

ADLINK


Revision History and Current Revision :

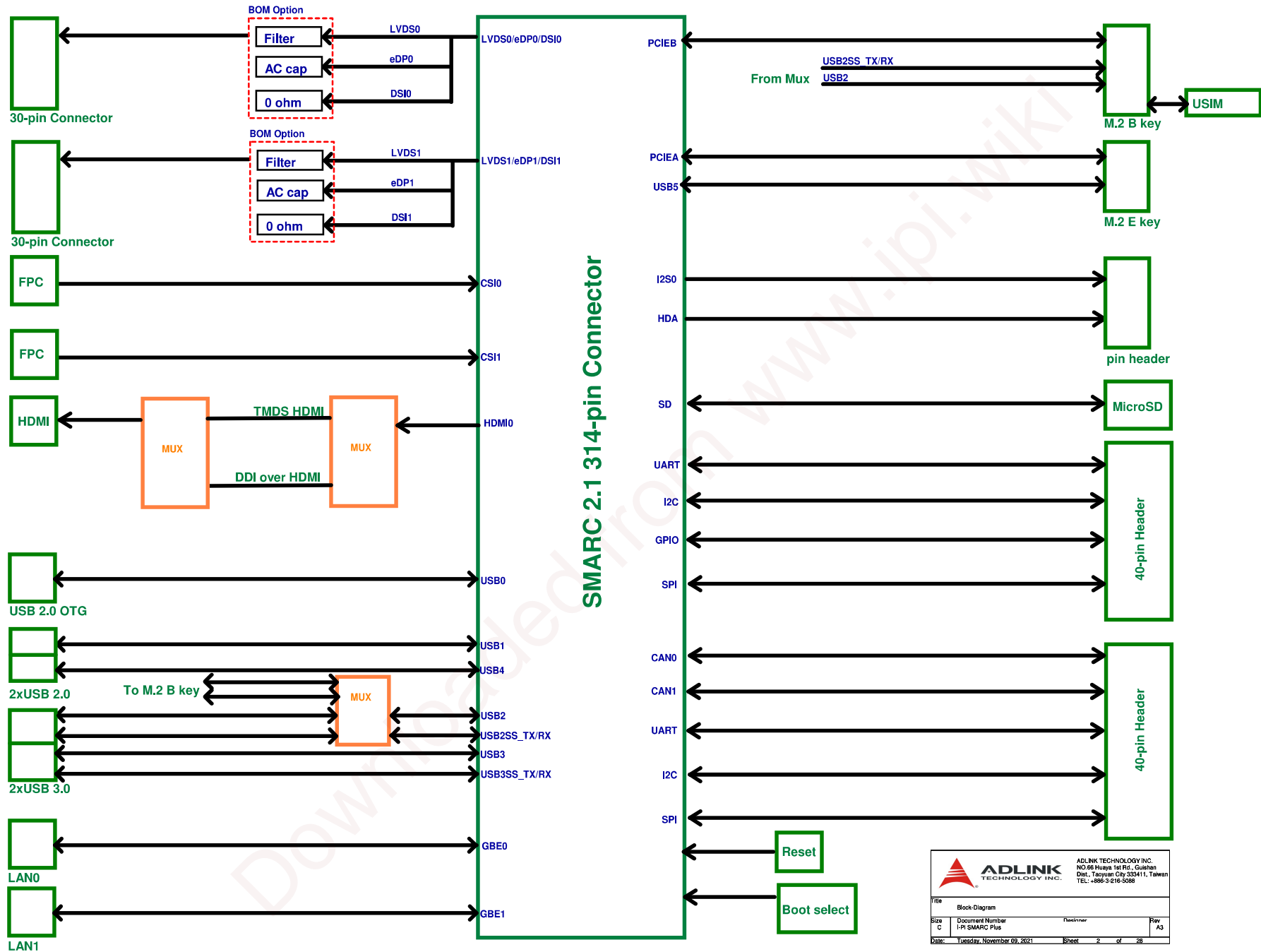
MODEL NAME : I-Pi SMARC Plus
Part Number : 51-77A07-0A30-A0
FILE NAME : 77A07-0A30-SCH

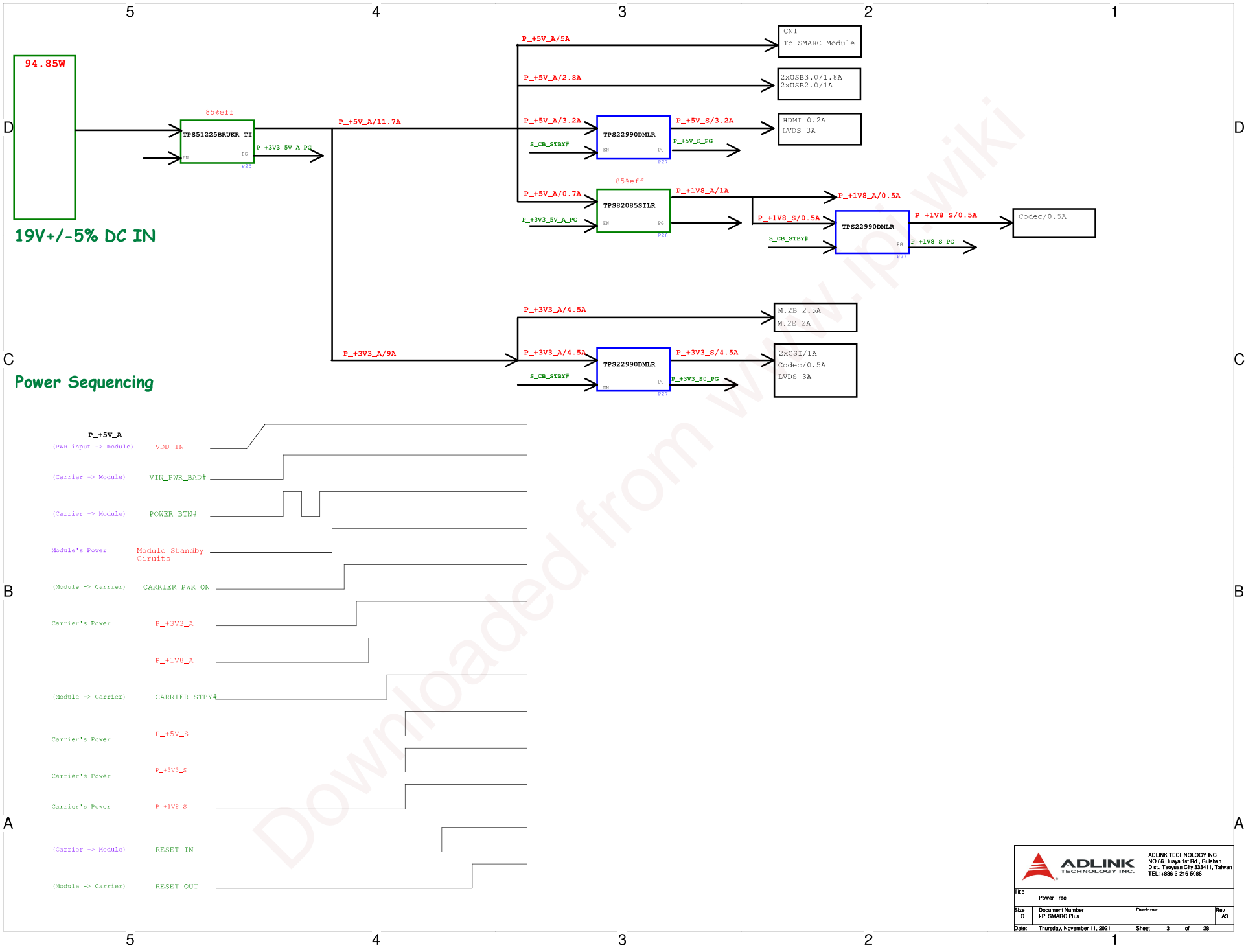
Revision	Description Of Changes	Date (M-D-Y)	Phase
A1	Initial schematic	04-30-2020	ES1
A2	Initial schematic	10-26-2020	ES2
A3	Initial schematic	10-27-2021	

Page Description

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05_USB OCP	21_LVDS CONN
06_USB3 CON	22_LVDS_LShift
07_USB2 CON	23_M.2_B Key
08_GBE	24_M.2_E Key
09_Micro SD	25_P_+5V_A/P_+3V3_A TPS51225B)
10_GPIO Expander	26_P_+1V8_A (TPS82085)
11_SPI	27_Load switch(TPS22990)
12_Lshift	28_CHANGE LIST
13_Hole/DC/Fan	
14_MISC/LED/KEY	
15_CAN/P_5V_E	
16_UART	

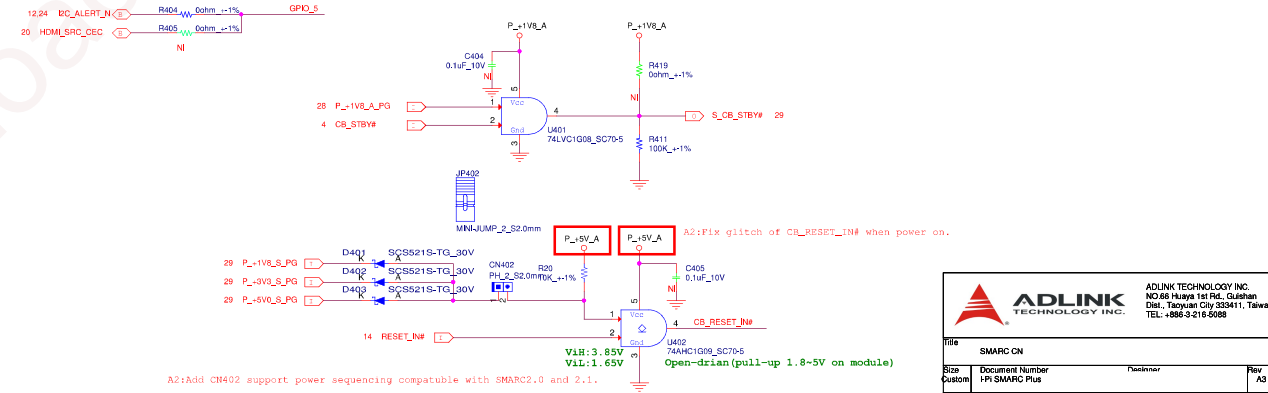
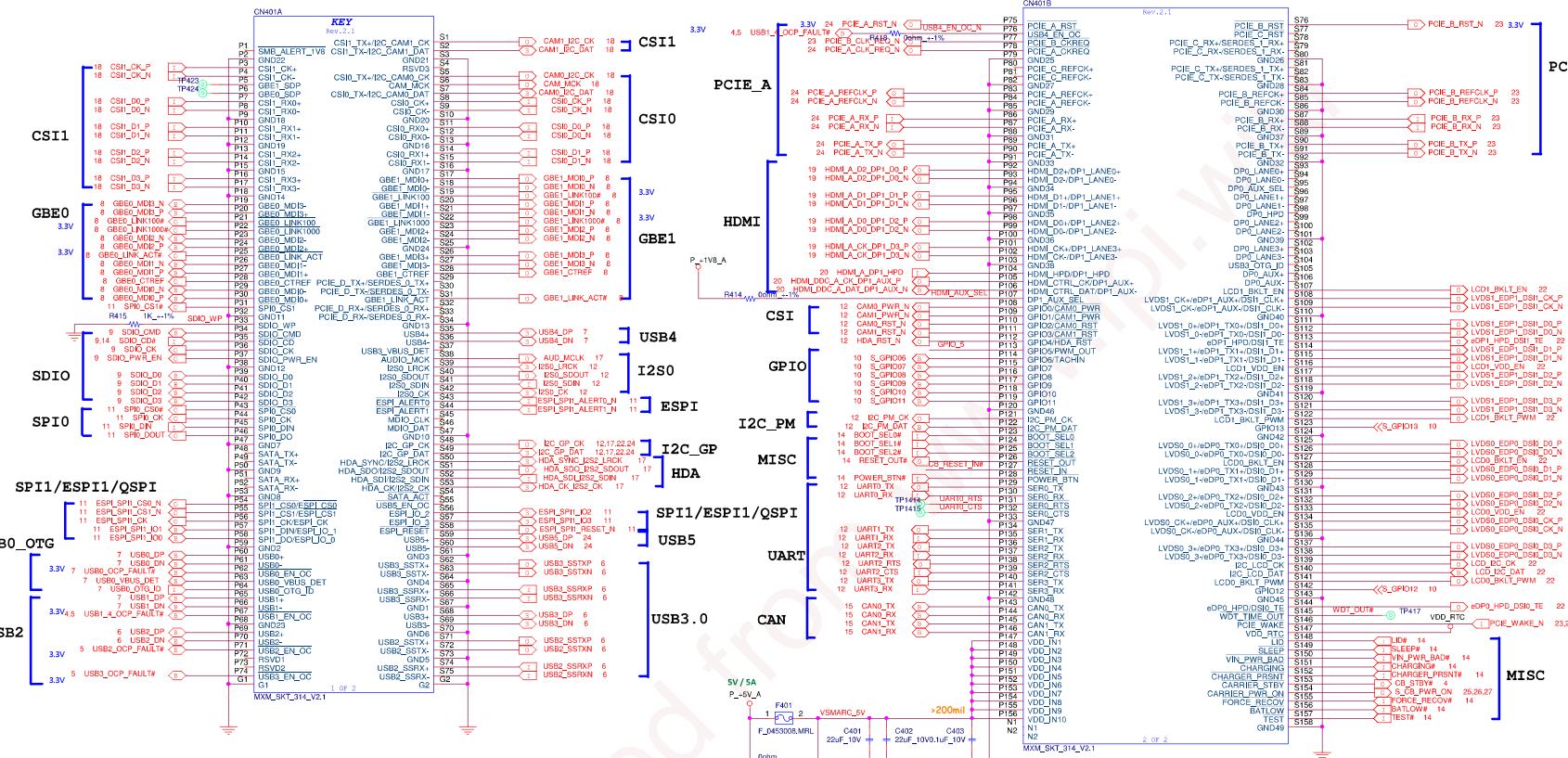
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Title: Overview			
Size: A3	Document Number: I-Pi SMARC Plus	Designer:	Rev: A3
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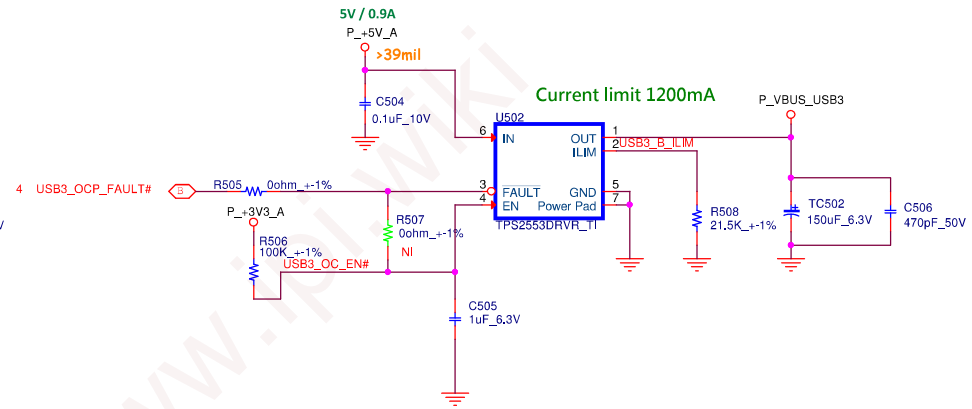
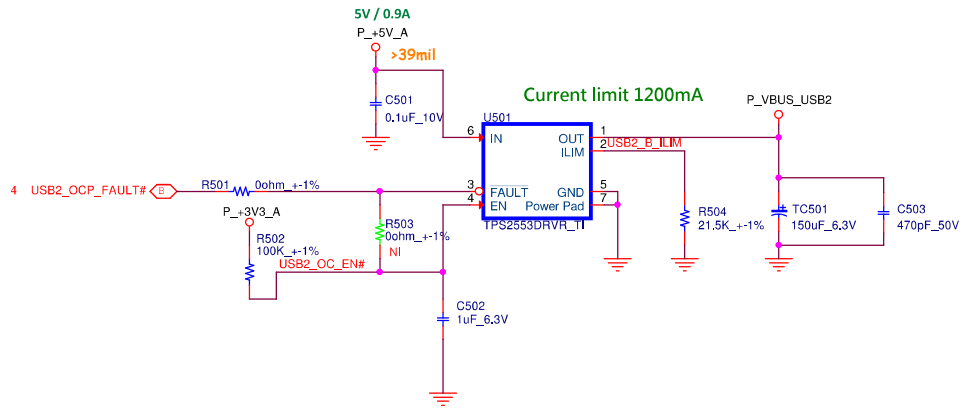
SMARC CN R2.1 1-75

