


Table of Contents

2	Block Diagram
3	Type-C Connector
4	USB3/USB2
5	PTN5110 PD TCPC
6	Shield Headers
7	PD Source and Sink LS
8	3V3, 5V0, 1V8 Supplies

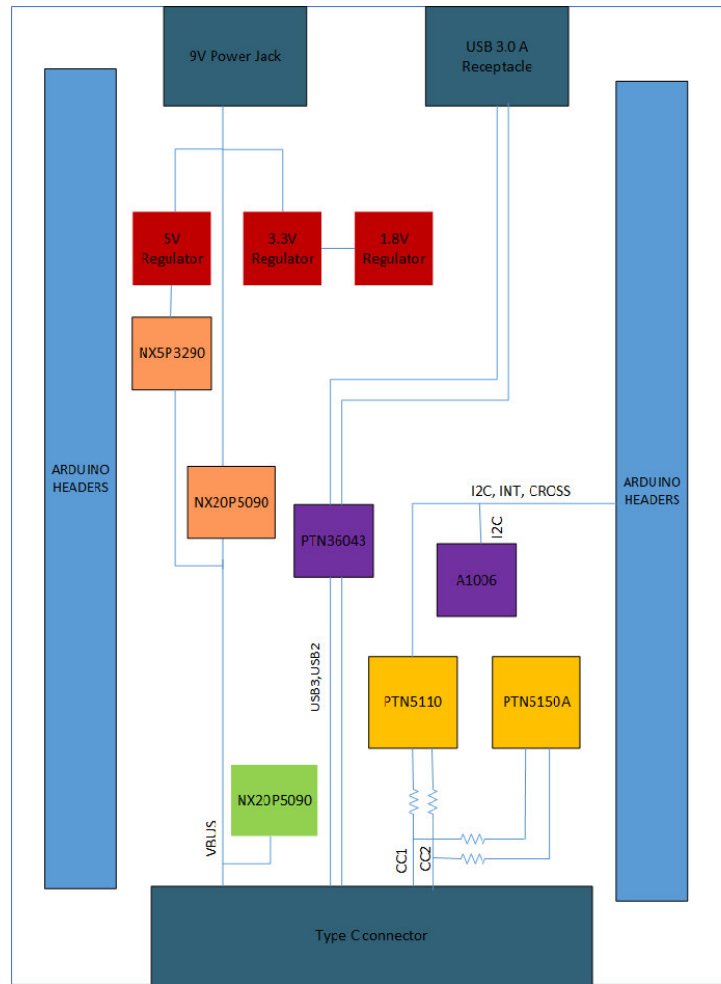
Rev	Description	Date	Approved
A	Prototype Release	1-Mar-17	DK
B	Bring up to NCL and make updates requested by SIP	18-Aug-17	DK
B1	- Changed J7 from DNP to populated - Changed J4, J5, J6, and J406 from 210-81448 to 210-81533	28-Sep-17	DK
B2	- Changed R6 from 5.1K to 30K - Changed R7 from 4.64K to 7.5K	26-Jan-18	DK

X-USBPD-C-SHIELD


<Core Design>

		6501 William Cannon Drive West Austin, TX 78735-5098	
<small>This document contains information proprietary to NXP and shall not be used for engineering design, procurement or manufacture in whole or in part without the express written permission of NXP Semiconductors.</small>			
ICAP Classification: CP: X IUC: PUB:			
Designer: Daniel Kruczek	Drawing Title: X-USBPD-C-SHIELD		
Drawn by: Daniel Kruczek	Page Title: TITLE PAGE		
Approved: Anand	Size C	Document Number SCH-29705 PDF: SPF-29705	Rev B2
Date: Friday, January 26, 2018		Sheet 1 of 8	

