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Revisions			
Rev	Description	Date	Approved
X1	Reference Design Release	06-May-19	Dong N

SHIELD-HOST

		6501 William Cannon Drive West Austin, TX 78735-8598	
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Designer: Dong Nguyen		ICAP Classification: CP: IUQ: X PUBI:	
Drawing Title: SHIELD-HOST		Date: Monday, May 06, 2019	
Drawn by: Luis T		Page Title: TITLE & REV	
Approved: Dong Nguyen		Size C	Document Number OM13790HOST-SCH-32144 PDF: SPF-32144
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1. Unless Otherwise Specified:

All resistors are in ohms
All voltages are DC

2. Device type number is for reference only. The number varies with the manufacturer.

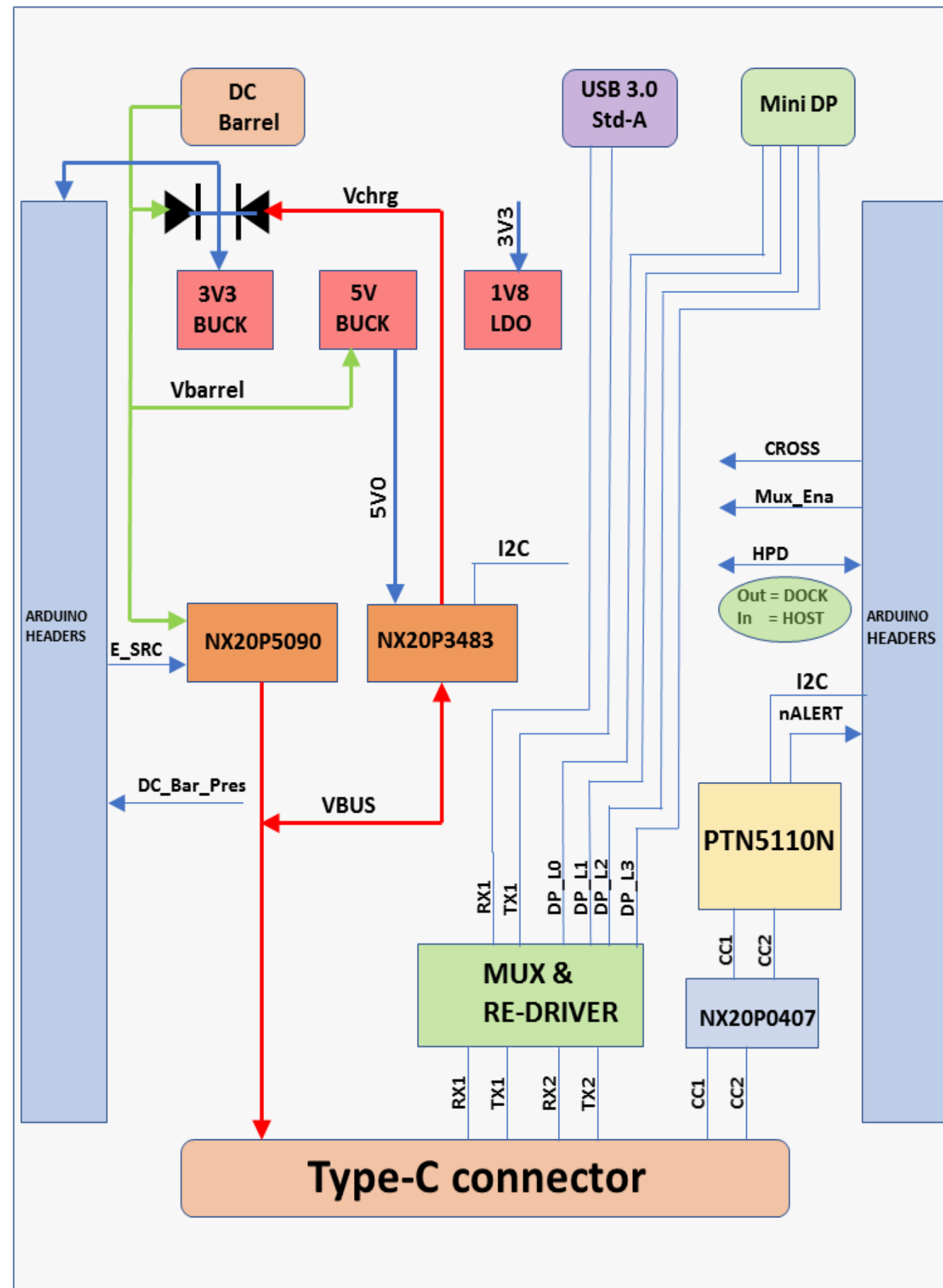
3. Interpret diagram in accordance with American National Standards Institute specifications, current revision, with the exception of logic block symbology.