SMARC CN R2.1 76-158

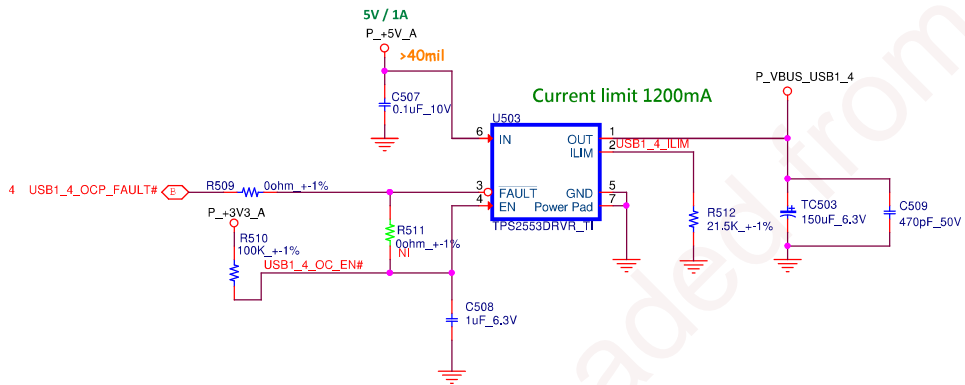



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Size	SMARC CN	Revision	Rev
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USB 3.0 OCP

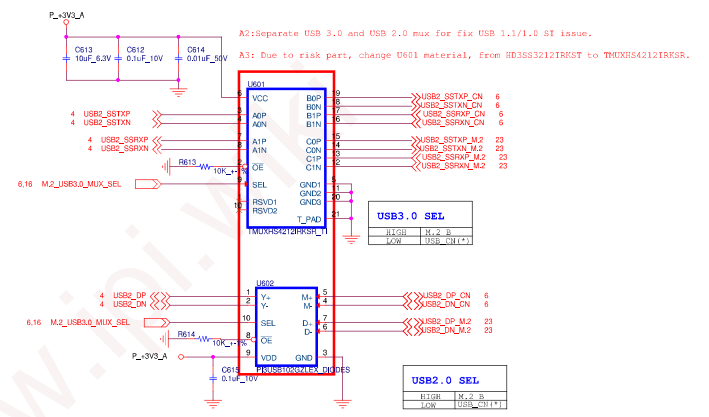
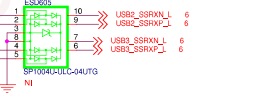
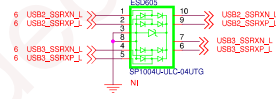
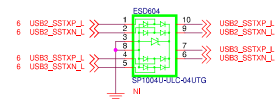
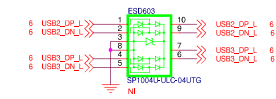
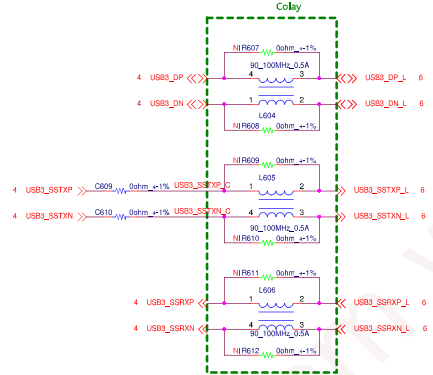
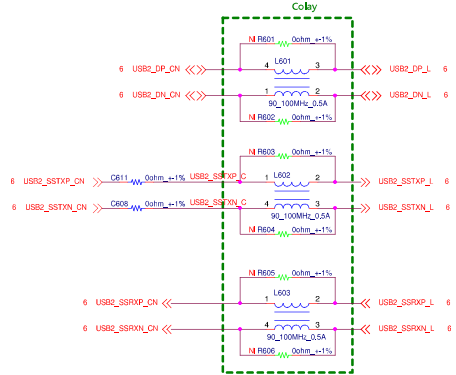
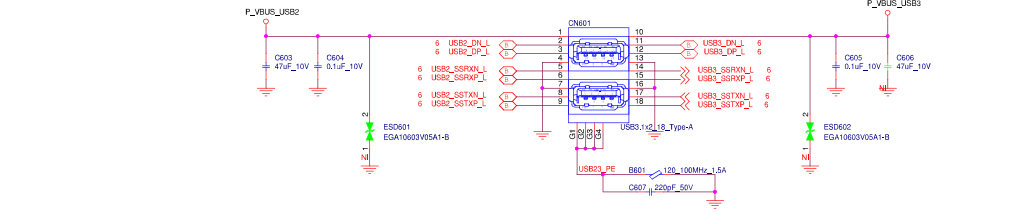


