

nuvoTon Technology Corp.		
Title		
NuMaker_MA35D1_Base		
Size	Document Number	Rev
Custom	Power	V2.0
Date:	Tuesday, March 01, 2022	Sheet 1 of 22

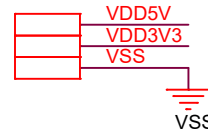
CON2			nRESET		
PL4	1	2	RTC nRWAKE		
PL5	3	4	VSS		
PN14	5	6			
PD15	7	8	PN15		
PN12	9	10	PK15		
PN13	11	12	PK14		
PN7	13	14	PK13		
PN6	15	16	PK12		
PN5	17	18	PL3		
PN4	19	20	PL2		
PN3	21	22	PL1		
PN2	23	24	PL0		
PN1	25	26	PJ15		
PN0	27	28	PJ14		
VSS	29	30	PJ13		
PN10	31	32	PJ12		
VSS	33	34	PL15		
PN11	35	36	PL14		
VSS	37	38	PL13		
PD9	39	40	PL12		
PD8	41	42	PL11		
PC4	43	44	PL10		
PC5	45	46	PD14		
PC0	47	48	PA14		
VSS	49	50	PA13		
PC1	51	52	PA12		
VSS	53	54	PA11		
PC2	55	56	PA10		
PC3	57	58	PA9		
PC7	59	60	PA8		
PC6	61	62	PA7		
VSS	63	64	PA6		
E MDIP0	65	66	PA5		
E MDIN0	67	68	PA4		
VSS	69	70	PA3		
E MDIP1	71	72	PA2		
E MDIN1	73	74	PA1		
VSS	75	76	PA0		
E MDIP2	77	78	PF14		
E MDIN2	79	80	E LED0		
VSS	81	82	E LED1		
E MDIP3	83	84	E LED2		
E MDIN3	85	86	F LED0		
VSS	87	88	F LED1		
F MDIP0	89	90	F LED2		
F MDIN0	91	92	EADC0 CH7		
VSS	93	94	EADC0 CH3		
F MDIP1	95	96	EADC0 CH6		
F MDIN1	97	98	EADC0 CH2		
VSS	99	100	EADC0 CH5		
F MDIP2	101	102	EADC0 CH1		
F MDIN2	103	104	EADC0 CH4		
VSS	105	106	EADC0 CH0		
F MDIP3	107	108	VSS		
F MDIN3	109	110	HSUSB0 D+		
VSS	111	112	HSUSB0 D-		
PE15	113	114	VSS		
PE14	115	116	HSUSB1 D+		
HSUSB0_ID	117	118	HSUSB1 D-		
PF15	119	120	VSS		

DF40C-120DS-0.4V (51) (Pitch 0.4mm, female)

CON3			VDD5V		
VDD5V	1	2	VDD5V		
VDD5V	3	4	VDD5V		
VDD5V	5	6	VDD5V		
VSS	7	8	VSS		
PH3	9	10	PH4		
PH2	11	12	PH5		
PH1	13	14	PH6		
PH0	15	16	PH7		
PI15	17	18	PC12		
PI14	19	20	PC13		
PI13	21	22	PC14		
PI12	23	24	PC15		
PI11	25	26	PH12		
PI10	27	28	PH13		
PI9	29	30	PH14		
PI8	31	32	PH15		
PB15	33	34	VSS		
PB14	35	36	PG10		
PB13	37	38	VSS		
PB12	39	40	PG9		
PB11	41	42	PG8		
PB10	43	44	PK4		
PB9	45	46	PK5		
PB8	47	48	PK6		
PK3	49	50	PK7		
PK2	51	52	PM15		
PK1	53	54	PM14		
PK0	55	56	PM13		
PI7	57	58	PM12		
PI6	59	60	VSS		
PI5	61	62	VSS		
PI4	63	64	PL6		
PI3	65	66	PG15		
PI2	67	68	PG14		
PI1	69	70	PG13		
PI0	71	72	PG12		
PD13	73	74	PG11		
PD12	75	76	PG7		
PD11	77	78	PG6		
PD10	79	80	PG5		
PL9	81	82	PG4		
PL8	83	84	PG3		
PL7	85	86	PG2		
PH9	87	88	PG1		
PH8	89	90	PG0		
VSS	91	92	VSS		
PK10	93	94	PD0		
VSS	95	96	PD3		
PK9	97	98	PD4		
VSS	99	100	PD2		
PM2	101	102	VSS		
PM3	103	104	PD1		
PM4	105	106	VSS		
PM5	107	108	PD5		
PM6	109	110	VSS		
PM7	111	112	PM1		
PM8	113	114	PK8		
PM9	115	116	PK11		
PM10	117	118	PM0		
PM11	119	120	VSS		

DF40C-120DS-0.4V (51) (Pitch 0.4mm, female)

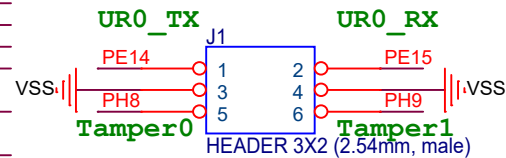
VDD5V
VDD3V3
VSS



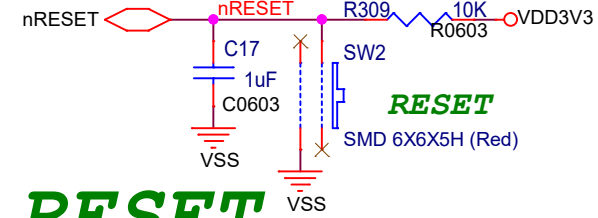
Power

PA[14:0]	PA[14:0]
PB[15:8]	PB[15:8]
PC[7:0]	PC[7:0]
PC[15:12]	PC[15:12]
PD[5:0]	PD[5:0]
PD[15:8]	PD[15:8]
PE[15:14]	PE[15:14]
PF[15:14]	PF[15:14]
PG[15:0]	PG[15:0]
PH[9:0]	PH[9:0]
PH[15:12]	PH[15:12]
PI[15:0]	PI[15:0]
PJ[15:12]	PJ[15:12]
PK[15:0]	PK[15:0]
PL[15:0]	PL[15:0]
PM[15:0]	PM[15:0]
PN[7:0]	PN[7:0]
PN[15:10]	PN[15:10]

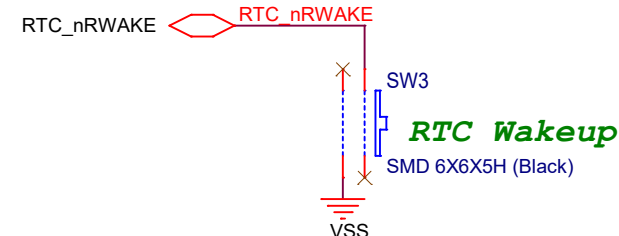
GPIO



UART0 & Tamper



RESET



RTC Wakeup

HSUSB0_ID	HSUSB0_ID
HSUSB0_D+	HSUSB0_D+
HSUSB0_D-	HSUSB0_D-
HSUSB1_D+	HSUSB1_D+
HSUSB1_D-	HSUSB1_D-

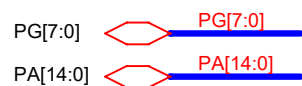
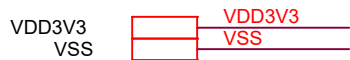
HSUSB

EADC0_CH[7:0]	EADC0_CH[7:0]
E_MDIP[3:0]	E_MDIP[3:0]
E_MDIN[3:0]	E_MDIN[3:0]
E_LED[2:0]	E_LED[2:0]
F_MDIP[3:0]	F_MDIP[3:0]
F_MDIN[3:0]	F_MDIN[3:0]
F_LED[2:0]	F_LED[2:0]

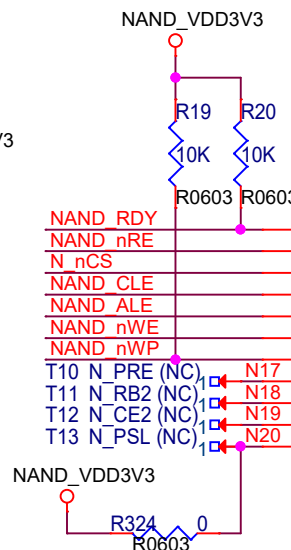
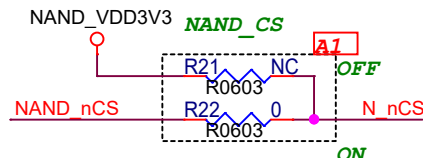
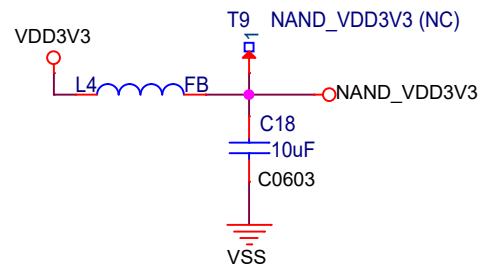
Ethernet

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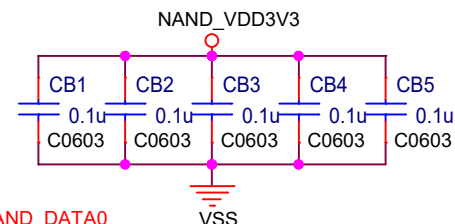
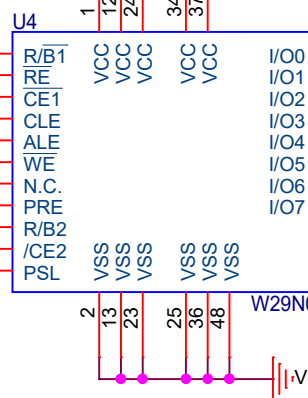
Title		
NuMaker_MA35D1_Base		
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SOM Connectors		
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PA0	NAND_DATA0
PA1	NAND_DATA1
PA2	NAND_DATA2
PA3	NAND_DATA3
PA4	NAND_DATA4
PA5	NAND_DATA5
PA6	NAND_DATA6
PA7	NAND_DATA7
PA8	NAND_RDY
PA9	NAND_nRE
PA10	NAND_nWE
PA11	NAND_CLE
PA12	NAND_ALE
PA13	NAND_nCS
PA14	NAND_nWP



NAND_VDD3V3



NAND Flash

W29N08GV5IAA (NAND Flash)

Note: These GPIO PA0~PA14 and PG0~PG7 pins belong to I/O group 1 (VDDIO1) and the default input voltage of VDDIO1 is 3.3V on SOM board.