User notes are given throughout the schematics

Specific PCB LAYOUT notes are detailed in ITALICS

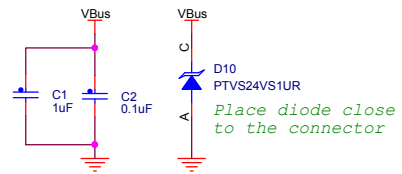


ICAP Classification: CP: IJO: X PUBI:		
Drawing Title: SHIELD-HOST		
Page Title: NOTES		
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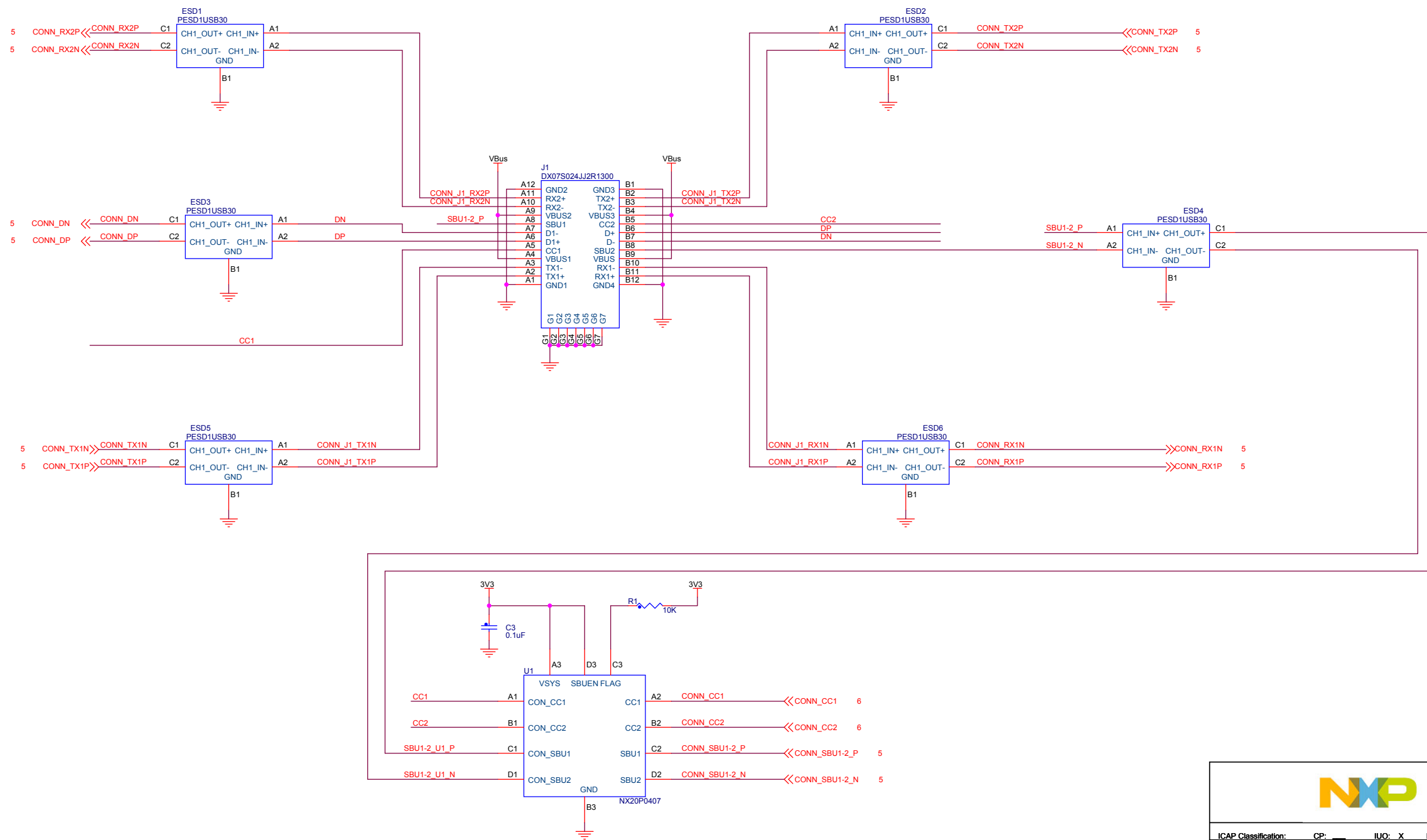


