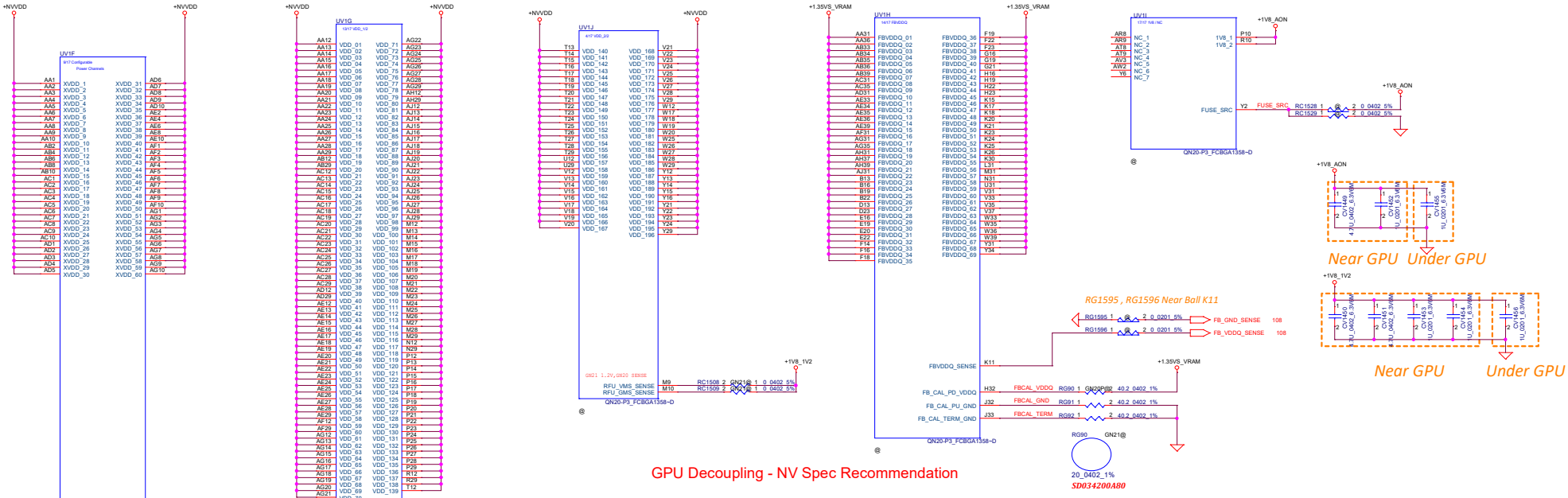
Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

Compal Electronics, Inc.

Title: **N18E(4/9) eDP, HDMI, DP**

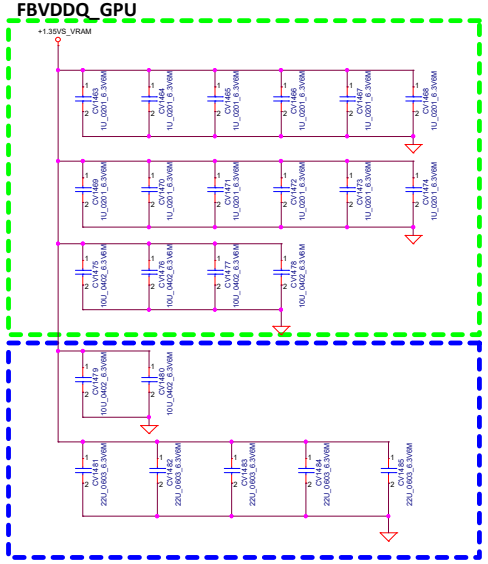
Size	Document Number	Rev
	LA-M811P	0.1

Date: Wednesday, March 01, 2023 | Sheet 30 of 121



GPU Decoupling - NV Spec Recommendation

FBVDDQ_GPU



Place under GPU

1UF_0402 X 12 pcs

10UF_0603 X 4 pcs

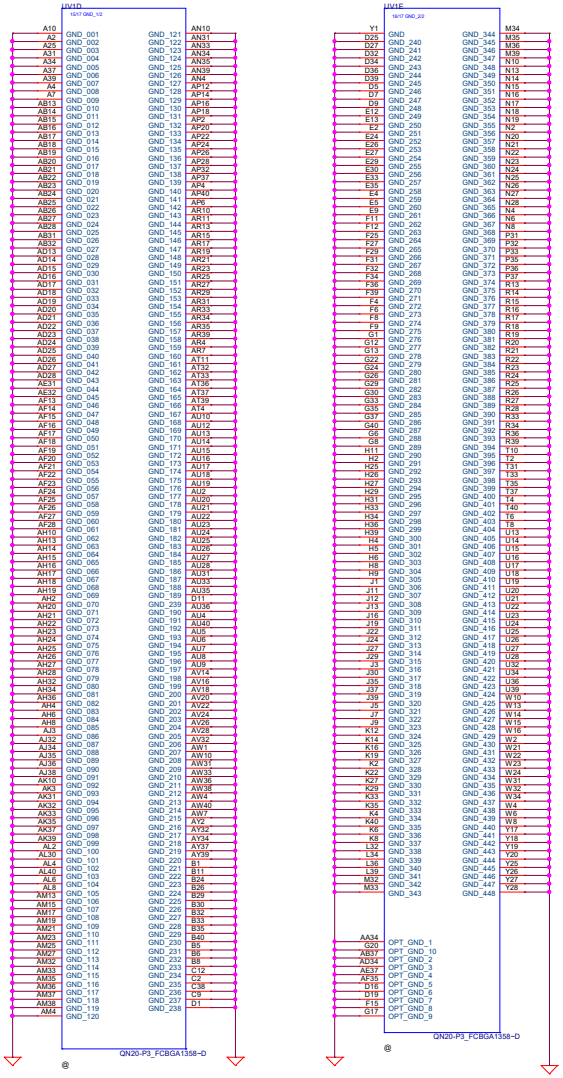
GPU	Capacitor Type	Footprint	Population GB5-128	Population GB5B-128	Location
FBVDD/Q Supply Rail					
GB5-128 GB5B-128	1 µF	X6S	0402 or 0201W	12	12	Under GPU
	10 µF	X6S	0603	4	4	Under GPU
	10 µF	X6S	0603	2	2	Near GPU
	22 µF	X6S	0603W	5	5	Near GPU

Place near GPU

22UF_0603 X 5 pcs

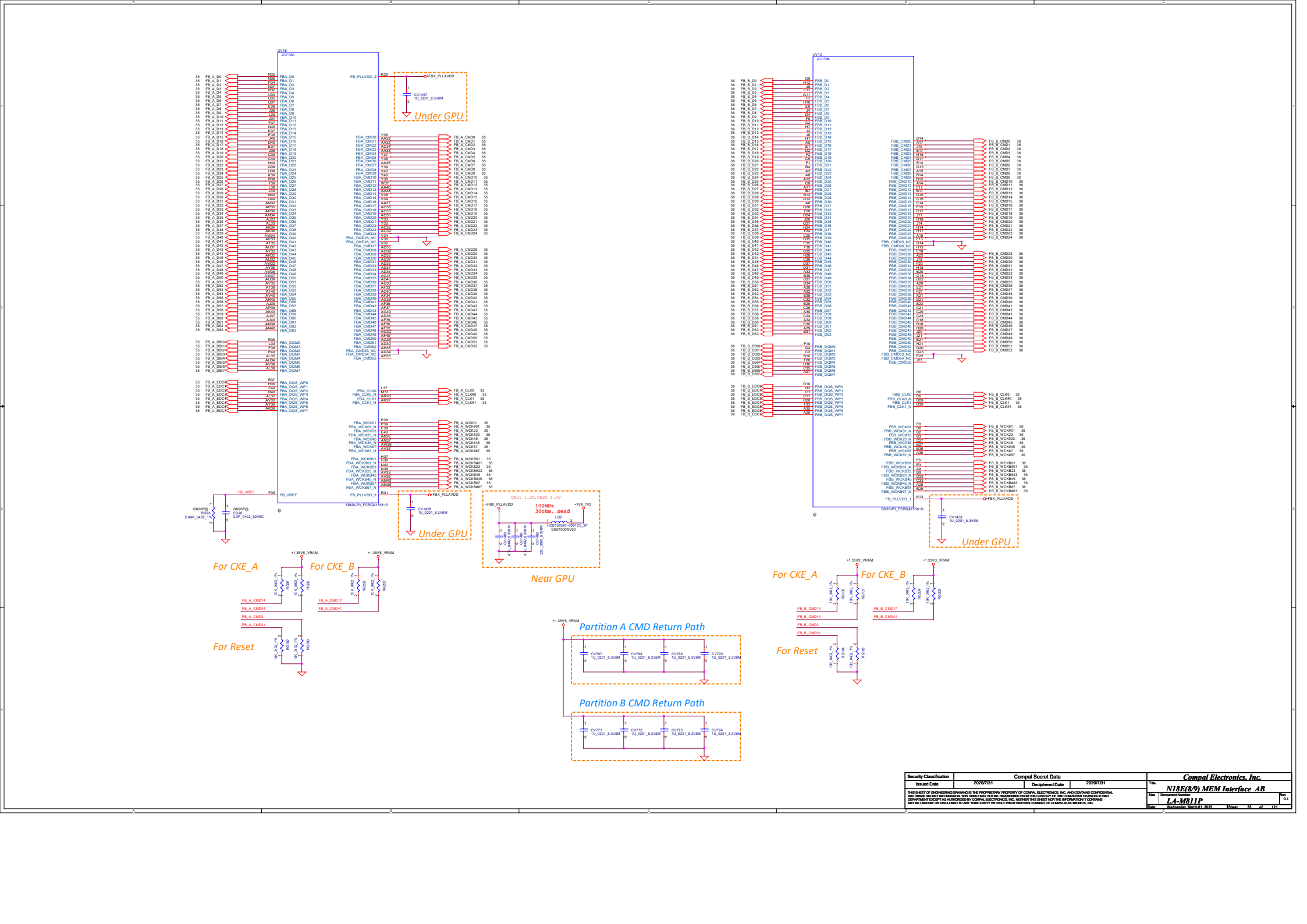
10UF_0603 X 2 pcs

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2020/7/31	Deciphered Date 2020/7/31	Title: N18E(6/9) Power
			Size: Document Number: LA-M811P Rev: 0.1
			Date: Wednesday, March 01, 2023 Sheet 31 of 121



Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2020/7/31	Deciphered Date 2020/7/31	Title: N18E(7/9) GND

Size	Document Number: LA-M811P		Rev: 0.1
Date: Wednesday, March 01, 2023	Sheet 32 of 121		



Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

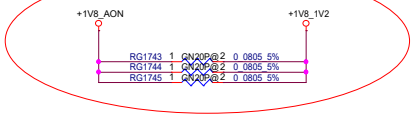
Compal Electronics, Inc.

Title: **N18E(8/9) MEM Interface AB**

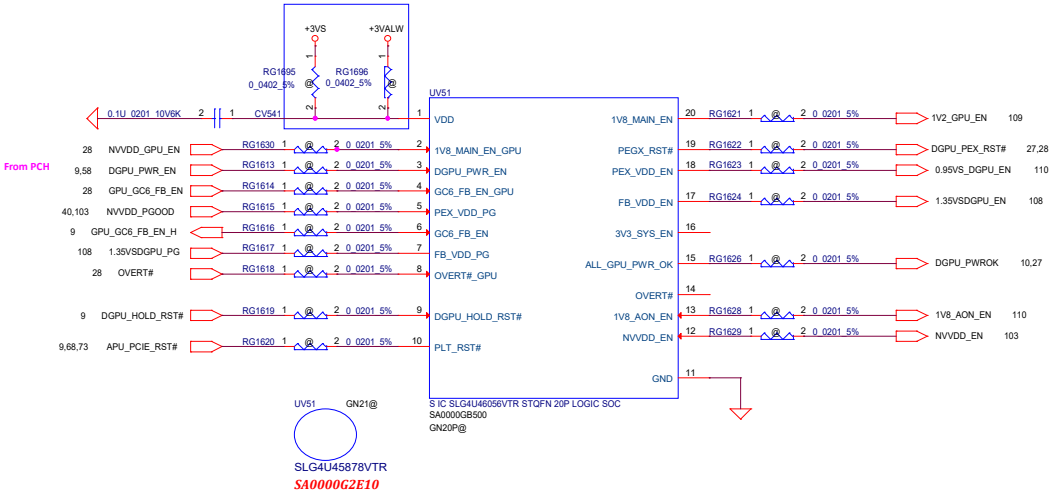
Size: | Document Number: **LA-M811P** | Rev: 0.1

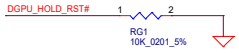
Date: Wednesday, March 01, 2023 | Sheet 33 of 121

GN21 1.2V : 4.2A (Three display)



Reserved for Sequence





	1V2	1V8	NVVDD	PEXVDD	VPP	FBVDD
GC6 3.0	ON	ON	OFF	OFF	ON	ON
GC-OFF	OFF	OFF	OFF	OFF	OFF	OFF

Change to use common part (SD013470A80)

Change to use common part (SD014100A80/10R)

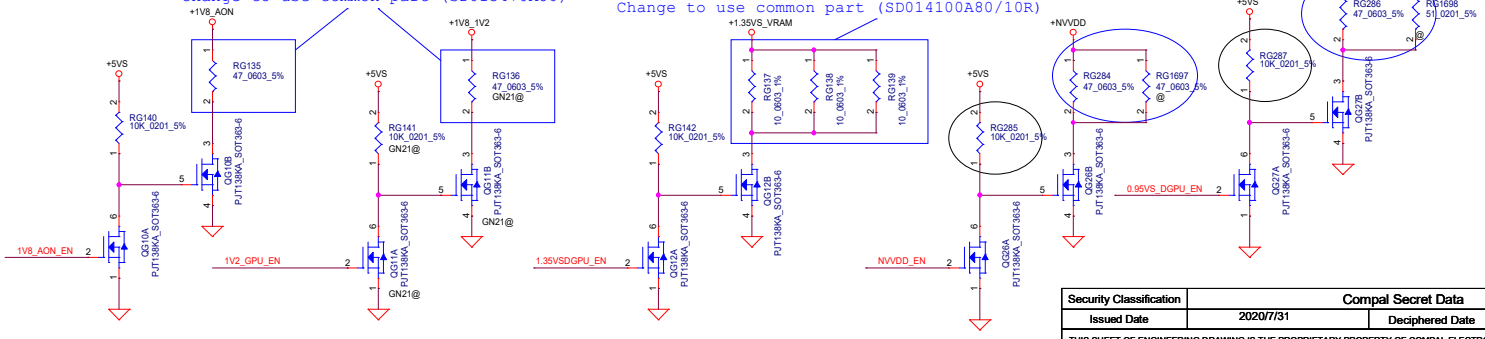


Figure 3. GB5C-128/GB5B-128/GB5-128 GPU Power-Up Sequence

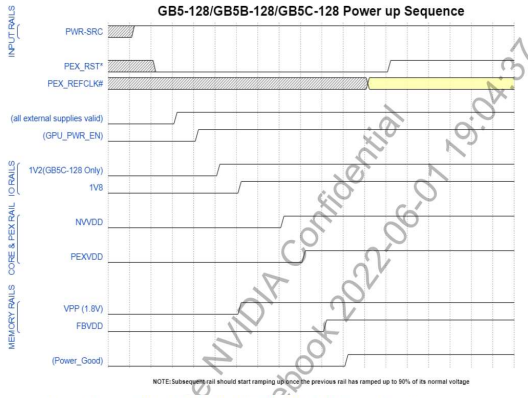


Figure 4. GB5C-128/GB5B-128/GB5-128 GPU Power Down Sequence

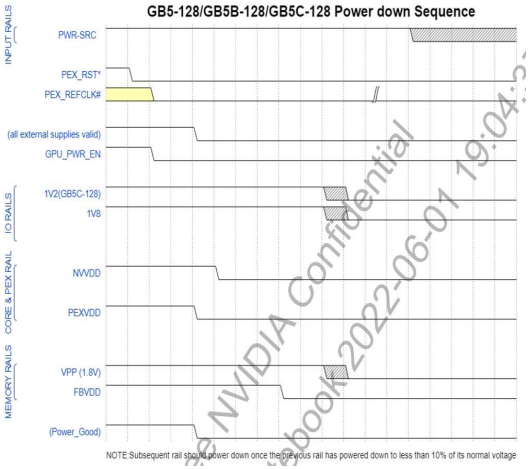
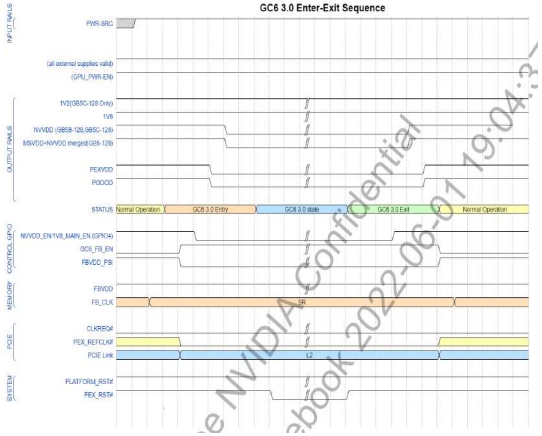


Figure 5. GB5C-128/GB5B-128/GB5-128 GPU GC6 3.0 Sequence



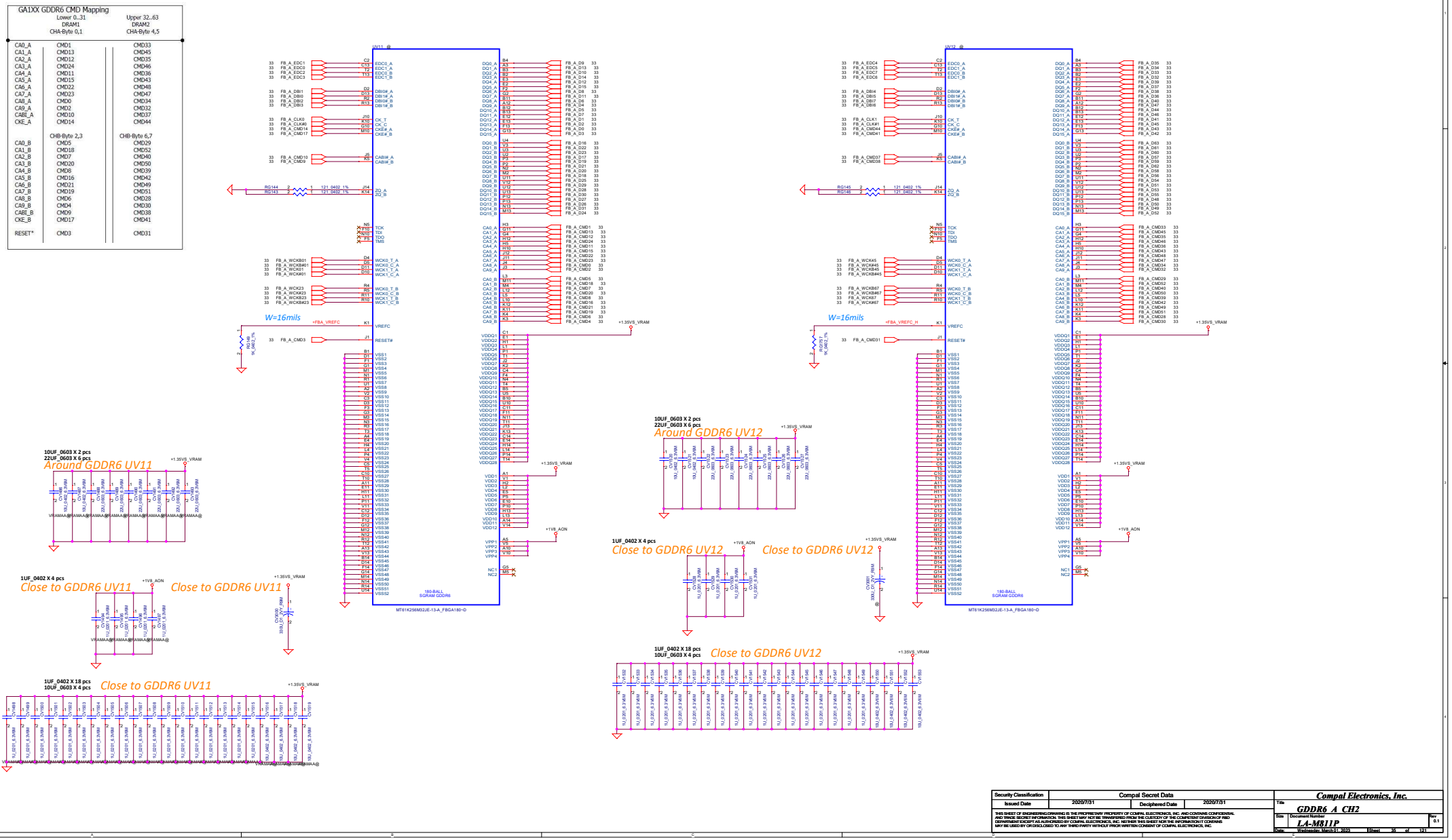
Compal Electronics, Inc.

Title: Sequence control

Size: | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 34 of 121

VRAM A



Security Classification	Compal Secret Data	
Issued Date	2020/7/31	Deciphered Date 2020/7/31

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

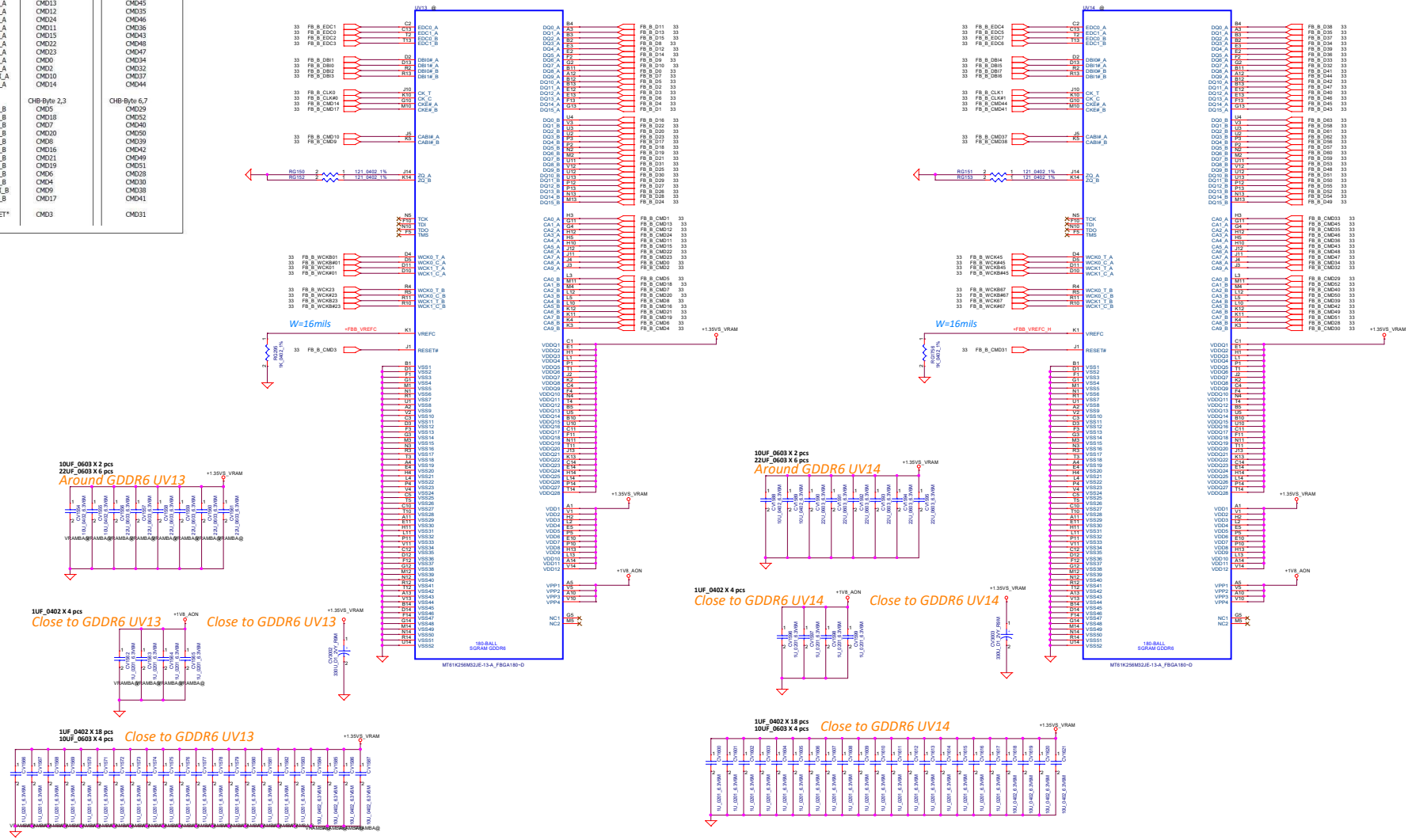
Title: GDDR6_A_CH2

Size: Document Number: LA-M811P Rev: 0.1

Date: Wednesday, March 01, 2023 Sheet 35 of 121

VRAM B

GA1XX GDDR6 CMD Mapping	Lower 0..31 DRAM1 CHA-Byte 0,1	Upper 32..63 DRAM2 CHA-Byte 4,5
CA0_A	CMD1	CMD33
CA1_A	CMD13	CMD45
CA2_A	CMD12	CMD35
CA3_A	CMD24	CMD46
CA4_A	CMD11	CMD36
CA5_A	CMD15	CMD43
CA6_A	CMD22	CMD48
CA7_A	CMD23	CMD47
CA8_A	CMD0	CMD34
CA9_A	CMD2	CMD32
CABI_A	CMD10	CMD37
CKE_A	CMD14	CMD44
	CHB-Byte 2,3	CHB-Byte 6,7
CA0_B	CMD5	CMD29
CA1_B	CMD18	CMD52
CA2_B	CMD7	CMD40
CA3_B	CMD20	CMD50
CA4_B	CMD8	CMD39
CA5_B	CMD16	CMD42
CA6_B	CMD21	CMD49
CA7_B	CMD19	CMD51
CA8_B	CMD6	CMD28
CA9_B	CMD4	CMD30
CABI_B	CMD9	CMD38
CKE_B	CMD17	CMD41
RESET*	CMD3	CMD31



Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

Compal Electronics, Inc.

