

i.MX7-MB

Variant: [No Variations]

14/10/2020
v2.0

SVN Revision: 1226

I2C USAGE AND ADDRESS TABLE

NAME	PERIPHERAL	ADDRESS
I2C1	i.MX7-CM: PMIC control	(0x08<<1)+RW
	i.MX7-CM: EEPROM	(0x50<<1)+RW
	Not available on SODIMM204	
I2C2	i.MX7-MB: PCIe	
	i.MX7-MB: general use on header	
I2C3	i.MX7-MB: MIKROBUS	
	i.MX7-MB: general use on header	
I2C4	i.MX7-CM: Audio Codec	(0x1B<<1)+RW
	i.MX7-CM: LVDS	(0x2C<<1)+RW
	i.MX7-MB: PCIe Clock Generator	(0x68<<1)+RW
	i.MX7-MB: CSI (Camera)	(0x3C<<1)+RW
	i.MX7-MB: general use on header	

DESIGN CONSIDERATIONS

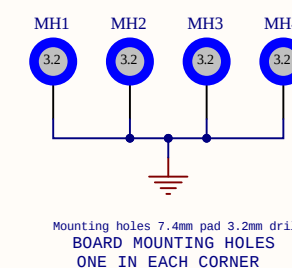
DESIGN NOTE:
Example text for informational
design notes.

DESIGN NOTE:
Example text for critical
design notes.

LAYOUT NOTE:
Example text for critical
layout guidelines.

