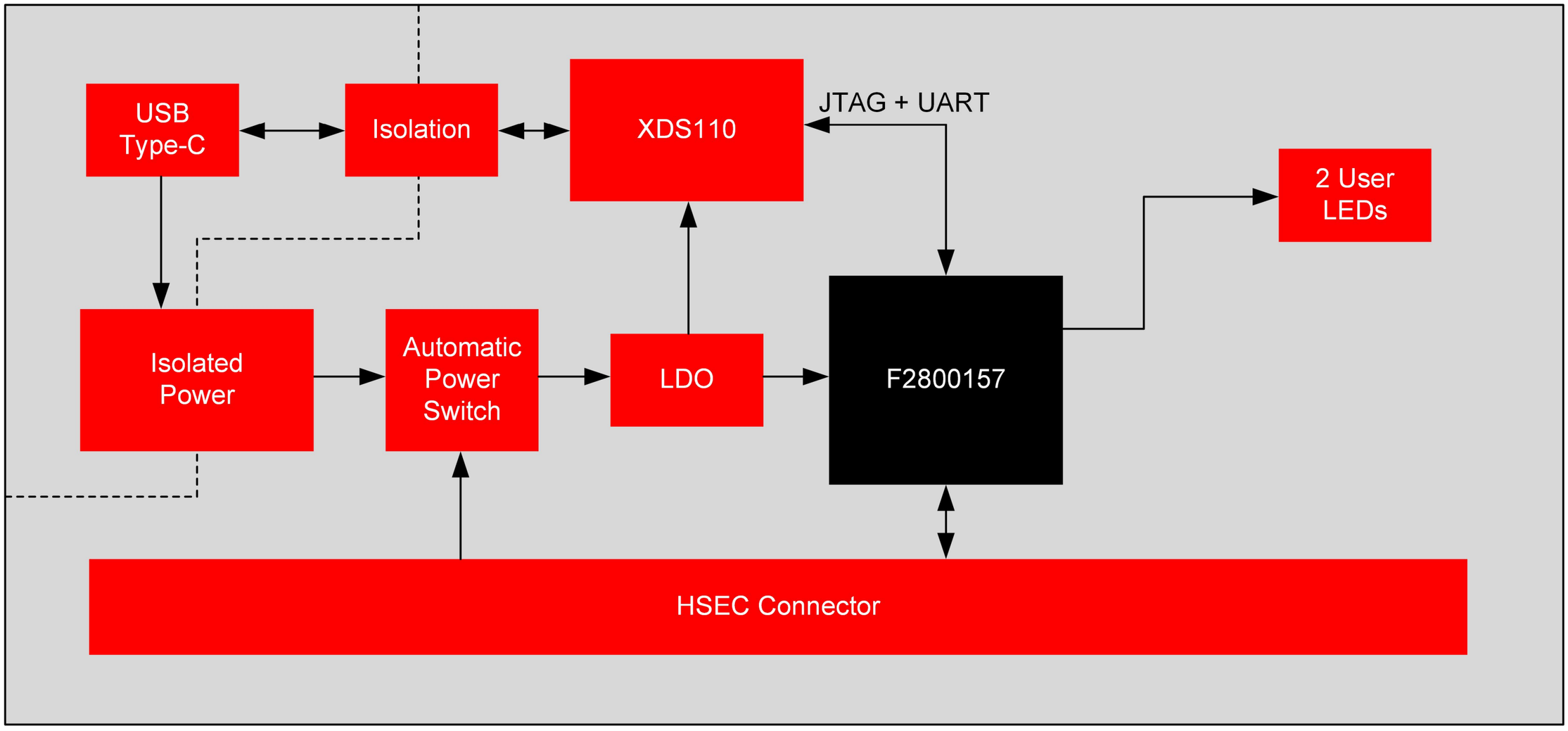
Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
E1	N/A	August 3, 2021	GM	Original engineering release.
A	N/A	August 19, 2022	GM	Cosmetic changes to PCB silkscreen.



Orderable: TMDSCNCD2800157	Designed for: Public Release	Mod. Date: 8/19/2022
TID #: N/A	Project Title: F280015x controlCARD	
Number: MCU106 Rev: A	Sheet Title: Cover Sheet	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 1 of 8
Drawn By: Gus Martinez	File: MCU106A_CoverSheet.SchDoc	Size: B
Engineer: Gus Martinez	Contact: http://www.ti.com/support	

