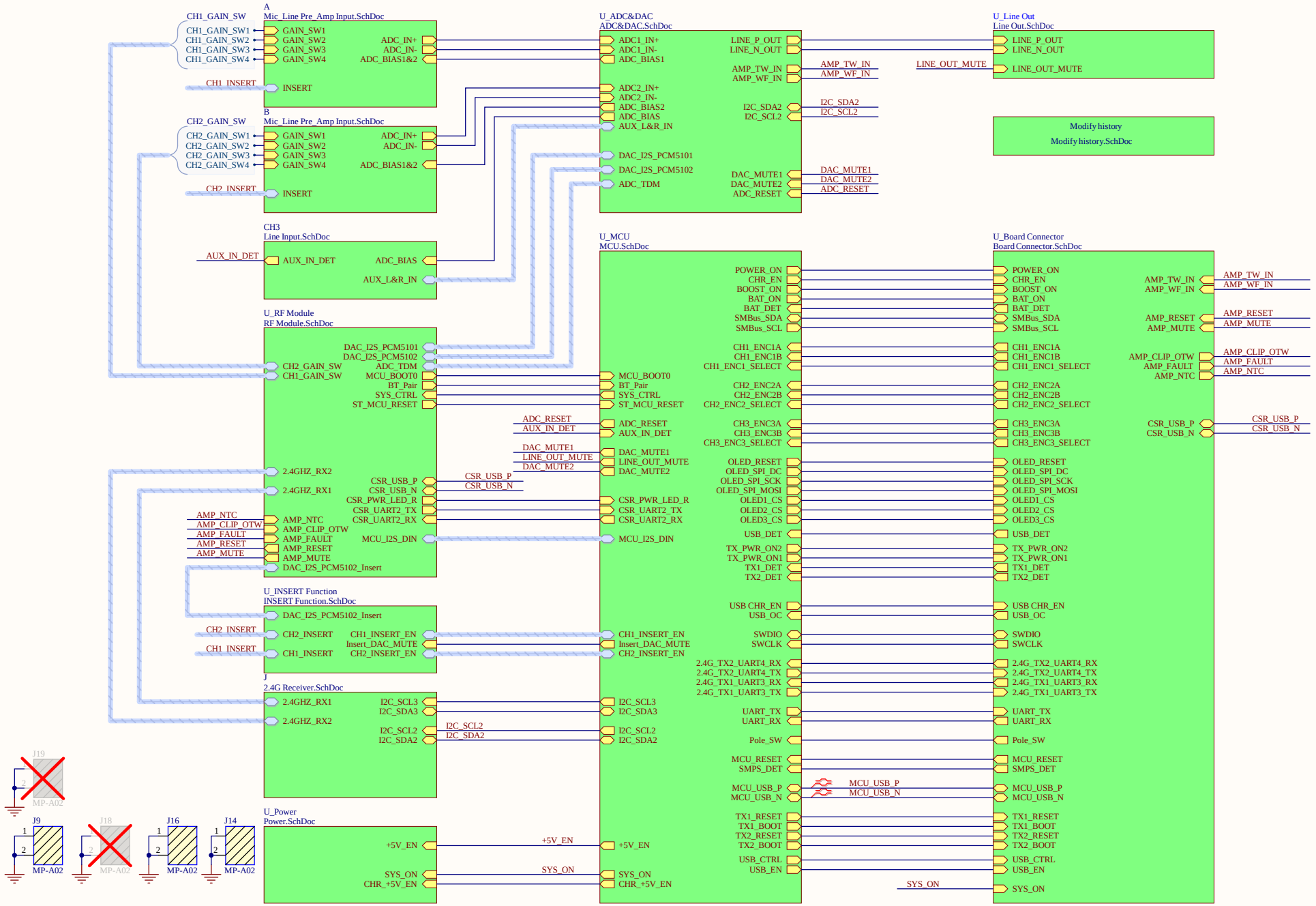


Baby Yoda Main Board			
Product: Baby Yoda			
File Name: System Block.SchDoc			
Part Number: Part Number		Size: A3	
Revision: 3.0.0	Drawn By: Vincent Xu	Mod By: Vincent Xu	
Status: SQR	Checked By: *	Mod Date: 2022/12/8	
Lead Engineer: *		Approved By: *	
Date: 2023/1/7	Time: 17:03:18	Sheet: 1 of 13	

Description of Changes/Notes	Rev.
	3.0

Date	Change Detail
C0 -> C1	
2021/04/15	1. R113 change from 10K to 22K for C1 HW version 2. Change C52, C59 & C64, C69 from 680pF to 220pF for improve 20Khz roll off issue 3. Change J11 to CHIBI one as we don't need Detection and for meeting lower stress on compoments 4. delete C197 according to item 3,move TP150 to PIN2 of J5 5. Remove Q8 as CSR has OD output for LED drive,remove C14,C51,R19,R20,R17,R18,
2021/04/16	6. add LED11,12,13,14,then each channel has 3 LEDs 7. VREF+ connect to VDDA for ADC voltage supply 8. Add SPI_DC(MCU-PD14) for 4 wire SPI mode,use Pin 2 of J5,NC R115,add R17,C14
2021/04/29	9.Wireless transmitter USB-C detect: R491/R492(10K->5.36K),add R162/R163/R164/R165(100K), add Q8/Q14(MMBT3906), add R166/R418(47K)
2021/05/04	10.Add external memory: add U27,C51,R419,change STM I/O(OLED1_CS: 29PIN PA4 -> 12PIN PH0), add 29PIN PA4 for external memory SPI_CS 11.Remove STM I/O PC0(MCU&RX2_CTL) and PC1(MCU&RX2_EN), 12.USB_TX connector: update STM I/O PC0/PC1 for TX_PWR_ON1 and TX_PWR_ON2 for Transmitters PWR control change connector J15(11P->14P),add C116/C118(0.01UF) 13.Change J6(Pin Pitch 2.5mm->2.0mm）
2021/05/10	14.USB_TX connector: add ESD Diode D38/D43/D45/D48/D50/D51/D52/D46/D47, add PTC Fuse(F1)
2021/05/11	15.Add R420A/R420B (0R)， NC C207A/C207B 16.change Accelerometer IC(U6: ST LIS3DHTR ->BOSCH BMA253), delete R117(7.5K)/R124/R126(10K),add C119(0.1UF) add R118(3.3K) 17.Add cable clip(J9/J14/J16)
2021/05/14	18.Remove STM I/O PIN9(CSR_RESET),then OLED1_CS move to PIN9; add external crystal(Y1) connect to PIN12/PIN13 for USB audio function,add C121/C122(10pF),R117(0 OHM)
2021/05/17	19.U5/U9: update 5G_RX_Module to 2.4G Module
2021/05/18	20. Add two connections to the TX Charge Board Connector(J15) for a 5.1K Pullup to +3.3V: R491/R492(5.36K->5.1K) add D53/D54, R124/R126(5.1K),C129/C130(0.01UF) 20.RX module: remove R454/R426(100K), add R61/R67(10K)
2021/05/19	21.Move SMPS_DET from STM PB2 to PB1 22.add R205/R208/R210/Q1, remove R3
2021/05/22	23.change PIO from PC11 to PA15 for PWR_LED_W pulse function(PA15:PWR_LED_W, PC11:CHR_CURR_SW)
C1 -> C2	
2021/06/08	1.Swap PIO for 2.4G TX1 UART3(PC7:2.4G_TX1_UART3_RX, PC6:2.4G_TX1_UART3_TX) 2.change SMBUS pull-up from +3.3V to M3.3V
2021/08/24	3.Swap J11 Positive/Negative input pin 4.CH1/CH2 THD+N improvement: remove R537/R567
2021/09/01	5.change STM PIO: PC11(CHR_CURR_SW -> TX_BOOT), PC10(BAT_VOLT_CH -> TX_RESET) 6.Remove Front LED control circuit(J7/C9/Q31/R484/C35/R482) 7.TX1&TX2 DET change from +3.3V to M3.3V 8.CH1/CH2/CH3 SIGNAL/CLIP LED(3 EA->2 EA), NC LED8/LED11/LED13 9.add the pull-up/pull-down to RX module U5/U9 PIN13(GPIO_35) as option 10.ESD Improvement: add D39/D40, R473/R474/R60/R62(0R->100R)，L2/L3(600R@100MHz)
2021/09/02	11.TX PUSH Connector change(14pin: J15 -> 10pin x2: J15/J7): add D55/D56/D57/D58/D59/C9/C35/C131/C132/C133 12.Remove data selector IC(U21) and R424/C26/C27/R382/R409/R510 13.change TVS Diode D24/D44/D8/D9 for low capacitance
2021/09/08	14.I2S Bus Changes to Baby Yoda Main Board for STM USB Audio
2021/09/14	15.add USB detect circuit(add R409/R424/R382:10K, C26:0.01uF,Q25:MMBT3904) 16.add 2 pin for TX2 BOOT and RESET control 17.Remove CH(1 & 2)_ENB_INSERT_N from pins PD13/PD10 to free up for other uses add Q26/Q27(2N7002K-7), R427/R428(10K),R429/R431(100K), C27/C134(0.10UF),remove R148 18.add R432/R433(0R)
2021/09/17	19.add D60(BAT54A), change R124/R126/R491/R492(5.1K->4.22K) 20.add pull-up resistor R434/R438(10K)
2021/09/18	21.add bypass caps C197/C250(100pF) on AMP input lines
2021/09/29	22.ESD: add C259/C261/C264/C265(47UF/10V), L4(CM Choke), C262/C263(0.1UF),D61/D62(TVS DIODE)
2021/10/15	23.add C266/C267: 47UF/10V