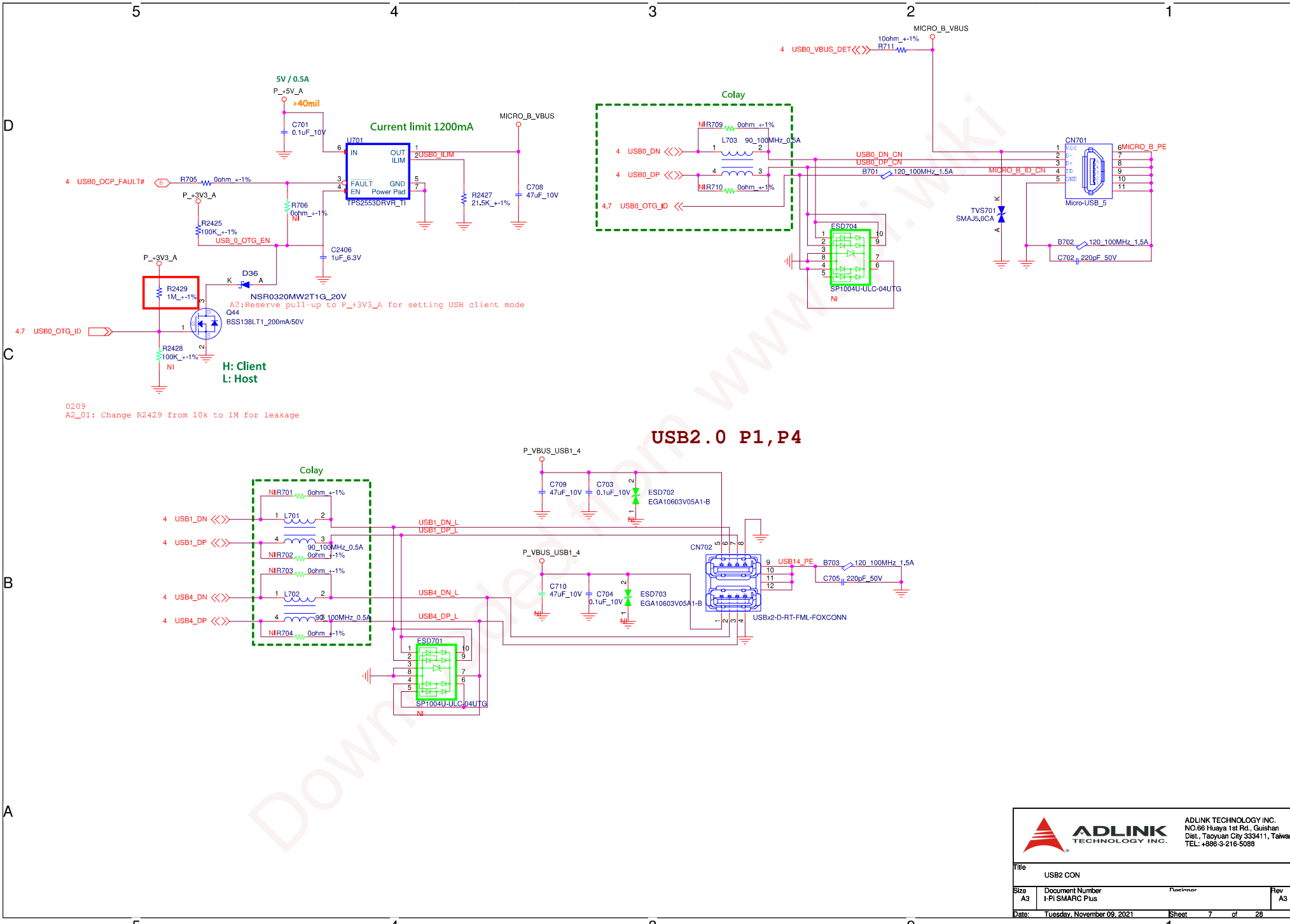
USB 2.0 OCP



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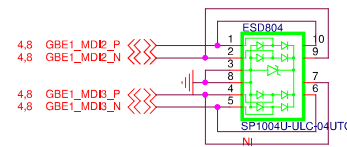
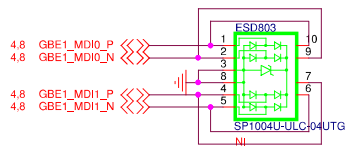
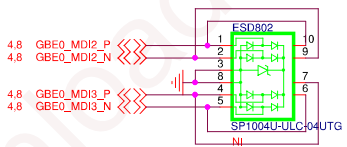
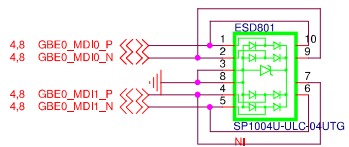
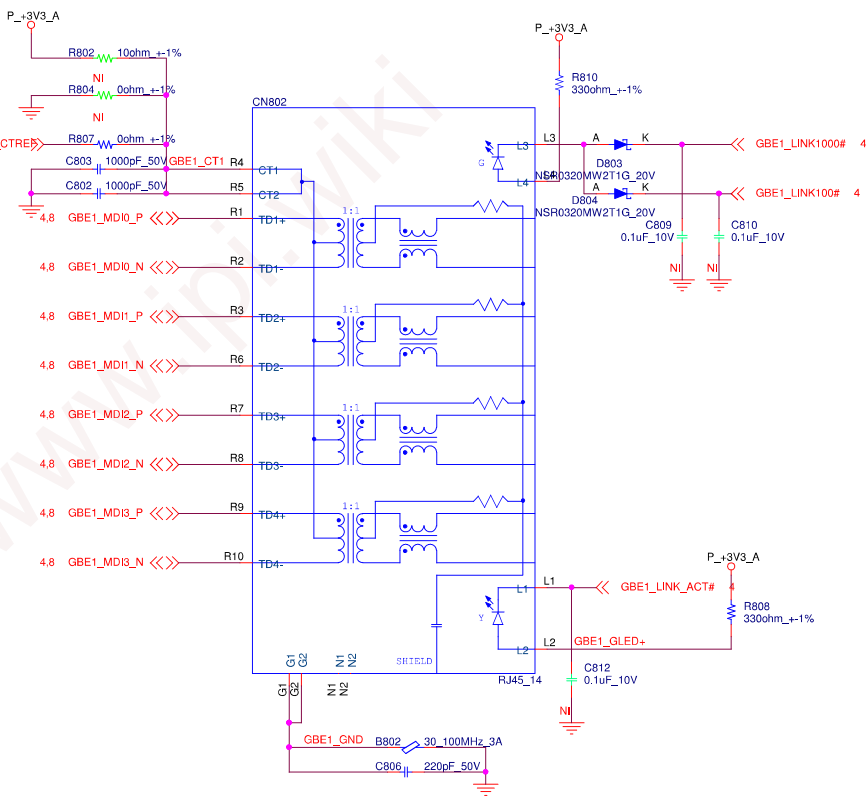
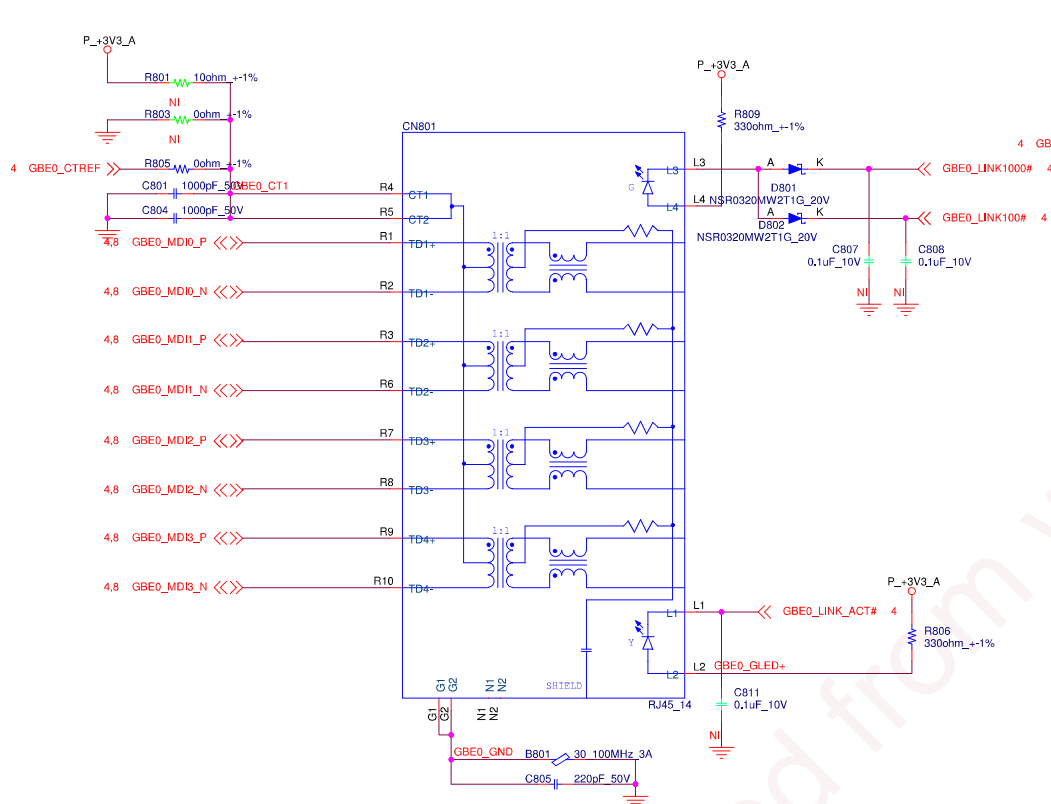
USB3.0 P2,P3





GBE0 with Magnetics

GBE1 with Magnetics

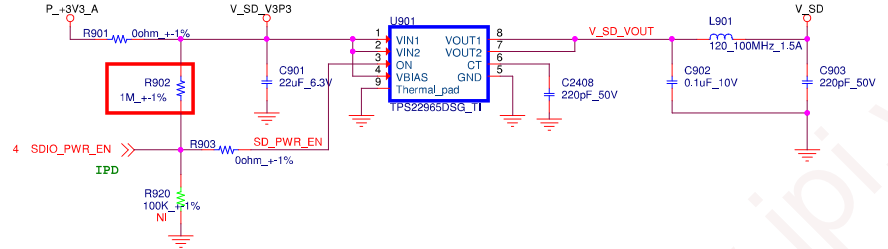


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Title: GBE			
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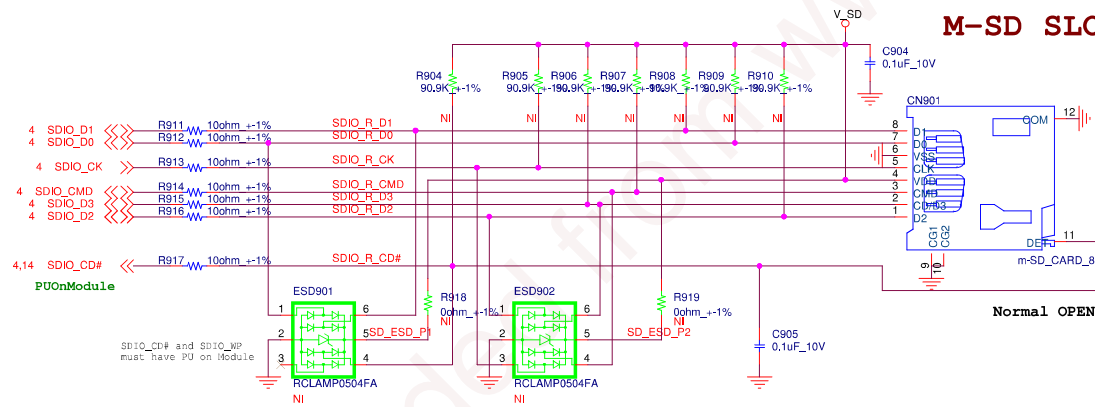
Default ON

