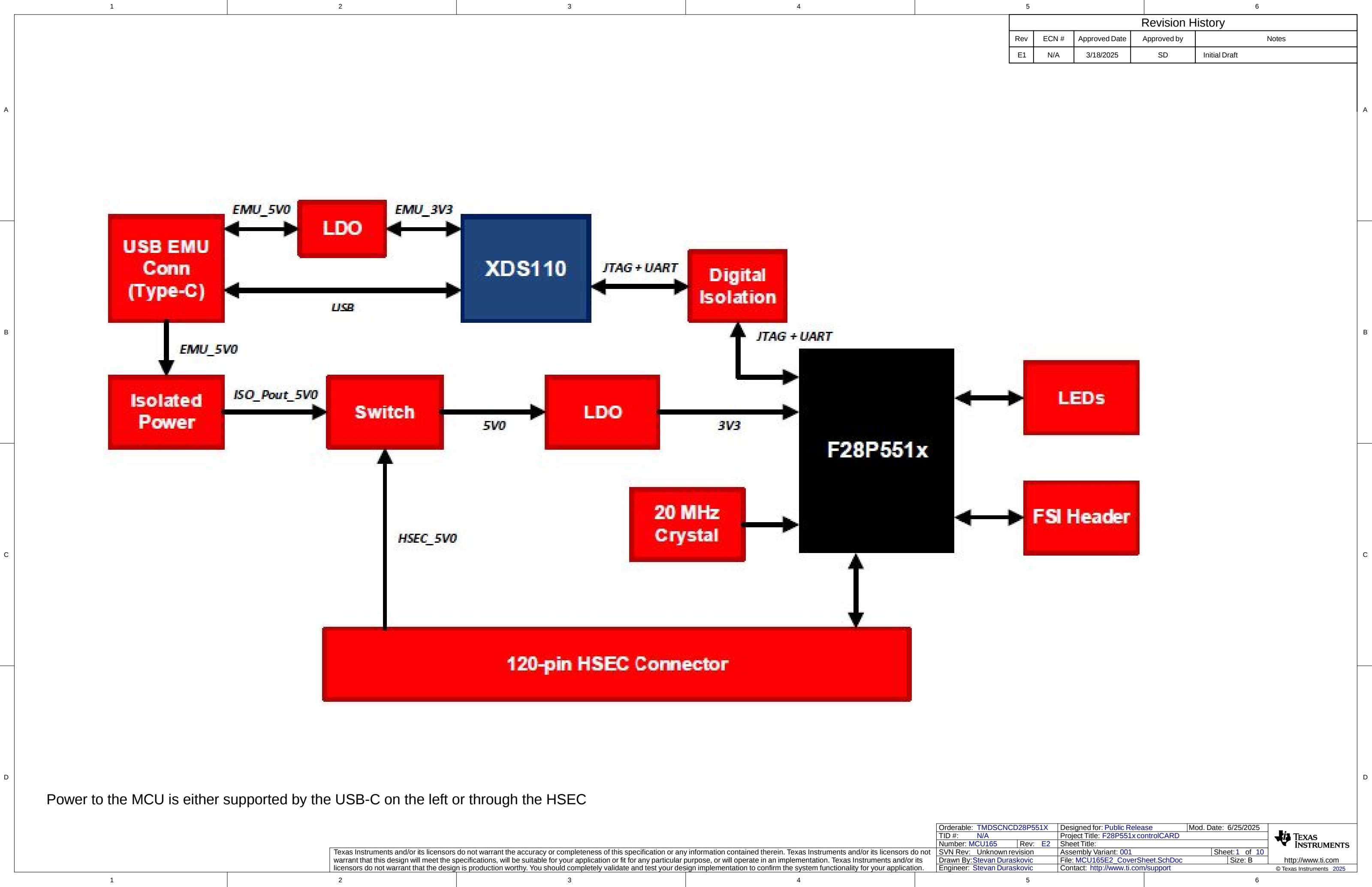
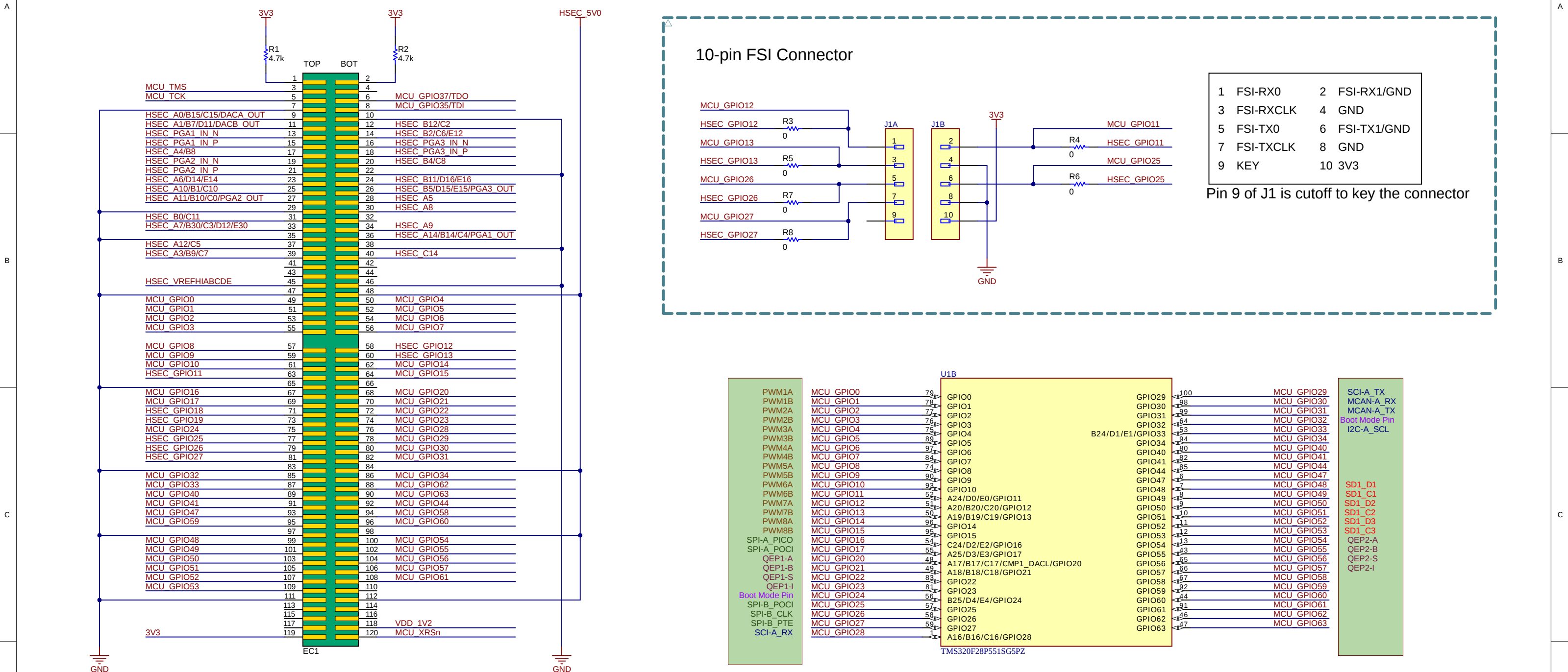