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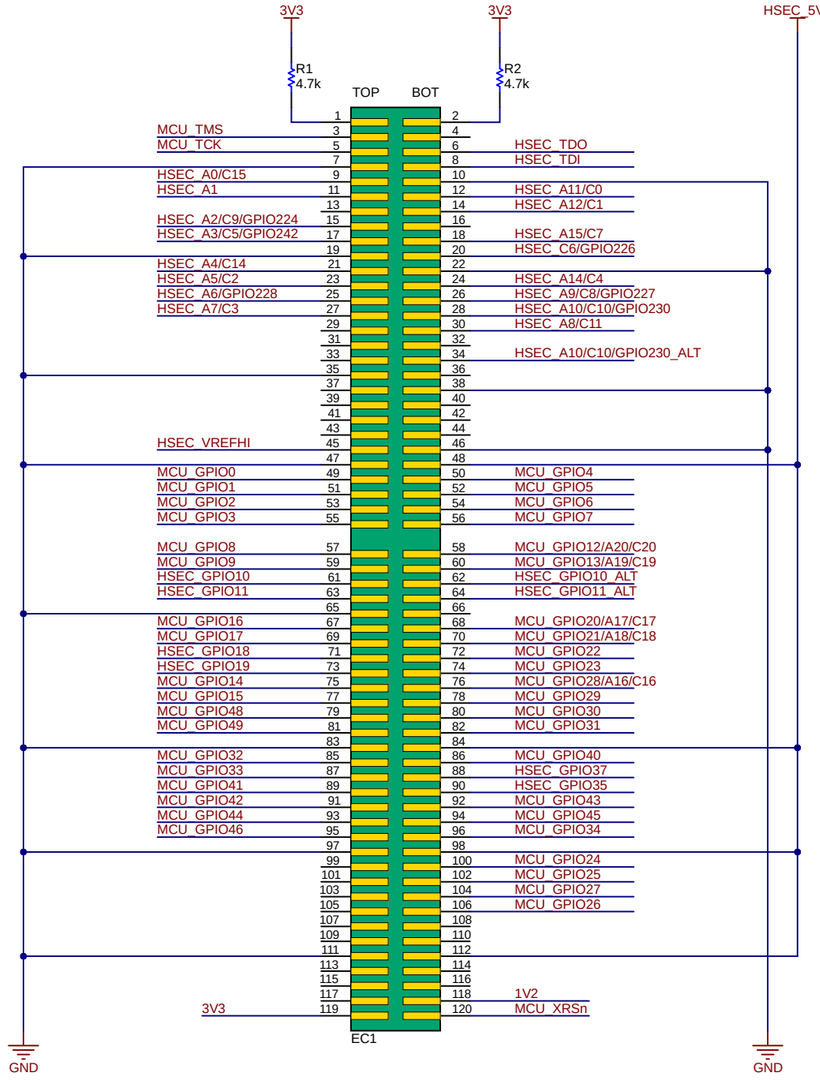
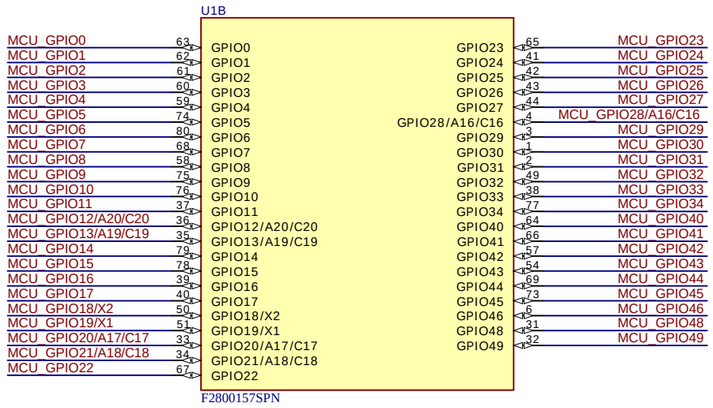
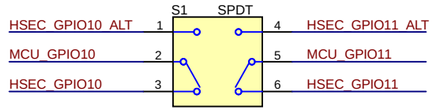




S1 - GPIO10/GPIO11 Switch

POS 1 ON: GPIO10/GPIO11 routed to alternate HSEC location

POS 1 OFF: GPIO10/GPIO11 routed to default HSEC location



Orderable: TMDSCNCD2800157		Designed for: Public Release	Mod. Date: 12/8/2022
TID #: N/A		Project Title: F280015x controlCARD	
Number: MCU106	Rev: A	Sheet Title: MCU GPIO	
SVN Rev: Version control disabled		Assembly Variant: 001	Sheet: 2 of 8
Drawn By: Gus Martinez		File: MCU106A_GPIO.SchDoc	Size: B
Engineer: Gus Martinez		Contact: http://www.ti.com/support	

