

Compal Confidential

Argon2 MB Schematic Document

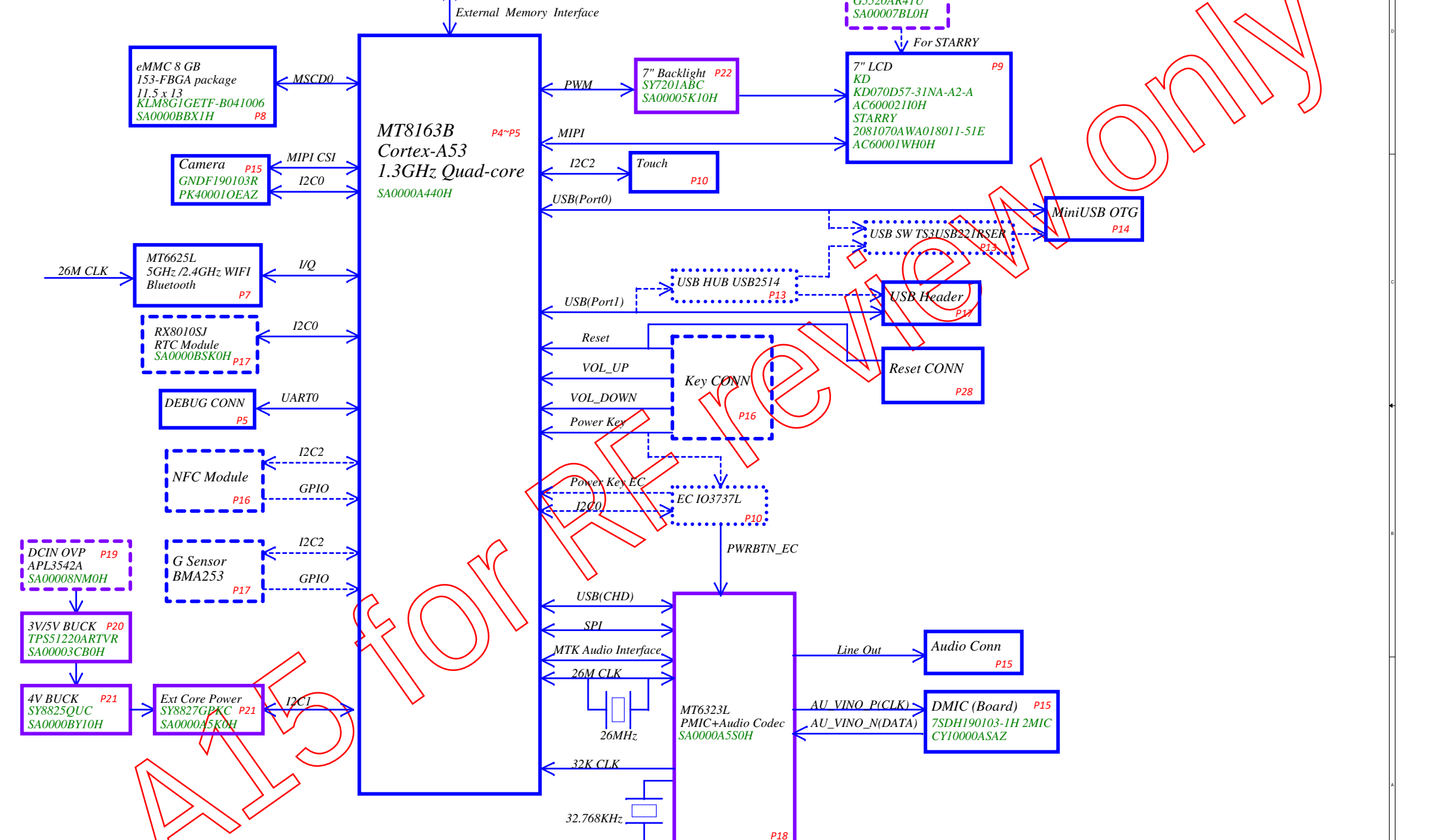
LA-L511P

Rev: 0.2

2021.04.26

Security Classification	Compal Secret Data			Title	
Issued Date	2016/06/28	Deciphered Date	2016/06/28	Cover Sheet	
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				Custom	LA-L511P
Date: Monday, April 26, 2021				Sheet	1 of 26
				Rev	0.2

Block Diagram with MT8163B



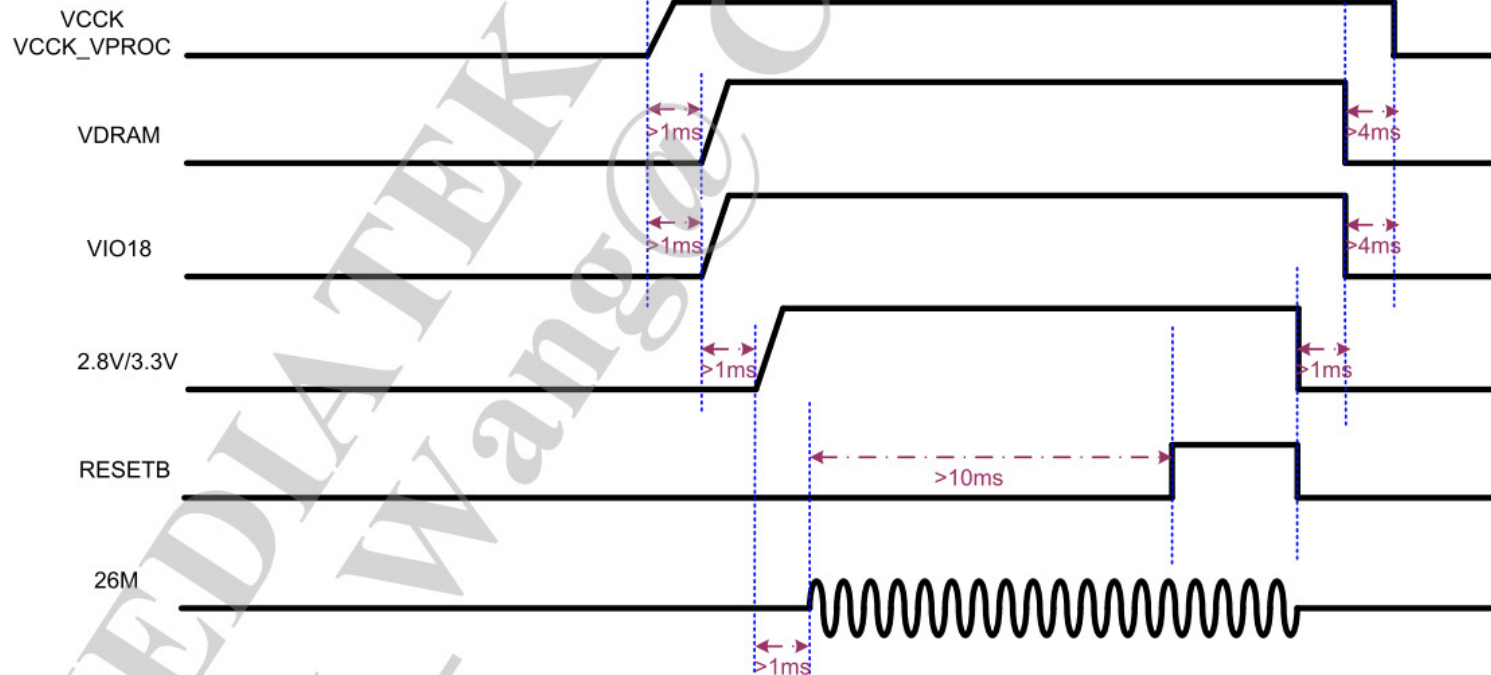


Figure 2-13: Power on/off sequence

Power Rail	Level	S0	S5
VPROC	1.15V	1.15V	0V
EXT VPROC Buck	1.15V	1.15V	0V
VSYS	2.2V	2.2V	0V
VA	2.8V	2.8V	0V
VTCXO	2.8V	2.8V	0V
VCN33	3.3V	3.3V	0V
(VM)VCCIO	1.24V	1.24V	0V
VIO18	1.8V	1.8V	0V
VRTC	2.8V	2.8V	0V
VCN18	1.8V	1.8V	0V
VEMC_3V3	3.3V	3.3V	0V
VMC	3.3V	3.3V	0V
VMCH	3.3V	3.3V	0V
VUSB	3.3V	3.3V	0V
VGP1	2.8V	2.8V	0V
VIBR	1.2V	1.2V	0V
VGP3	1.2V	1.2V	0V
VCAMA	2.8V	2.8V	0V
VCAMD	1.8V	1.8V	0V
VCAM_IO	1.8V	1.8V	0V
+3VA	3.3V	3.3V	3.3V
+3VL	3.3V	3.3V	3.3V
+4VA	4.0V	4.0V	0V
+5VALW	5.0V	5.0V	5.0V
+5VLDO	5.0V	5.0V	5.0V

I2C address table

	SCL0/SDA0	SCL1/SDA1	SCL2/SDA2
Camera (GC2375)	0x6E (Write) 0x6F (Read)		
EXT_VPROC BUCK (SY8827G)		0xC0	
Touch Controller (eKTH3386)			0x10
EC (IO3737LU B1)	0xE0		
RTC module (RX8010SJ)	0x32		
NFC module			0x??
G Sensor BMA253			0x18