J1 has been updated over previous designs. Pins 9 and 10 were added enabling power to the connector. Additionally Pins 2 and 6, previously GND, have been repurposed to enable the full 3 pin FSI communication. The user can shunt HSEC GPIO11 and HSEC GPIO25 to ground if backwards compatibility is required.

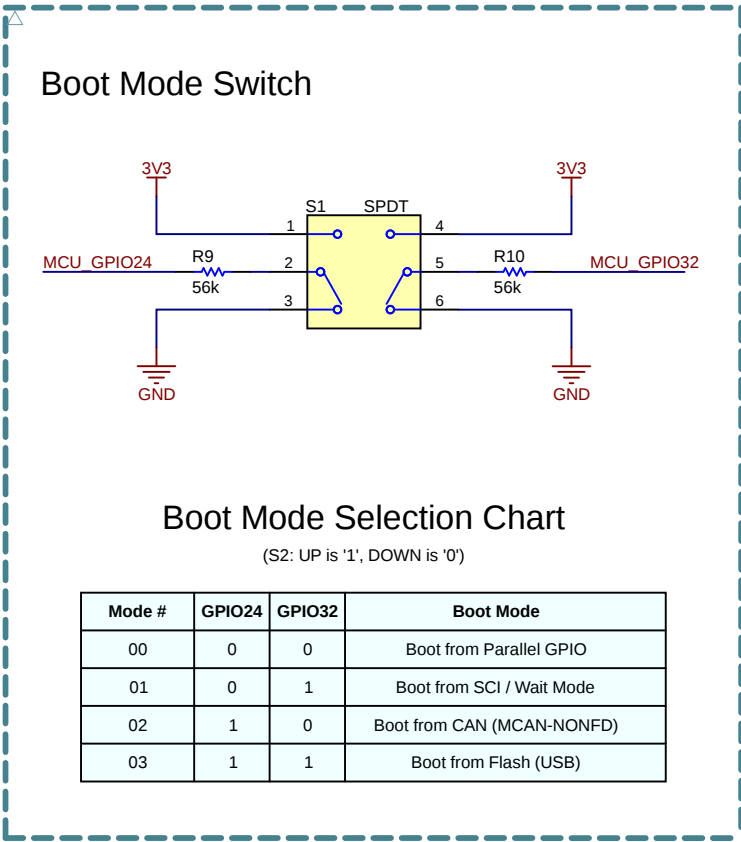
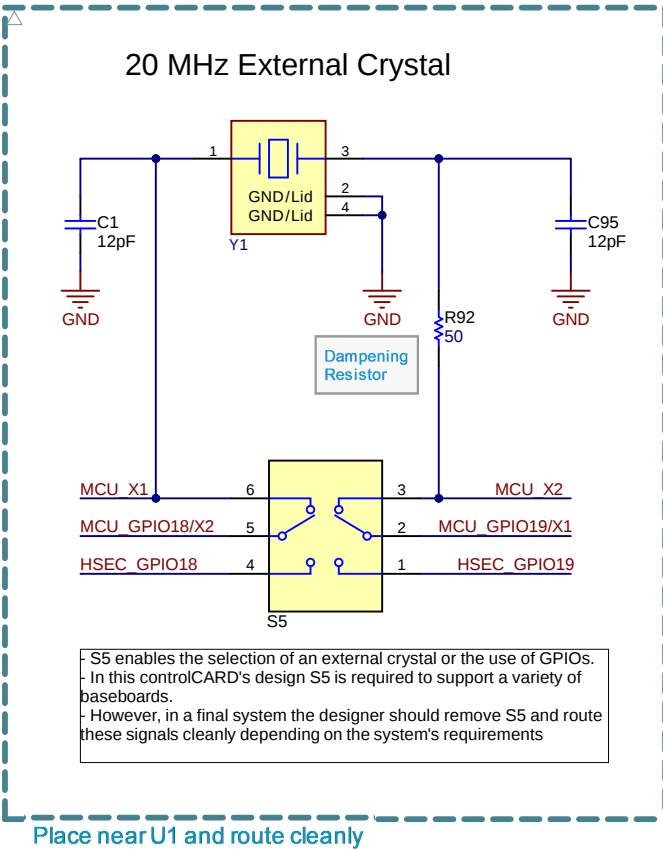
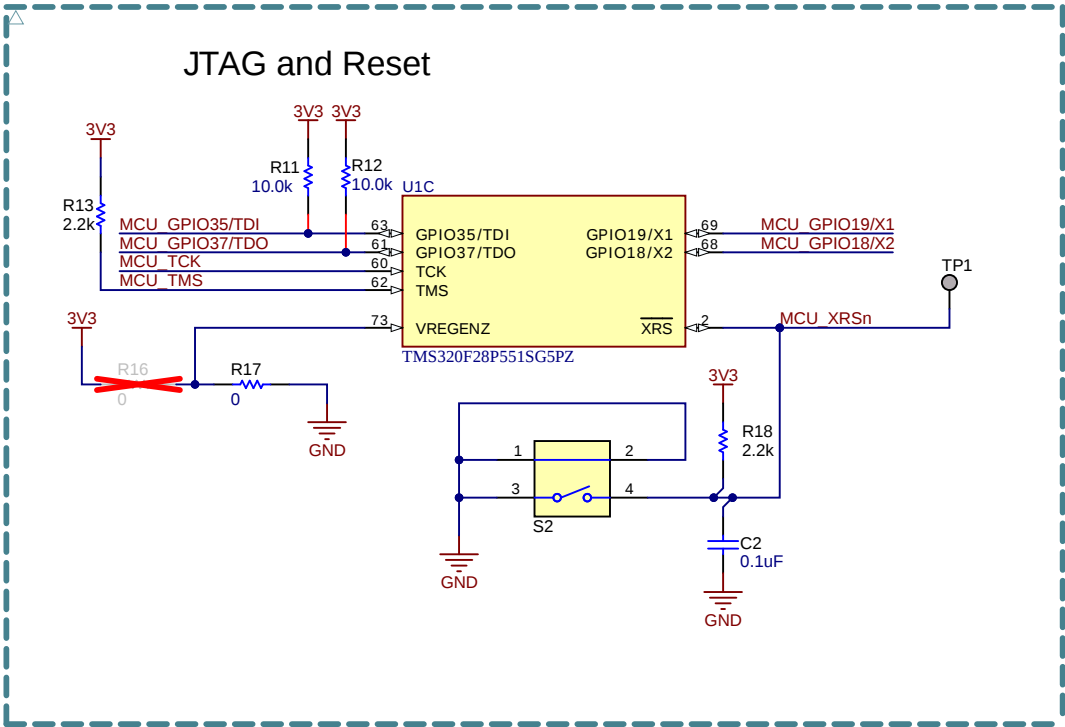