3.3V / 0.3A
>20mil




0209
A2_01: Change R902 from 10k to 1M for leakage

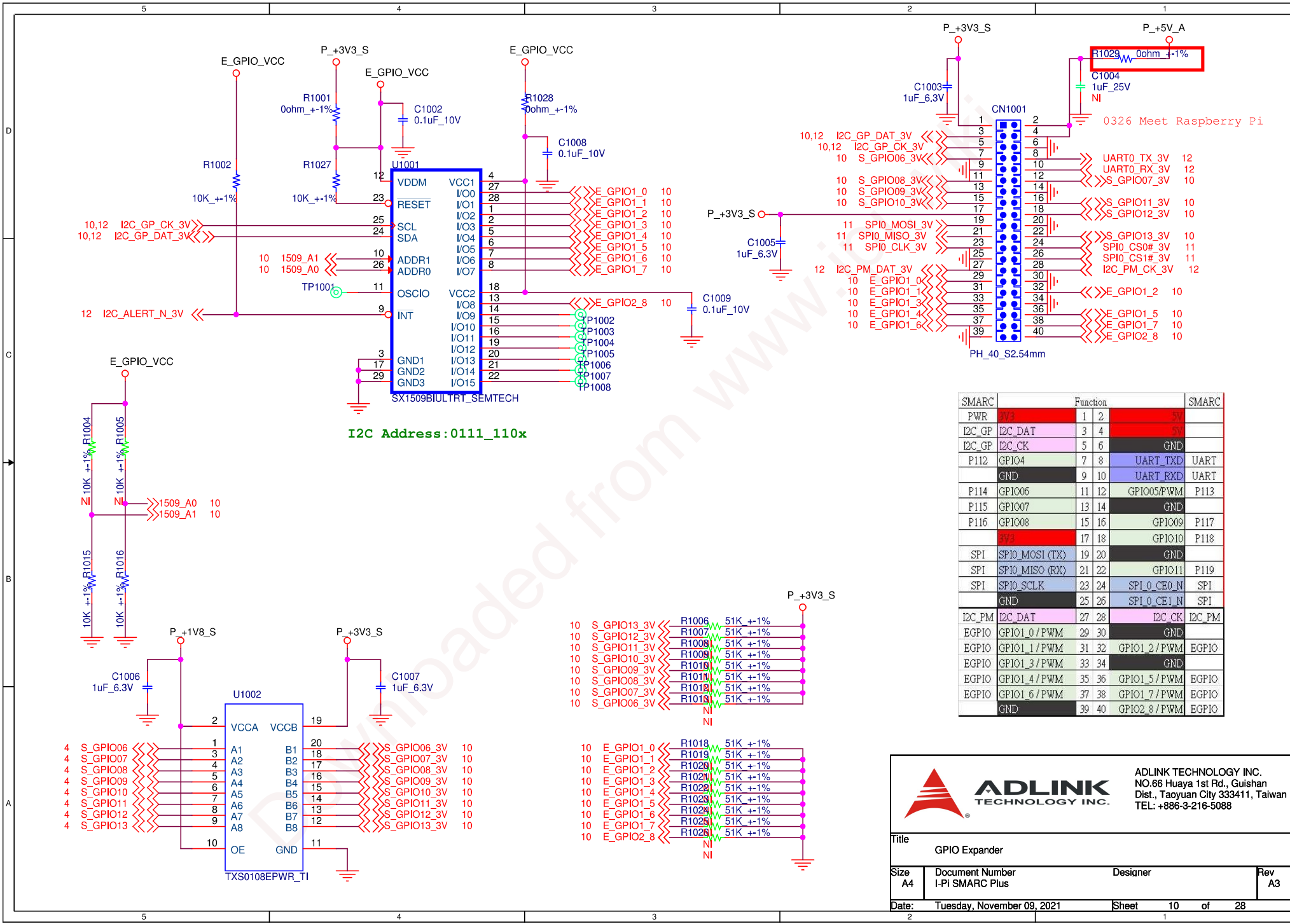
M-SD SLOT



SDIO_CD# and SDIO_WP
must have PU on Module

Normal OPEN

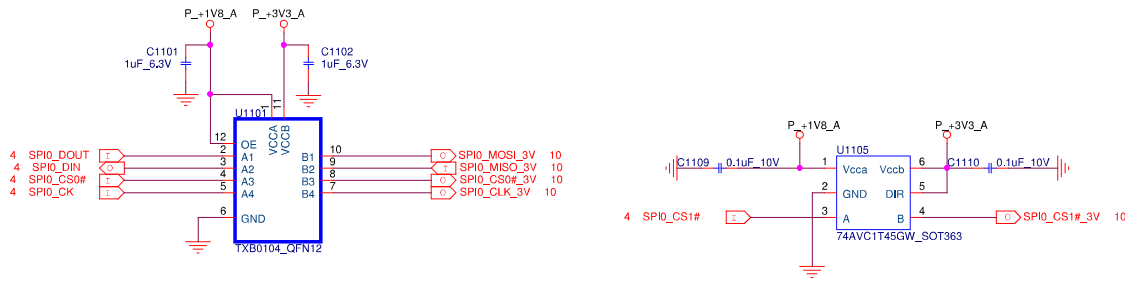
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Title: Micro SD			
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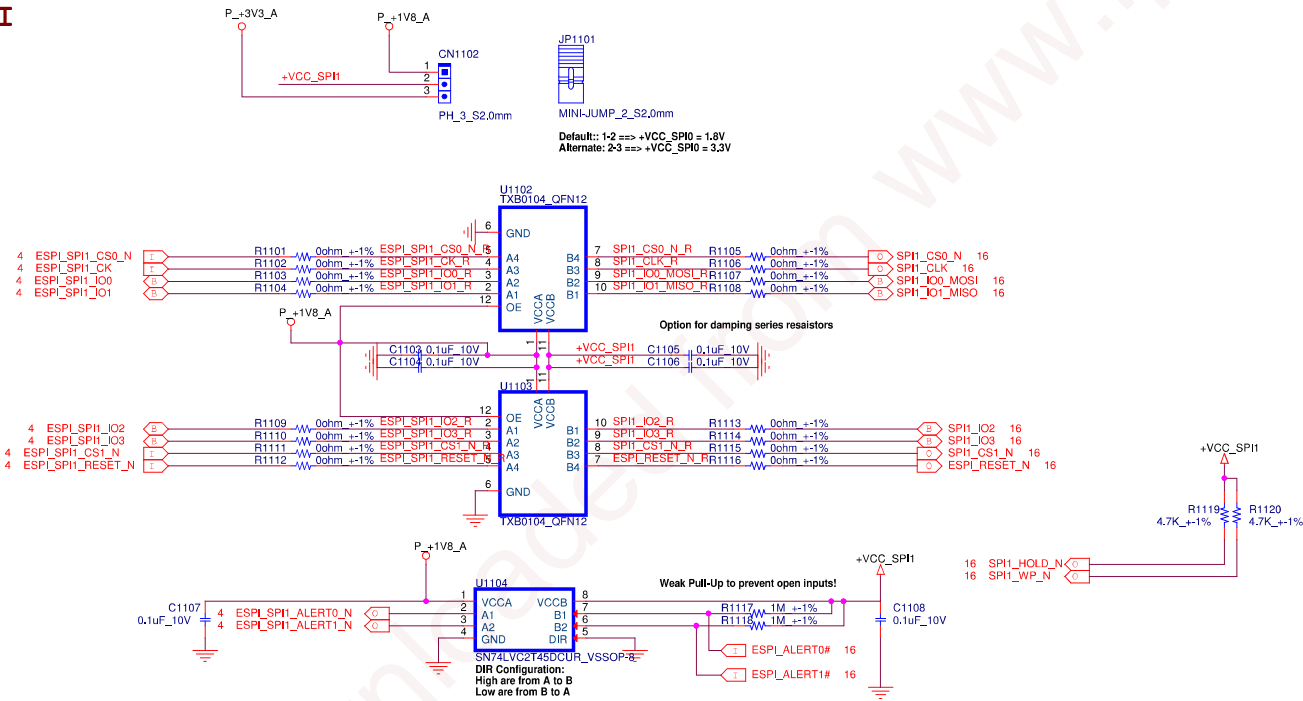
ADLINK TECHNOLOGY INC.
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Title: GPIO Expander			
Size: A4	Document Number: I-Pi SMARC Plus	Designer:	Rev: A3
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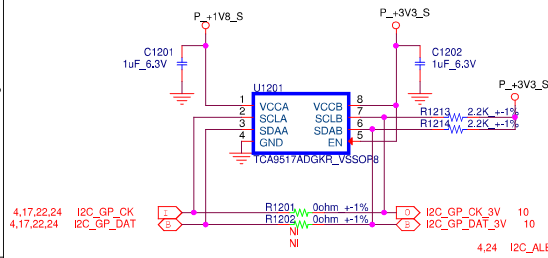
SPIO LS



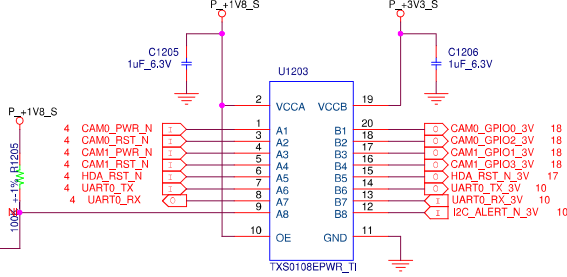
SPI1/eSPI



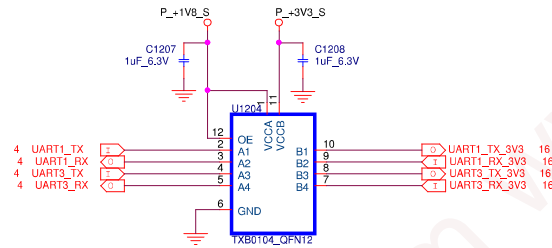
I2C_GP LS



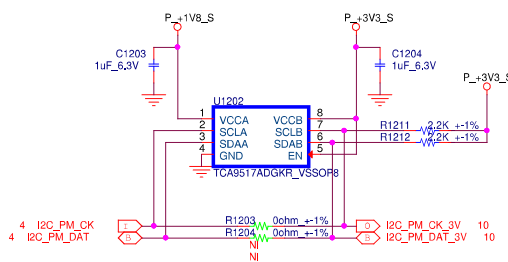
GPIO LS



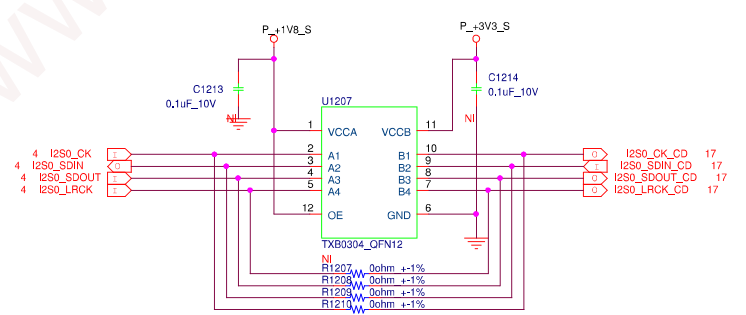
UART1 UART3 LS



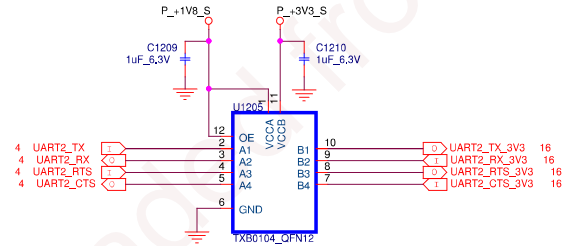
I2C_PM LS



I2S0 LS



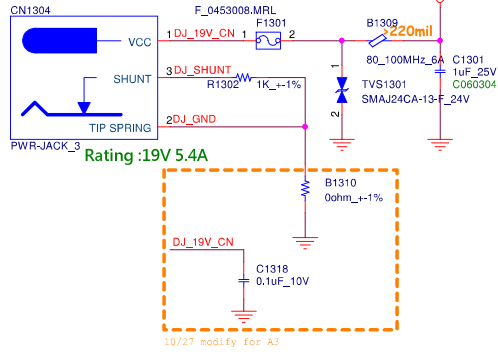
UART2 LS



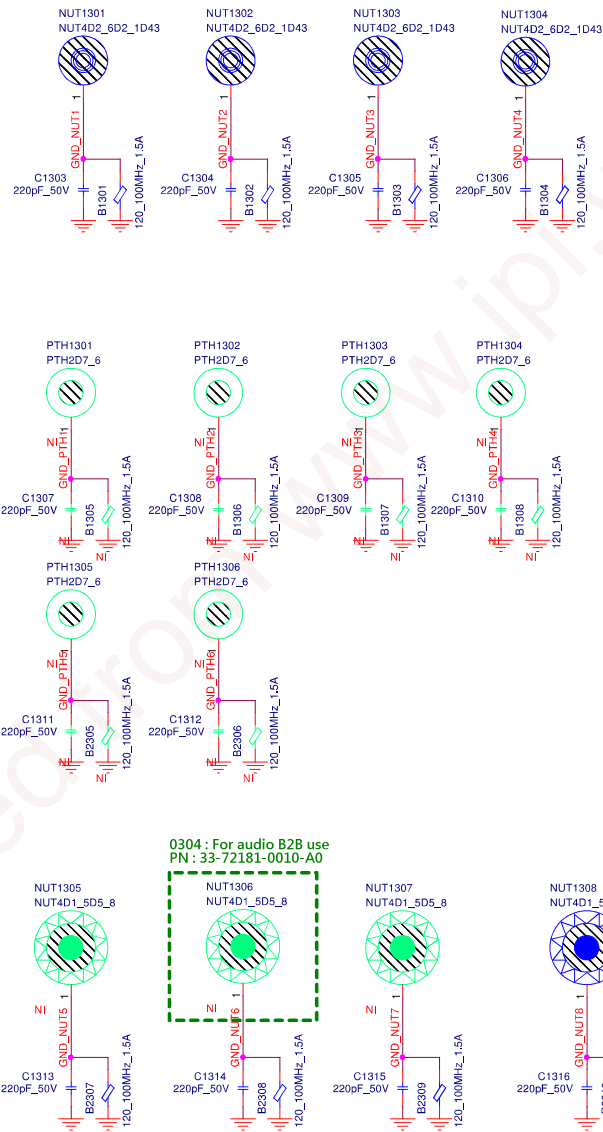
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DC 9~19V

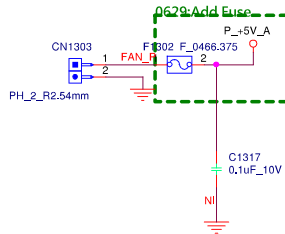
19V / 5.4A
VIN_9-19V



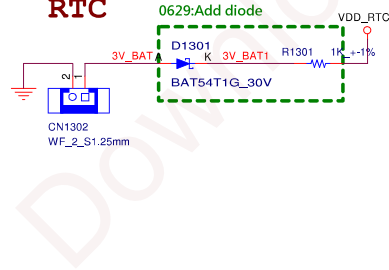
SMARC-Module Mounting Support



FAN

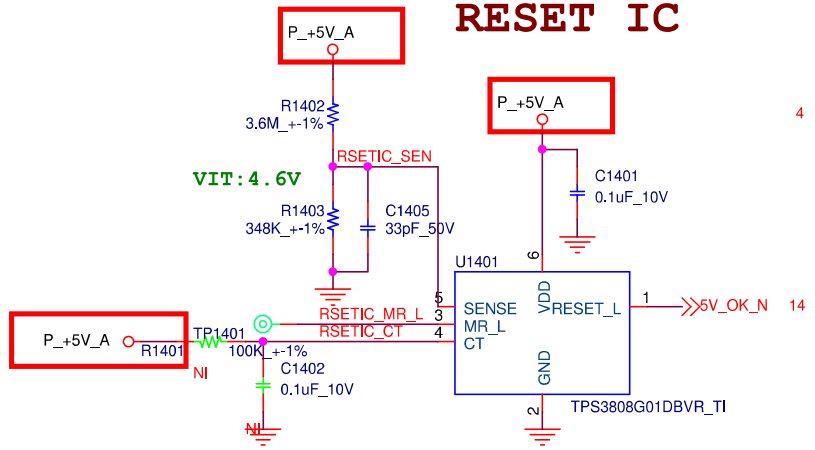


RTC



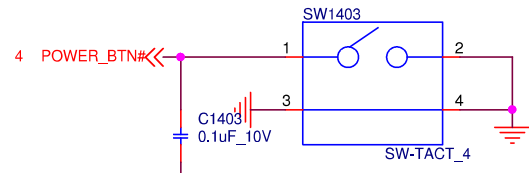
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Title: Hole/DC/FAN			
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RESET IC



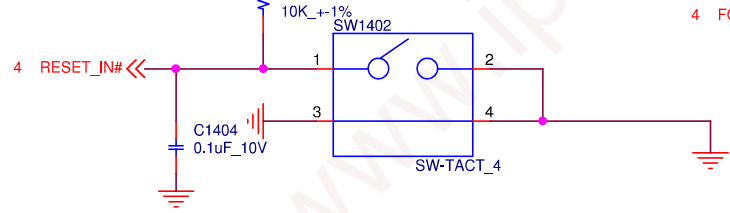
A3: Change to P_+5V_A due to power solution modification.

PWR KEY

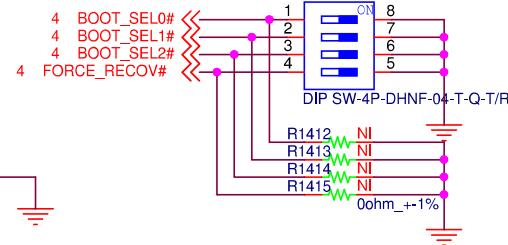
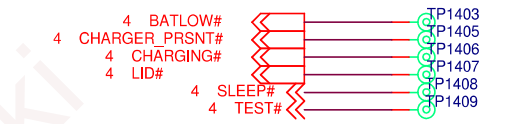


A2: Fix glitch of CB_RESET_IN# when power on.

