

Tiny Shark DK

MB1332

Table of contents

Sheet 1 : Project overview

Sheet 2 : TOP

Sheet 3 : MCU STM32H7B3LIH6QU

Sheet 4 : USB OTG HS with external PHY

Sheet 5 : Memory

Sheet 6 : OCSPi

Sheet 7 : SD Card

Sheet 8 : Audio Codec

Sheet 9 : Camera

Sheet 10 : LCD

Sheet 11 : FDCAN

Sheet 12 : Arduino

Sheet 13 : Peripherals

Sheet 14 : Power Board

Sheet 15 : Power MCU

Sheet 16 : JTAG

Sheet 17 : STLINK-V3E SWD

Legend

General comment such as function title, configuration, ...

Text to be added to silkscreen.

Warning text.

▲

Notes to generate the board layout.

Open Platform License Agreement

The Open Platform License Agreement (“Agreement”) is a binding legal contract between you (“You”) and STMicroelectronics International N.V. (“ST”), a company incorporated under the laws of the Netherlands acting for the purpose of this Agreement through its Swiss branch 39, Chemin du Champ des Filles, 1228 Plan-les-Ouates, Geneva, Switzerland.

By using the enclosed reference designs, schematics, PC board layouts, and documentation, in hardcopy or CAD tool file format (collectively, the “Reference Material”), You are agreeing to be bound by the terms and conditions of this Agreement. Do not use the Reference Material until You have read and agreed to this Agreement terms and conditions. The use of the Reference Material automatically implies the acceptance of the Agreement terms and conditions.

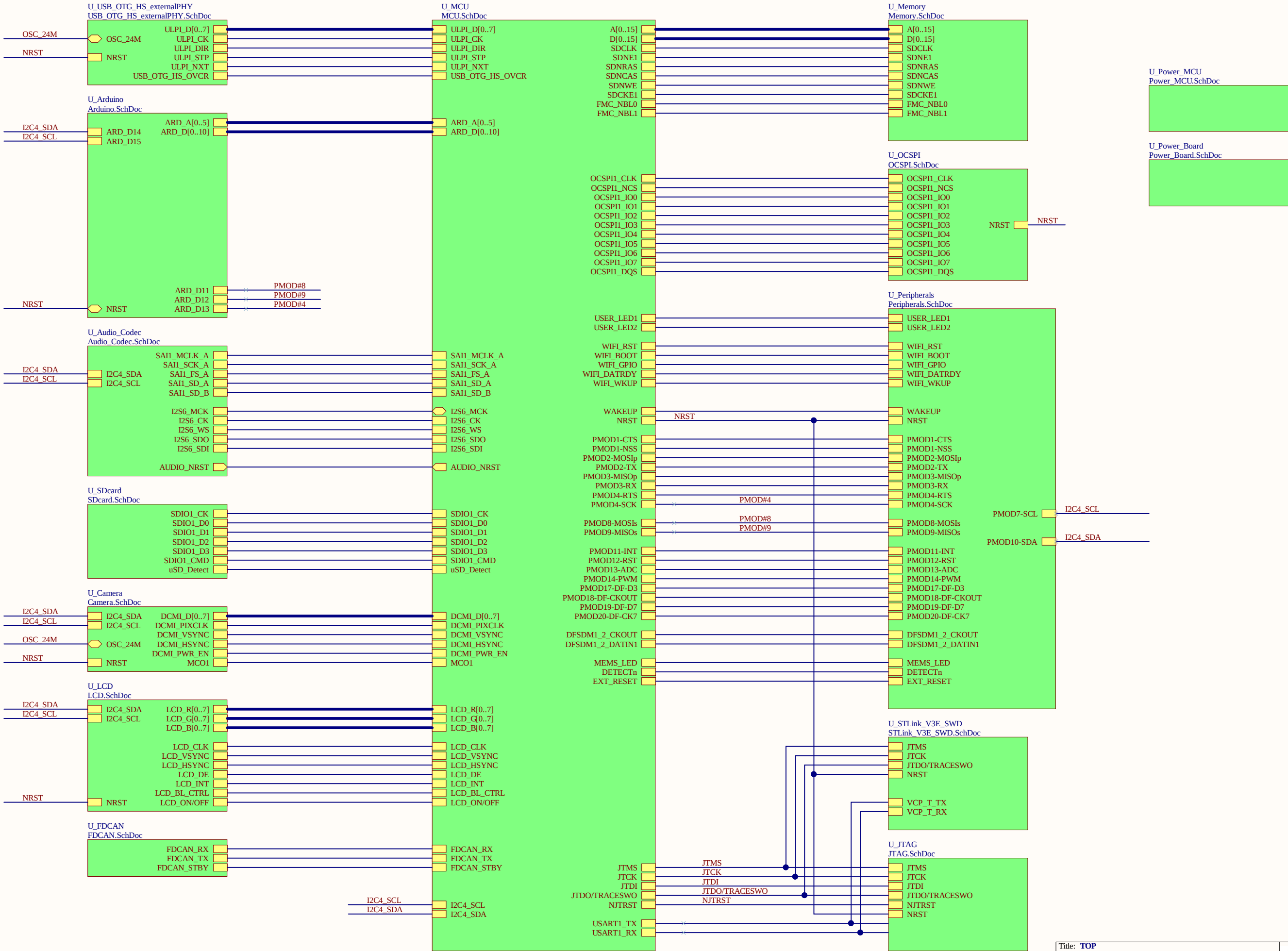
The complete Open Platform License Agreement can be found on www.st.com/opla.