A

B

A

B

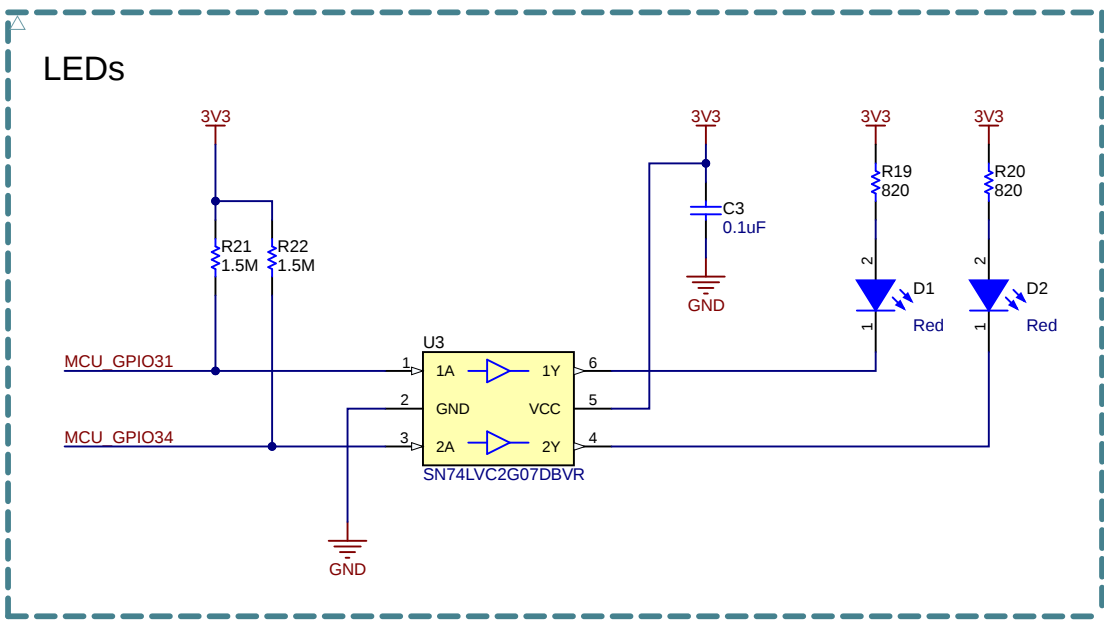
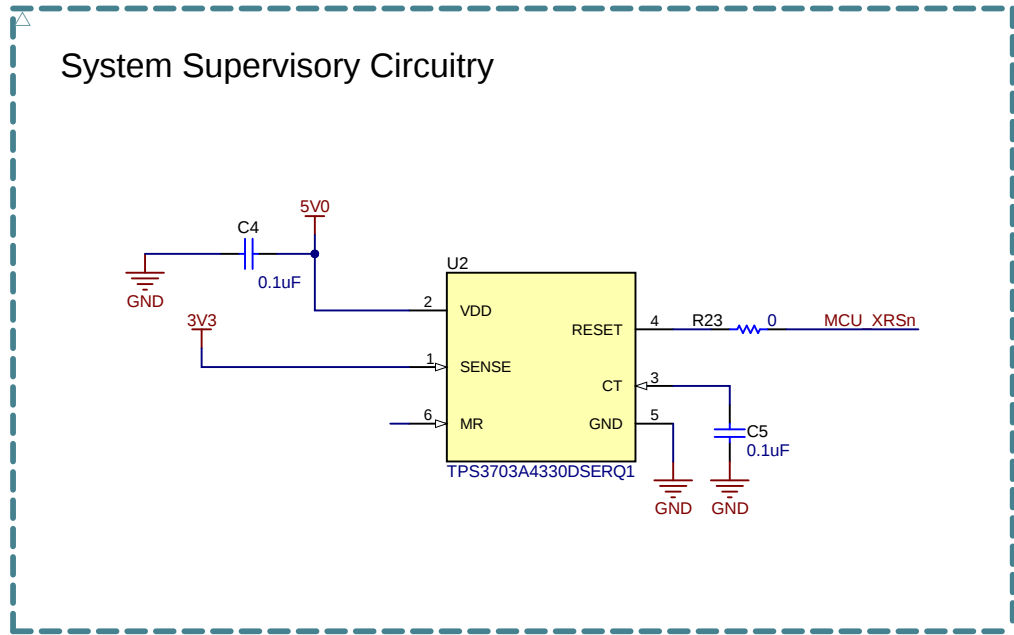