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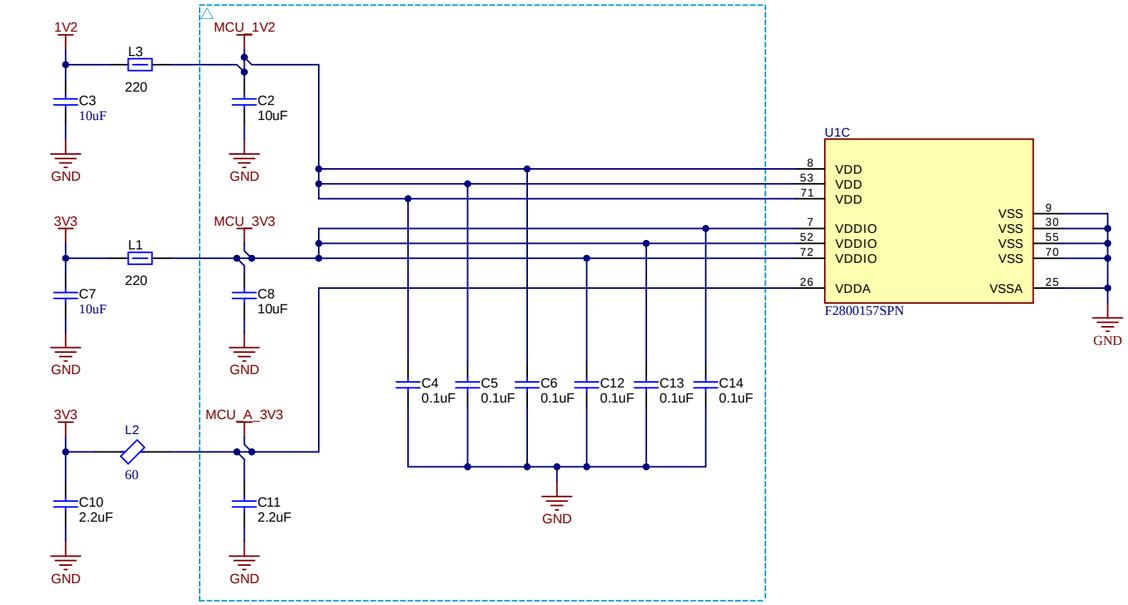
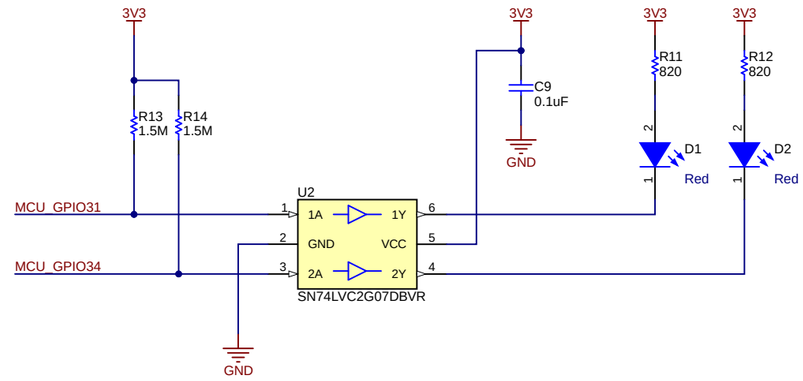
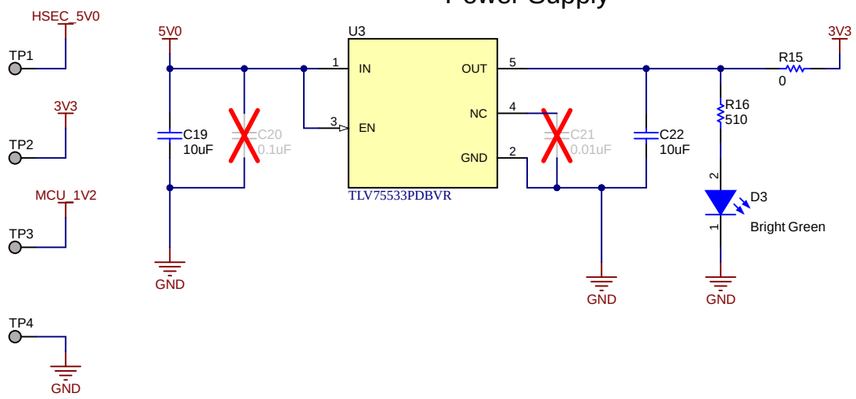