USB PD/ Type C Shield Board

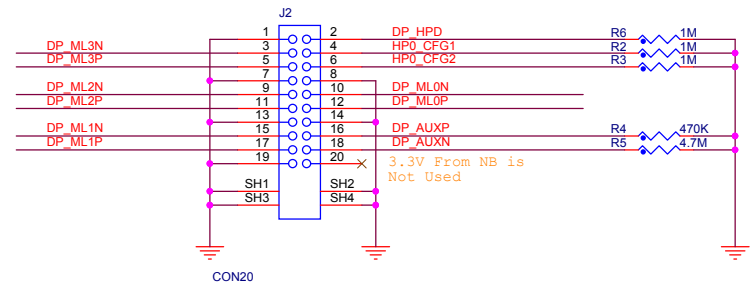
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Drawing Title: SHIELD-HOST			
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USB- Type C Connector

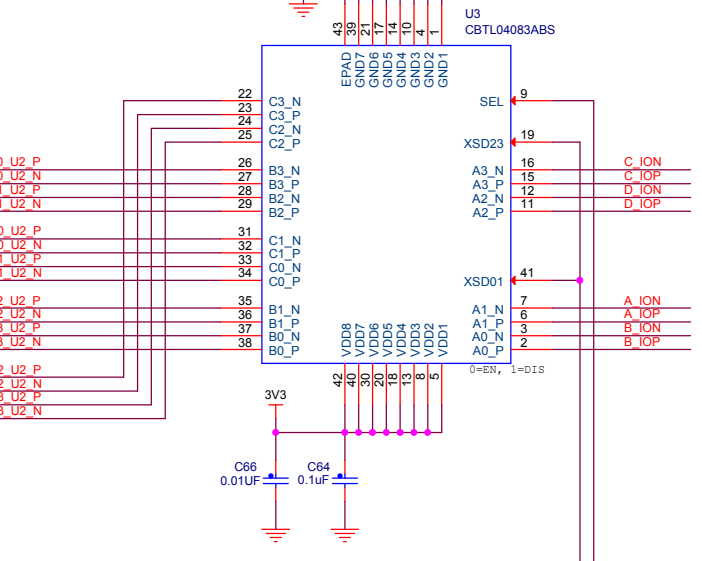
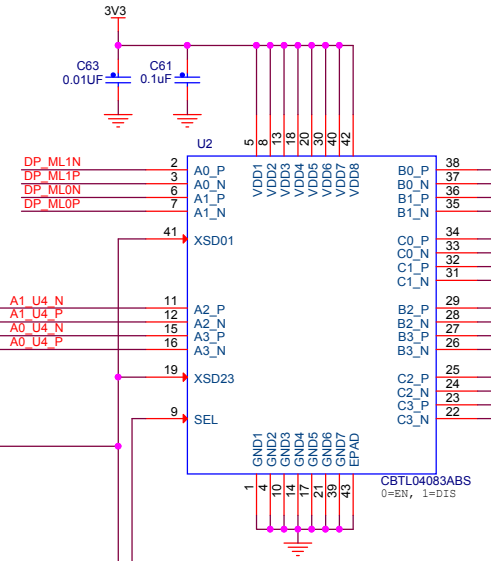
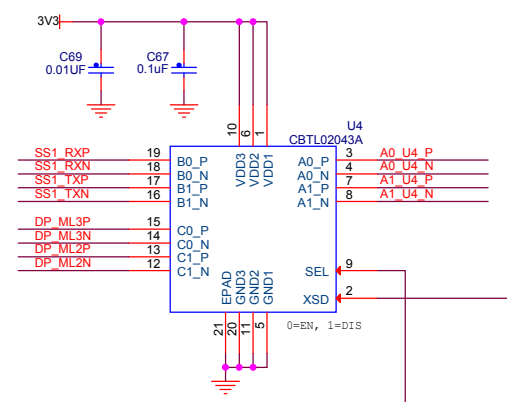


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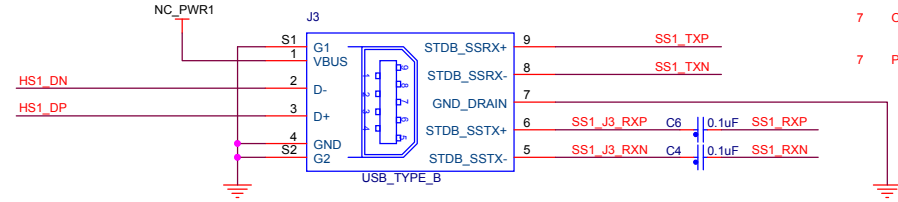