Crystal

Y1
ERSON@
SJ100001K0H
S CRYSTAL 32.768KHZ Q13FC1350000400

LPDDR3

U501
LEAHKINN@
SA0000CJ20H
S IC D3 2G/1600 KFO555ES8-ZIB1 FBGA178R

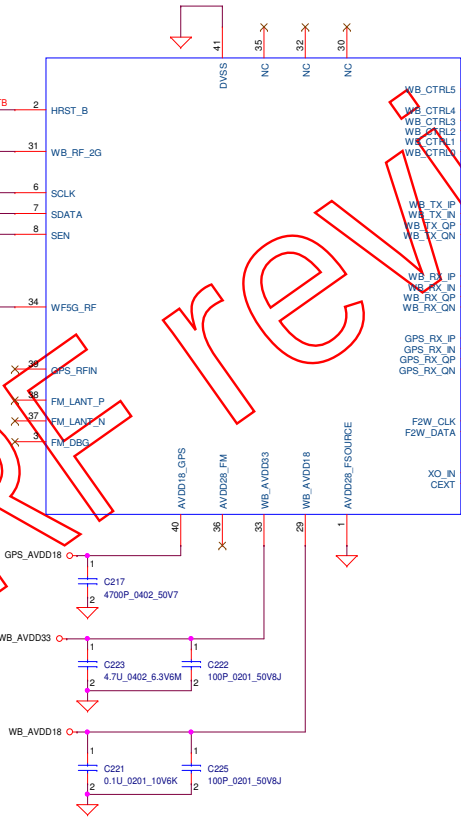
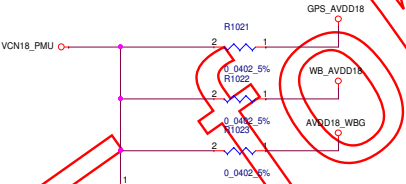
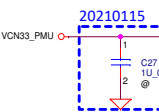
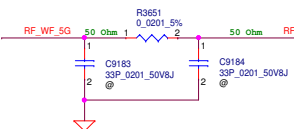
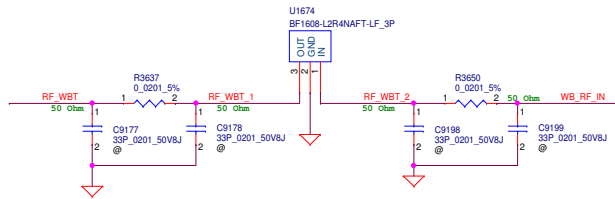
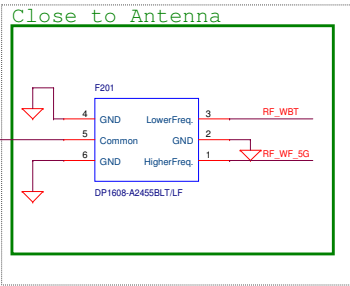
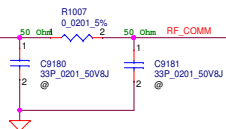
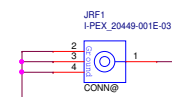
U501
LEAHKINN@
SA0000CLP0H
S IC D3 2G/1600 LTFP0066ES8-ZJY2 FBGA178

U501
LEAHKINAZ@
SA0000CLPAZ
S IC D3 2G/1600 LTFP0066ES8-ZJY2 FBGA178

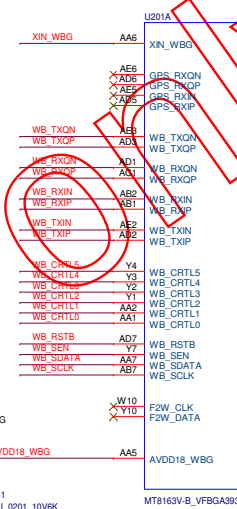
PCB

DAX
PCB DA@
DA8001Q100H
PCB 3PP LA-L511P REV0 7" LCD M/B

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				Date: Monday, April 26, 2021	Sheet 3 of 26



[18] VCN18_PMU
[18] VCN33_PMU



<Critical!!>
5G PCB loss is higher.
Trace must kept short and 50-Ohm
No layer transition

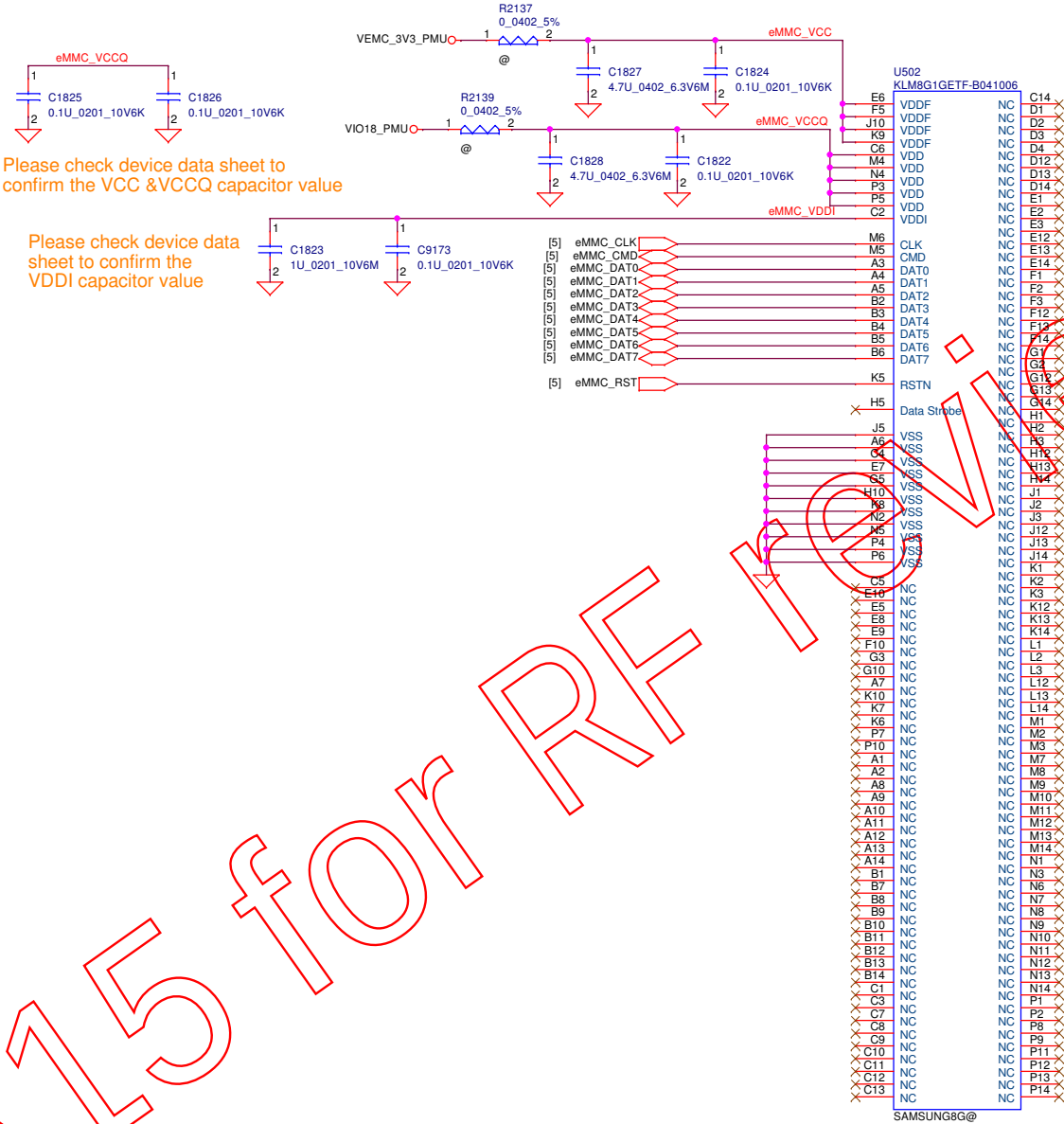
A1500R

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				LA-L511P
				Rev
				0.2
				Date
				Monday, April 26, 2021
				Sheet
				7 of 26

eMMC

1. VCC : Core Voltage 2.7v ~ 3.6v
2. VCCQ : IO Voltage 1.7v~1.95v (low voltage range)

[18] VEMC_3V3_PMU
[4,5,6,9,10,14,15,16,17,18] VIO18_PMU

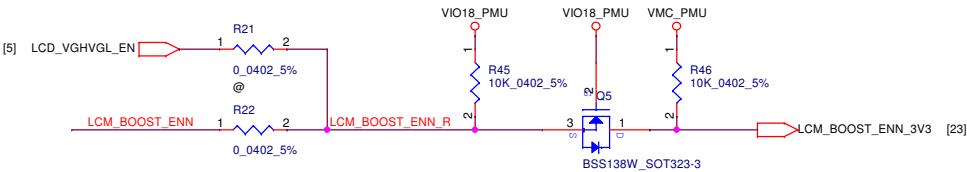
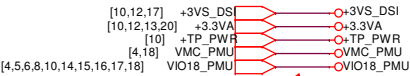


Please check device data sheet to confirm the VCC & VCCQ capacitor value

Please check device data sheet to confirm the VDDI capacitor value

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				eMMC	
				Size	Document Number
				Custom	LA-L511P
				Date:	Monday, April 26, 2021
				Sheet	8 of 26
				Rev	0.2