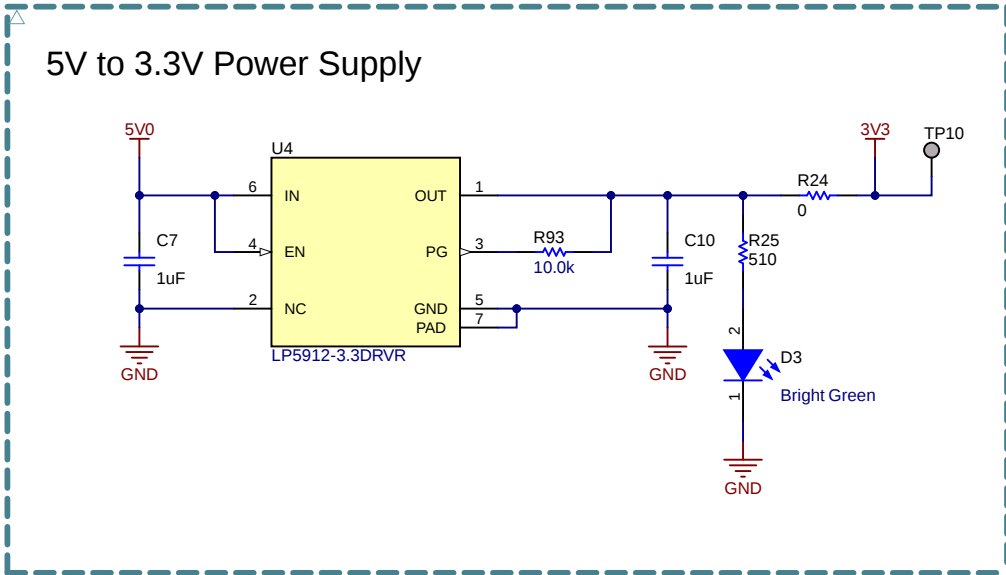
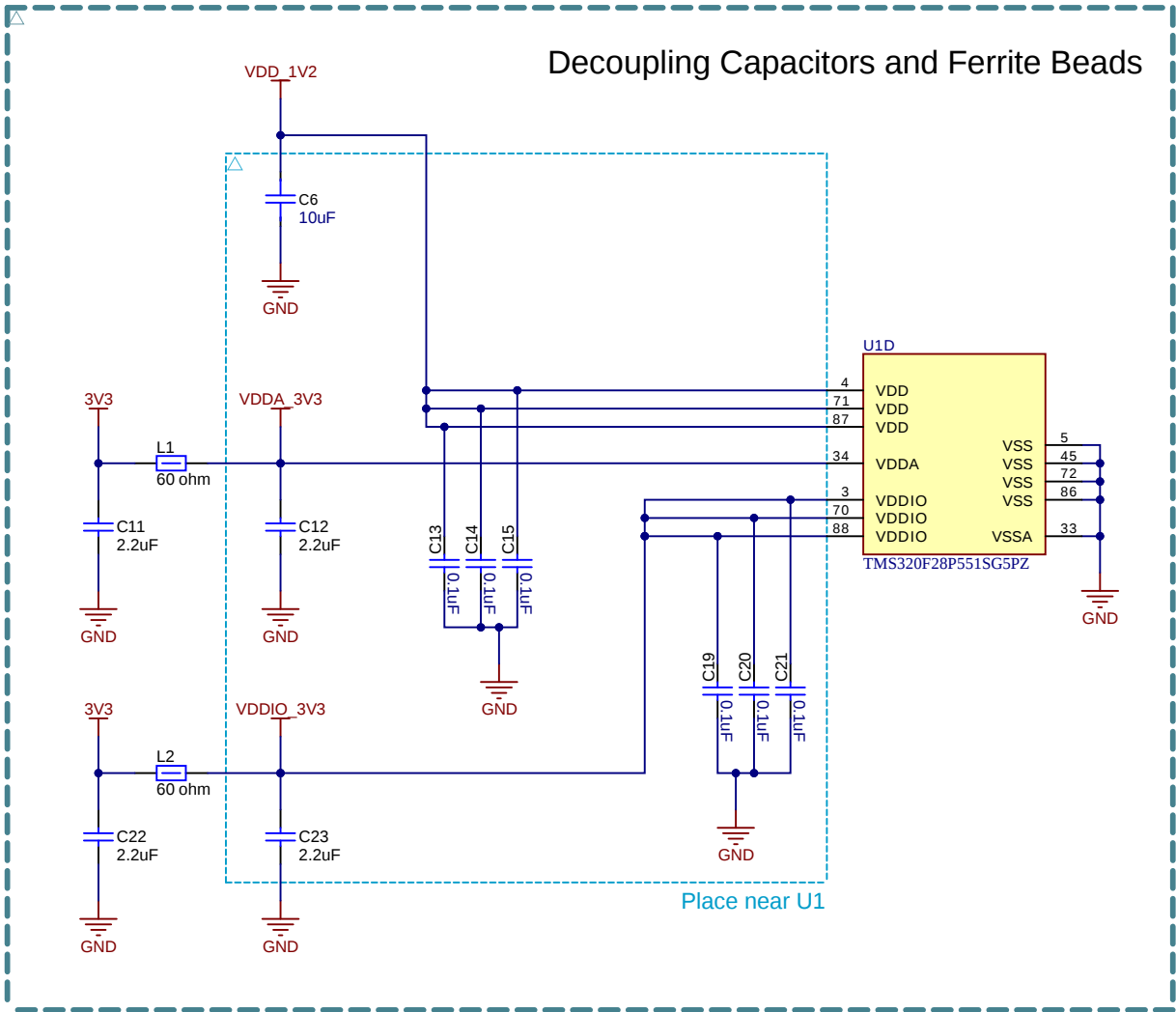
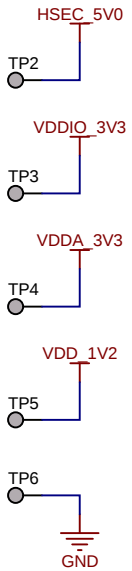
C