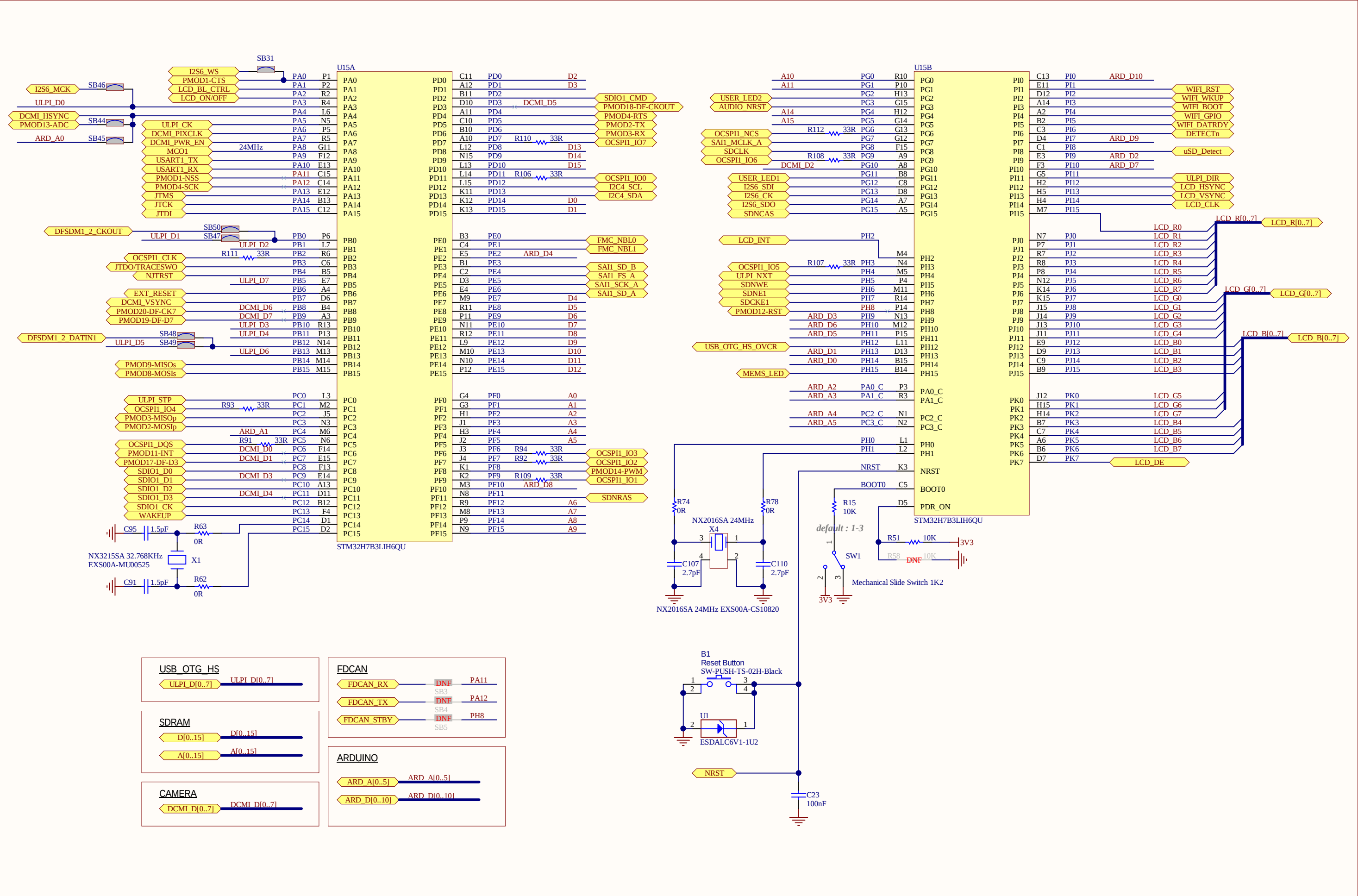
U_Top
MB1332_TOP.SchDoc

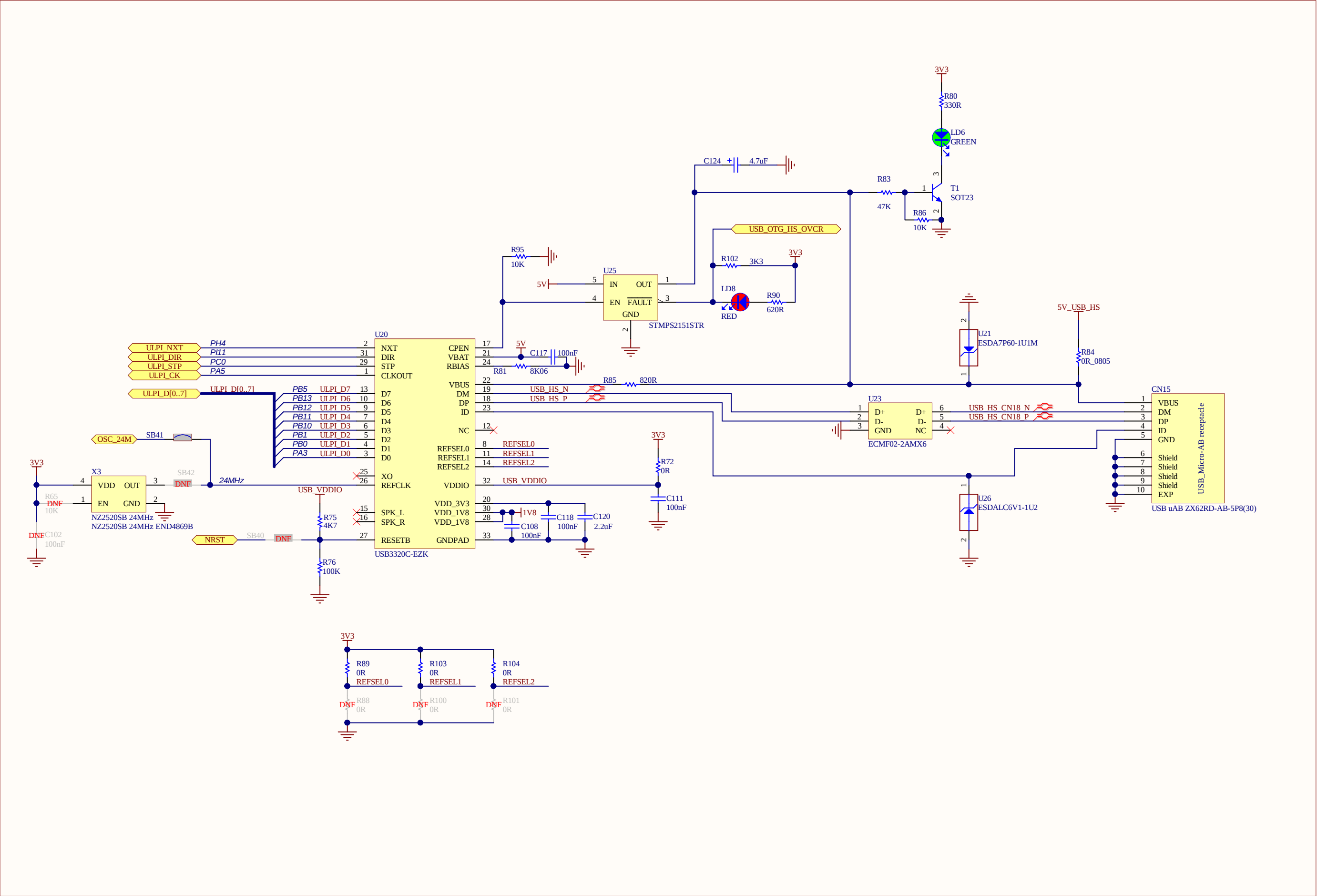


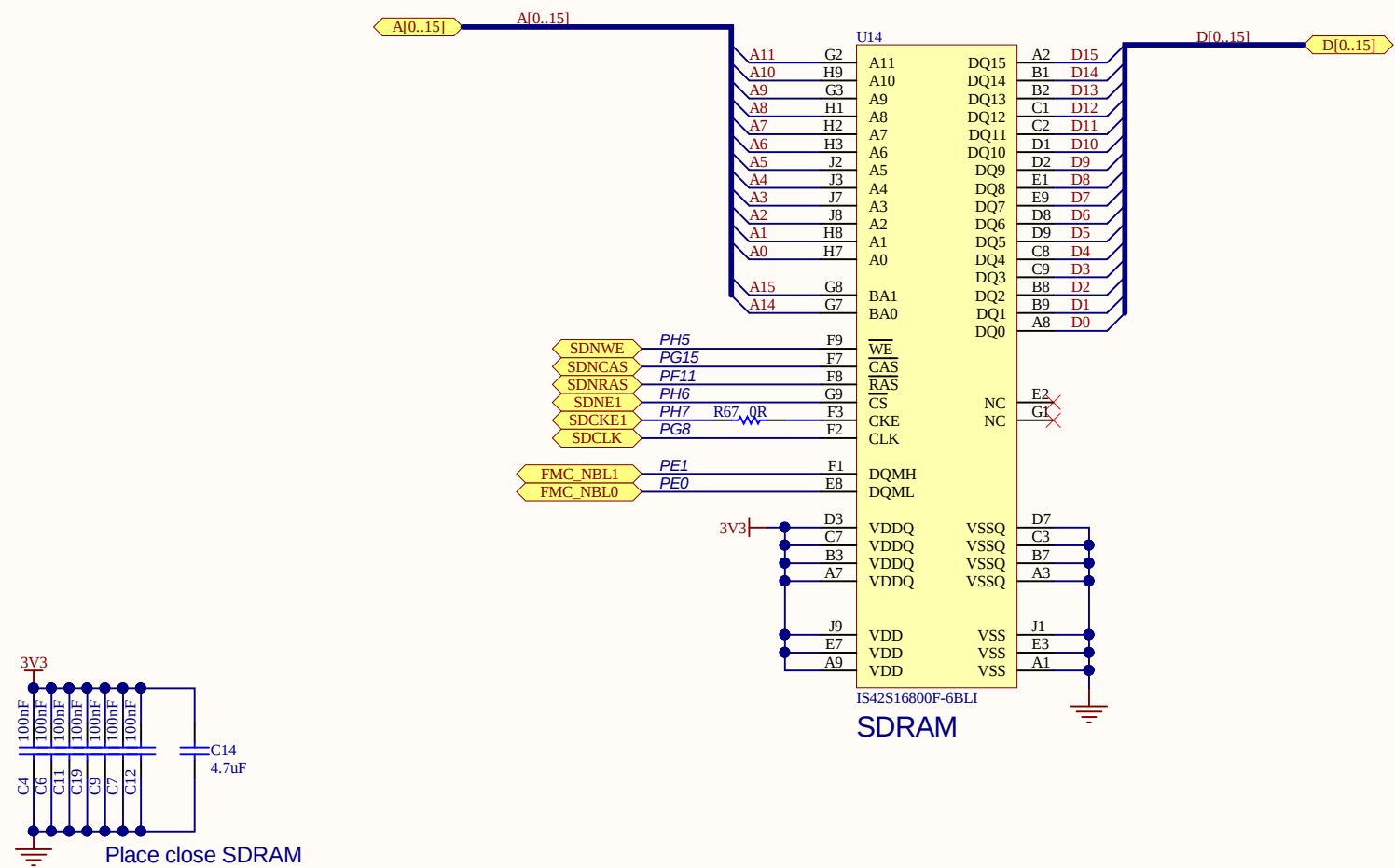
Title: Project overview	
Project: Tiny Shark DK	
Variant: H7B3I	
Revision: C-01	Reference: MB1332
Size: A4	Sheet: 1 of 17