Title: GDDR6_B_CH2

Size: Document Number: LA-M811P Rev: 0.1

Date: Wednesday, March 01, 2023 Sheet 38 of 121

Power Monitor(OVR-M)

Near UG19

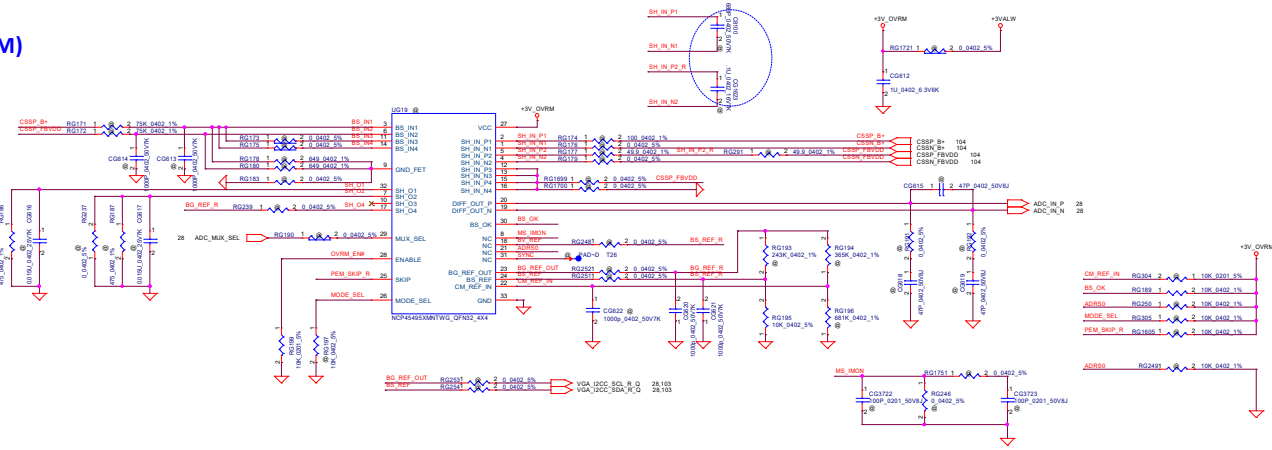
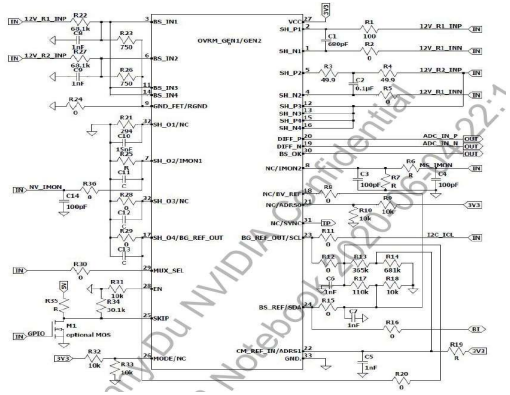
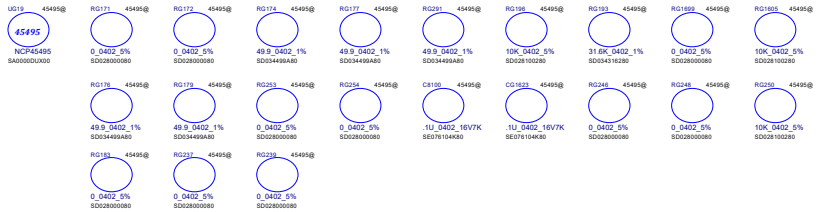


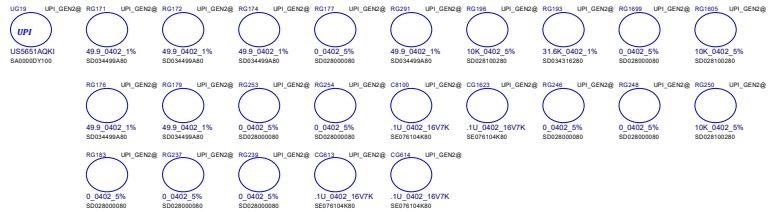
Figure 3.5 OVR-M GEN1 and GEN2 Co-Design



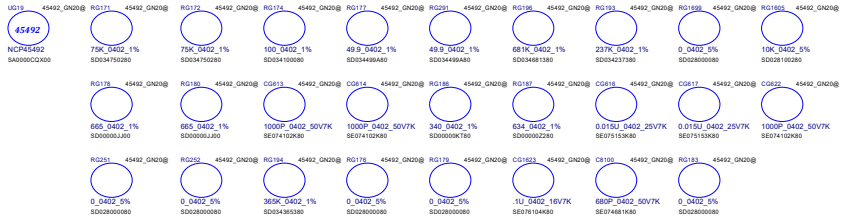
OVR-M Gen2 Onsemi 45495



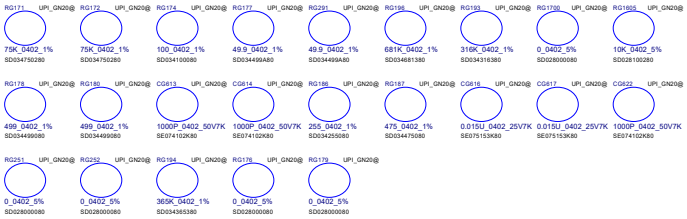
OVR-M Gen2 UPI 5651



OVR-M Gen1 Onsemi (GN20)

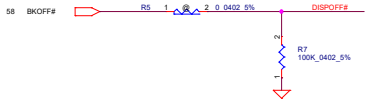


OVR-M Gen1 UPI (GN20)

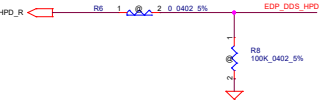


Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2020/7/31	Deciphered Date 2020/7/31	Title: OVR-M
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			Size: Document Number: LA-M811P Rev: 0.1
			Date: Wednesday, March 01, 2023 Sheet 37 of 121

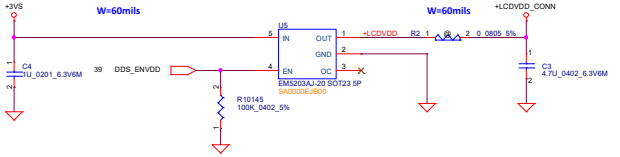
DISPLAY OFF



HOT PLUG DETECT

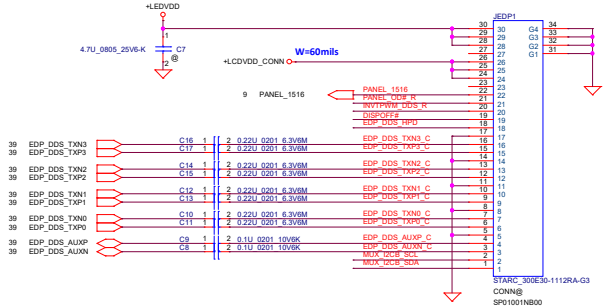


LCD POWER SWITCH

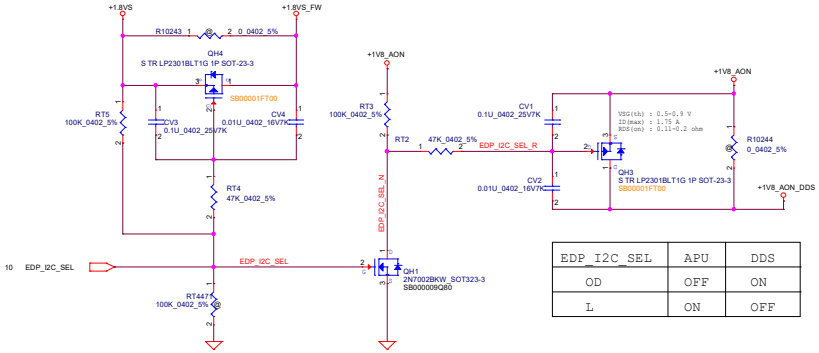


PWM

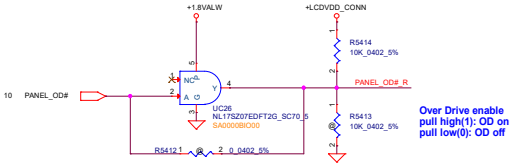
eDP CONNECTOR



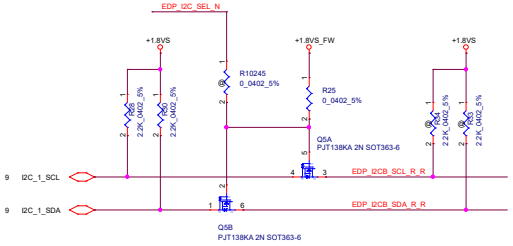
Panel FW update



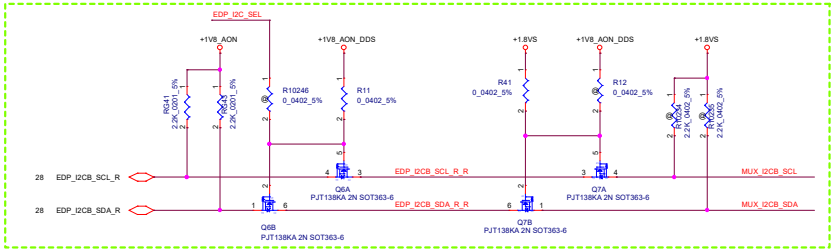
EDP_I2C_SEL	APU	DDS
OD	OFF	ON
L	ON	OFF



From CPU

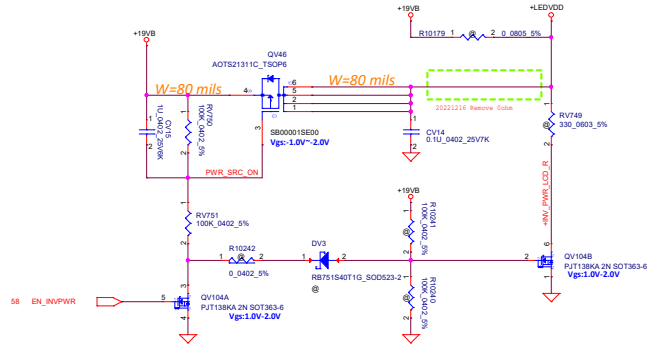


From GPU



Check AMD MS GC6 leakage

PANEL 20V DISCHARGE



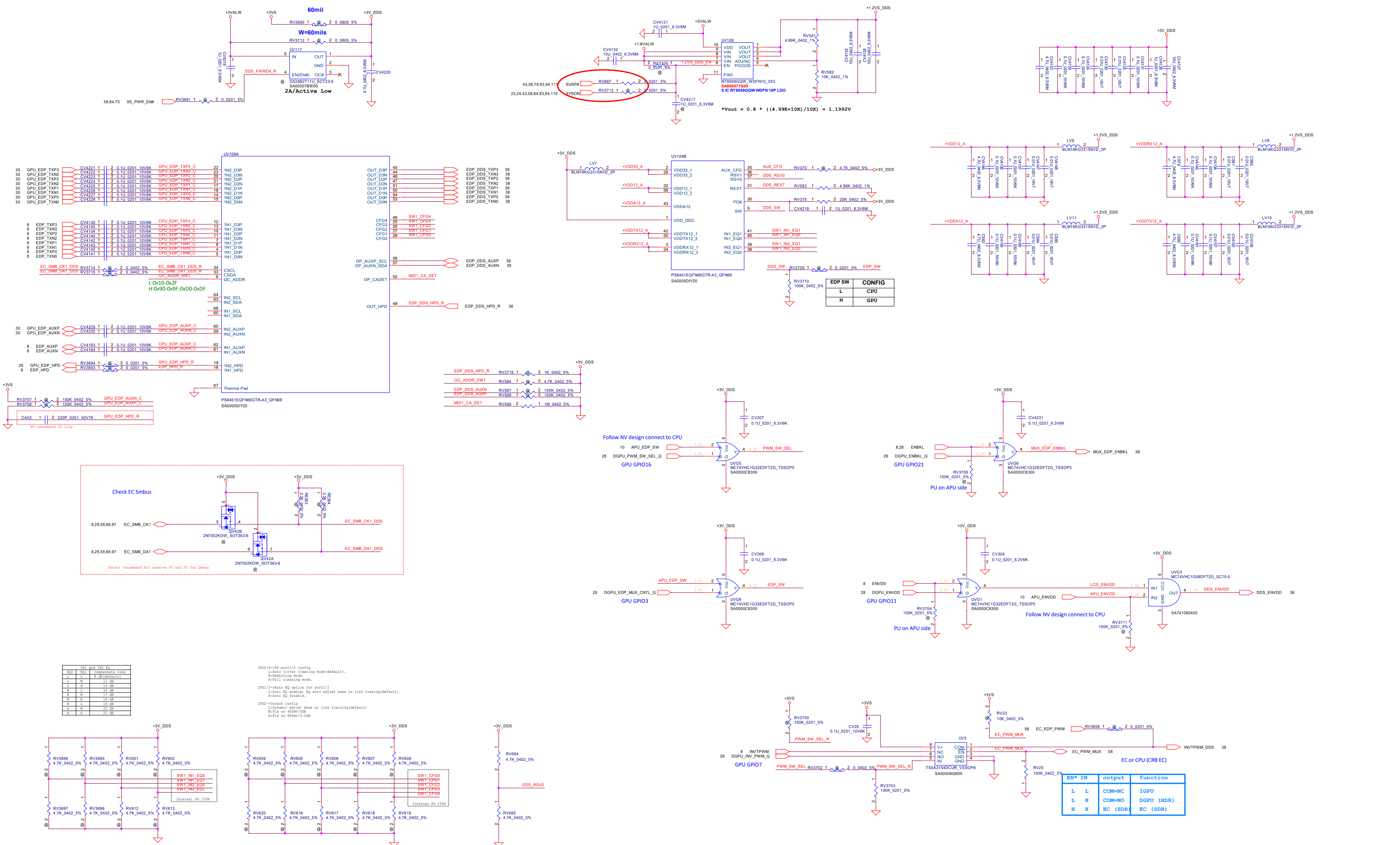
Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

Compal Electronics, Inc.

Title: eDP / Camera

Size	Document Number	Rev
Custom	LA-M811P	0.1

Date: Wednesday, March 01, 2023 | Sheet 38 of 121



EDP SW	CONFIG
L	CPU
H	GPU

EN* IN	output	function
L L	COM=NC	IGPU
L H	COM=NO	DGPU (HDR)
H X	EC (SDR)	EC (SDR)

Security Classification: Compal Secret Data

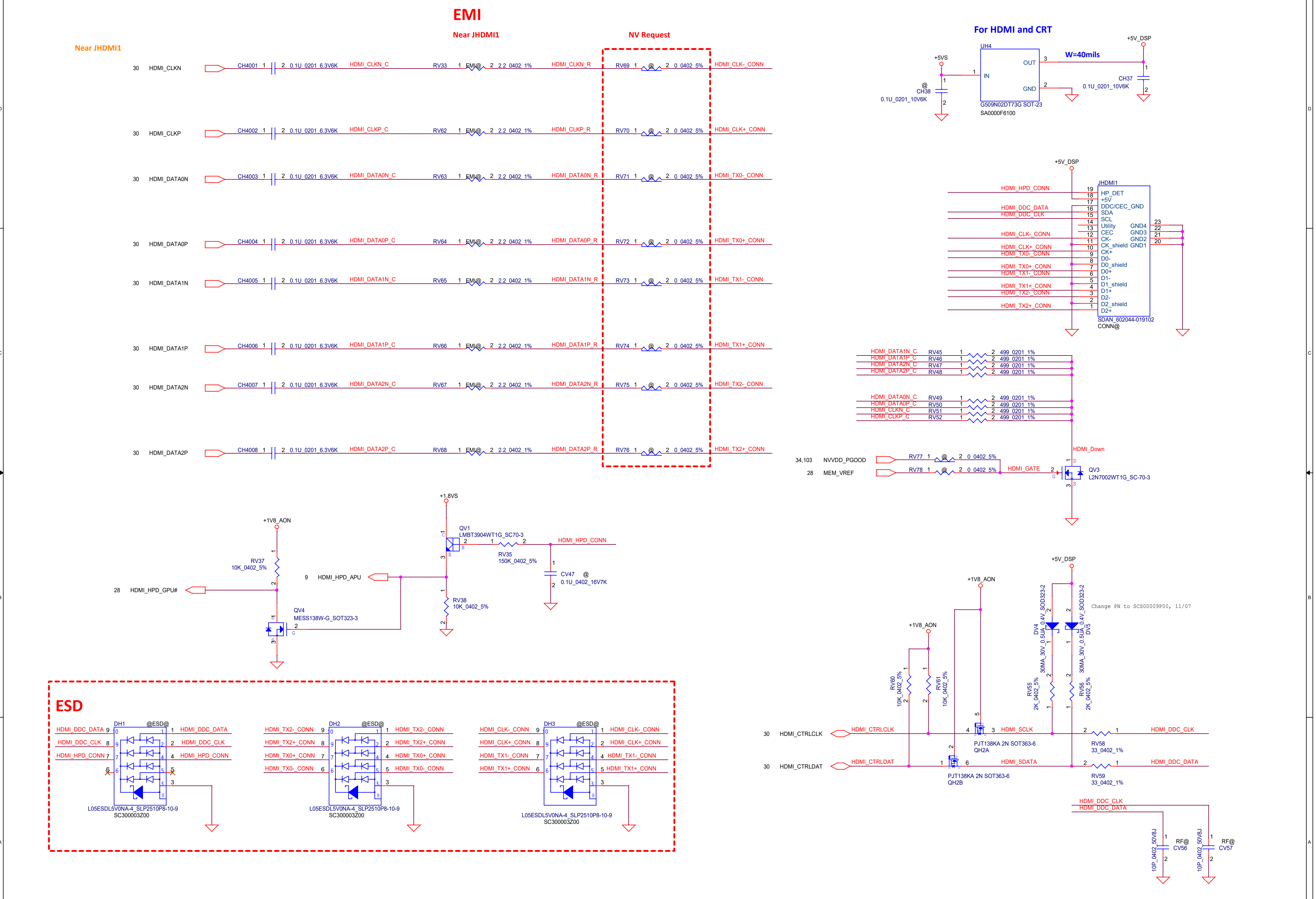
Issued Date: 2021/06/10 | Deciphered Date: 2021/06/10

Compal Electronics, Inc.

Title: **DDS FUNC**

Size | Document Number: **LA-M811P** | Rev 0.1

Date: Wednesday, March 01, 2023 | Sheet 39 of 121



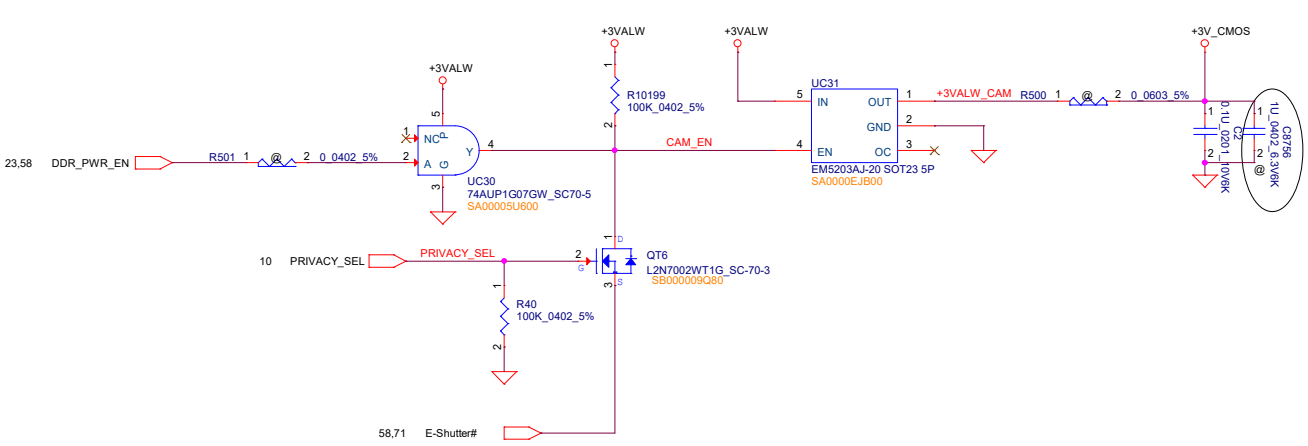
Security Classification	Compal Secret Data		
Issued Date	2011/06/24	Deciphered Date	2012/07/12

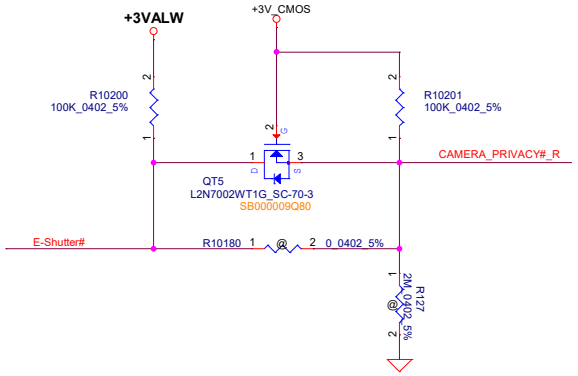
Compal Electronics, Inc.

Title: **HDMI CONN**

Size: C | Document Number: **LA-M811P** | Rev: 0.1

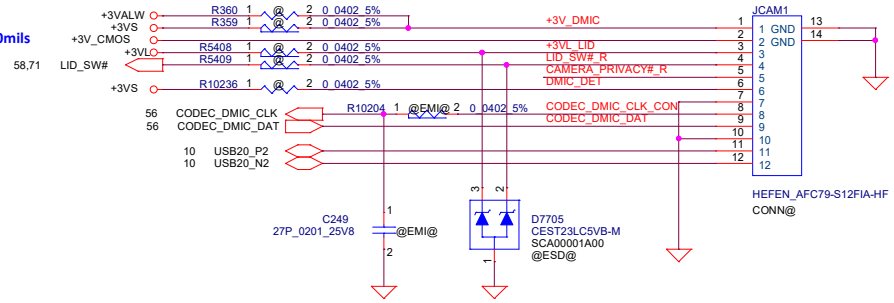
CAMERA POWER CIRCUIT

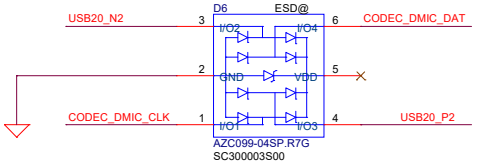




	PRIVACY_SEL (From BIOS)	E-Shutter#	CAMERA_PRIVACY#	Camera Power
For Privacy	0	0	0	ON
		1	1	ON
For non Privacy	1	0	(don't care)	OFF
		1	(don't care)	ON

DMIC
Camera
LID
W=60mils





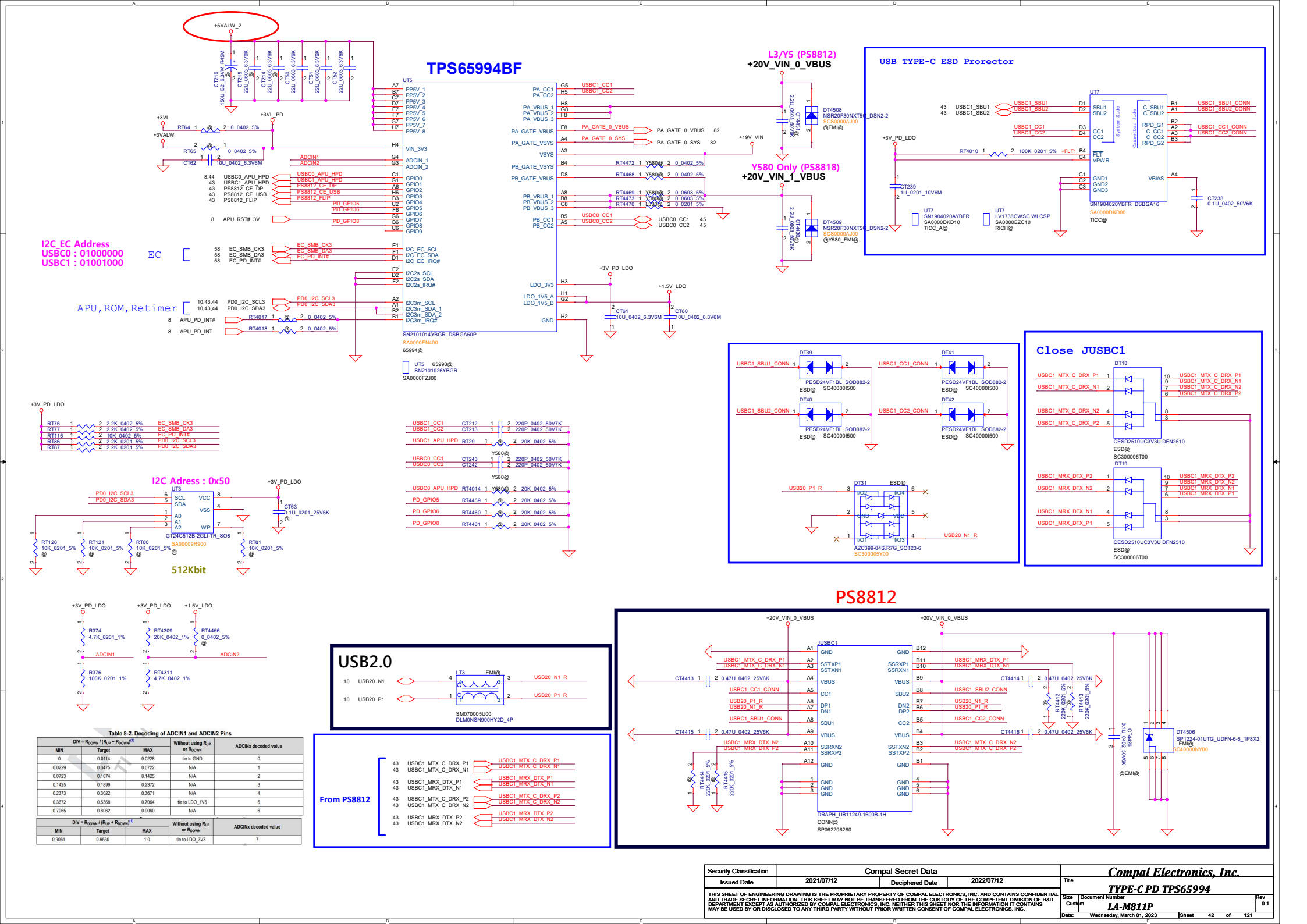
Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

Compal Electronics, Inc.