LEDs

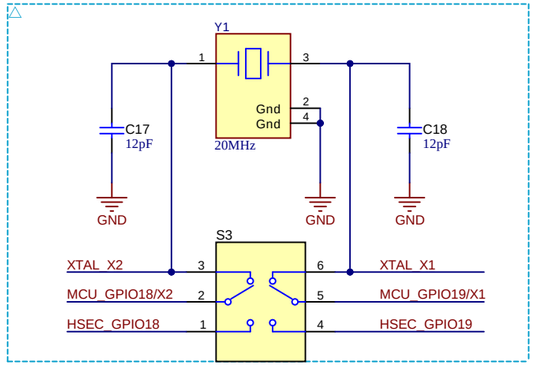


Power Supply



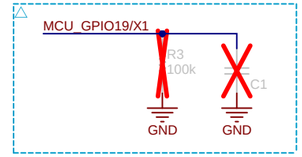
SPIA or External XTAL Selection

Place near U1 and route cleanly



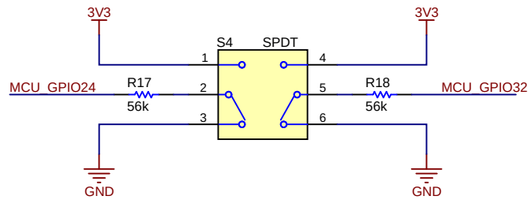
S3 enables the selection of an external crystal or the use of GPIOs.
In this controlCARD's design S3 is required to support a variety of baseboards. However, in a final system the designer should remove S3 and route these signals cleanly depending on the system's requirements.

Test Function

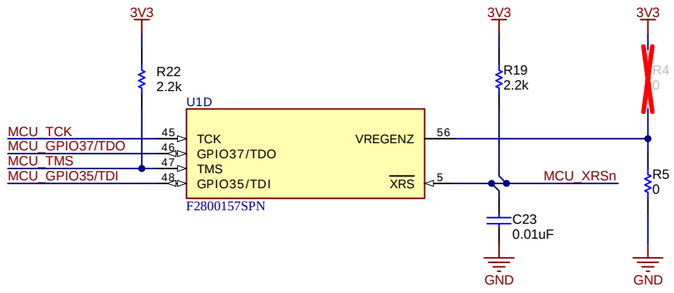


Place near X1 pin

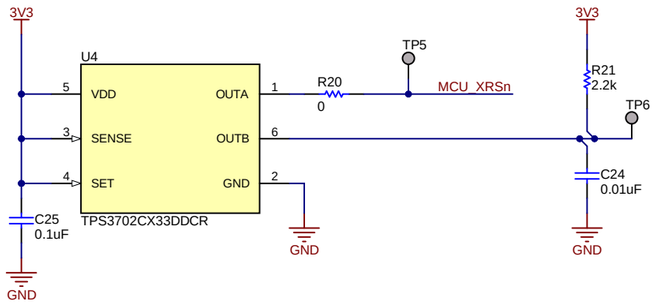
Boot Mode Switch



Reset and JTAG



System Supervisory Circuitry



Boot Mode Selection Chart

(S4: UP is '1', DOWN is '0')

Mode #	GPIO24	GPIO32	Boot Mode
00	0	0	Boot from Parallel GPIO
01	0	1	Boot from SCI / Wait Mode
02	1	0	Boot from CAN
03	1	1	Boot from Flash

Orderable: TMDSCNCD2800157		Designed for: Public Release	Mod. Date: 12/8/2022
TID #: N/A		Project Title: F280015x controlCARD	
Number: MCU106	Rev: A	Sheet Title: MCU Power, Reset, and Clock	
SVN Rev: Version control disabled		Assembly Variant: 001	Sheet: 3 of 8
Drawn By: Gus Martinez		File: MCU106A_Power.SchDoc	Size: B
Engineer: Gus Martinez		Contact: http://www.ti.com/support	

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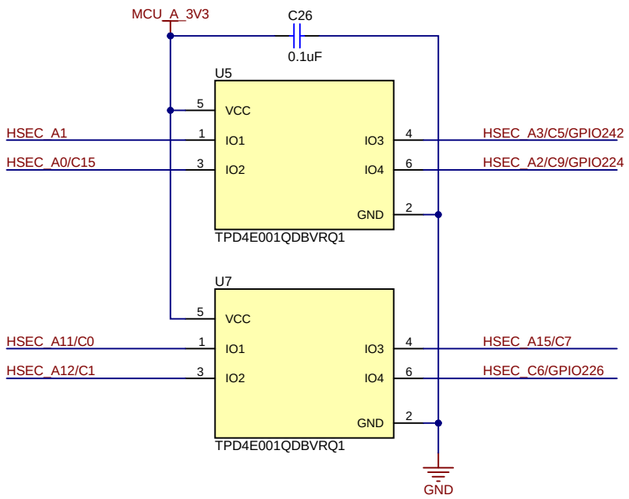