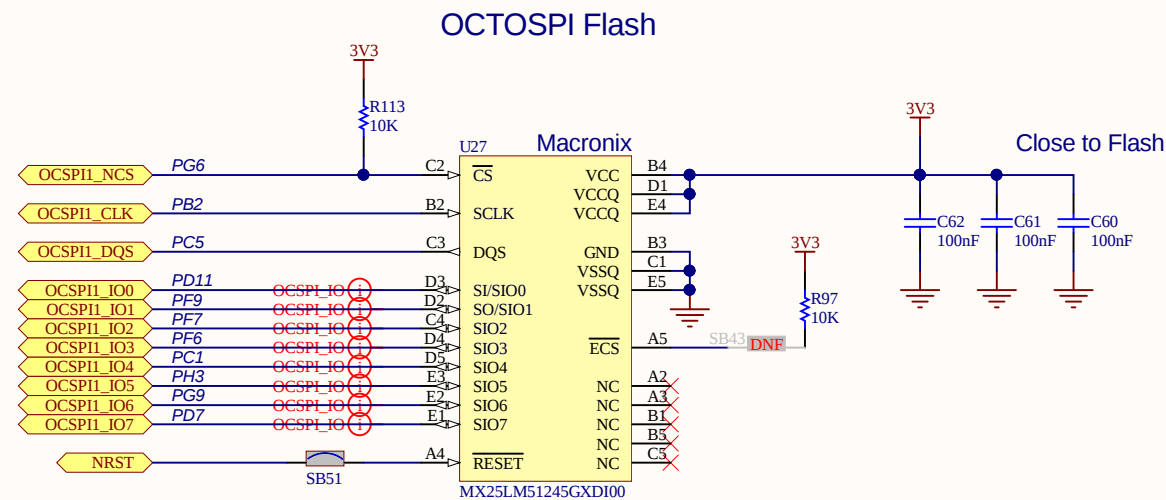






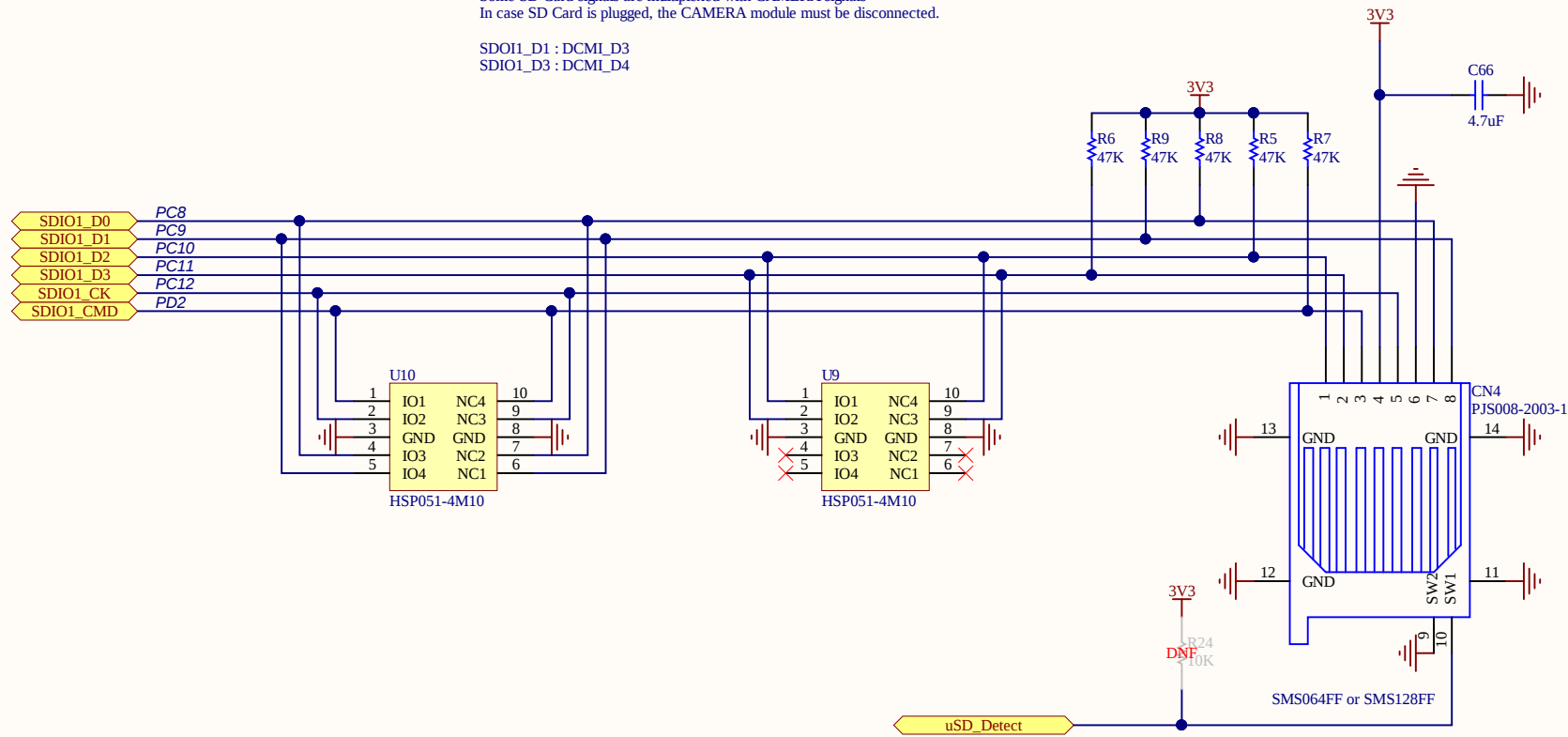


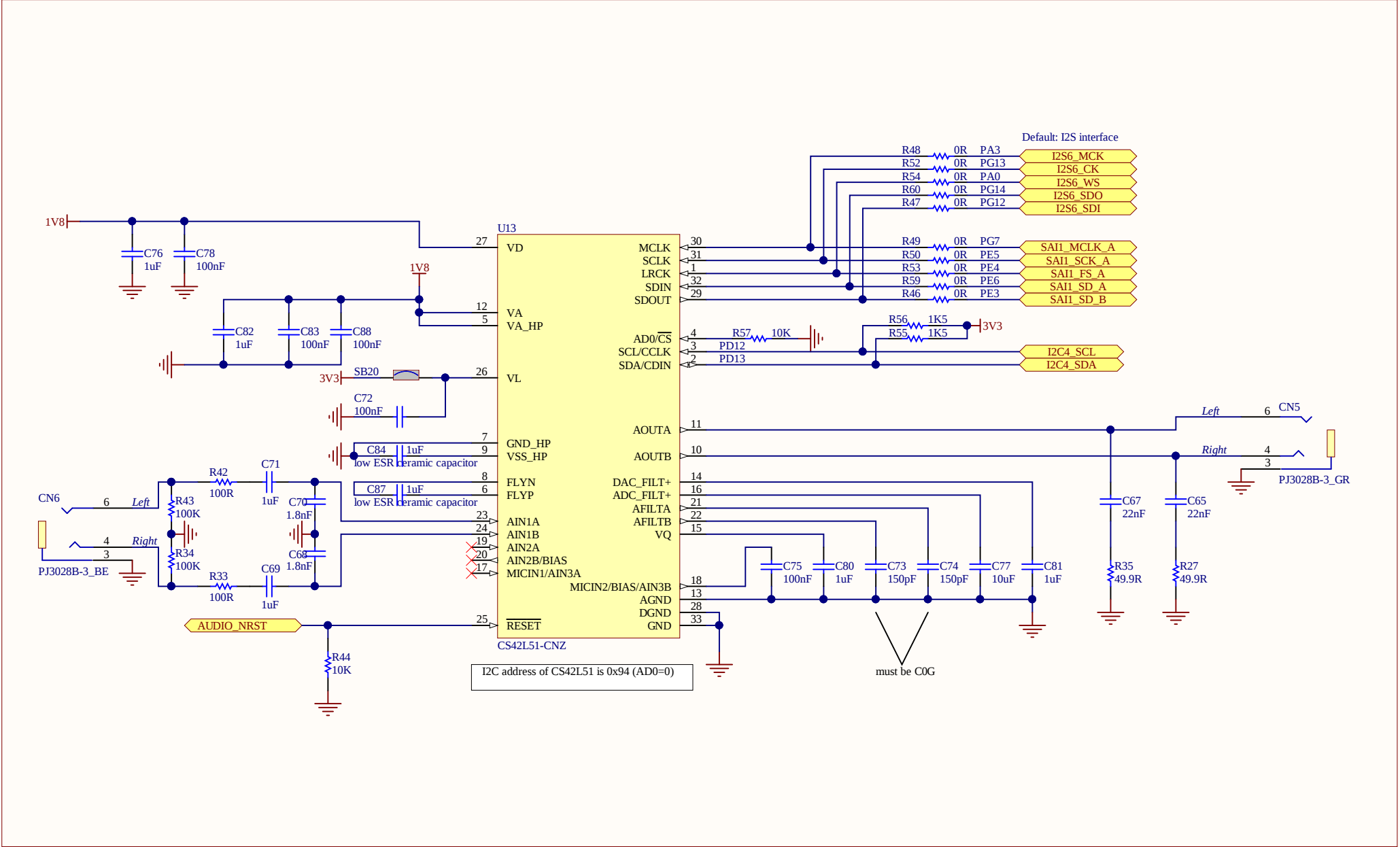




LIMITATION :
Some SD Card signals are multiplexed with CAMERA signals
In case SD Card is plugged, the CAMERA module must be disconnected.