PCB1
PCB
i.MX7-MB
Printed circuits board

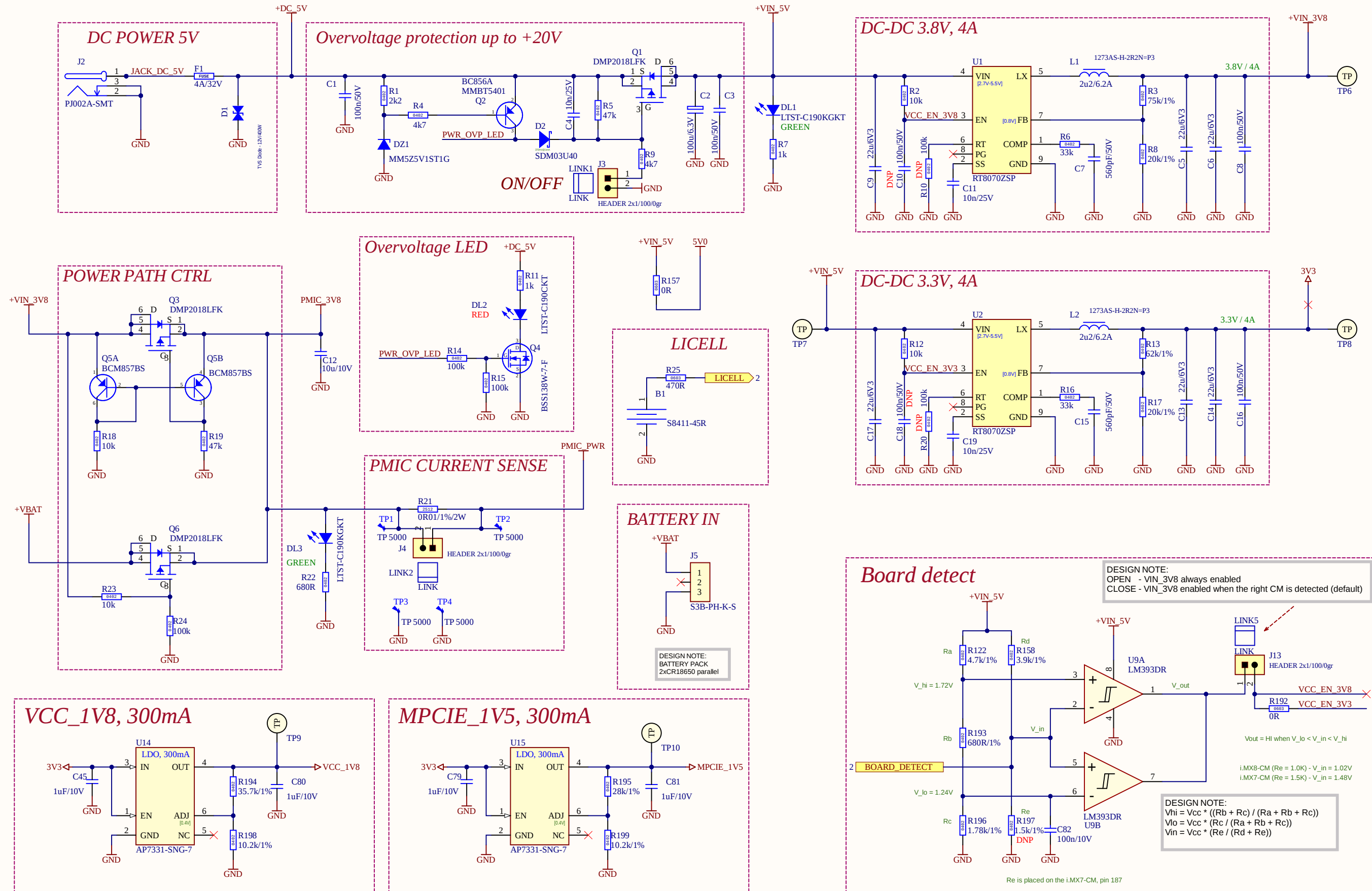
Mounting Holes



Fiducials

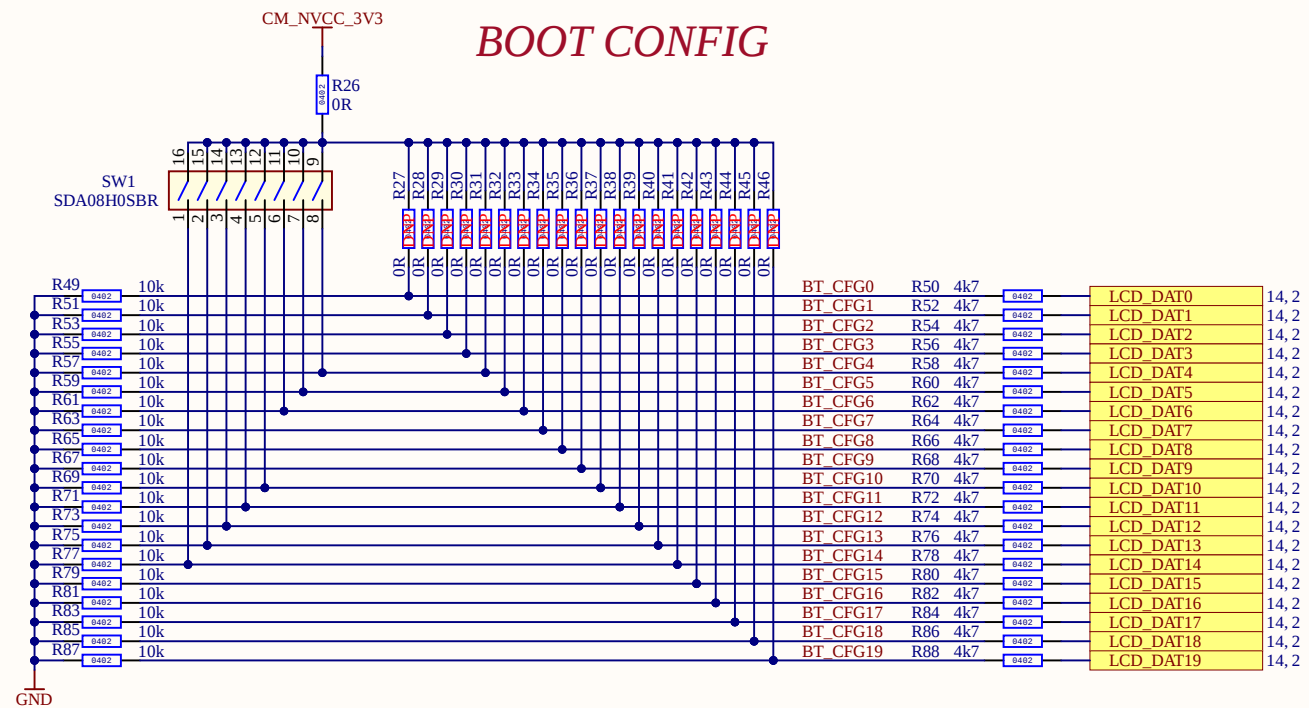


Power Supply



BOOT, JTAG

BOOT CONFIG

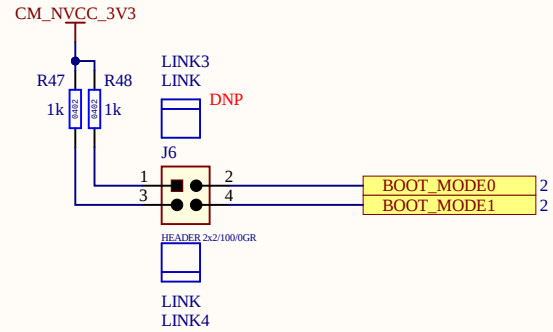


BT_CFG[14]	BT_CFG[13]	BT_CFG[12]	BT_CFG[10]	BT_CFG[11]
0001 - SD/eSD/SDXC 0010 - MMC/eMMC			Port Select: 00 - eSDHC1 01 - eSDHC2 10 - eSDHC3	
0011 - Raw NAND 0100 - QSPI 0101 - NOR 0110 - Serial ROM (I2C/SPI)				

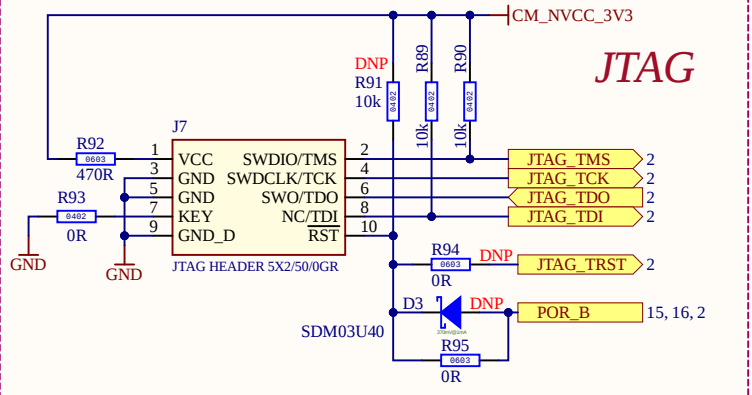
INTERNAL BOOT	
BOOT_CFG[15:12]	Boot Device
0001	SD/eSD/SDXC
0010	MMC/eMMC
0011	Raw NAND
0100	QSPI
0101	NOR/OneNAND (EIM)
0110	Serial ROM (I2C/SPI)

BOOT MODE

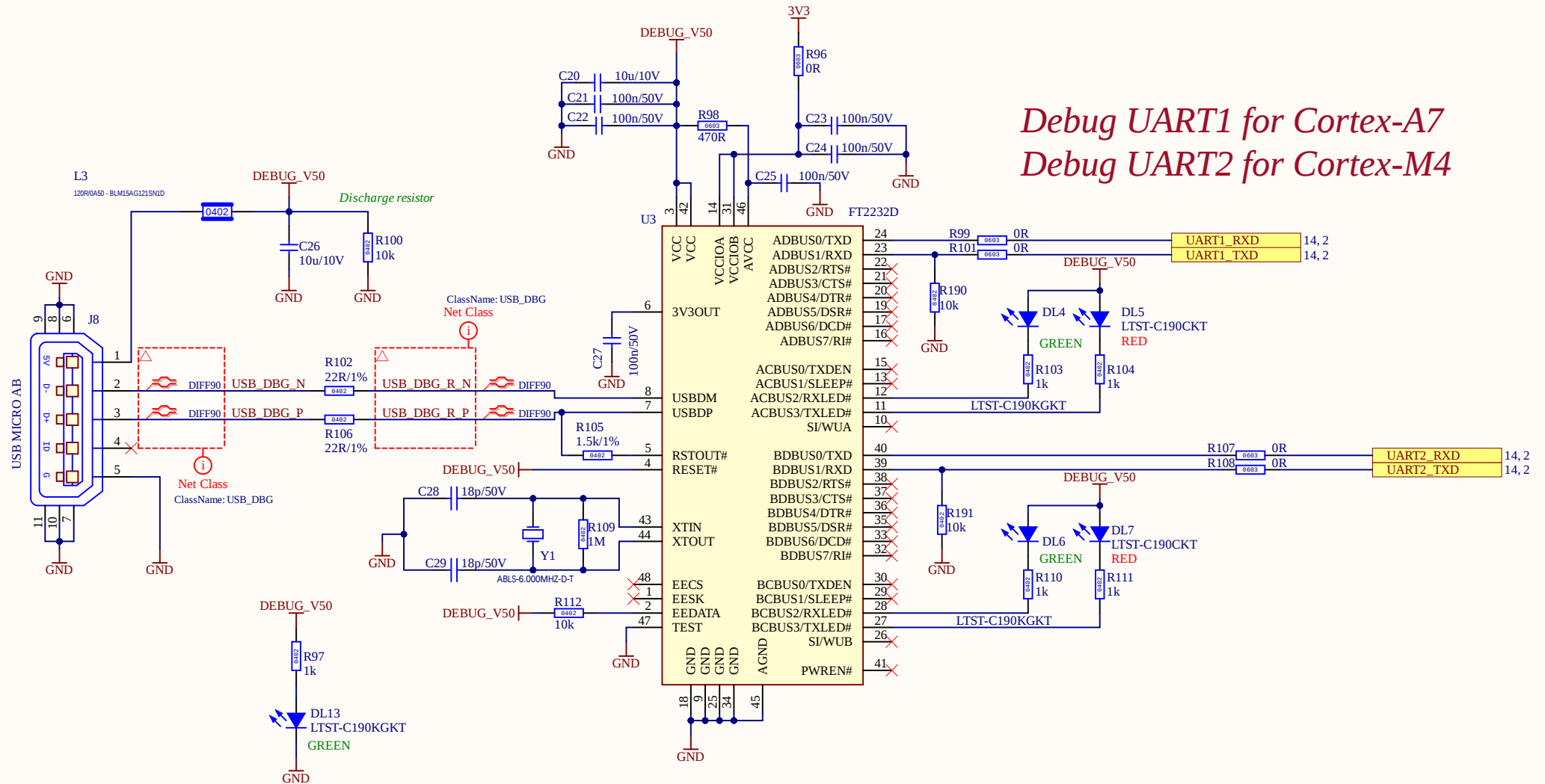
BOOT_MODE	3-4	1-2
FUSES	0	0
Serial Downloader	0	1
INTERNAL BOOT	1	0
TEST MODE	1	1