Power-on Setting

PG0	Secure Boot
L	Secure Boot Enable
H	Secure Boot Disable

PG1	Boot Source QSPI0, SD/eMMC I/O Voltage
L	3.3V
H	1.8V

PG3	PG2	Boot Source
L	L	QSPI0 Flash
L	H	SD/eMMC
H	L	NAND Flash
H	H	USB

PG7	PG6	Booting from QSPI0
L	L	SPI-NAND, 1-bit
H	L	SPI-NOR, 1-bit

PG6	Booting from SD/eMMC
L	SD0/eMMC0 booting
H	SD1/eMMC1 booting

PG7	Booting from SD/eMMC
L	eMMC 4-bit booting
H	eMMC 8-bit booting

PG5	PG4	Booting from NAND
L	L	Ignore
L	H	NAND flash page 2KB
H	L	NAND flash page 4KB
H	H	NAND flash page 8KB

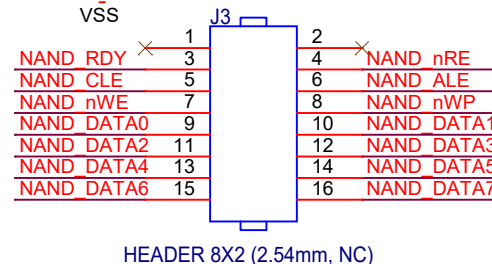
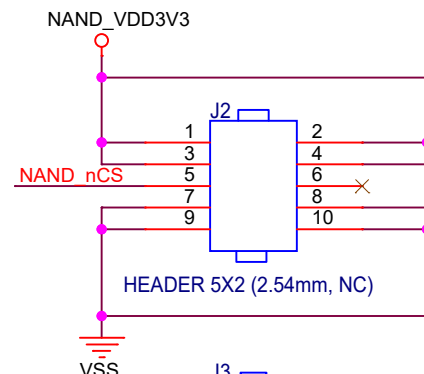
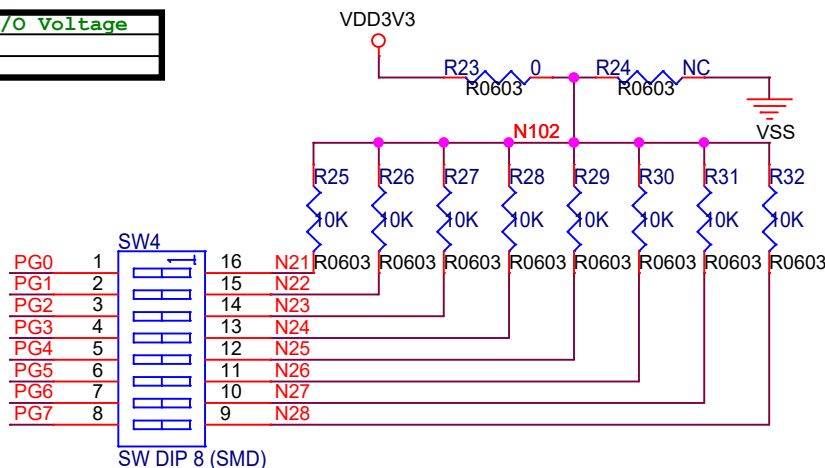
PG7	PG6	Booting from NAND
L	L	Ignore
L	H	BCH T12
H	L	BCH T24
H	H	NO ECC

PG4	Booting from USB
L	USB0 booting
H	USB1 booting

PG5	Booting from USBH
L	USBH port 0 booting
H	USBH port 1 booting

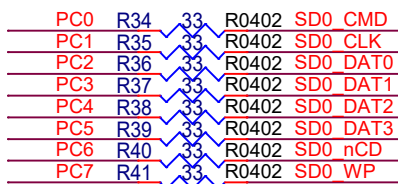
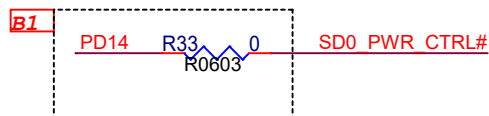
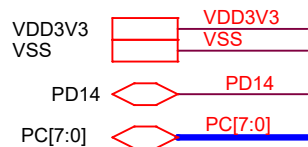
PG6	Booting from USBH
L	Over-current low-active detect
H	Over-current high-active detect

Note: These GPIO PG0~PG7 pins are internal pull-low inside MA35D1 chip.

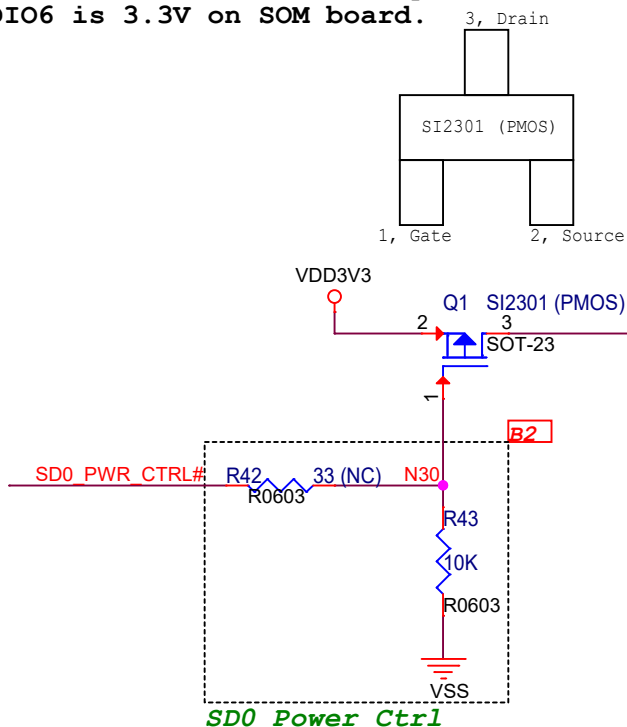


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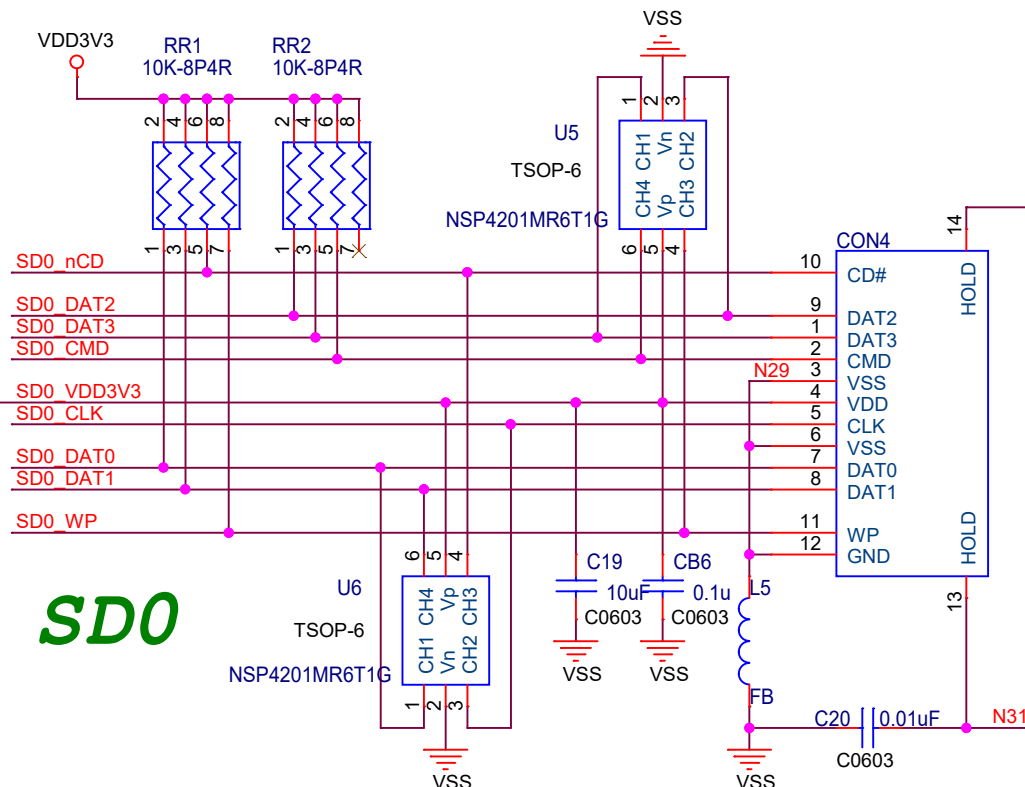
Title		
NuMaker_MA35D1_Base		
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Power-on Setting and NAND Flash		
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Note: These GPIO PC0~PC7 pins belong to I/O group 6 (VDDIO6) and the default input voltage of VDDIO6 is 3.3V on SOM board.



Note: The power of SD0_VDD3V3 is always ON (uncontrollable) by default. (R42 is NC on this BASE board by default)



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Title

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Size
A

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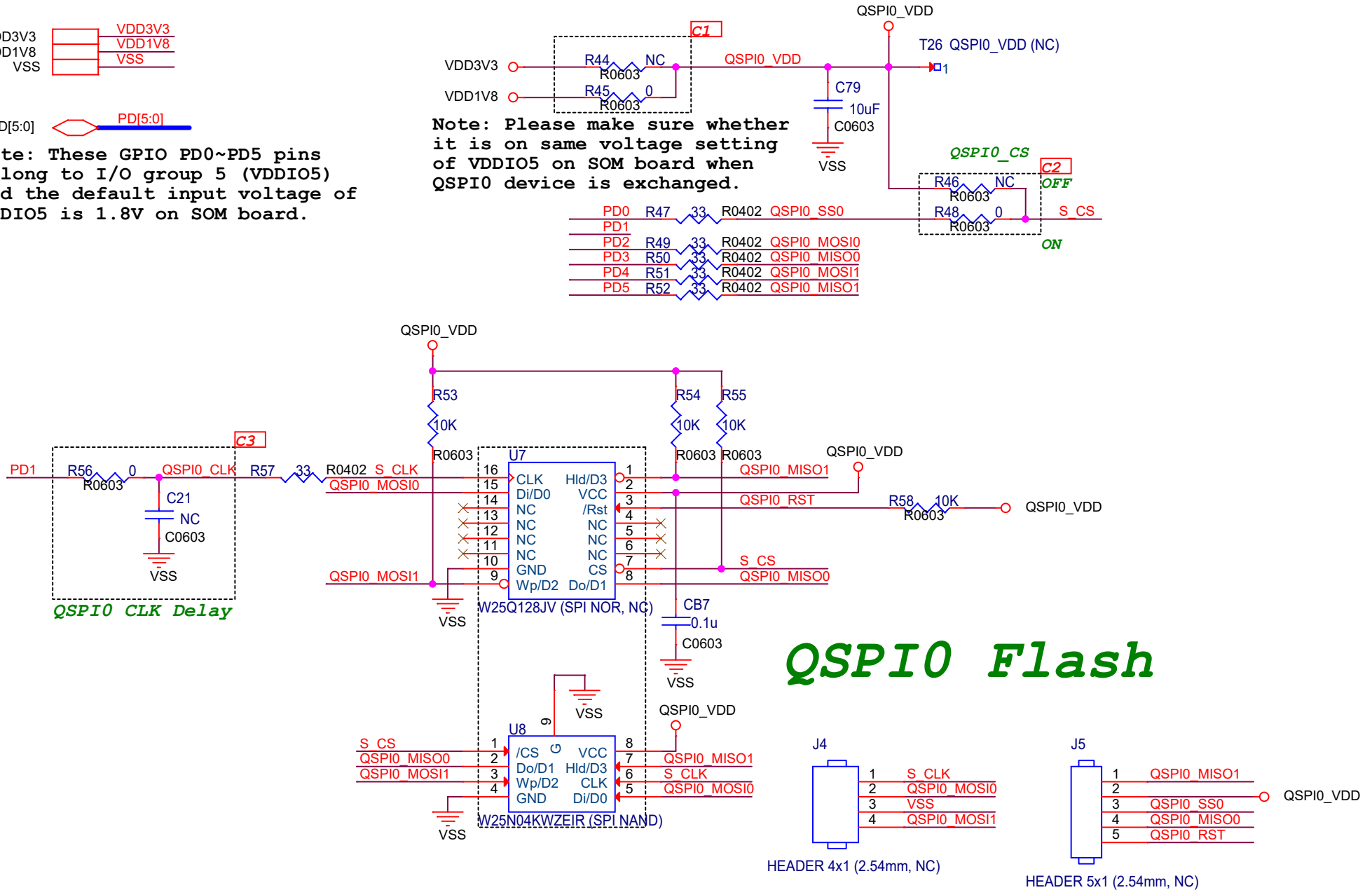
VDD3V3 VDD3V3
VDD1V8 VDD1V8
VSS VSS

PD[5:0] PD[5:0]

Note: These GPIO PD0~PD5 pins belong to I/O group 5 (VDDIO5) and the default input voltage of VDDIO5 is 1.8V on SOM board.

Note: Please make sure whether it is on same voltage setting of VDDIO5 on SOM board when QSPI0 device is exchanged.