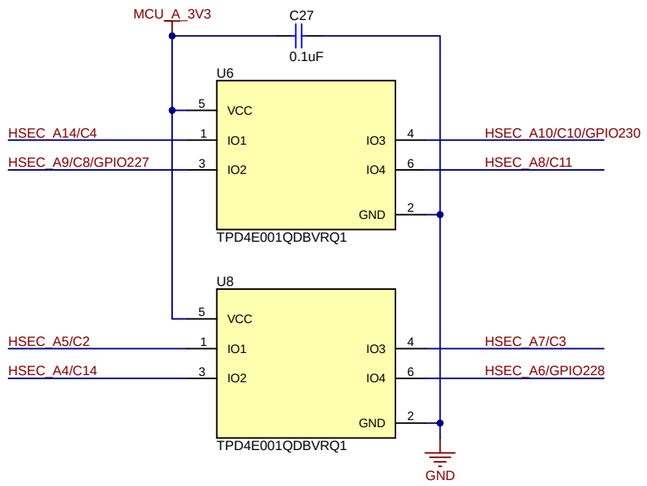

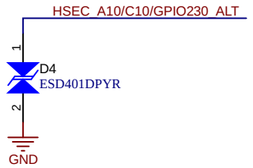

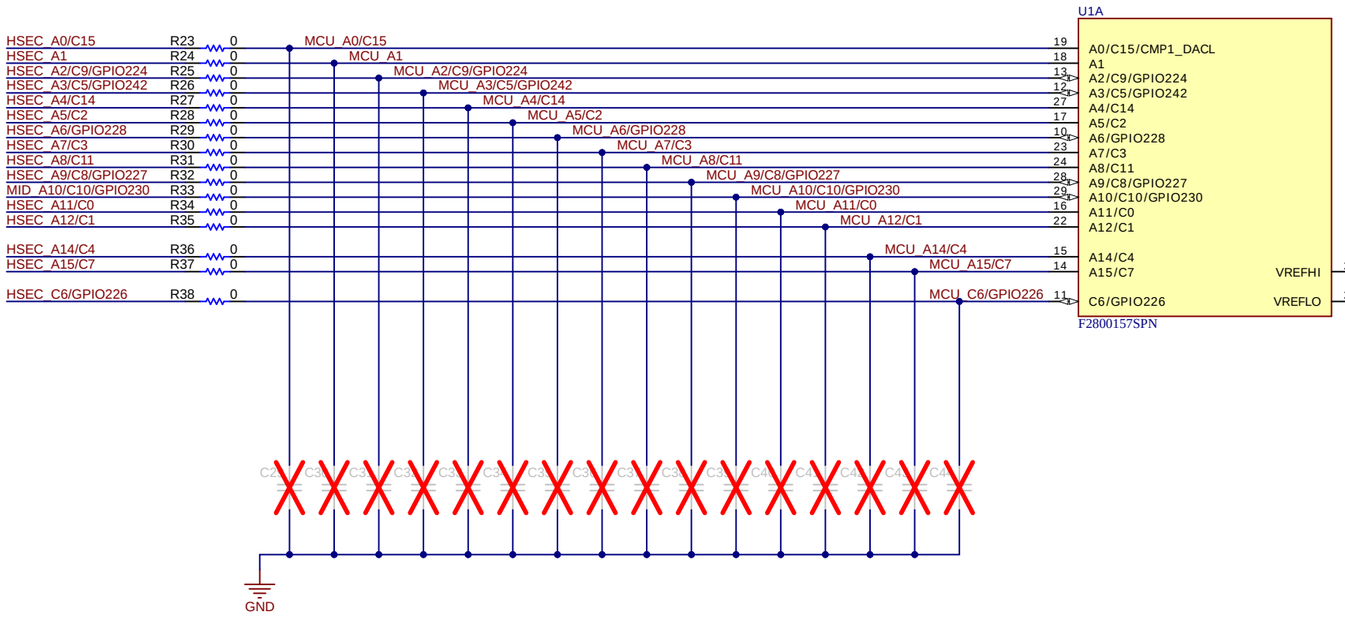

S5 Is the analog configuration switch

1- ON
- ADC should be configured to disable the internal reference and instead a reference voltage should be attached to HSEC pin 45

1-OFF
- ADC should use the internal voltage reference

2-ON
- ADC channel A10 is connected to HSEC pin 28

2-OFF
- ADC channel A10 is connected to HSEC pin 34

Orderable: TMDSCNCD2800157		Designed for: Public Release	Mod. Date: 12/8/2022
TID #: N/A		Project Title: F280015x controlCARD	
Number: MCU106	Rev: A	Sheet Title: MCU Analog	
SVN Rev: Version control disabled		Assembly Variant: 001	Sheet: 4 of 8
Drawn By: Gus Martinez		File: MCU106A_ADC.SchDoc	Size: B
Engineer: Gus Martinez		Contact: http://www.ti.com/support	