MT8163 MIPI DSI & LVDS PIN-MUX

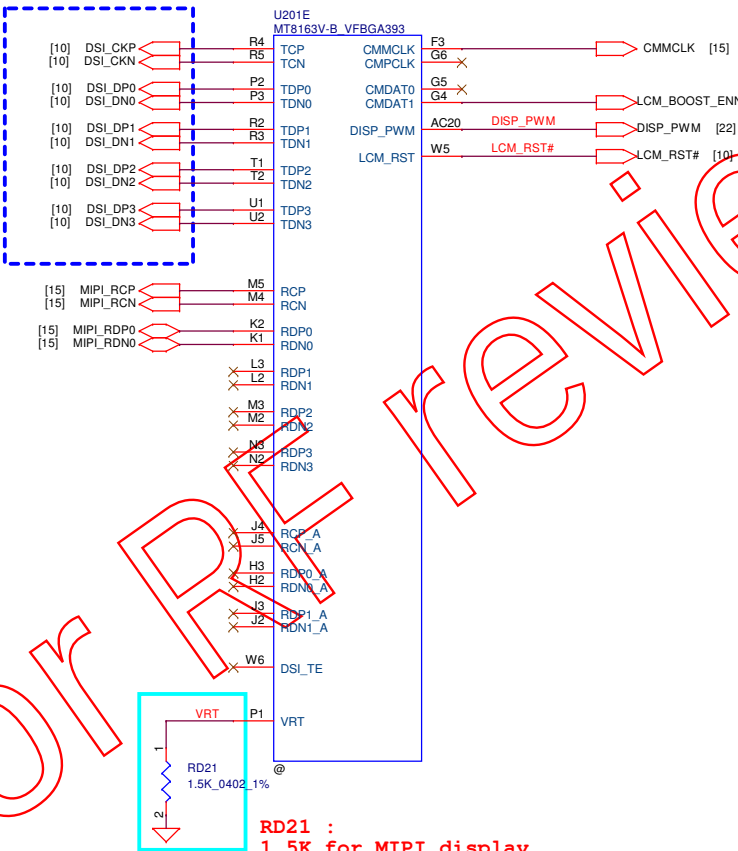


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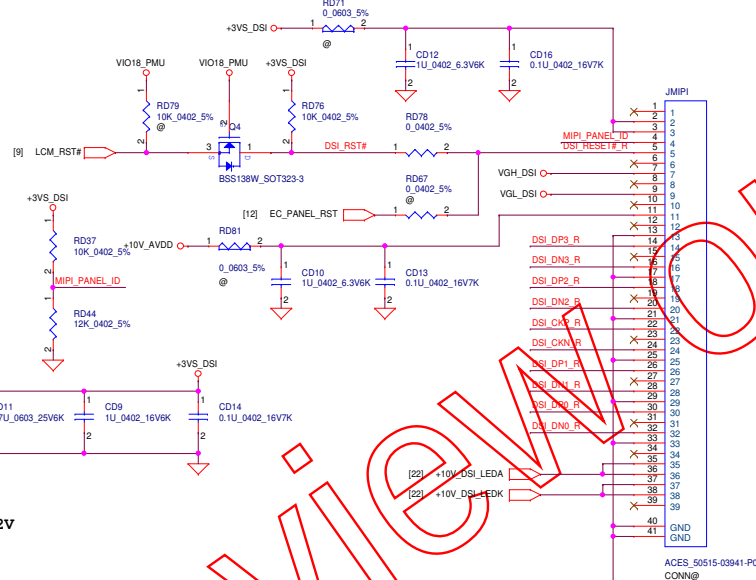
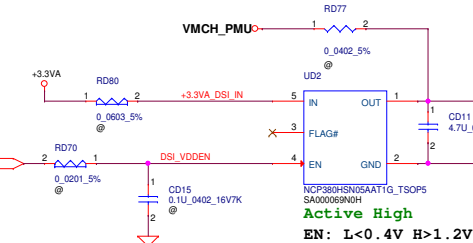
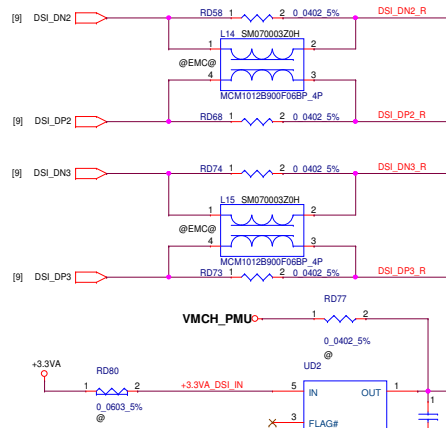
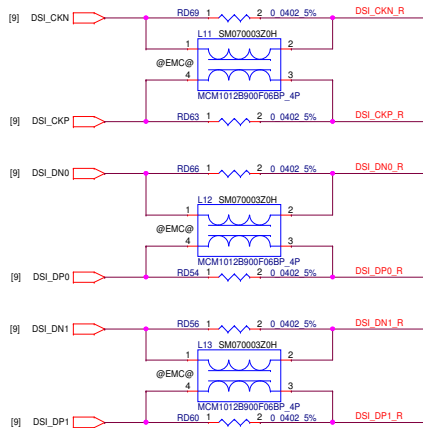
MIPI DSI IF	LVDS IF
TCP	RIN2+
TCN	RIN2-
TDP0	RIN0+
TDN0	RIN0-
TDP1	RIN1+
TDN1	RIN1-
TDP2	CLKIN+
TDN2	CLKIN-
TDP3	RIN3+
TDN3	RIN3-

MT8163 PARALLEL CAMERA I/F PIN-MUX

PAD_RCP	GPI0106	IRCP	
PAD_RDN2	GPI0107	ERDN2	ICMDAT8
PAD_RDP2	GPI0108	ERDP2	ICMDAT9
PAD_RDN3	GPI0109	ERDN3	ICMDAT4
PAD_RDP3	GPI0110	ERDP3	ICMDAT5
PAD_RDN_A	GPI0111	ERCN_A	ICMDAT6
PAD_RCP_A	GPI0112	IRCP_A	ICMDAT7
PAD_RDN1_A	GPI0113	ERDN1_A	ICMDAT2
PAD_RDP1_A	GPI0114	ERDP1_A	ICMDAT3
PAD_RDN0_A	GPI0115	ERDN0_A	ICMHSYNC
PAD_RDP0_A	GPI0116	ERDP0_A	ICMHSYNC
PAD_CMDAT0	GPI0117	ICMDAT0	ICMCS00
PAD_CMDAT1	GPI0118	ICMDAT1	ICMCS01
PAD_CMMCLK	GPI0119	ICMCLK	
PAD_CMPCLK	GPI0120	ICMCLK	ICMCSK



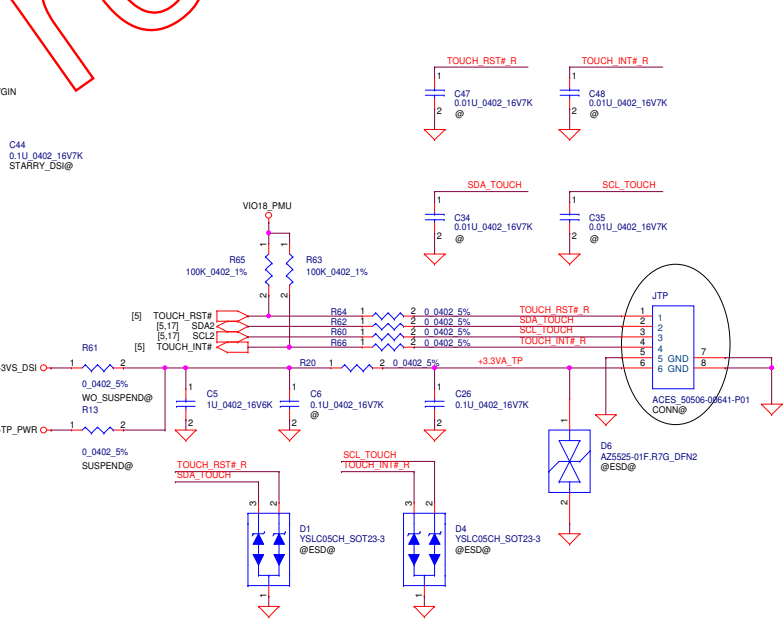
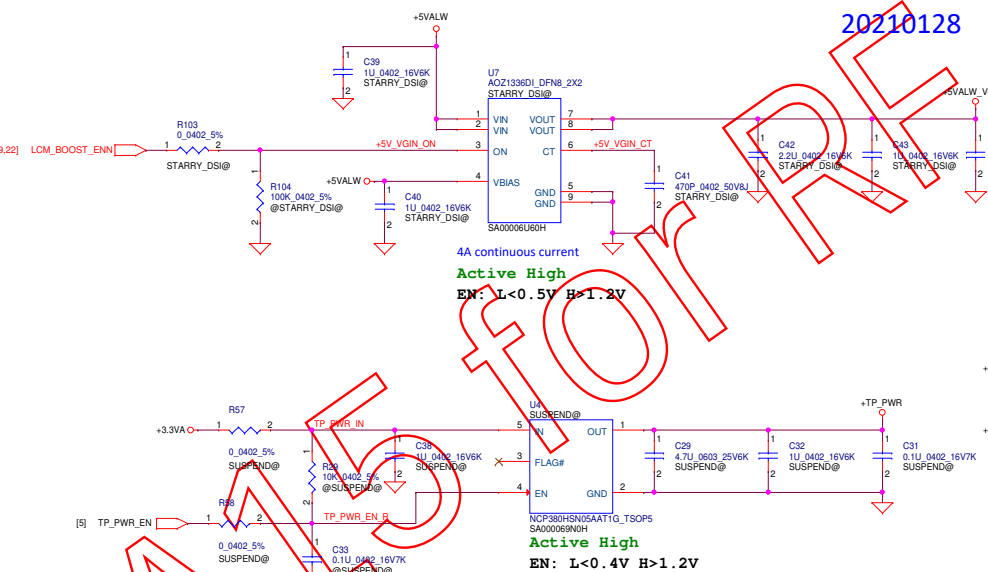
RD21 :
1.5K for MIPI display
24K for LVDS display

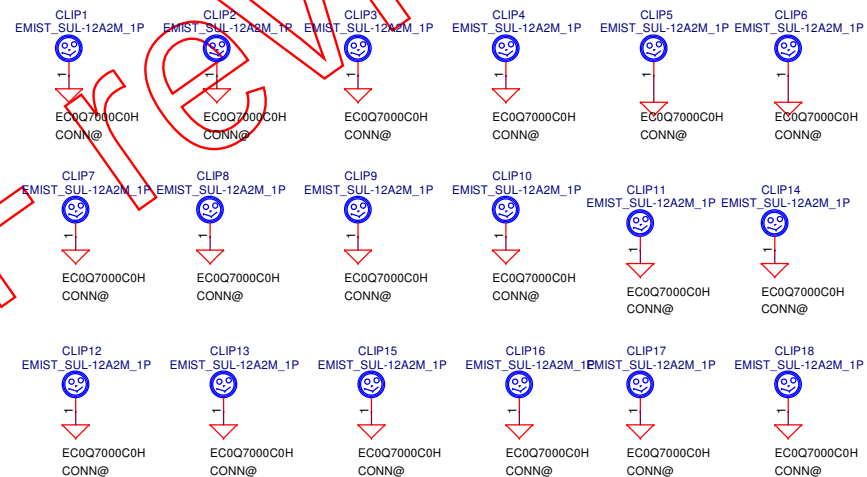
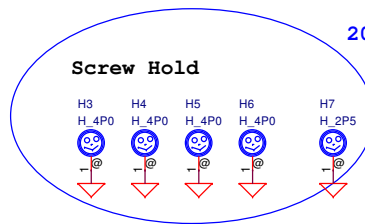
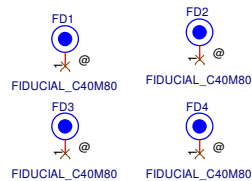
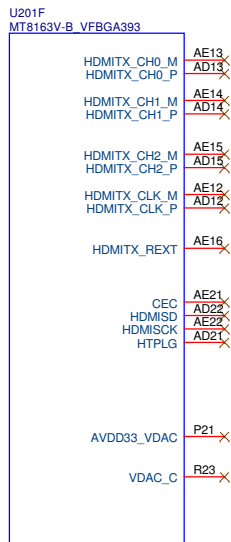