Date	Change Detail
C2 -> C Final	
2022/02/14	1.CMRR Improvement: Use second switch in U31/U34(PIN14/PIN15) into negative leg,NC C271/C272
2022/02/15	2.Line output: R28/R32/R43/R48(4.99K->5.1K), R27/R37/R38/R49(7.5K->9.1K) 3.TX Detect: D60, One diode should connect to R124 and R492 and the other diode should connect to R126 and R491 4.Q11.2 Node connect to M3.3V instead of +3.3V 5.Control power_led_white: change PIO(PA15->PD13),add R148 6.Remove C207A/C207B and R420A/R420B to minimize loop area to improve RI 7.change to Bose PSL: CM Choke L4(SUNLEI: DB21T-900-PF -> CENKER: CMC2012S-900-2P-T) 8.change DC/DC(U10): TPS54302->TPS54308 9.U6: replacing Bosch BMA-253 with the Kionix KTXJ3-1057 accelerometer,Ground Pin 6, tie Pin 10 to A3.3V, DNI R116 10.Add BAT_DET: J1-PIN9 change to BAT_DET, MCU PA15: BAT_DET, add R420 11.CH3 CMRR Improvement: change R287/R306(47K->28K), add R439/R456(20K), add C207/C270/C279/C281(470PF), add R454/R467(100R), R290(2K->2.4K) 12.Remove D32 13.swap J1_10 and J1_11, J1_10:BAT_ON, J1_11 connect to GND,remove C42/R478 14.ESD Improvement: change C83(470PF->1000PF), add R482(0R), DNI D4(BAT54A-7-F)/R80(0R)/R90(0R) 15.Remove R261/R265(33 ohm), C165/C166(100 PF） 16.Remove buffer IC(U12)/R194/C109/R189/C108/R507/R523/R223/R263 17. Remove R440/R21/R366/R367/R368/R500/R389/R390/R399/R405/R358A/R358B/R361A/R361B/R278/R285/R296/R304 Remove R509/R508/R512/R536/R542/R566/R233/R235/R236/R237/R246/R214/R215/R252/R253/R51/R173/R379/R393/R407 Remove R401/R387/R22 18.HW Ver: R112 ->DNI
C Final -> DV	
2022/07/05	1.EFT/ESD improvement 1) change C248/C127/C255: DNI->33PF, R475/R476/R477/R479/R480/R481/R23: 0 ohm->120ohm 2) change R206/R149/R419/R119/R436(0R) -> L5/L6/L7/L8/L9(Bead 100MHz@1KOHM) 3) change L2/L3: 100MHz@600R ->Bead 100MHz@1K, R125: 33R->L11: Bead 100MHz@1K 2.Update HW Ver to DV: R112 DNI->100K, R113 39K->56K 3.Change mic bias cap C136: 100pF -> 1uF
DV-> PQ	
2022/10/10	1.Speaker buzz(on power on) improvement: remove C127(33pF) 2.1/4" Pops improvement 1) remove R359A/R359B/C240A/C240B 2) change C239A/C239B: 0.1uF ->1uF, add C42A/C42B: 2.2uF 3) remove R354A/R354B, then short XLR_IN_P and XLR_IN_N together to drive Q19 and Q20 simultaneously 3.Update HW Ver to PQ: R113 56K->82K 4. remove debug connector: J2,J4,J10,J13,J3,CN1
2022/10/17	5.1/4" Pops improvement 1)add R21A/R21B/R22A/R22B: 1kohm, add C165A/C165B: 0.01uF, add C108A/C108B/C109A/C109B: DNI 2)remove Q19A/Q19B/Q20A/Q20B/R318A/R318B/R342A/R342B/C417A/C417B/C419A/C419B/C418A/C418B/C420A/C420B 3)remove Q22A/Q22B/R355A/R355B/C42A/C42B, change C239A/C239B: 1.0uF->0.1uF
2022/10/18	6.remove R432/R433/R443/R441/R442 7.change C209A/B, C226A/B to 470pF, change C216A/B, C222A/B to 1nF. change C215A/B and C221A/B to 10nF.
PQ-> SOR	
2022/12/08	1.Update HW Ver to SOR: R112 100K->82K, R113 82K->100K
2023/01/07	2.SMbus Signal Integrity Improvement 1).change R60,R62 from 100 to 33 ohm 2).change R444,R445 from 4.7k to 1.8k

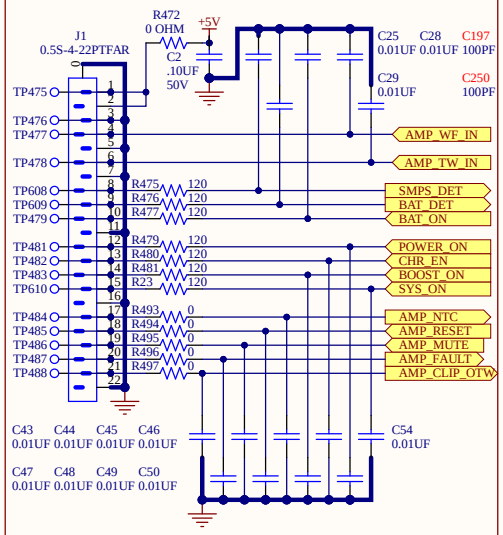
BOSE

Baby Yoda Main Board

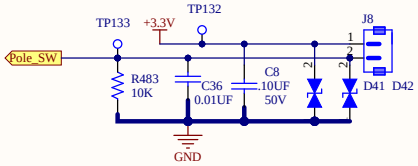
Product: Baby Yoda			
File Name: Modify history.SchDoc			
Part Number: Part Number		Size: A3	
Revision: 3.0.0	Drawn By: Vincent Xu	Mod By: Vincent Xu	
Status: SQR	Checked By: *	Mod Date: 2023/1/7	
Lead Engineer: *		Approved By: *	
Date: 2023/1/7	Time: 17:03:18	Sheet: 2 of 13	