C

D

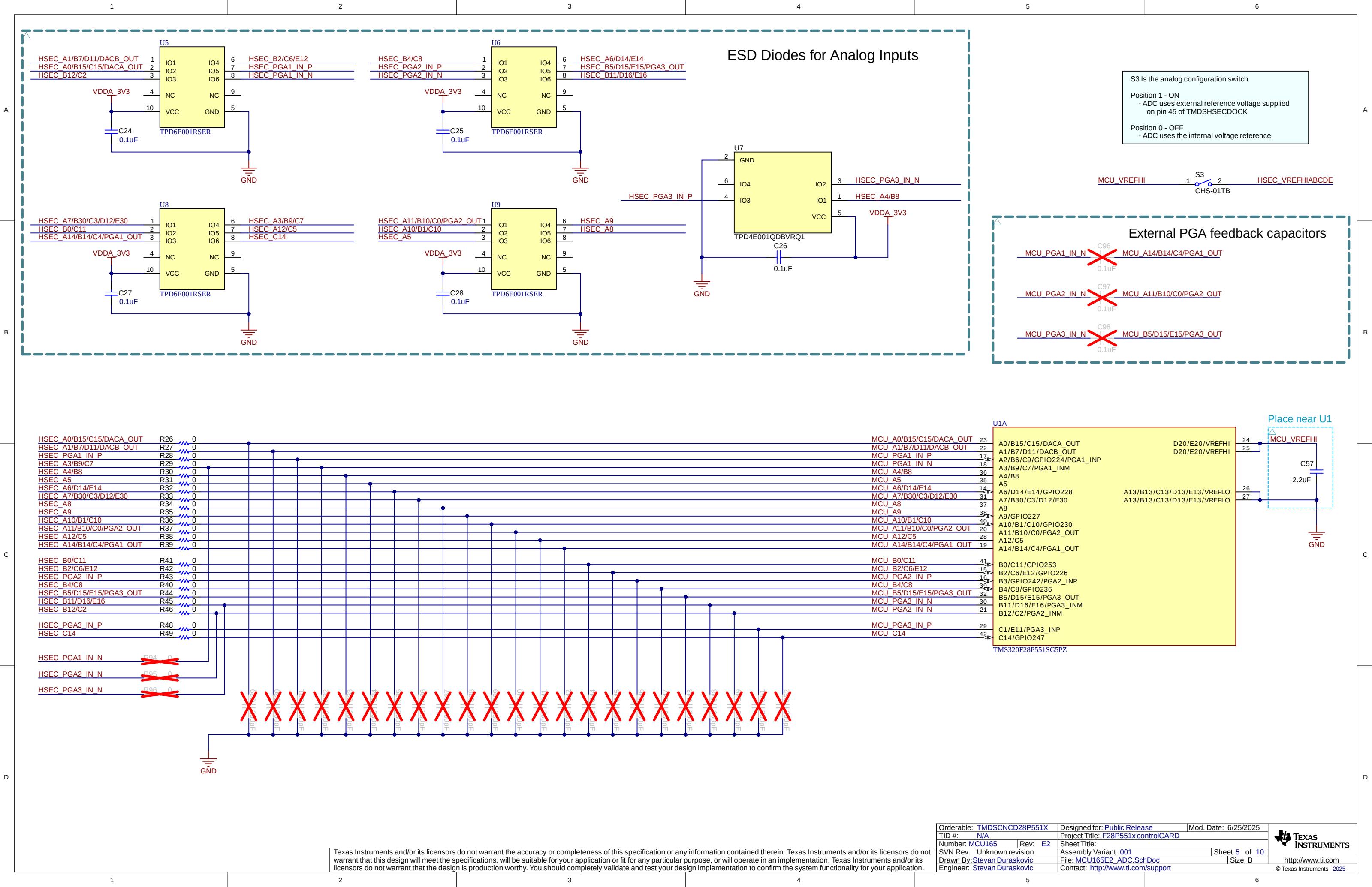
D





The F28P551x controlCARD uses the internal VREG to generate the 1.25V voltage rail for VDD.

For custom boards using external VREG mode, recommend to use LDO (e.g., TPS745-Q1) to generate both 3.3V and 1.25V supplies.