JTAG

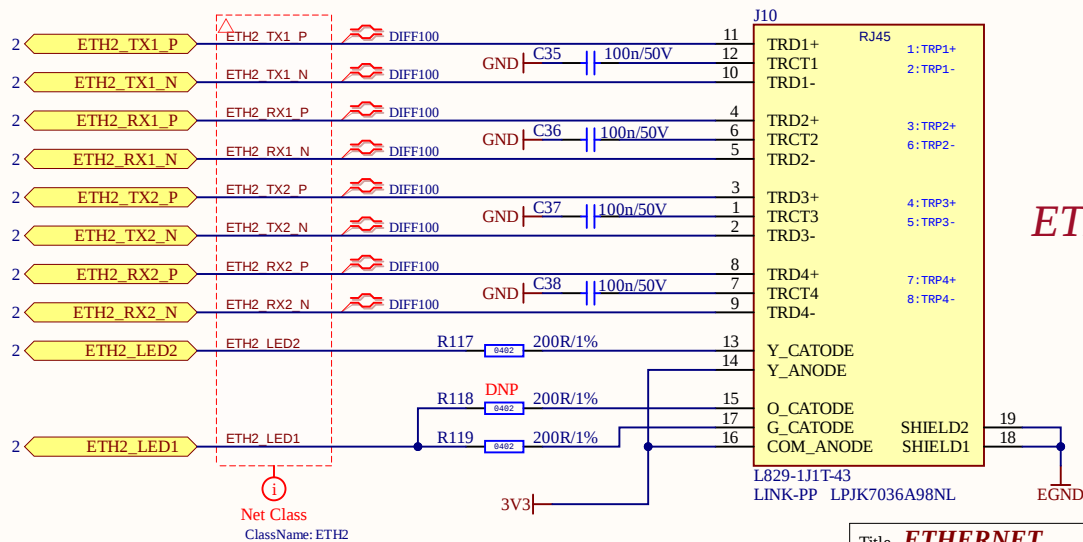
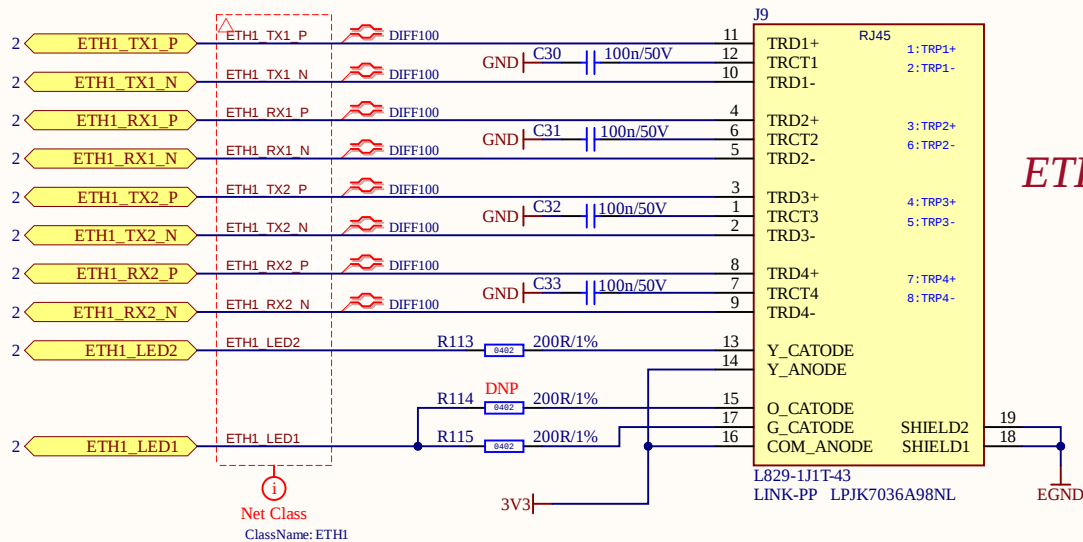


USB debug UART



Title USB debug UART			Ronetix GmbH Hirschstettner Str. 19/Z110 1220 Vienna Austria		
Size: A4	Number: 5	Revision: 2.0			
Date: 14/10/2020	Time: 17:02:03	Sheet 5 of 16			
File: 05_DEBUG UART.SchDoc					