PD0	R47	33	R0402	QSPI0 SS0
PD1				
PD2	R49	33	R0402	QSPI0 MOSI0
PD3	R50	33	R0402	QSPI0 MISO0
PD4	R51	33	R0402	QSPI0 MOSI1
PD5	R52	33	R0402	QSPI0 MISO1



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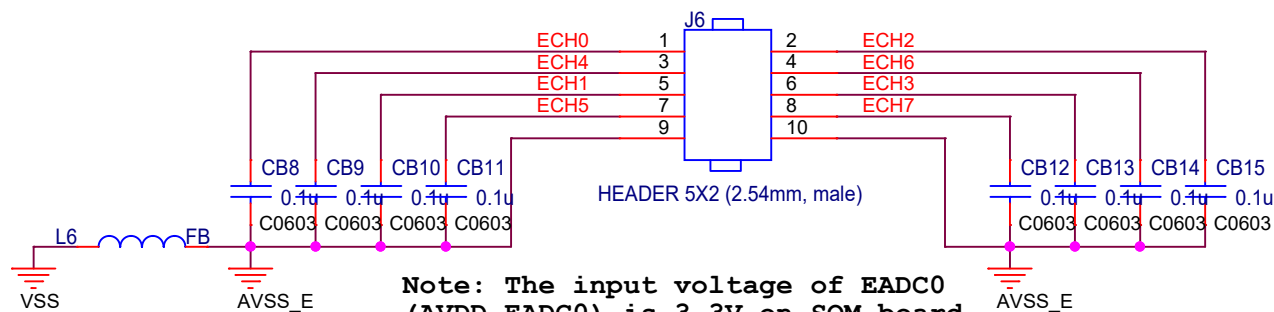
Title		
NuMaker_MA35D1_Base		
Size	Document Number	Rev
A	QSPI0	V2.0
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VSS  VSS

EADC0_CH[7:0]  EADC0_CH[7:0]

EADC0_CH0	R59	33	R0402	ECH0
EADC0_CH4	R60	33	R0402	ECH4
EADC0_CH1	R61	33	R0402	ECH1
EADC0_CH5	R62	33	R0402	ECH5
EADC0_CH2	R63	33	R0402	ECH2
EADC0_CH6	R64	33	R0402	ECH6
EADC0_CH3	R65	33	R0402	ECH3
EADC0_CH7	R66	33	R0402	ECH7

EADC0



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Title

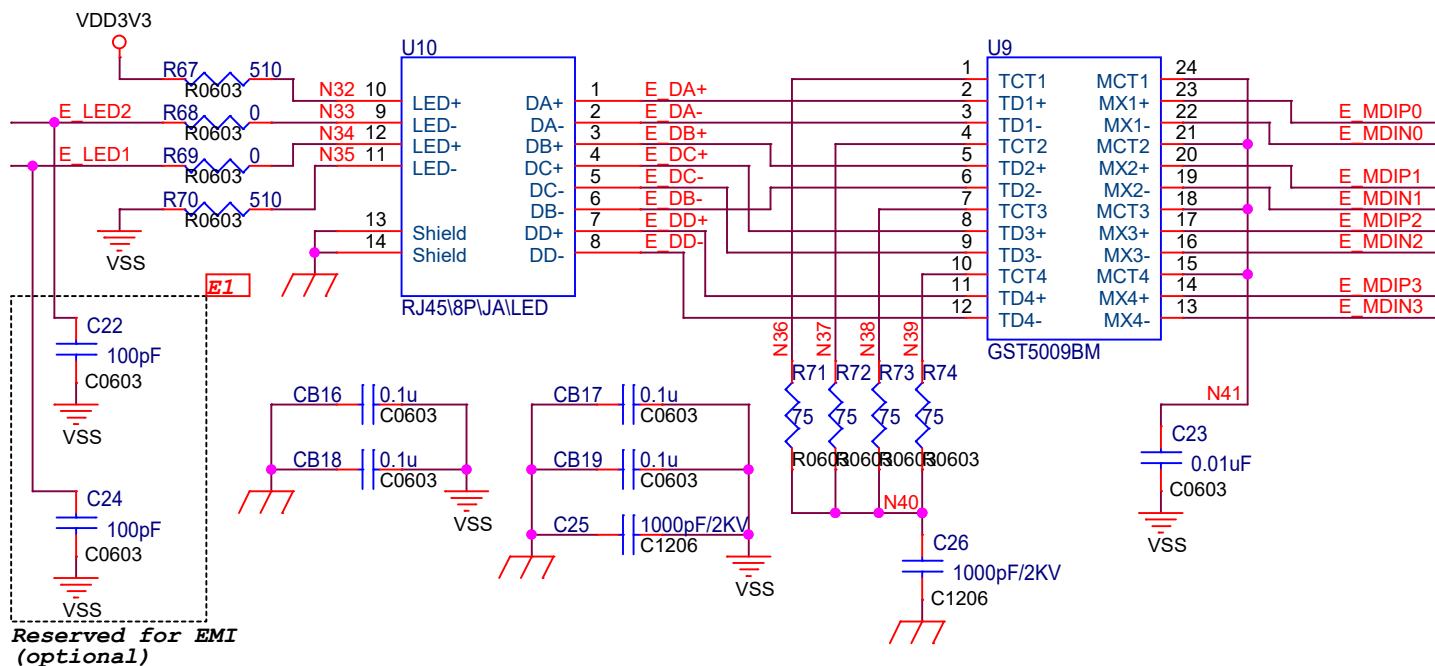
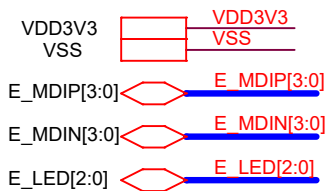
NuMaker_MA35D1_Base

Size
A

Document Number
EADC0

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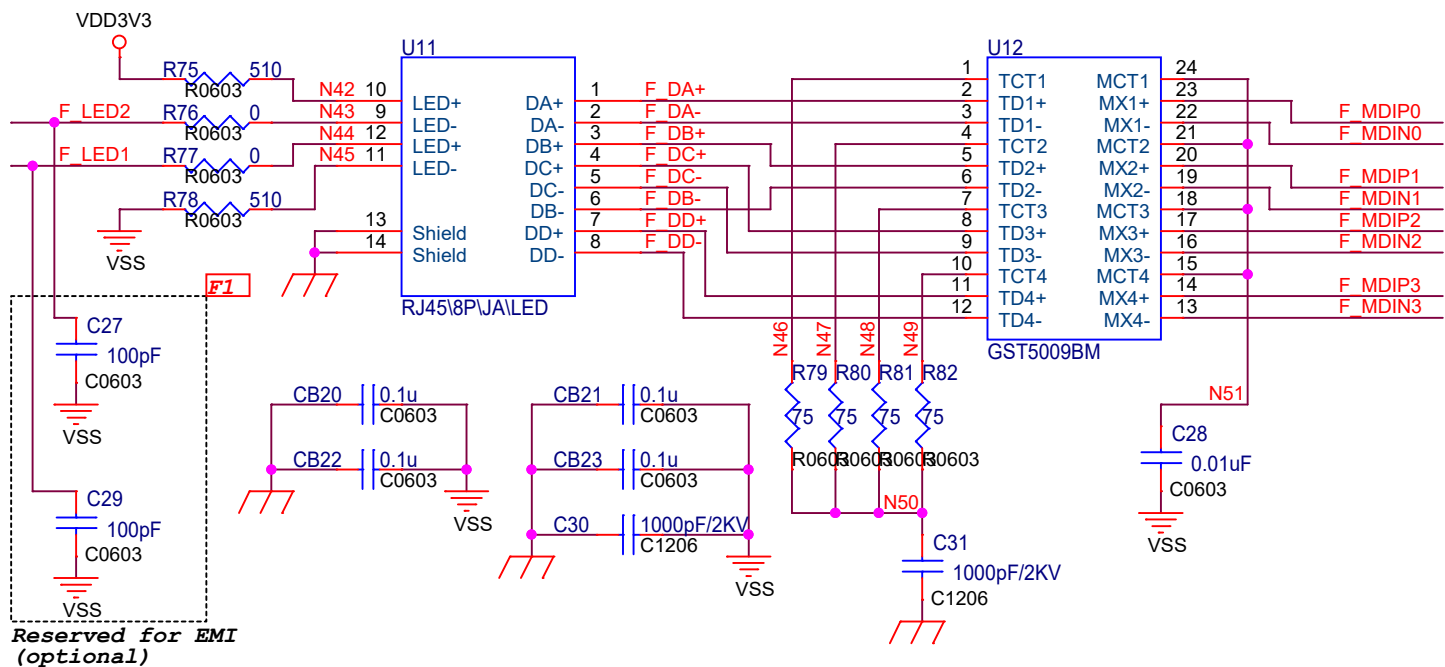
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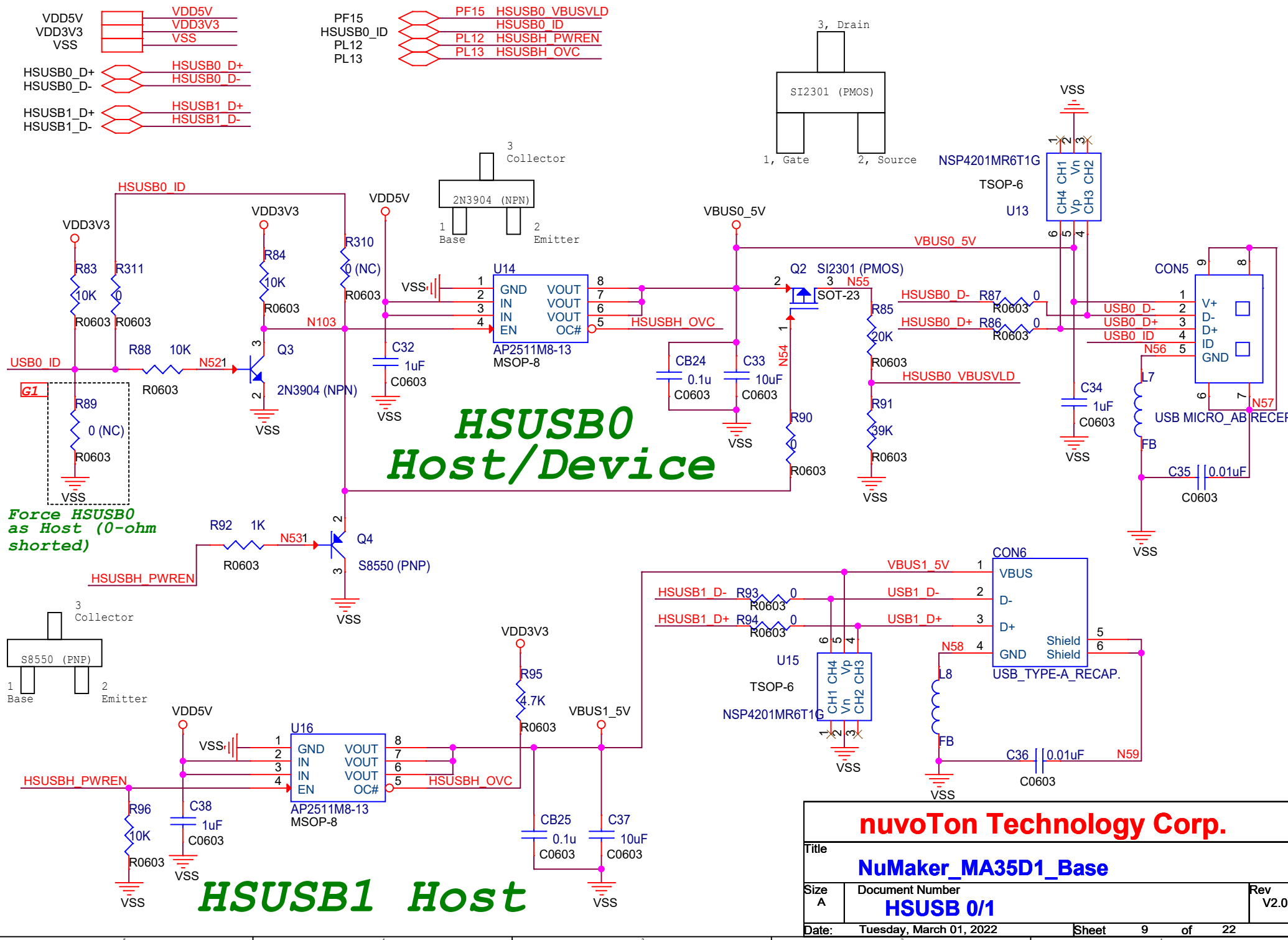
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NuMaker_MA35D1_Base