Description of Changes/Notes	Rev.
	3.0

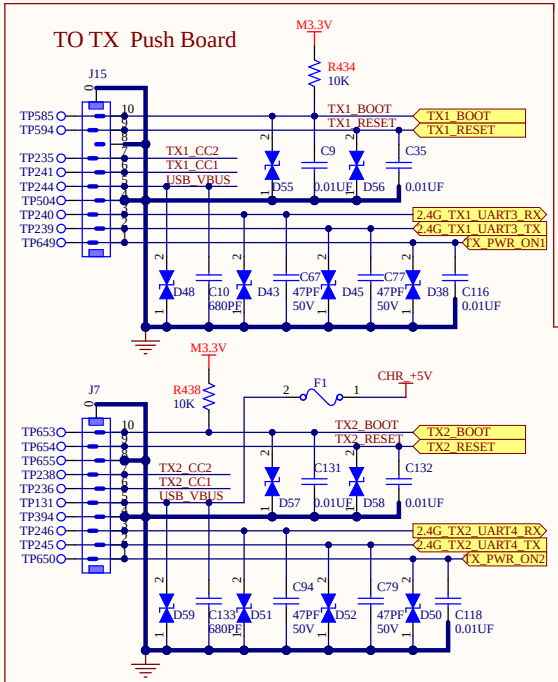
To POWER_AMP Board



TO POLE SWITCH Board

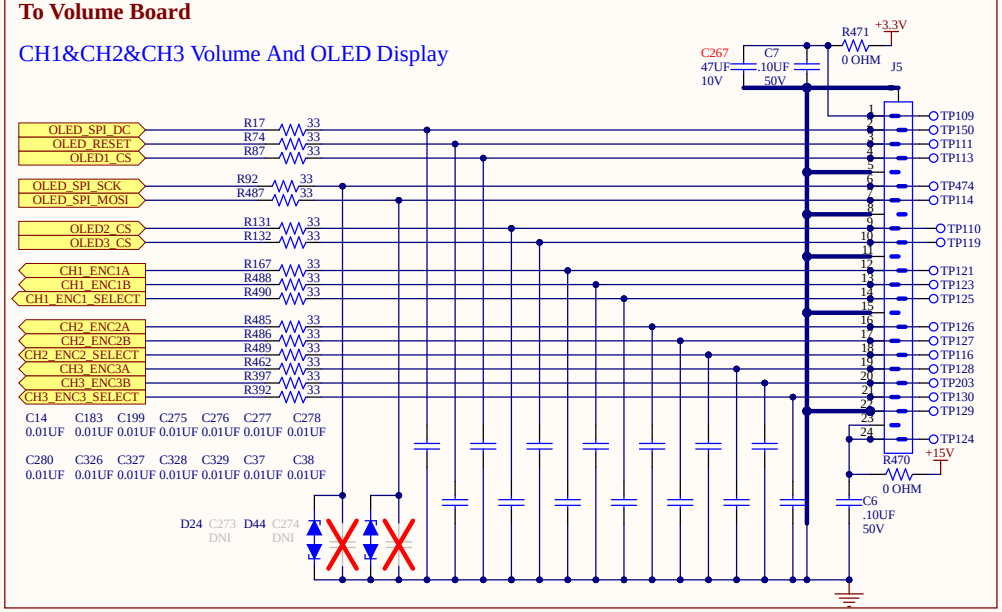


TO TX Push Board

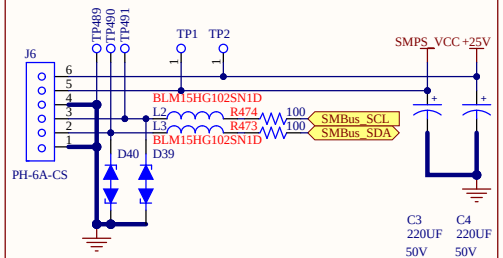


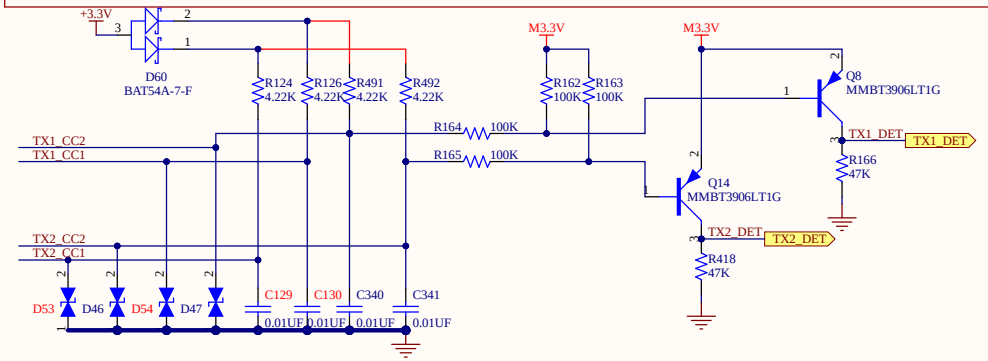
To Volume Board

CH1&CH2&CH3 Volume And OLED Display



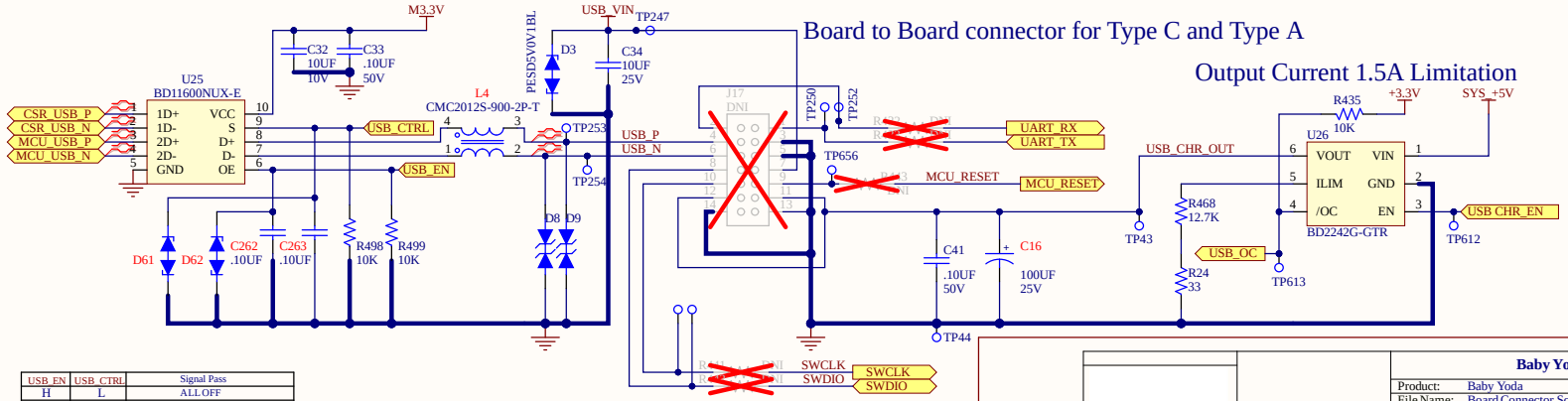
To POWER_AMP Board



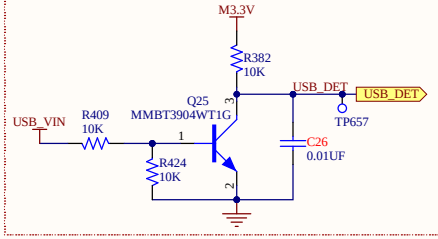


Board to Board connector for Type C and Type A

Output Current 1.5A Limitation



USB Detect



USB_EN	USB_CTRL	Signal Pass
H	L	ALL OFF
H	H	ALL OFF
L	L	1D+<->D+,1D-<->D-
L	H	2D+<->D+,2D-<->D-

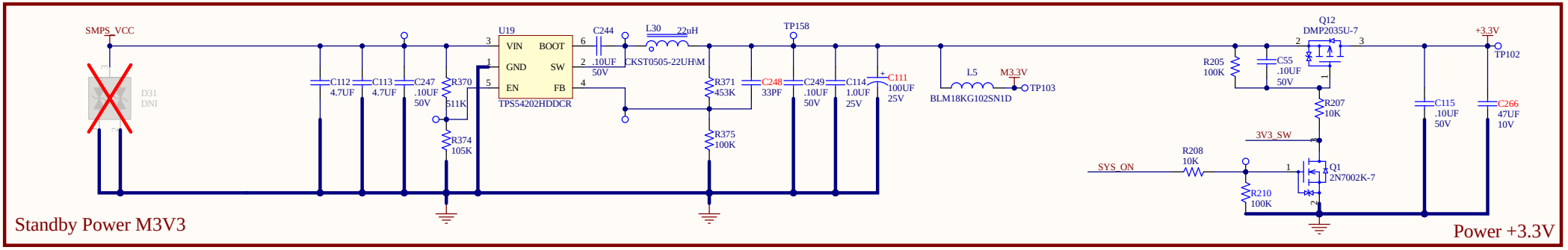
To USB Type C and Type A Board

BOSE

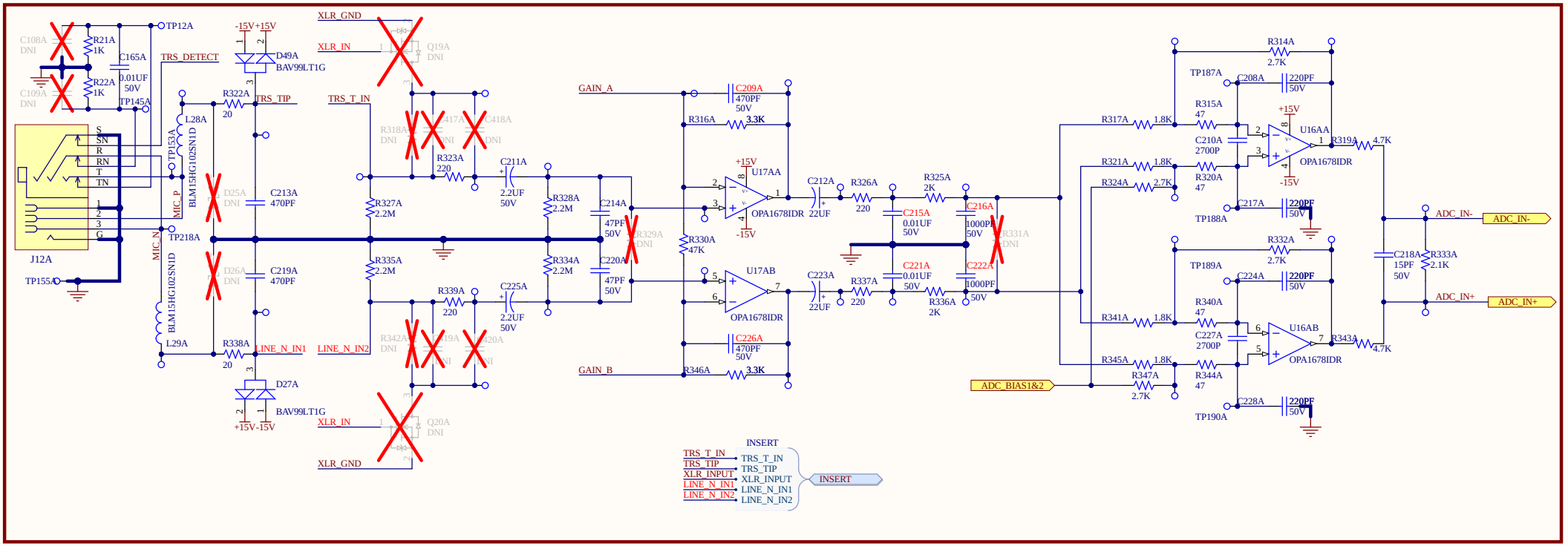
Baby Yoda Main Board