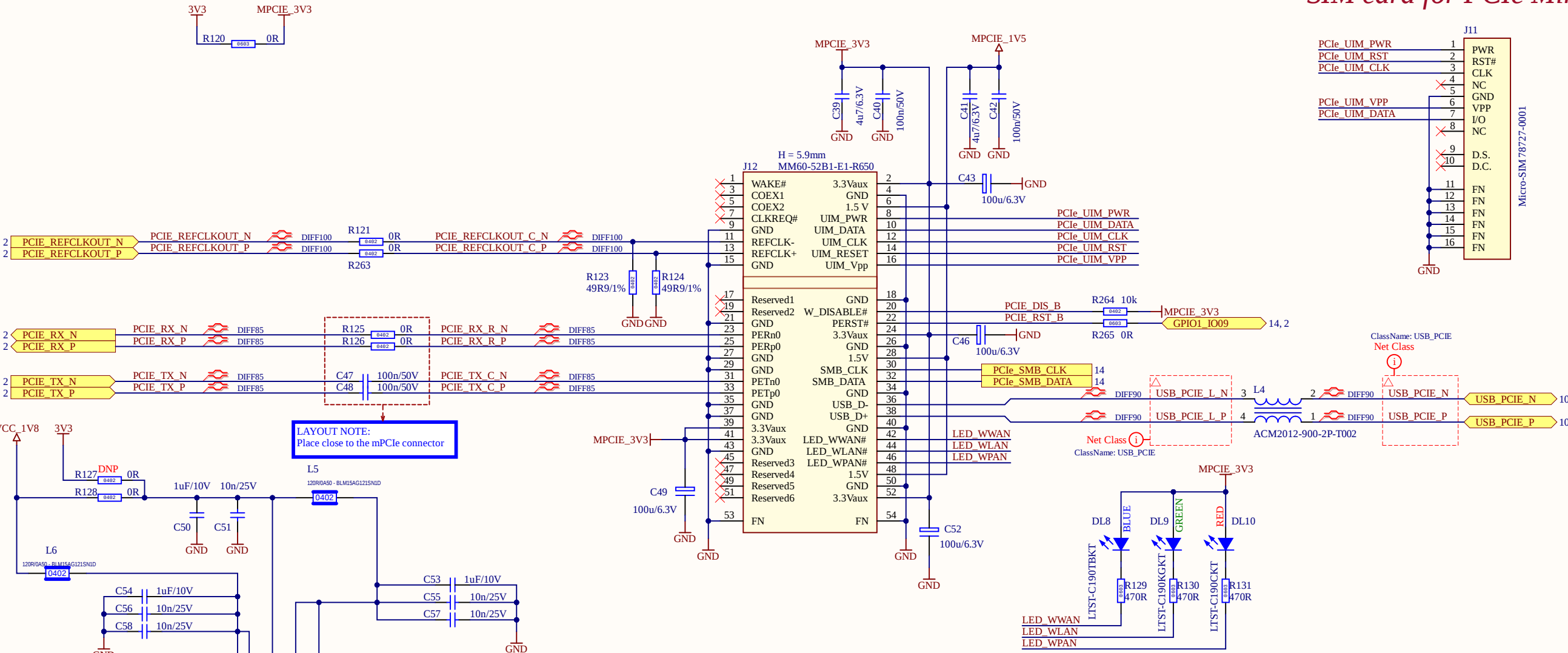
ETHERNET



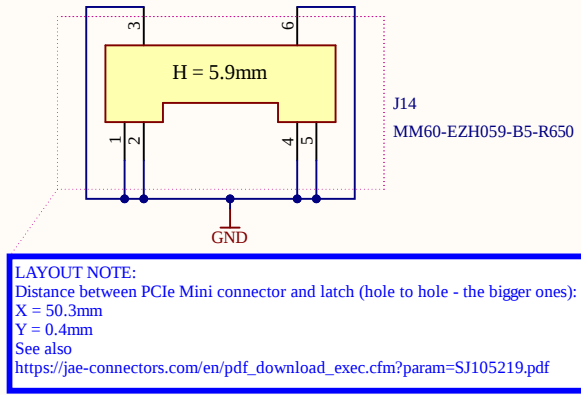
mini PCIe

DESIGN NOTE:
This design assumes a normal loading on the MPCIE_3V3 rail of up to 1A.
The MPCIE_1V5 rail is allowed a maximum of 250 mA.

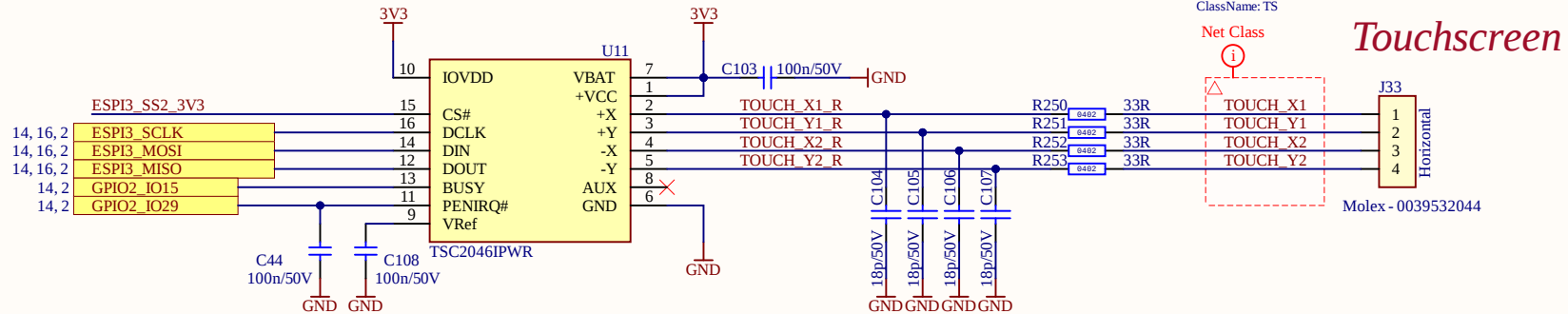
SIM card for PCIe Mini



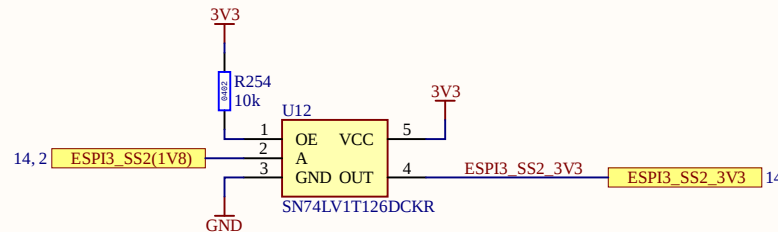
Card Latch for PCIe Mini Card



Touchscreen Controller



SPI Chip Select Level Shifter



Title Touch Screen Controller			Ronetix GmbH Hirschstettner Str. 19/Z110 1220 Vienna Austria	 RONETIX DEVELOPMENT TOOLS
Size: A4	Number: 8	Revision: 2.0		
Date: 14/10/2020	Time: 17:02:03	Sheet 8 of 16		
File: 08_Touchscreen.SchDoc				

LVDS DISPLAY

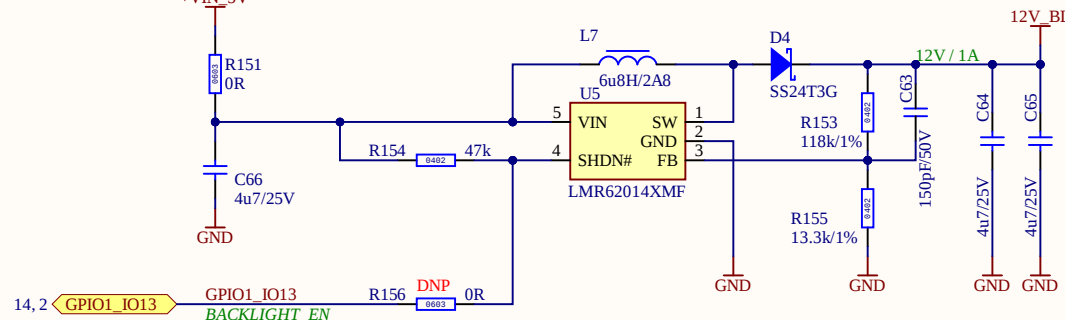
DESIGN NOTE:
Display Cabel eMotion G2
G070Y2-L01 / DF14-30S-1.25C <-> JAE FI-S20S

Pin - Nummer (pin number)	Pin - Nummer (pin number)
1	20
2	19
3	17
4	4
5	18
6	
7	8
14	14
19	5
20	1
21	2
22	6
23	7
24	9
25	10
26	11
27	12
28	13
29	15
30	16