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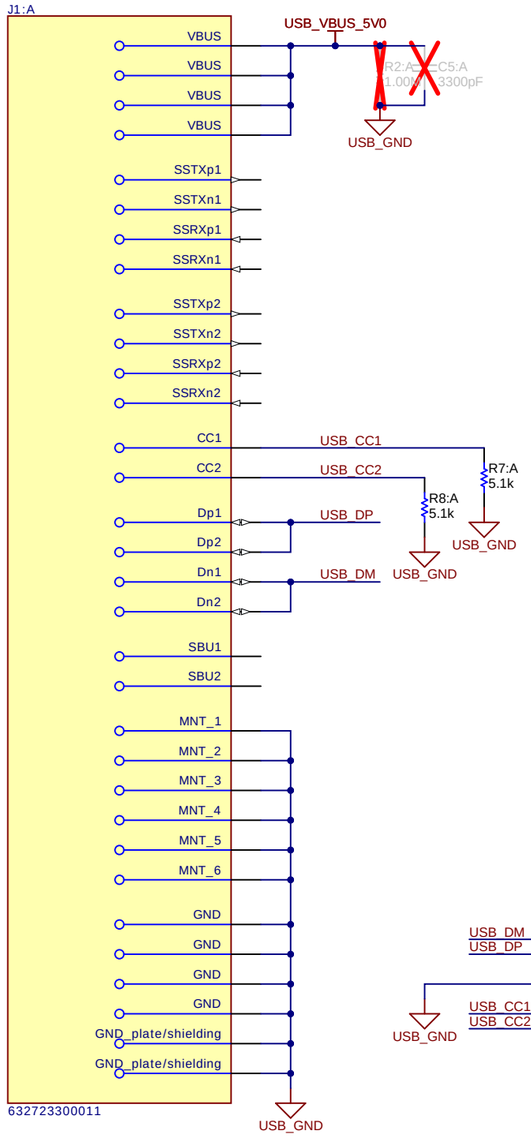
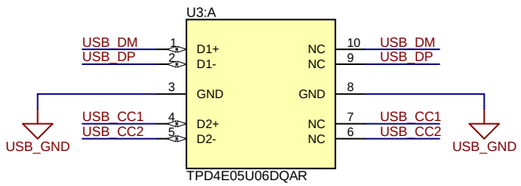
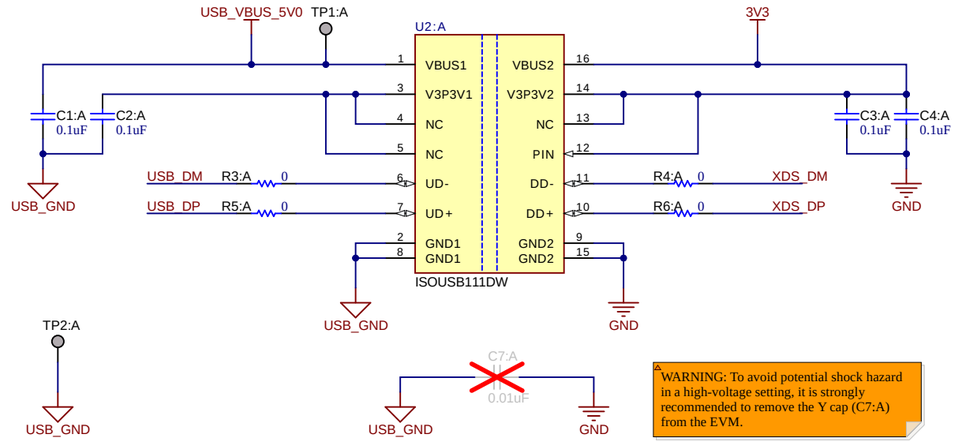
USB Connector