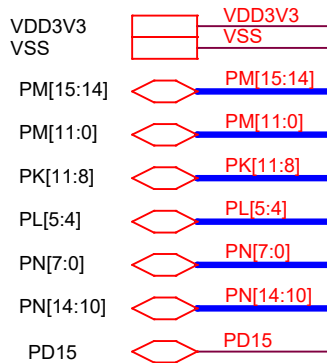
Size A Document Number
Ethernet 0 (PE)

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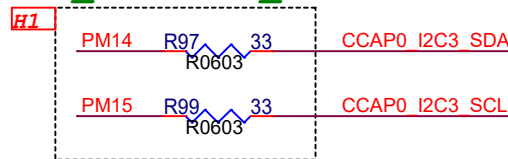
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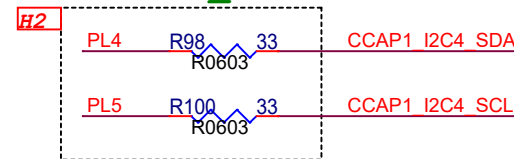




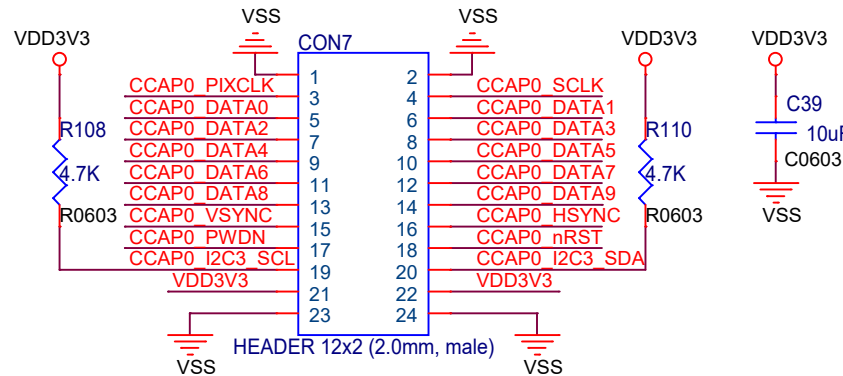
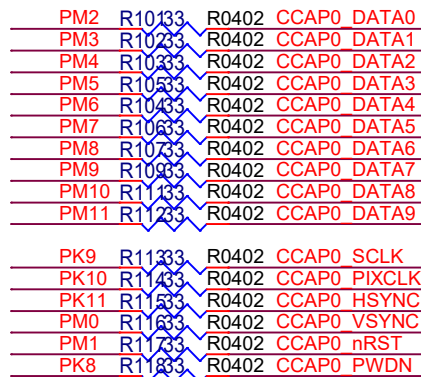
I2C_3 (TRACE_DATA2/3)



I2C_4

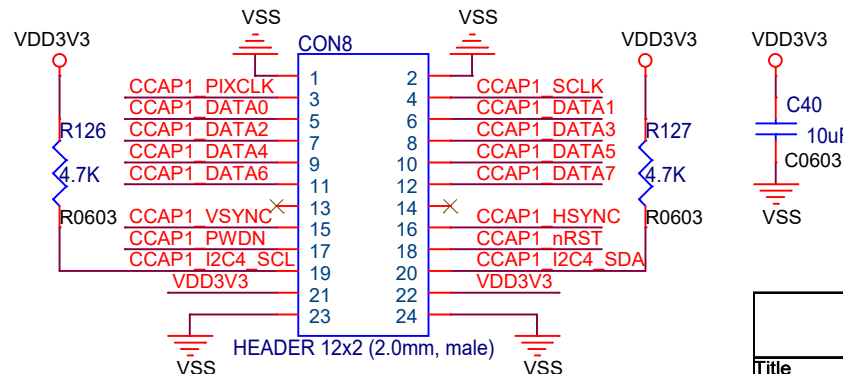
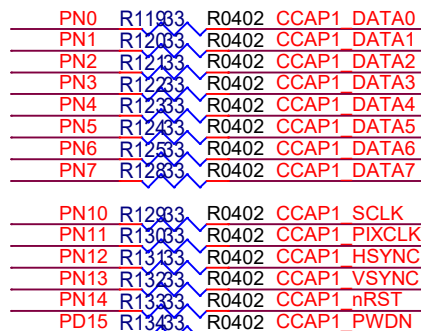


CCAP0 Connector



Note: These GPIO PK8~PK11 and PM0~PM11 pins belong to I/O group 2 (VDDIO2) and the default input voltage of VDDIO2 is 3.3V on SOM board.

CCAP1 Connector

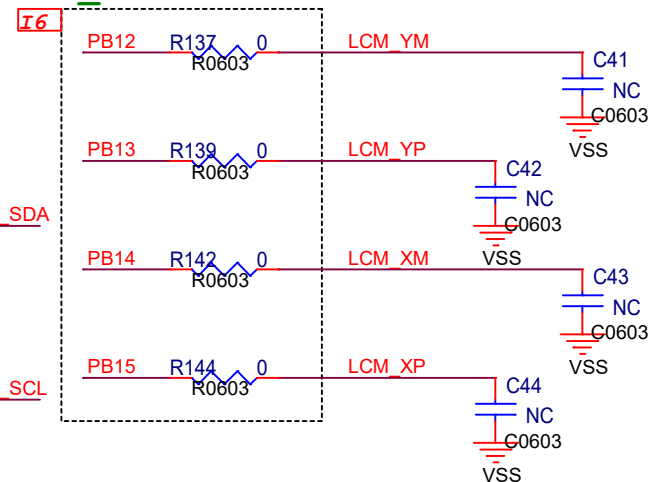
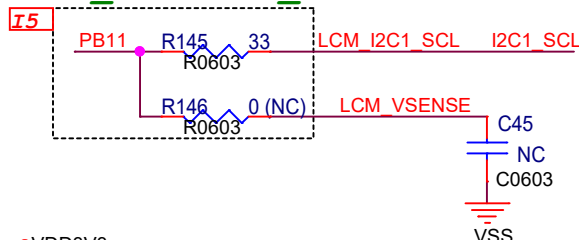
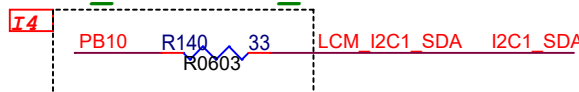
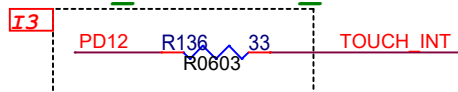
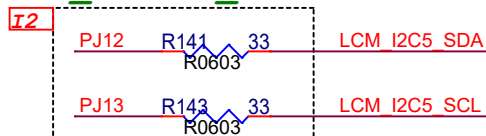
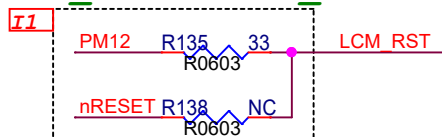


Note: These GPIO PN0~PN14 pins belong to I/O group 7 (VDDIO7) and the GPIO PD15 belong to I/O group 1 (VDDIO1), these default input voltages of VDDIO7 and VDDIO1 are 3.3V on SOM board.

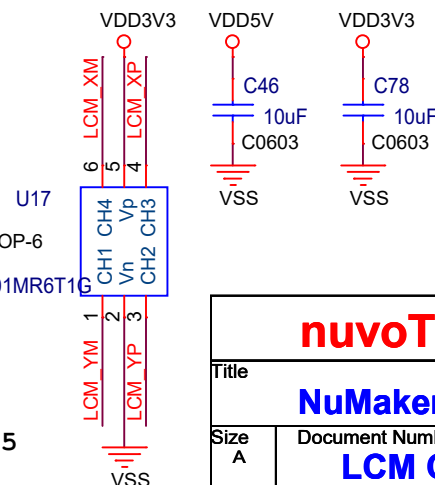
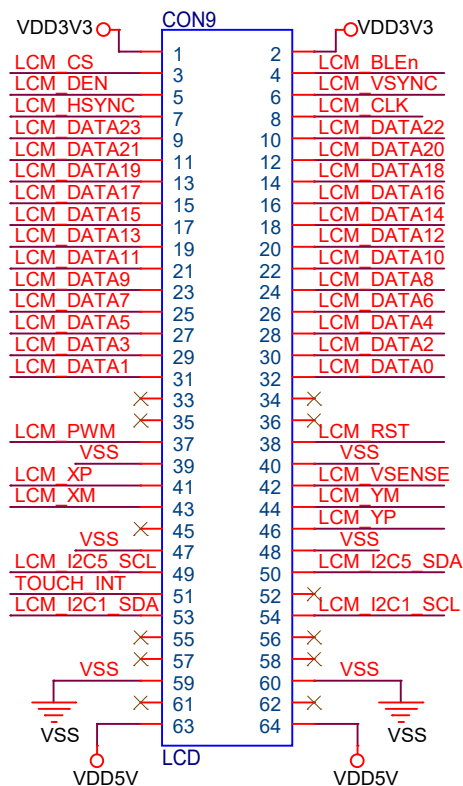
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A	CCAP 0/1 Connectors	V2.0
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PG8	R1533	R0402	LCM	VSYN	C
PG9	R1473	R0402	LCM	HSYN	C
PG10	R1483	R0402	LCM	CLK	
PK4	R1483	R0402	LCM	DEN	
PK5	R1503	R0402	LCM	PWM	
PK6	R1533	R0402	LCM	CS	
PK7	R1523	R0402	LCM	BLEn	
PI8	R1533	R0402	LCM	DATA0	
PI9	R1533	R0402	LCM	DATA1	
PI10	R1533	R0402	LCM	DATA2	
PI11	R1533	R0402	LCM	DATA3	
PI12	R1533	R0402	LCM	DATA4	
PI13	R1533	R0402	LCM	DATA5	
PI14	R1633	R0402	LCM	DATA6	
PI15	R1633	R0402	LCM	DATA7	
PH0	R1623	R0402	LCM	DATA8	
PH1	R1633	R0402	LCM	DATA9	
PH2	R1633	R0402	LCM	DATA10	
PH3	R1633	R0402	LCM	DATA11	
PH4	R1633	R0402	LCM	DATA12	
PH5	R1633	R0402	LCM	DATA13	
PH6	R1633	R0402	LCM	DATA14	
PH7	R1633	R0402	LCM	DATA15	
PC12	R1733	R0402	LCM	DATA16	
PC13	R1733	R0402	LCM	DATA17	
PC14	R1733	R0402	LCM	DATA18	
PC15	R1733	R0402	LCM	DATA19	
PH12	R1733	R0402	LCM	DATA20	
PH13	R1733	R0402	LCM	DATA21	
PH14	R1733	R0402	LCM	DATA22	
PH15	R1733	R0402	LCM	DATA23	