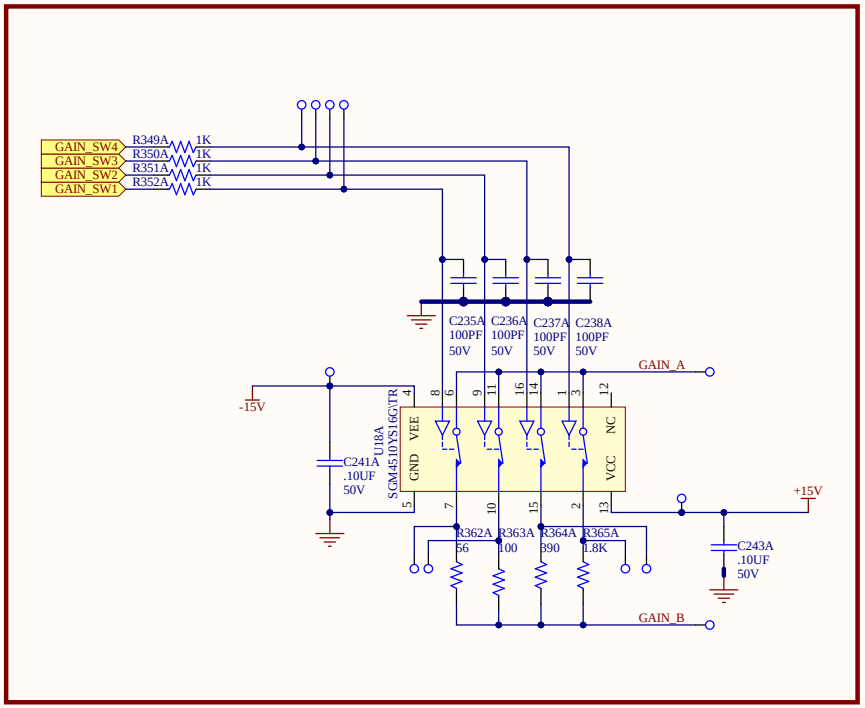
Product: Baby Yoda			
File Name: Board Connector.SchDoc			
Part Number: Part Number			Size: A3
Revision: 3.0.0	Drawn By: Vincent Xu		Mod By: Vincent Xu
Status: SOR	Checked By: *		Mod Date: 2022/12/8
Lead Engineer: *			Approved By: *
Date: 2023/1/7	Time: 17:03:18		Sheet: 3 of 13

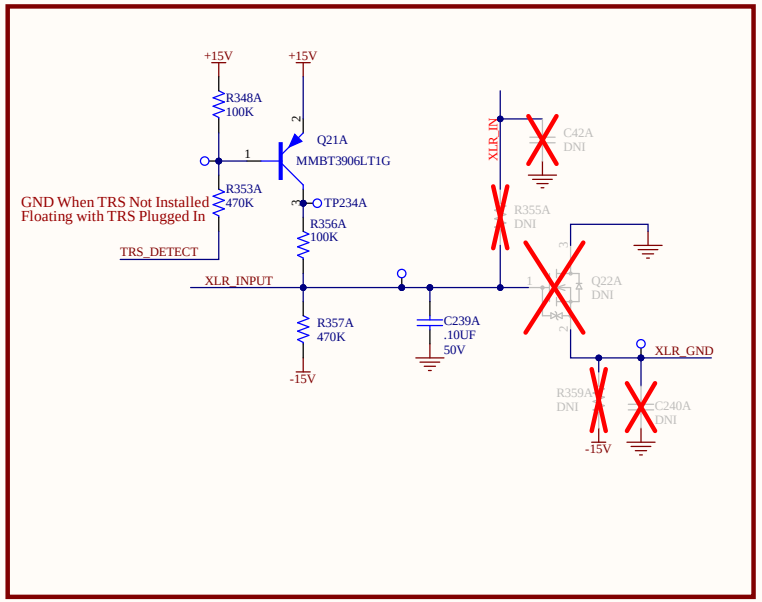
Description of Changes/Notes	Rev.
	3.0

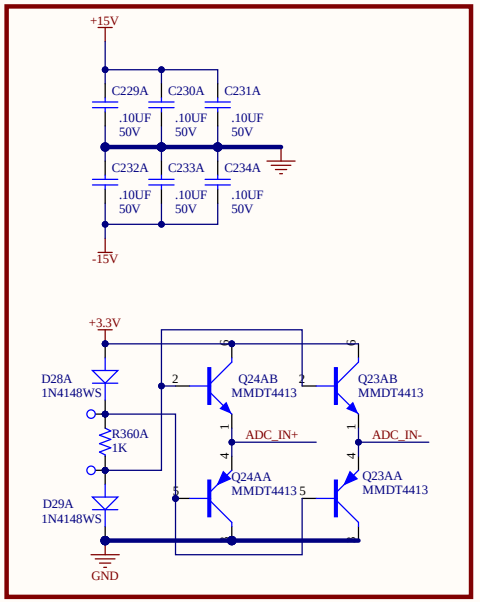


		Baby Yoda Main Board			Description of Changes/Notes	Rev.
BOSE		Product: Baby Yoda				3.0
		File Name: Power.SchDoc				
		Part Number: Part Number		Size: A3		
		Revision: 3.0.0	Drawn By: Vincent Xu	Mod By: Vincent Xu		
		Status: SQR	Checked By: *	Mod Date: 2022/12/8		
		Lead Engineer: *		Approved By: *		
		Date: 2023/1/7	Time: 17:03:19	Sheet: 4 of 13		