Title: Camera

Size: Custom | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 41 of 121

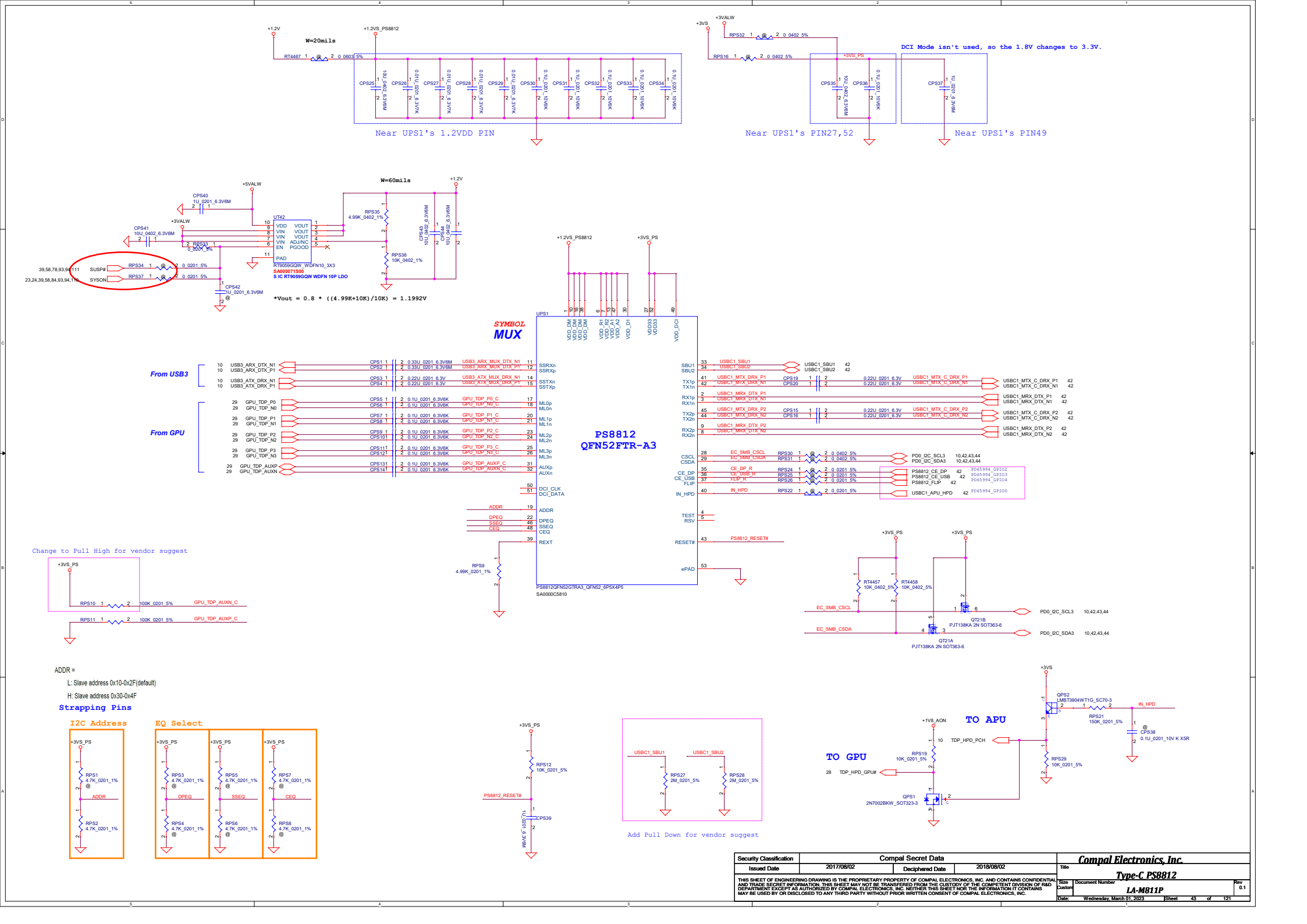


DIV = R_{DOWN} / (R_{UP} + R_{DOWN})[1]			Without using R_{UP} or R_{DOWN}	ADCINx decoded value
MIN	Target	MAX		
0	0.0114	0.0228	tie to GND	0
0.0229	0.0475	0.0722	N/A	1
0.0723	0.1074	0.1425	N/A	2
0.1425	0.1899	0.2372	N/A	3
0.2373	0.3022	0.3671	N/A	4
0.3672	0.5368	0.7064	tie to LDO_1V5	5
0.7065	0.8062	0.9060	N/A	6

DIV = R_{DOWN} / (R_{UP} + R_{DOWN})[1]			Without using R_{UP} or R_{DOWN}	ADCINx decoded value
MIN	Target	MAX		
0.9061	0.9530	1.0	tie to LDO_3V3	7

Security Classification	Compal Secret Data		
Issued Date	2021/07/12	Deciphered Date	2022/07/12

Title	Compal Electronics, Inc.		
	TYPE-C PD TPS65994		
Size	Document Number		Rev
Custom	LA-M811P		0.1
Date:	Wednesday, March 01, 2023	Sheet	42 of 121



Security Classification	Compal Secret Data		
Issued Date	2017/08/02	Deciphered Date	2018/08/02

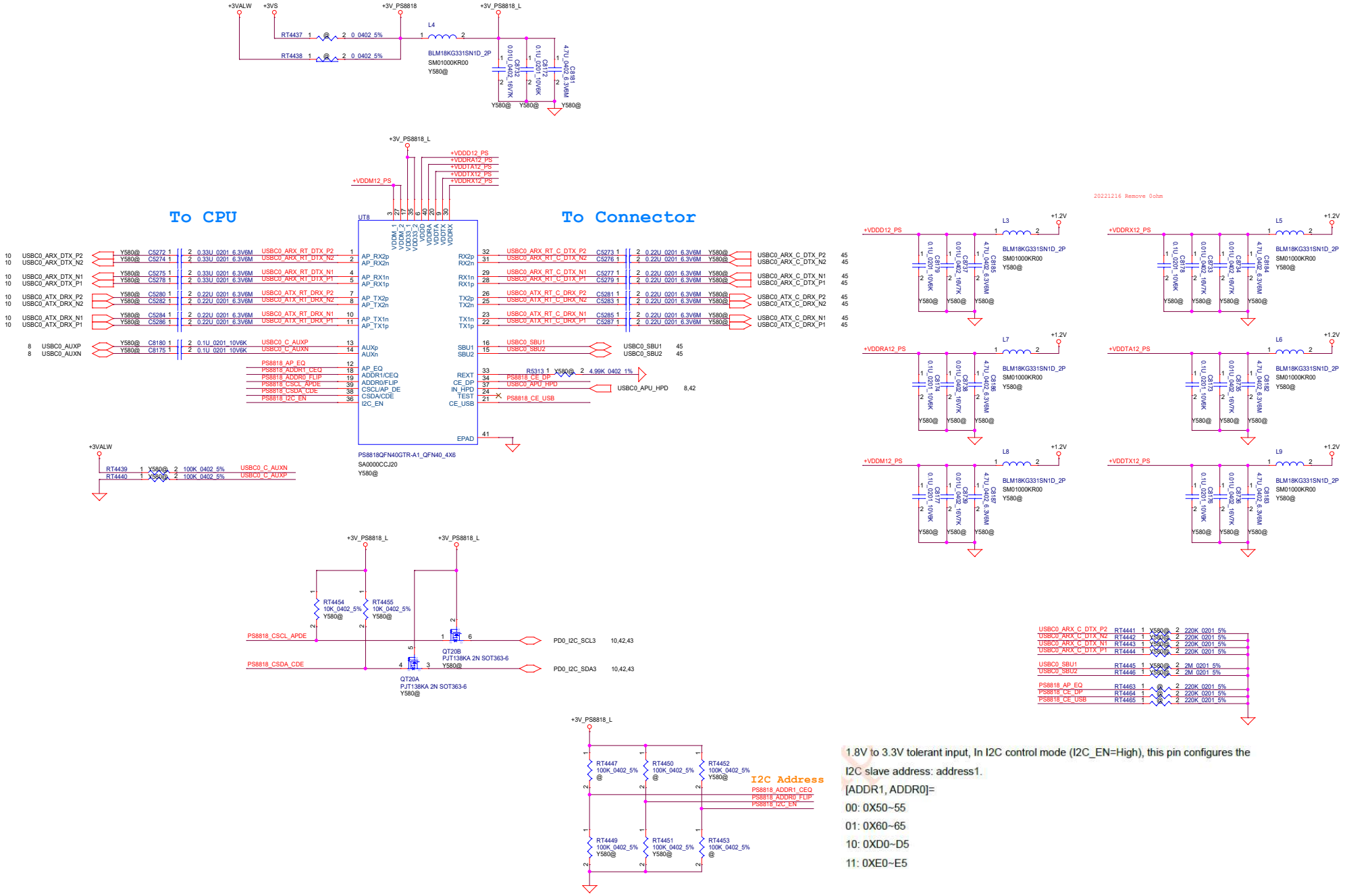
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title: **Type-C PS8812**

Size	Document Number	Rev
Custom	LA-M811P	0.1

Date: Wednesday, March 01, 2023 Sheet 43 of 121



Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

Compal Electronics, Inc.

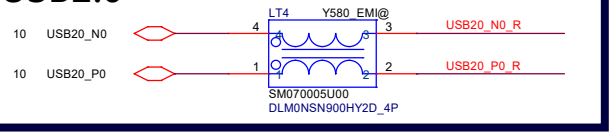
Title: **Type-C PS8818**

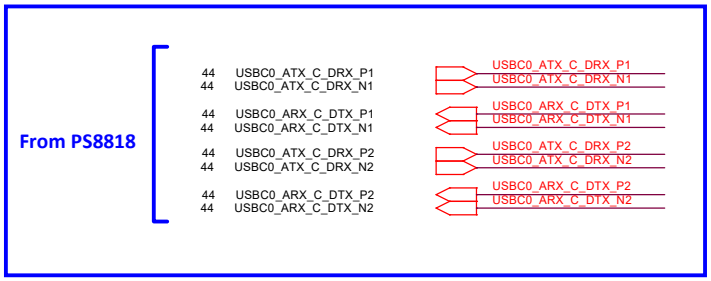
Size	Document Number	Rev
	LA-M811P	0.1

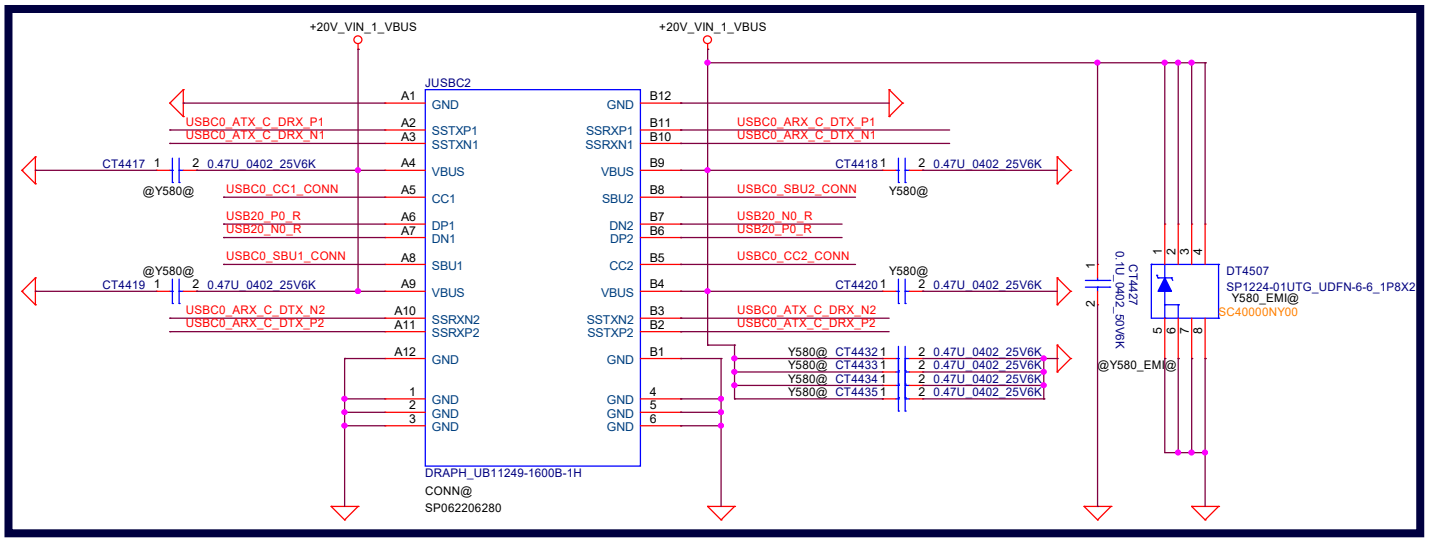
Date: Wednesday, March 01, 2023 | Sheet 44 of 121

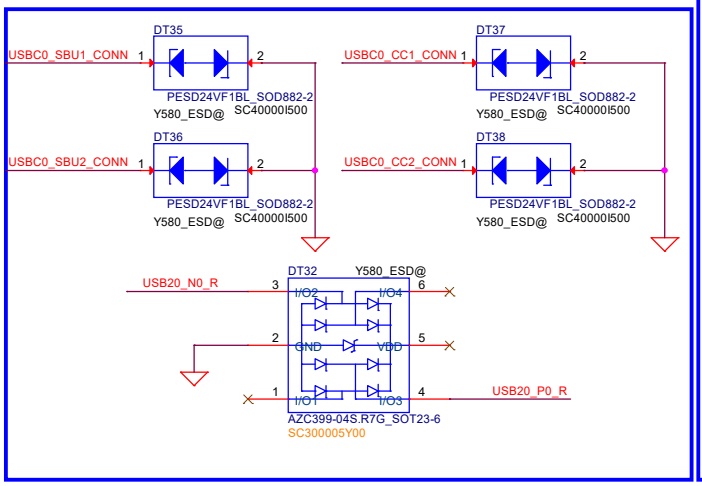
PS8818

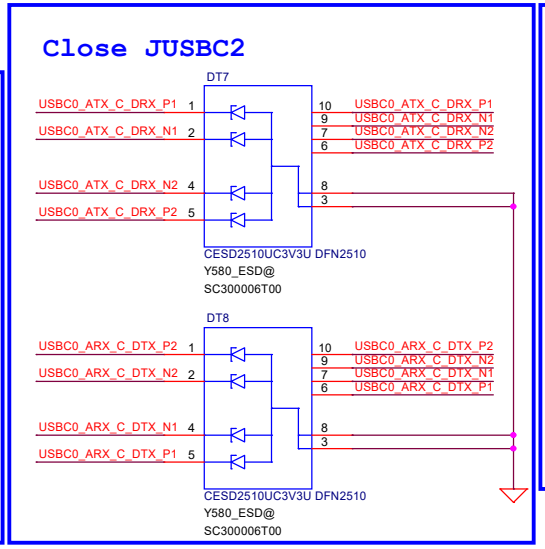
USB2.0

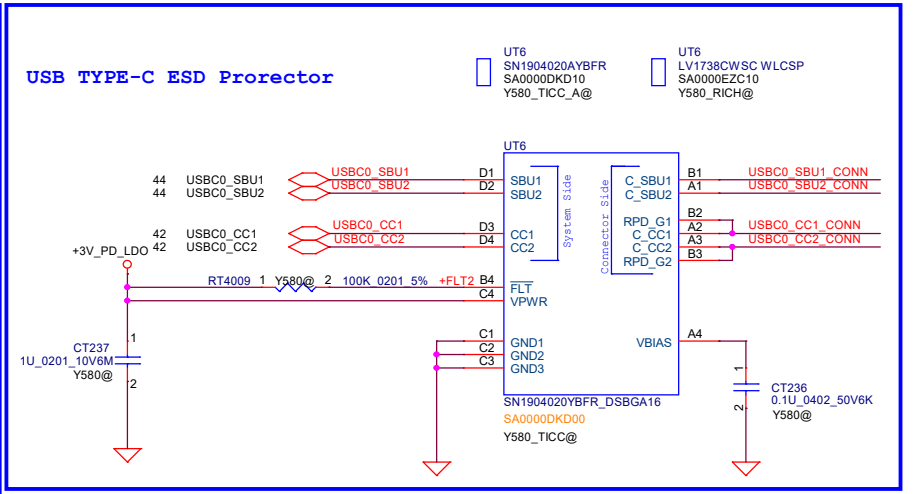








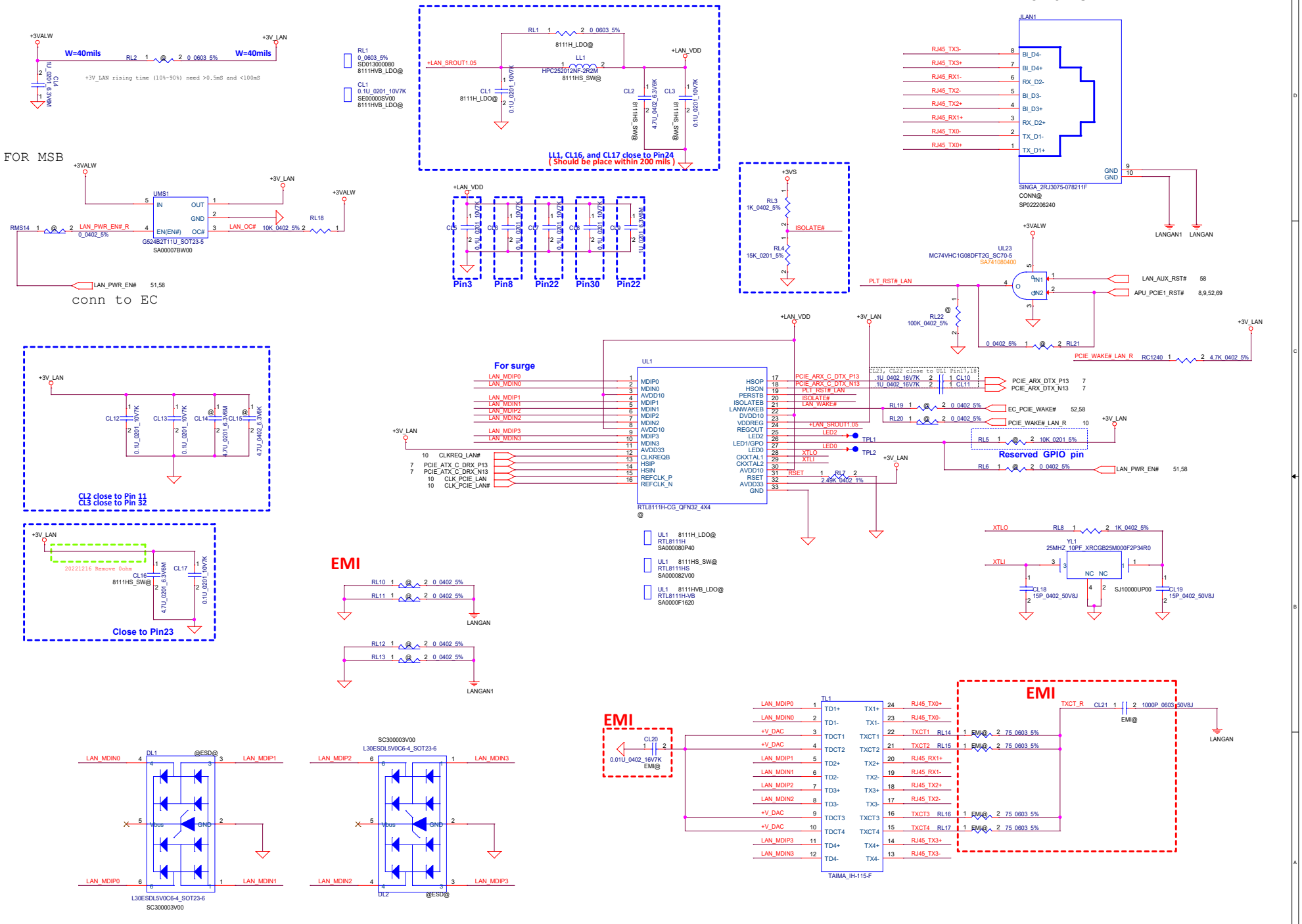




Security Classification	Compal Secret Data		
Issued Date	2021/07/12	Deciphered Date	2022/07/12

Compal Electronics, Inc.			
Title: Type-C Port2			
Size: Custom	Document Number: LA-M811P		Rev: 0.1
Date: Wednesday, March 01, 2023	Sheet 45 of 121		

RJ-45 CONN.



Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

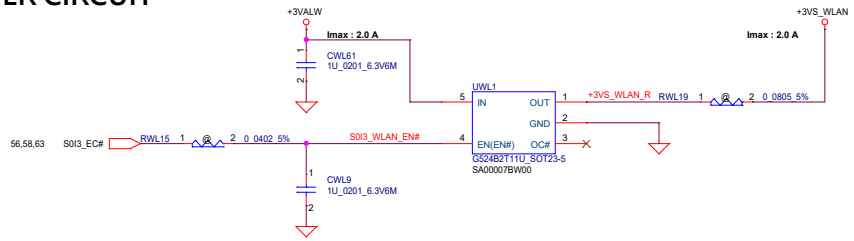
Compal Electronics, Inc.

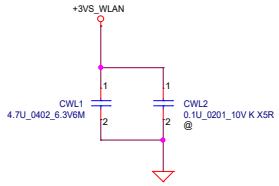
Title: LAN_RTL8111H/RTL8107E

Size	Document Number	Rev
C	LA-M811P	0.1

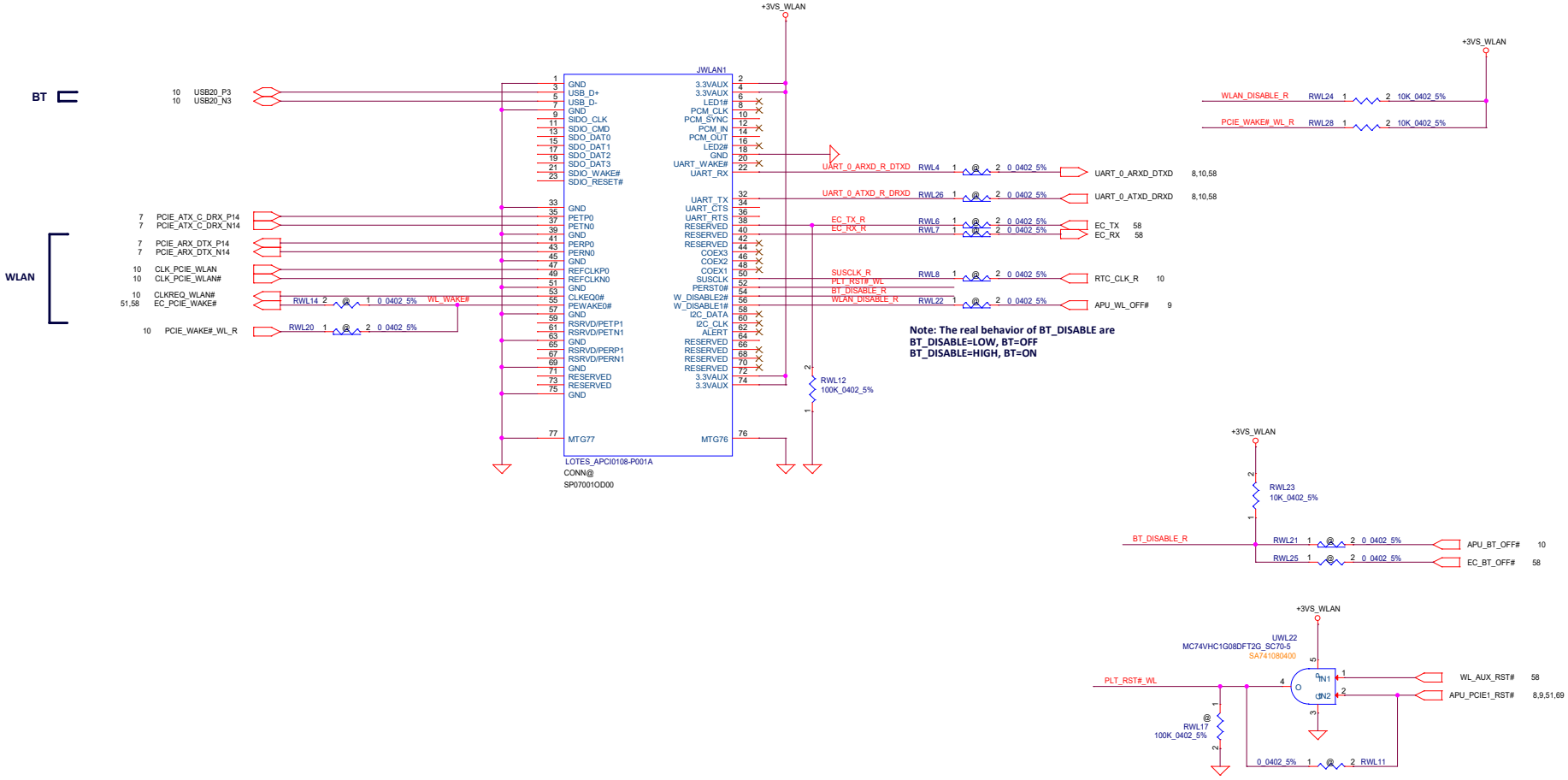
Date: Wednesday, March 01, 2023 Sheet 51 of 121

WLAN POWER CIRCUIT





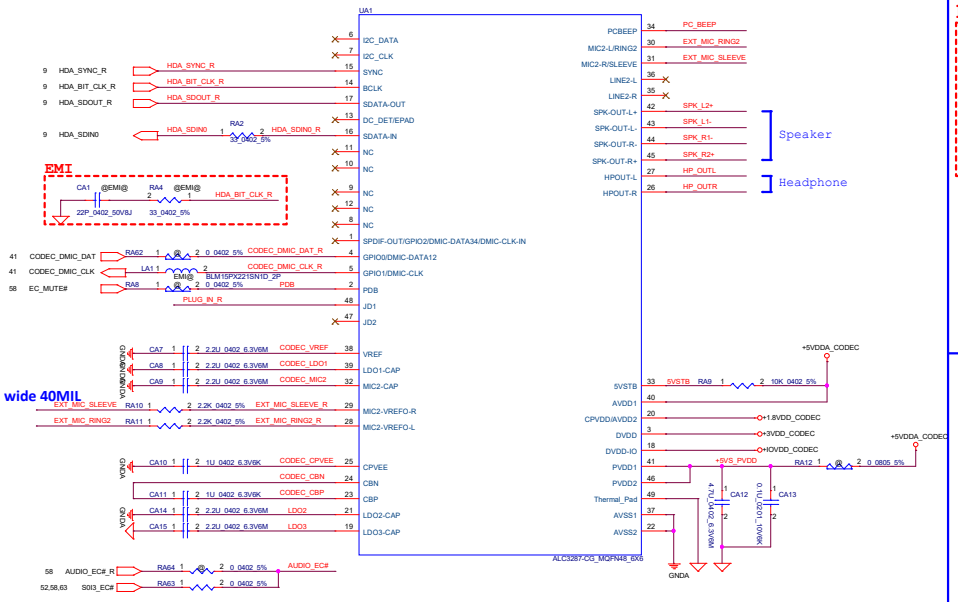
NGFF - WLAN / BT CONNECTOR (KEY-E)



Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

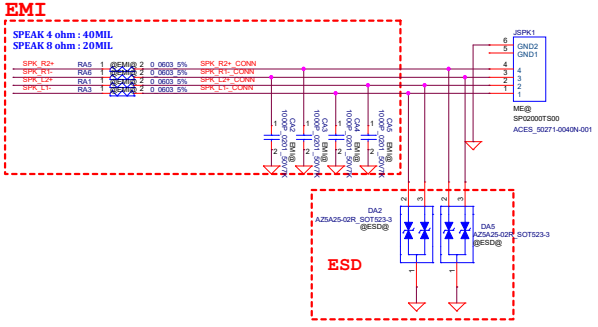
Compal Electronics, Inc.			
Title	WLAN/BT		
Size	Document Number	LA-M811P	Rev 0.1
Date: Wednesday, March 01, 2023	Sheet 52 of 121		