ORIENT = 0 = Normal
ORIENT = 1 = Reversed

	DP4LANE	P0_XSD	ORIENT
Safe State	0	1	X
USB3 Only	0	0	X
USB3+DP2LANE	0	0	X
DP4LANE	1	0	X

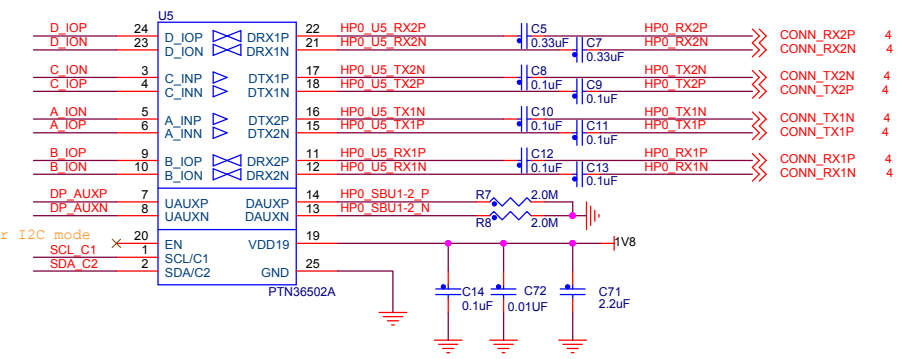


Intentional "No Connect"



From Connector's POV, TX (out) is the same function as the receiving path of a chipset. RX (in) is the same function as the transmitting path of a chipset.