STAR 20810700A01011-51E

PIN	Symbol
1	NC
2	LED-
3	LED+
4	LED+
5	LED+
6	NC
7	GND
8	DON
9	NC
10	DOP
11	GND
12	DIN
13	NC
14	DIP
15	GND
16	CLKN
17	NC
18	CLKP
19	GND
20	D2N
21	NC
22	D2P
23	GND
24	D3N
25	NC
26	D3P
27	GND
28	NC
29	AVDD (10V)
30	NC
31	VGL (-7V)
32	NC
33	VGH (21V)
34	NC
35	RESET
36	ID
37	VDD
38	VDD
39	NC

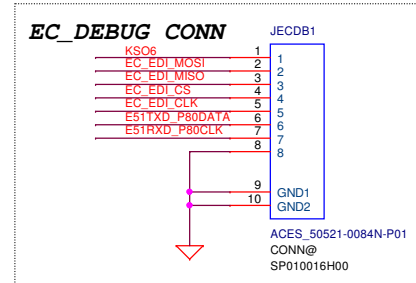
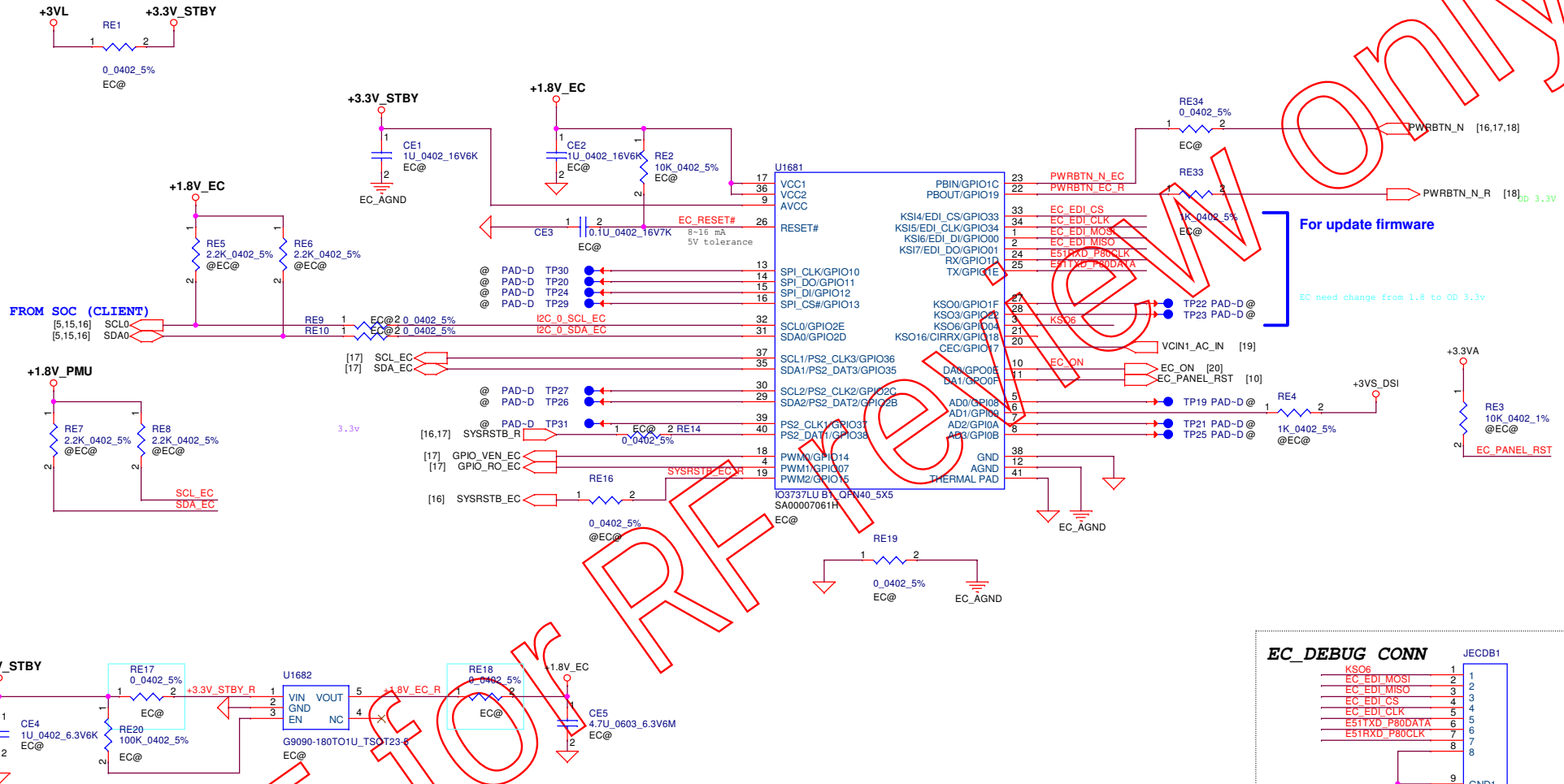
20210128





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					Size	Document Number	Rev
					Custom	LA-L511P	0.2
					Date:	Monday, April 26, 2021	Sheet 11 of 26

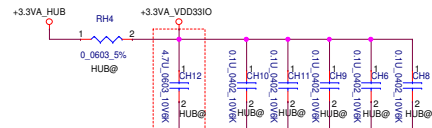
EC 103737L



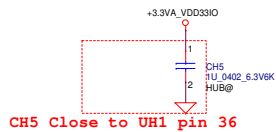
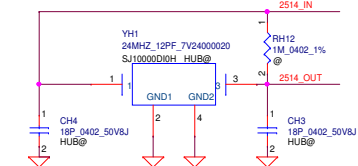
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				Custom	LA-L511P	0.2
				Date:	Monday, April 26, 2021	Sheet 12 of 26

CFG_SEL[1]	CFG_SEL[0]	DESCRIPTION
0	0	Default configuration: ■ Strap options enabled ■ Self-powered operation enabled ■ Individual power switching ■ Individual over-current sensing

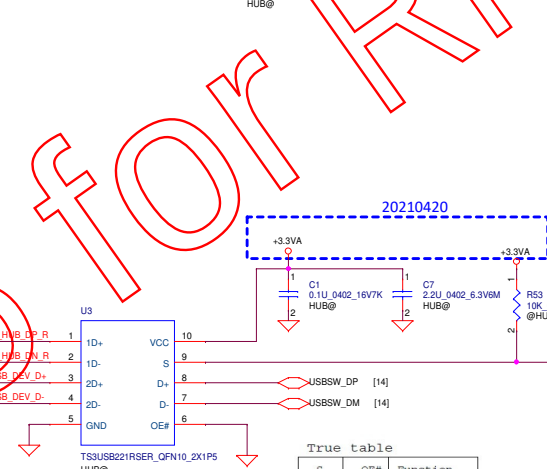
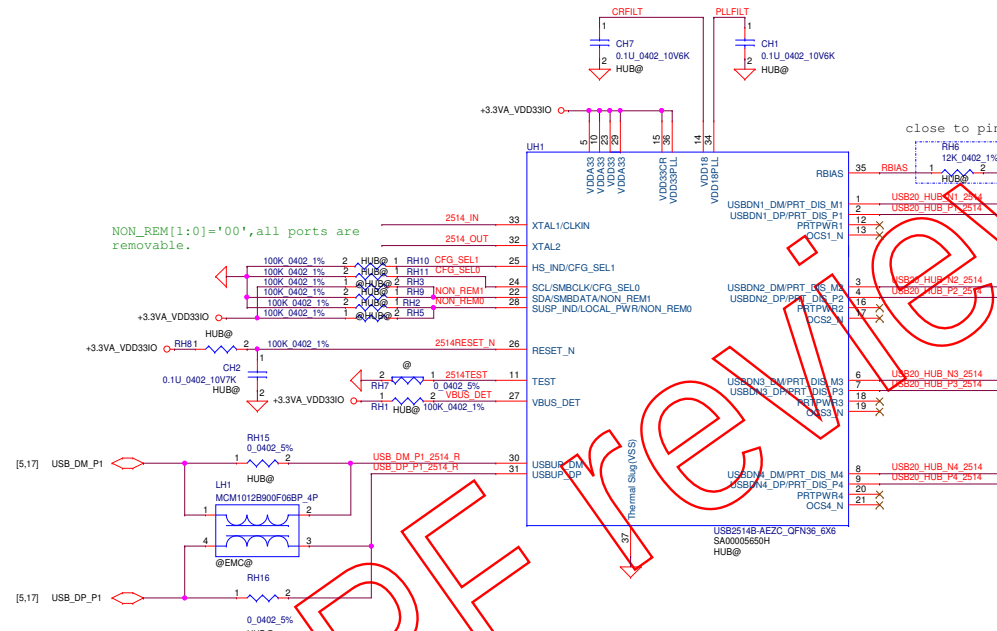
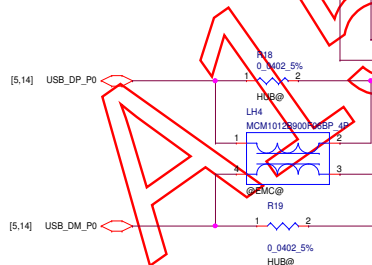
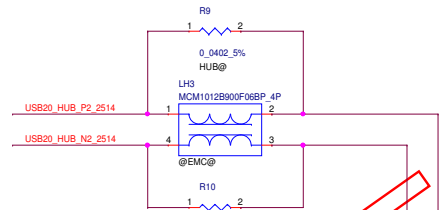
USB HUB