ALC3287

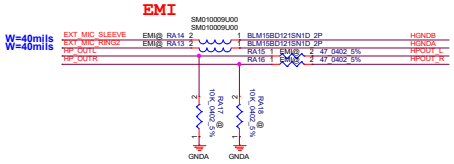


Speaker

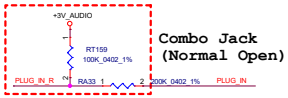
EMI



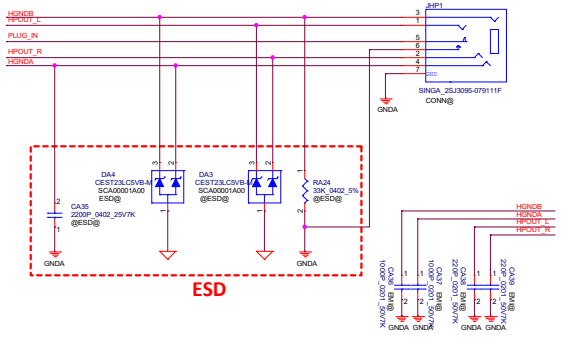
EMI



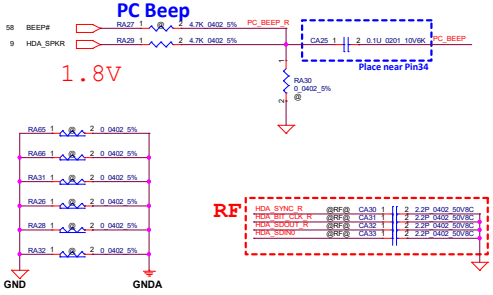
Close Audio codec



HGNDA / HGNDB , W=60mils

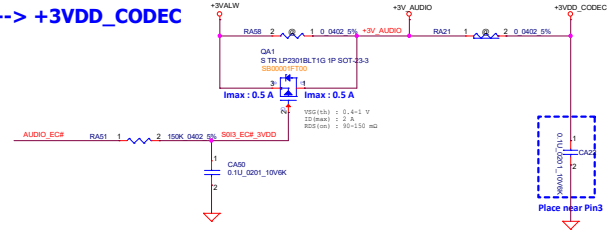


PC Beep

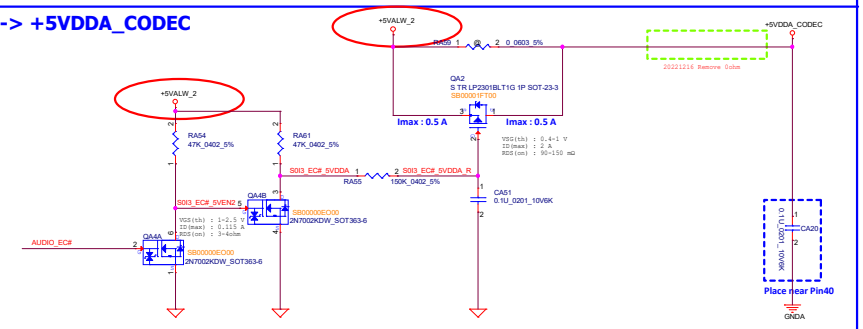


RF

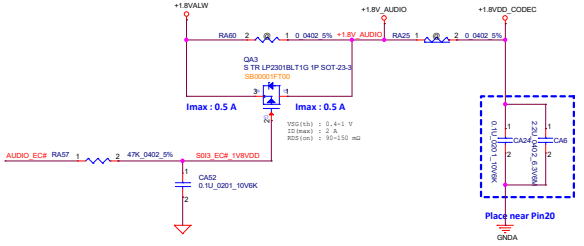
+3VALW --> +3VDD_CODEC



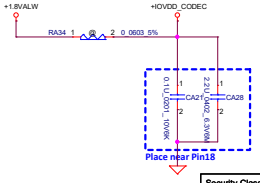
+5VALW --> +5VDDA_CODEC



+1.8VALW --> +1.8VDD_CODEC



+1.8VALW --> +IOVDD_CODEC



Security Classification	Compal Secret Data		
Issued Date	2019/08/07	Deciphered Date	2020/12/31

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

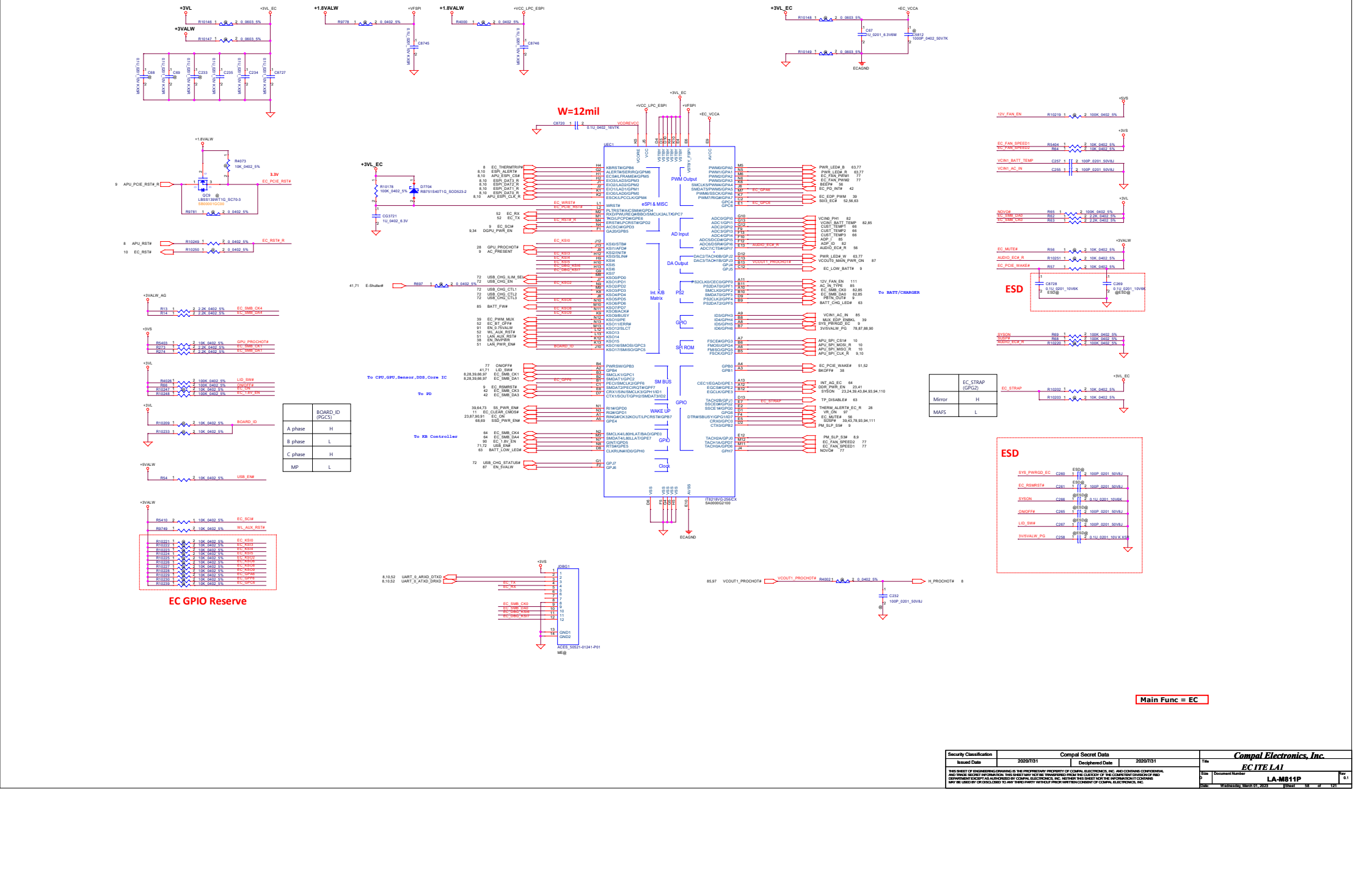
Compal Electronics, Inc.

Title: **Audio_ALC3287/Audio Conn.**

Size: Document Number: **LA-M811P** Rev: 0.1

Date: Wednesday, March 01, 2023 Sheet 55 of 121

Embedded Controller



Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

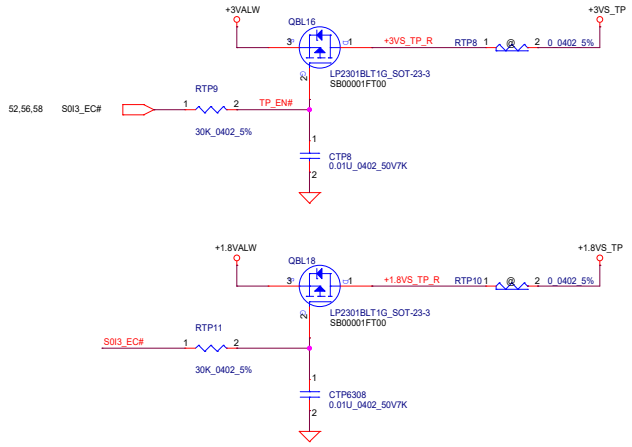
Compal Electronics, Inc.

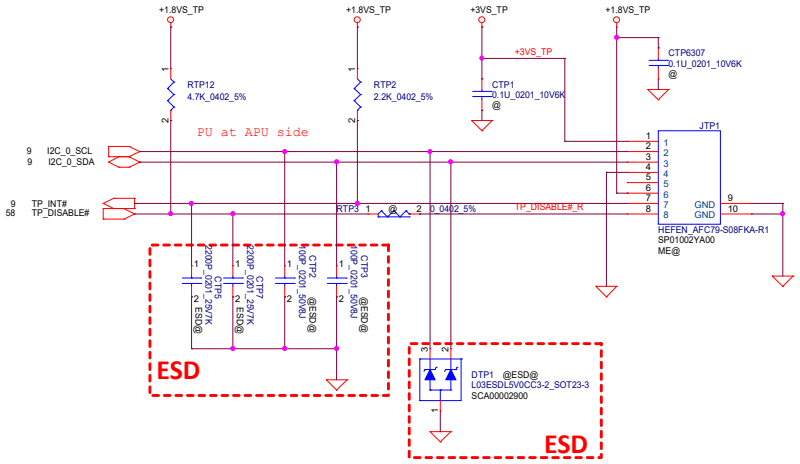
Title: EC ITE LA1

Size: D | Document Number: LA-M811P | Rev: 0.1

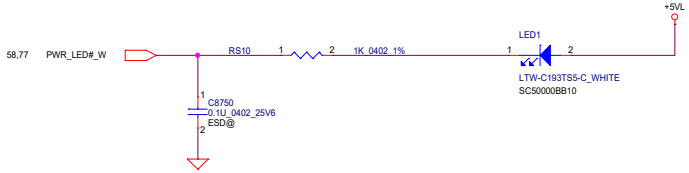
Date: Wednesday, March 01, 2023 | Sheet 58 of 121

Touch Pad

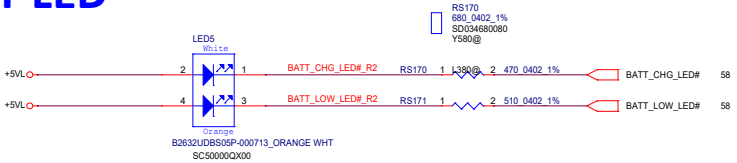




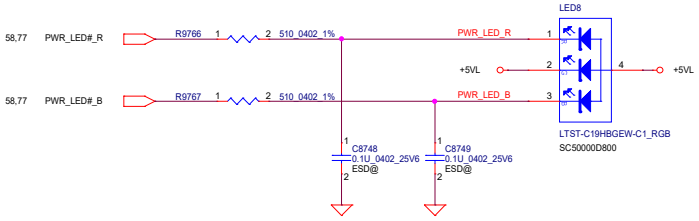
Power Button LED



BATT LED

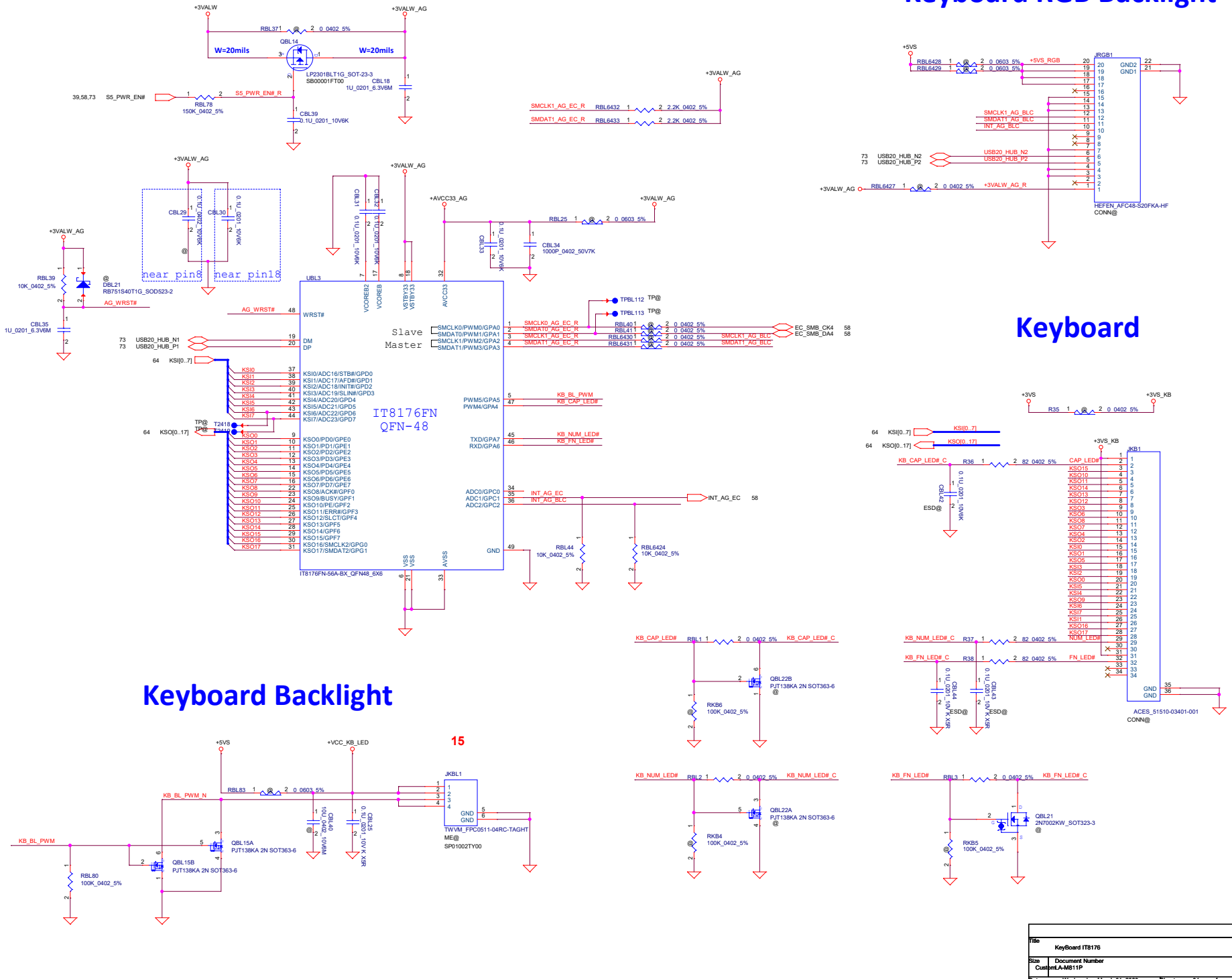


RGB LED



Title	LED/ TP/ USB IO	
Size C	Document Number LA-M811P	Rev 0.1
Date: Wednesday, March 01, 2023	Sheet 63 of 121	

Keyboard RGB Backlight

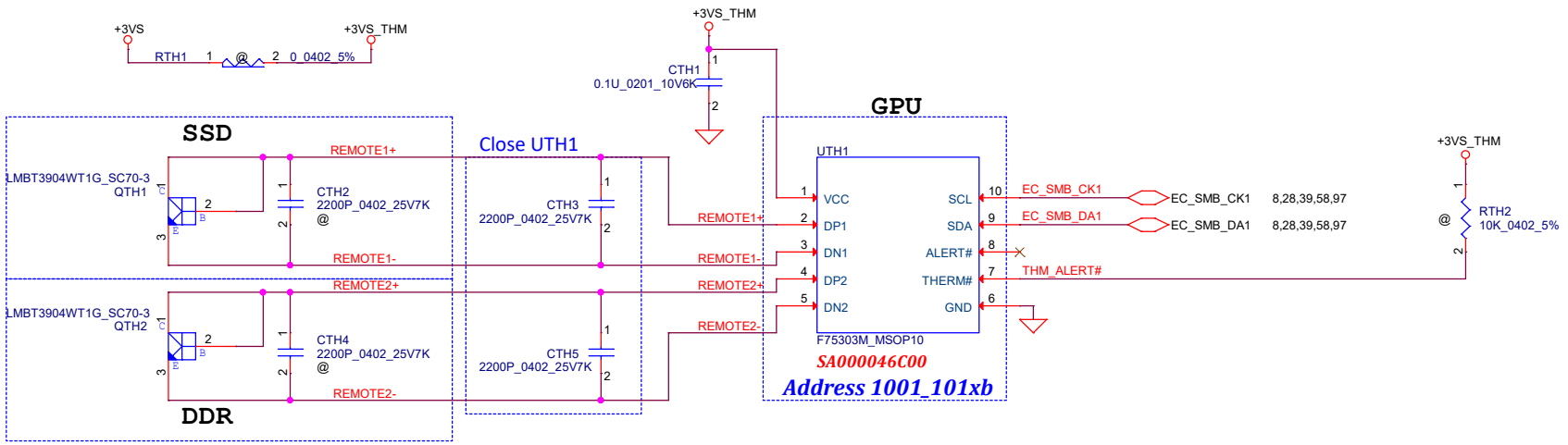


Keyboard

Keyboard Backlight

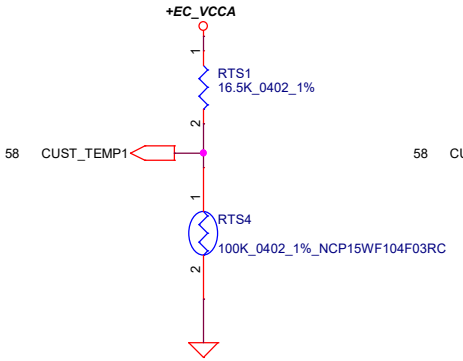
Title	KeyBoard IT8176	
Size: Custom	Document Number: LA-M811P	Rev: 0.1
Date: Wednesday, March 01, 2023	Sheet 64 of 121	

THERMAL SENSOR For Smart Performance

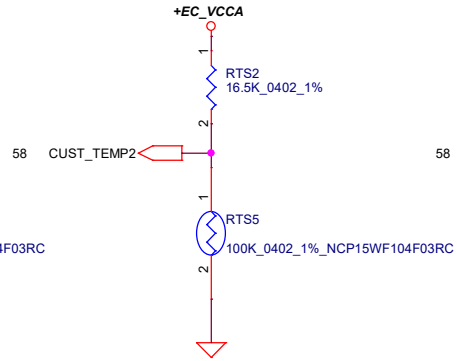


REMOTE1,2 (+/-) :
Trace width/space:10/10 mil
Trace length:<8"

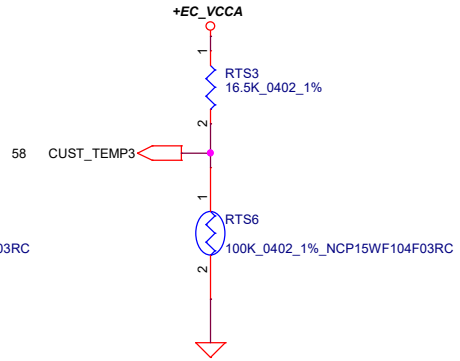
Left Fin



VCORE



Right Fin



Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

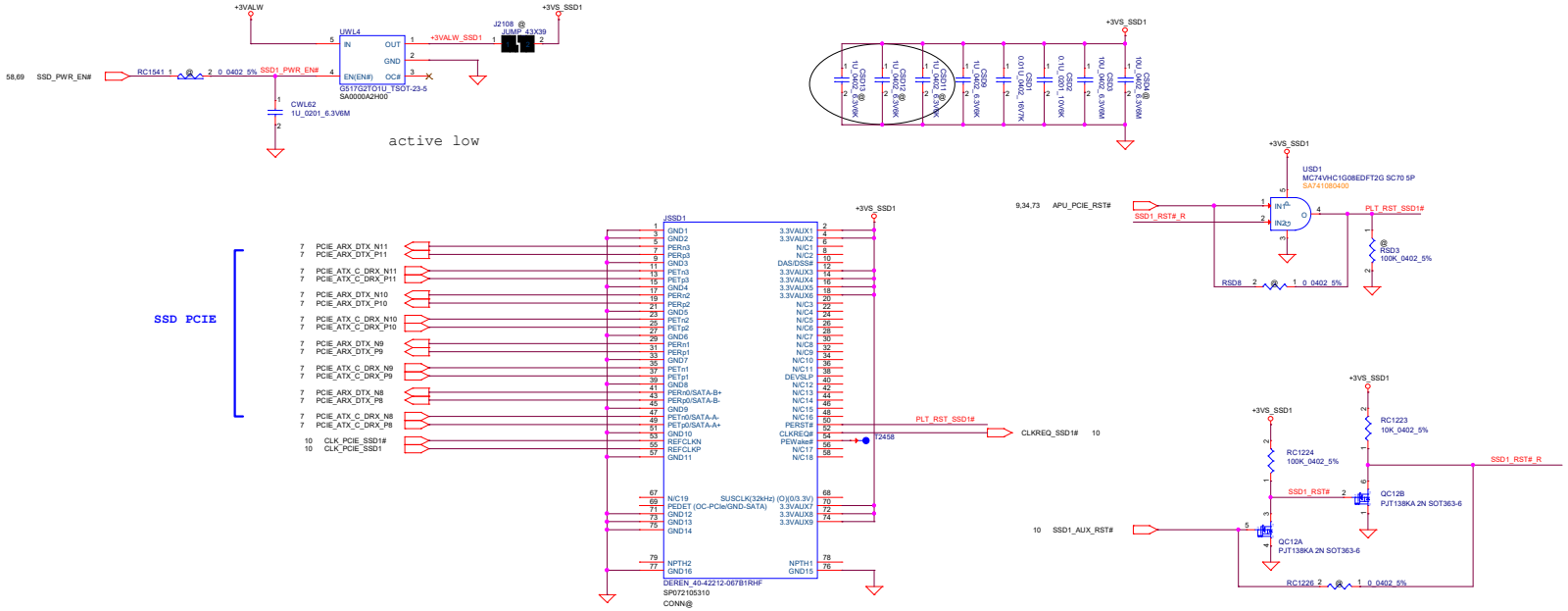
Compal Electronics, Inc.

Title: Thermal Sensor

Size: B | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 66 of 121

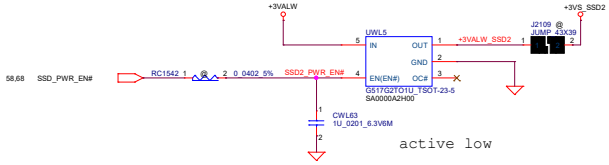
SSD_2280 (TYPE M)

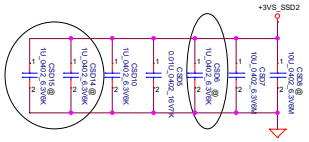


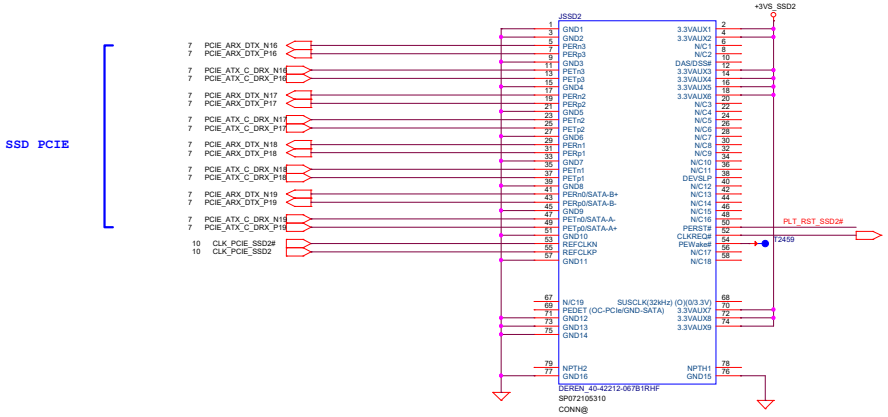
Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

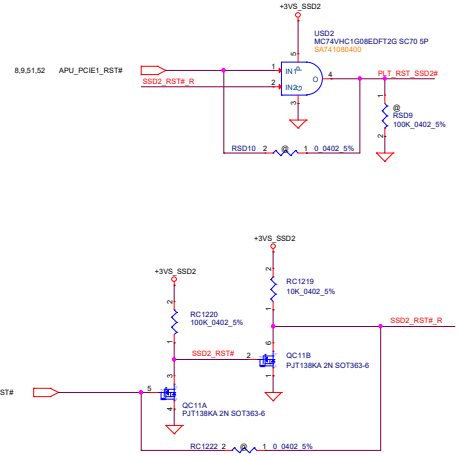
Compal Electronics, Inc.			
Title	NGFF SSD		
Size	Document Number		Rev
	LA-M811P		0.1
Date:	Wednesday, March 01, 2023	Sheet	68 of 121

SSD_2242 (TYPE M)





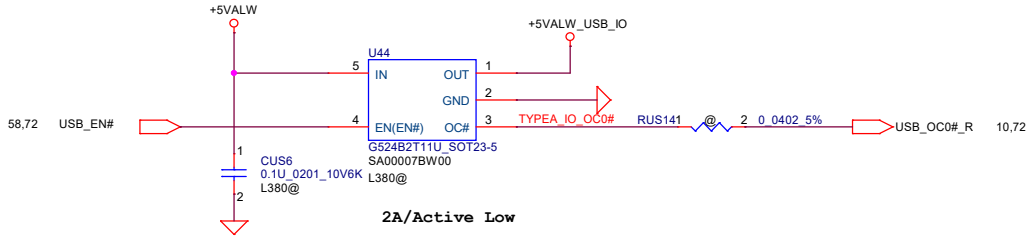


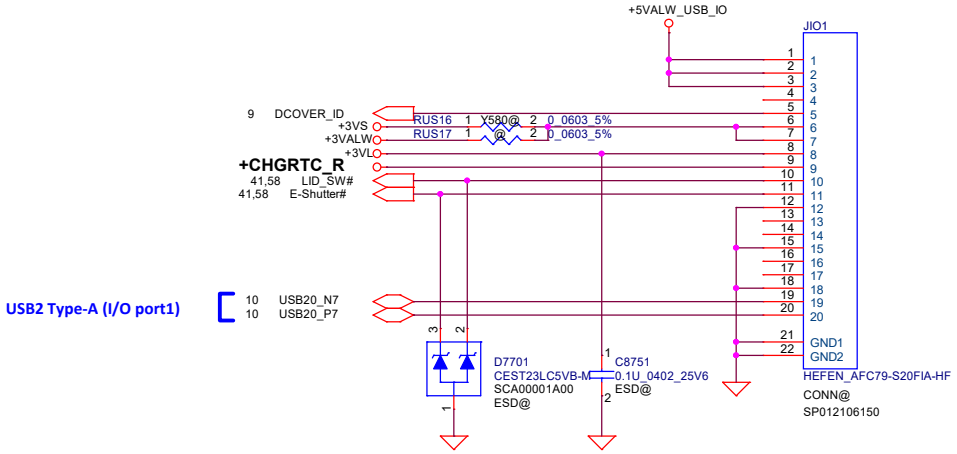


Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

Compal Electronics, Inc.			
Title	NGFF SSD		
Size	Document Number		Rev
	LA-M811P		0.1
Date:	Wednesday, March 01, 2023	Sheet	69 of 121

IO connector





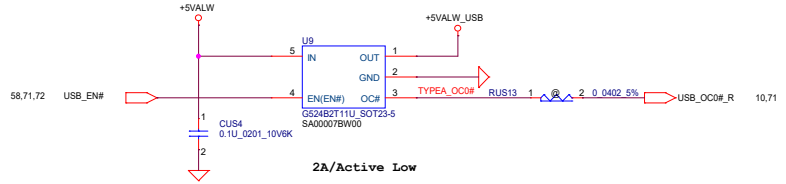
Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

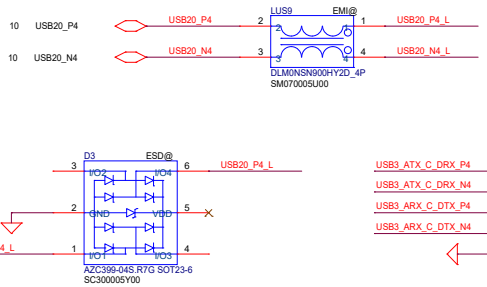
Compal Electronics, Inc.