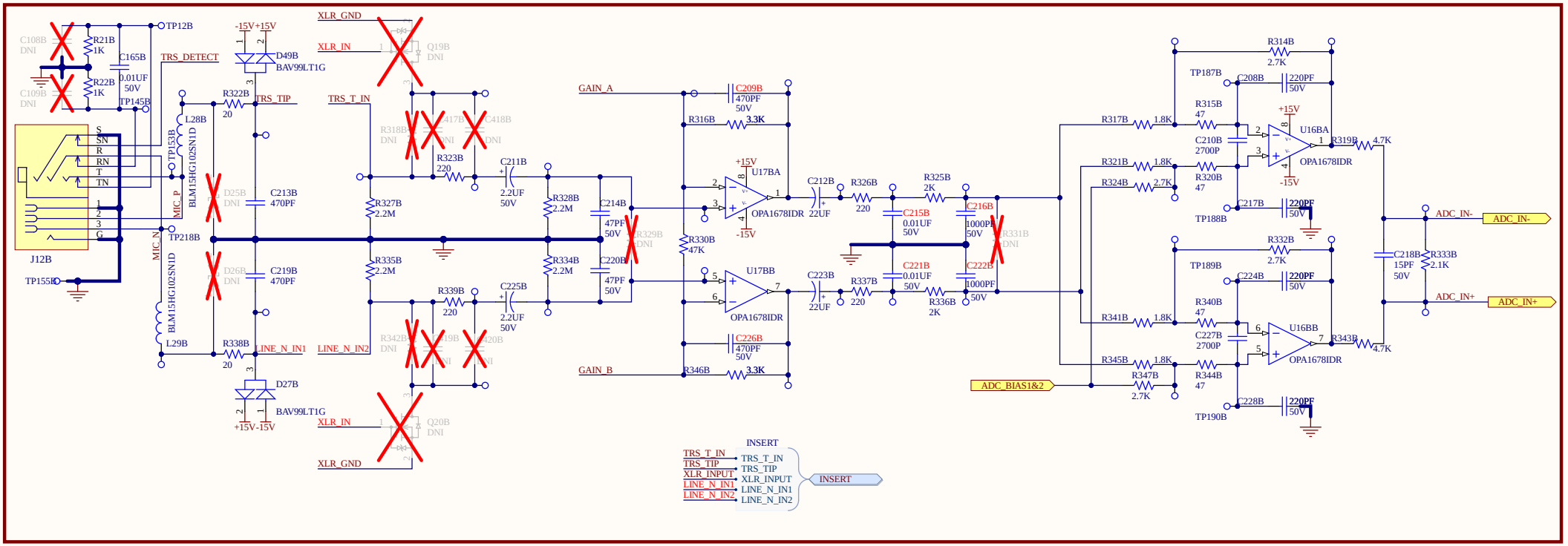


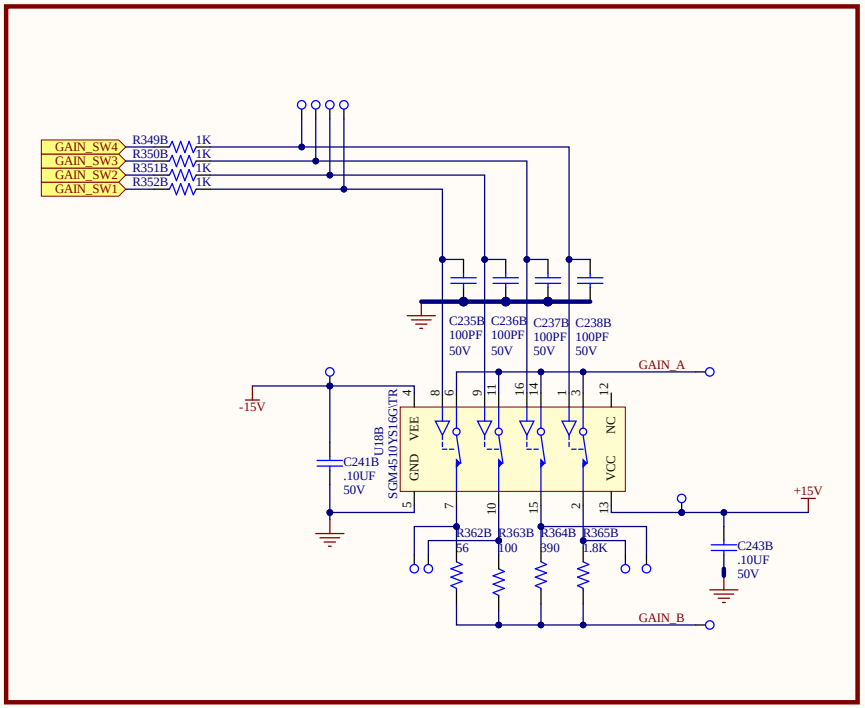


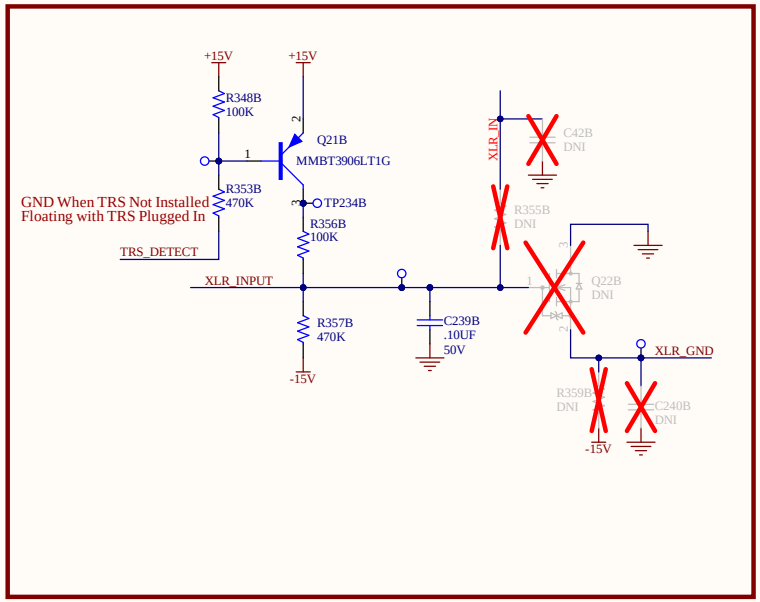


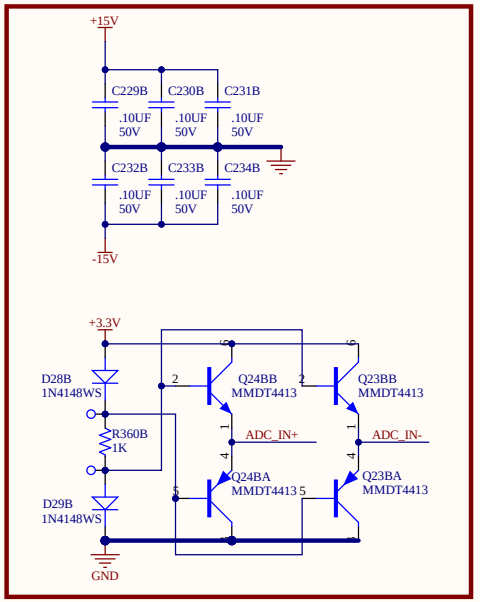


Baby Yoda Main Board				Description of Changes/Notes	Rev.
Product: Baby Yoda					
File Name: Mic_Line Pre_Amp Input.SchDoc					
Part Number: Part Number			Size: A3		
Revision: 3.0.0	Drawn By: Vincent Xu		Mod By: Vincent Xu		
Status: SQR	Checked By: *		Mod Date: 2022/12/8		
Lead Engineer: *			Approved By: *		
Date: 2023/1/7	Time: 17:03:19		Sheet: 5.1 of 13		
					3.0





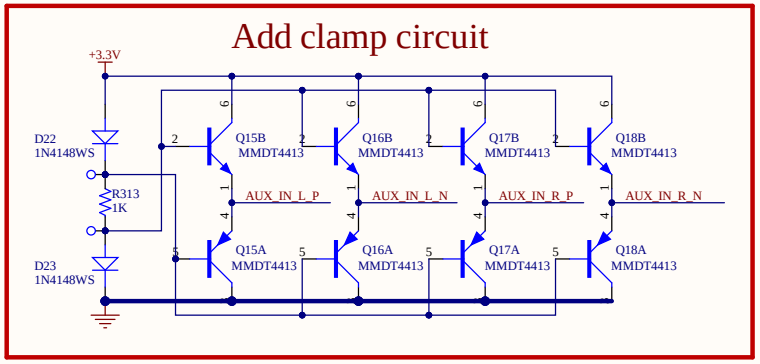




BOSE		**Baby Yoda Main Board**	Description of Changes/Notes / Rev.
		Product: Baby Yoda	
		File Name: Mic_Line Pre_Amp Input.SchDoc	
		Part Number: Part Number — Size: A3	
		Revision: 3.0.0 — Drawn By: Vincent Xu — Mod By: Vincent Xu	3.0
		Status: SQR — Checked By: * — Mod Date: 2022/12/8	
		Lead Engineer: * — Approved By: *	
		Date: 2023/1/7 — Time: 17:03:20 — Sheet: 5.2 of 13	

1/8" AUX STEREO INPUT

1/4" LINE MONO BALANCED INPUT



Baby Yoda Main Board			Description of Changes/Notes / Rev.
Product: Baby Yoda			
File Name: Line Input.SchDoc			
Part Number: Part Number		Size: A3	3.0
Revision: 3.0.0	Drawn By: Vincent Xu	Mod By: Vincent Xu	
Status: SQR	Checked By: *	Mod Date: 2022/12/8	
Lead Engineer: *		Approved By: *	
Date: 2023/1/7	Time: 17:03:20	Sheet: 6 of 13	

Buffered Audio Output from Wireless MIC DAC

DAC PCM5102A for Audio Out to Insert

From DSP

PCM5101&PCM5102		
PIN	**LEVEL**	**Description**
FLT	0	FIR Normal x8/x4/x2/x1 Interpolation Filters
	1	IIR Low Latency x8/x4/x2/x1 Interpolation Filters
FMT	0	I2S
	1	Left justified
XSMT	0	Soft mute
	1	Soft un-mute
DEMP	0	De-emphasis control for 44.1k sampling rate:OFF
	1	De-emphasis control for 44.1k sampling rate:ON
SCK	0	If BCK and LRCK start correctly while SCK remains at ground level for 16 successive LRCK periods

