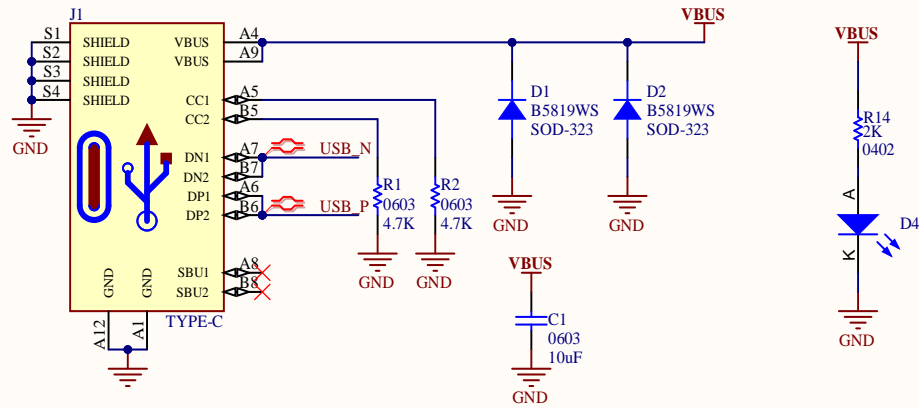
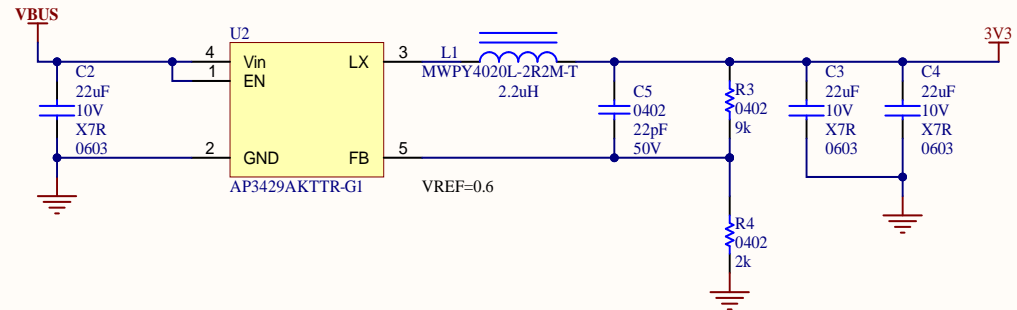