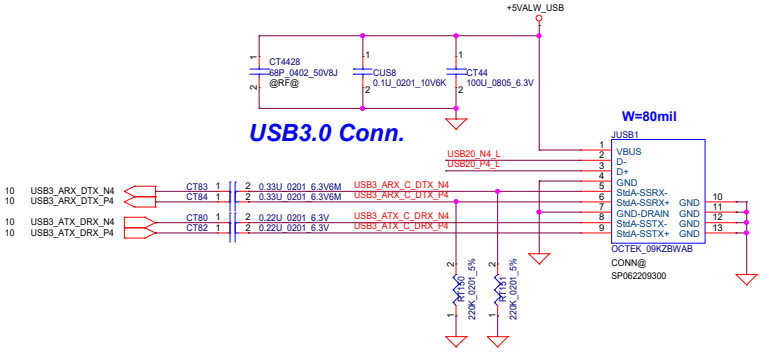
Title: IO Conn.

Size: Custom | Document Number: LA-M811P | Rev: 0.1

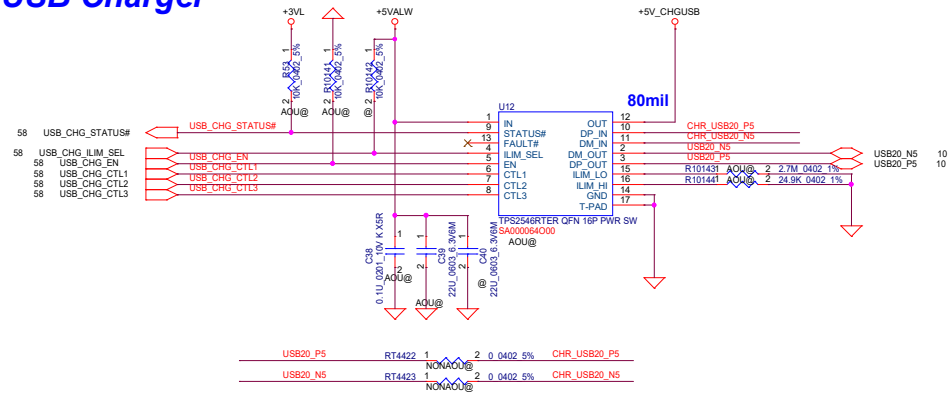
Date: Wednesday, March 01, 2023 | Sheet 71 of 121

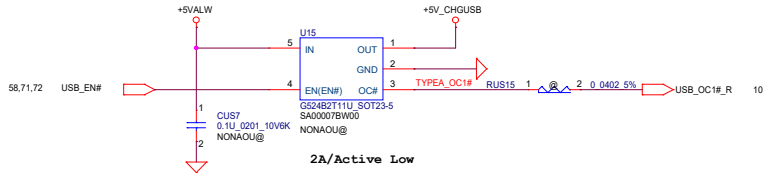


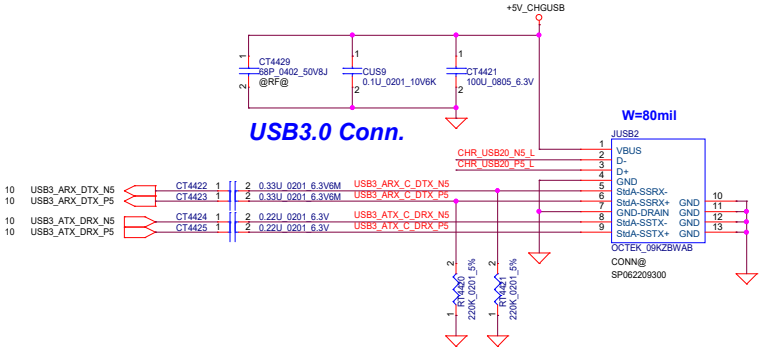


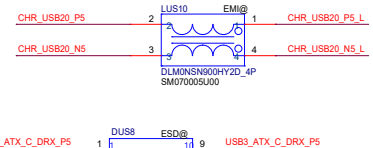


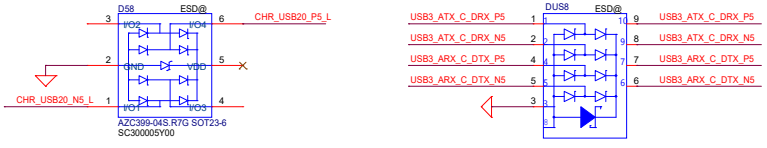
USB Charger





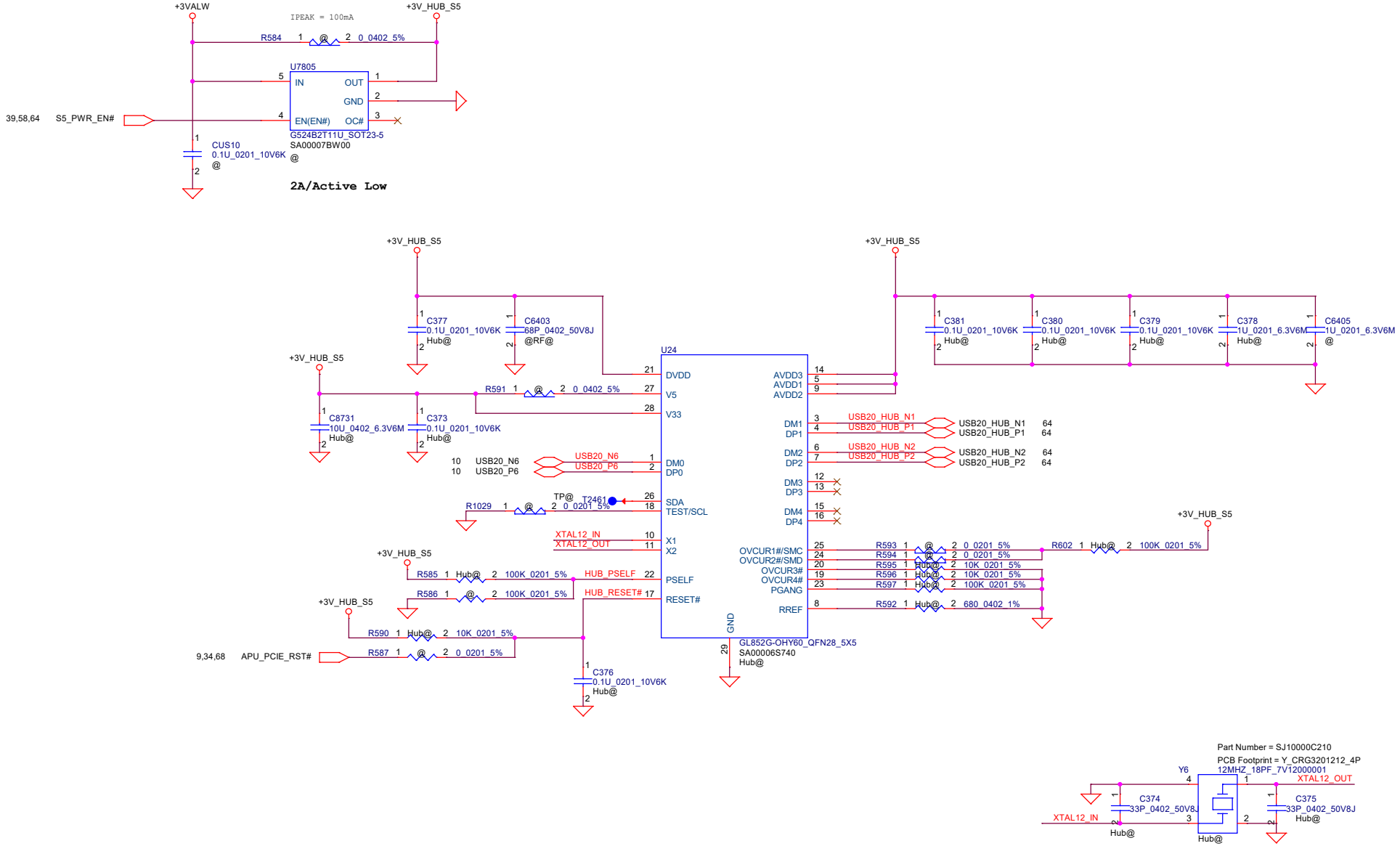






Security Classification	Compal Secret Data		
Issued Date	2015/12/25	Deciphered Date	2016/09/24

Compal Electronics, Inc.	
Title	AOU / USB3.1
Size	C
Document Number	LA-M811P
Rev	0.1
Date:	Wednesday, March 01, 2023
Sheet	72 of 121



Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

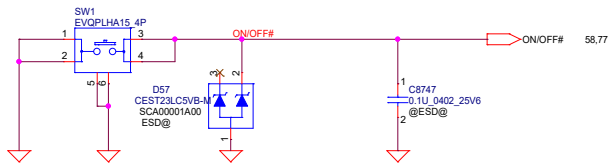
Compal Electronics, Inc.

Title: **P073-USB HUB GL852**

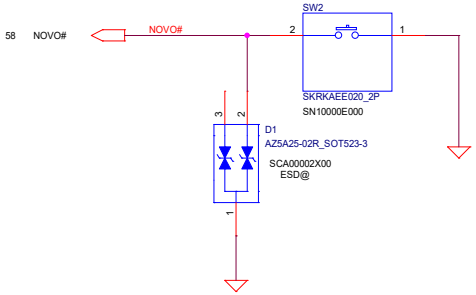
Size: Custom | Document Number: **LA-M811P** | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 73 of 121

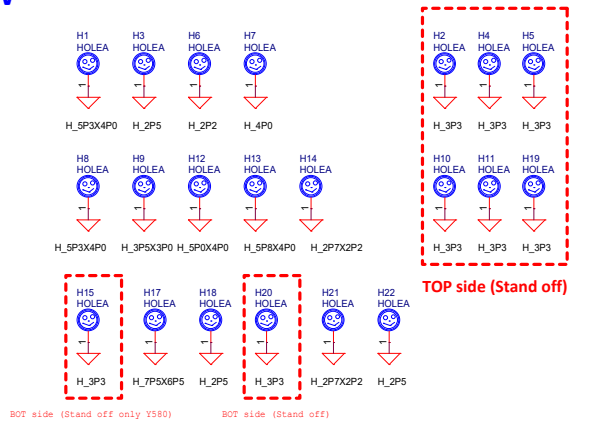
Power Button



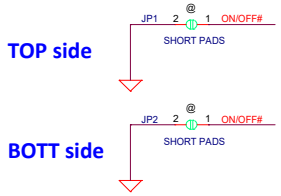
NOVO Button



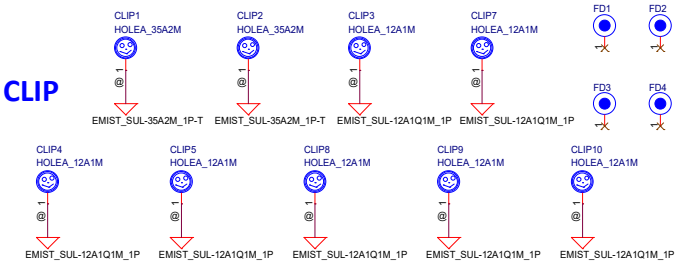
SCREW



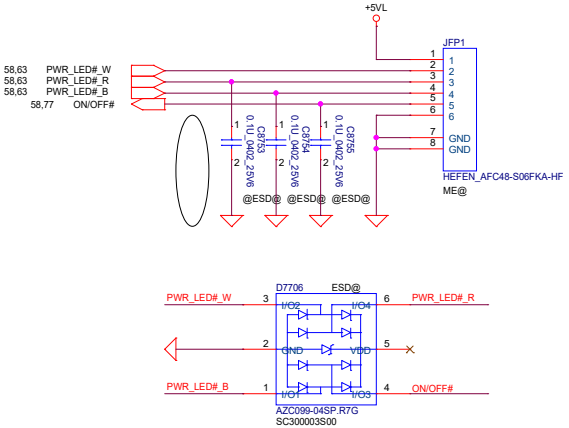
ON/OFF# SHORT PAD



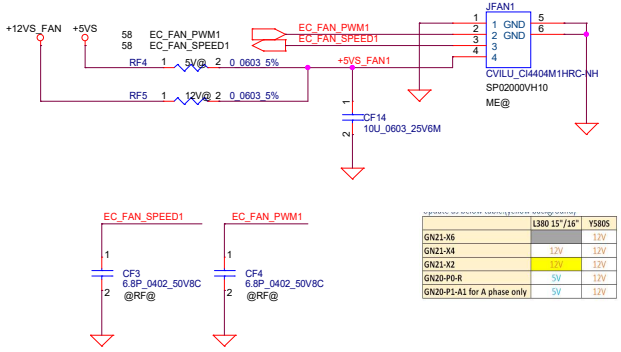
CLIP

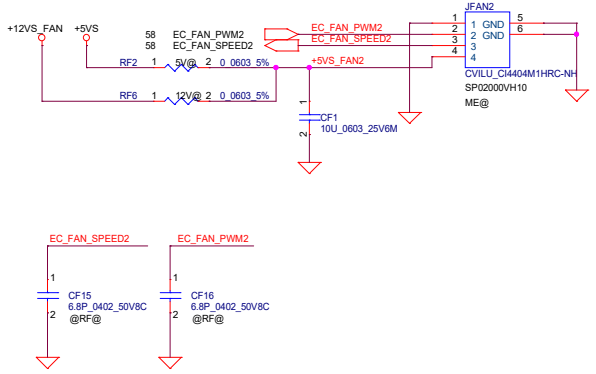


For Y580 Power button



FAN





Compal Electronics, Inc.

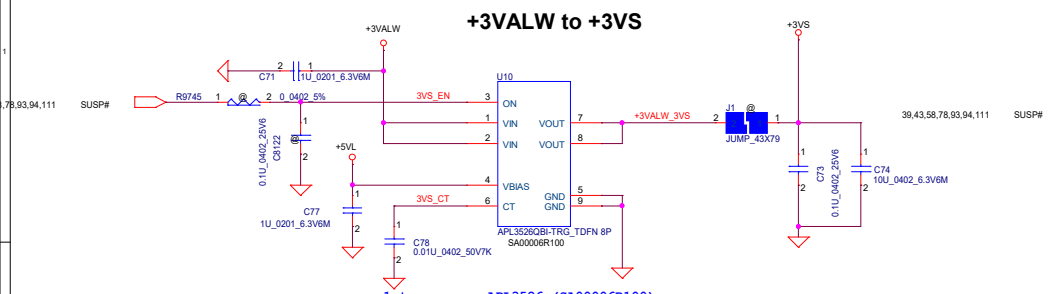
Title: PCB PN / SCREW / FAN

Size: Custom | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 77 of 121

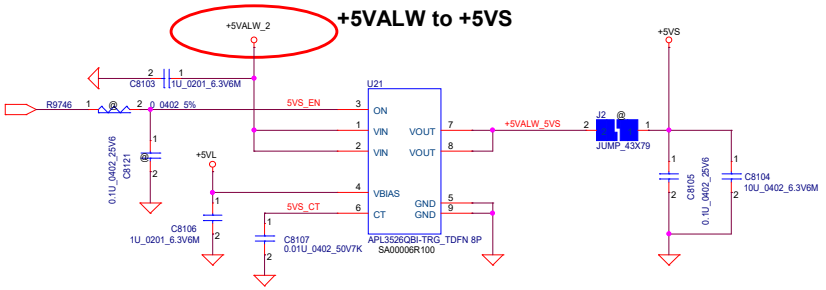
DC to DC

+3VALW to +3VS



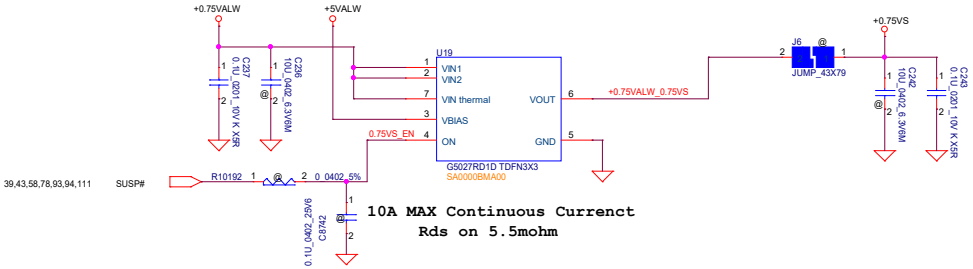
1st source : APL3526 (SA00006R100)
2nd source : TPS22965 (SA00005X500)
6A MAX Continuous Currenct
Rds on 27mohm, drop 0.162V in maximum

+5VALW to +5VS

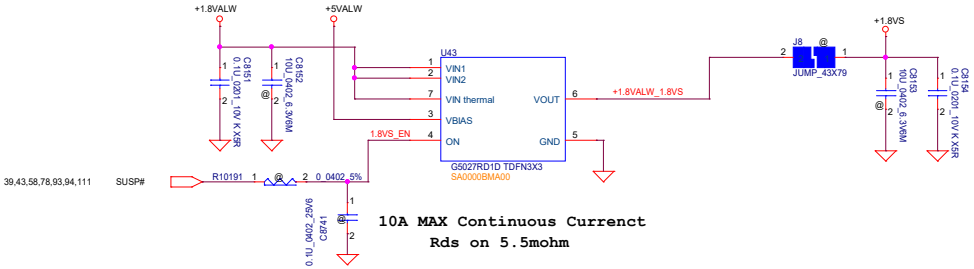


1st source : APL3526 (SA00006R100)
2nd source : TPS22965 (SA00005X500)
6A MAX Continuous Currenct
Rds on 27mohm, drop 0.162V in maximum

+1.8VALW to +1.8VS / +0.75VALW to +0.75VS

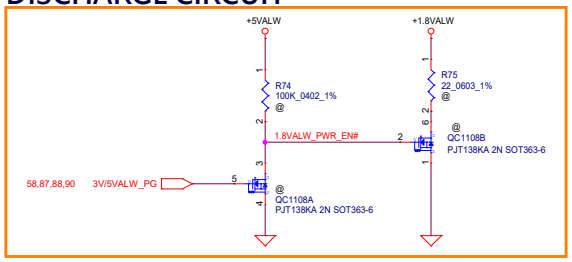


10A MAX Continuous Currenct
Rds on 5.5mohm



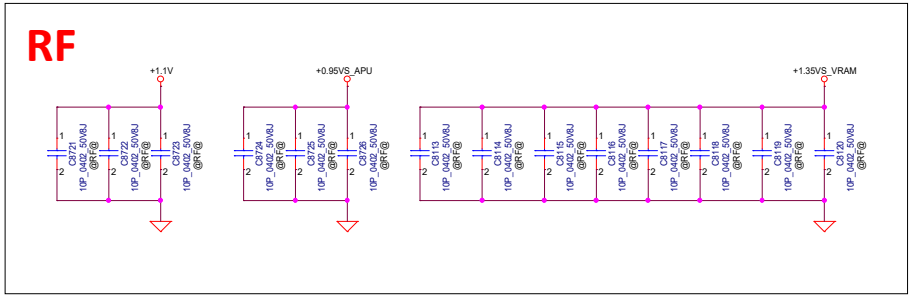
10A MAX Continuous Currenct
Rds on 5.5mohm

DISCHARGE CIRCUIT



+1.8VALW Discharge Circuit (Reserved)

RF



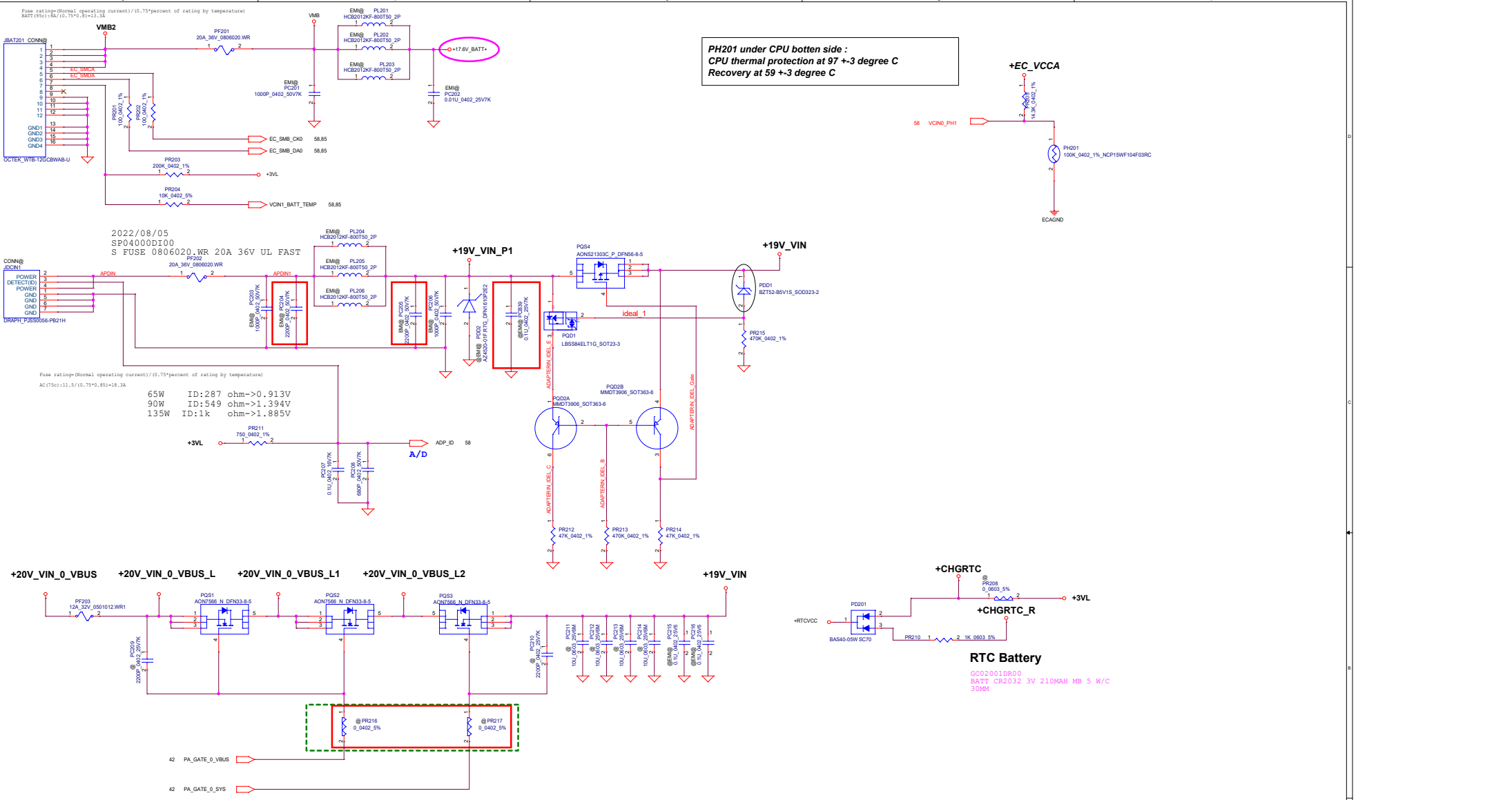
Security Classification	Compal Secret Data		
Issued Date	2020/04/09	Deciphered Date	2022/04/09

Compal Electronics, Inc.