- 7 DP4LANE >> DP4LANE
DP4LANE = 0 = ENABLE USB3
DP4LANE = 1 = ENABLE DP4Lane
- 7 ORIENT >> ORIENT
- 7 P0_XSD >> P0_XSD

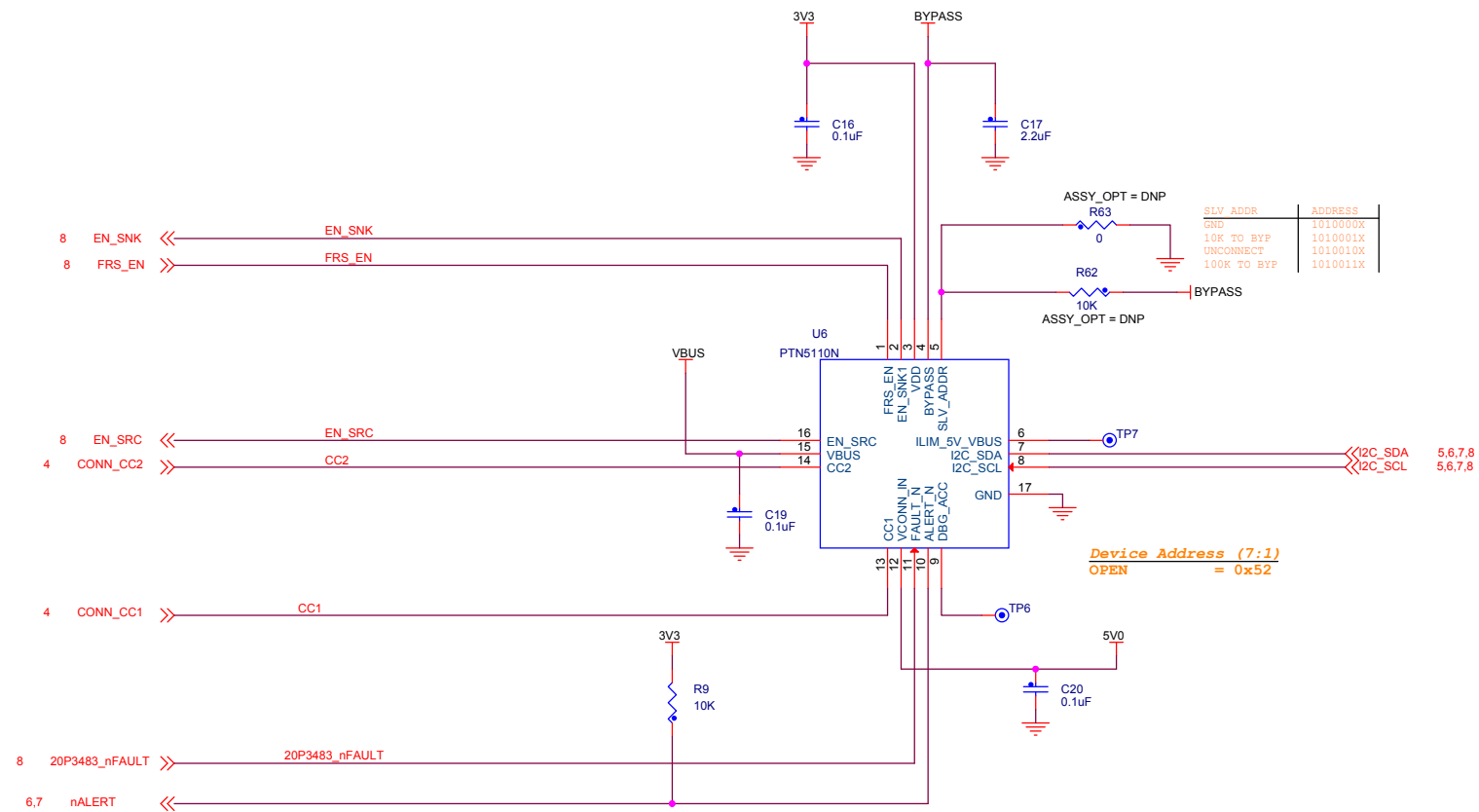


Leave EN open for I2C mode

- HP0_SBU1-2_P >> CONN_SBU1-2_P 4
- HP0_SBU1-2_N >> CONN_SBU1-2_N 4
- HS1_DP >> CONN_DP 4
- HS1_DN >> CONN_DN 4
- SCL_C1 >> I2C_SCL 6,7,8
- SDA_C2 >> I2C_SDA 6,7,8
- DP_HP0 >> DP_HP0 7

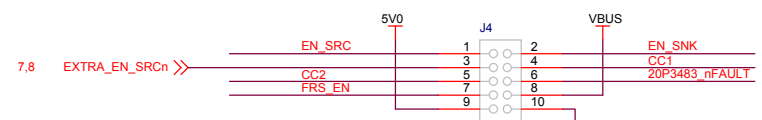
DP_HP0 is an output from Kinetis. This signal is an indication that a DP device is connected Type-C side.



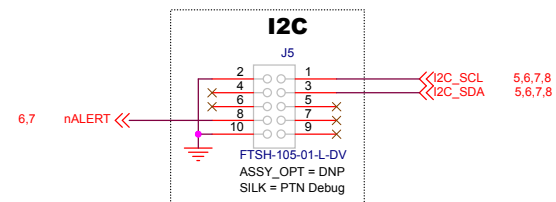


Debug Headers

NOTE:
Debug purpose only

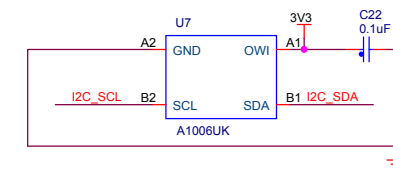


PTN5110 MISC.



ORIENT - OUTPUT, push-pull. TCPM determines plug orientation and drives low on normal orientation, else drives high
 PD_XSD - OUTPUT, push-pull. TCPM drives this signal high to shut down the high speed mux, safe state etc.,
 DP4LANE - OUTPUT, push-pull. TCPM drives this signal high if ALT mode is 4 lane DP. Drives this signal low if ALT mode is 2 lane DP / USB 3.0 (if Multip-function bit is set, drive low, else drives high)
 DP_HPD - OUTPUT, push-pull. TCPM gets DP sink HPD status through PD Status_Update message. TCPM drives this signal high if HPD state is high.
 EXTRA_EN_SRCn - OUTPUT, push-pull. TCPM drives this signal low when sourcing on second PDO (higher than default 5V)
 DC_BARREL_PRES - INPUT, push-pull. This signal indicates that Shield board is powered by an external ACDC adapter. TCPM will not initiate or accept a power role swap if this signal is low.
 nALERT - INPUT, push-pull. TCPC interrupt signal.
 RST_GPIO - not used.

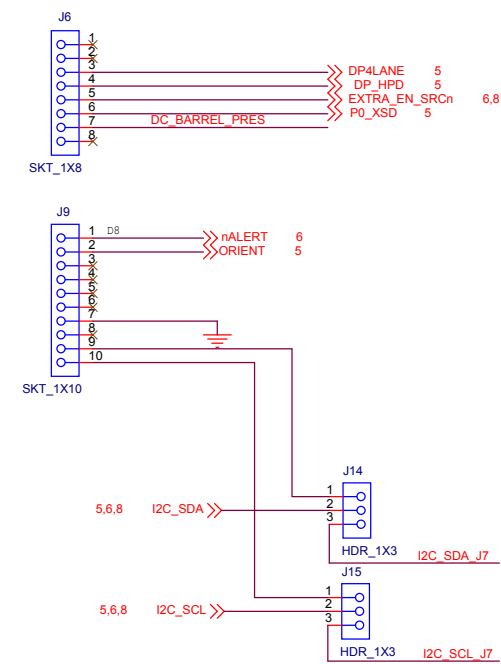
Authentication Chip



Make sure there are 4 pins/headers on PCB to download certificate for the first time.
 * VDD_MCU
 * I2C_SCL
 * I2C_SDA
 * GND