INSERT	ENB_P	ENB_N
ON	HIGH	LOW
OFF	LOW	HIGH

Switch Closed when ENB Low

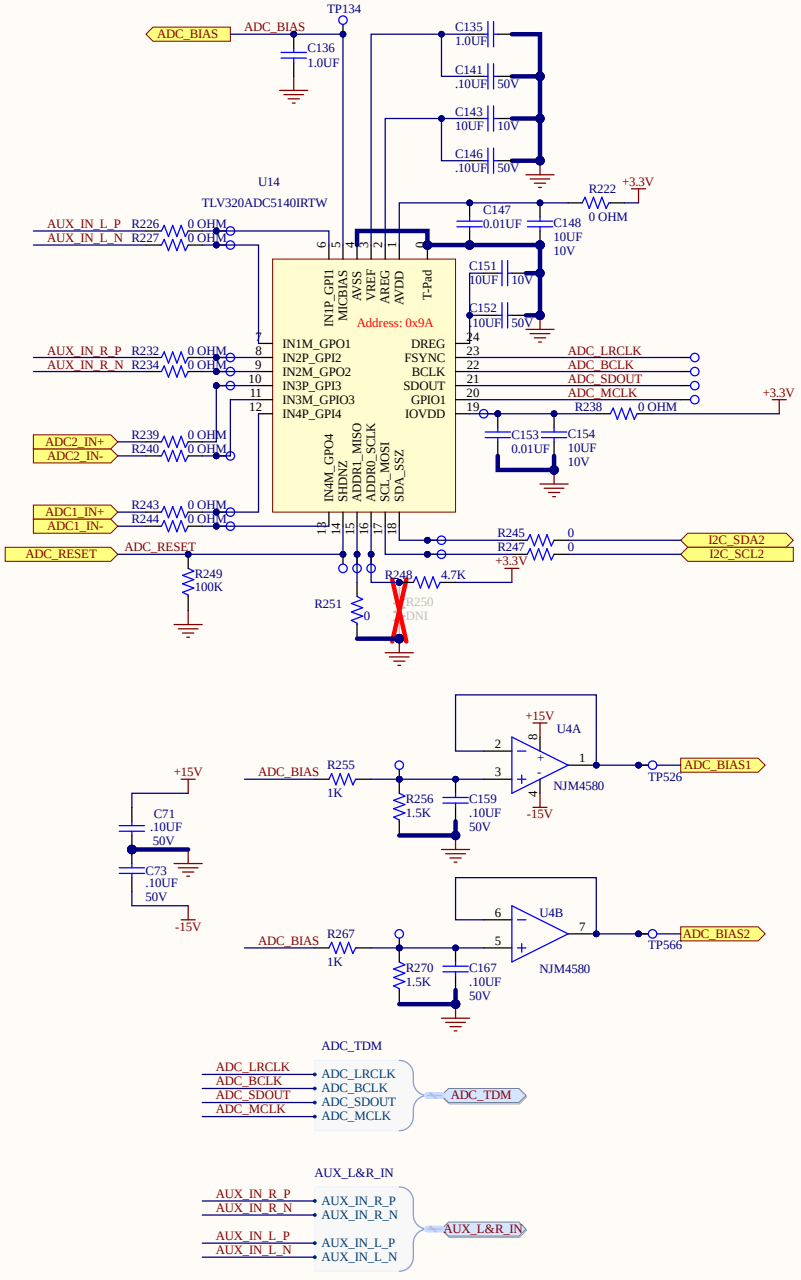
Connection to TRS Jack TIP

Audio Input to PreAmp

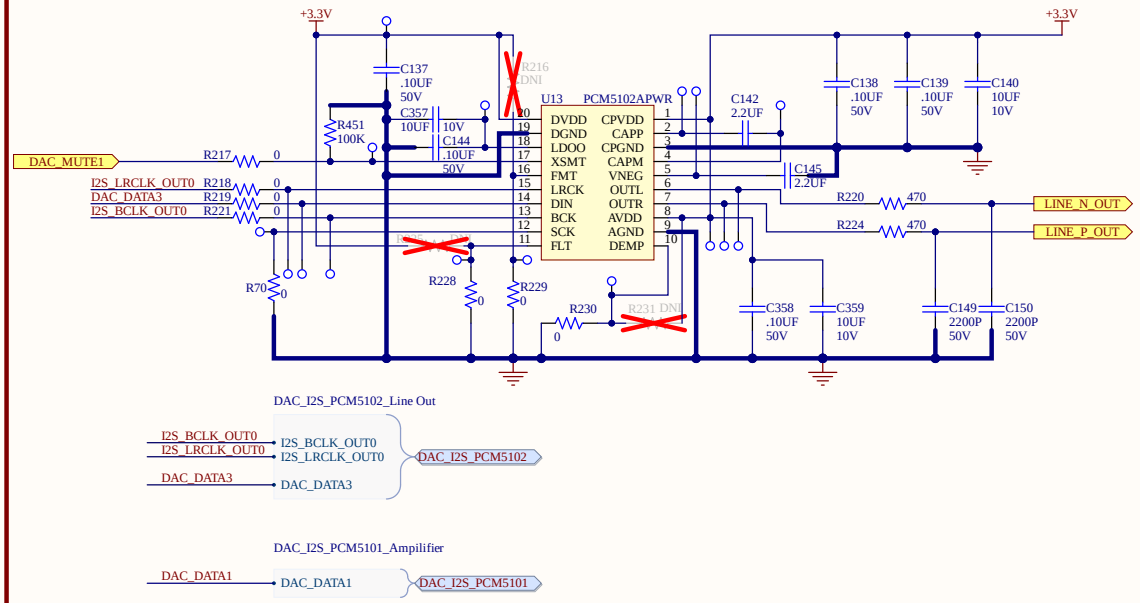
Reduce Noise Coupling into input When Not in Insert Mode

Baby Yoda Main Board			Description of Changes/Notes: Rev. 3.0
Product: Baby Yoda			
File Name: INSERT Function.SchDoc			
Part Number: Part Number		Size: A3	
Revision: 3.0.0	Drawn By: Vincent Xu	Mod By: Vincent Xu	
Status: SQR	Checked By: *	Mod Date: 2022/12/8	
Lead Engineer: *		Approved By: *	
Date: 2023/1/7	Time: 17:03:21	Sheet: 7 of 13	