LCM Connector



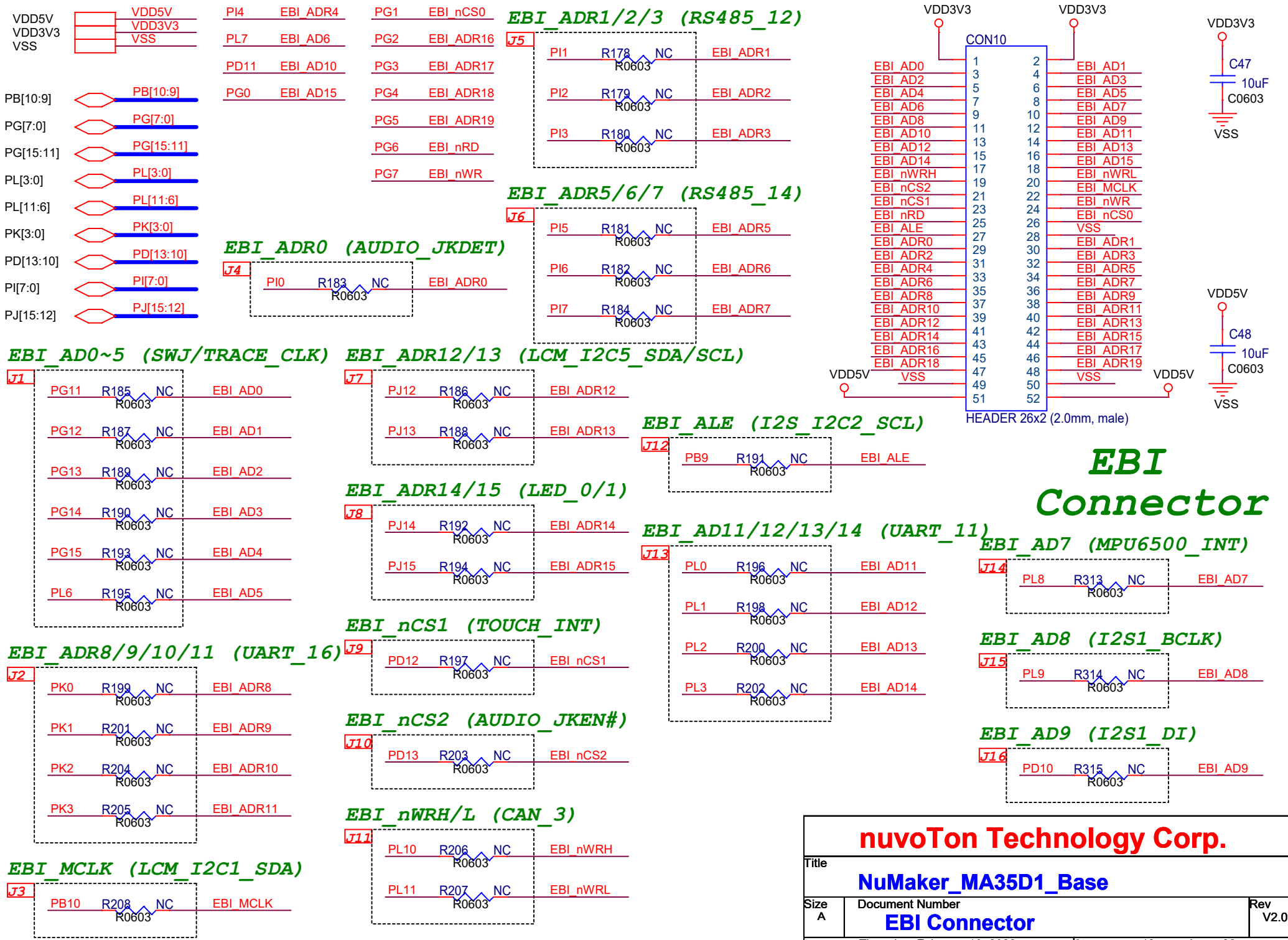
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Title	NuMaker MA35D1 Base
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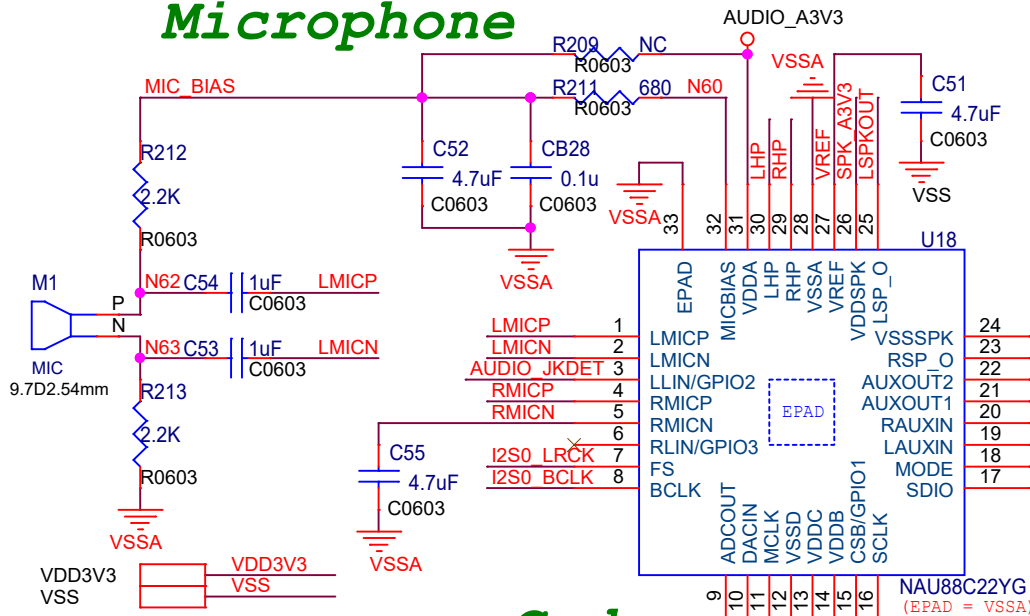
Size A	Document Number LCM Connector
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Rev	V2.0
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Note: These GPIO PG8~PG10, PK4~PK7, PI8~PI15, PH0~PH7, PC12~PC15 and PH12~PH15 pins belong to I/O group 4 (VDDIO4), and the default input voltage of VDDIO4 is 3.3V on SOM board.

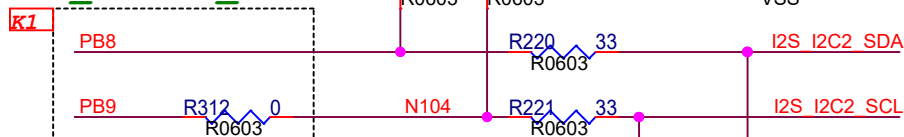


Microphone

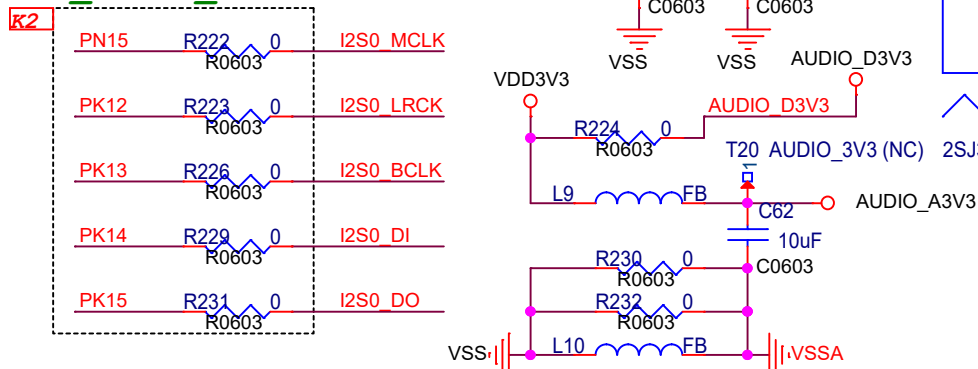


Codec

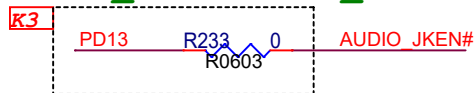
I2C_2 (EBI_ALE)



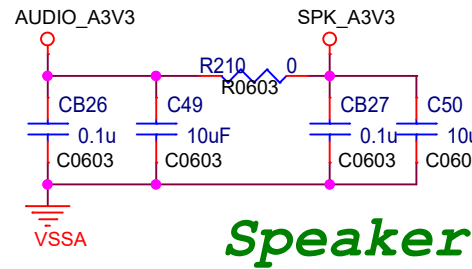
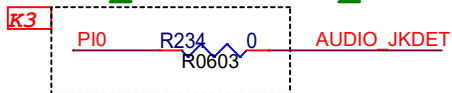
I2S_0 (SC_0)



AUDIO_JKEN# (EBI_nCS2)

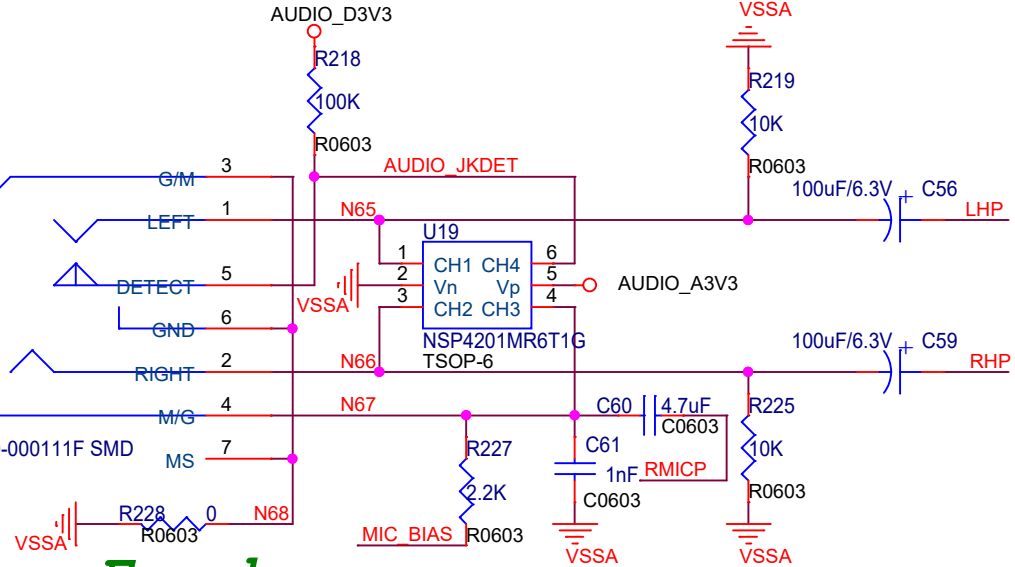
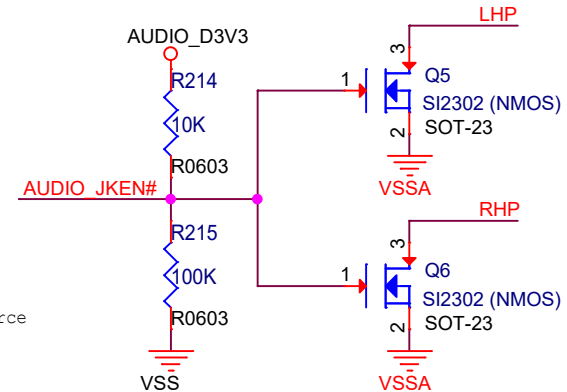
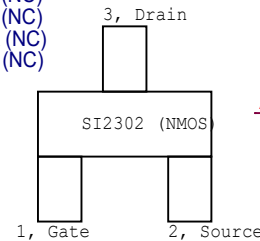


AUDIO_JKDET (EBI_ADR0)