ARDUINO HEADERS

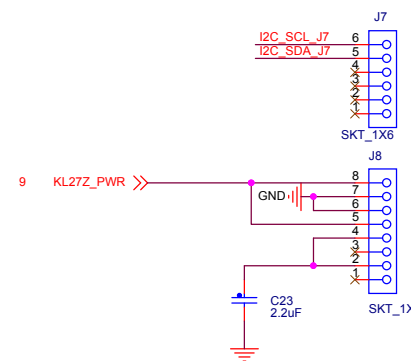
SHIELD BOARD ARDUINO HEADER



Mate to J1/J13 of Kinetis/PTN546xx

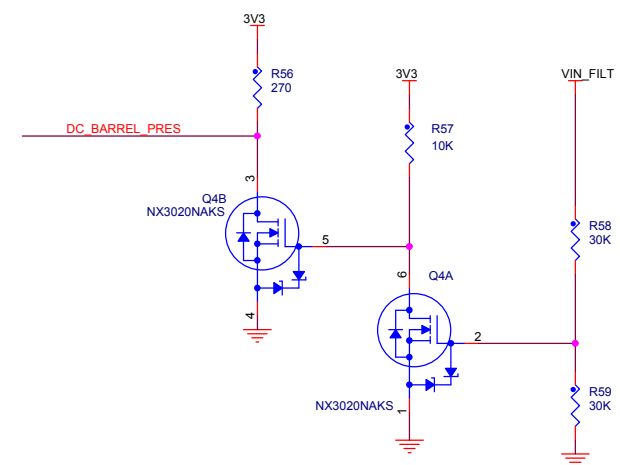
Mate to J2/J9 of Kinetis/PTN546xx

SHIELD BOARD ARDUINO HEADER

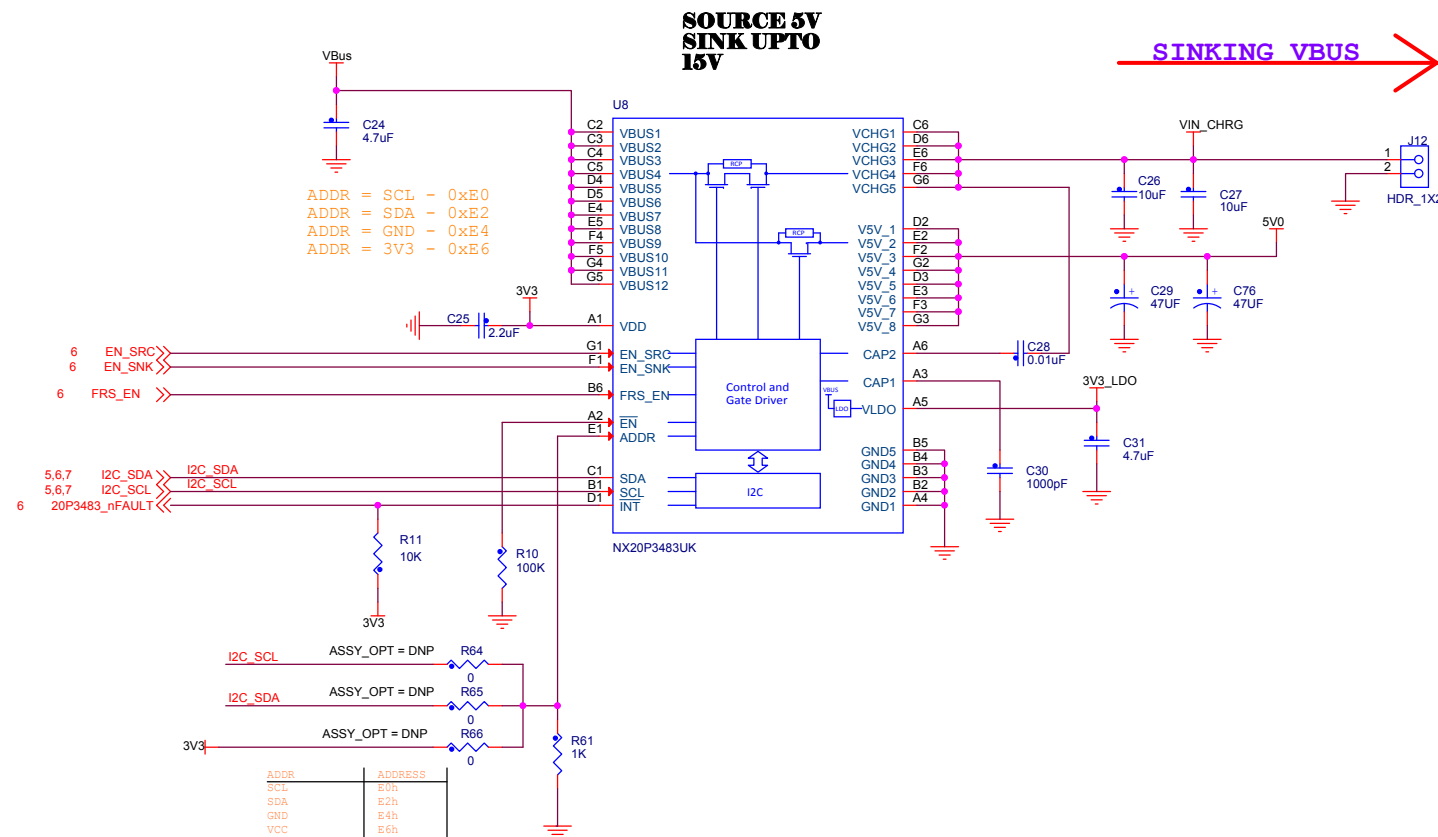


Mate to J4/J12 of Kinetis/PTN546xx

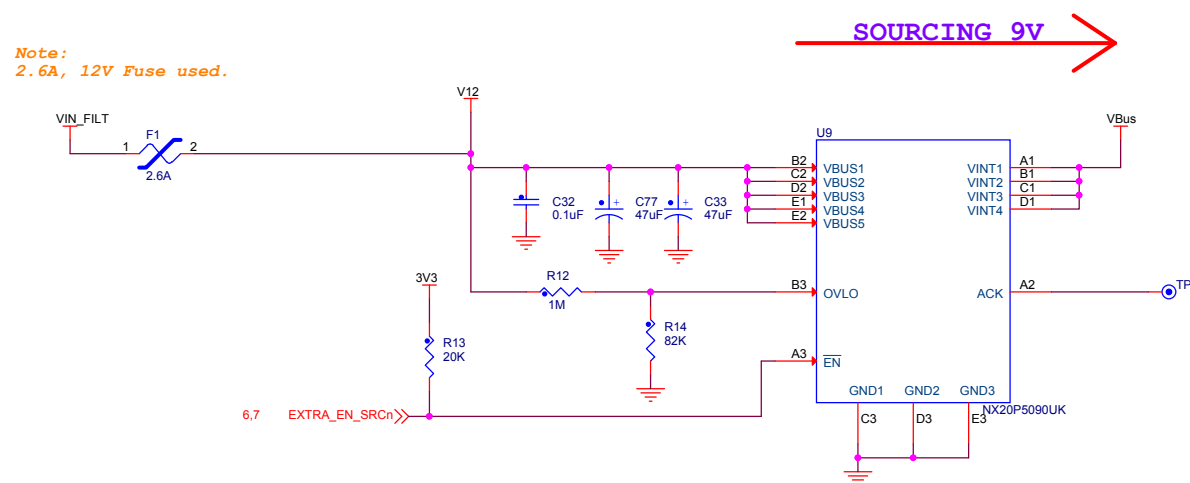
Mate to J3/J10 of Kinetis/PTN546xx



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Source 9V Load switch