ESD Diodes for Analog Inputs

S3 is the analog configuration switch

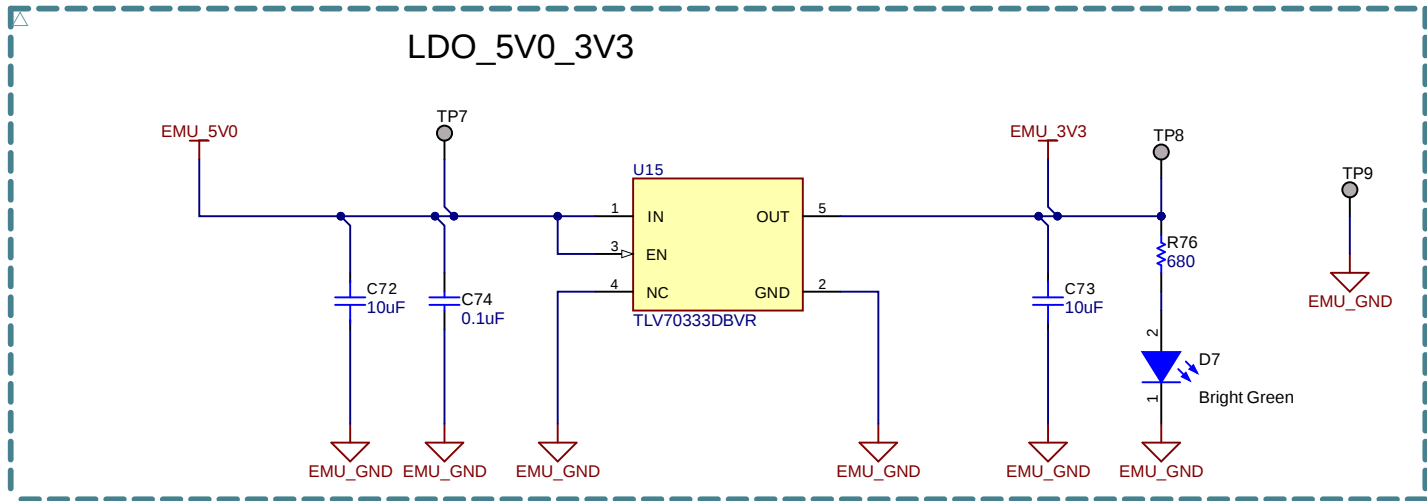
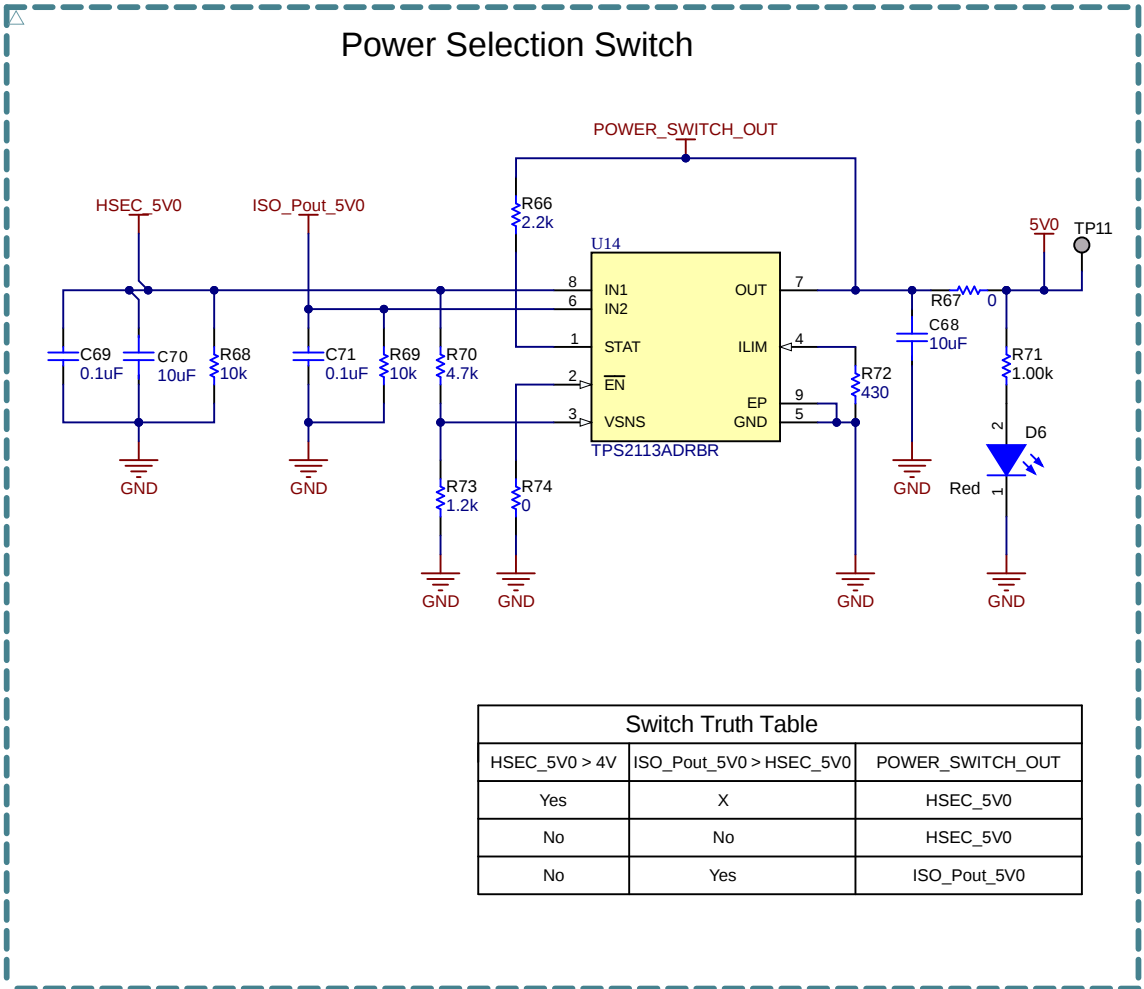
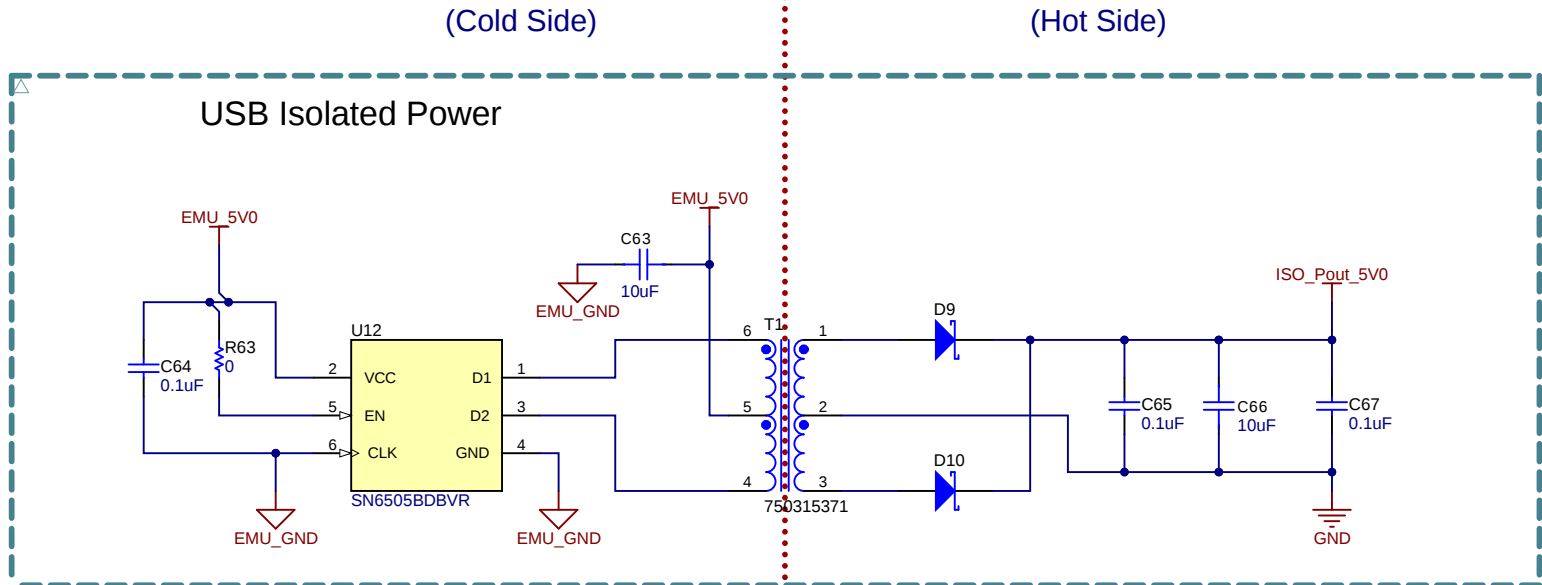
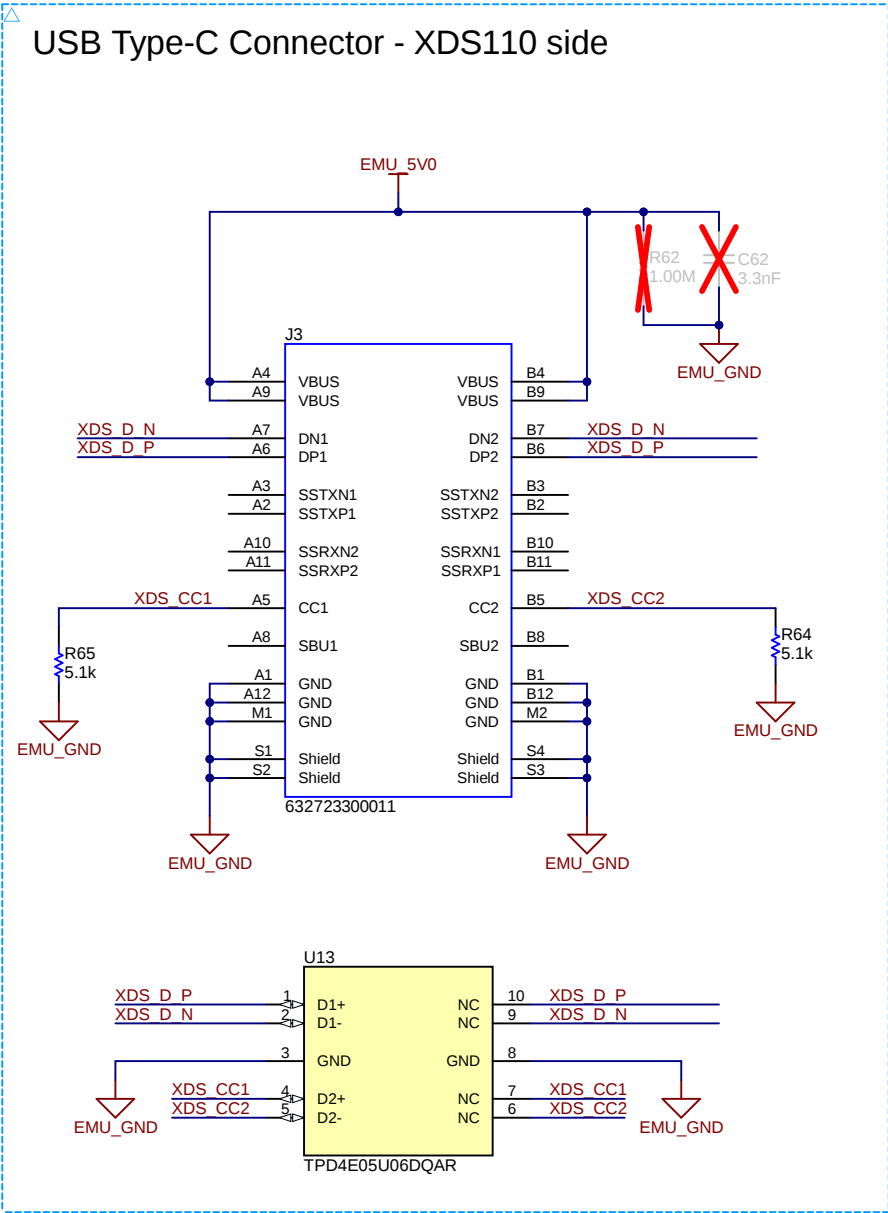
Position 1 - ON
- ADC uses external reference voltage supplied on pin 45 of TMDSHSECDCK