Speaker

SPK OUT

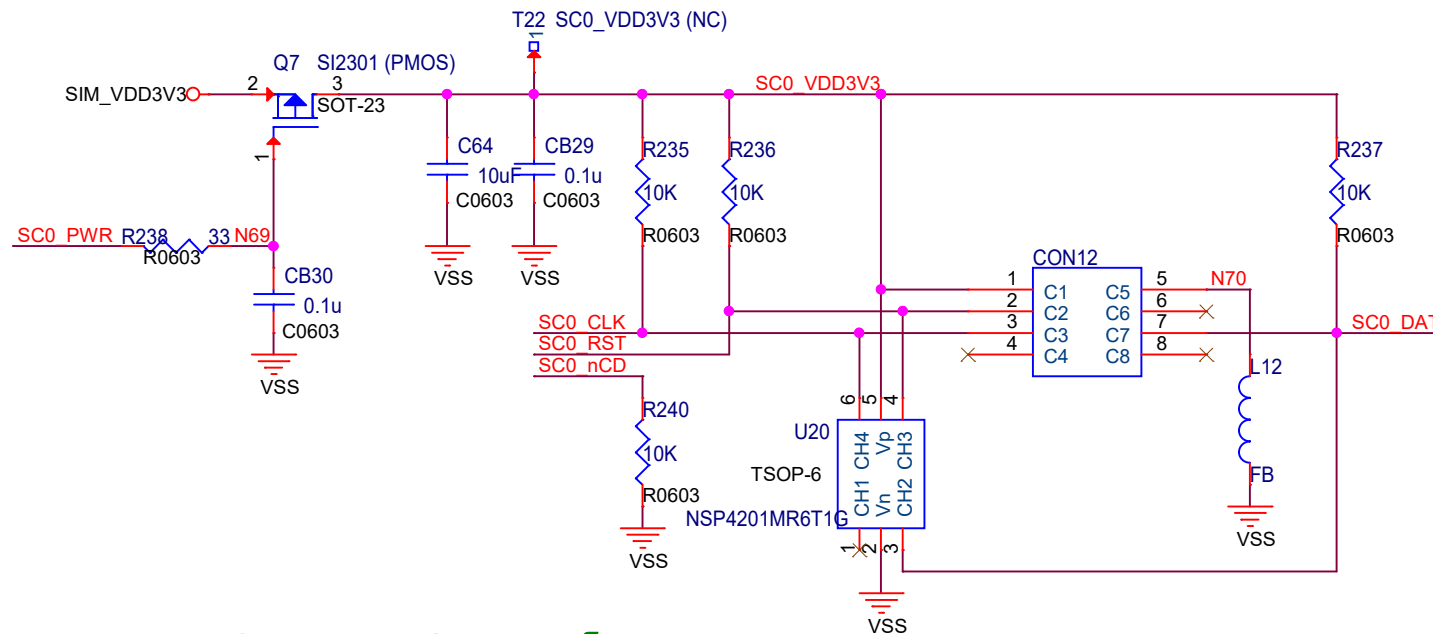
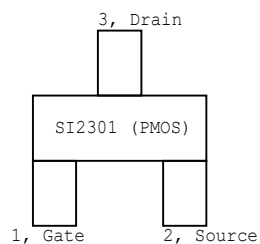
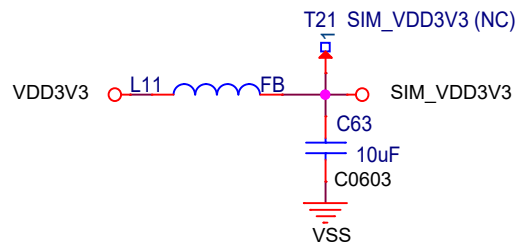
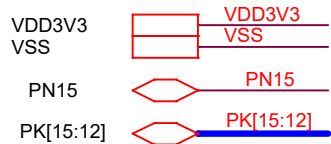


Earphone

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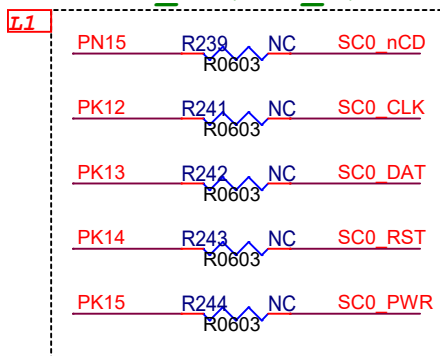
NuMaker_MA35D1_Base

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SIM Card

SC_0 (I2S_0)



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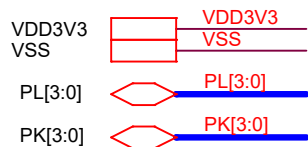
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NuMaker_MA35D1_Base

Size
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SIM Card

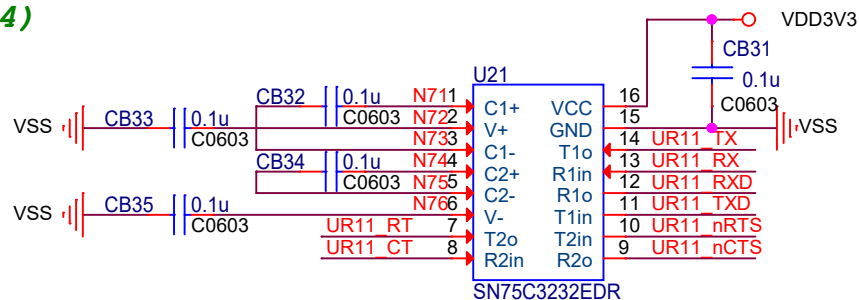
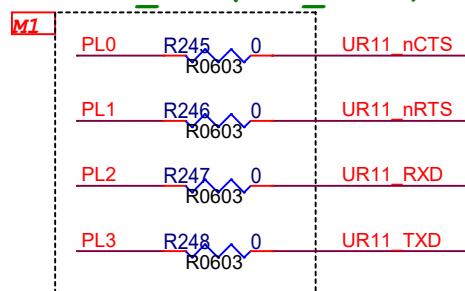
Rev
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Date: Tuesday, March 01, 2022

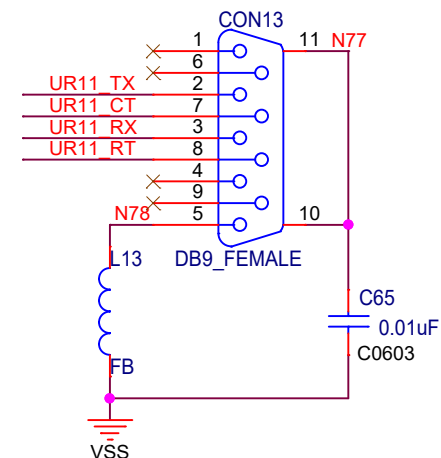
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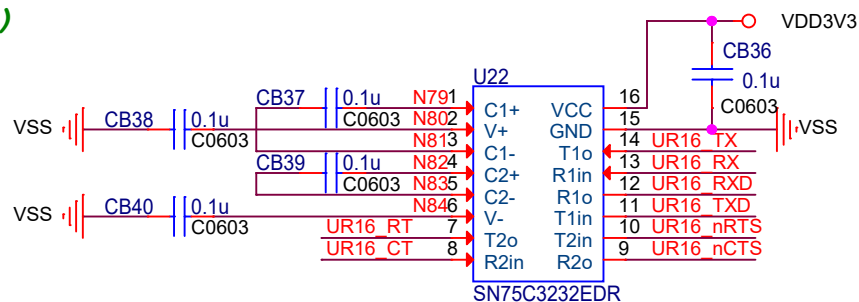
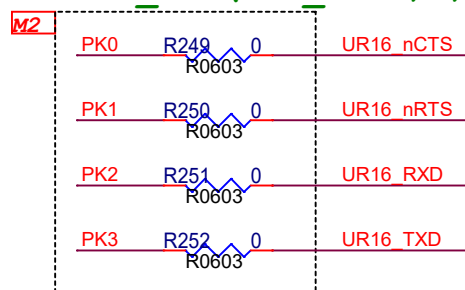
UART_11 (EBI AD11/12/13/14)



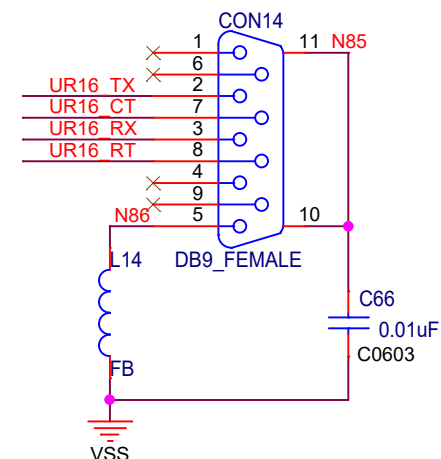
RS232_11



UART_16 (EBI ADR8/9/10/11)



RS232_16



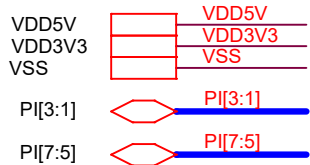
nuvoTon Technology Corp.

Title
NuMaker_MA35D1_Base

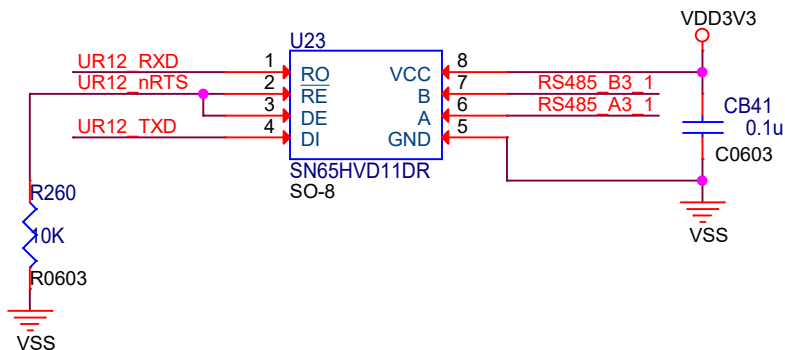
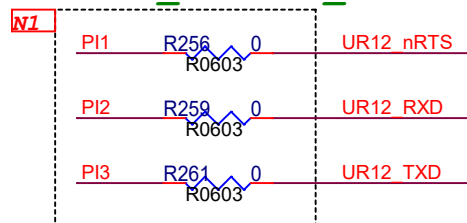
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Rev
V2.0

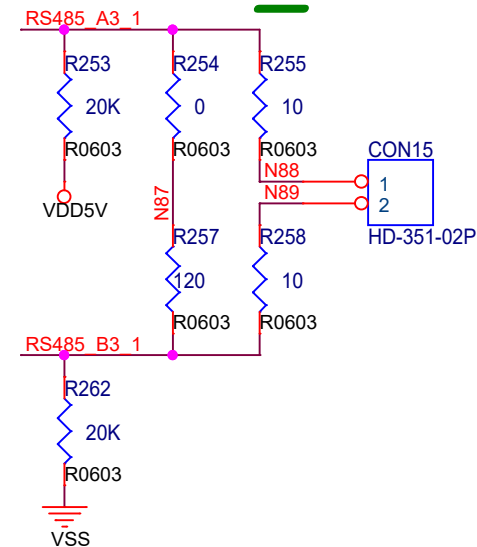
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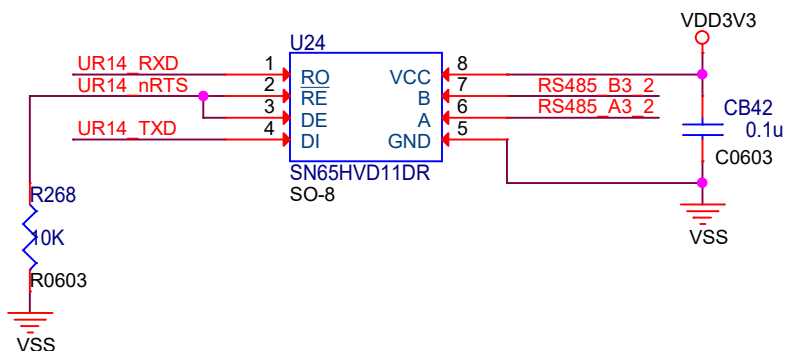
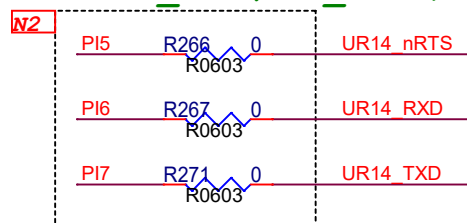
RS485_12 (EBI_ADR1/2/3)



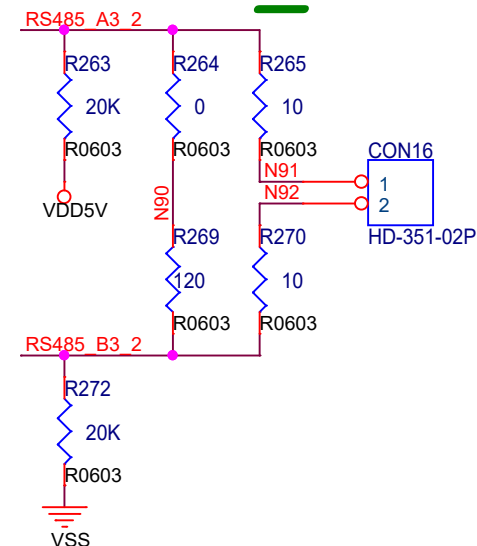
RS485_12



RS485_14 (EBI_ADR5/6/7)