CH12 Close to UH1 pin 15



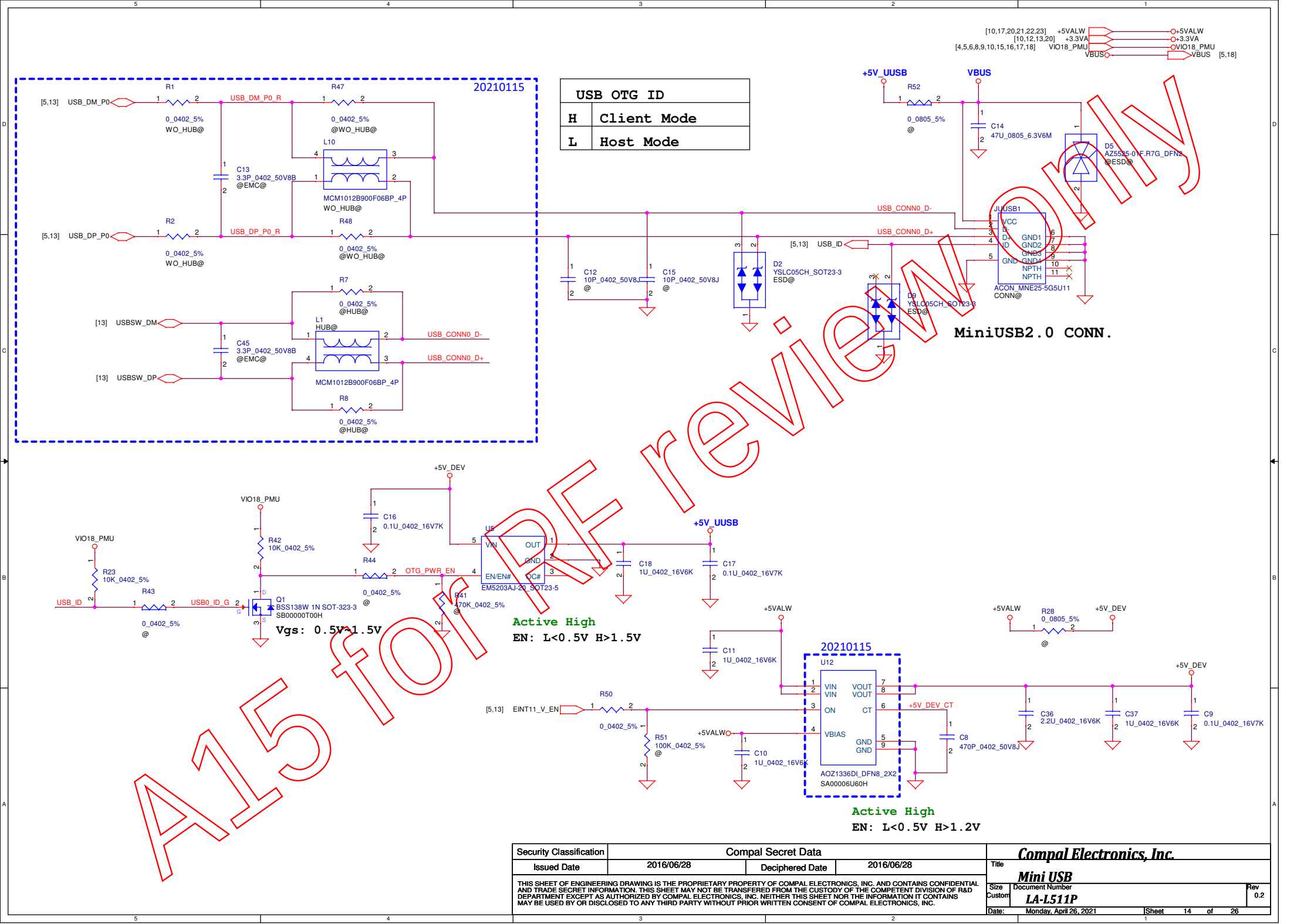
CH5 Close to UH1 pin 36



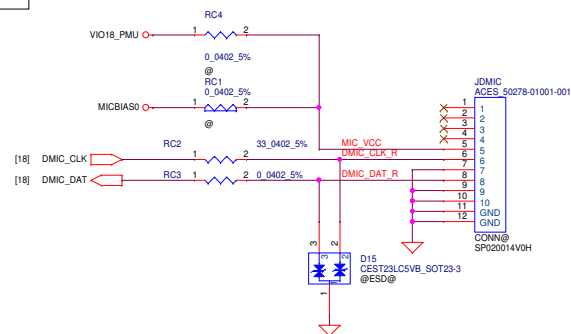
True table

S	OE#	Function
X	H	Disconnect
L	L	D = 1D
H	L	D = 2D

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Size	C	Document Number	LA-L511P	Rev
Date	Monday, April 26, 2021	Sheet	61	of 26

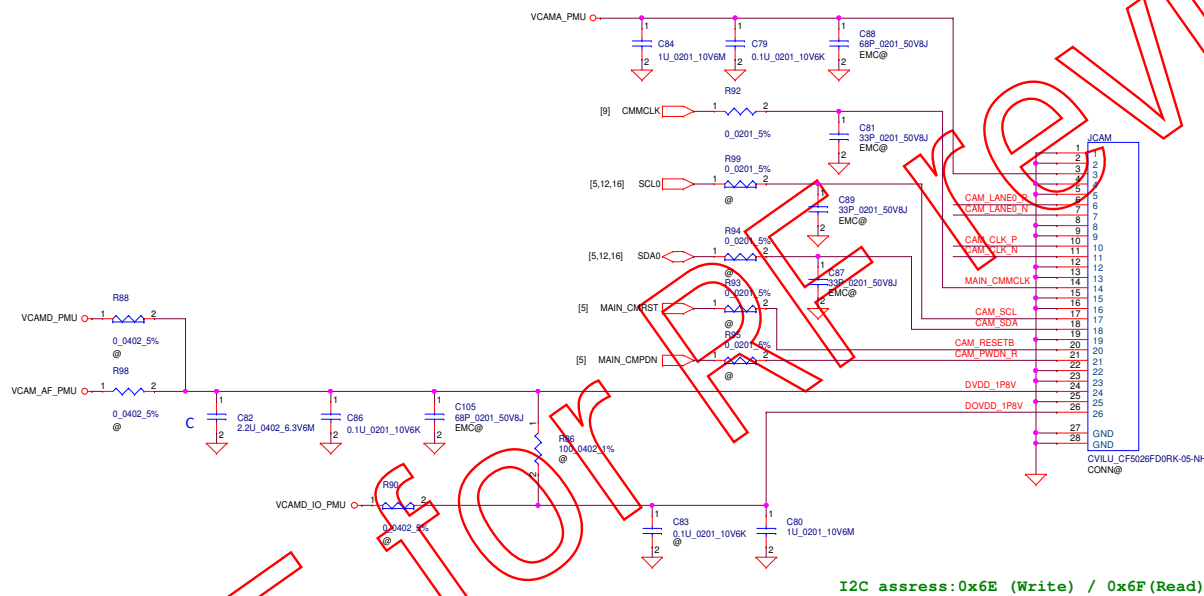
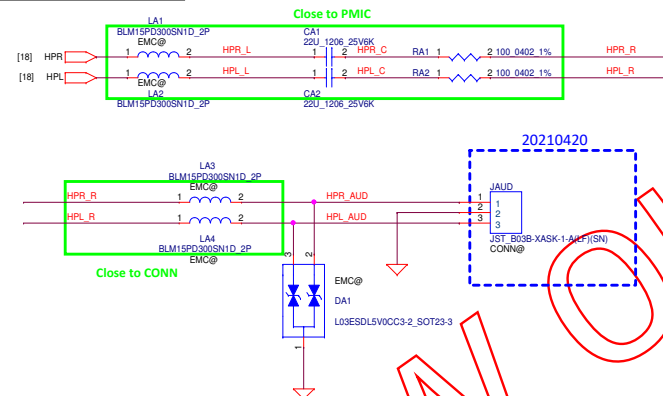


DMIC



P/NO.	PIN define
1	NC
2	NC
3	NC
4	NC
5	MIC-VCC
6	MIC-MCLK
7	MIC-GND
8	MIC-SIG
9	DGND
10	NC

Line out CONNECTOR



P/N/D	PIN define
1	1X(GND)
2	GND
3	VCAMA 2P8V
4	GND
5	GND
6	CAM LANE0 P
7	CAM LANE0 N
8	GND
9	GND
10	CAM CLK P
11	CAM CLK N
12	GND
13	GND
14	CMCLK
15	GND
16	GND
17	CAM SCL 1.8V
18	CAM SDA 1.8V
19	GND
20	CAM RESET 1.8V
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22	GND
23	GND
24	DVDD 1P8V
25	GND
26	D0VDD 1P8V

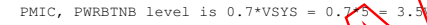
VCAMA_PMU [18]
VCAMD_PMU [18]
VCAMD_IO_PMU [18]
VCAM_AF_PMU [18]

```
I2C address:0x6E (Write) / 0x6F(Read)
```

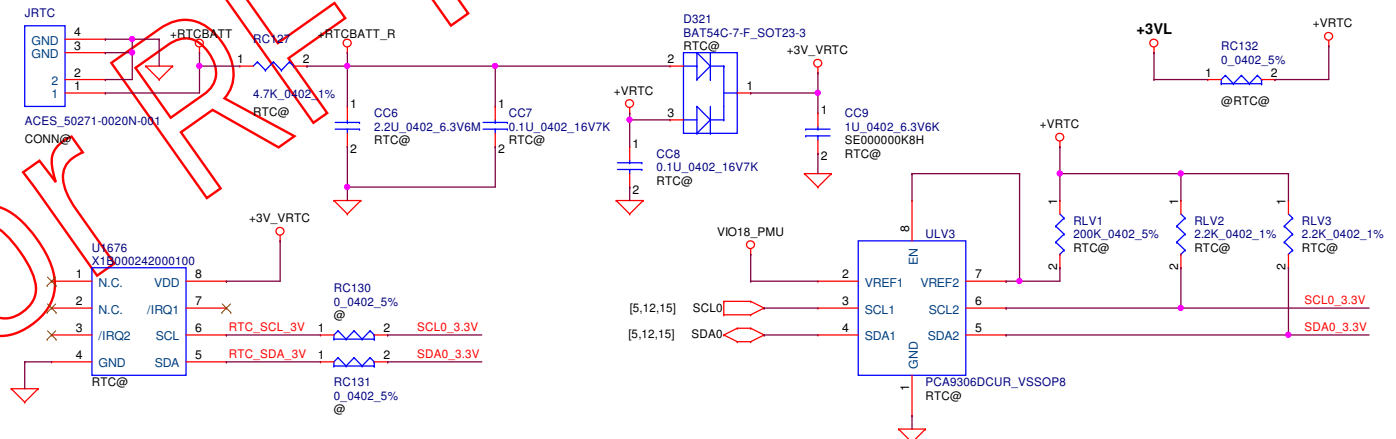


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				Document Number	0
				LA-L511P	
Date:	Monday, April 26, 2021	Sheet	15	of	26