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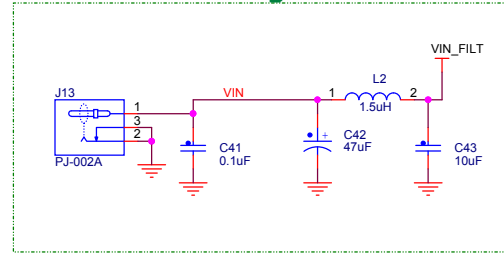
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Page Title: **PD Source and Sink LS**

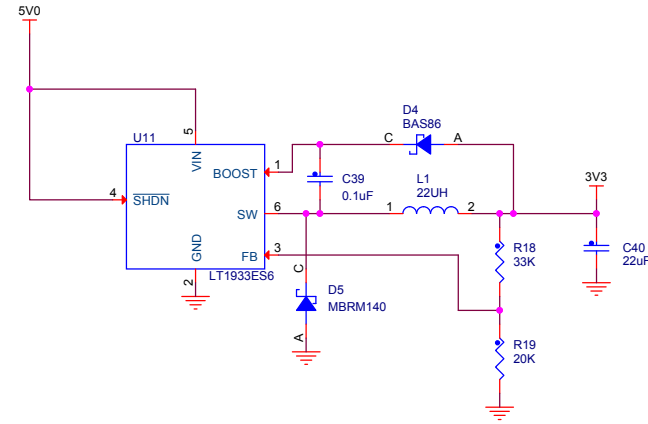
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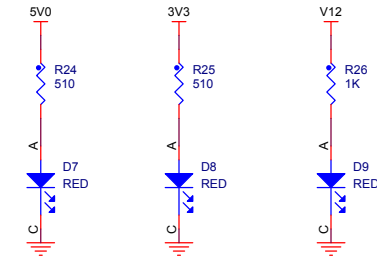
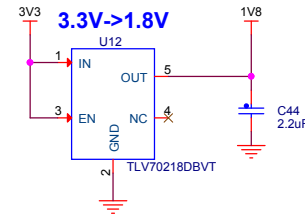
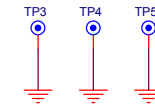
9V Input