SDIO1_D1 : DCML_D3
SDIO1_D3 : DCMI_D4

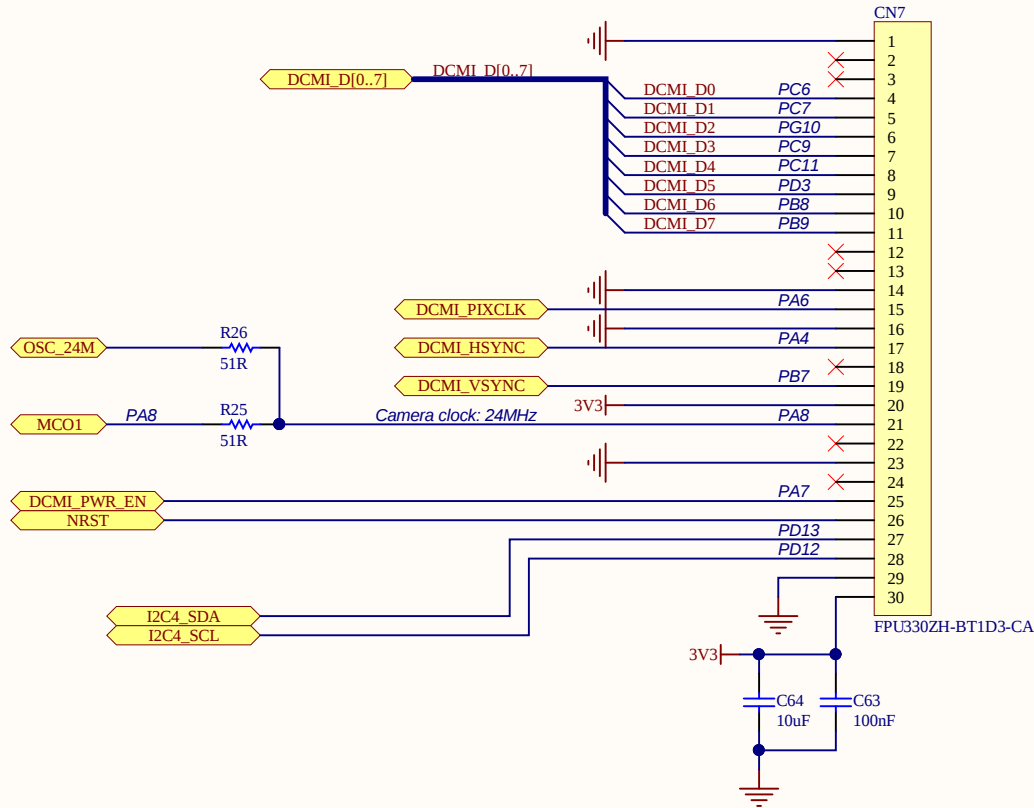




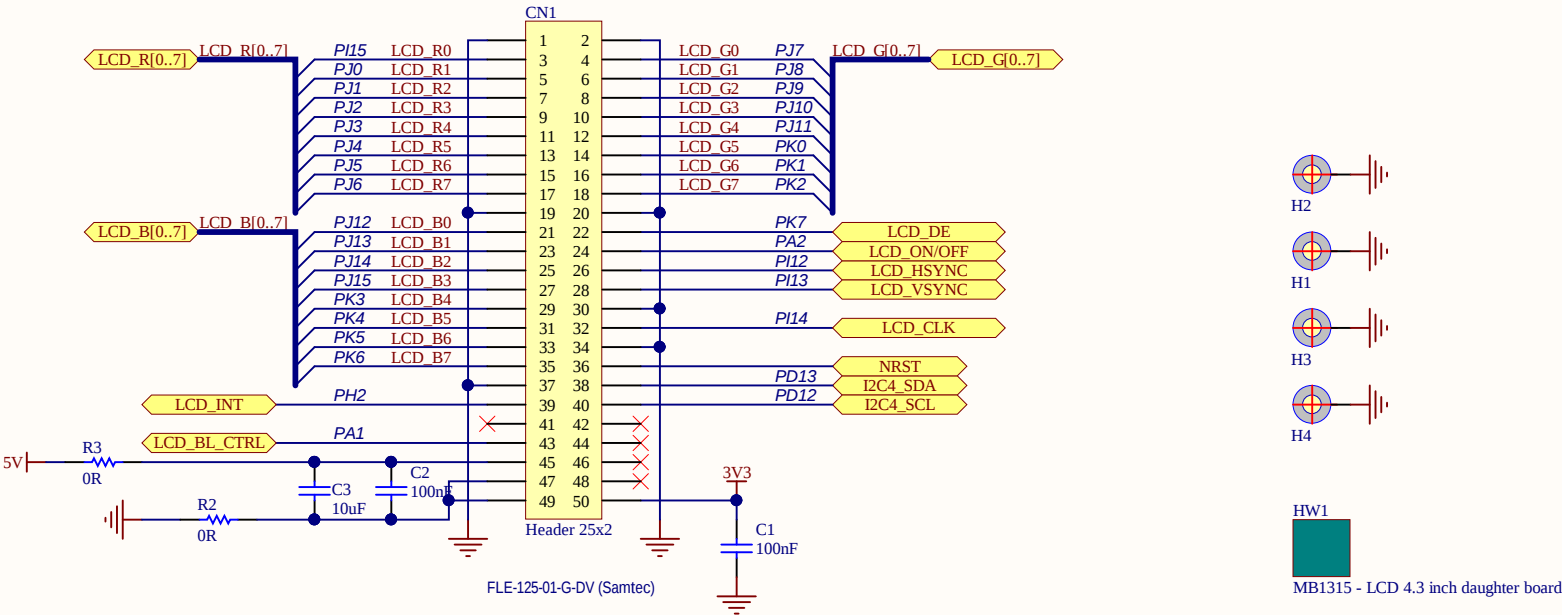
LIMITATION :
DCMI signals are multiplexed with several functions (SD Card, STMOD+ and Arduino)
In case CAMERA module is plugged, SD Card, STMOD+ and Arduino must be disconnected.
Videos are stored in USB

DCMI_D0 : PMOD#11-INT
DCMI_D1 : PMOD#17-DF-D3
DCMI_D3: SDIO1_D1
DCMI_D4 : SDIO1_D4
DCMI_D5: PMOD#18-DF-CKOUT
DCMI_D6 : PMOD#20-DF-CK7
DCMI_D7 : PMOD#19-DF-D7
DCMI_HSYNC : PMOD#13-ADC and ARD_A0

Camera connector for STM32F4DIS-CAM

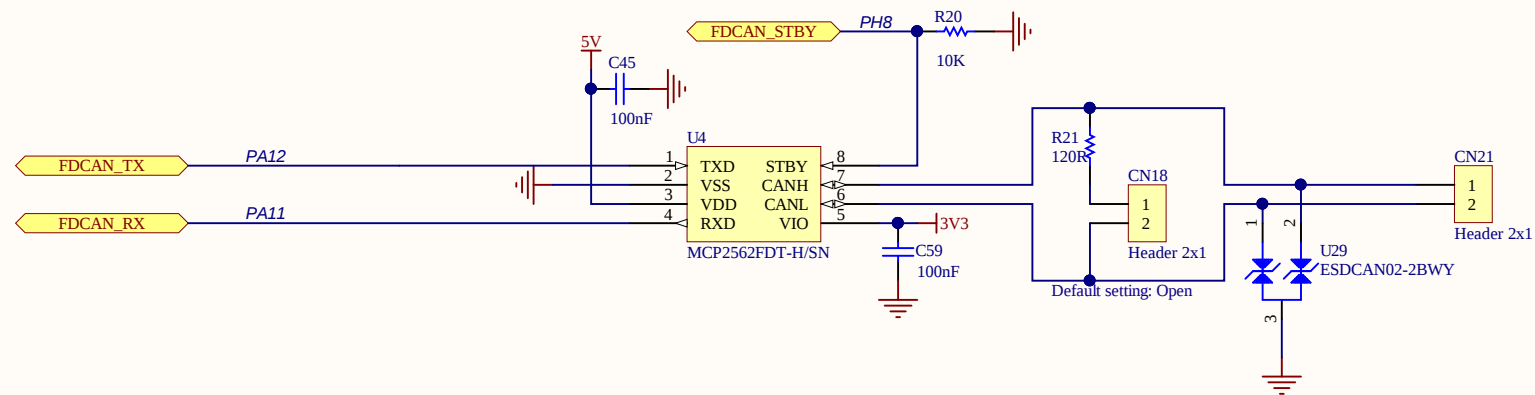


Compatible with MB1315 (4.3 inch LCD board)