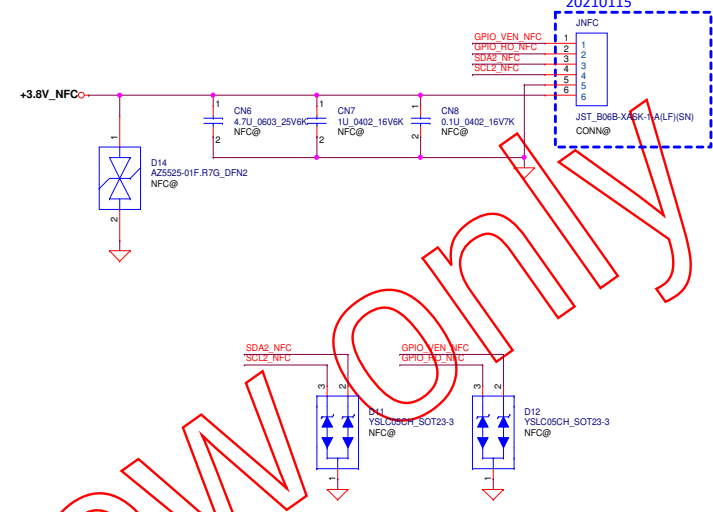
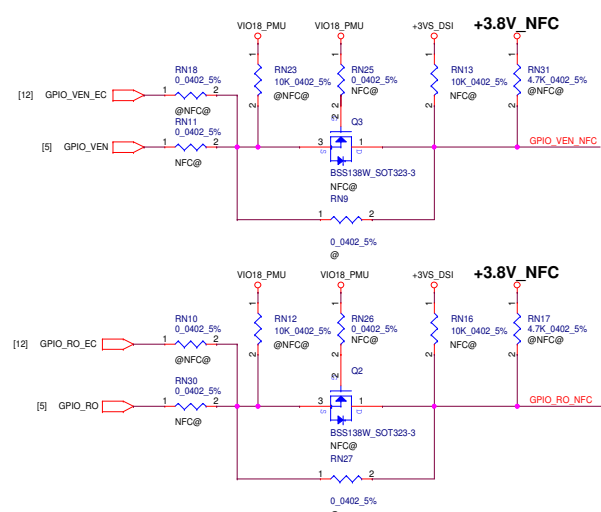
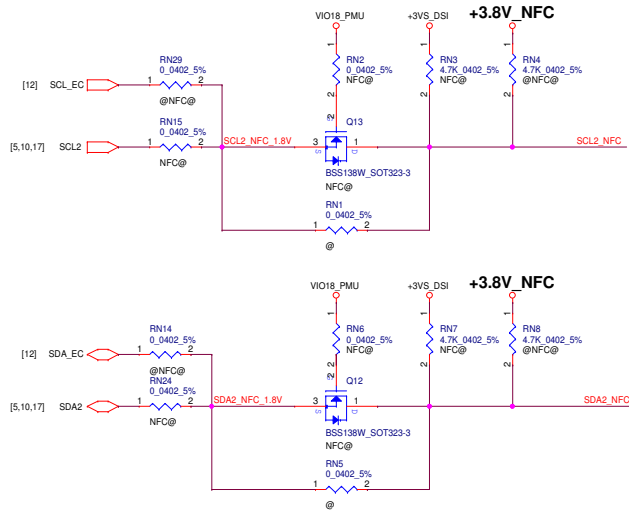
[10,12,17] +3VS_DS [12,20] +3VL [4,5,6,8,9,10,14,15,17,18] VIO18_PMU



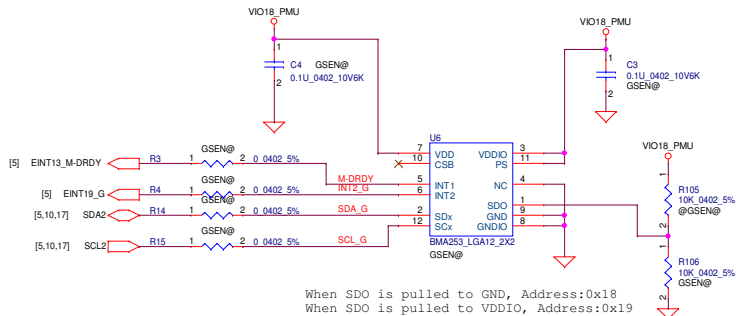
20210420



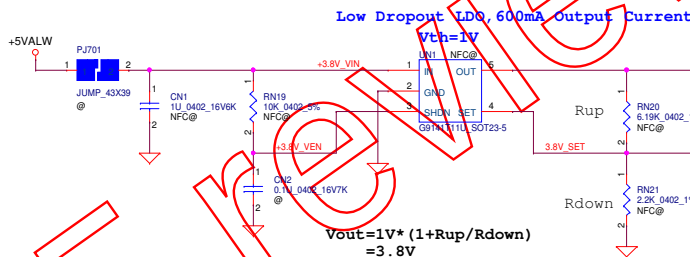
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				Date:	Monday, April 26, 2021	Sheet 16 of 26



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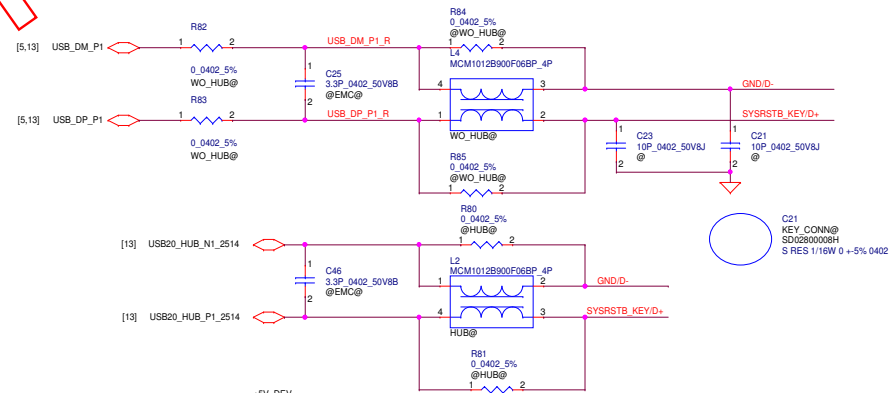
When SDO is pulled to GND, Address:0x18
When SDO is pulled to VDDIO, Address:0x19



Low Dropout LDO, 600mA Output Current

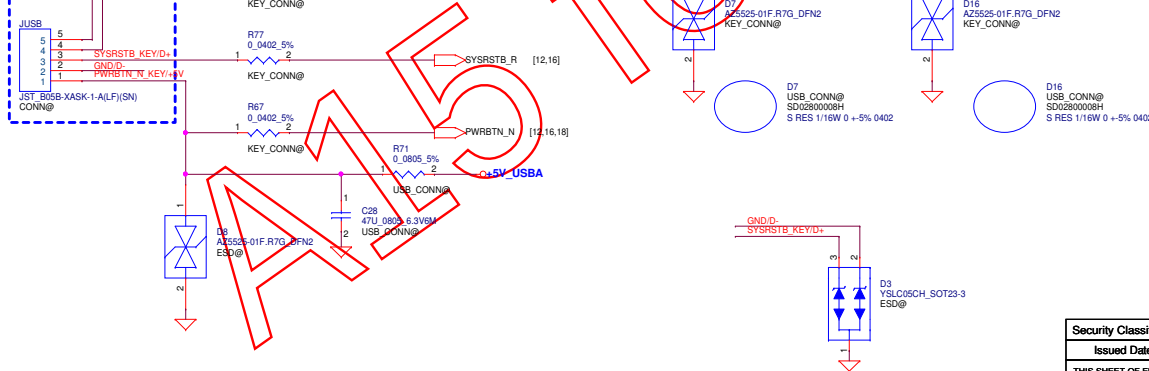
Vth=1V

$$V_{out} = 1V * (1 + R_{up}/R_{down}) = 3.8V$$



C21 KEY_CONN@
SD02800008H
S RES 1/16W 0 +5% 0402

20210420



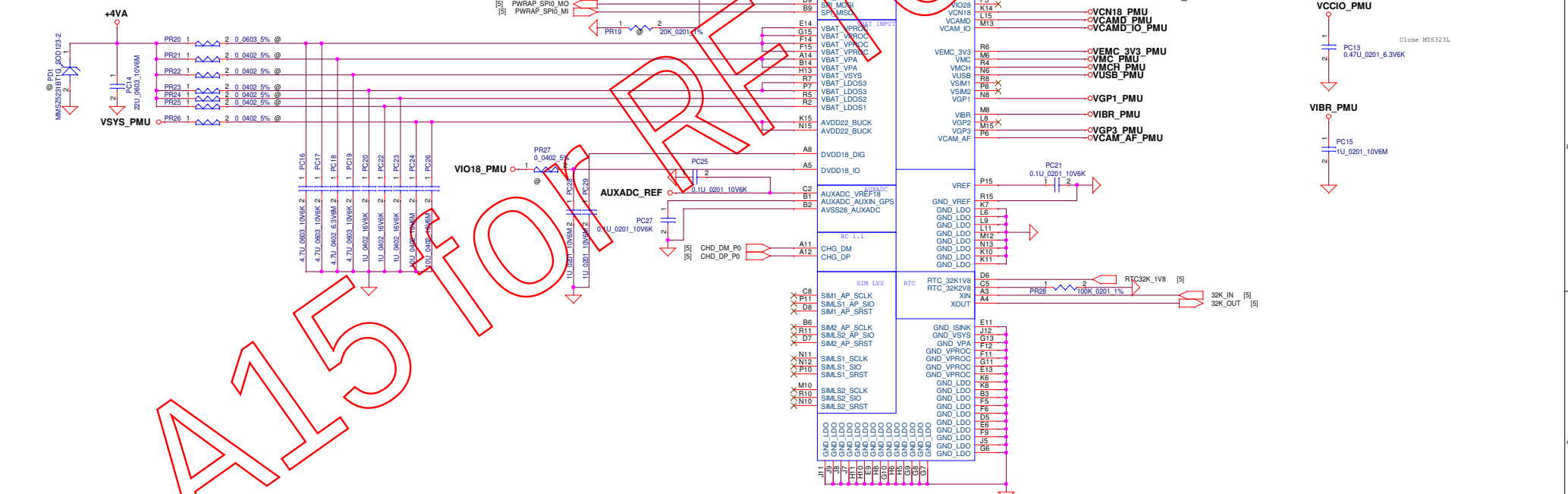
Active High
EN: L<0.5V H>1.5V

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Issued Date	2013/08/20	Deciphered Date	2014/12/31	Title
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Size	C	Document Number	LA-L511P	Rev
Date	Monday, April 26, 2021	Sheet	17	of 26