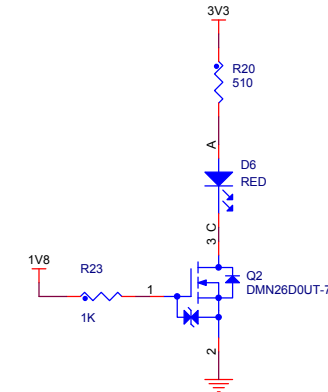
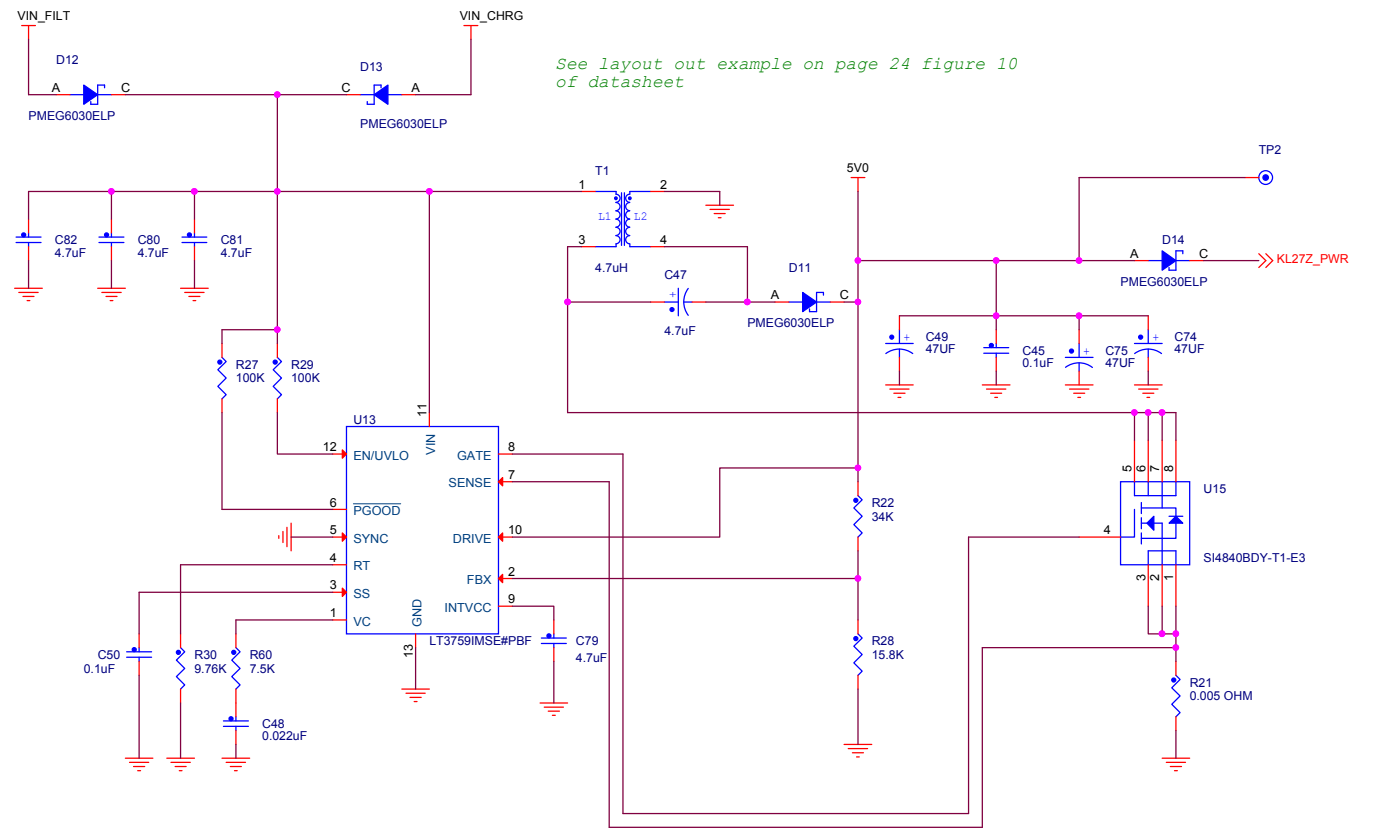
See layout out example on page 16 figure 8 of datasheet



GND TP's



See layout out example on page 24 figure 10 of datasheet



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Drawing Title: SHIELD-HOST		
Page Title: 09 - 3V3, 5V0, 1V8 Supplies		
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