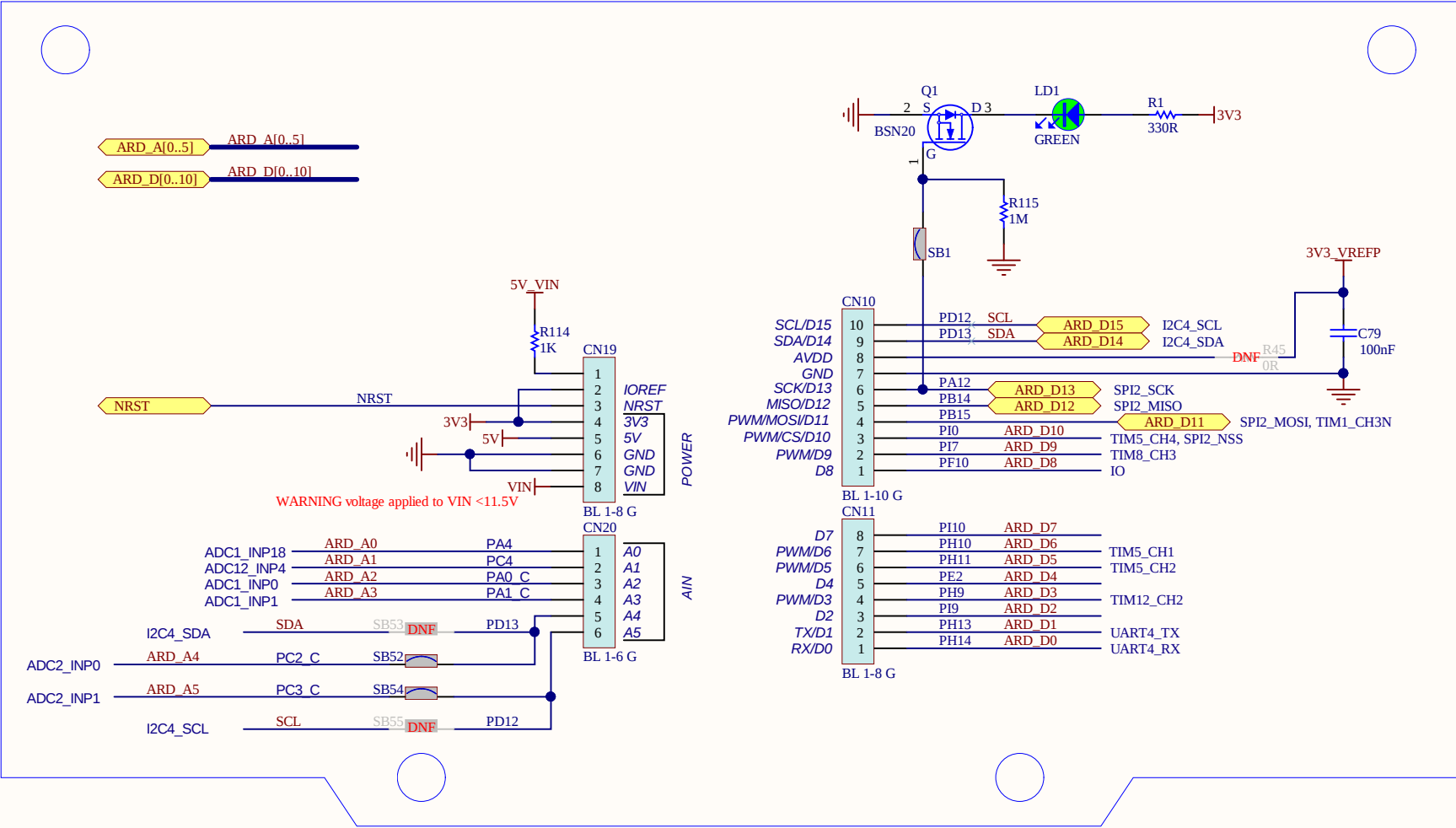


LIMITATION :
FD-CAN signals are multiplexed with STMOD+ function
In case FD-CAN module is connected, STMOD+ must be disconnected.

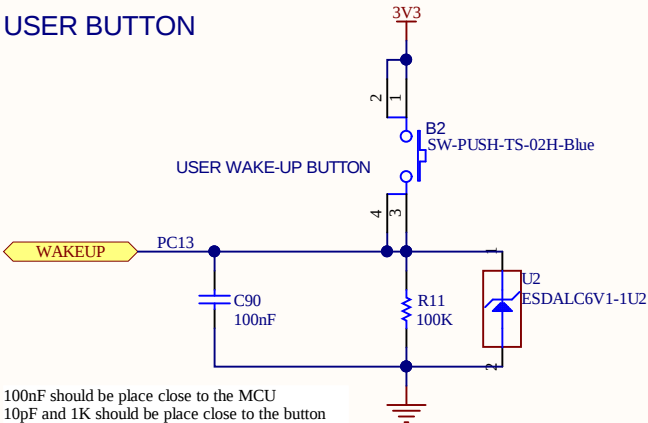
FDCAN_RX : PMOD1-NSS
FDCAN_TX : PMOD4-SCK
FDCAN_STBY : PMOD12-RST



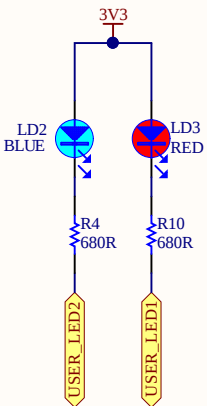
LIMITATION :
ARDUINO signals are multiplexed with STMOD+ signals
In case ARDUINO SHIELD is plugged, STMOD+ and Camera must be disconnected.



USER BUTTON

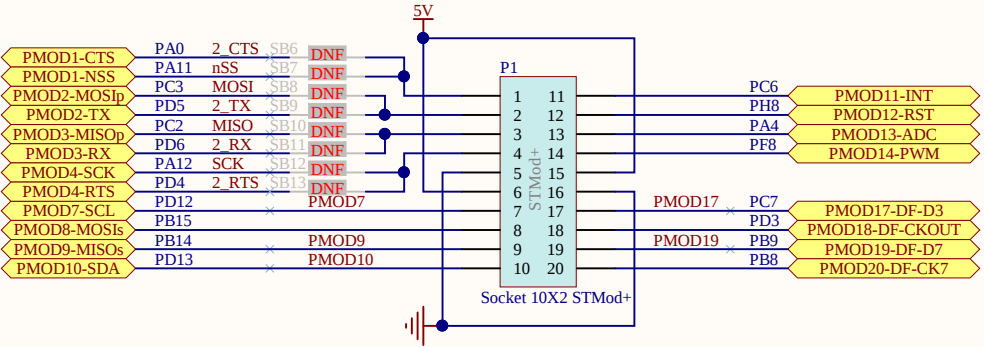


USER LED



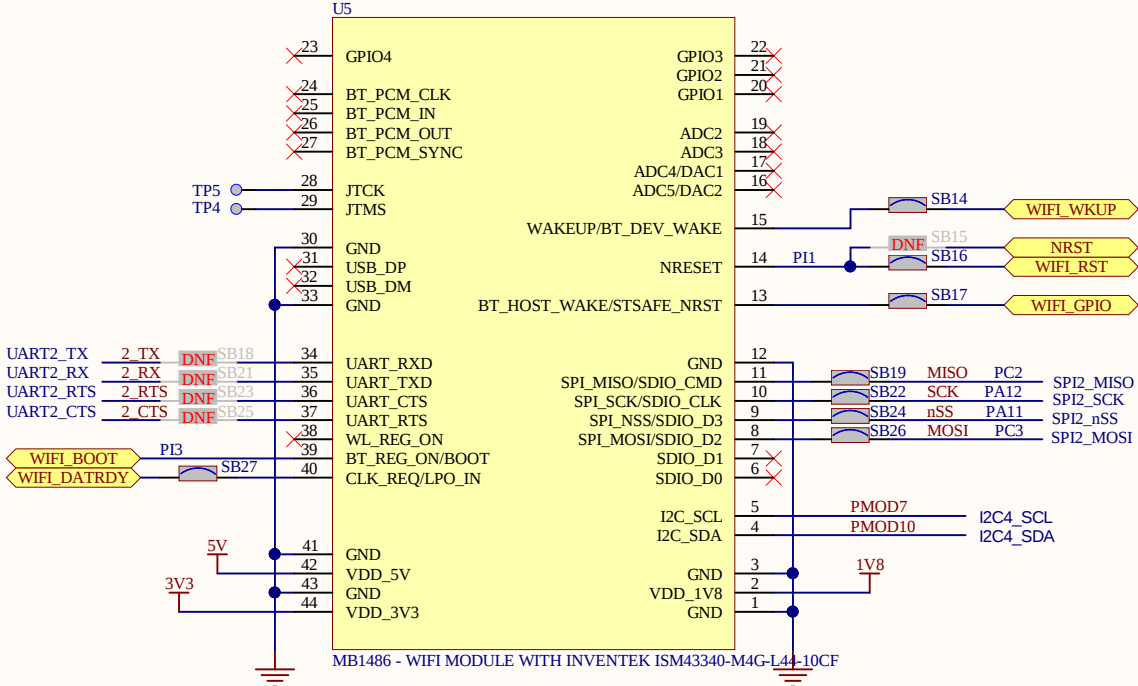
STMOD+

LIMITATION :
STMOD+ signals are multiplexed with AUDIO, CAMERA and Arduino signals
In case STMOD+ is used, Digital Microphones, Camera and Arduino must be disconnected.



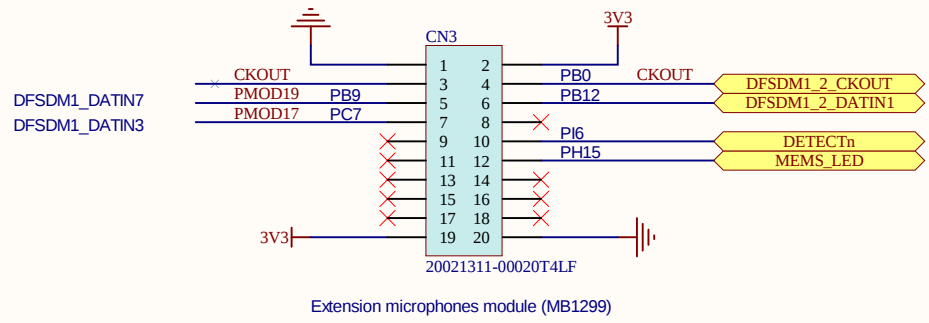
WIFI MODULE (ISM43340-M4G-L44-10CF)

LIMITATION :
WiFi signals are multiplexed with STMOD+
In case WiFi-BT is activated, STMOD+ must be disconnected.

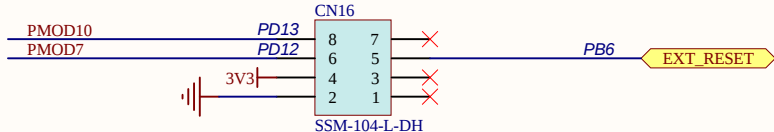


AUDIO DFSDM

LIMITATION :
DFSDM signals are multiplexed with STMOD+ signals
In case microphones are activated, noting must be connected on STMOD+.