RESET KEY

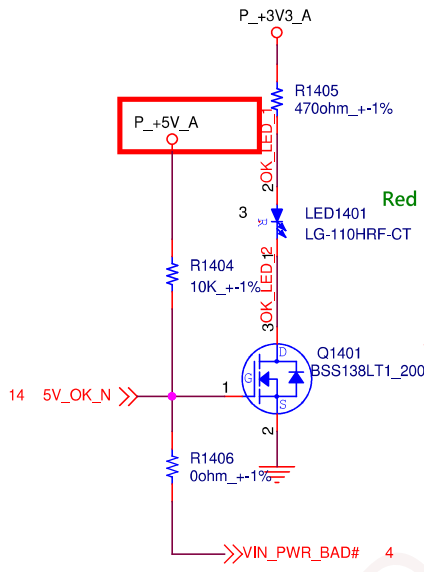


BOOT SEL

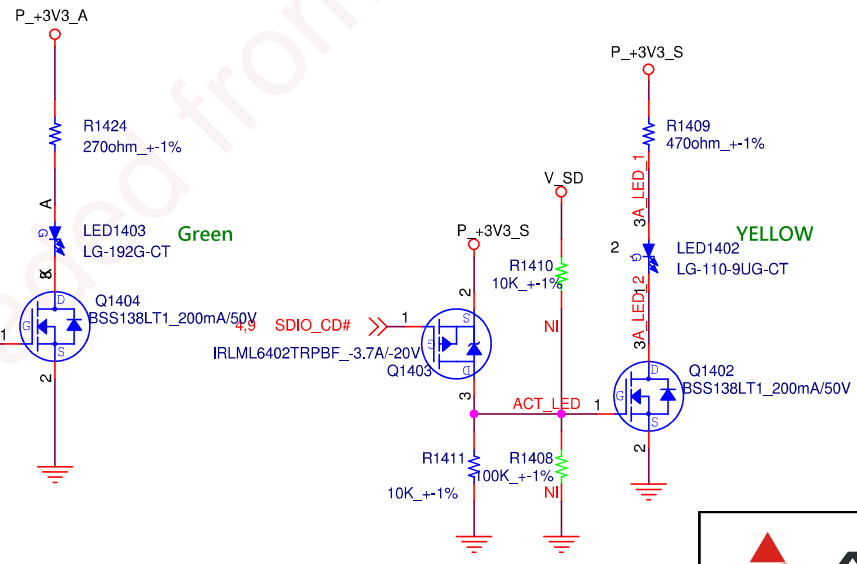


1	2	3	4	BOOT
0	1	1	0	SD Card
0	0	1	0	SPI(carrier)
0	1	0	0	Remote GbE
1	0	0	0	eMMC(module)
0	0	0	1	Force Recovery

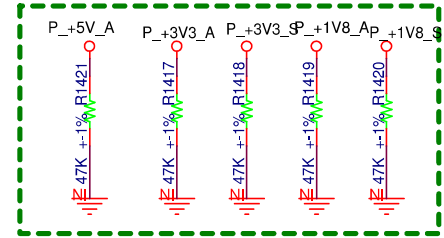
Vin Power OK



Active LED



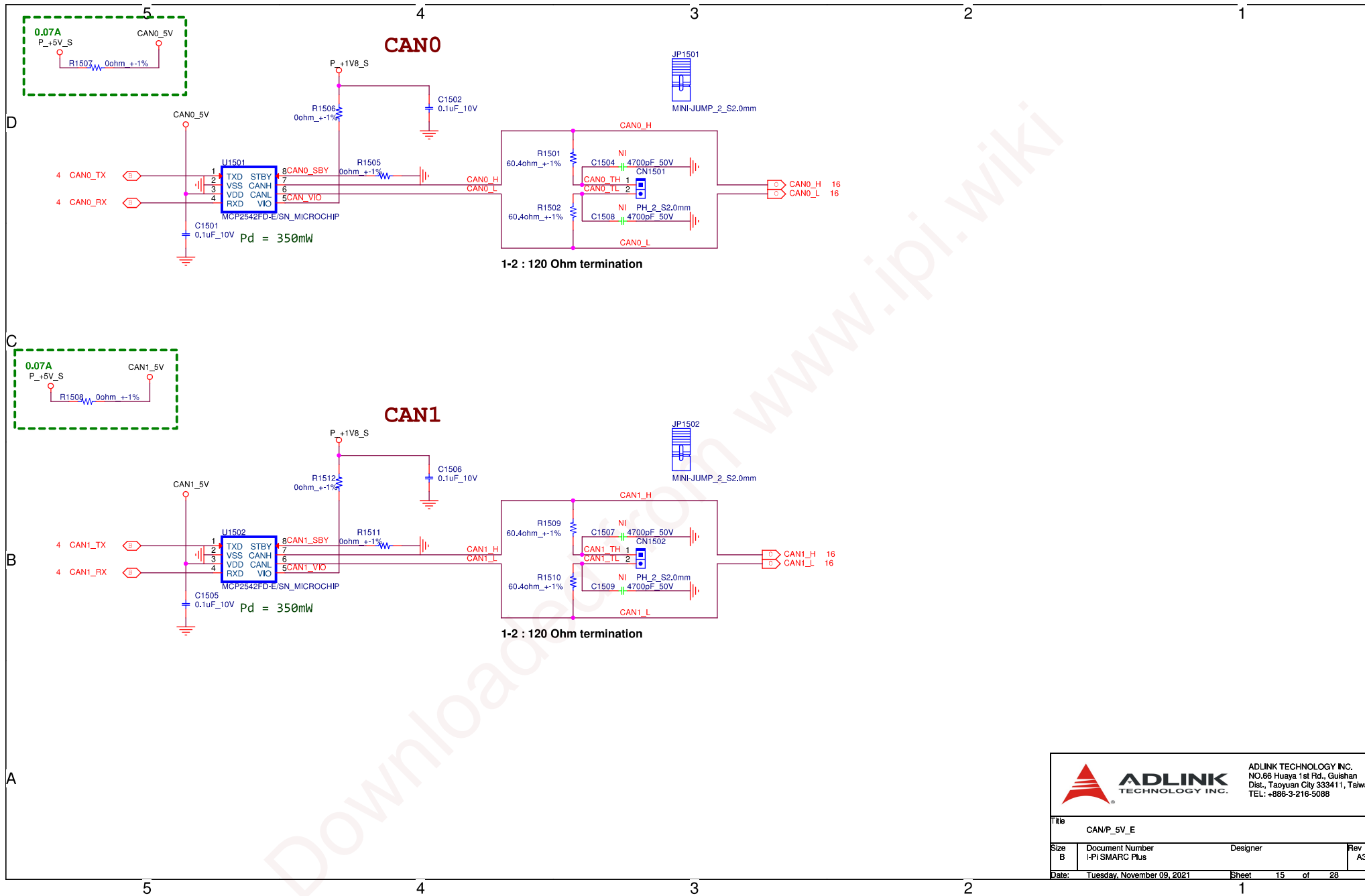
DISCHARGE RES

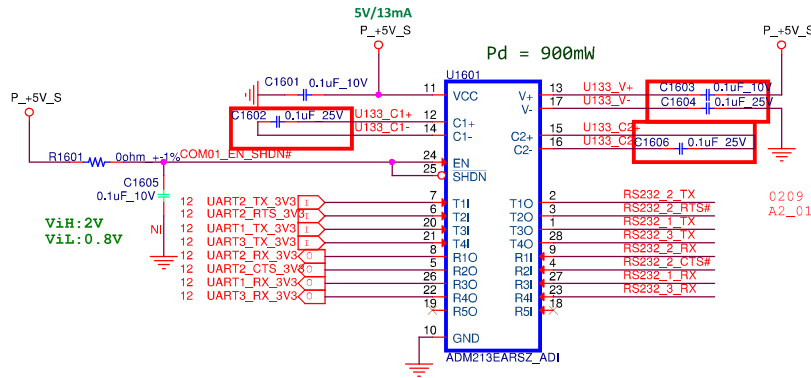


0629: Add discharge res

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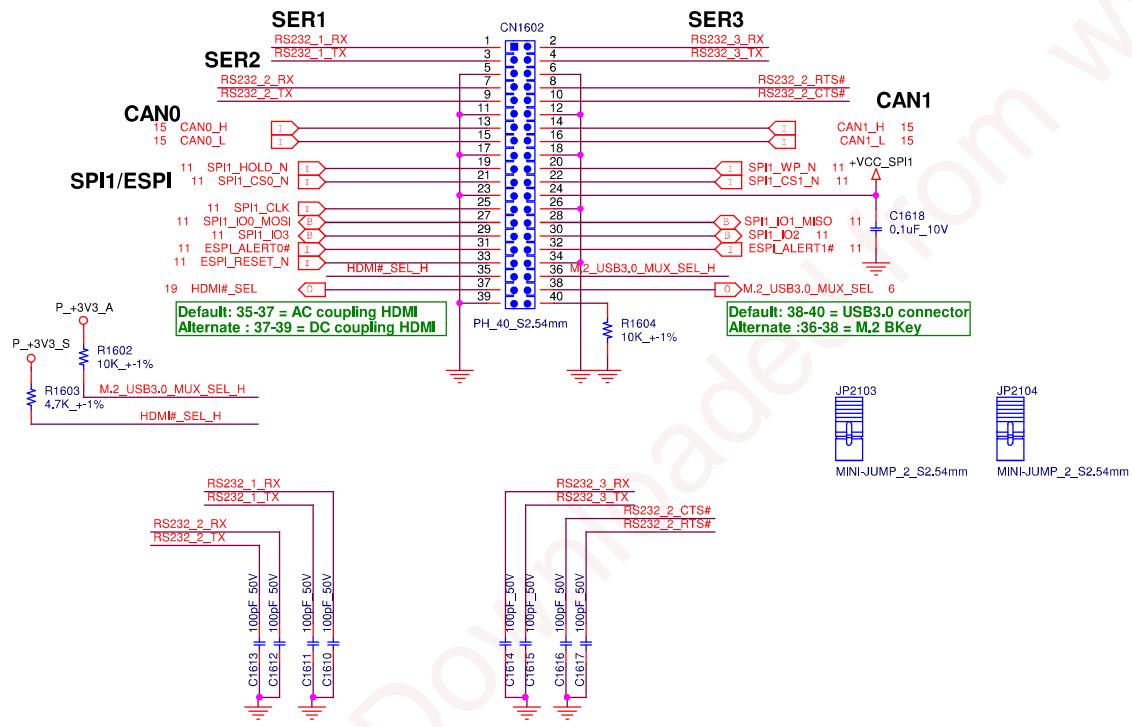
Title			
MISC/LED/KEY			
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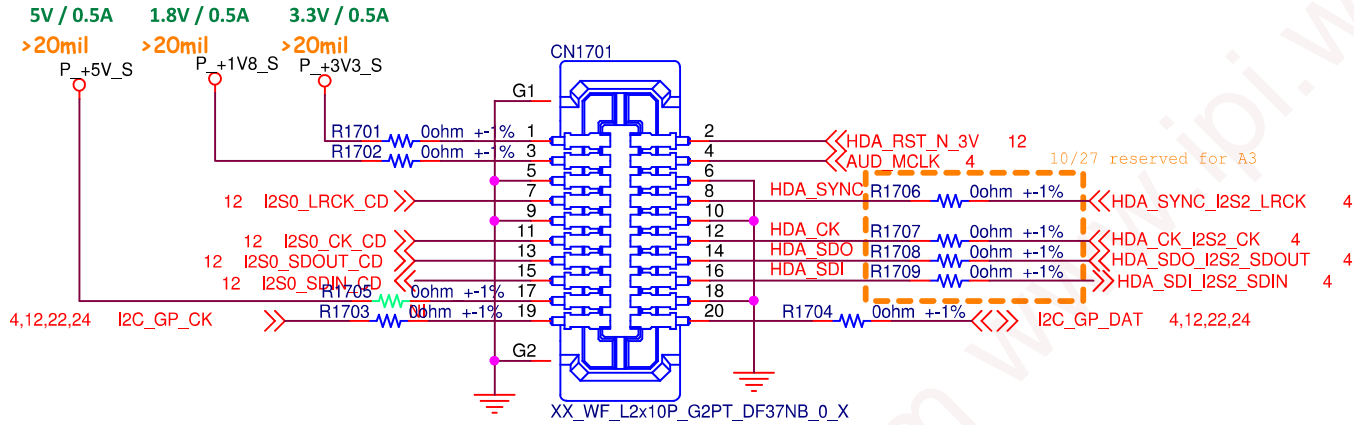
Internal ESD protection, no external ESD device needed!