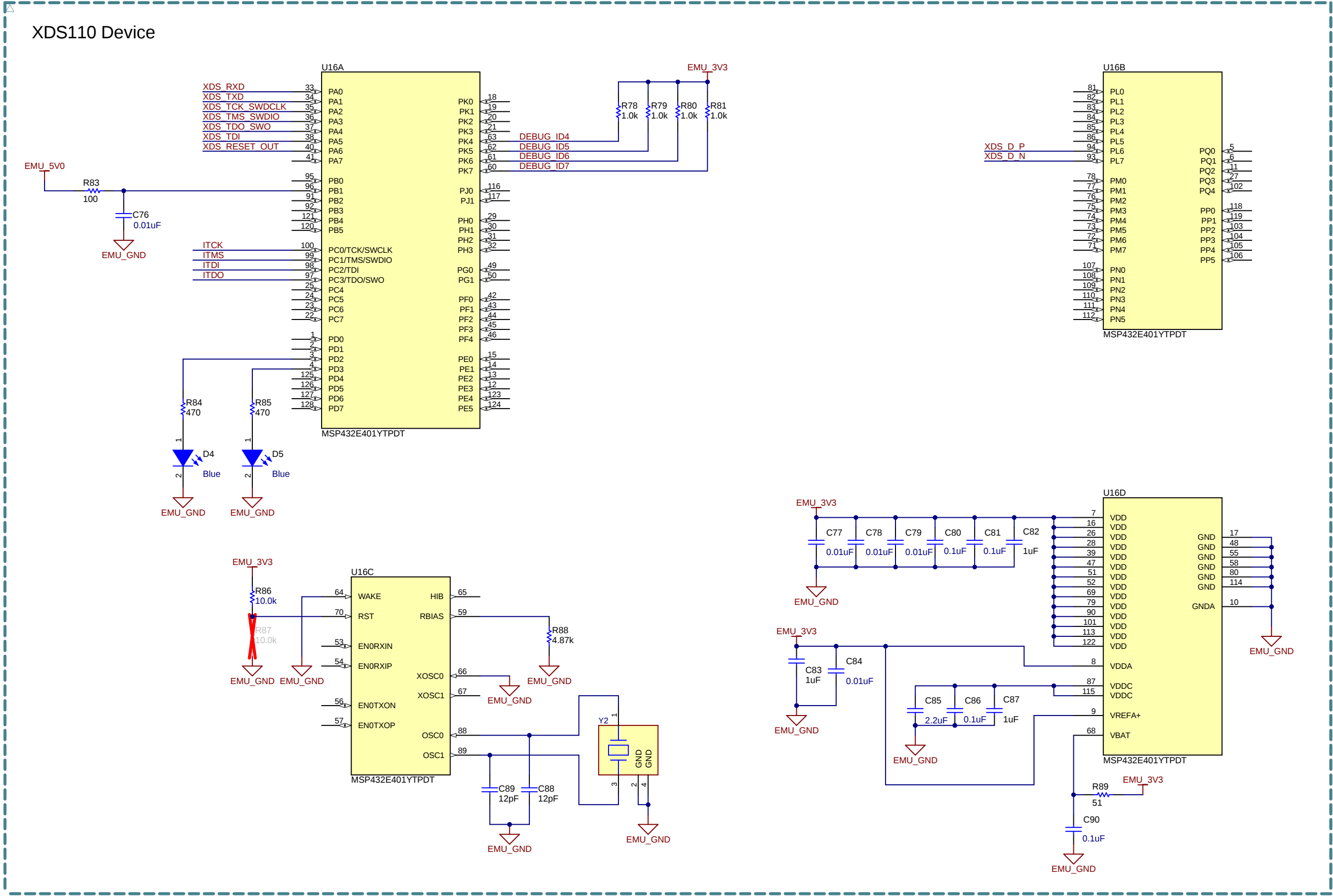
Position 0 - OFF
- ADC uses the internal voltage reference

External PGA feedback capacitors

Place near U1

Orderable: TMDSCNCD28P551X	Designed for: Public Release	Mod. Date: 6/25/2025
TID #: N/A	Project Title: F28P551x controlCARD	
Number: MCU165	Rev: E2	Sheet Title:
SVN Rev: Unknown revision	Assembly Variant: 001	Sheet: 5 of 10
Drawn By: Stevan Duraskovic	File: MCU165E2_ADC.SchDoc	Size: B
Engineer: Stevan Duraskovic	Contact: http://www.ti.com/support	