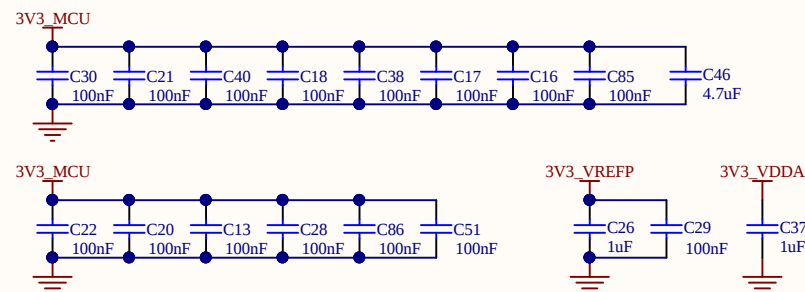
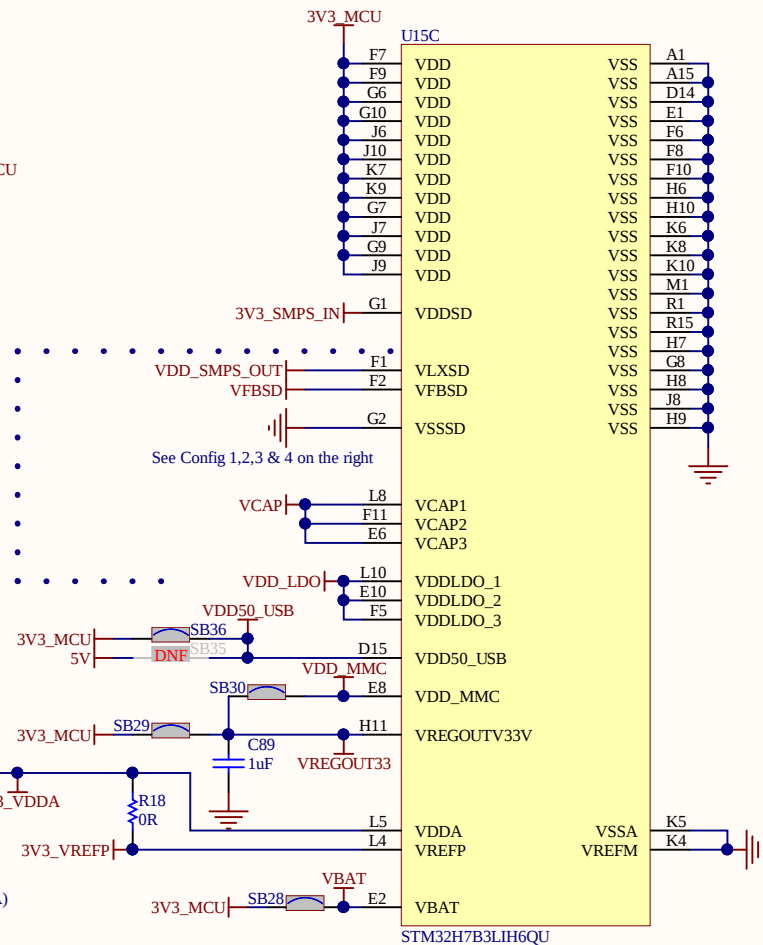
I2C Connector



MCU power



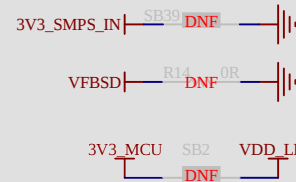
HW3
SNT-100-BK-G



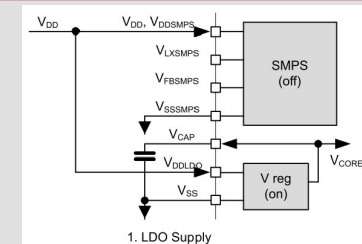
Internal SMPS Supply Config

For further details, please see [TINY_SHARK_PWR.pdf](#)

Supply Config 1 : LDO only (SMPS OFF, LDO ON)

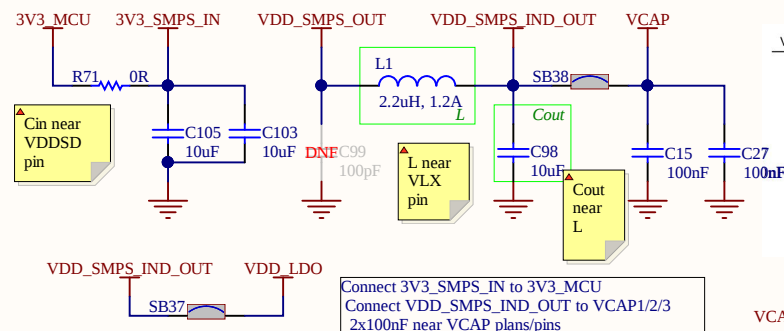


- Disconnect 3V3_SMPS_IN from 3V3_MCU
- Connect 3V3_SMPS_IN to GND
- Connect VDD_SMPS_IND_OUT to GND
- Connect VDD_LDO to 3V3_MCU
- 2 x 2.2uF near VCAP pins/pins

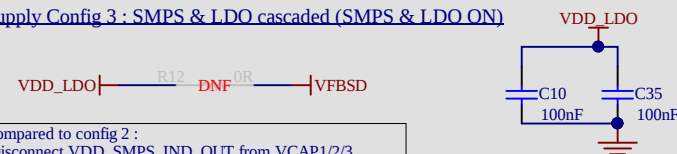


Supply Config 2 : SMPS only (SMPS ON, LDO OFF)

Default config

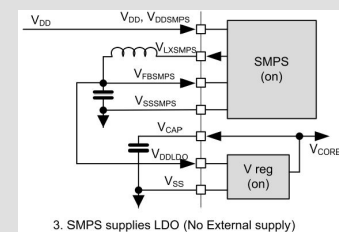
[illegible]

Supply Config 3 : SMPS & LDO cascaded (SMPS & LDO ON)

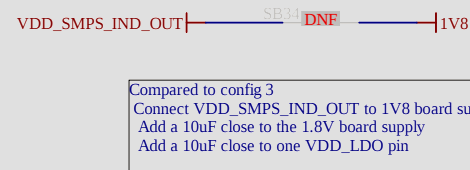


Compared to config 2 :
Disconnect VDD_SMPS_IND_OUT from VCAP1/2/3
Connect VDD_SMPS_IND_OUT to VDD_LDO
Add 2x100nF near VDDLDO pins/plans
Add 2x2.2uF near VCAP pins/plans (see config 1)

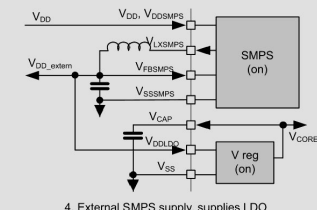
2x100nF near
VDDLDO pins / plan



Supply Config 4 : same as config 3, but SMPS supplies also 1V8 to board



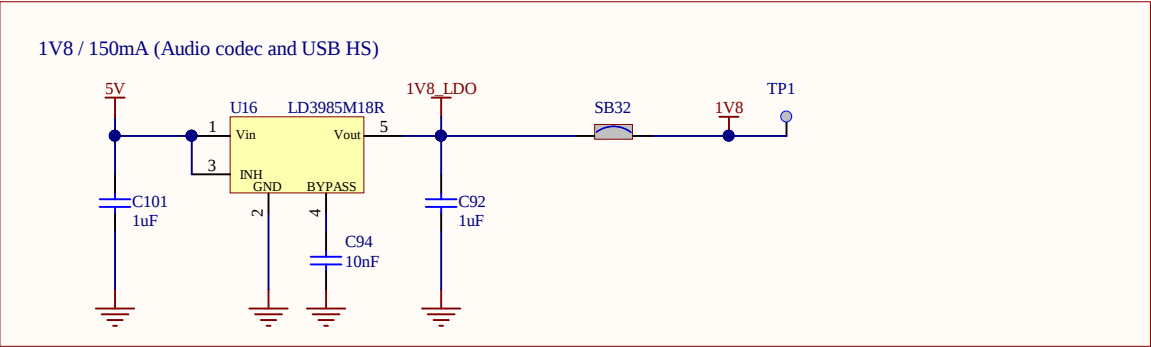
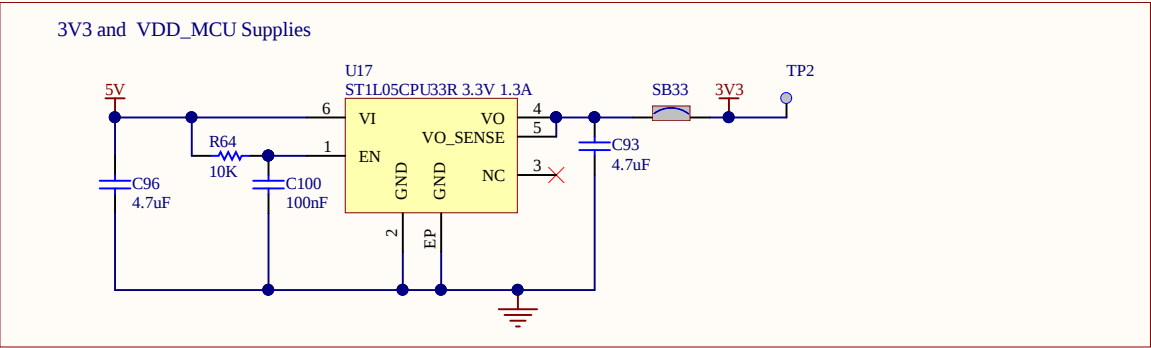
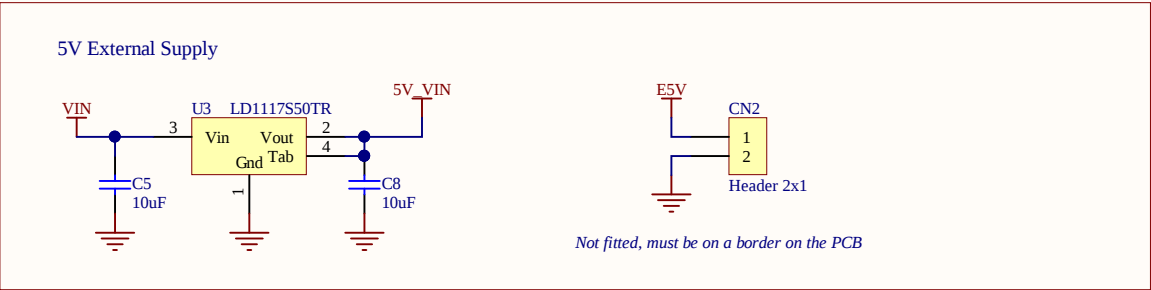
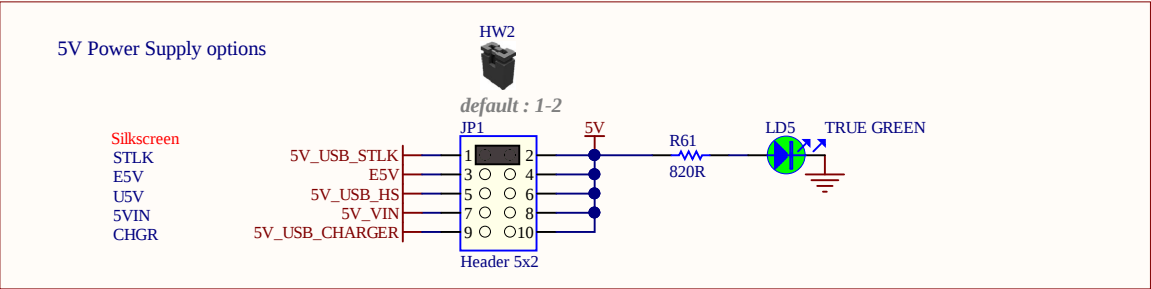
Compared to config 3
Connect VDD_SMPS_IND_OUT to 1V8 board supply
Add a 10uF close to the 1.8V board supply
Add a 10uF close to one VDD_LDO pin