0209
A2_01: Change C1602, C1604 and C1606 from 0.1uF_10V to 100nF_25V for align datasheet



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		Title: CAN/P_V5_E	
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Audio Codec



SMARC pin number	I2S function	HDA function	Soundwire(1 clock 1 data)	Soundwire(1 clock multidata)
S39	I2S0_LRCK		SNDW_CLK0	SNDW_CLK0
S40	I2S0_SDOOUT		SNDW_DAT0	SNDW_DAT0_1
S41	I2S0_SDIN		SNDW_CLK1	SNDW_DAT0_2
S42	I2S0_CK		SNDW_DAT1	SNDW_DAT0_3
S50	I2S2_LRCK	HDA_SYNC	SNDW_CLK2	SNDW_CLK1
S51	I2S2_SDOOUT	HDA_SDO	SNDW_DAT2	SNDW_DAT1_1
S52	I2S2_SDIN	HDA_SDI	SNDW_CLK3	SNDW_DAT1_2
S53	I2S2_CK	HDA_CK	SNDW_DAT3	SNDW_DAT1_3

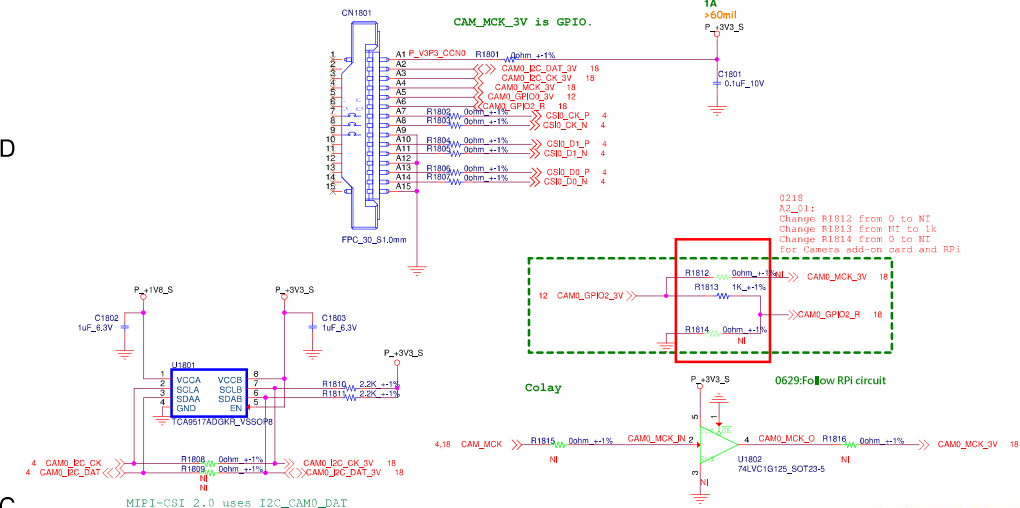


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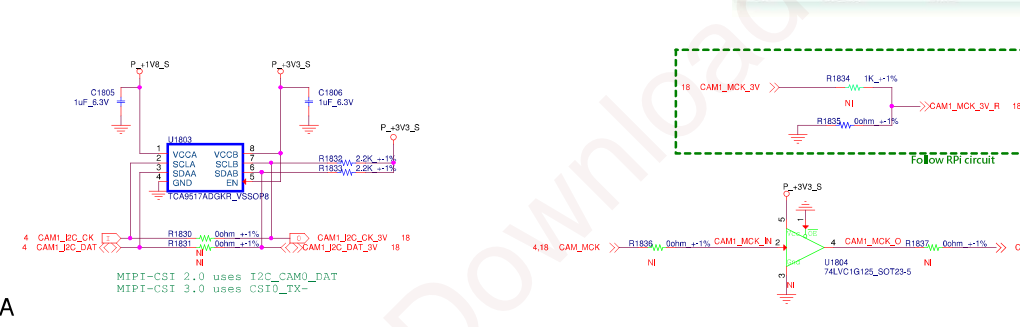
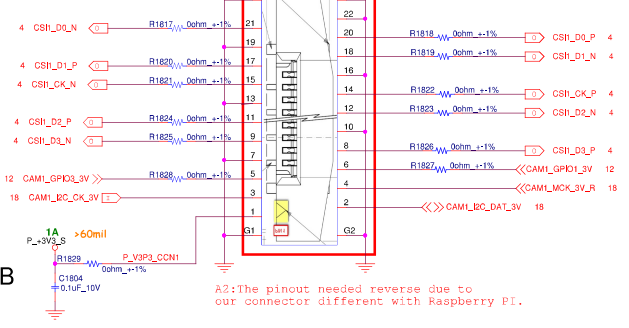
Title CODEC			
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CSI0 CAMERA



MIPi-CSI 2.0 uses I2C_CAM0_DAT
MIPi-CSI 3.0 uses CSI0_TX-

CSI1 CAMERA



MIPi-CSI 2.0 uses I2C_CAM0_DAT
MIPi-CSI 3.0 uses CSI1_TX-

Raspberry Pi Camera Pinout (22-Pin)

Pin #	Name	Type	Description
1	GND	Power	Ground
2	CAM_DO_N	Output	MIPi Data Lane 0 Negative
3	CAM_DO_P	Output	MIPi Data Lane 0 Positive
4	GND	Power	Ground
5	CAM_DI_N	Output	MIPi Data Lane 1 Negative
6	CAM_DI_P	Output	MIPi Data Lane 1 Positive
7	GND	Power	Ground
8	CAM_CLK_N	Output	MIPi Clock Lane Negative
9	CAM_CLK_P	Output	MIPi Clock Lane Positive
10	GND	Power	Ground
11	CAM_D2_N	Input	MIPi Data Lane 2 Negative
12	CAM_D2_P	Input	MIPi Data Lane 2 Positive
13	GND	Power	Ground
14	CAM_DI_N	Input	MIPi Data Lane 3 Negative
15	CAM_DI_P	Input	MIPi Data Lane 3 Positive
16	GND	Power	Ground
17	CAM_ID0	Output	Power Enable
18	CAM_ID1	Output	LED Indicator
19	GND	Power	Ground
20	CAM_SCL	Bidirection	I2C SCL
21	CAM_SDA	Bidirection	I2C SDA
22	CAM_V3s	Power	3.3V Power Output

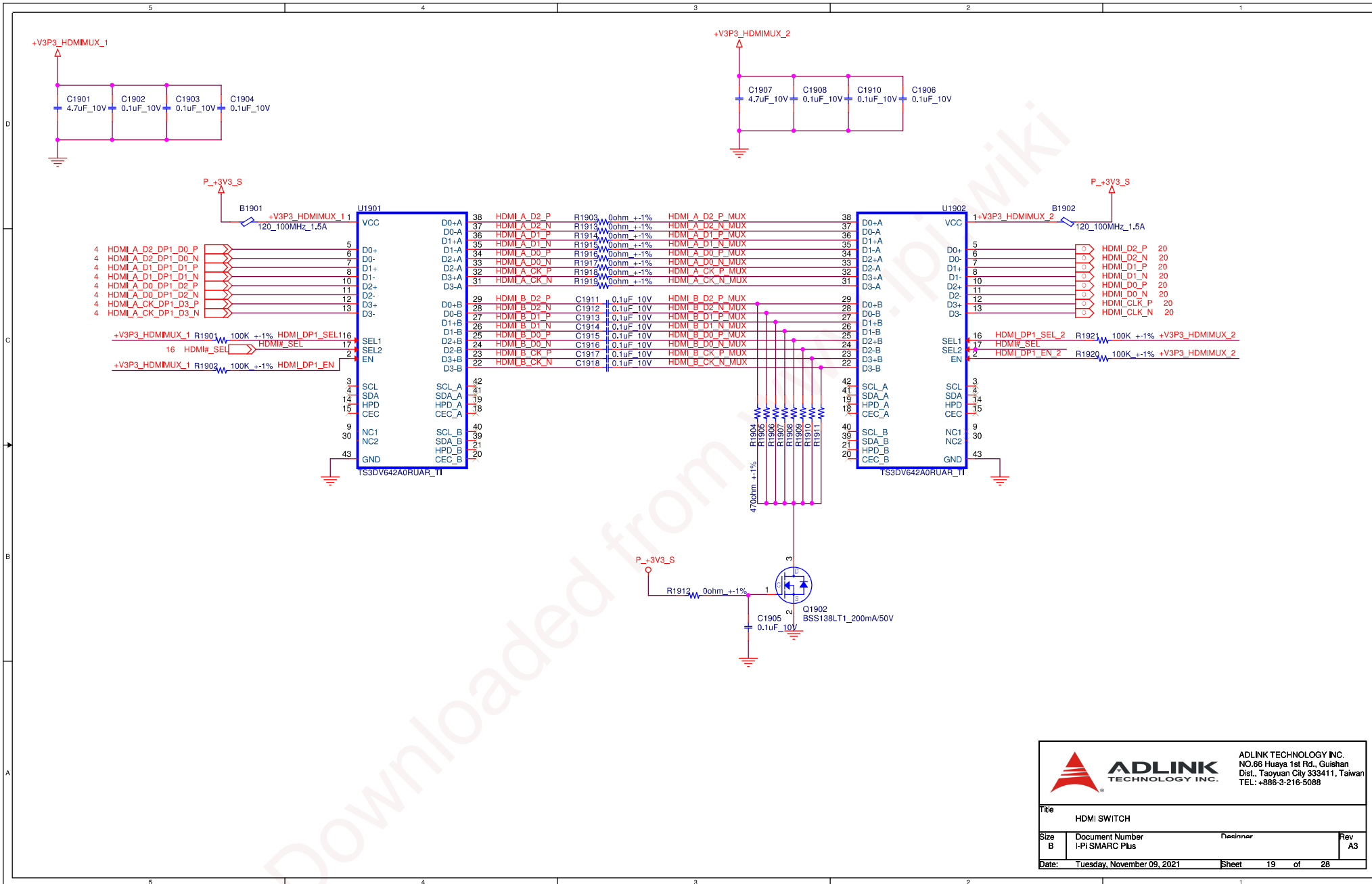
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File: CSI

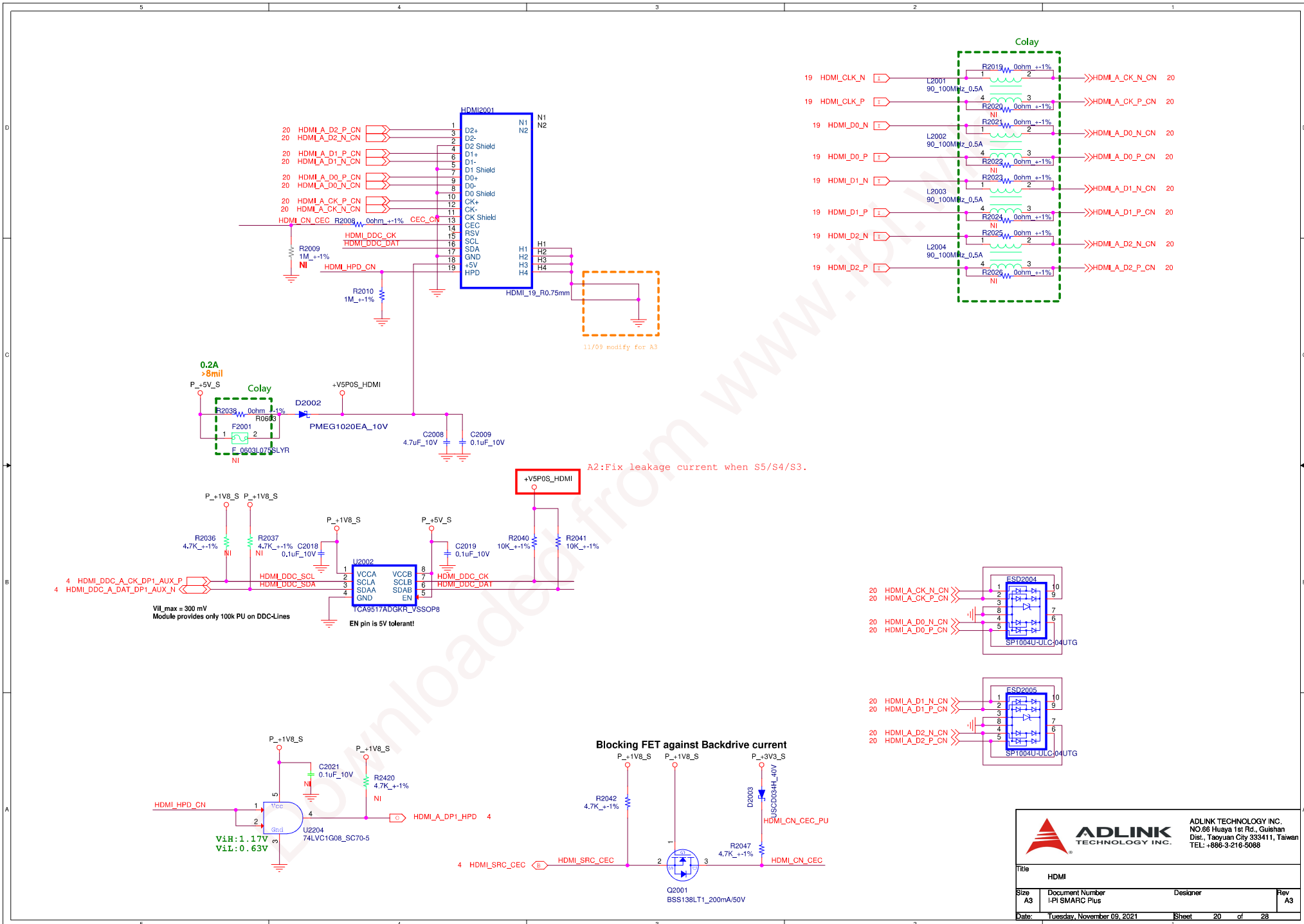
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Date: Tuesday, November 02, 2021