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Orderable: TMDSCNCD28P551X	Designed for: Public Release	Mod. Date: 6/25/2025
TID #: N/A	Project Title: F28P551x controlCARD	
Number: MCU165	Rev: E2	Sheet Title:
SVN Rev: Unknown revision	Assembly Variant: 001	Sheet: 8 of 10
Drawn By: Stevan Duraskovic	File: MCU165E2_XDS110_MCU.SchDoc	Size: B
Engineer: Stevan Duraskovic	Contact: http://www.ti.com/support	

A

B

C

D

A

B

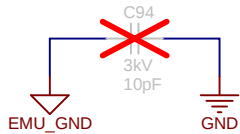
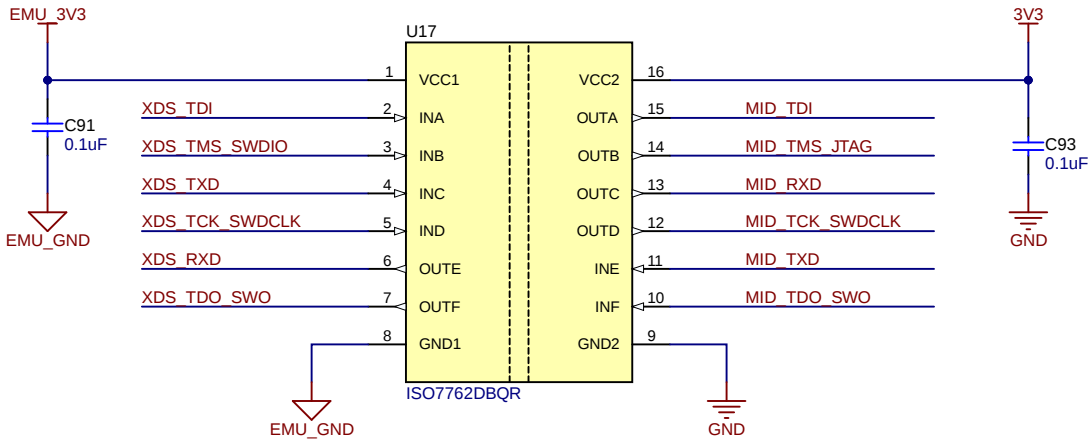
C

D

NOTE: Because the JTAG signals are isolated, cJTAG is not supported on this controlCARD.

(Cold Side)

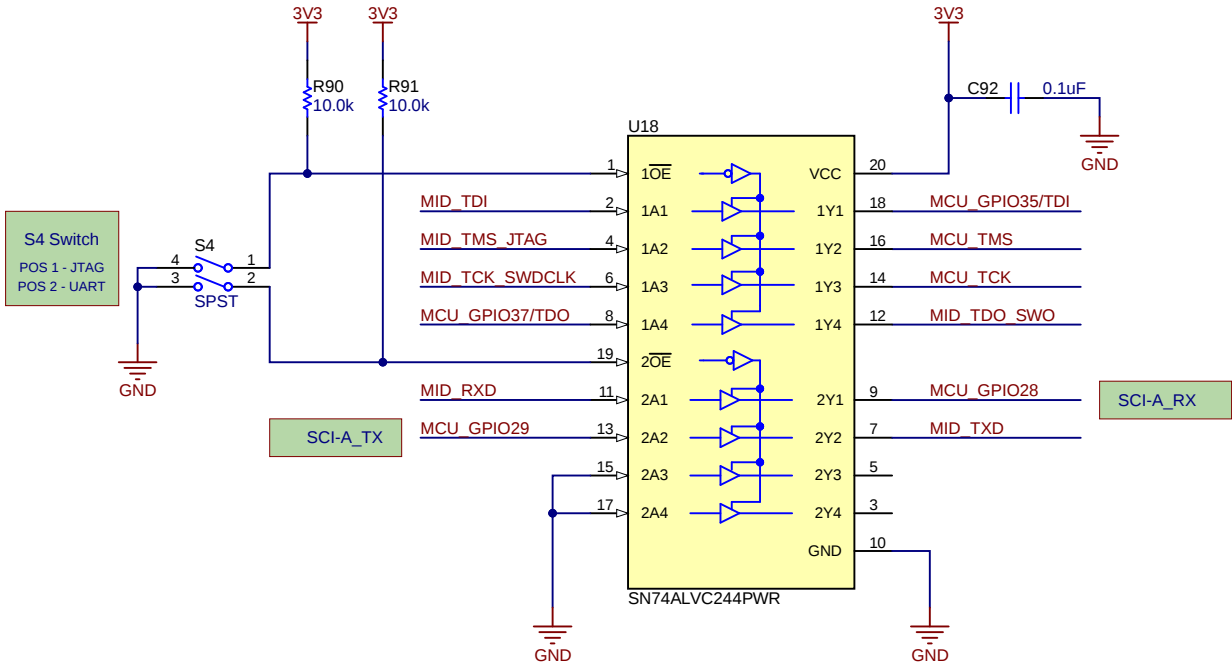
(Hot Side)



WARNING: To avoid potential shock hazard in high-voltage settings, leave the Y cap (C94) unpopulated from the EVM.

S4 - JTAG Emulation & UART Switch

POS 1 ON: Use XDS110 emulator that is on the cCARD
POS 1 OFF: Boot from FLASH/peripheral (see boot mode switch) OR use emulator on baseboard
POS 2 ON: GPIOs 28 & 29 will be connected to the USB-to-UART adapter on the XDS110 emulator
POS 2 OFF: GPIOs 28 & 29 are disconnected from the USB-to-UART adapter on the XDS110 emulator and connected to the HSEC connector pins





PCB Number: MCU165
PCB Rev: E2

PCB
LOGO
Texas Instruments



PCB
LOGO
FCC disclaimer

PCB
LOGO
WEEE logo

LBL1
PCB Label
THT-14-423-10
Size: 0.65" x 0.20 "

ZZ1
Label Assembly Note
This Assembly Note is for PCB labels only

ZZ2
Assembly Note
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3
Assembly Note
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4
Assembly Note
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

ZZ5
Assembly Note
Clip off KEY pin 9 of J1 connector header

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Orderable: TMDSCNCD28P551X		Designed for: Public Release	Mod. Date: 6/25/2025
TID #: N/A		Project Title: F28P551x controlCARD	
Number: MCU165	Rev: E2	Sheet Title:	
SVN Rev: Unknown revision		Assembly Variant: 001	Sheet: 10 of 10
Drawn By: Stevan Duraskovic		File: MCU165E2_Hardware.SchDoc	Size: B
Engineer: Stevan Duraskovic		Contact: http://www.ti.com/support	