C1=15pF, C2=15pF, CL=12uF, Cstray=5,
(C1*C2)/(C1+C2)+Cstray == CL

Y1
ECS-80-12-33-JGN-TR-12MHZ

XIN   IN/OUT   OUT/IN   R1   1K   XOUT
       GND
15pF C1   15pF C2
GND

R1 1K

U1
RP2040

PWR3V3
C3 1uF   C4 100nF   100nF 100nF 100nF 100nF 100nF
GND GND GND GND GND GND GND
PWR1V1
C6   100nF 100nF
GND GND GND
PWR3V3

PWR3V3
C13 100nF   C14 1uF
GND GND

U3
W25Q32JVSS

RP_QSPI_SS   CS   DI(IO0)   RP_QSPI_IO0
RP_QSPI_SCK   CLK   DO(IO1)   RP_QSPI_IO1
                    IO2   RP_QSPI_IO2
                    IO3   RP_QSPI_IO3
GND

ADC_AVDD
DVDD
IOVDD
USB_VDD
VREG_VIN   VREG_VOUT
PWR3V3   RUN
SWCLK   SWD
XIN   XOUT
XOUT

QSPI_SCLK   RP_QSPI_SCK
QSPI_SD0   RP_QSPI_IO0
QSPI_SD1   RP_QSPI_IO1
QSPI_SD2   RP_QSPI_IO2
QSPI_SD3   RP_QSPI_IO3
QSPI_CSN   RP_QSPI_SS

R4 10K   BOOT
1K R5

USB_DM   USB_DN
USB_DP   USB_DP

GPIO0   GPIO15   SPI_CS2
GPIO1   GPIO16   SPI_CS1
GPIO2   GPIO17   SPI_CS0
GPIO3   GPIO18   SPI_SCK   SPI0 SCK
GPIO4   GPIO19   SPI_MOSI   SPI0 TX
GPIO5   GPIO20   SPI_MISO   SPI0 RX
GPIO6   GPIO21
GPIO7   GPIO22
GPIO8   GPIO23   SPI_CS15
GPIO9   GPIO24   SPI_CS14
GPIO10   GPIO25   SPI_CS13
GPIO11   GPIO26/ADC0   SPI_CS12
GPIO12   GPIO27/ADC1   SPI_CS11
GPIO13   GPIO28/ADC2   SPI_CS10
GPIO14   GPIO29/ADC3   SPI_CS9
                       SPI_CS8
LEDR
LEDG
LEDB
SYS_WP
SPI_CS7
SPI_CS6
SPI_CS5
SPI_CS4
SPI_CS3
TESTEN
GND

SW2
SW_SPST
SYS_WP   GND

PWR3V3 PWR3V3 PWR3V3 PWR3V3
C17 22uF   C20 22uF   C19 22uF   C21 22uF
GND GND GND GND

MMOD1
SS   SPI_CS0
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD9
SS   SPI_CS8
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD2
SS   SPI_CS1
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD10
SS   SPI_CS9
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD3
SS   SPI_CS2
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD11
SS   SPI_CS10
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD4
SS   SPI_CS3
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD12
SS   SPI_CS11
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD5
SS   SPI_CS4
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD13
SS   SPI_CS12
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD6
SS   SPI_CS5
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD14
SS   SPI_CS13
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD7
SS   SPI_CS6
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD15
SS   SPI_CS14
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD8
SS   SPI_CS7
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

MMOD16
SS   SPI_CS15
SI   SPI_MOSI
SO   SPI_MISO
SCK   SPI_SCK
GND   GND
VCC   PWR3V3

U4
ESD224DQA
USBC_DP   USBC_DP
USBC_DN   USBC_DN
VBUS   VBUS
VBUS   VBUS
GND

H1 MountingHole_Pad   GND
H2 MountingHole_Pad   GND
H3 MountingHole_Pad   GND
H4 MountingHole_Pad   GND

PWR3V3
D2
LED_RGB_ANODE
R8 536R   R9 536R   R10 536R
LEDR   LEDG   LEDB

SW1
BOOT
BOOT   GND

J5
USB_C_Receptacle_USB2.0_16P
FB1
Ferrite_Bead_Small
VBUS   VBUS   PWR5V0
CC1   USBC_CC1
CC2   USBC_CC2
D-   USBC_DN
D-   USB_DN   USB_DP
D+   USBC_DP
D+   USBC_DP   USB_DN
SBU1
SBU2
SHIELD
GND   GND

R2 27R
R3 27R
USBC_DP   USB_DP
USBC_DN   USB_DN
USBC_CC1
USBC_CC2
5K1 R6   5K1 R7
GND GND

U2
ME6211C33
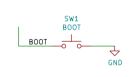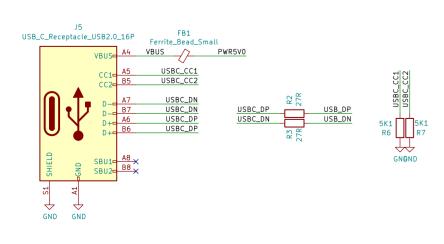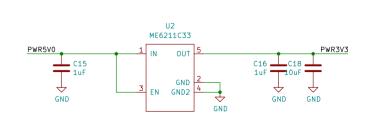PWR5V0   IN   OUT   PWR3V3
C15 1uF   GND   GND   C16 1uF   10uF
          EN   GND
GND   GND GND GND

EBENSTAHL

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Sheet: /
File: ssz.kicad_sch
Title: Ebenstahl Storage Controller
Size: A2   Date: 2025-01-09   Rev: V0
KiCad E.D.A. 8.0.8   Id: 1/1