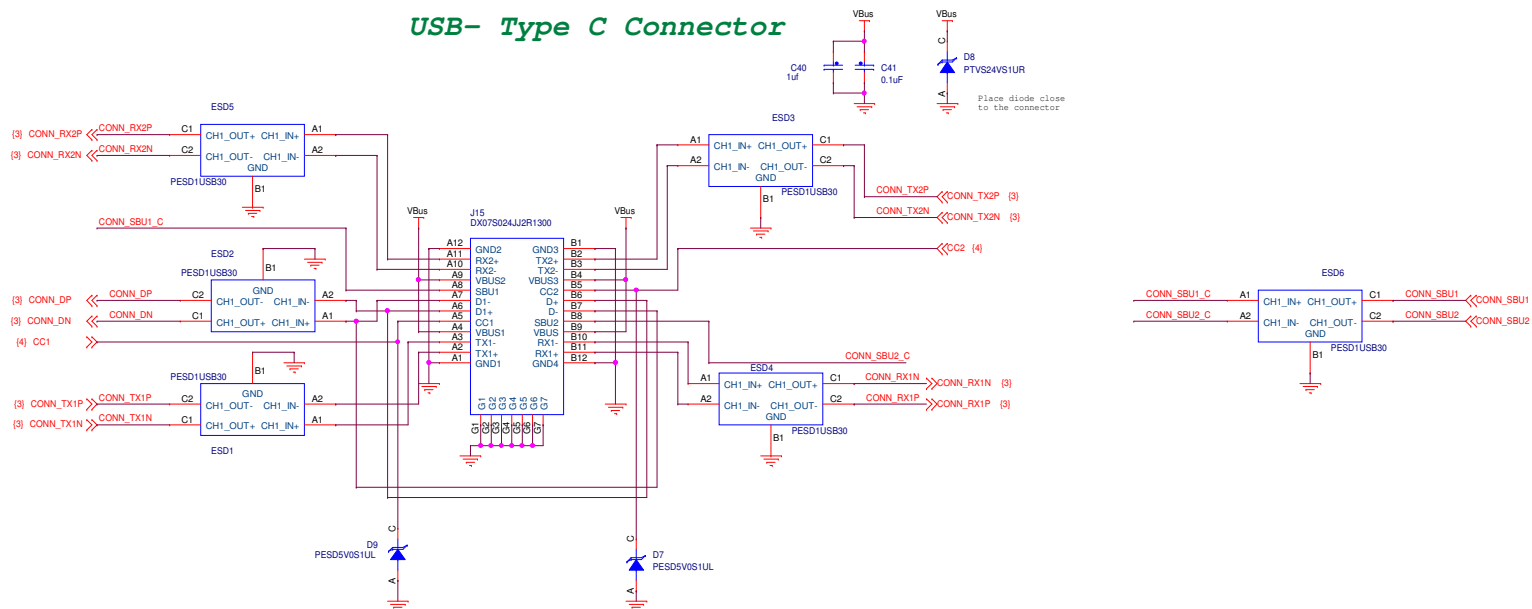
USB PD/ Type C Shield Board



<Core Design>

			
ICAP Classification:	GP:	IUG:	PUBL:
Drawing Title: X-USBD-C-SHIELD			
Page Title: Block Diagram			
Size	Document Number	SCH-29705 PDF: SPF-29705	Rev B2
C			
Date:	Friday, January 26, 2018	Sheet 2	of 8