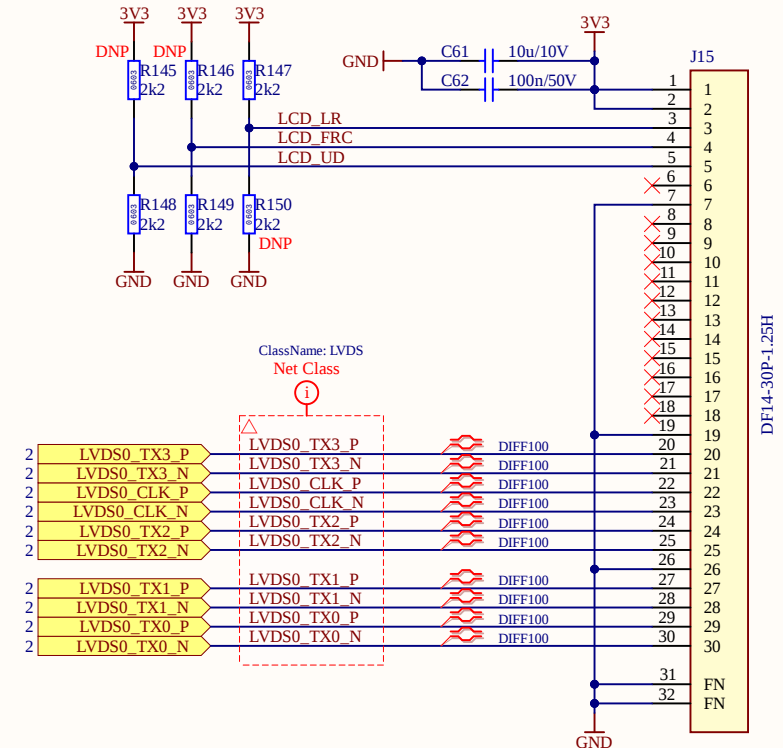
Board	LCD
20	1 RX3+
21	2 RX3-
4	3 NC
19	4 FRC
22	5 GND
23	6 RXC+
24	7 RXC-
7	8 GND
24	9 RX2+
25	10 RX2-
26	11 GND
27	12 RX1+
28	13 RX1-
14	14 GND
29	15 RX0+
30	16 RX0-
3	17 LR
5	18 UD
2	19 VCC_IN
1	20 VCC_IN

DESIGN NOTE:
Invertor Cabel eMotion G2 -> G070Y2-L01

Backlight power supply, 12V

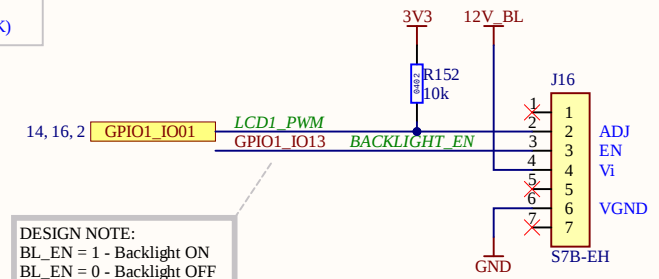


DISPLAY - G070Y2-L01, 7", 800x480



Board	LCD
4	1 Vi (Yellow)
2	2 ADJ (BLUE)
3	3 EN (RED)
6	4 VGND(BLK)