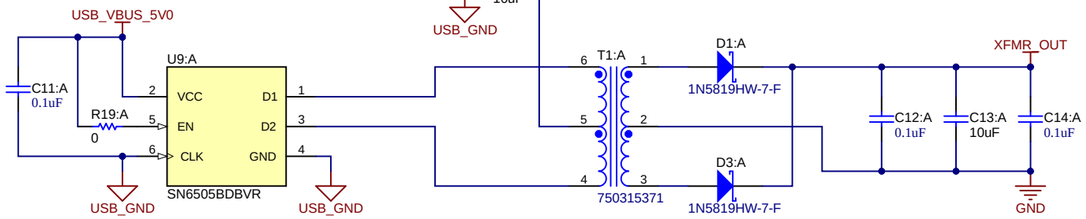




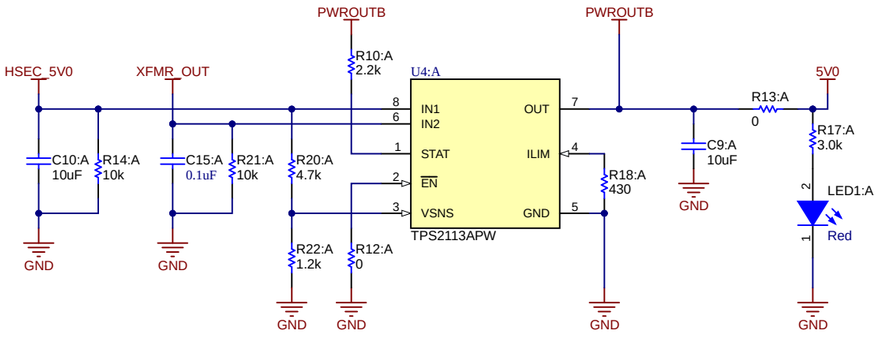
Isolation Boundary



USB Isolated Power



Power Selection Switch



Switch Truth Table		
HSEC_5V0 > 4V	**XFMR_OUT > HSEC_5V0**	**PWROUTB**
Yes	X	HSEC_5V0
No	No	HSEC_5V0
No	Yes	XFMR_OUT

Orderable: TMDSCNCD2800157		Designed for: Public Release	Mod. Date: 12/15/2022
TID #: N/A		Project Title: F280015x controlCARD	
Number: MCU106	Rev: A	Sheet Title: XDS110 Power	
SVN Rev: Version control disabled		Assembly Variant: 001	Sheet: 5 of 8
Drawn By: Gus Martinez		File: MCU106A_XDS110_USB_Power.SchDoc	Size: B
Engineer: Gus Martinez		Contact: http://www.ti.com/support	

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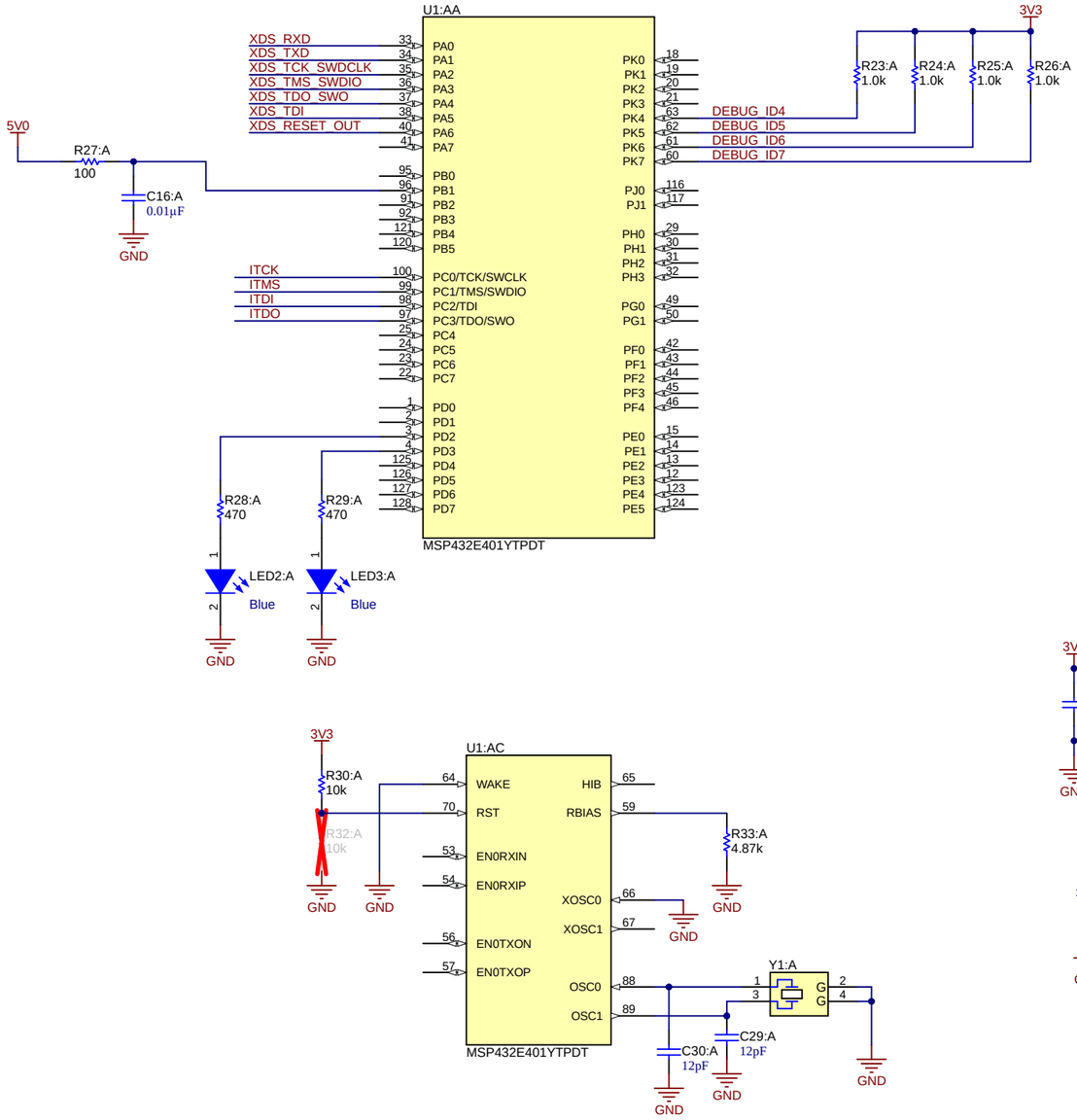