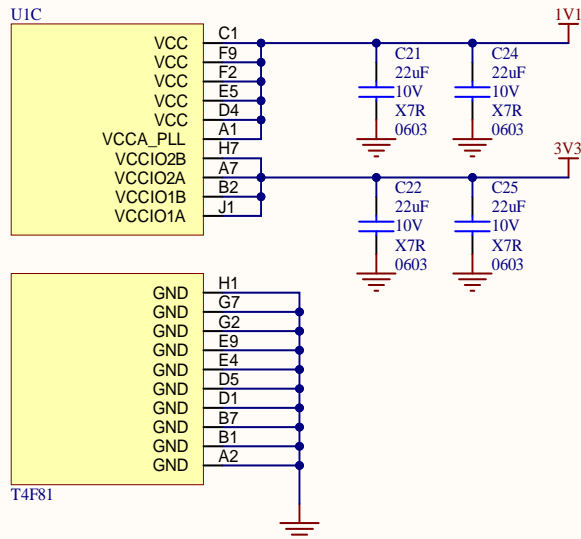
TYPE-C



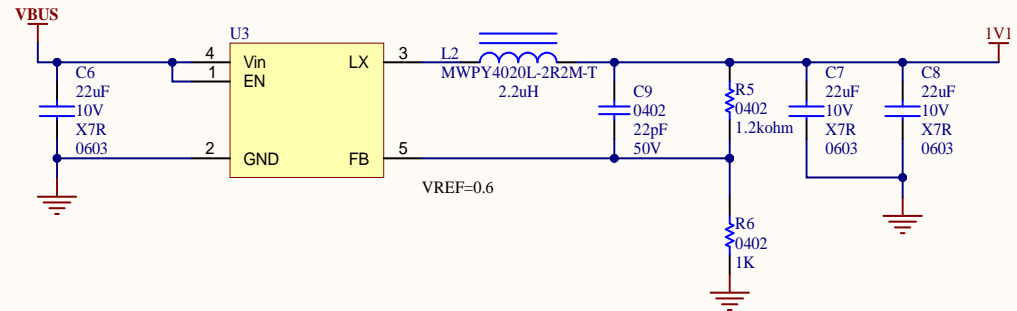
5V to 3.3V



Power



5V to 1.1V



TITLE :- Power.SchDoc

VERSION :-

PROJECT :-

REVISION:-

CONFIDENTIAL

DATE :- 10-04-2025

SHEET :- 2 OF 3

GPIO_L_GROUP

U1A

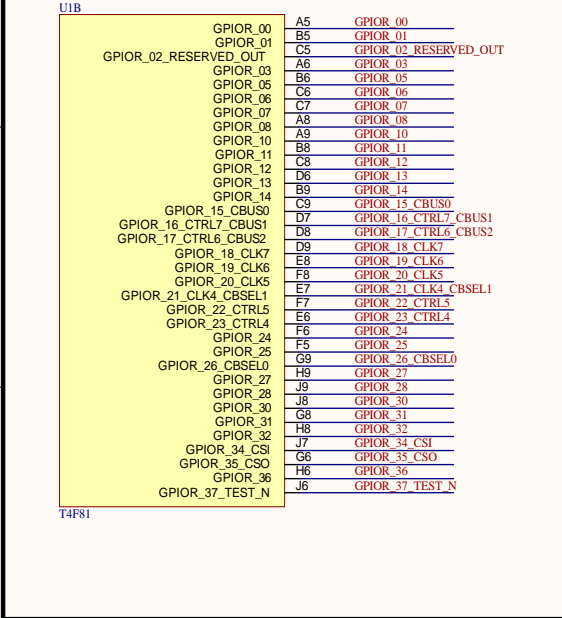
GPIO_L_00
GPIO_L_01_SS_N
GPIO_L_02_CCK
GPIO_L_03_CD4
GPIO_L_04_CD10
GPIO_L_05_CD15
GPIO_L_06_CD11
GPIO_L_07_CD16
GPIO_L_09_CD12
GPIO_L_10_CD17
GPIO_L_11_CD3
GPIO_L_12_CTRL0
GPIO_L_13_CTRL1
GPIO_L_14_CLK0
GPIO_L_15_CLK1
GPIO_L_16_CLK2
GPIO_L_17_CLK3
GPIO_L_18_CTRL2
GPIO_L_19_CTRL3
GPIO_L_20_PLLIN
GPIO_L_21_NSTATUS

CDONE
CRESET_N
TCK
TDI
TDO
TMS

G5 GPIO_L_00
J4 GPIO_L_01_SS_N
H4 GPIO_L_02_CCK
G4 GPIO_L_03_CD4
F4 GPIO_L_04_CD10
J3 GPIO_L_05_CD15
H3 GPIO_L_06_CD11
G3 GPIO_L_07_CD16
J2 GPIO_L_09_CD12
H2 GPIO_L_10_CD17
F3 GPIO_L_11_CD3
G1 GPIO_L_12_CTRL0
F1 GPIO_L_13_CTRL1
E2 GPIO_L_14_CLK0
E1 GPIO_L_15_CLK1
C2 GPIO_L_16_CLK2
D2 GPIO_L_17_CLK3
E3 GPIO_L_18_CTRL2
D3 GPIO_L_19_CTRL3
C3 GPIO_L_20_PLLIN
B3 GPIO_L_21_NSTATUS

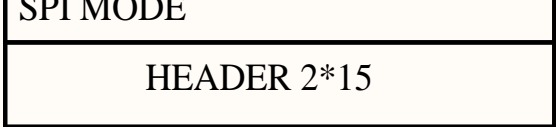
H5 CDONE
J5 CRESET_N
A4 TCK_0
C3 TDI_0
A4 TDO_0
B4 TMS_0

T4F81



Oscillators

The diagram shows a circuit for an oscillator. A yellow block labeled "Tri-state VDD OUT" is the central component. Pin 1 is labeled "X2" and is connected to pin 4. Pin 2 is labeled "GND" and is connected to a ground symbol. Pin 3 is labeled "GPIO_20_PLLIN" and is connected to a 3V3 supply. Pin 4 is connected to a 3V3 supply. A capacitor C23, with value 0402, 15pF, and 50V, is connected between the 3V3 supply and ground. Below the block, the text "Oscillator OT322550MJBA4SL 50MHz" is displayed.