Title: DC to DC

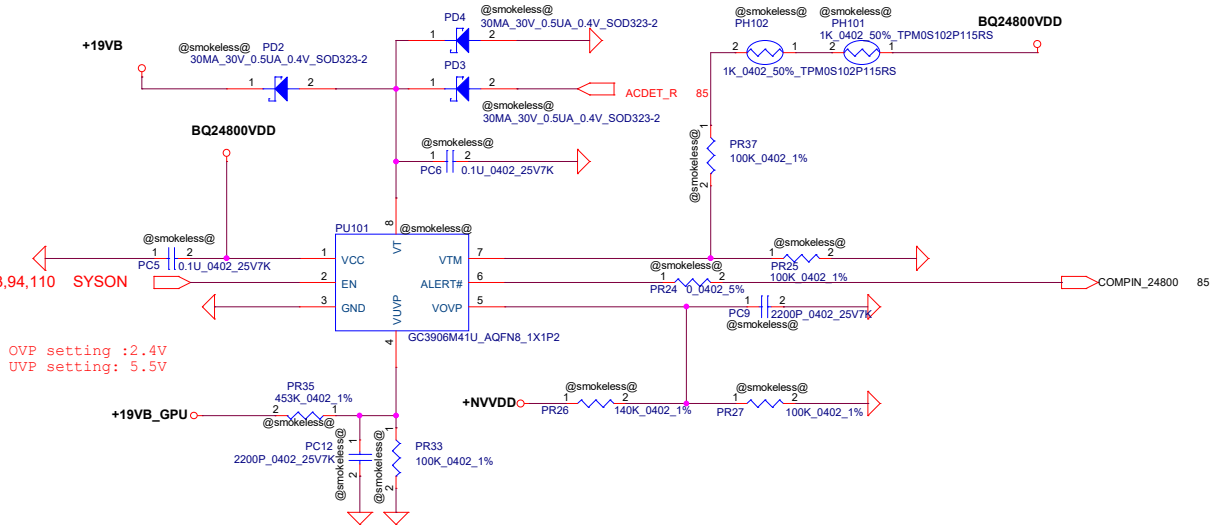
Size: C | Document Number: LA-M811P | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 78 of 121



Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

Compal Electronics, Inc.			
Title	PWR-DCIN/BATTERY		
Size	Document Number		Rev
Custom			0.1
Date:	Wednesday, March 01, 2023	Sheet	82 of 121



2. Ratings

Part Number	Resistance (at 25°C)	SensingTemperature		Maximum Voltage	Operating Temp. range
		at 100k ohm	at 10k ohm		
PRF15BA102RB6RC		140±3°C	125±5°C		-40~+150°C

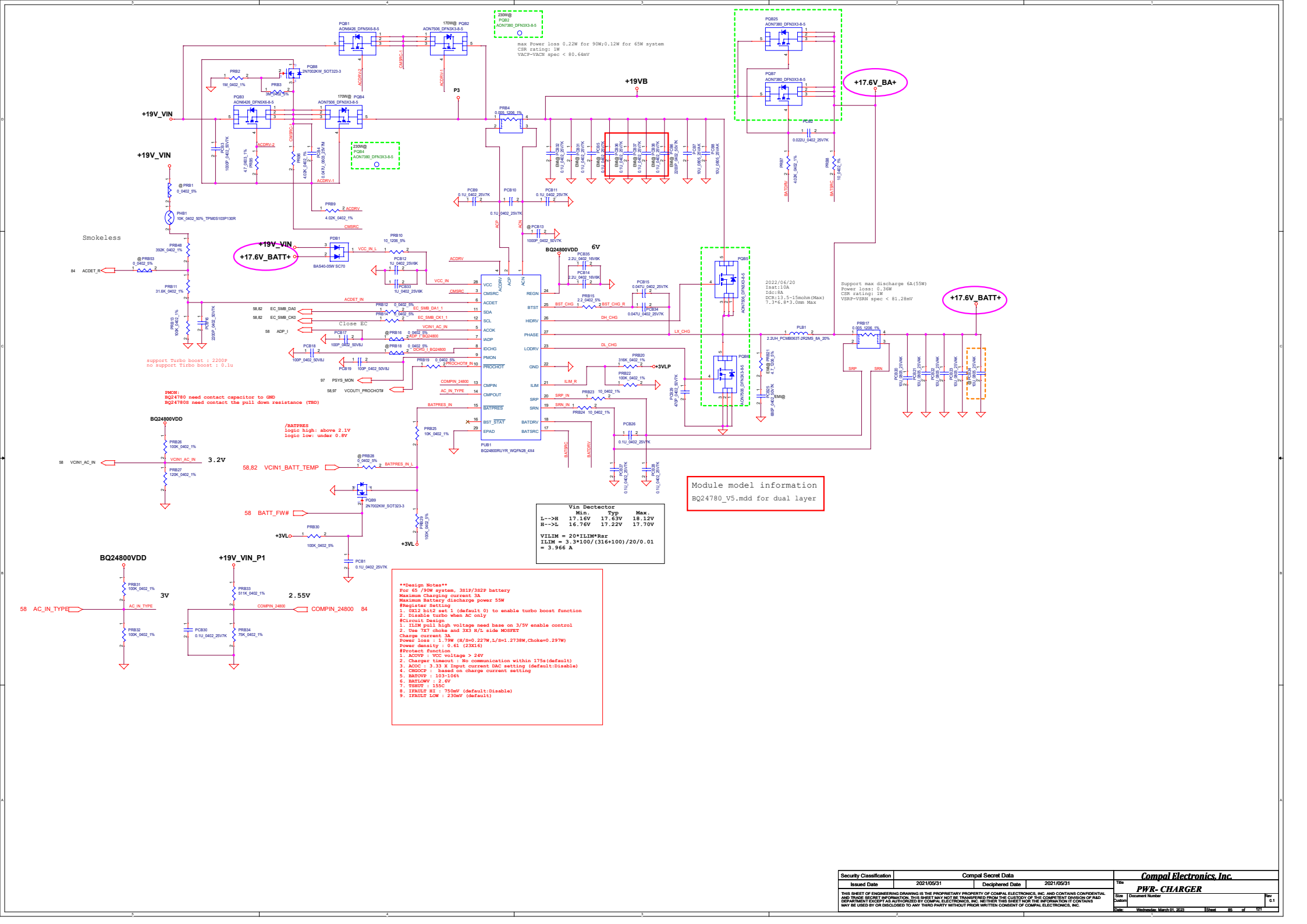
Security Classification	Compal Secret Data		
Issued Date	2016/11/03	Deciphered Date	2017/06/14

Compal Electronics, Inc.

Title: **PWR- OTP**

Size: Custom | Document Number | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 84 of 121



Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

Compal Electronics, Inc.			
Title: PWR- CHARGER			
Size: Custom	Document Number		Rev: 0.1
Date: Wednesday, March 01, 2023	Sheet 85 of 121		

keep short pad,
snubber is for EMI only.

JUMP@ PJ301 JUMP_43X79

+19VB

+19VB_3V

PC305 must close IC

PC303 0.1U_0402_25V6

PC304 2200P_0402_50V7K

PC313 10U_0603_25V6M

PC305 10U_0603_25V6M

BST_3V_R

PC301 0.1U_0402_25V6

PU301 SY8388BRHC_QFN16_2P5X2P5

IN3 IN2 IN1 BS

LX GND PG EN2

EP LX2 LX1 GND1 LDO

EN1 FF OUT TEST

LX_3V

3V_SN

2022/06/20
Isat=12.5 A
Idc=9.5 A
DCR=13.5~15mohm(Max)
7.3 x 6.8 x 3.0mm Max

PL302 2.2UH_CCCA-0630-2R2-M_9.5A_20%

PR305 4.7_1206_5%

PC307 PC308 PC309 PC314 PC315 PC316 22U_0603_6.3V6M

+3VALWP

2022/08/10
+3VALWP
Vout=3.338 V
Peak current= 7.3 A
OCP=10A (Min)
Fsw=600kHz

Check pull up resistor of SPOK at HW side

@ PR307 0_0402_5%

3V/5VALW_PG

3V_PG

PR308 100K_0402_5%

+3VALW

+3VLP

PC311 4.7U_0402_6.3V6M

PC312 680P_0402_50V7K

2022/06/22
EN1 and EN2 don't be floating.
EN2/EN1 High > 1V
EN2/EN1 Low < 0.4V

ENLDO_3V5V

5V_3V_EN

PC302 1000P_0402_50V8-J

PR303 1K_0402_1%

3V_FB

3V_FB_1

Iocp=8A

TDC=6A

3.3V LDO 150mA~300mA

Fsw : 600K Hz

LDO min effective capacitance 1.5uF.

JUMP@ PJ302 JUMP_43X118

+3VALWP

+3VALW

JUMP@ PJ303 JUMP_43X39

+3VLP

+3VL

JUMP@ PJ501 JUMP_43X79

+19VB

+19VB_5V

PC502 PC503 10U_0603_25V6M

EM@ PC504 2200P_0402_50V7K

EM@ PC505 0.1U_0402_25V6

Sense 5Valw Vin

Trigger = 9.45V

BST_5V_R

PC501 0.1U_0402_25V6

PU501 SY8370CTMC_QFN13_3X4

IN BS

LX1 GND1 PG

LX2 GND2 VCC

EN2 EN1 FF OUT LDO

LX_5V

VCC_5V

PC506 4.7U_0402_6.3V6M

2022/08/03
Idc=13 A
Isat=16 A
DCR=8 ~9 mohm(Max)
7.3 x 6.8 x 3.0mm Max

PL501 1.5UH_MMD-06CZI1R5M-R1L__13A_20%

PR503 4.7_1206_5%

5V_SN

PC517 680P_0402_50V7K

PC507 PC508 PC509 PC510 PC511 PC512 PC513 22U_0603_6.3V6M

+5VALWP

2022/08/03
+5VALWP
Vout=5.15V
Peak current=7.2 A
OCP=14A (Min)
Fsw=600kHz

TDC=11A
Fsw : 600K Hz

+3VALW +3VL

@ PR501 100K_0402_5%

@ PR517 100K_0402_5%

@ PR516 0_0402_5%

58,78,88,90 3V/5VALW_PG

5V_PG_1

+5VLP

PC516 4.7U_0402_6.3V6M

5V LDO 150mA~310mA

ENLDO_3V5V

@ PR518 0_0402_5%

5V_EN

@ PR519 0_0402_5%

5V_3V_EN

2022/06/22
EN1 and EN2 don't be floating.
EN1 High > 1.4V (Ultra-sonic Mode)
EN1 High > 2.2V (PFM Mode)

EN2 High > 1V
EN2 Low < 0.4V

PC519 470P_0402_50V7K

PR520 1K_0402_1%

5V_FB

5V_FB_1

JUMP@ PJ502 JUMP_43X118

+5VALWP

+5VALW

JUMP@ PJ503 JUMP_43X39

+5VLP

+5VL

+19VB

PR505 499K_0402_1%

ENLDO_3V5V

ENLDO_3V5V 88

PR506 150K_0402_1%

PC520 1U_0402_16V6K

+3VLP

SA-6

58 EN_5VALW

@ PR508 0_0402_5%

PR507 100K_0402_5%

5V_EN

5V_EN 88

Fsw : 600K Hz

@ PC521 4.7U_0402_6.3V6M

@ PR511 100K_0402_5%

SA-6

23,58,90,91 EC_ON

PR509 2.2K_0402_5%

58 VCOUT0_MAIN_PWR_ON

PR510 @ 0_0402_5%

5V_3V_EN

5V_3V_EN 88

PR512 1M_0402_1%

PC522 4.7U_0402_6.3V6M

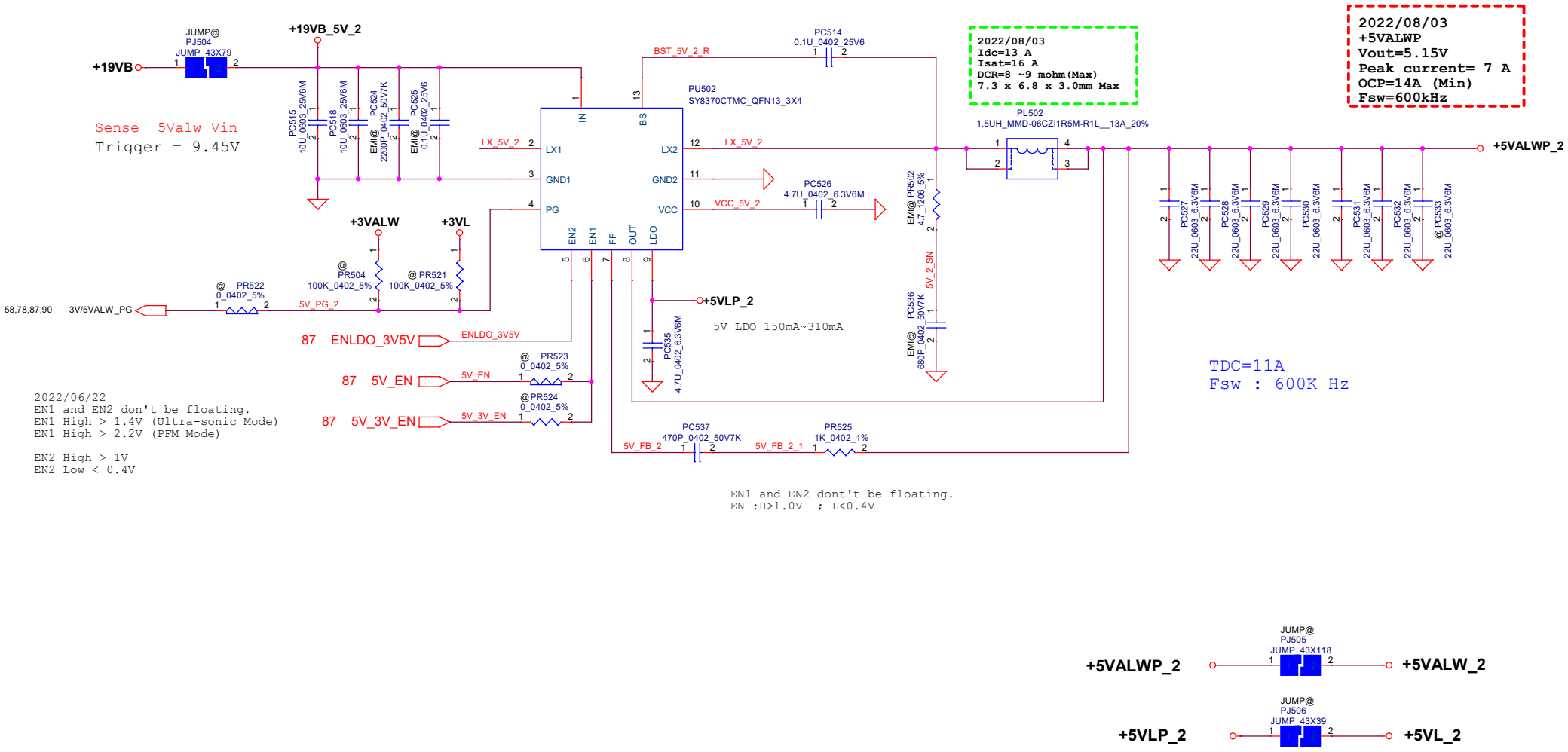
Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.

Title: *PWR-3/5V-SY8388B&8370C*

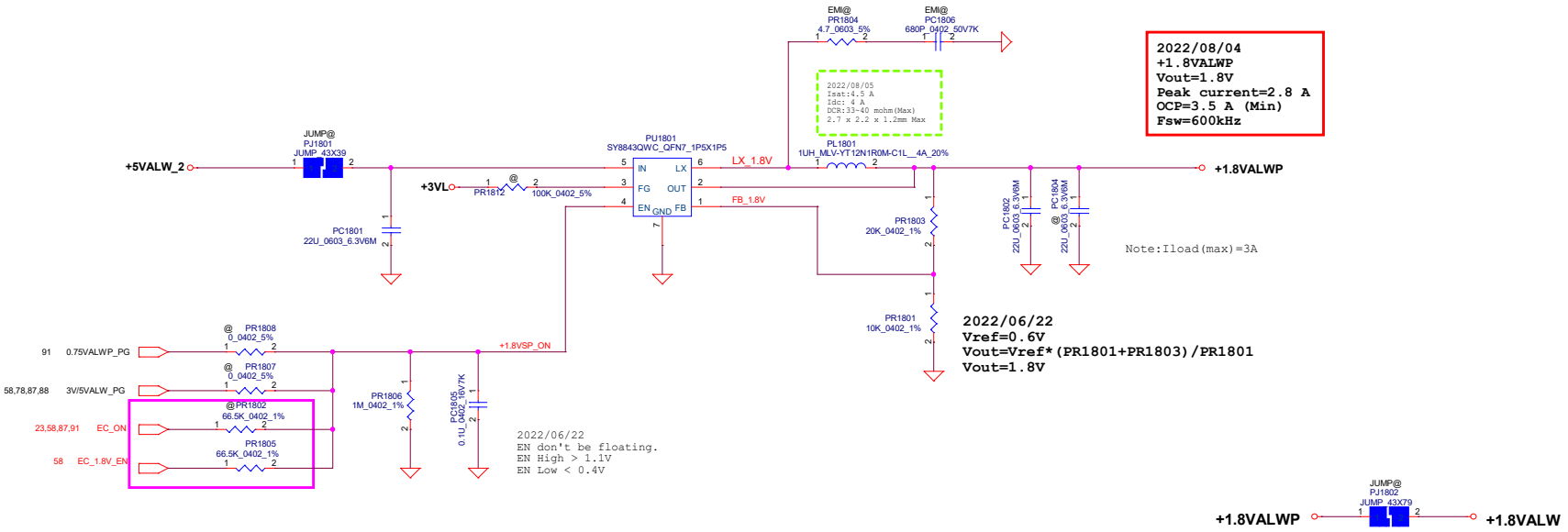
Size: Custom | Document Number | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 87 of 121



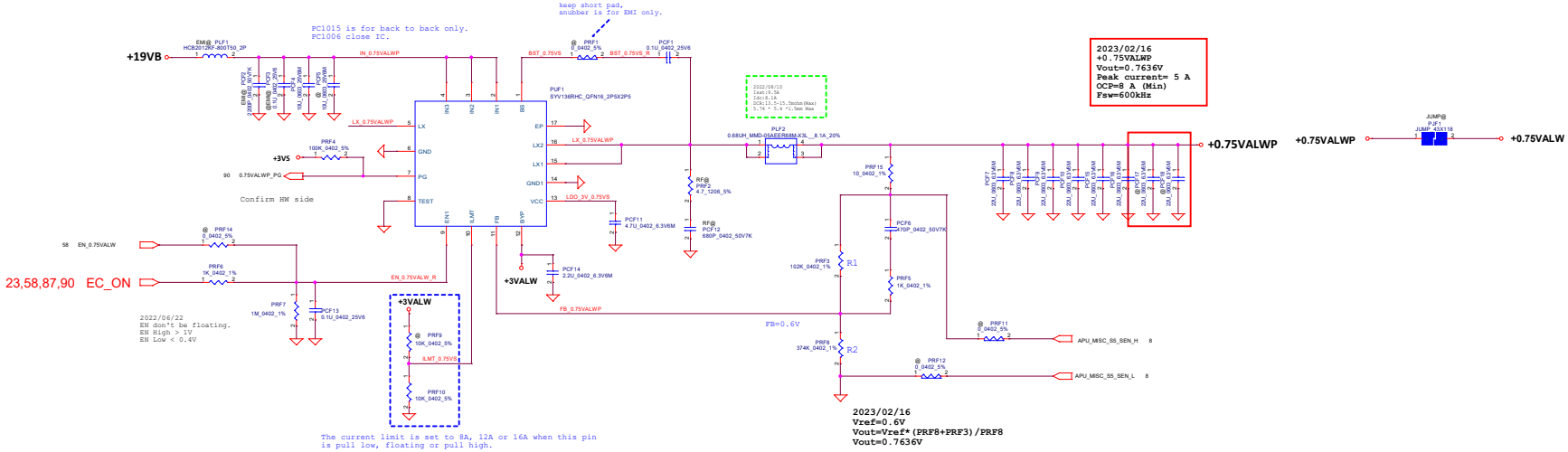
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	

Title	PWR-5V_USB-SY8370C		
Size	Document Number		Rev 0.1
Date: Wednesday, March 01, 2023	Sheet 88 of 121		



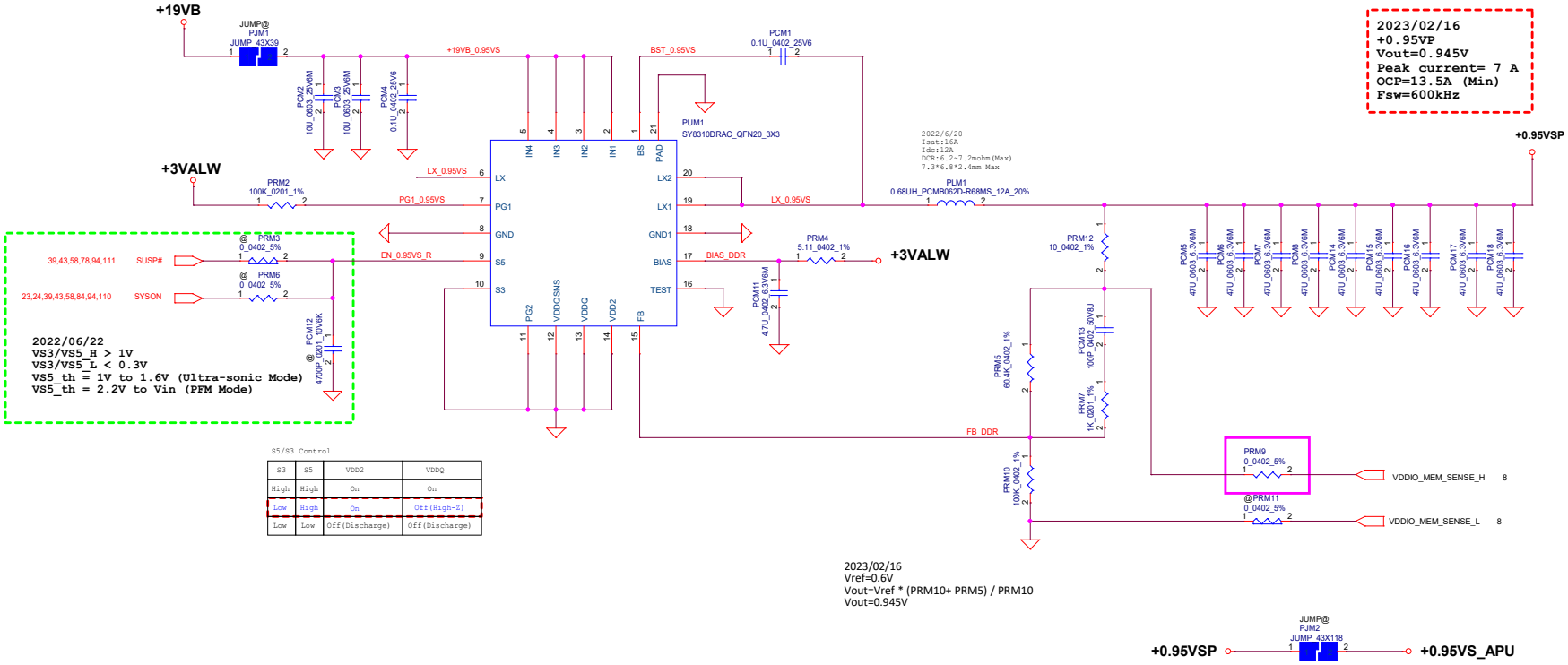
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: PWR- +1.8VALW

Size: Custom	Document Number		Rev: 0.1
Date: Wednesday, March 01, 2023	Sheet 90 of 121		



Please base on Vo ripple spec of your application to estimate output caps.

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: PWR-0.75V_SYV138A
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			Size: D; Document Number; Rev: 0.1
			Date: Wednesday, March 01, 2023; Sheet 81 of 121



S5/S3 Control

S3	S5	VDD2	VDDQ
High	High	On	On
Low	High	On	Off(High-Z)
Low	Low	Off(Discharge)	Off(Discharge)

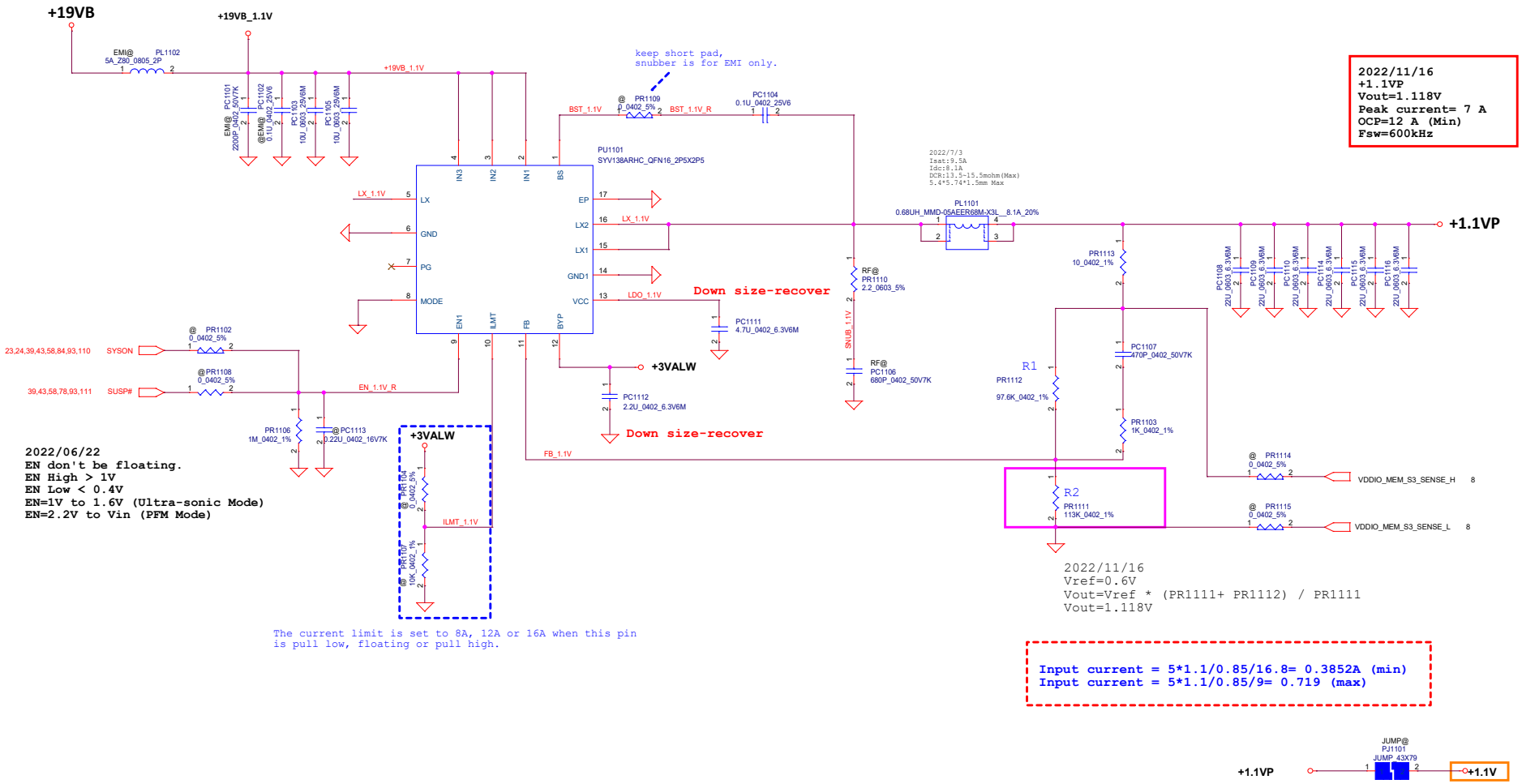
Security Classification	Compal Secret Data		
Issued Date	2021/08/02	Deciphered Date	2022/08/02

Compal Electronics, Inc.