Orderable: TMDSCNCD2800157	Designed for: Public Release	Mod. Date: 11/1/2021
TID #: N/A	Project Title: F280015x controlCARD	
Number: MCU106 Rev: A	Sheet Title: XDS110 MCU	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 6 of 8
Drawn By: Gus Martinez	File: MCU106A_XDS110_MCU.SchDoc	Size: B
Engineer: Gus Martinez	Contact: http://www.ti.com/support	

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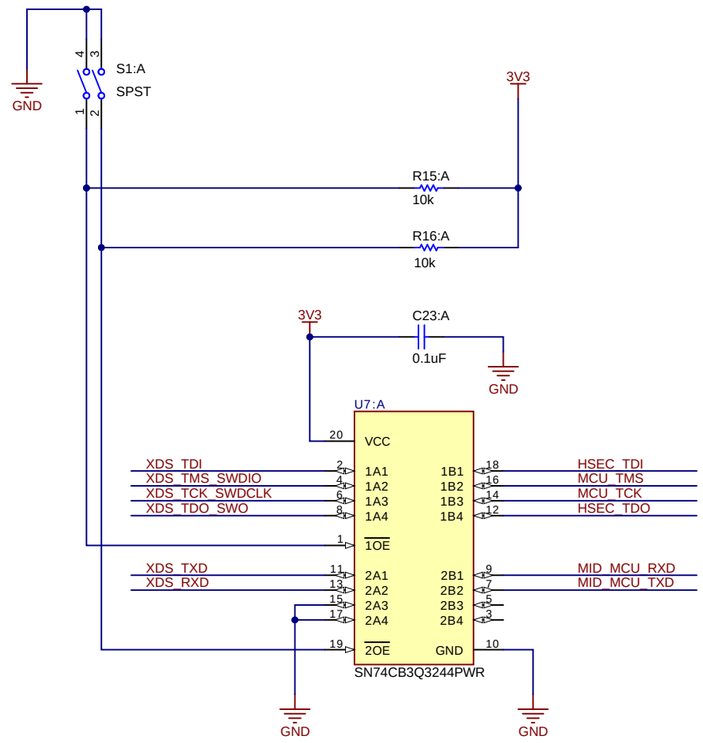
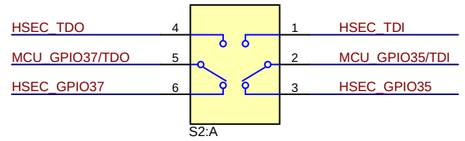
S1:A - Emulation & GPIO28 Switch

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: GPIO-28 will be controlled by the USB-to-UART adapter on the XDS110 emulator MCU
POS 2 OFF: GPIO-28 can be controlled by a pin in HSEC connector



S2:A - GPIO37/GPIO35 Switch

POS 1 ON: (full JTAG mode) GPIO37/GPIO35 used as JTAG pins
POS 1 OFF: (cJTAG mode) GPIO37/GPIO35 used as peripheral pins



SCI Debug Port Selection

Orderable: TMDSCNCD2800157	Designed for: Public Release	Mod. Date: 8/24/2021
TID #: N/A	Project Title: F280015x controlCARD	
Number: MCU106 Rev: A	Sheet Title: XDS110 Interface	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 7 of 8
Drawn By: Gus Martinez	File: MCU106A_Emulator_Interface.SchDoc	Size: B
Engineer: Gus Martinez	Contact: http://www.ti.com/support	

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FID1 FID2 FID3 FID4 FID5 FID6

PCB Number: MCU106
PCB Rev: A

PCB
LOGO
Texas Instruments

CE Mark

PCB
LOGO
FCC disclaimer

PCB
LOGO
WEEE logo

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.

Orderable: TMDSCNCD2800157		Designed for: Public Release	Mod. Date: 12/7/2022
TID #: N/A		Project Title: F280015x controlCARD	
Number: MCU106	Rev: A	Sheet Title: Hardware	
SVN Rev: Version control disabled		Assembly Variant: 001	Sheet: 8 of 8
Drawn By: Gus Martinez		File: MCU106A_Hardware.SchDoc	Size: B
Engineer: Gus Martinez		Contact: http://www.ti.com/support	

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