Rev: AS

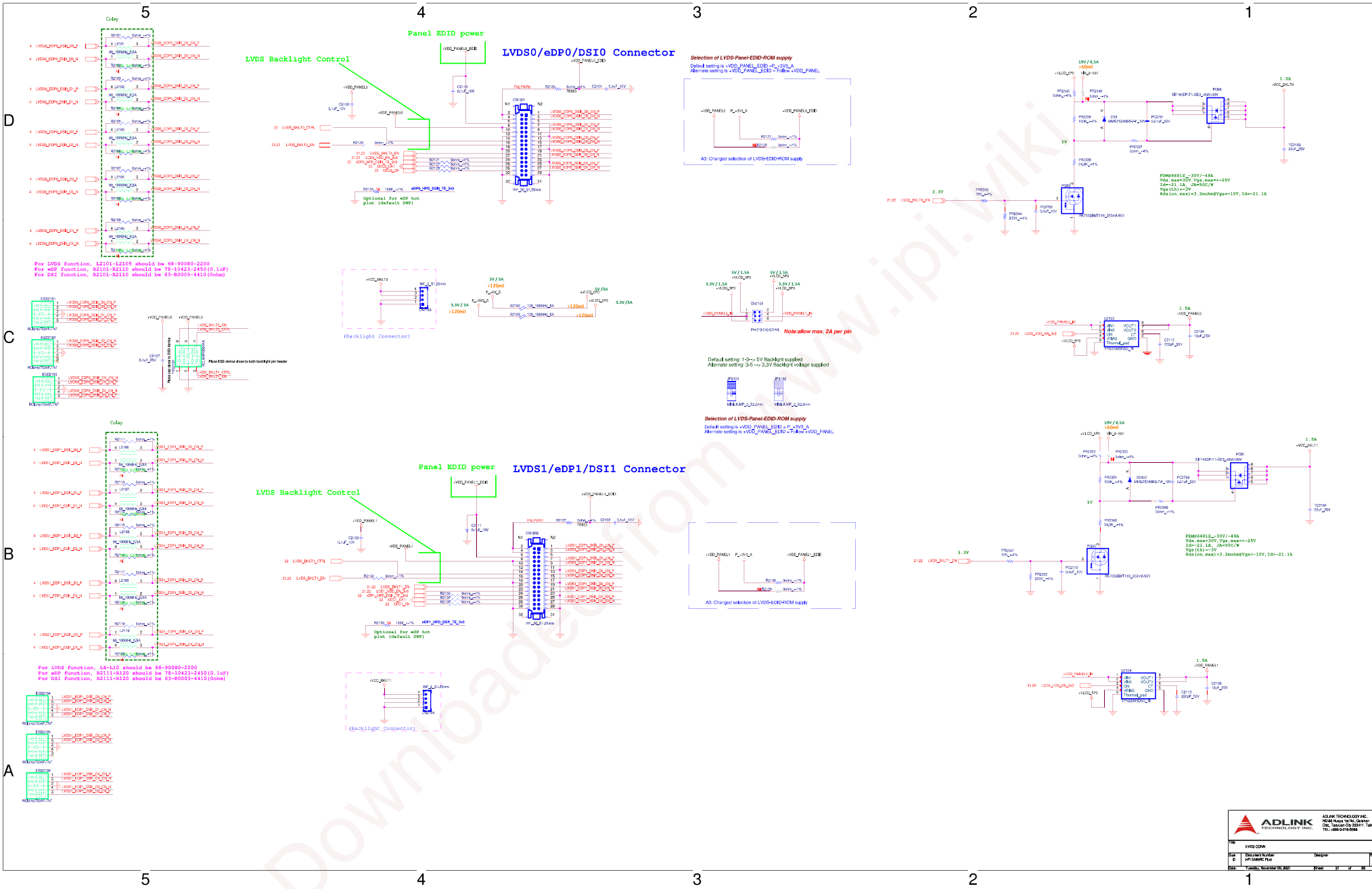
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		Title HDMI SWITCH	
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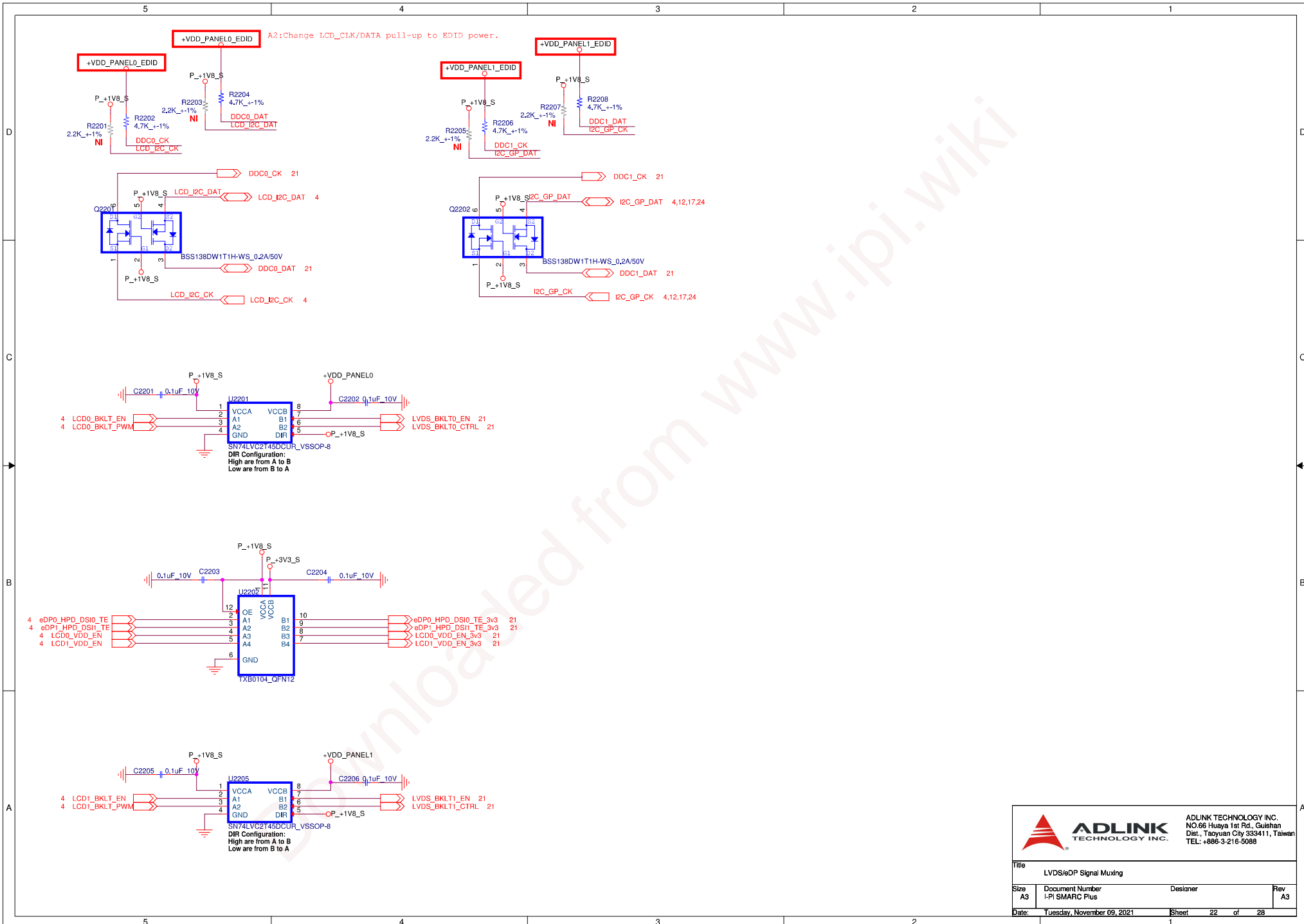


D

C

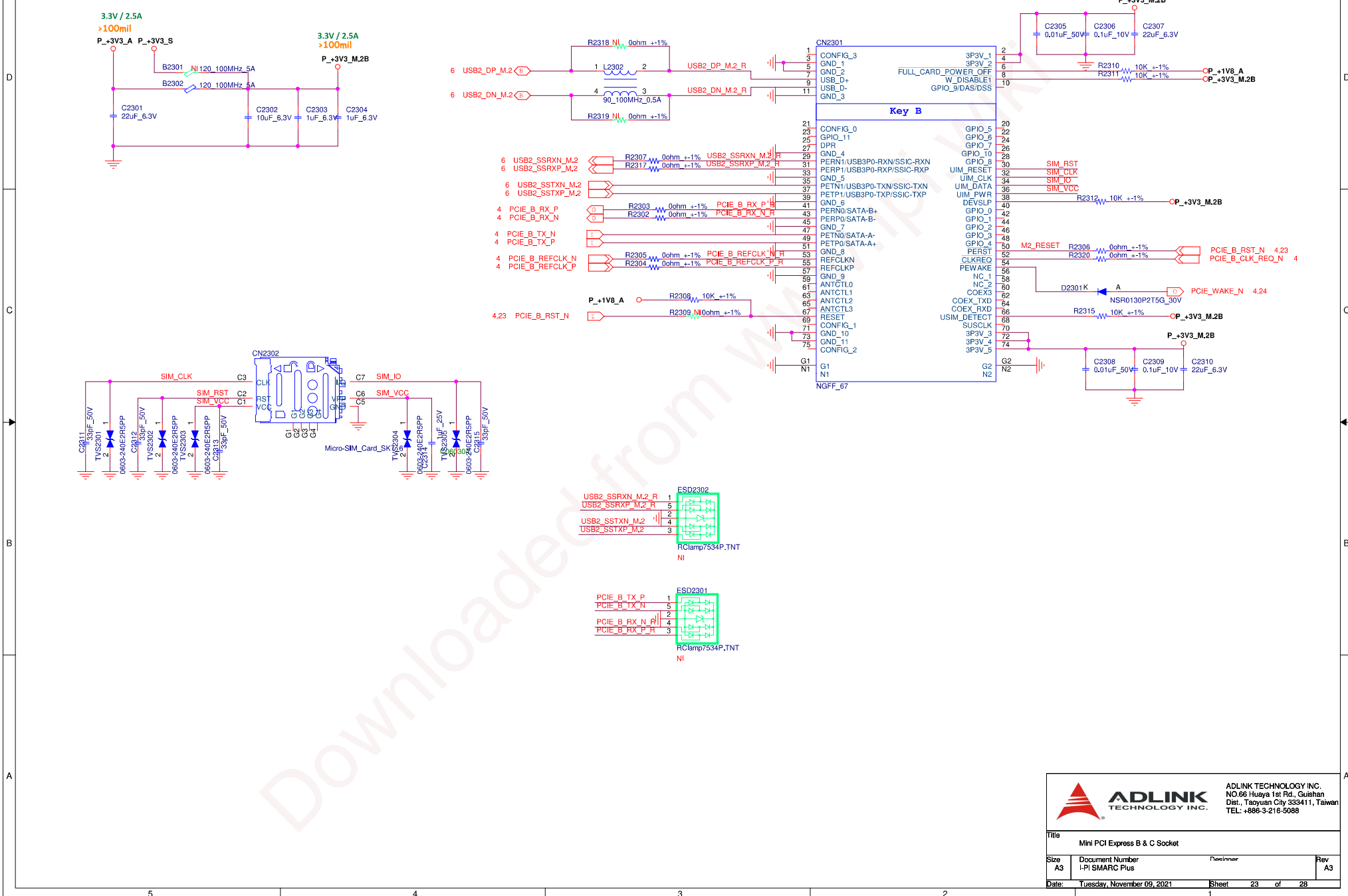
B

A



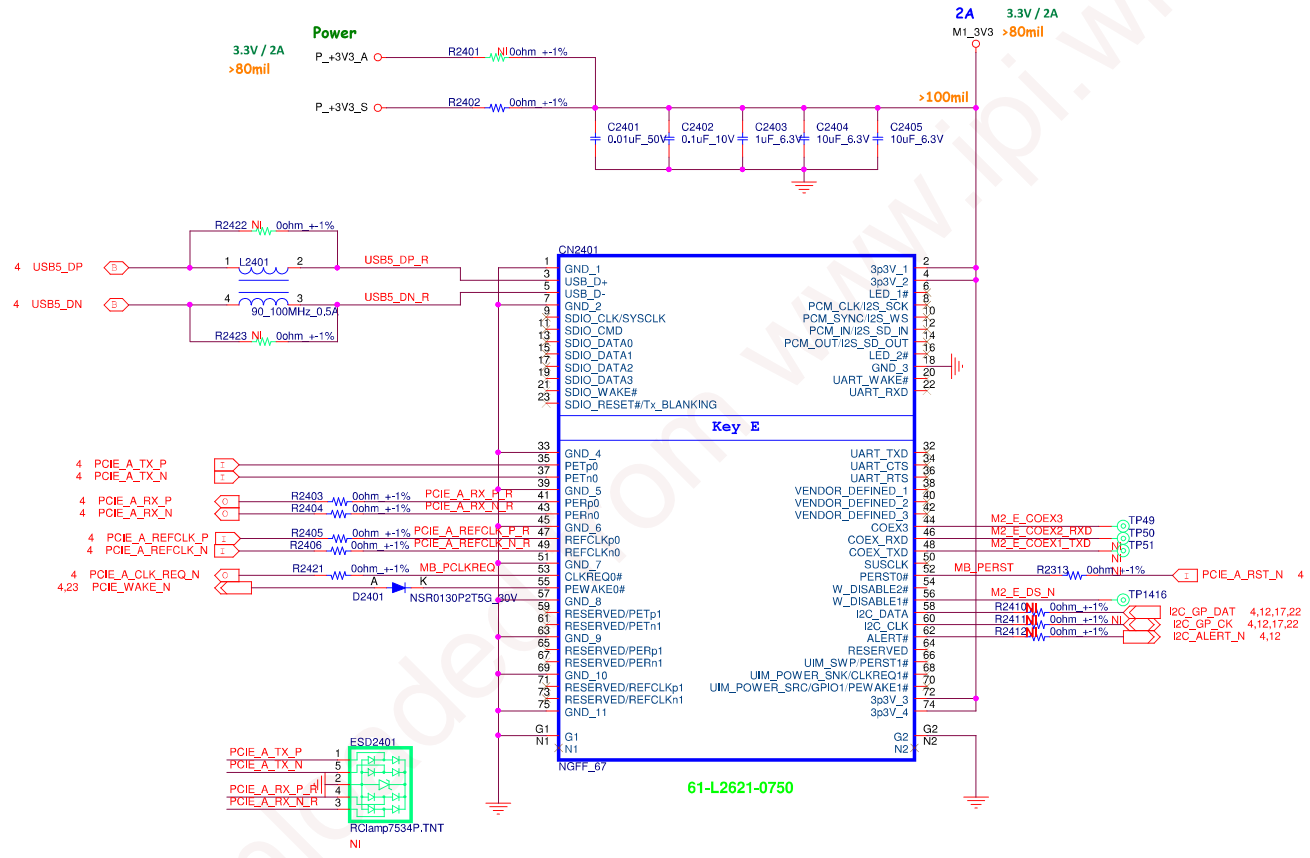
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		Title: LVDS/eDP Signal Muxing	
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M.2 key-B Slot (Storage/LTE)