Title: PWR-0.95V_SY8310

Size: C | Document Number | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 93 of 121



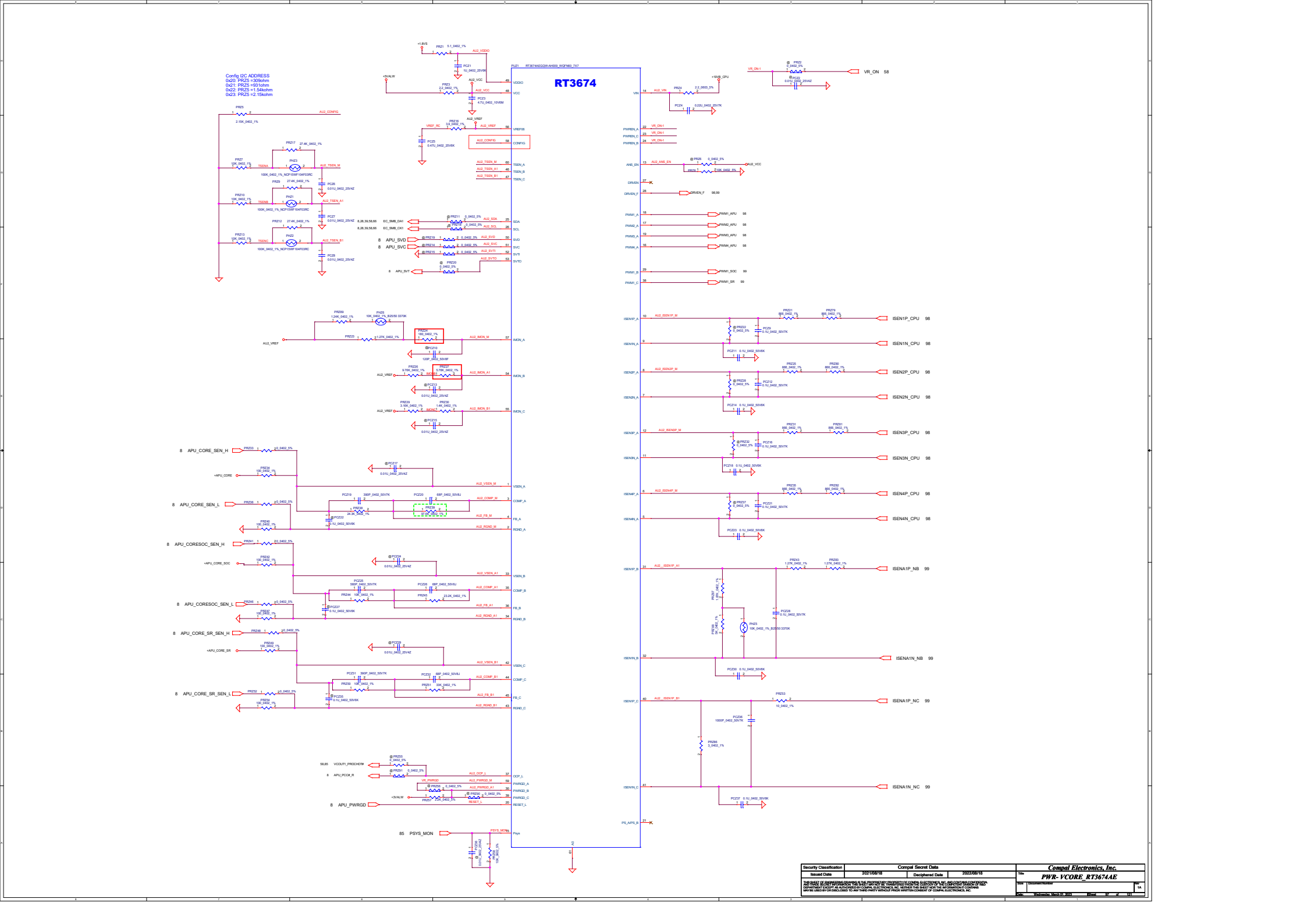
Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.

Title: PWR-1.1V_SYV138A

Size	Document Number	Rev
C		0.1

Date: Wednesday, March 01, 2023 Sheet 94 of 121



Security Classification	Compal Secret Data		
Issued Date	2021/08/18	Deciphered Date	2022/08/18

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title: PWR- VCORE_RT3674AE

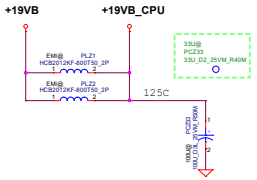
Size: Document Number: Rev: 1A

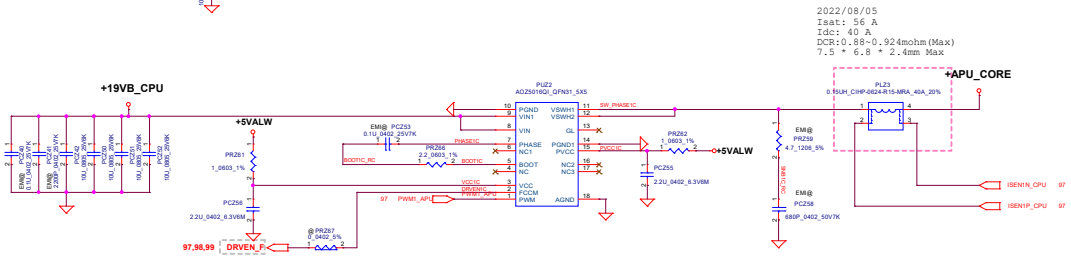
Date: Wednesday, March 01, 2023 Sheet 97 of 141

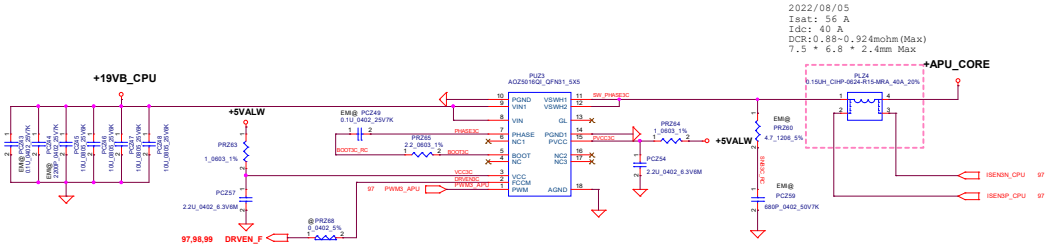
2022/06/27
+APU_CORE

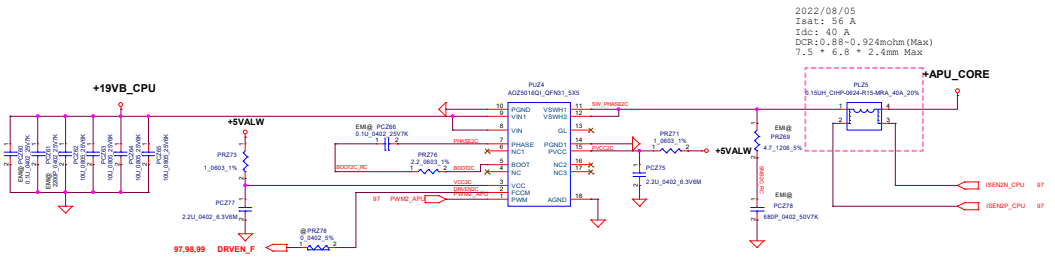
ICCMAX=140 A
TDC=70 A
OCP=184 A
DC LL=0.3m ohm
AC LL=0.3m ohm

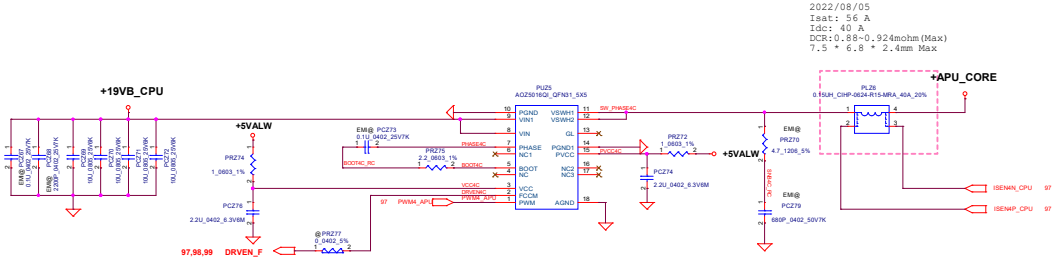
Switching Freqency= 600K Hz











ZCD:
SiC631= DRVEN
SiC632= DRVEN
SiC634= DRVEN
AOZ5038= DRVEN
FDMF3035= DRVEN
FDMF3037= DRVEN
FDMF5823= HighTHWn:
SiC631= Floating
SiC632= High
SiC634= Floating
AOZ5038= Floating
FDMF3035= Floating
FDMF3037= Floating
FDMF5823= High
DBL# :
SiC631= Floating
SiC632= High
SiC634= Floating
AOZ5038= Floating
FDMF3035= Floating
FDMF3037= Floating
FDMF5823= DRVEN

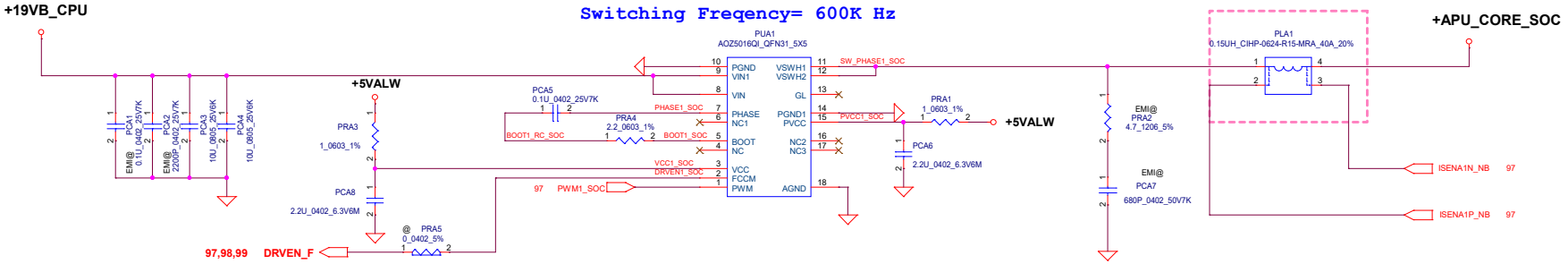
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2021/05/31	Deciphered Date 2021/05/31	Title: PWR-CPU_DrMOS_AOZ5016
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			Size: D; Document Number; Rev: 0.1
			Date: Wednesday, March 01, 2023; Sheet 98 of 121

2022/06/27
+APU_CORE_SOC

ICCMAX=26 A
TDC=18 A
OCP=32 A
DC LL=1m ohm
AC LL=1m ohm

Switching Freqency= 600K Hz

2022/08/05
Isat: 56 A
Idc: 40 A
DCR:0.88~0.924mohm(Max)
7.5 * 6.8 * 2.4mm Max

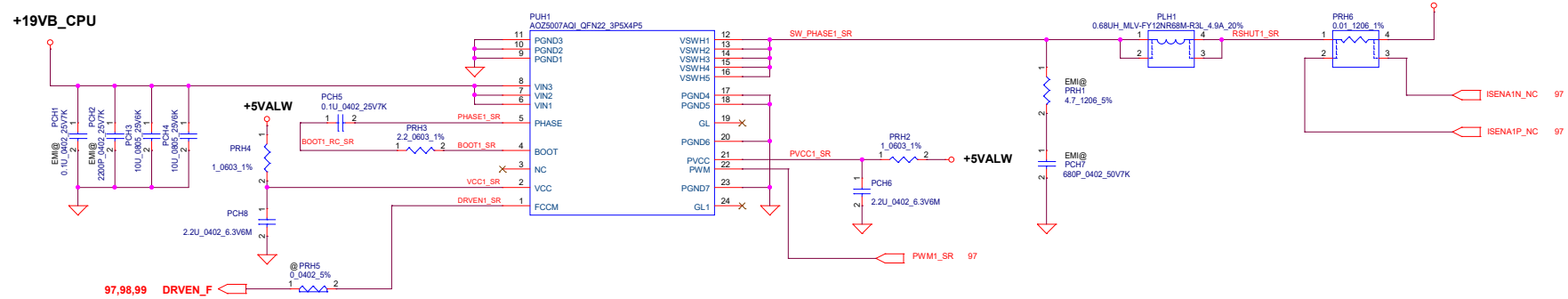


2022/06/27
+APU_CORE_SR

ICCMAX=3 A
TDC=2 A
OCP=6 A
DC LL=0m ohm
AC LL=0m ohm

Switching Freqency= 600K Hz

2022/08/05
Isat:6A
Idc:4.9 A
DCR:21~26 mohm(Max)
3.4 *2.7 * 1.2.0mm Max



Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

Compal Electronics, Inc.

Title: *PWR-DrMOS_AOZ5016_GT*

Size	Document Number	Rev
C		0.1

Date: Wednesday, March 01, 2023 | Sheet 99 of 121

+APU_CORE

+APU_CORE

+APU_CORE_SOC

+APU_CORE_SOC

+APU_CORE_SOC

APU_CORE_SOC_2022/08/10
0.22uF*8
180pF*1
22uF*24
330uF*3(B2x2pcs, D3x1pcs)
330u is common part SGA00009S00

near CPU

APU_CORE_2022/08/10
0.22uF*8
180pF*1
22uF*54
330uF(D3)*7
560uF(D1)*5

B2=1.9h, D3=1.4h, D7=1h
330u is common part SGA00006A00

+APU_CORE_SR

+APU_CORE_SR

APU_CORE_SR_2022/08/10
1U * 2
22uF * 18/20

+APU_CORE_SR

+APU_CORE

SIV_EC002_DCDC
SIV_EC003_DCDC
SIV_EC007_DCDC

Under CPU
Bot

Security Classification	Compal Secret Data		
Issued Date	2019/11/21	Deciphered Date	2021/11/21

Compal Electronics, Inc.

Title: PWR- APU_CORE MLCC

Size: C | Document Number | Rev: 0.1

Date: Wednesday, March 01, 2023 | Sheet 101 of 121

Y7S		NCP81611/10	QD9619A@
GN21 X2/X4/X6	5+1	NCP@ ↘ PH4PH5@ ↘ PH5@ ↘ NCP_PH4PH5@ ↘ NCP_PH5@ ↘ NCP_GN21@	UPI@ ↘ PH4PH5@ ↘ PH5@ ↘ UPI_PH4PH5@ ↘ UPI_PH5@

Config	
Vmin	0.3
Vmax	1.3
Vboot	0.8
R1	6.19K
R2	20.5K
R3	4.32K
R4	16.5K
R5	309
C	4.7n

L380		NCP81611/10	QD9619A@
GN20-S7-B	3+1	NCP@ ↘ NCP_PH3PH4@ ↘ NCP_PH3@	UPI@ ↘ UPI_PH3@
GN20-P0-R	4+1	NCP@ ↘ PH4PH5@ ↘ NCP_PH3PH4@ ↘ NCP_PH4PH5@ ↘ NCP_GN20_PH4@	UPI@ ↘ PH4PH5@ ↘ UPI_PH4@ ↘ UPI_PH4PH5@ ↘ UPI_GN20_PH4@
GN21 X2	4+1	NCP@ ↘ PH4PH5@ ↘ NCP_PH3PH4@ ↘ NCP_PH4PH5@ ↘ NCP_GN21_PH4@ ↘	UPI@ ↘ PH4PH5@ ↘ UPI_PH4@ ↘ UPI_PH4PH5@ ↘ UPI_PH4_X2@
GN21 X2	5+1	NCP@ ↘ PH4PH5@ ↘ PH5@ ↘ NCP_PH4PH5@ ↘ NCP_PH5@ ↘ NCP_PH5_X2@	UPI@ ↘ PH4PH5@ ↘ PH5@ ↘ UPI_PH4PH5@ ↘ UPI_PH5@ ↘ UPI_PH5_X2@
GN21 X4	5+1	NCP@ ↘ PH4PH5@ ↘ PH5@ ↘ NCP_PH4PH5@ ↘ NCP_PH5@ ↘ NCP_PH5_X4@	UPI@ ↘ PH4PH5@ ↘ PH5@ ↘ UPI_PH4PH5@ ↘ UPI_PH5@ ↘ UPI_PH5_X4@

Y5S		NCP81611/10	QD9619A@
GN20-P0P1	4+1	NCP@ ↘ PH4PH5@ ↘ NCP_PH3PH4@ ↘ NCP_PH4PH5@ ↘ NCP_GN20_PH4@	UPI@ ↘ PH4PH5@ ↘ UPI_PH4@ ↘ UPI_PH4PH5@ ↘ UPI_GN20_PH4@ ↘ UPI_PH3PH4@
GN21 X2 Currently not in use	4+1	NCP@ ↘ PH4PH5@ ↘ NCP_PH3PH4@ ↘ NCP_PH4PH5@ ↘ NCP_GN21_PH4@ ↘	UPI@ ↘ PH4PH5@ ↘ UPI_PH4@ ↘ UPI_PH4PH5@ ↘ UPI_GN21_PH4@ ↘ UPI_PH3PH4@
GN21 X2	5+1	NCP@ ↘ PH4PH5@ ↘ PH5@ ↘ NCP_PH4PH5@ ↘ NCP_PH5@ ↘ NCP_PH5_X2@	UPI@ ↘ PH4PH5@ ↘ PH5@ ↘ UPI_PH4PH5@ ↘ UPI_PH5@ ↘ UPI_PH5_X2@
GN21 X4	5+1	NCP@ ↘ PH4PH5@ ↘ PH5@ ↘ NCP_PH4PH5@ ↘ NCP_PH5@ ↘ NCP_PH5_X4@	UPI@ ↘ PH4PH5@ ↘ PH5@ ↘ UPI_PH4PH5@ ↘ UPI_PH5@ ↘ UPI_PH5_X4@
GN21 X6	5+1	NCP@ ↘ PH4PH5@ ↘ PH5@ ↘ NCP_PH4PH5@ ↘ NCP_PH5@ ↘ NCP_PH5_X6@	UPI@ ↘ PH4PH5@ ↘ PH5@ ↘ UPI_PH4PH5@ ↘ UPI_PH5@ ↘ UPI_PH5_X6@

2022/06/23 NCP81611@ and NCP81610A@ EN1 high >1.2V EN1 low <0.6V
QD9619A@ EN1 high >0.2V EN1 low <0.1V

TO UPI QD9619A FAULT (PIN16)

Place close to GPU pins

30.TO PIN31 FB_UPI

29.TO PIN32 FBRTN_UPI

27.VINMON_UPI

29.EAP_UPI

24.LPC_UPI

26.ADDR/FSW_UPI

25.IMON_UPI

23.REFOUT_UPI

21.CSNSUM_GPU_UPI

22.CSPSUM_GPU_UPI

UPI TO PIN23 REFOUT_UPI

2022/12/27
On Semi-OCP
+NVVDD(GN20_PH3)=130 A
+NVVDD(GN20_PH4)=200 A
+NVVDD(4PH_GN21_X2) =195A
+NVVDD(5PH_GN21_X2) =195A
+NVVDD(5PH_GN21_X4) =230 A
+NVVDD(5PH_GN21_X6) =260 A

2022/12/27
UPI Vout=0.75v
GN20_3Phase OCP=130 A
GN20_4Phase OCP=200 A
GN21_4Phase X2 OCP=195A
GN21_5Phase X2 OCP=195A
GN21_5Phase X4 OCP=230 A
GN21_5Phase X6 OCP=260 A

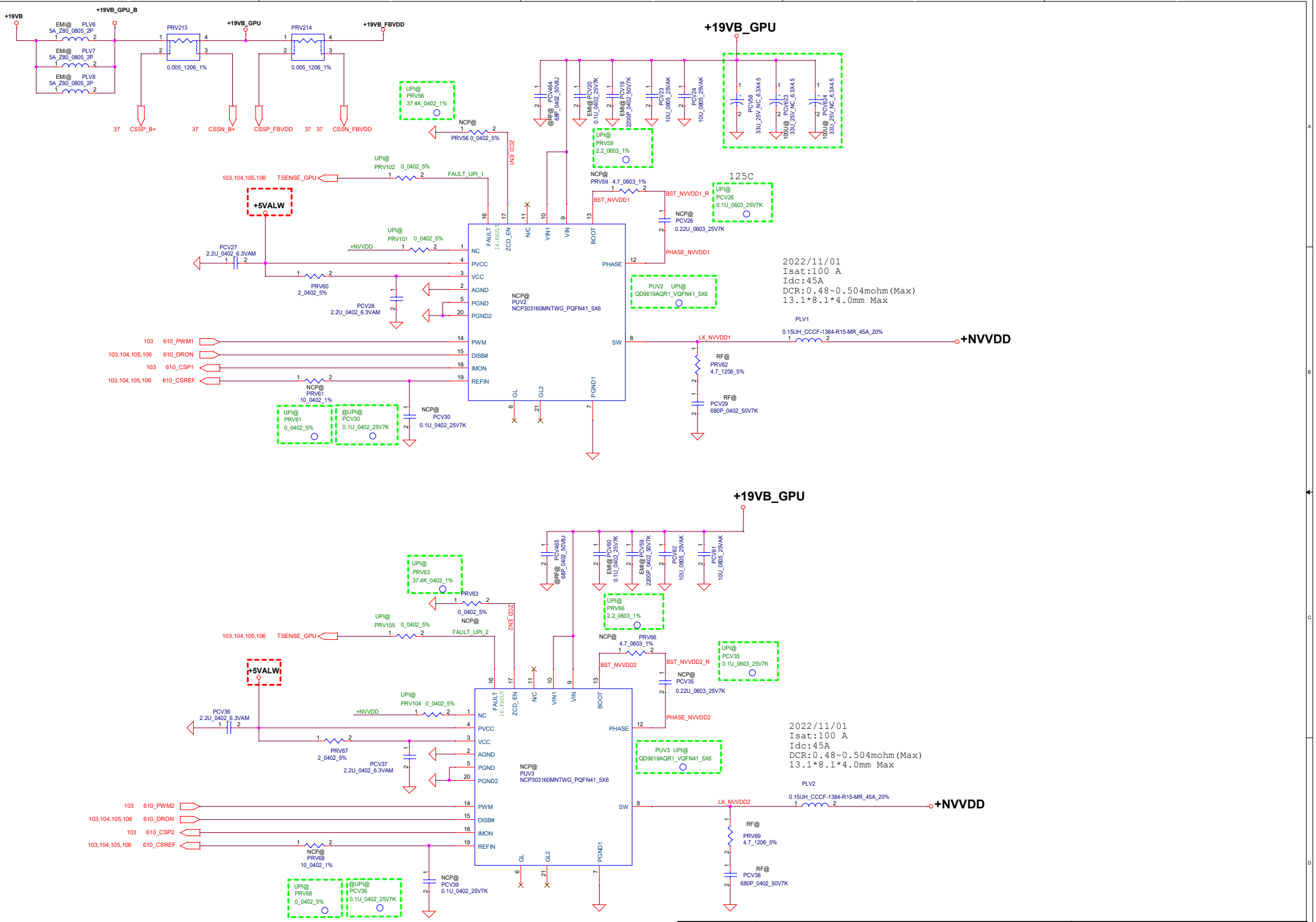
Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

Compal Electronics, Inc.