ADC TLV320ADC5140



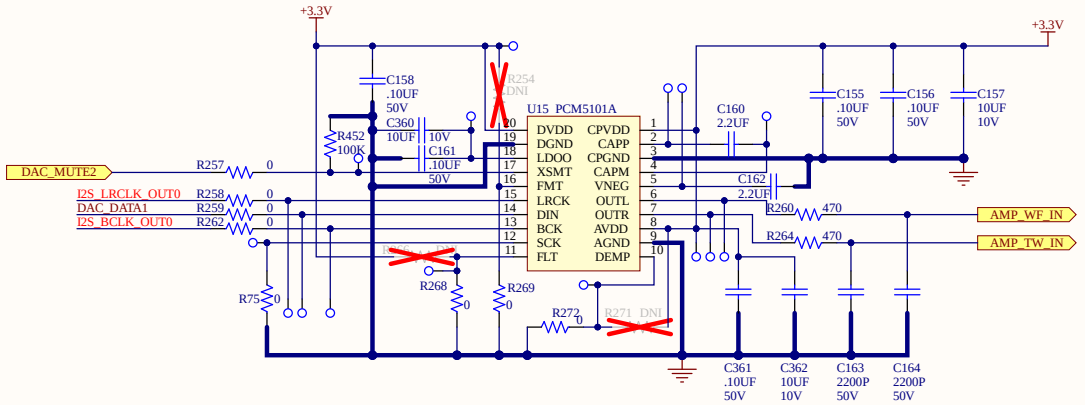
DAC PCM5102A for Line out



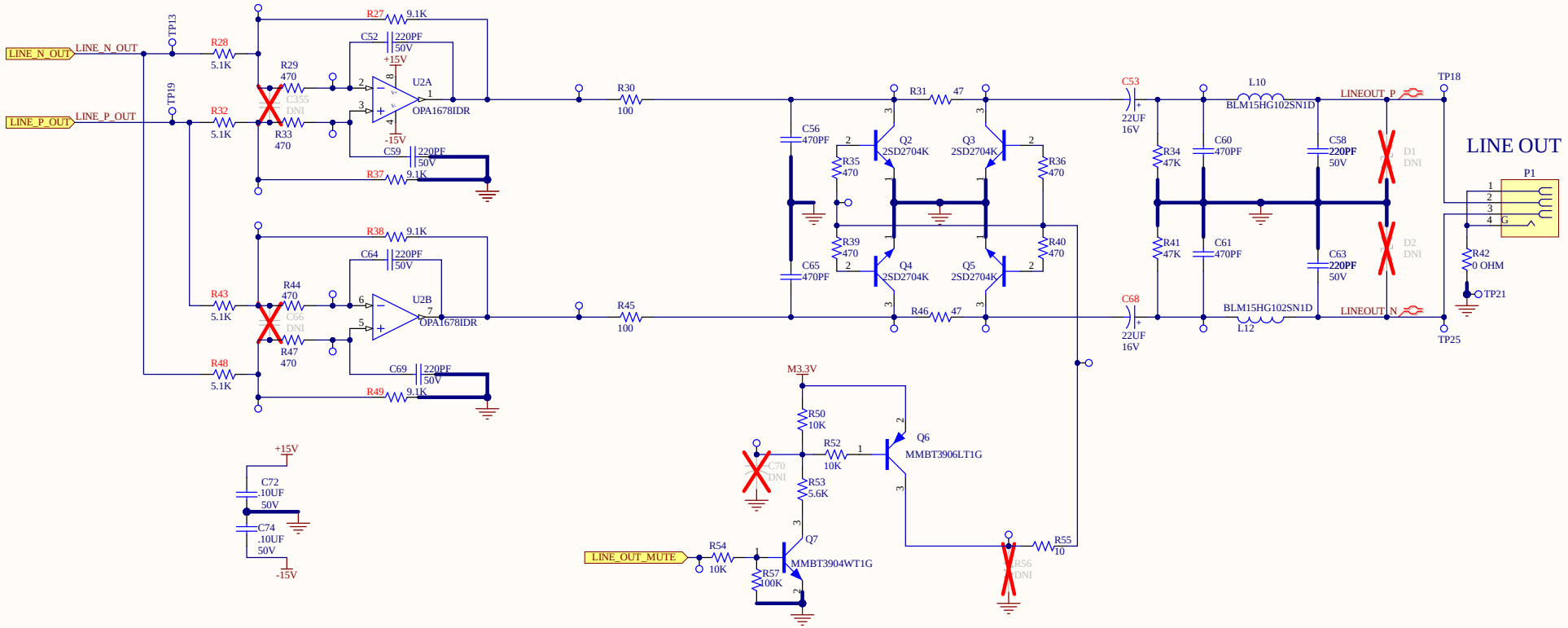
DAC_I2S_PCM5102_Line Out

DAC_I2S_PCM5101_Amplifier

DAC PCM5101A for Amplifier

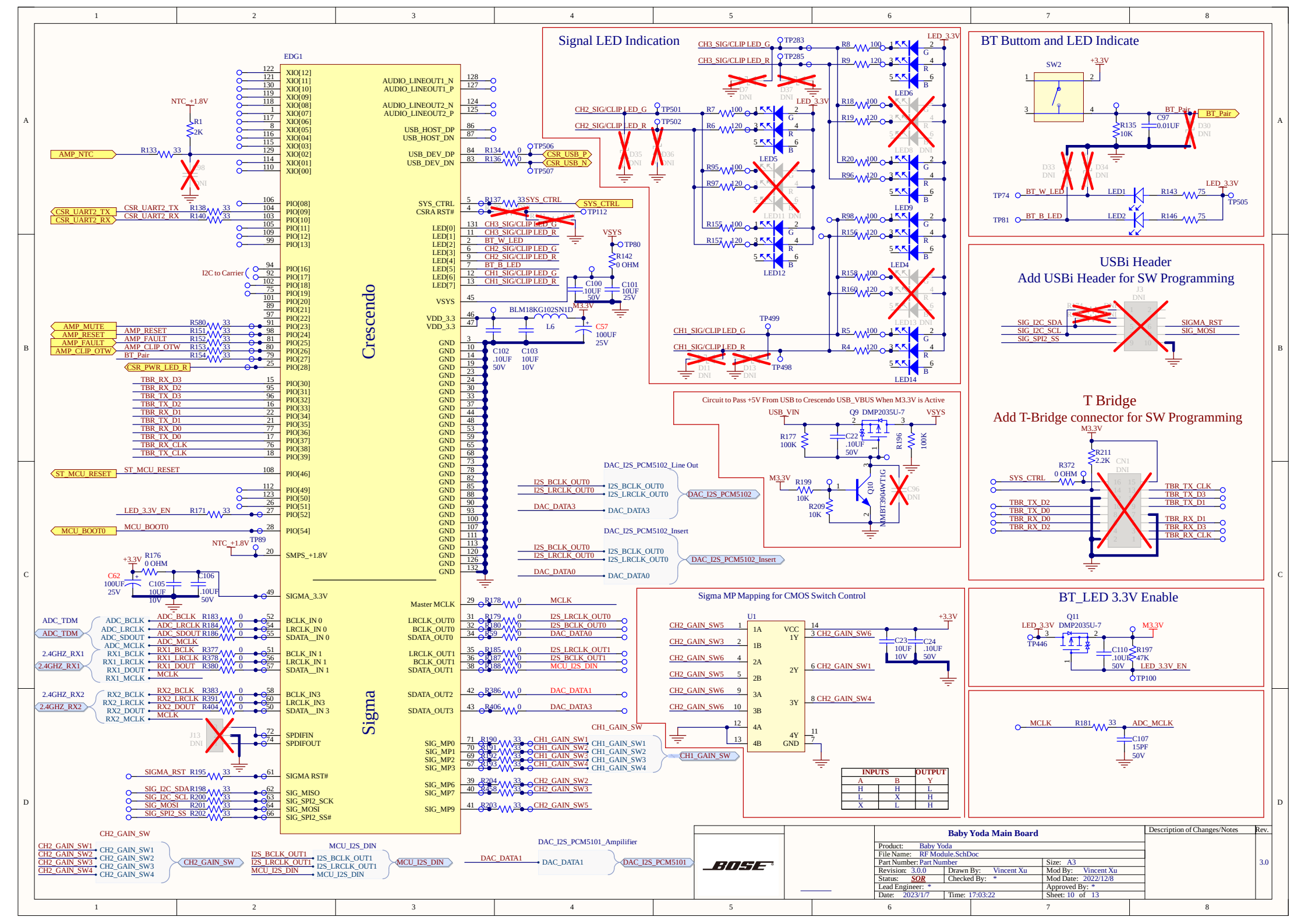


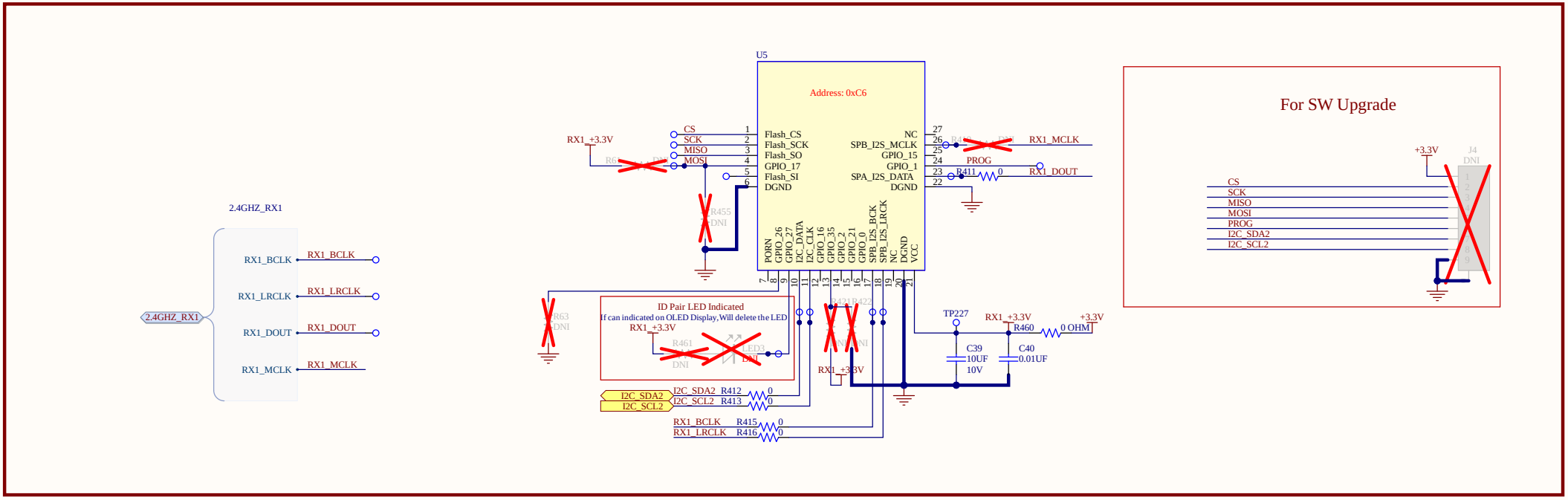
		Baby Yoda Main Board			Description of Changes/Notes	Rev.
BOSE		Product: Baby Yoda				3.0
		File Name: ADC&DAC.SchDoc				
		Part Number: Part Number		Size: A3		
		Revision: 3.0.0	Drawn By: Vincent Xu	Mod By: Vincent Xu		
		Status: SQR	Checked By: *	Mod Date: 2022/12/8		
		Lead Engineer: *		Approved By: *		
		Date: 2023/1/7	Time: 17:03:21	Sheet: 8 of 13		