BACK LIGHT



DESIGN NOTE:
BL_EN = 1 - Backlight ON
BL_EN = 0 - Backlight OFF

Title **LVDS DISPLAY**

Size: **A4**

Number: **9**

Revision: **2.0**

Date: **14/10/2020**

Time: **17:02:03**

Sheet **9** of **16**

File: **09_DISPLAY.SchDoc**

Ronetix GmbH

Hirschstettner Str. 19/Z110

1220 Vienna

Austria

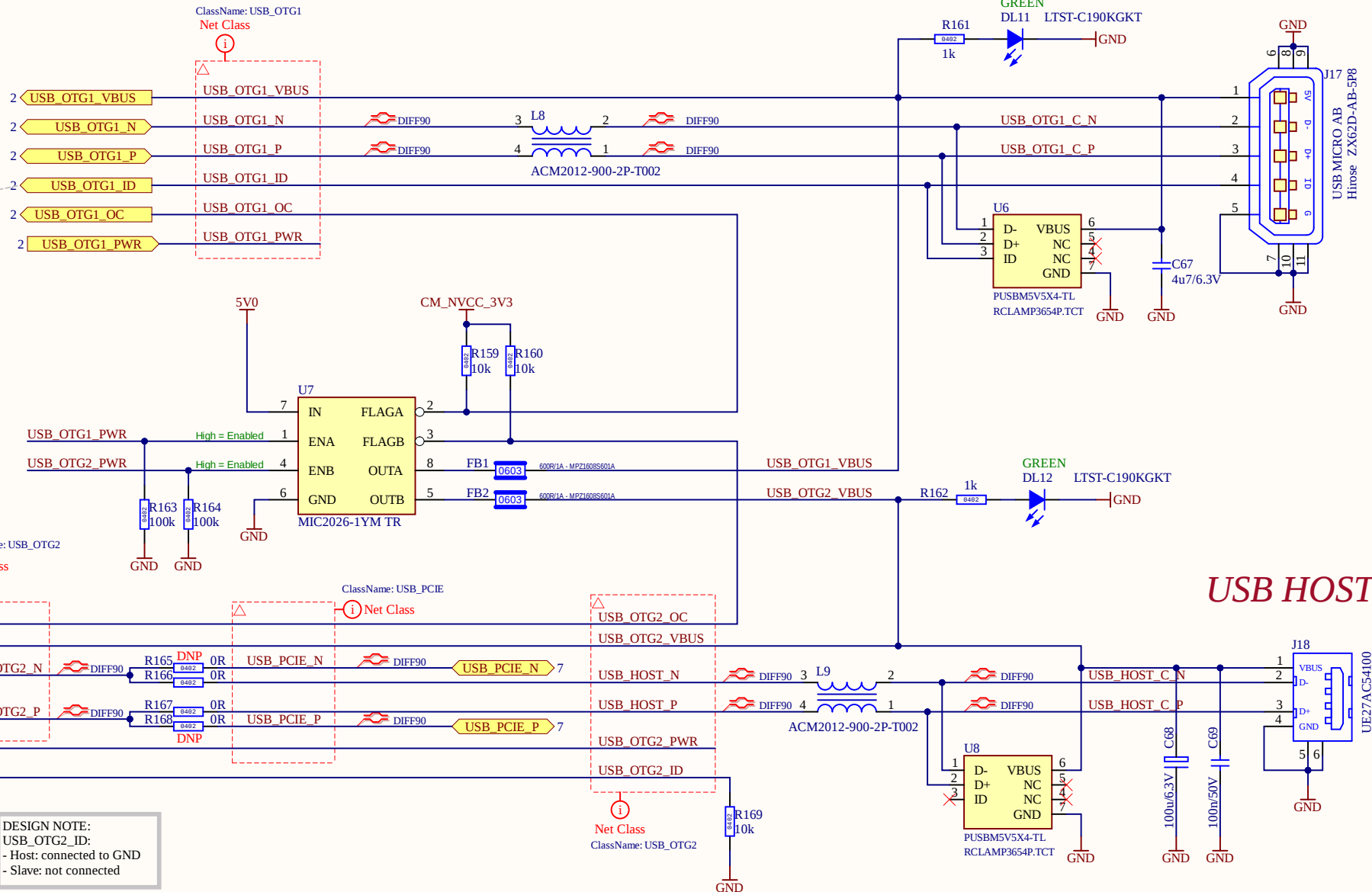
RONETIX
DEVELOPMENT TOOLS

USB Host & OTG

USB OTG

USB HOST

DESIGN NOTE:
USB_OTG1_ID:
- Host: connected to GND
- Slave: not connected



DESIGN NOTE:
USB_OTG2_ID:
- Host: connected to GND
- Slave: not connected

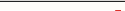
Title USB Host & OTG			Ronetix GmbH Hirschstettner Str. 19/Z110 1220 Vienna Austria	 RONETIX DEVELOPMENT TOOLS
Size: A4	Number: 10	Revision: 2.0		
Date: 14/10/2020	Time: 17:02:03	Sheet 10 of 16		
File: 10_USB_OTG.SchDoc				

A



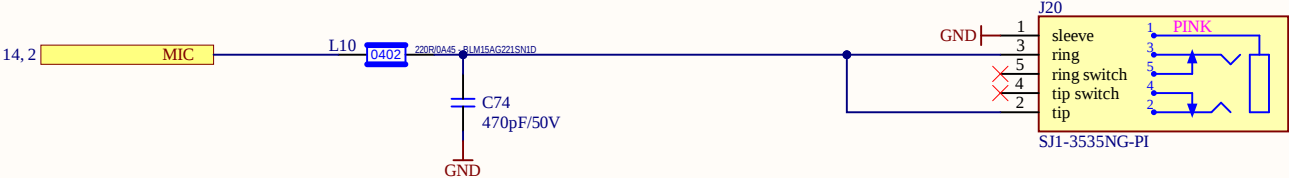
C



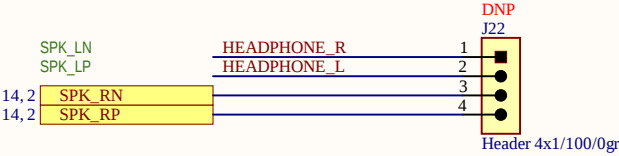
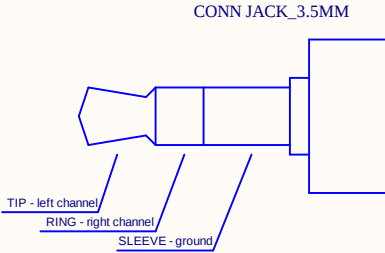
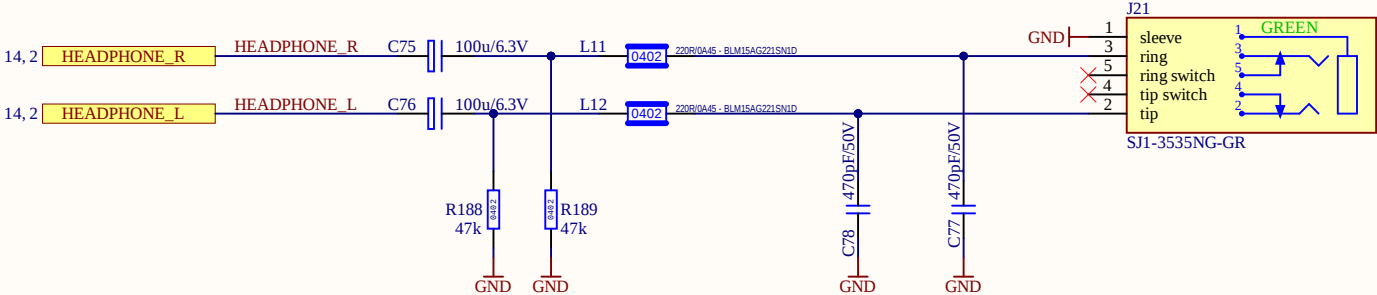
Title SD Card			Ronetix GmbH	
Size: A4	Number: 11	Revision: 2.0	Hirschstettner Str. 19/Z110	
Date: 14/10/2020	Time: 17:02:04	Sheet 11 of 16	1220 Vienna	
File: 11_SD CARD.SchDoc			Austria	

AUDIO

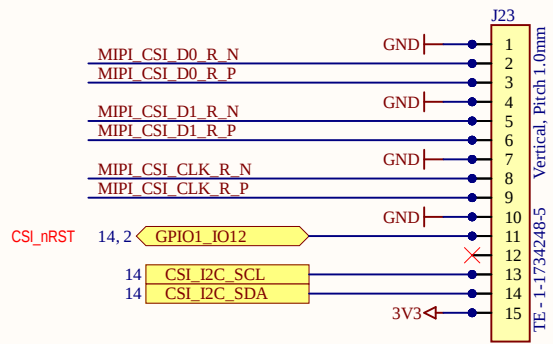
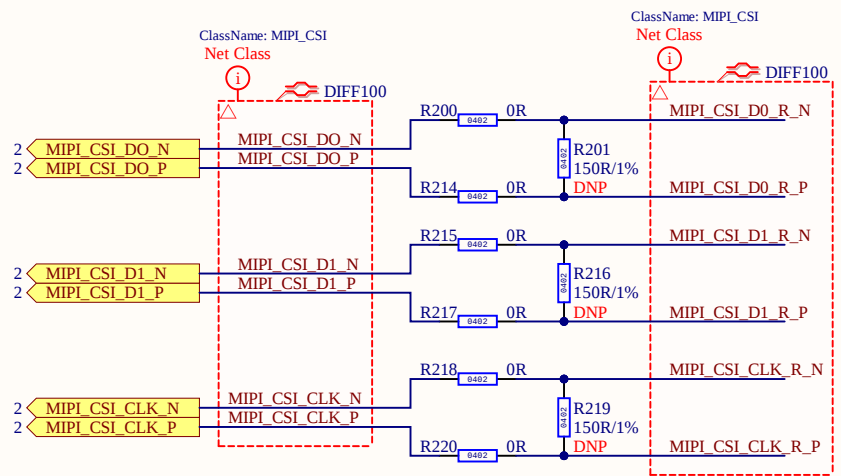
Microphone - Pink