USB- Type C Connector

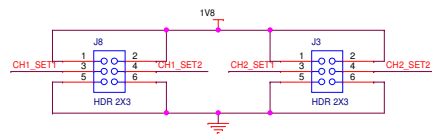
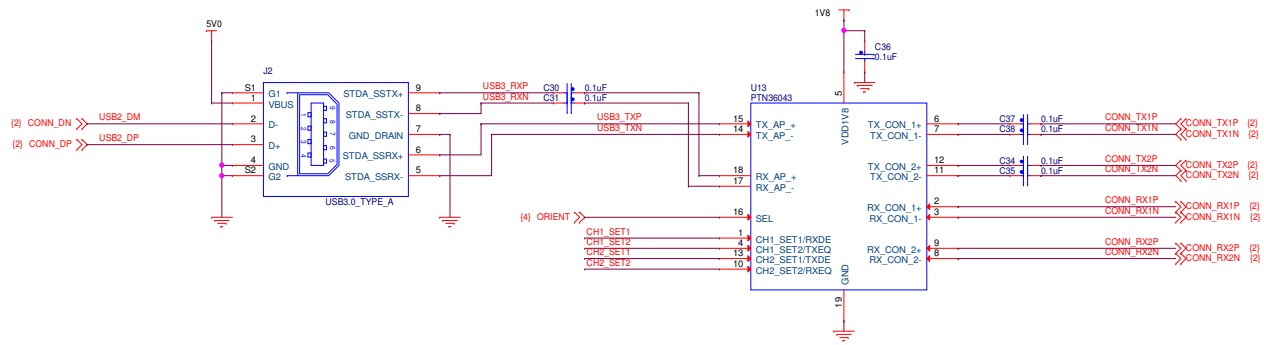


<Core Design>

ICAP Classification: GP: IUC: PUBI:
 Drawing Title:
X-USBPD-C-SHIELD

Page Title:
Type-C Connector

Size C	Document Number SCH-29705 PDF: SPF-29705	Rev B2
Date: Friday, January 26, 2018	Sheet 3 of 8	



<Core Design>



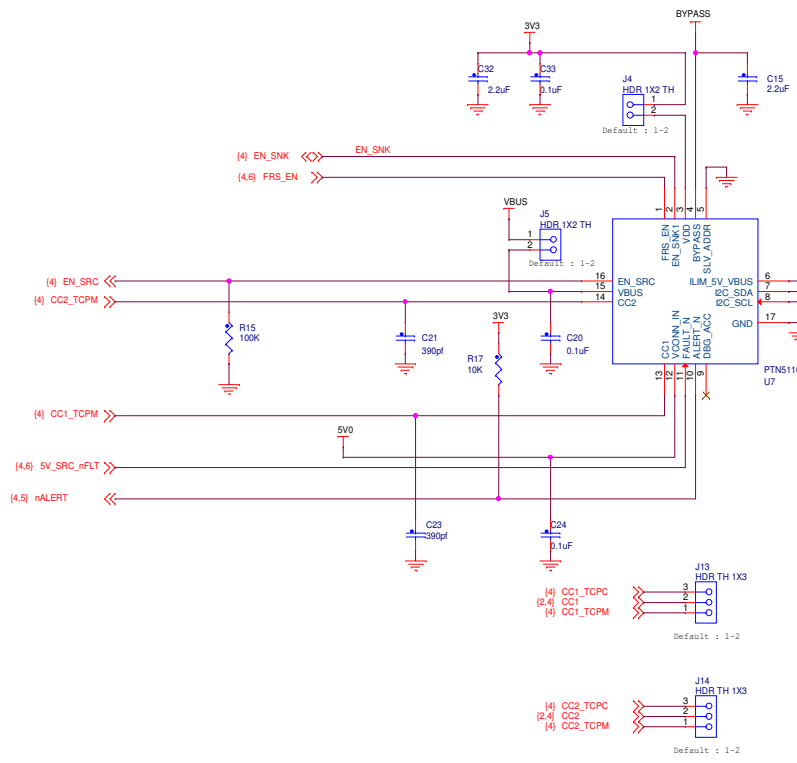
ICAP Classification: GP: IUC: PUBI:

Drawing Title: **X-USBPD-C-SHIELD**

Page Title: **USB3/USB2**

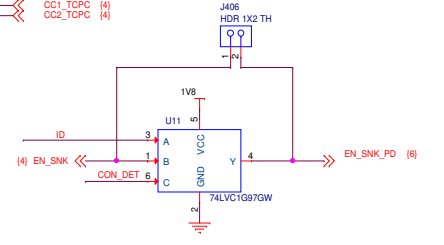
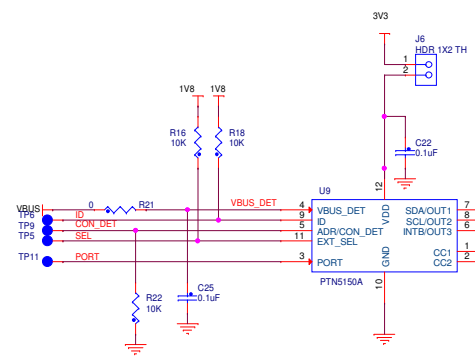
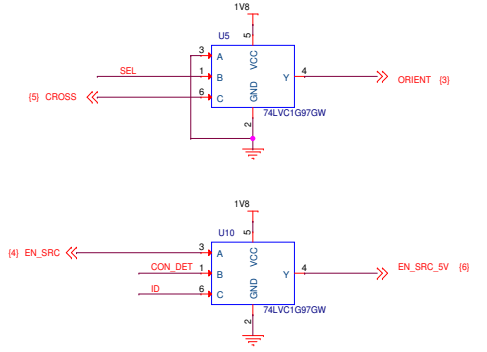
Size C Document Number SCH-29705 PDF: SPF-29705 Rev B2

Date: Friday, January 26, 2018 Sheet 4 of 8



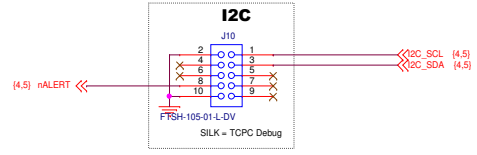
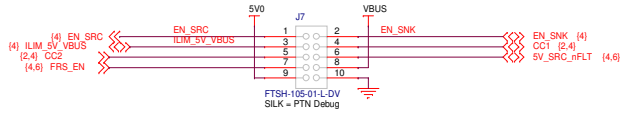
Device Address (7:1)
GND = 0x50

Current limit selection
1.5/3A




Debug Headers

NOTE:
Debug purpose only



<Core Design>



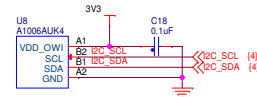
ICAP Classification: CP: IUC: PUB:

Drawing Title:
X-USBPD-C-SHIELD

Page Title:
PTN5110 PD TCPC

Size C	Document Number SCH-29705 PDF: SPF-29705	Rev B2
Date: Friday, January 26, 2018	Sheet 5 of 8	

Authentication Chip

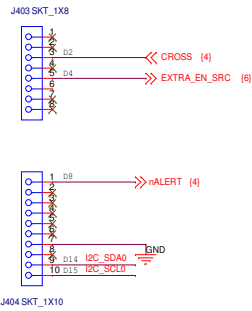


Make sure there are 4 pins/headers on PCB to download certificate for the first time.

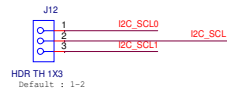
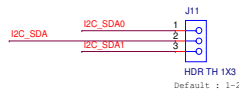
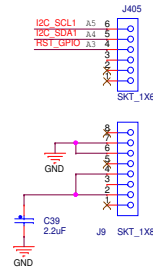
- VDD_3V3
- I2C_SCL
- I2C_SDA
- GND

ARDUINO HEADERS

SHIELD BOARD ARDUINO HEADER



SHIELD BOARD ARDUINO HEADER



<Core Design>



ICAP Classification: CP: IUC: PUBI:

Drawing Title: **X-USBPD-C-SHIELD**

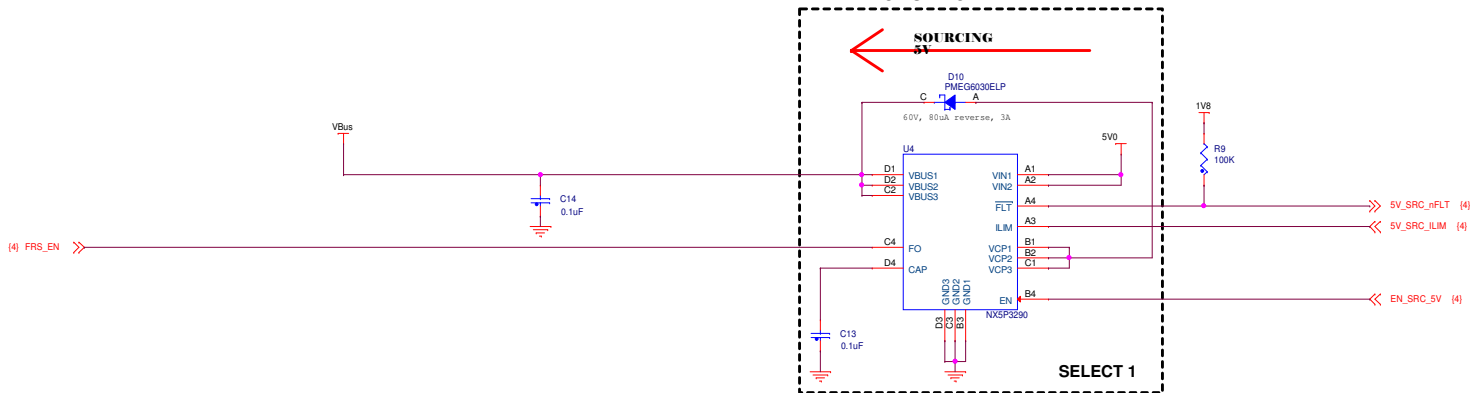
Page Title: **Shield Headers**

Size C Document Number SCH-29705 PDF: SPF-29705 Rev B2

Date: Friday, January 26, 2018 Sheet 6 of 8

Source 5V Load switch- supports FRS

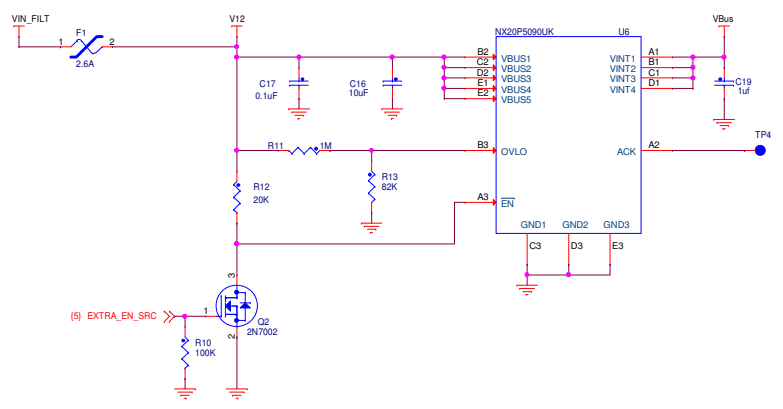
LOAD EITHER SELECT 1
OR SELECT 2



Source 12V Load switch

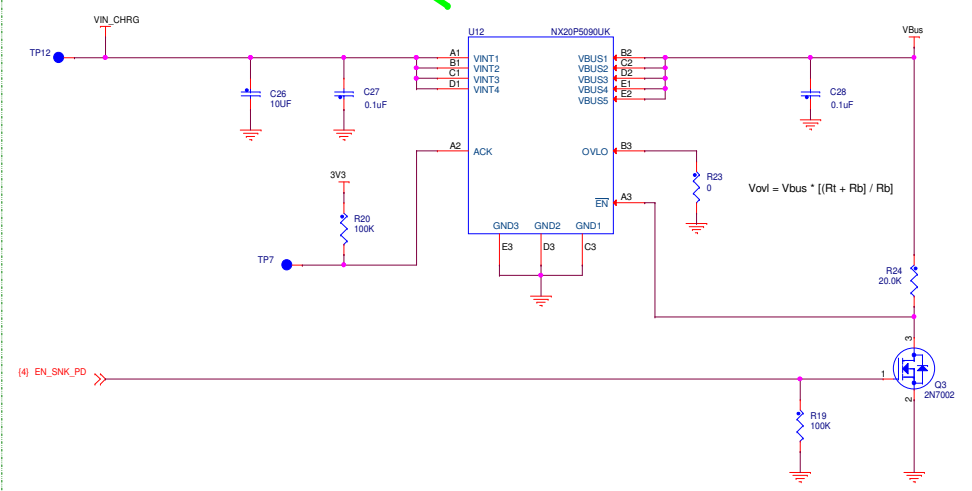
SOURCING 12V


Note:
2.6A, 12V Fuse used.