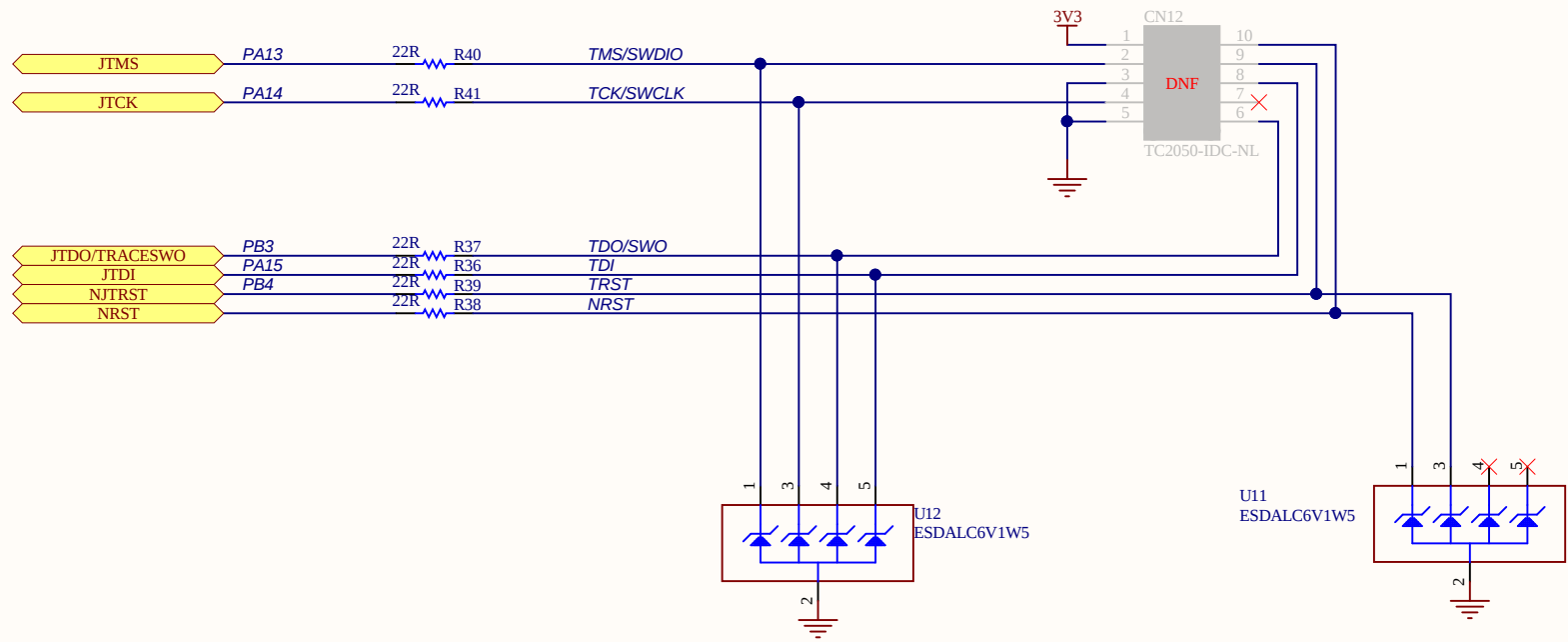


Title: MCU_Power		
Project: Tiny Shark DK		
Variant: H7B3I		
Revision: C-01		Reference: MB1332
Size: A4	Date: 21-FEB-20	Sheet: 14 of 17