Headphones - Green



CAMERA - CSI



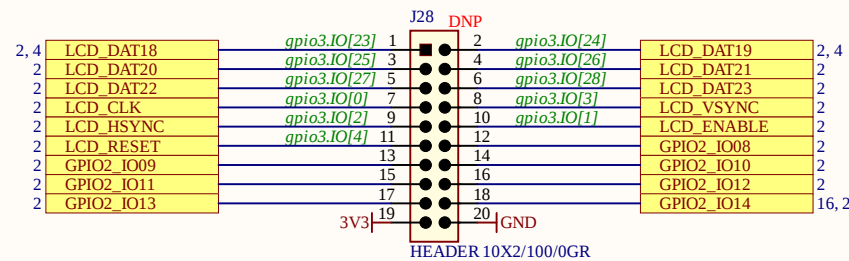
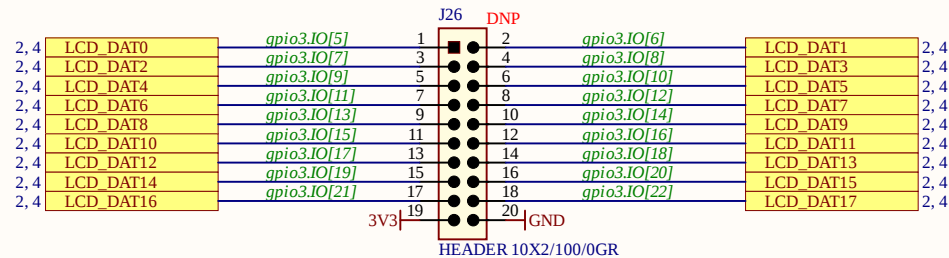
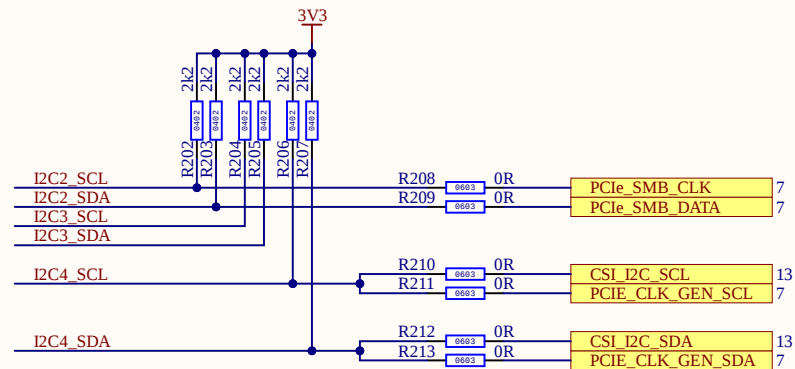
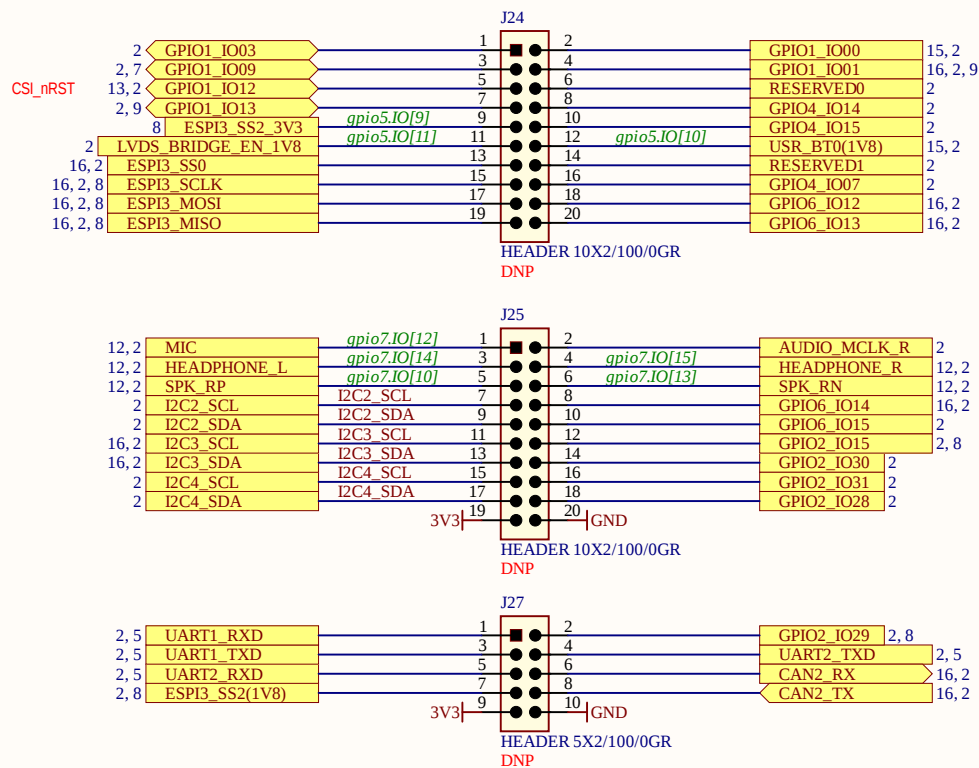
DESIGN NOTE:
PCAM 5C: 5 MP CAMERA MODULE
OV5640 Camera sensor