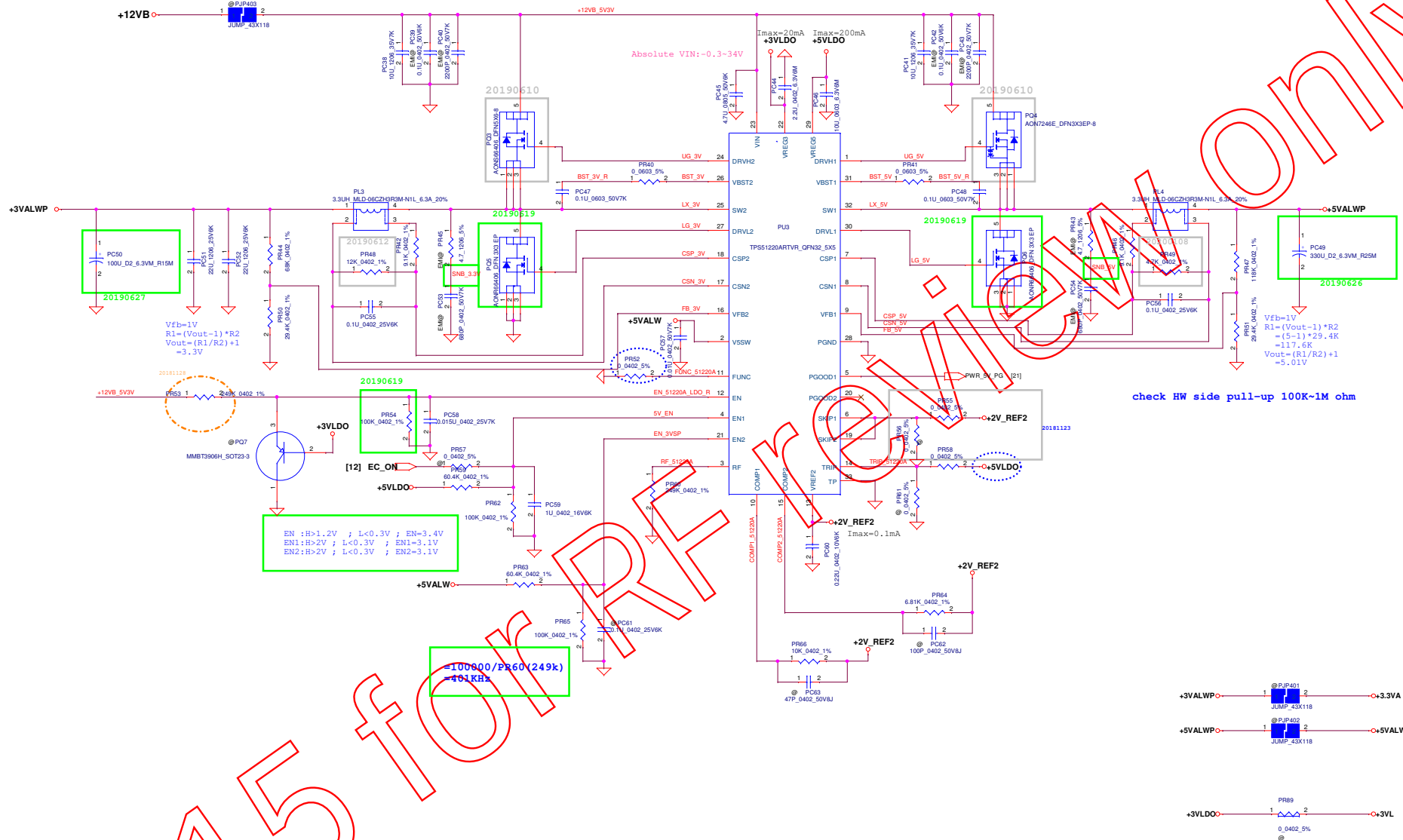
	LPDDR2/1.2V	PCDDR3L/1.35V	PCDDR3/1.5V	LPDDR1/1.8V	Default
SPI_CSN	H	L(20K)	H	L(20K)	PU
AUD_MOSI	L	H(20K)	H(20K)	L	PD

PMIC

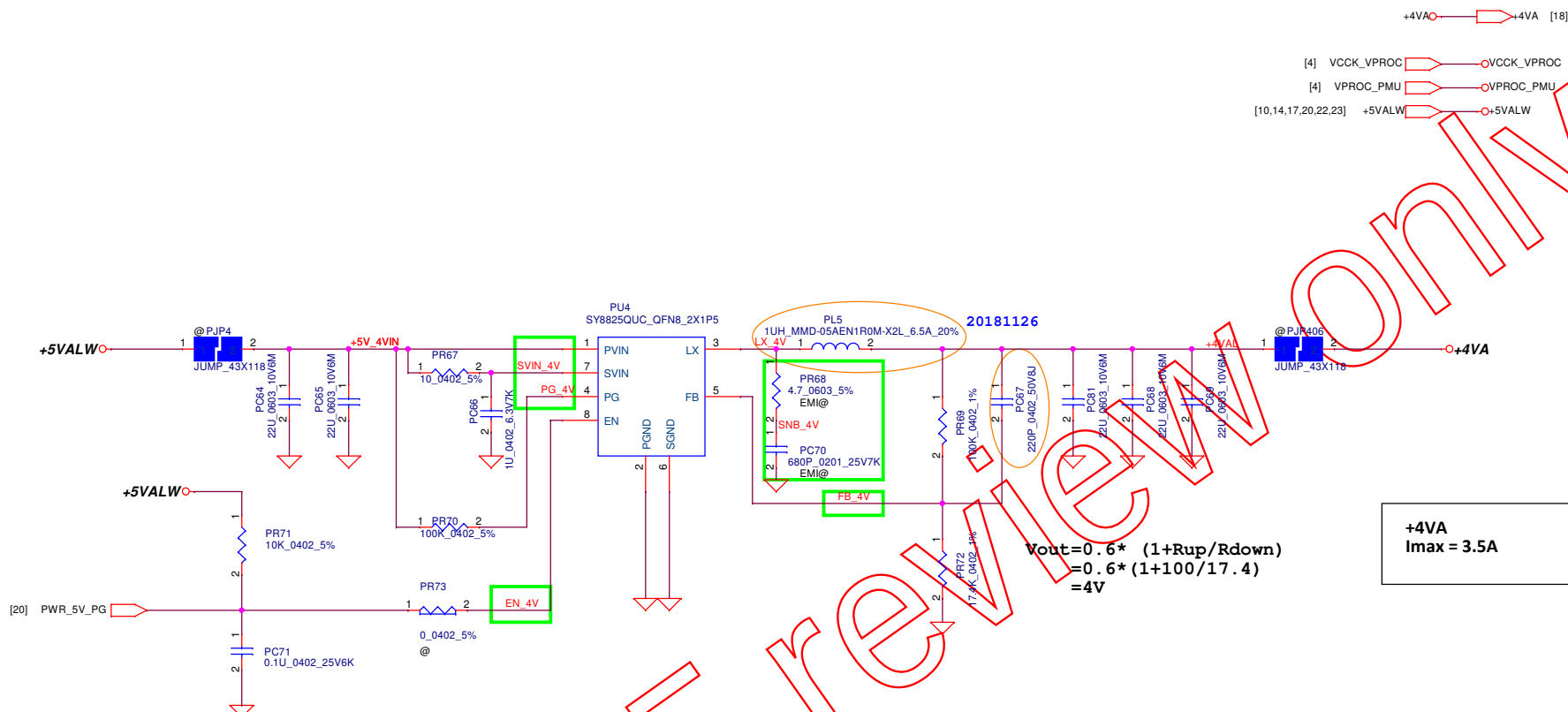
	Symbol	Vout (V)	Iout (mA)
Buck	VPROC	1.15	2800
	VPA	0.5~3.4	600
	VSYS	2.2	1400
Analog LDO	VA	2.8	150
	VCN28	2.8	30
	VTXCO	2.8	40
	VCAMA	2.8	150
	VCN33	3.3/3.4/3.5/3.6	350
Digital LDO	VIO28	2.8	200
	VM	1.24/1.35/1.5/1.84	700
	VRF18	1.825	200
	VIO18	1.8	300
	VRTC	2.8	2
	VCN18	1.8	120
	VCAMD	1.2/1.3/1.5/1.8	150
	VCAM_IO	1.8	100
	VEMC_3V3	3.0/3.3	400
	VMC	1.8/3.3	100
	VMCH	3.0/3.3	400
	VUSB	3.3	20
	VSIM1	1.8/3.0	50
	VSIM2	1.8/3.0	50
	VGP1	1.2/1.3/1.5/1.8/2.0/2.8/3.0/3.3	100
	VIBR	1.2/1.3/1.5/1.8/2.0/2.8/3.0/3.3	100
	VGP2	1.2/1.3/1.5/1.8/2.0/2.5/2.8/3.0	100
	VGP3	1.2/1.3/1.5/1.8	200
	VCAM_AF	1.2/1.3/1.5/1.8/2.0/2.8/3.0/3.3	100



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Issued Date	Deciphered Date	Title	MT6323L PMIC
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		C	LA-L511P
		Date	Monday, April 26, 2021
		Sheet	18 of 26



Security Classification		Compal Secret Data		Title	
Issued Date	2016/06/28	Deciphered Date	2016/06/28	+12VSP/+5VALWP	
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Custom	LA-L511P	0.2		Monday, April 26, 2021	
Sheet		20		of 26	



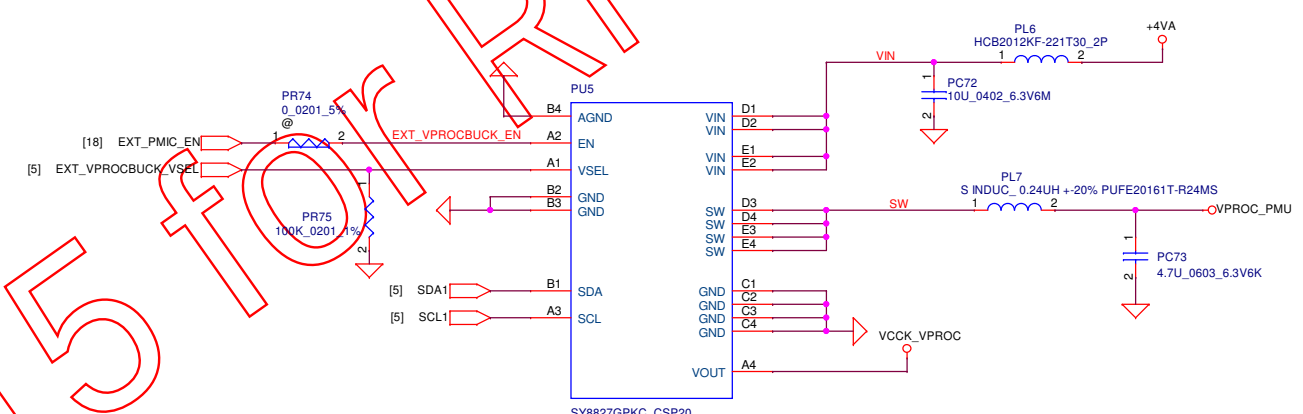
$$V_{out} = 0.6 * (1 + R_{up} / R_{down})$$

$$= 0.6 * (1 + 100 / 17.4)$$

$$= 4V$$

+4VA
I_{max} = 3.5A

EXT_VPROCBUCK_VSEL:
Set a pin with default PD GPIO mode.