[illegible]

HEADER 2*15

Pinout diagram for the 2*15 header of the ATmega328P microcontroller. The diagram shows 30 pins arranged in two rows of 15. The top row (pins 01-15) is connected to various I/O pins: GPIOR_00 (01), GPIOR_05 (03), GPIOR_06 (04), GPIOR_13 (05), GPIOR_23 CTRL4 (06), GPIOR_21 CLK4 CBSEL1 (07), GPIOR_22 CTRL5 (08), GPIOR_35 CSO (09), GPIOR_12 (10), GPIOL_03 CD14 (11), GPIOR_18 CLK7 (12), GPIOR_20 CLK5 (13), and GPIOR_31 (14). The bottom row (pins 16-30) is connected to: GPIOR_02 RESERVED_OUT (16), GPIOR_08 (17), GPIOR_07 (18), GPIOR_11 (19), GPIOR_10 (20), GPIOR_24 (21), GPIOL_00 (22), GPIOR_19 CLK6 (23), GPIOR_26 CBSEL0 (24), and GPIOR_01 (25). Pins 02, 04, 06, 08, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, and 30 are marked as 3V3. Pins 03, 05, 07, 09, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, and 31 are marked as GND. A central yellow box highlights pins 01 through 30.

FTDI

The schematic diagram illustrates the internal circuitry of the FTDI module, centered around the FT232RL chip (labeled U4). The chip is configured with various pins connected to external components and a microcontroller (U1).

Power and Ground Connections:

- VCCD:** Connected to the VCC pin of the FT232RL chip (pin 40) and the VCC pin of the EEPROM (U5).
- VBUS:** Connected to the VBUS pin of the FT232RL chip (pin 39) and the VBUS pin of the EEPROM (U5).
- GND:** Multiple ground connections are shown, including GND pins on the FT232RL chip (pins 4, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48) and GND pins on the EEPROM (U5).

Signal Connections:

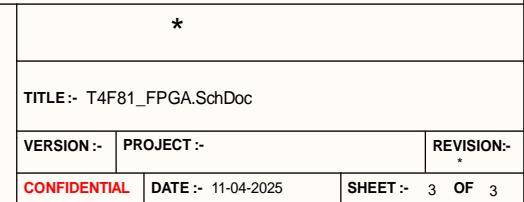
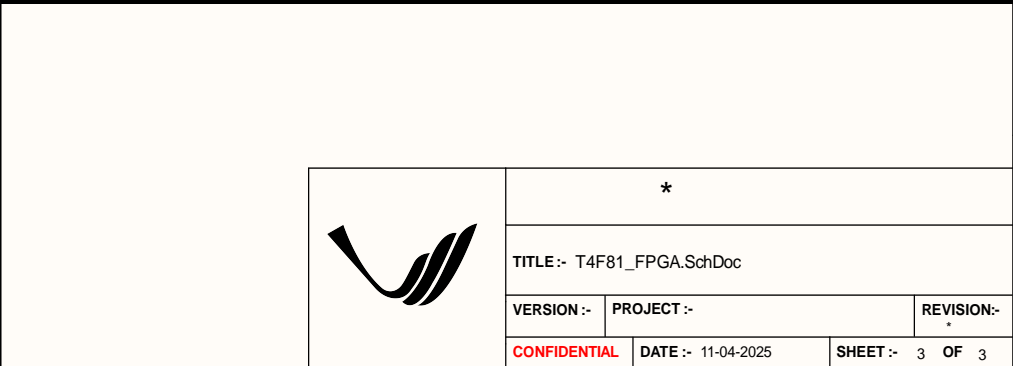
- VPHY:** Connected to the VPHY pin of the FT232RL chip (pin 3).
- VPLL:** Connected to the VPLL pin of the FT232RL chip (pin 8).
- VCCIO:** Connected to the VCCIO pins of the FT232RL chip (pins 12, 24, 46).
- VBUSDTCT:** Connected to the VBUSDTCT pin of the FT232RL chip (pin 31) and the VBUS pin of the EEPROM (U5).
- RESET:** Connected to the RESET pin of the FT232RL chip (pin 34) and the RESET pin of the EEPROM (U5).
- DM:** Connected to the DM pin of the FT232RL chip (pin 6).
- DP:** Connected to the DP pin of the FT232RL chip (pin 7).
- REF:** Connected to the REF pin of the FT232RL chip (pin 5).
- EECS:** Connected to the EECS pin of the FT232RL chip (pin 45) and the CS pin of the EEPROM (U5).
- ECLK:** Connected to the ECLK pin of the FT232RL chip (pin 44) and the CLK pin of the EEPROM (U5).
- EEDATA:** Connected to the EEDATA pin of the FT232RL chip (pin 43) and the DI pin of the EEPROM (U5).
- XCSI:** Connected to the XCSI pin of the FT232RL chip (pin 1).
- XCSO:** Connected to the XCSO pin of the FT232RL chip (pin 2).
- TEST:** Connected to the TEST pin of the FT232RL chip (pin 42).