RS485_14



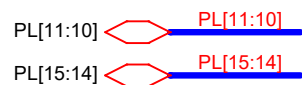
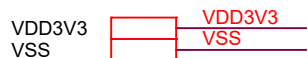
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Title
NuMaker_MA35D1_Base

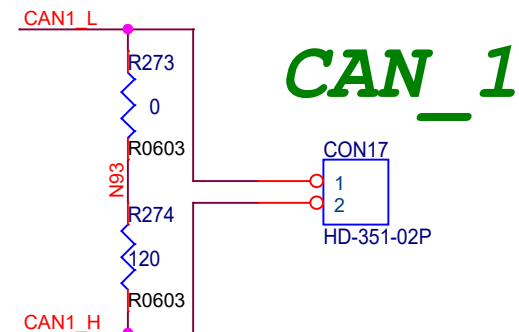
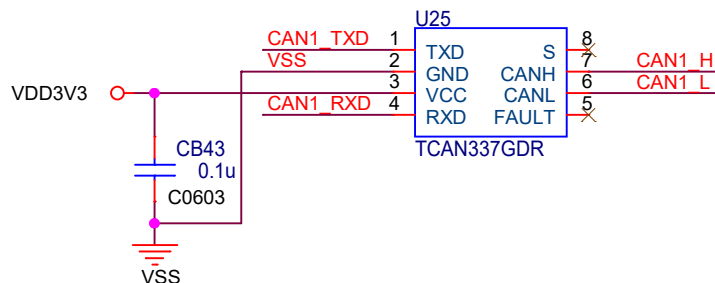
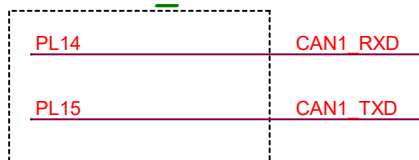
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RS485

Rev
V2.0

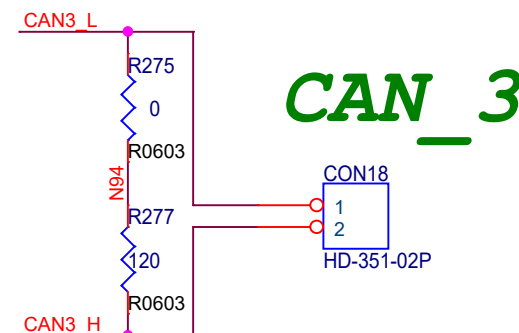
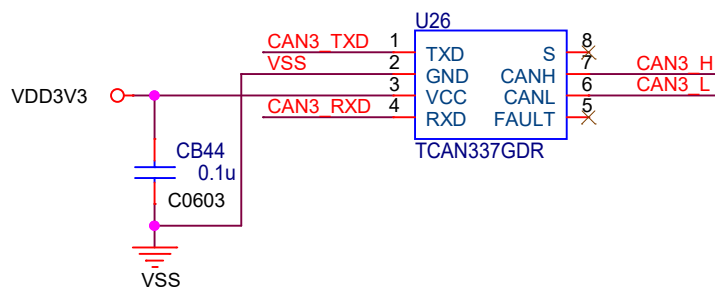
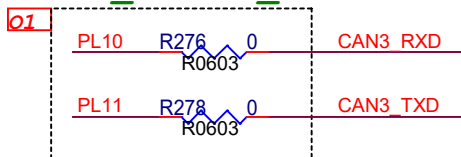
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CAN_1



CAN_3 (EBI_nWRH/L)



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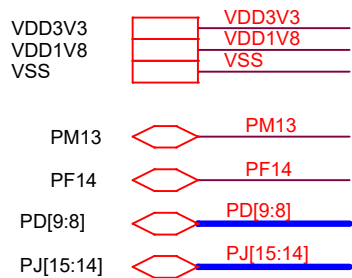
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Document Number
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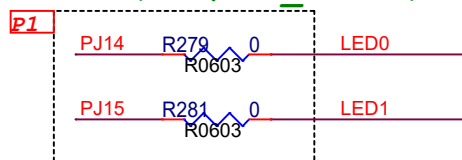
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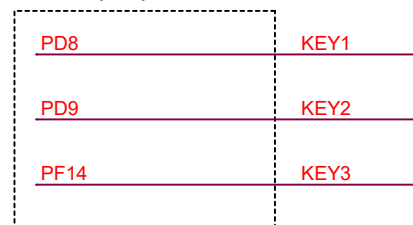
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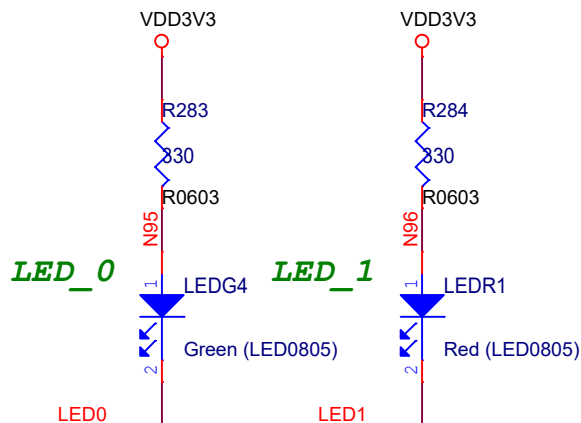
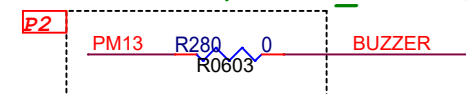
LED0/1 (EBI_ADR14/15)



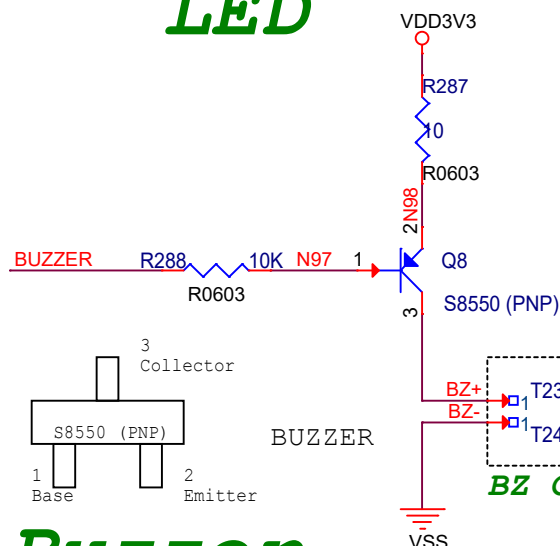
KEY1/2/3



Buzzer (TRACE_DATA1)

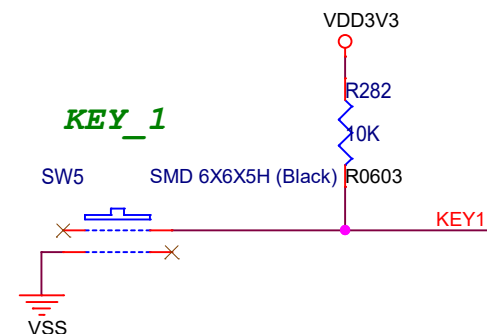


LED



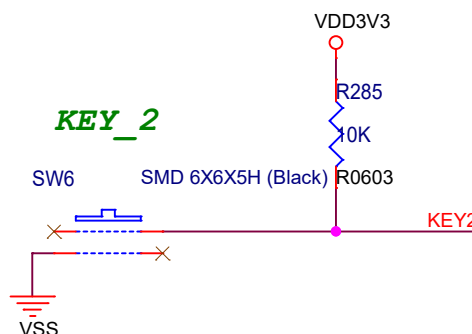
Buzzer

KEY_1

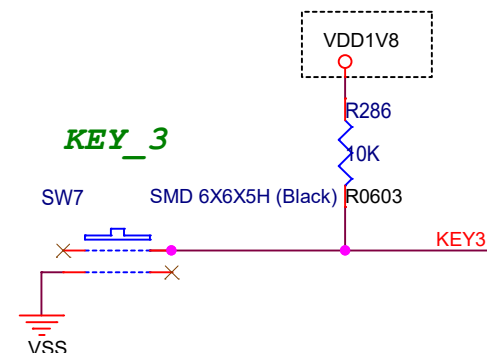


Note: F_VDDIO = 1.8V on SOM (default)
(F_VDDIO: RGMII1 I/O Power)

KEY_2



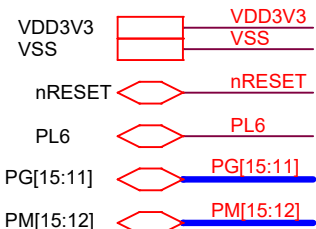
KEY_3



Key Buttons

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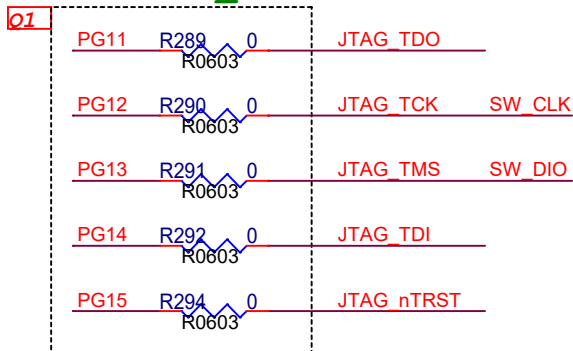
Title		
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Key Buttons, LEDs and Buzzer		
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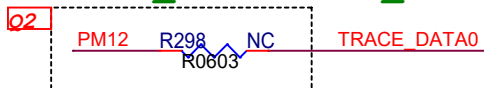
J7 HEADER 2x1 (2.54mm, male)

nRESET SWJ nRESET

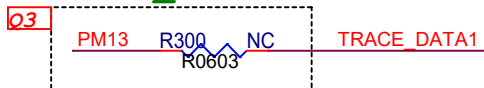
SWJ (EBI_AD0/1/2/3/4)



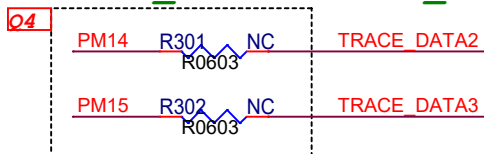
TRACE_DATA0 (LCM_RST)



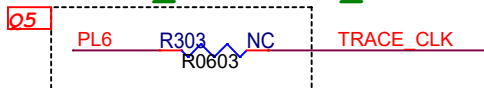
TRACE_DATA1 (Buzzer)