I2C Address
SY8827G : 0xC0

VPROC_FB should be ground shielding.

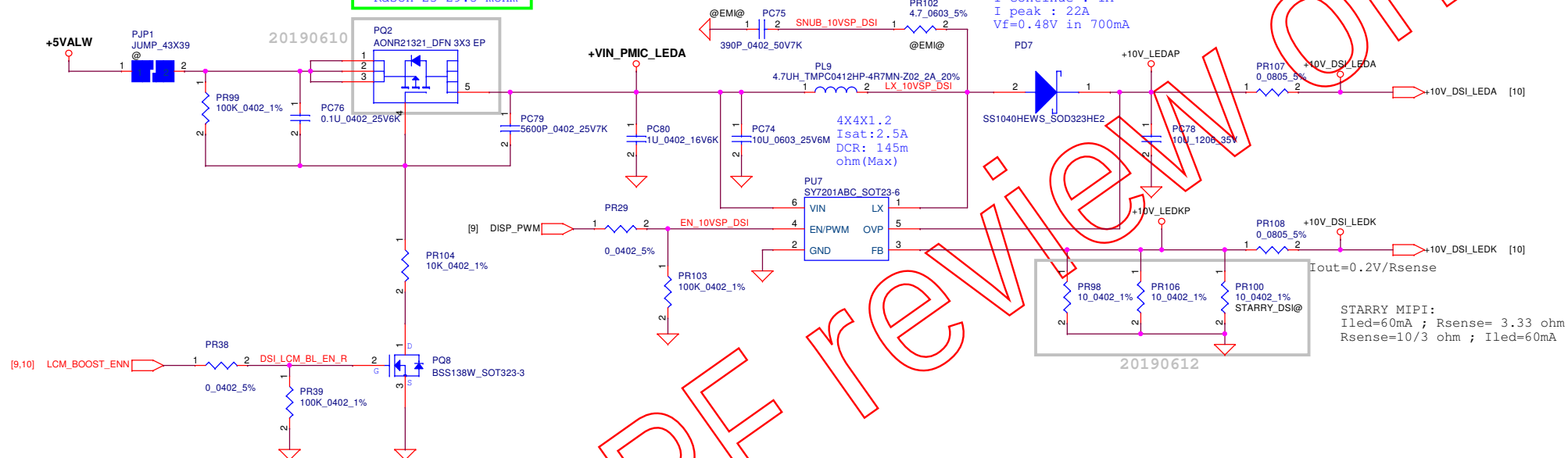
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2017/04/14	Deciphered Date	2015/08/26	Title	+4VTH
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				Document Number	LA-L511P
				Date	Monday, April 26, 2021
				Sheet	21 of 26
				Rev	0.2

Ta=70=>Id=-10A
Rdson=23~29.5 mohm

H=0.75
I continue : 1A
I peak : 22A
Vf=0.48V in 700mA

Imax = 265 mA

Panel : 3S6P



Enable and PWM dimming (EN/PWM Pin4)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
EN Rising Threshold	V _{ENH}	1.5	--	--	V	
EN Falling Threshold	V _{ENL}	--	--	0.4	V	
PWM dimming frequency	F _D	100	--	100K	Hz	

Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2016/06/29	Deciphered Date	2017/06/29	Title	PWR- Panel Driver IC
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Size Custom	Document Number	LA-L511P			Date: Monday, April 26, 2021
Sheet	22	of	26		

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20210128

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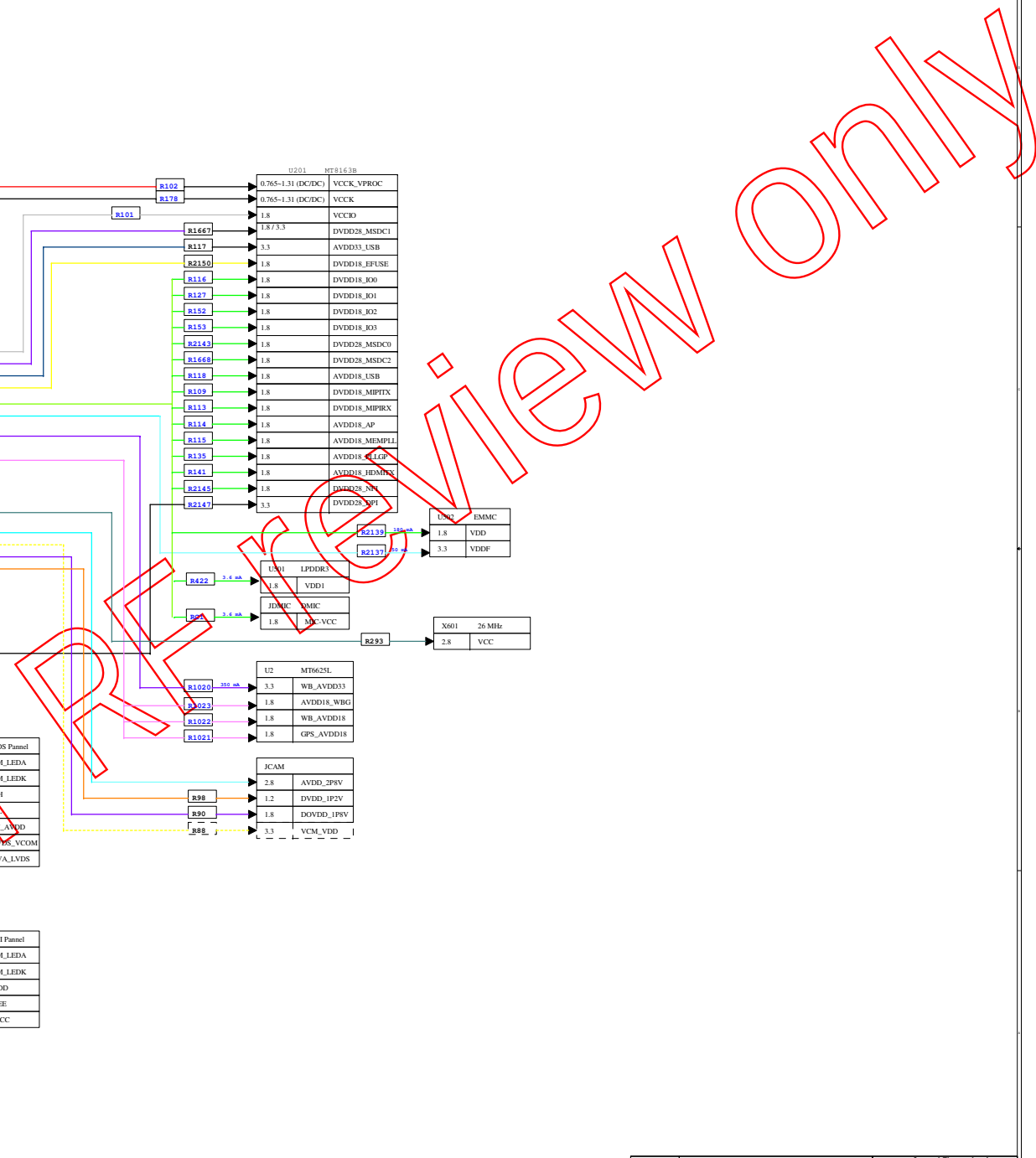
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Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
1. Digital Supply Voltage	VDD	3.0	3.3	3.6	V	MIPI Panel STARRY 2081070AWA018011-51E
2. Analog Supply Voltage	AVDD	9.7	10.0	10.3	V	
3. Gate On Voltage	VGH	20	21	22	V	
4. Gate Off Voltage	VGL	-8	-7	-6	V	LVDS Panel TRULY TFT3P5645-E
5. Digital Supply Voltage	VDD	3.0	3.3	3.6	V	
6. Analog Supply Voltage	AVDD	-	9.6	-	V	
7. Common Voltage	VCOM	-	3.4	-	V	
8. Gate On Voltage	VGH	-	18	-	V	
9. Gate Off Voltage	VGL	-	-6	-	V	



Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
01		reserve OOA mode			add 0ohm pull high to 2V_REF, reserve 0ohm to pull low GND.	2016/08/02	DVT
02		change to 0.01 +-1% 1206 100PPM/C			PR21 change to SD00000K82H	2016/08/30	DVT
03		change to 0_0402_5%			PR36,PR53,PR1315,PR1316,PR1318,PR28,PR1308,PR1317	2016/08/30	DVT
04		increase 12V OCP setting			PR403 change to 1K_0402_1%	2016/08/30	DVT
05		modify Panel Imax setting to 277mA			PR71 change to 59K_0402_1%	2016/09/01	DVT
06		21" backlight OVP setting			PR72 change to 348K ohm PR63 change to 9.31K ohm	2016/09/02	DVT
07		ESD requirement			Add PD3	2016/10/17	PVT
08							
09							
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Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2016/06/28	Deciphered Date	2016/06/28	Title	PIR (PWR)
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Date: Monday, April 26, 2021				Sheet	25 of 26

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
01							
02							
03							
04							
05							

A15 for RF review only

Title		PIR (EE)	
Size	Document Number	Rev	
Custom LA-LS11P		0.2	
Date:	Monday, April 26, 2021	Sheet	26 of 26