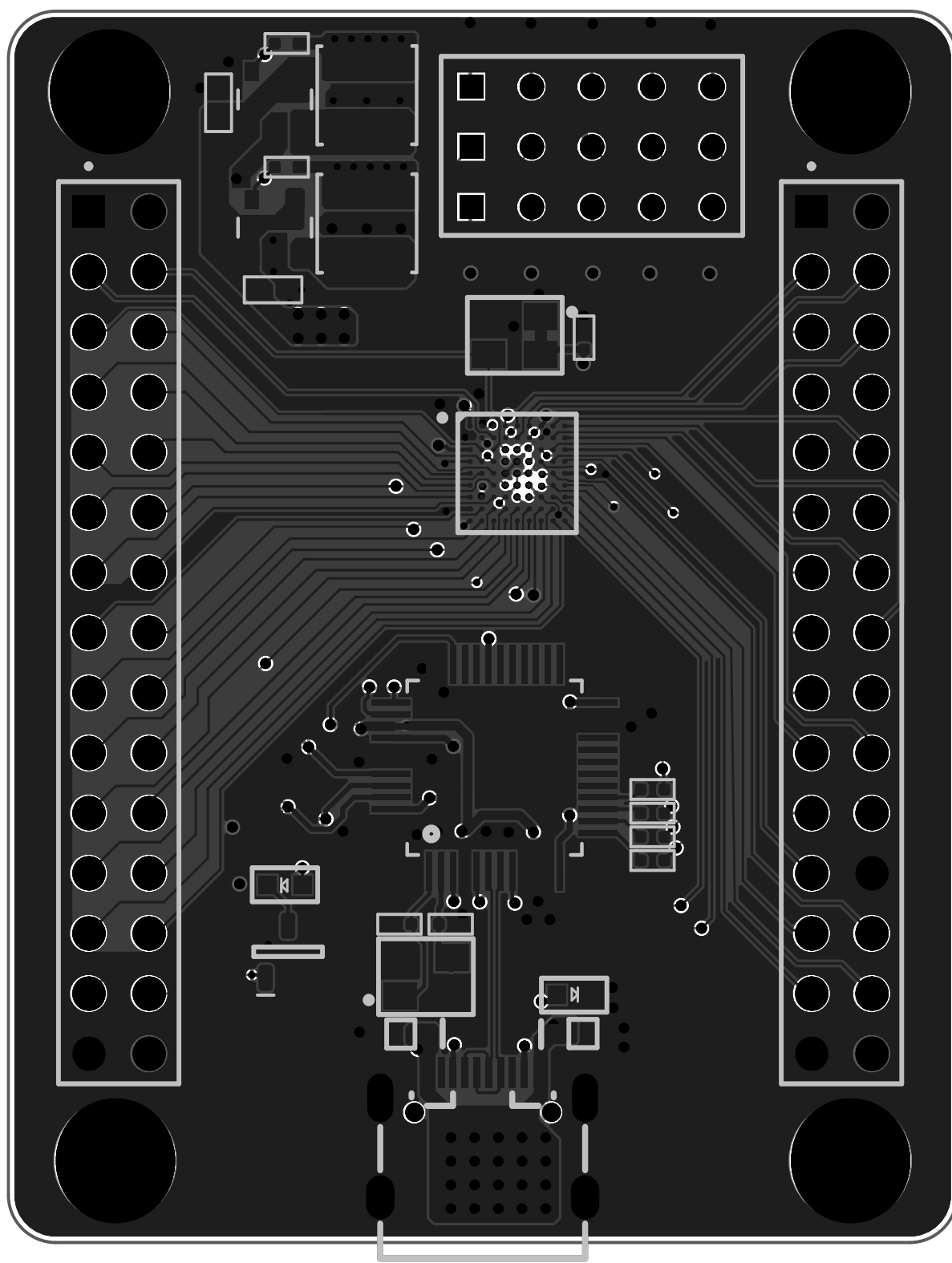
Passive Components:

- Resistors:** R7, R8, R9, R10, R11, R12, R13, R17, R18, R19, R20.
- Capacitors:** C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20.