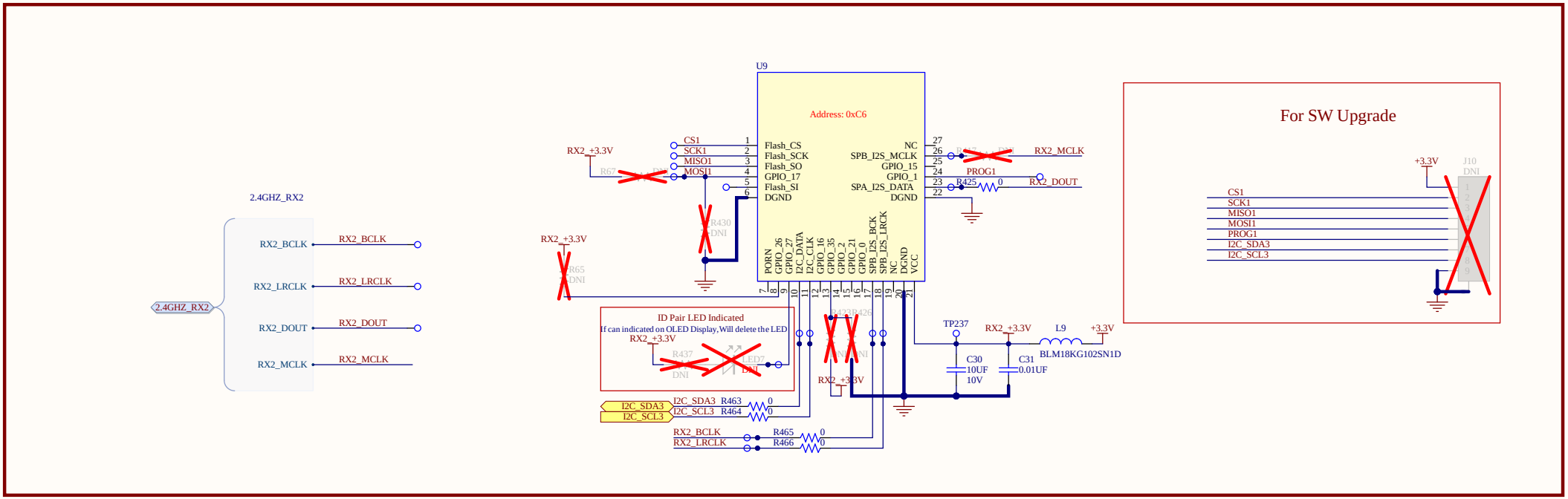


BOSE		Baby Yoda Main Board		
		Product: Baby Yoda		
		File Name: Line Out.SchDoc		
		Part Number: Part Number	Size: A3	
		Revision: 3.0.0 / Drawn By: Vincent Xu	Mod By: Vincent Xu	
		Status: SQR / Checked By: *	Mod Date: 2022/12/8	
		Lead Engineer: *	Approved By: *	
		Date: 2023/1/7 / Time: 17:03:21	Sheet: 9 of 13	

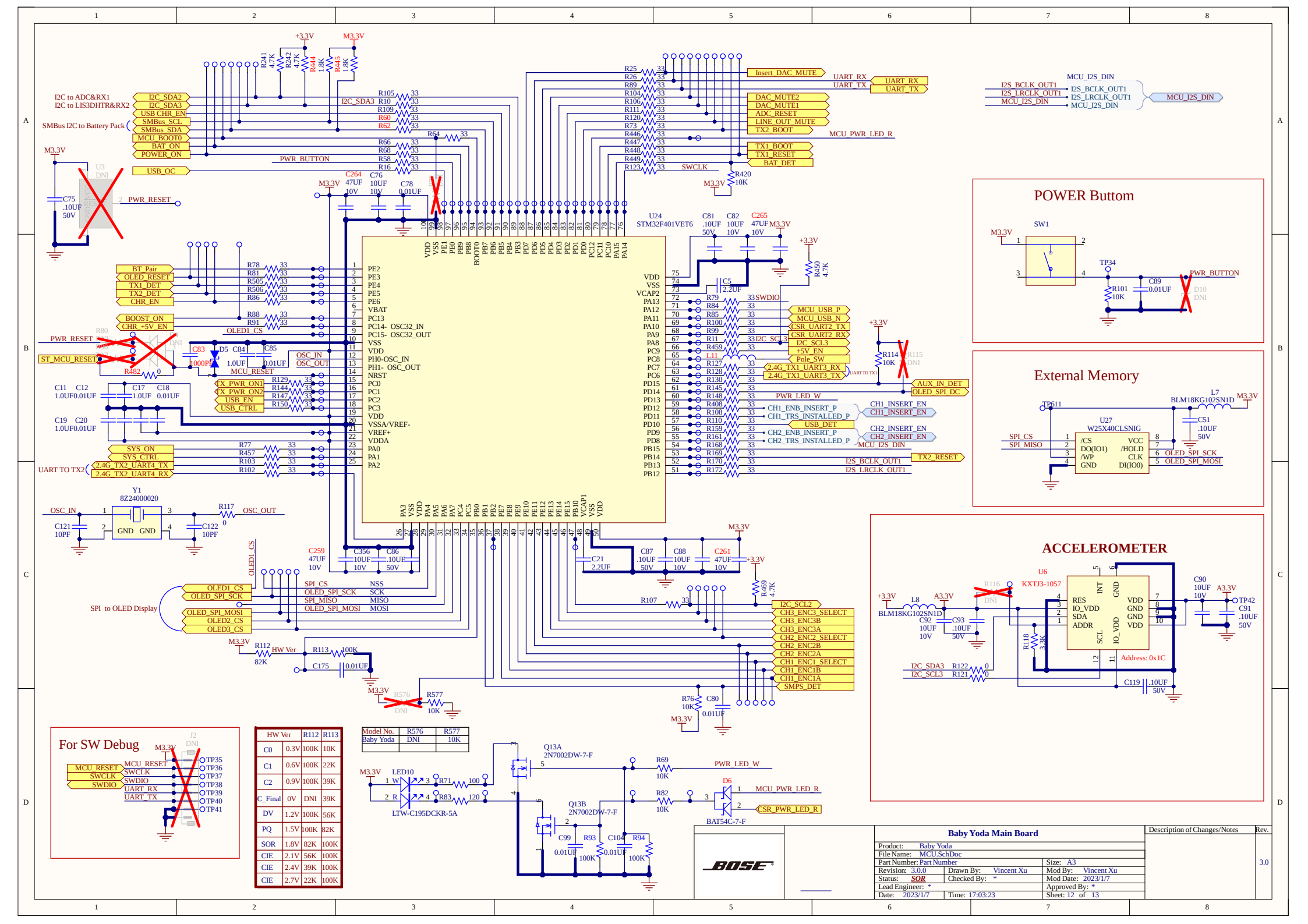
Description of Changes/Notes	Rev.
	3.0


Signal LED Indication
BT Buttom and LED Indicate
USBi Header
Add USBi Header for SW Programming
T Bridge
Add T-Bridge connector for SW Programming
BT_LED 3.3V Enable
Crescendo
Sigma
Circuit to Pass +5V From USB to Crescendo USB_VBUS When M3.3V is Active
Sigma MP Mapping for CMOS Switch Control
Baby Yoda Main Board
Product: Baby Yoda
File Name: RF Module.SchDoc
Part Number: Part Number
Size: A3
Revision: 3.0.0
Drawn By: Vincent Xu
Mod By: Vincent Xu
Status: SOR
Checked By: *
Mod Date: 2022/12/8
Lead Engineer: *
Approved By: *
Date: 2023/1/7
Time: 17:03:22
Sheet: 10 of 13
Description of Changes/Notes
Rev.
3.0





BOSE		**Baby Yoda Main Board**	Description of Changes/Notes / Rev.
		Product: Baby Yoda	
		File Name: 2.4G Receiver.SchDoc	
		Part Number: Part Number — Size: A3	
		Revision: 3.0.0 — Drawn By: Vincent Xu — Mod By: Vincent Xu	3.0
		Status: SQR — Checked By: * — Mod Date: 2022/12/8	
		Lead Engineer: * — Approved By: *	
		Date: 2023/1/7 — Time: 17:03:22 — Sheet: 11 of 13	



HW Ver		R112	R113
C0	0.3V	100K	10K
C1	0.6V	100K	22K
C2	0.9V	100K	39K
C_Final	0V	DNI	39K
DV	1.2V	100K	56K
PQ	1.5V	100K	82K
SOR	1.8V	82K	100K
CIE	2.1V	56K	100K
CIE	2.4V	39K	100K
CIE	2.7V	22K	100K

Model No.	R576	R577
Baby Yoda	DNI	10K

Baby Yoda Main Board

Product: Baby Yoda			
File Name: MCU.SchDoc			
Part Number: Part Number		Size: A3	
Revision: 3.0.0	Drawn By: Vincent Xu	Mod By: Vincent Xu	
Status: SOR	Checked By: *	Mod Date: 2023/1/7	
Lead Engineer: *		Approved By: *	
Date: 2023/1/7	Time: 17:03:23	Sheet: 12 of 13	

Description of Changes/Notes	Rev.
	3.0