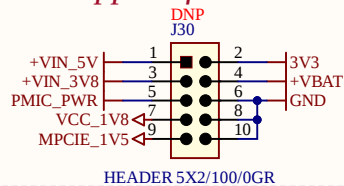
I2C address: (0x03C<<1)+RW

DESIGN NOTE:
PCAM 5C uses 12MHz XVCLK instead of typical 24MHz

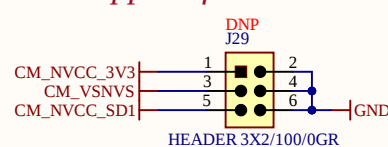
GPIO Connectors



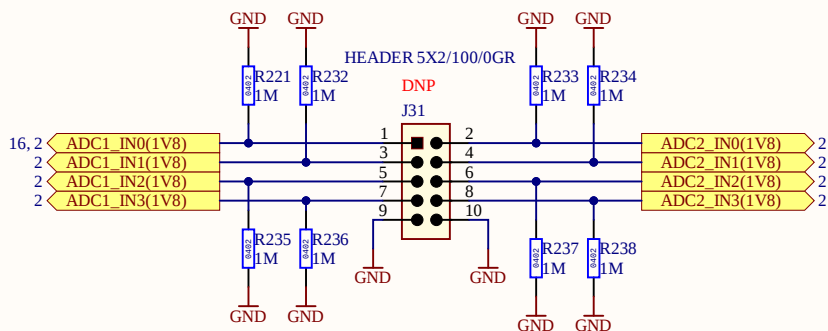
Power supplies from i.MX7-MB



Power supplies from i.MX7-CM

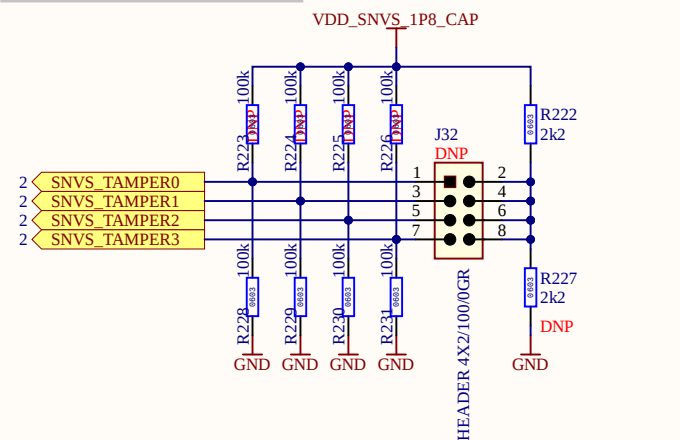


Analog Inputs



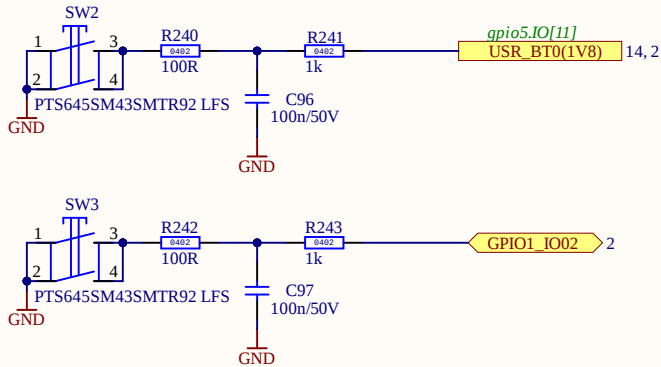
DESIGN NOTE:
With appropriated populating of pull-up
or pull-down resistors TAMPER active
level can be low or high.

TAMPER

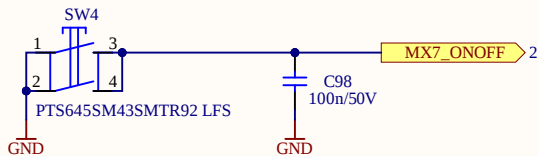


Buttons & WDOG

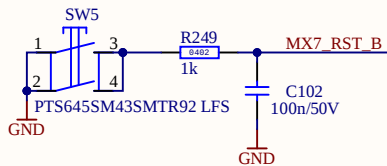
User Buttons



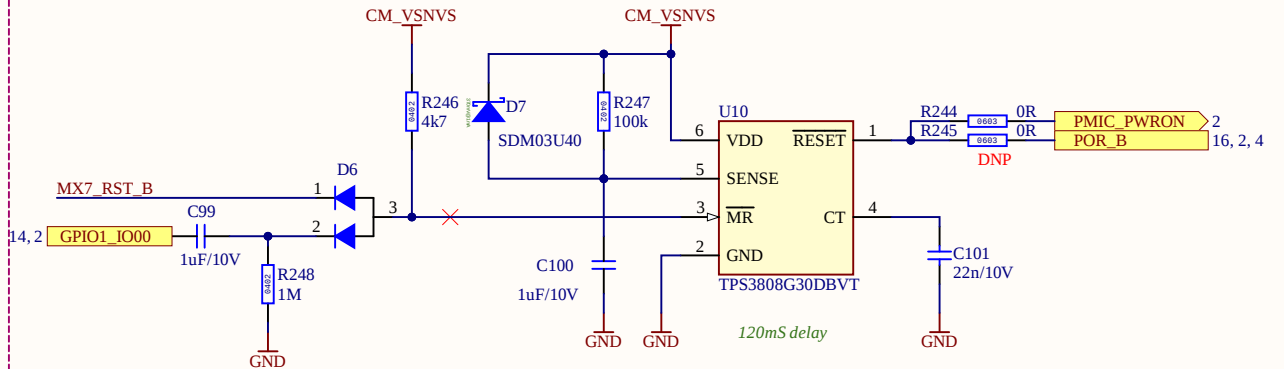
Power ON/OFF



RESET



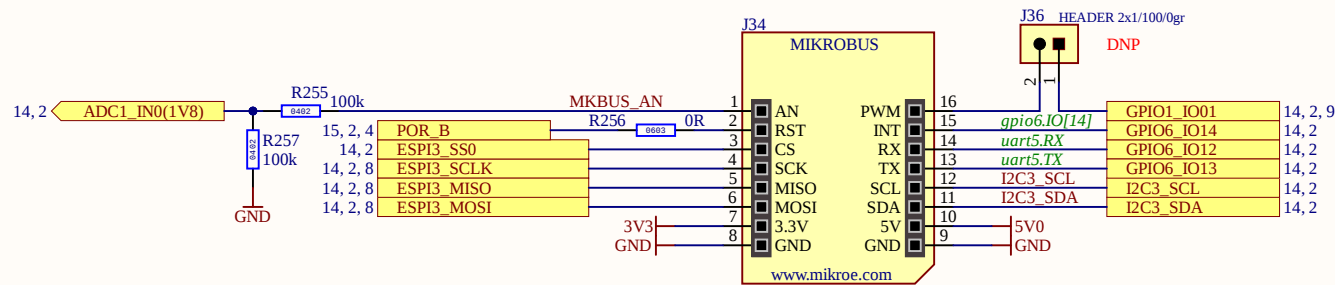
Power-On Reset Generator



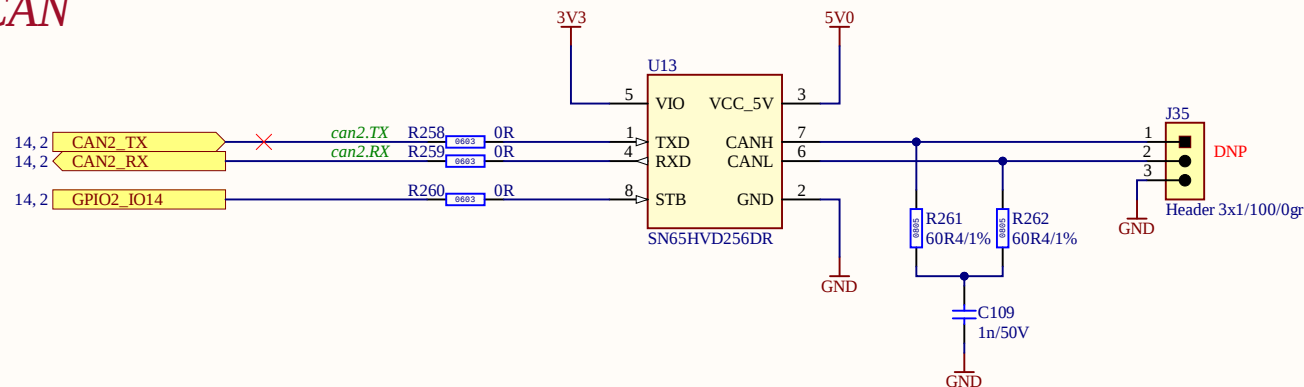
Title Buttons & WDOG			Ronetix GmbH Hirschstettner Str. 19/Z110 1220 Vienna Austria	
Size: 5A4	Number: 15	Revision: 2.0		
Date: 14/10/2020	Time: 17:02:04	Sheet 15 of 16		
File: 15_BUTTONS-WD.SchDoc				

MIKROBUS, CAN

MIKROBUS



CAN



Title **MIKROBUS, CAN**

Size: **A4**

Number: **16**

Revision: **2.0**

Date: **14/10/2020**

Time: **17:02:04**

Sheet **16** of **16**

File: **16_CAN_MIKROBUS.SchDoc**

Ronetix GmbH
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1220 Vienna
Austria

RONETIX
DEVELOPMENT TOOLS