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Title: Mini PCI Express B & C Socket			
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M.2 key-E Slot (Bluetooth/Wifi)



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Title: Mini PCI Express B & C Socket			
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P_+5V_A/P_+3V3_A(TPS51225B)

P_+5V_A VR Specification:

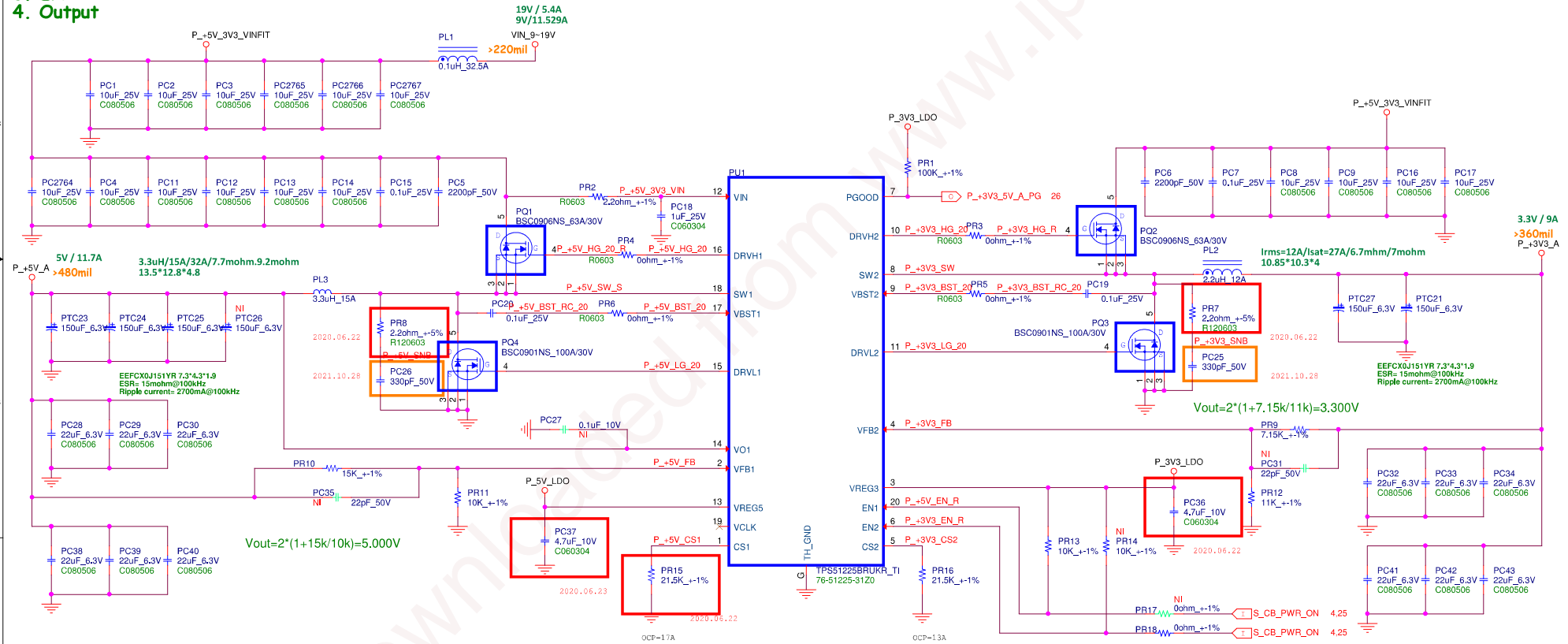
Vout: 5.0V
 TDC: 11.7A
 Istep: 5.85A
 Slew Rate: 1A/uS
 TOB: + - 5.0%
 Switching Frequency per Phase: 300kHz

P_+3V3_A VR Specification:

Vout: 3.3V
 TDC: 9A
 Istep: 4.5A
 Slew Rate: 1A/uS
 TOB: + - 5.0%
 Switching Frequency per Phase: 355kHz

TPS51225B power sequence

1. VIN
2. VREG3(internal LDO)
3. EN
4. Output



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Title: **P_+5V_A/P_+3V3_A(TPS51225B)**

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P_+1V8_A (TPS82085)

P_+1V8_A Specification:

Vout: 1.80V

I_{max}: 1.00A

I_{step}: 0.50A

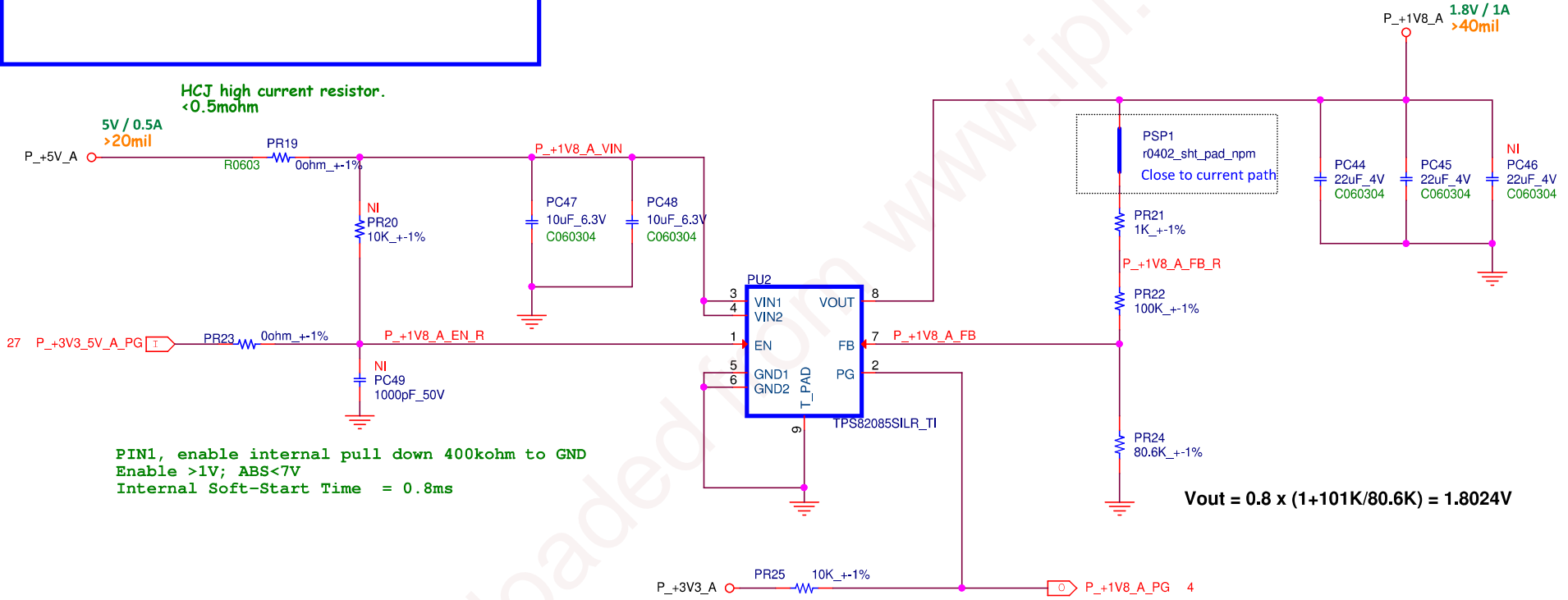
Slew Rate: 1A/uS


TOB: + - 5.0%

Switching Frequency per Phase: 2.4MHZ

TPS82085 power sequence

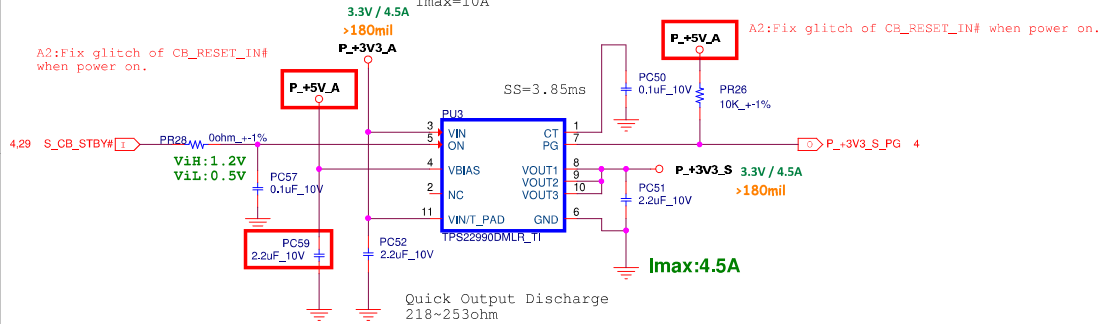
1. VIN
2. EN
3. Output



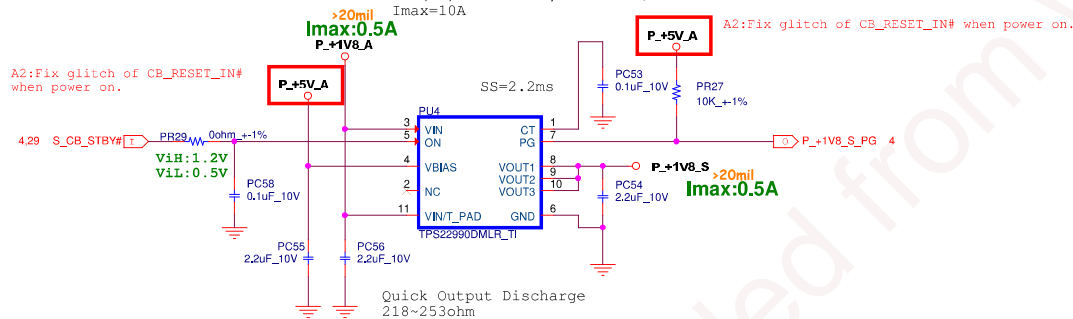
		ADLINK TECHNOLOGY INC. NO.66 Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan TEL: +886-3-216-5088	
		Title P_+1V8_A (TPS82085)	
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P_+3V3_S/P_+1V8_S/P_+5V_S (TPS22990) Load switch

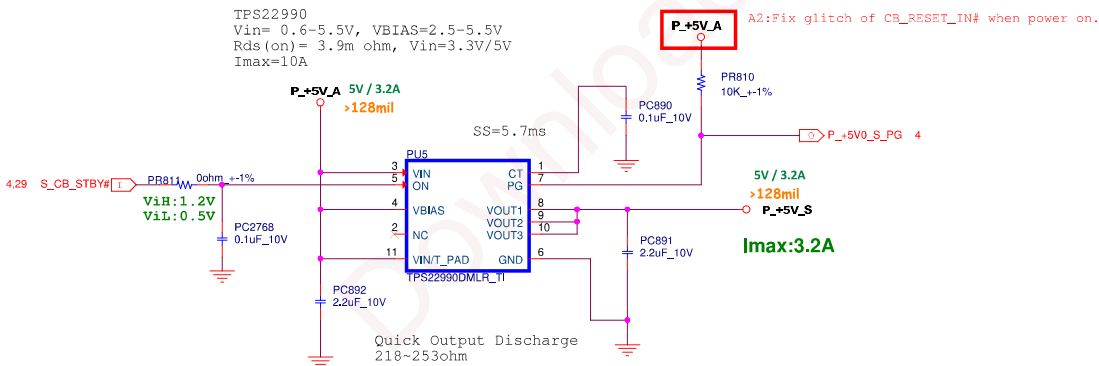
TPS22990
 Vin= 0.6-5.5V, VBIAS=2.5-5.5V
 Rds(on)= 3.9m ohm, Vin=3.3V/5V
 I_{max}=10A



TPS22990
 Vin= 0.6-5.5V, VBIAS=2.5-5.5V
 Rds(on)= 3.9m ohm, Vin=3.3V/5V
 I_{max}=10A



TPS22990
 Vin= 0.6-5.5V, VBIAS=2.5-5.5V
 Rds(on)= 3.9m ohm, Vin=3.3V/5V
 I_{max}=10A



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Title P_+3V3_S/P_+1V8_S (TPS22990)		
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