Other Components:

- U4:** FT232RL chip.
- U5:** EEPROM (93LC56BT-10T).
- X1:** 12MHz crystal.





Comment	Description	Designator	Footprint	LibRef	Quantity
Capacitor	Ceramic Capacitor, 10uF, 0603, 10V	C1	CAPC0603	Capacitor	1
	CAP CER 22uF 10V X7R 0603	C2, C3, C4, C6, C7, C8, C21, C22, C24, C25	CAPC0603	Cap	10
	Ceramic Capacitor, 22pF, 0402, 50V, Ceramic Capacitor, 0.1uF, 0402, 10V, Ceramic Capacitor, 10nF, 0402, 10V, Ceramic Capacitor, 4.7uF, 0402, 10V, Ceramic Capacitor, 15pF, 0402, 50V	C5, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C23	CAPC0402	Capacitor	14
DIODE_B5819WS	Schottky BarrierE-B5819WS SOD-323	D1, D2	SOD-323	DIODE_B5819WS	2
	GREEN LED, 0603, RED LED 0603	D3, D4	led_0603	LED1	2
TYPE-C		J1	TYPE-C	TYPE-C	1
Header 15X2 2.54mm	Connector Header position	J2, J3	Header_15X2_2.54	Header 15X2 2.54mm	2
header 5X3	HEADER 5X3 2.54MM	J4	HEADER_5X3_2.54 - duplicate	header 5X3	1
IND_1	2.2uH, 48mOhm, 4.35A, 6.12A, ±20%, SMD, 4x4x2mm, Power Inductor (MWPY4020L-2R2M- T) (C2934996)	L1, L2	IND_4.0X4.0X2.0	IND_1	2
	N-Channel 20V 3A 1.25W (Ta) Surface Mount SOT-23	Q1	SOT23-3	MOSFET Si2302CDS	1
Resistor	Thick Film Resistor - 4.7Kohm, 1%, 0603	R1, R2	RESC0603	Resistor	2
Res1	Thick Film Resistor - 9Kohm, 1%, 0402, Thick Film Resistor - 2Kohm, 1%, 0402, Thick Film Resistor - 1.2kohm, 1%, 0402, Thick Film Resistor - 1Kohm, 1%, 0402, Thick Film Resistor - 0ohm, 1%, 0402, Thick Film Resistor - 10Kohm, 1%, 0402, Thick Film Resistor - 12Kohm, 1%, 0402	R3, R4, R5, R6, R7, R8, R9, R10, R12, R13, R14, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30	resc0402	Res1	25
Res1	Thick Film Resistor - 39Kohm, 1%, 0402	R11	CAPC0402	Res1	1
	Thick Film Resistor - 240ohm, 1%, 0402, Thick Film Resistor - 1Kohm, 1%, 0402	R15, R16	RESC0402	Res	2
T4F81		U1	T4F81 fpga	T4F81	1
AP3429	Buck Switching Regulator IC Positive Adjustable 0.6V 1 Output 2A SOT-23-5 Thin, TSOT-23-5	U2, U3	SOT23-5	AP3429	2
FTDI	FT232HL, 1.62V-1.98V, 2.97V-3.63V, 24mA, 48Pin, 48-LOFP, USB Bridge, USB to UART, FIFO, Controller	U4	LOFP-48	FT232HL	1
93LC56BT-I/OT	MICROCHIP - 93LC56BT-I/OT, - 2K, 128 X 16, SERIAL EE, IND ROHS COMPLIANT: YES	U5	SOT23-6	93LC56BT-I/OT	1
XC2426TR-ND	CRYSTAL 12.0000MHZ 10PF SMD	X1	Crystal_3225	CRYSTAL_1_1	1
Oscillator OT322550MIBA4SL	1.8V-3.3V - 40°C-+85°C ±10ppm 50MHz SMD3225-4P Oscillators ROHS (OT322550MIBA4SL) (C717684)	X2	Crystal_3225	Oscillator OT322550MIBA4SL	1