Title: PWR-VGA_CORE_NCP81611

Size: Document Number: Rev: 0.1

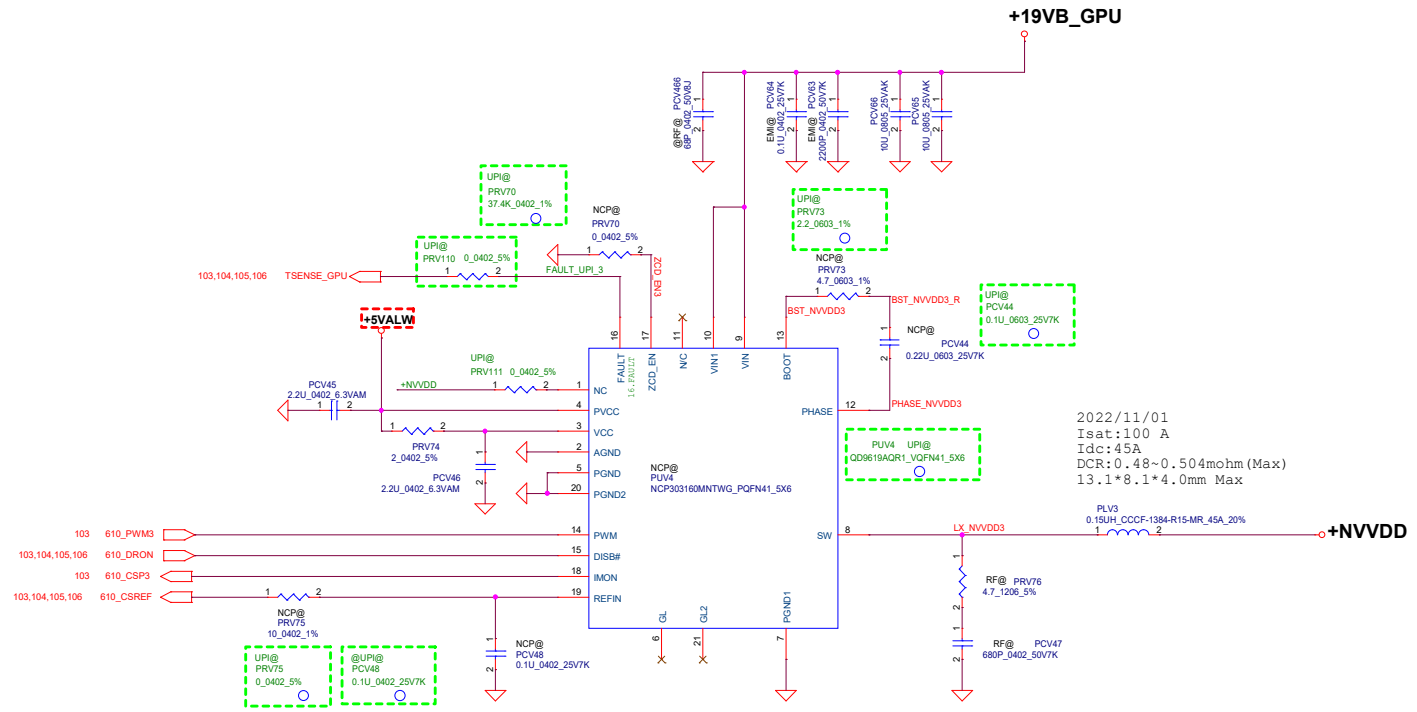
Date: Wednesday, March 01, 2023 Sheet 103 of 121

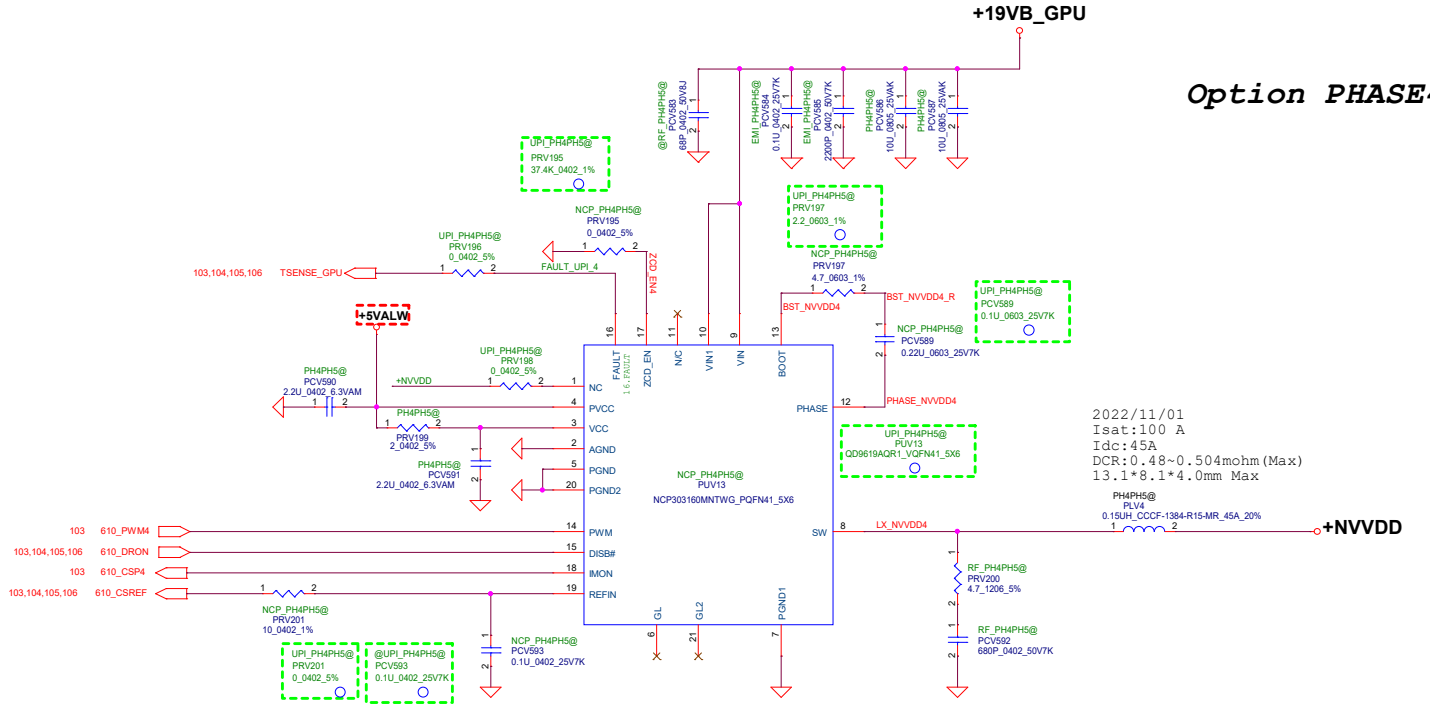


Security Classification	Compal Secret Data		
Issued Date	2020/7/31	Deciphered Date	2020/7/31

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

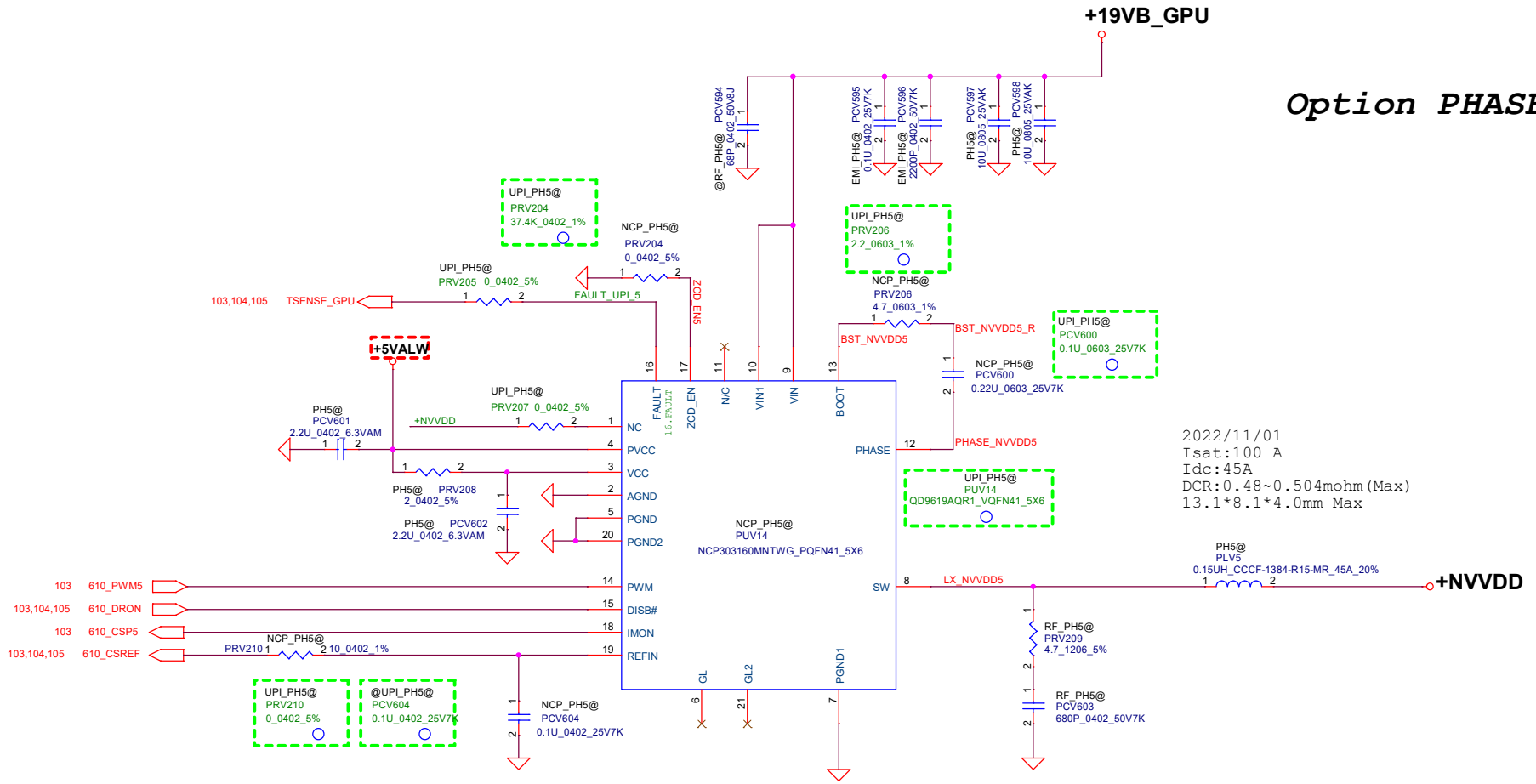
Compal Electronics, Inc.	
Title	PWR-VGA_CORE_Phase1&2
Size	Document Number
Rev	0.1
Date:	Wednesday, March 01, 2023
Sheet	104 of 121





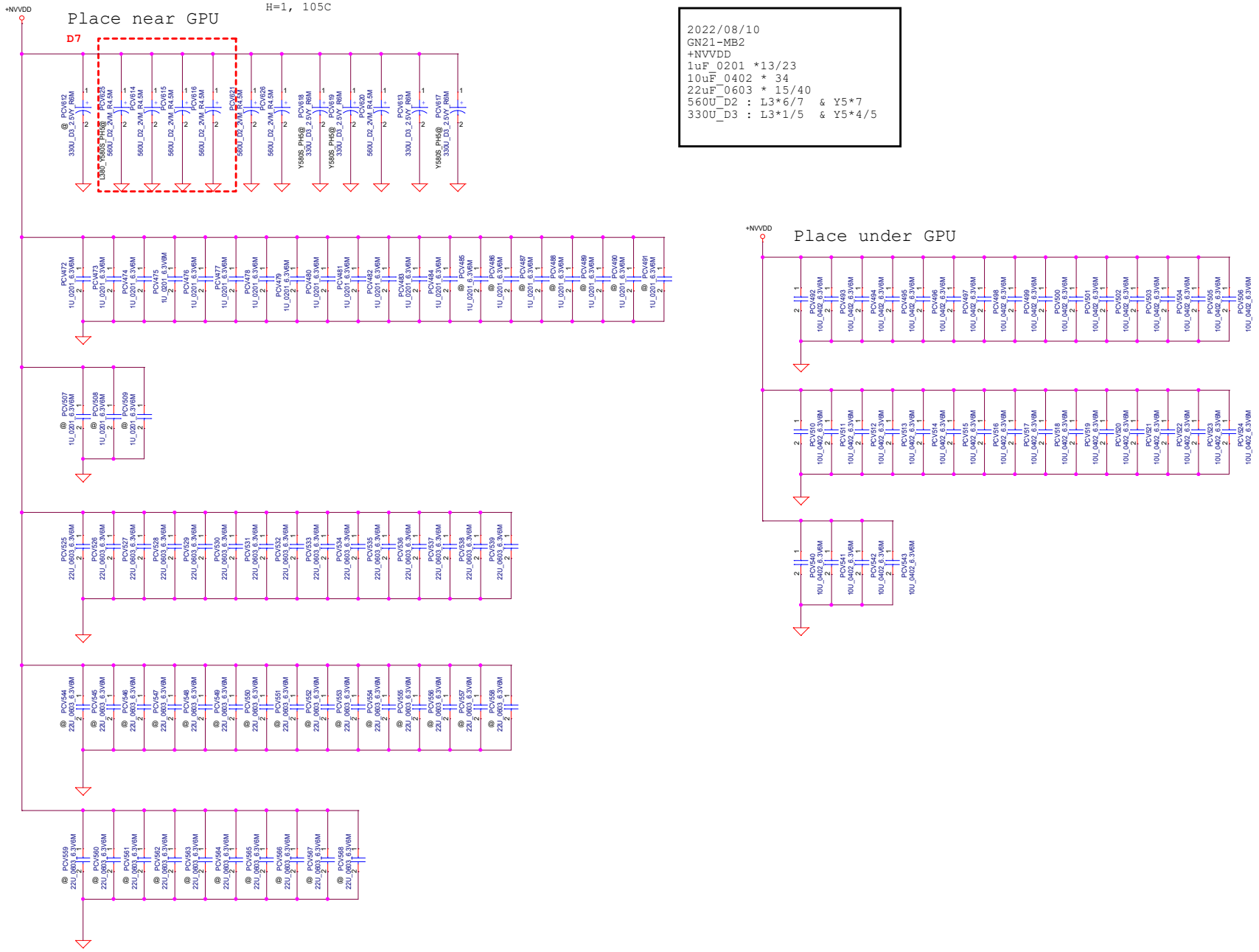
Security Classification	Compal Secret Data		
Issued Date	2021/05/31	Deciphered Date	2021/05/31

Compal Electronics, Inc.			
Title	PWR-VGA_CORE_Phase3&4		
Size	Document Number		Rev 0.1
Date: Wednesday, March 01, 2023	Sheet 105 of 121		



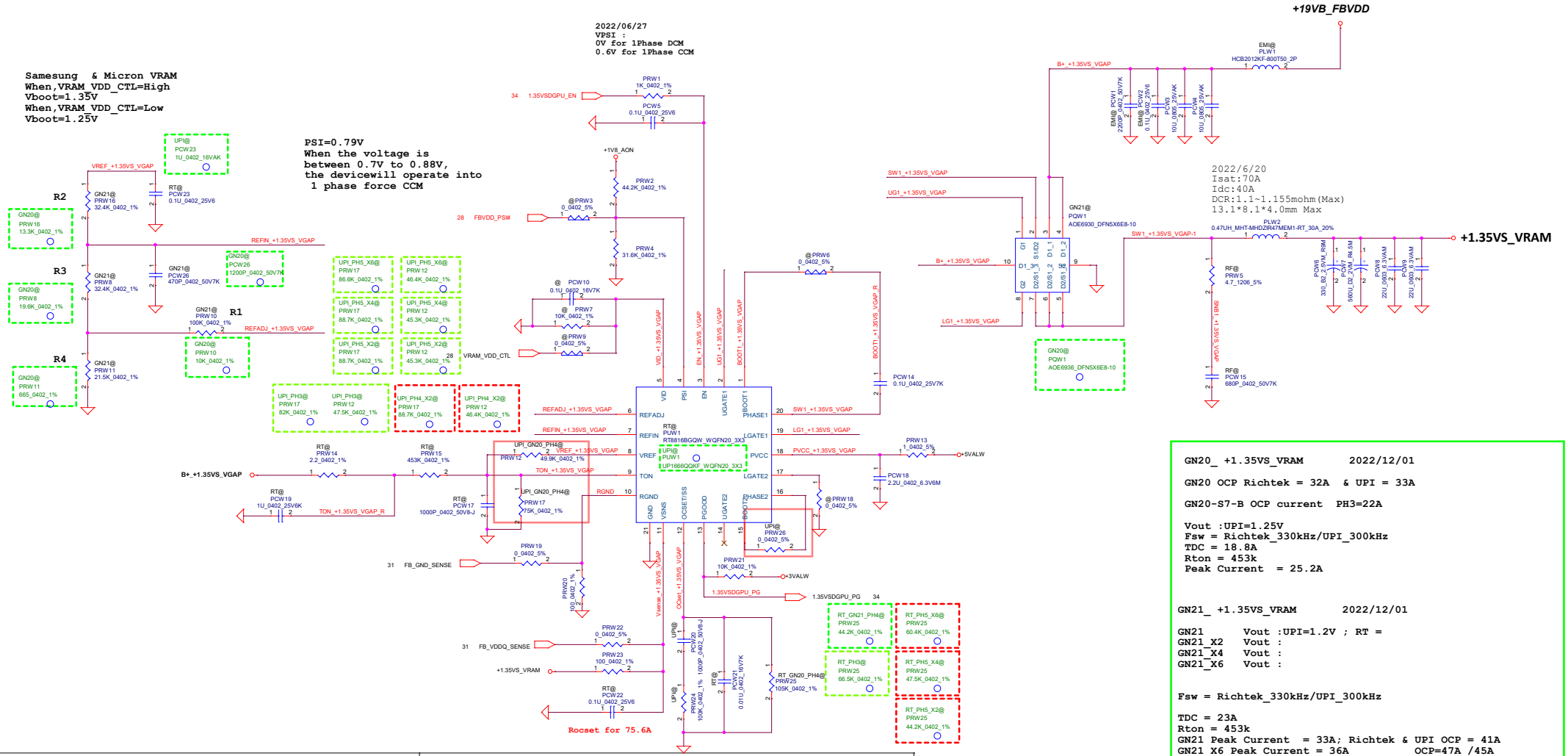
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	

Title	PWR-VGA_CORE_Phase5		
Size Custom	Document Number		Rev 0.1
Date: Wednesday, March 01, 2023	Sheet 106 of 121		



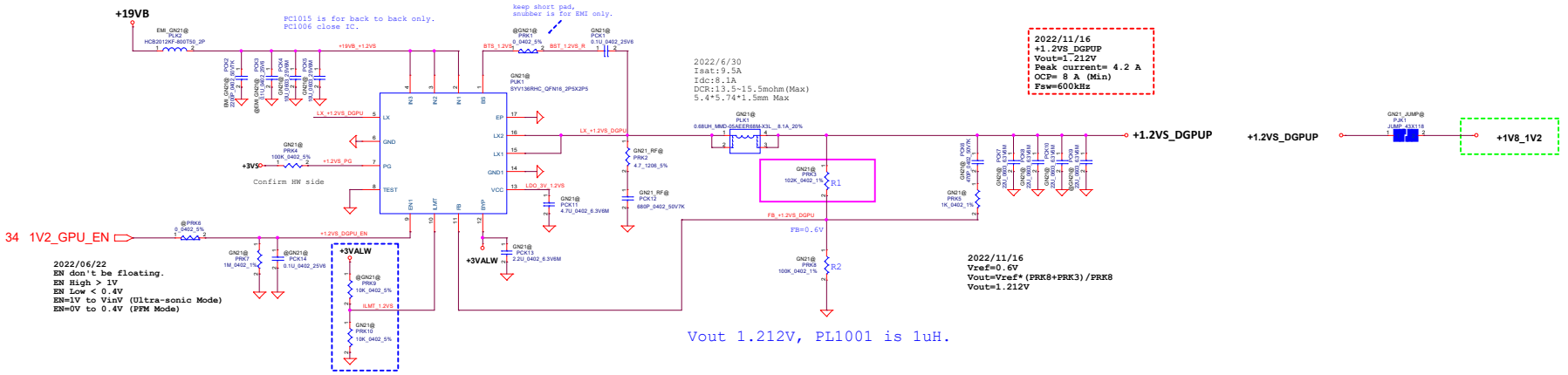
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: PWR- GPU_CORE Cap

Size: C	Document Number		Rev: 0.1
Date: Wednesday, March 01, 2023	Sheet 107 of 121		



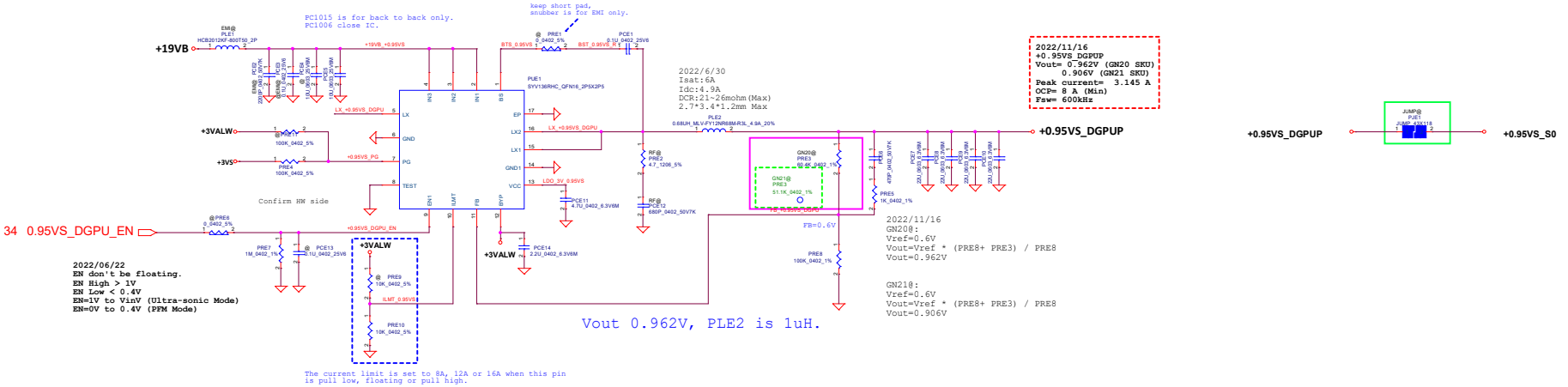
RT						UPI					
GN20-S7-B	GN20-P0-R	GN21_PH4	GN21_X2	GN21_X4	GN21_X6	GN20-S7-B	GN20-P0-R	GN21_PH4	GN21_X2	GN21_X4	GN21_X6
RT@、 GN20@、 RT_PH3@	RT@、 GN20@、 RT_GN20_PH4@	RT@、 GN21@、 RT_GN21_PH4@	RT@、 GN21@、 RT_PH5_X2@	RT@、 GN21@、 RT_PH5_X4@	RT@、 GN21@、 RT_PH5_X6@	GN20@、 UPI@、 UPI_PH3@	GN20@、 UPI@、 UPI_GN20_PH4@	GN21@、 UPI@、 UPI_PH4_X2@、	GN21@、 UPI@、 UPI_PH5_X2@	GN21@、 UPI@、 UPI_PH5_X4@	GN21@、 UPI@、 UPI_PH5_X6@

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	Deciphered Date		Title: PWR- GPU_VRAM
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			Size: Custom; Document Number; Rev: 0.1 Date: Wednesday, March 01, 2023; Sheet 108 of 121

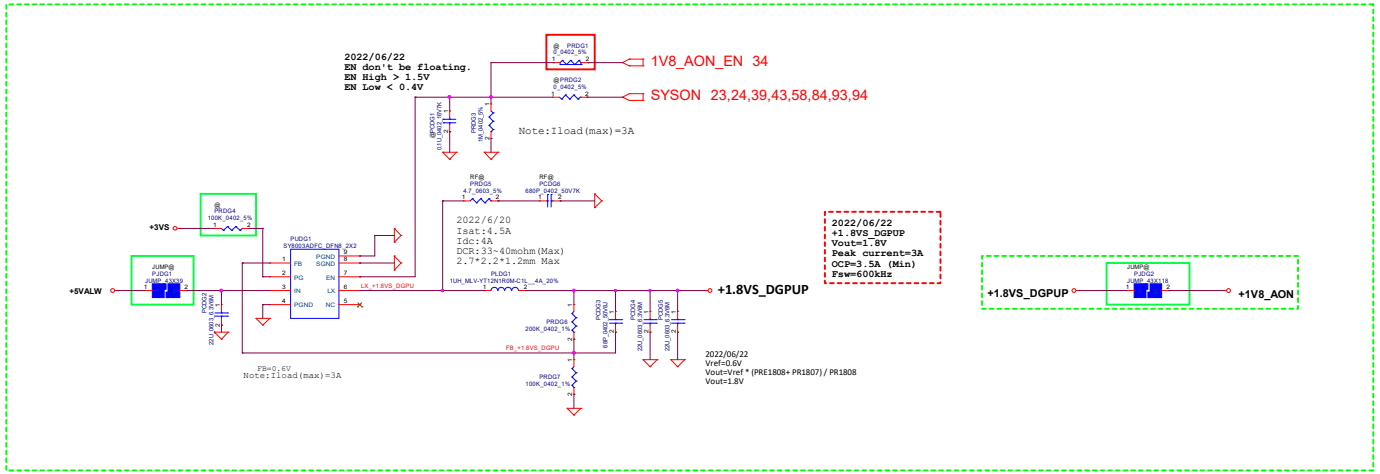


Please base on Vo ripple spec of your application to estimate output caps.

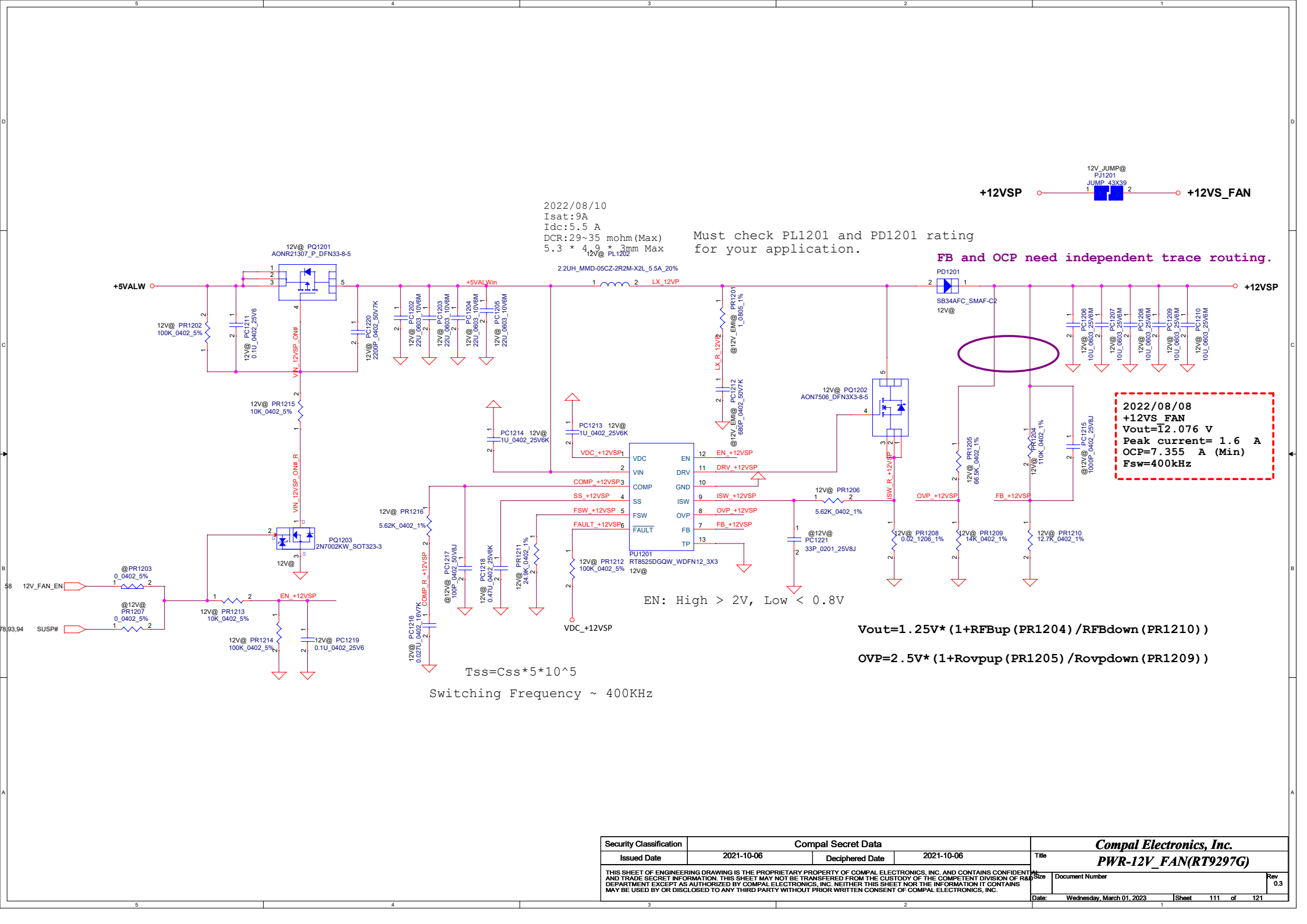
Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: PWR- GPU_1.2V
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			Size: D; Document Number; Rev: 0.1
			Date: Wednesday, March 01, 2023; Sheet 109 of 121



Please base on Vo ripple spec of your application to estimate output caps.



Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: PWR- GPU_1.8V/0.95V
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			Size: D; Document Number; Rev: 0.1
			Date: Wednesday, March 01, 2023; Sheet 110 of 121



Security Classification	Compal Secret Data		
Issued Date	2021-10-06	Deciphered Date	2021-10-06

Compal Electronics, Inc.			
Title	PWR-12V_FAN(RT9297G)		
Size	Document Number		Rev 0.3
Date: Wednesday, March 01, 2023	Sheet 111 of 121		