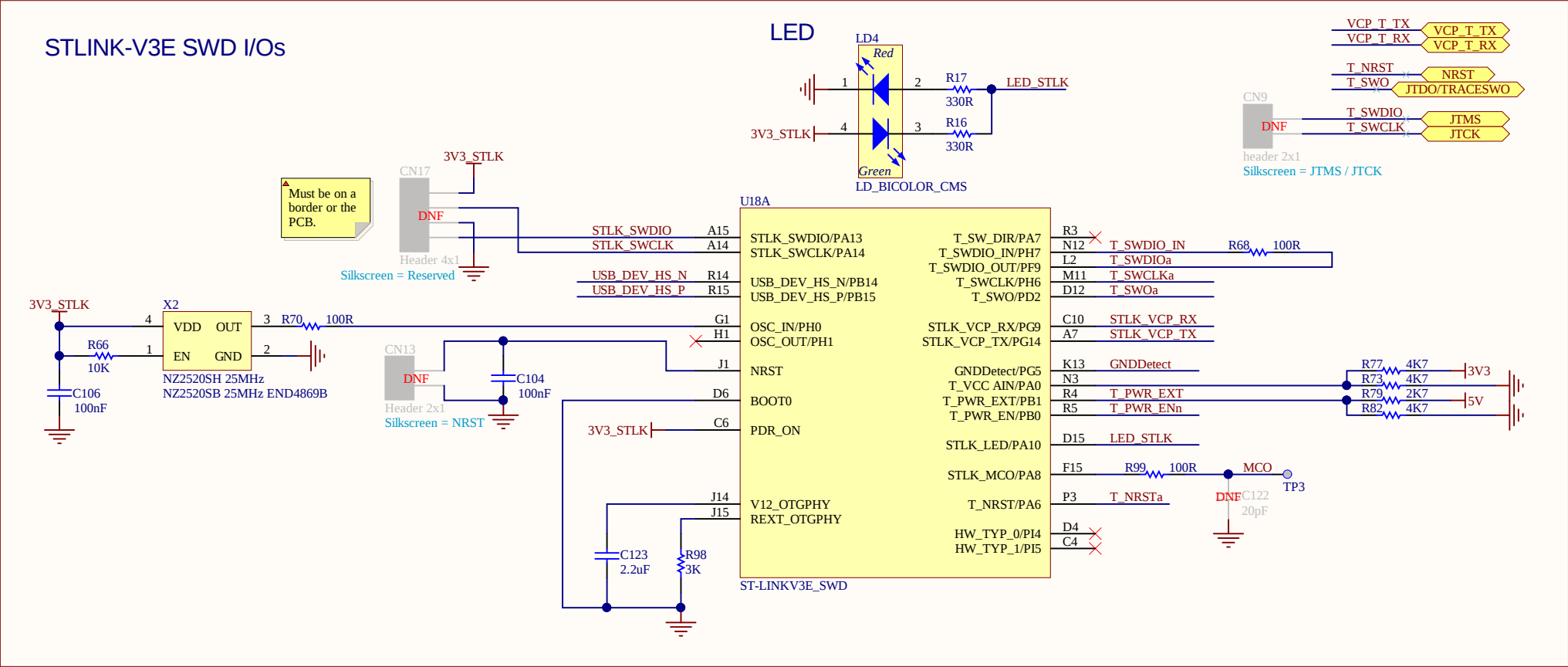


Board power

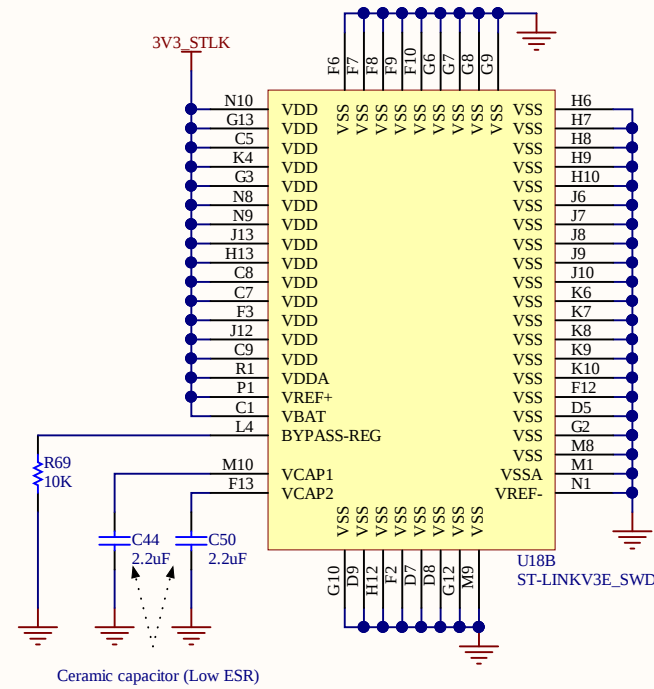




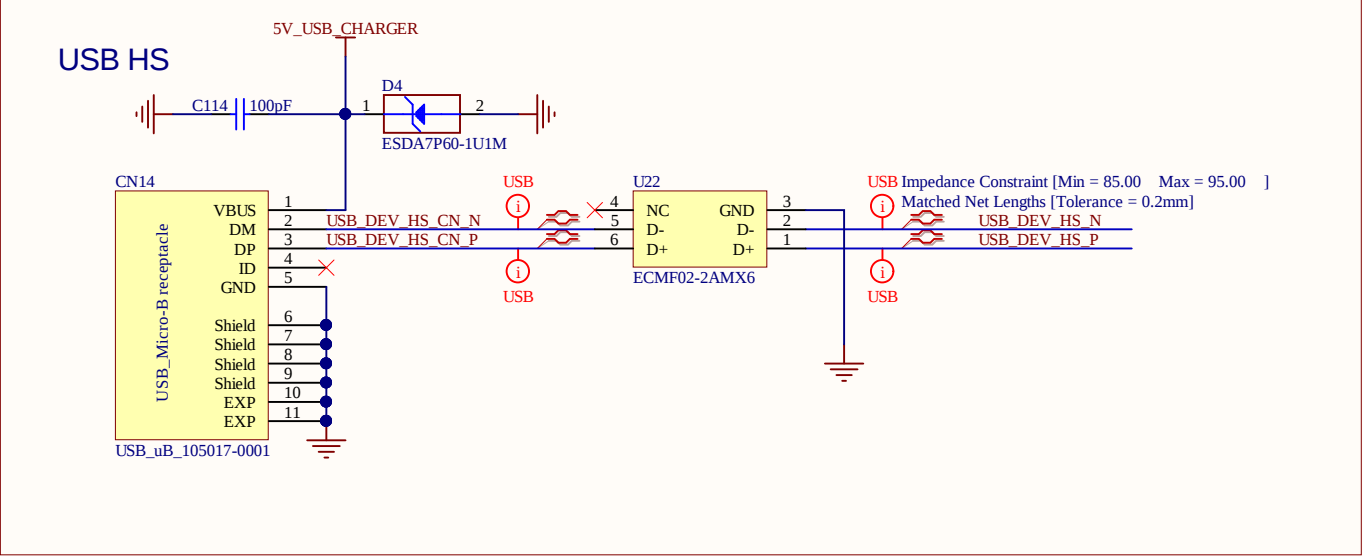
STLINK-V3E SWD I/Os



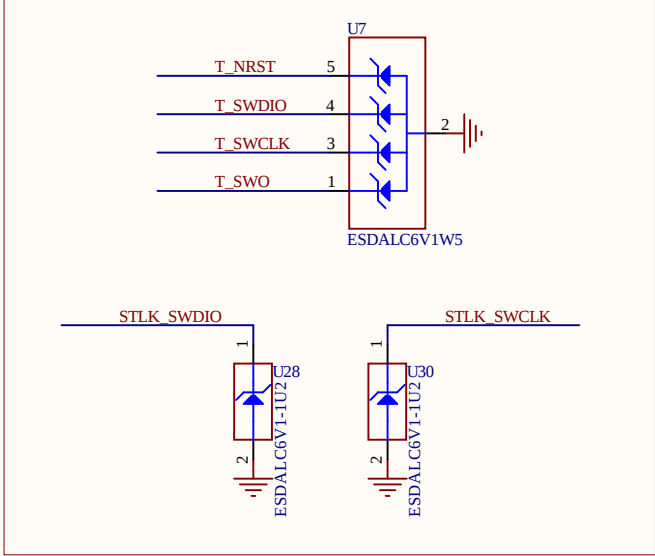
STLINK-V3E SWD POWER



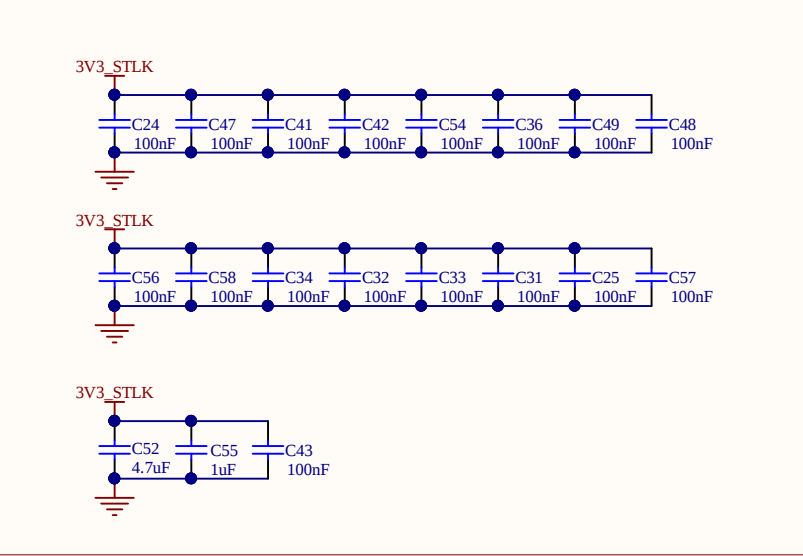
USB HS



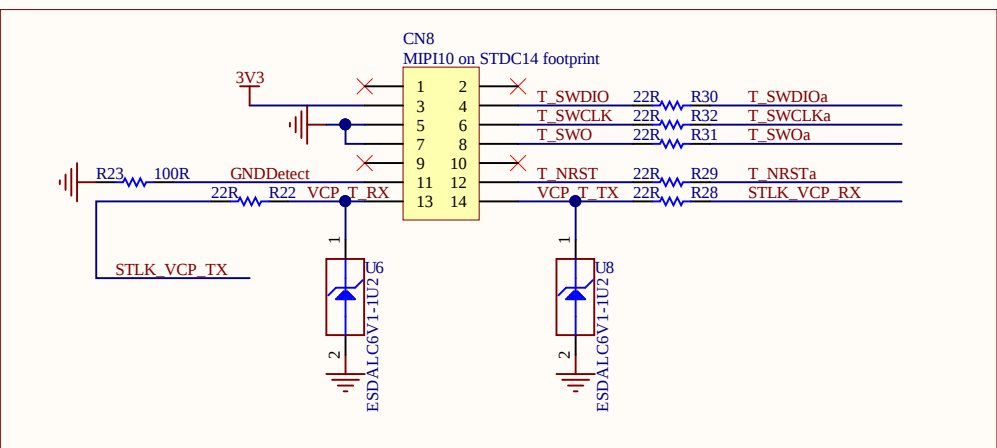
STLINK-V3E SWD POWER



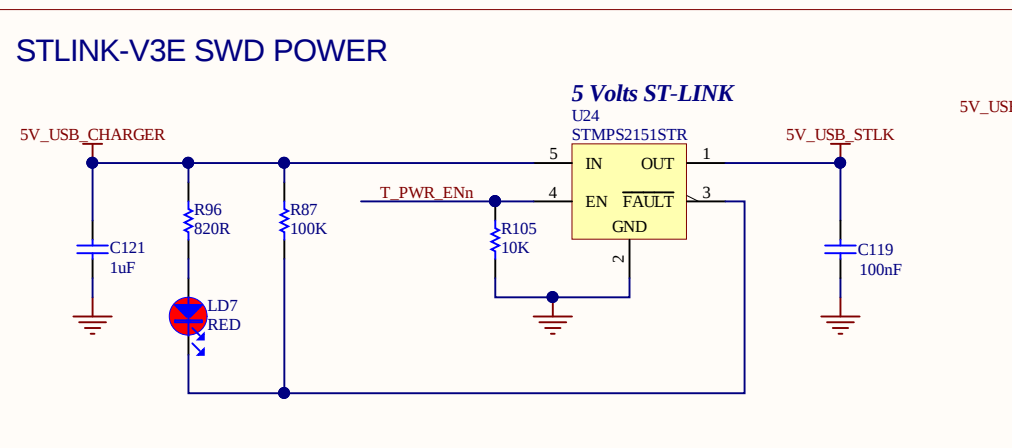
STLINK-V3E SWD POWER



STLINK-V3E SWD POWER



STLINK-V3E SWD POWER



3.3 Volts ST-LINK