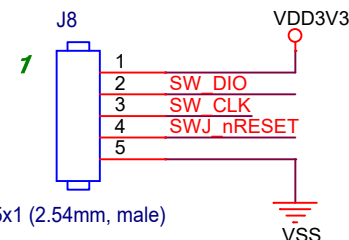
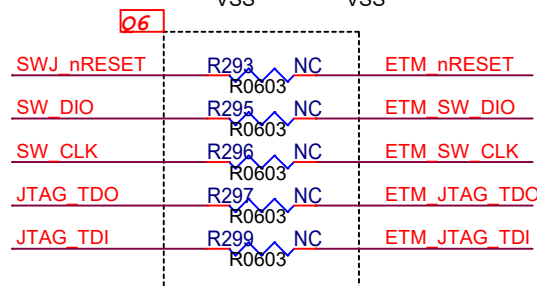
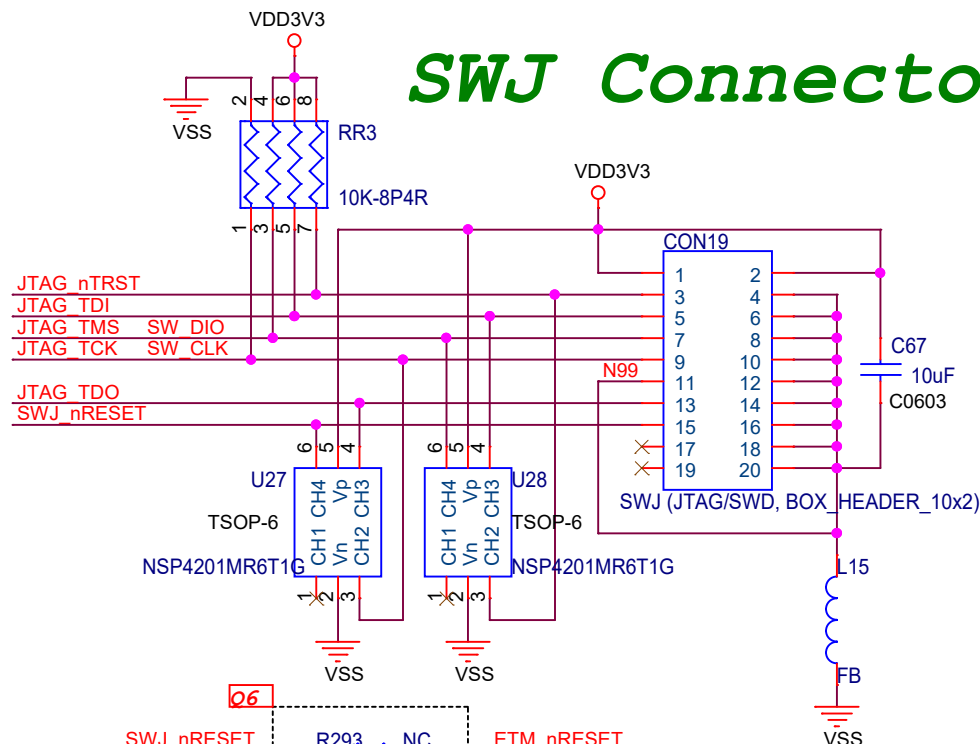
TRACE_DATA2/3 (I2C_3)



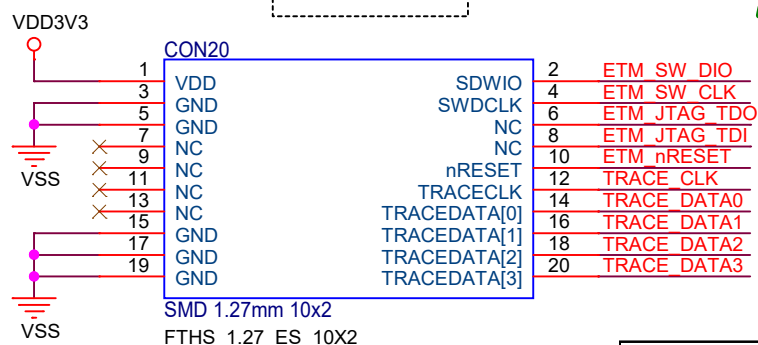
TRACE_CLK (EBI_AD5)



SWJ Connector



SWD Connector

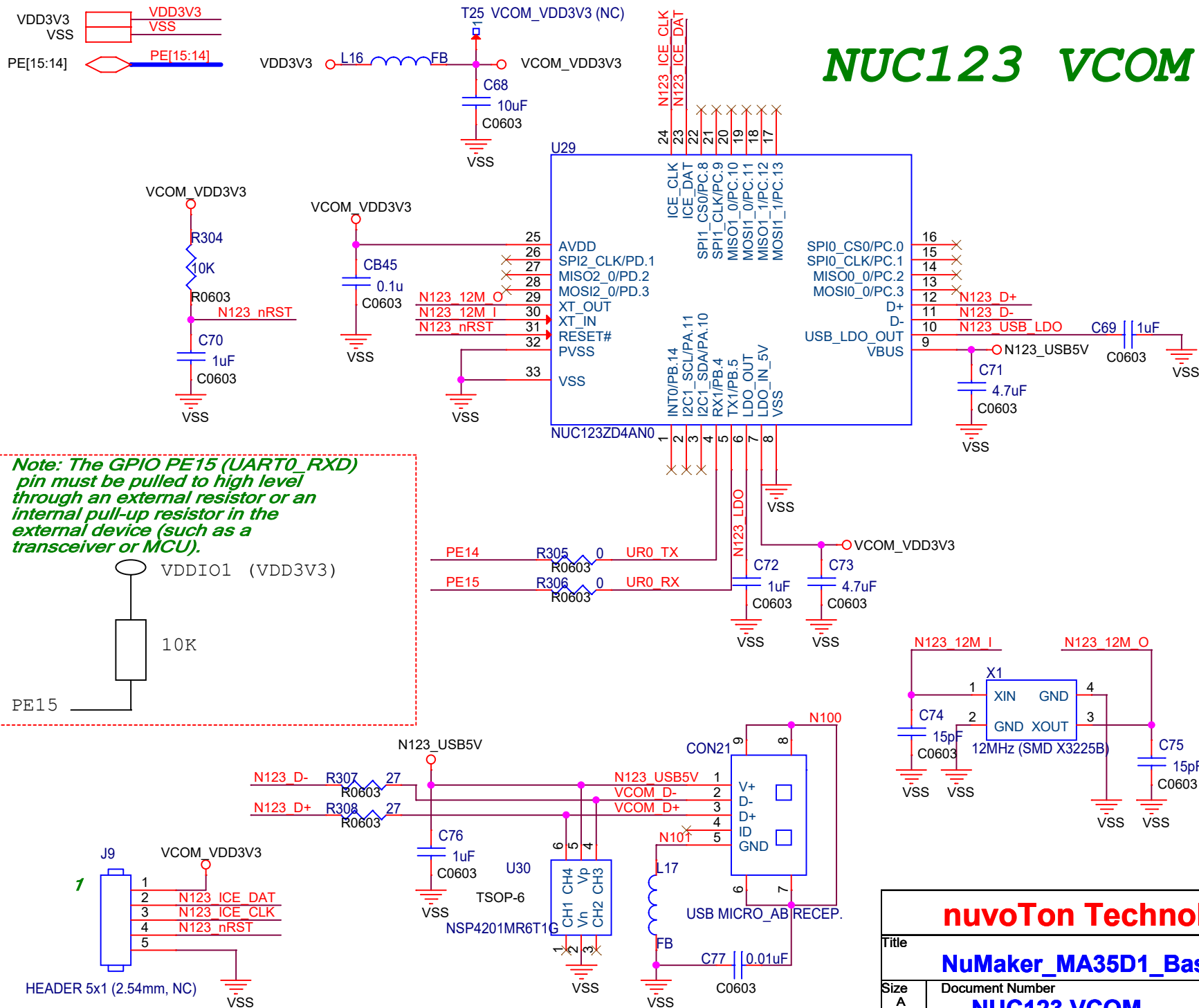


ETM Connector

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A	SWJ, SWD and ETM Connectors	V2.0
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NUC123 VCOM

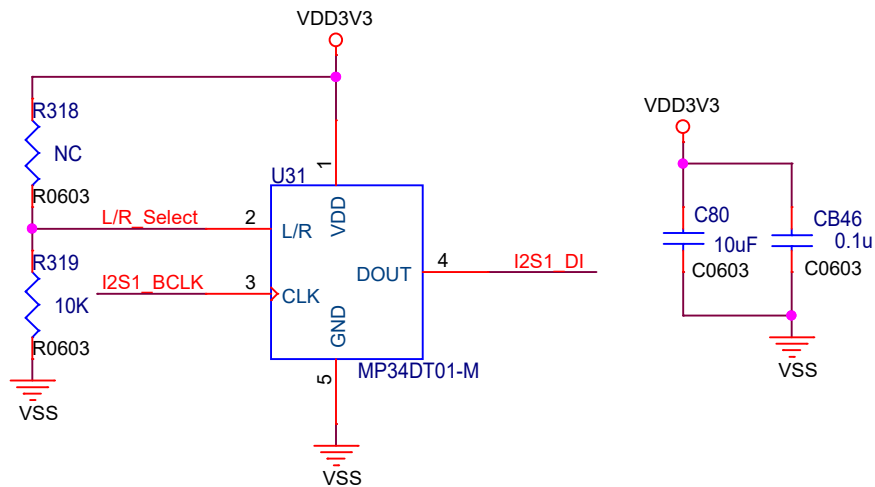
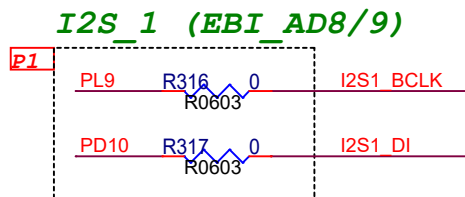


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A	NUC123 VCOM	V2.0
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VDD3V3
VSS

PL9
PD10



MEMS Digital MIC

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MEMS Digital MIC (MP34DT01-M)		
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VDD3V3
VSS

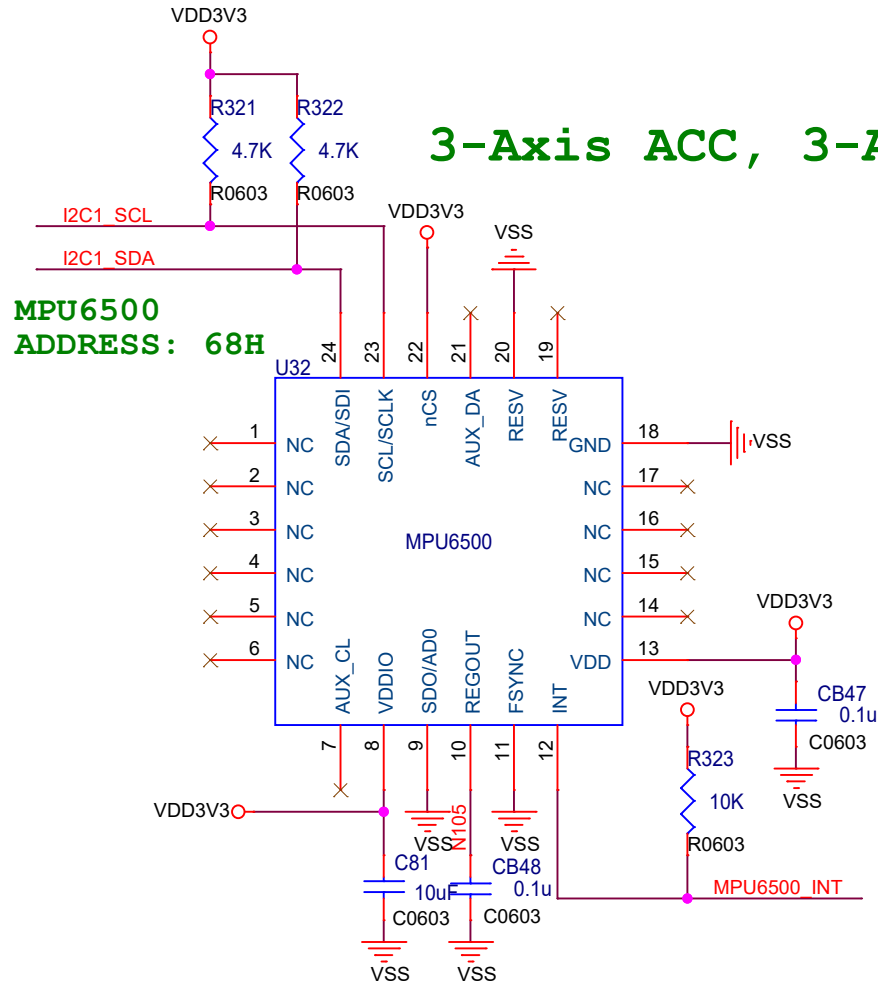
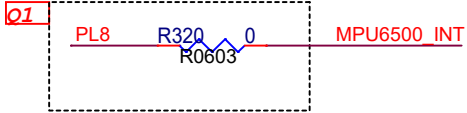
PL8

I2C1_SDA/SCL (LCM_I2C1_SDA/SCL)

I2C1_SDA

I2C1_SCL

MPU6500_INT (EBI_AD7)



3-Axis ACC, 3-Axis Gyor

MEMS G-Sensor

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Title

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A

Document Number

MEMS G-Sensor (MPU6500)

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