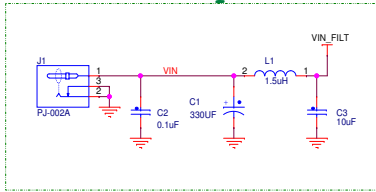
Sink upto 20V Load switch

SINK 5V - 20V @ 5A

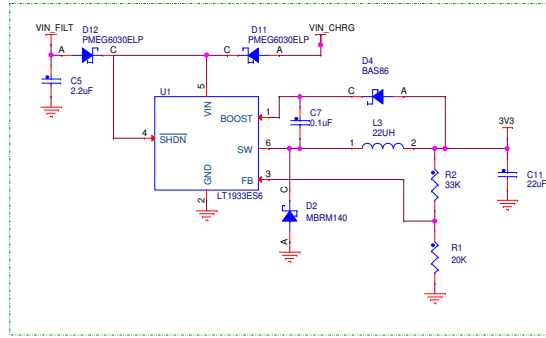


<Core Design>			
			
ICAP Classification:	CP:	IUG:	PUBL:
Drawing Title: X-USBPD-C-SHIELD			
Page Title: PD Source and Sink LS			
Size	Document Number	SCH-29705 PDF: SPF-29705	Rev B2
C			
Date:	Friday, January 26, 2018	Sheet 7	of 8

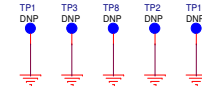
12V Input



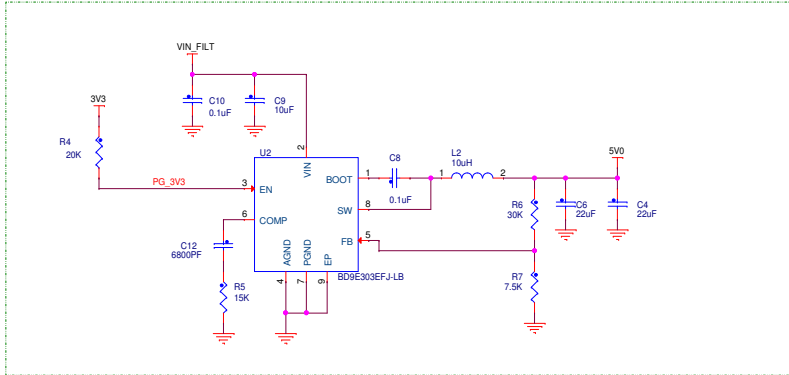
VIN_FILT to 3.3V Generation (Switcher)



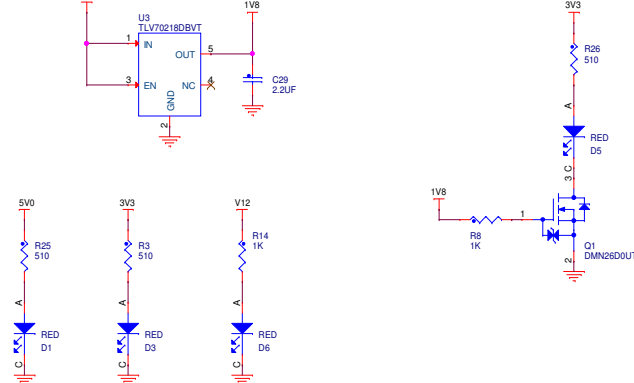
GND TP's



12V to 5V Generation (Switcher)



3.3V->1.8V



<Core Design>



ICAP Classification:		GP:	IUC:	PUBI:
Drawing Title:				
X-USBPD-C-SHIELD				
Page Title:				
3V3, 5V0, 1V8 Supplies				
Size	Document Number			Rev
C	SCH-29705 PDF: SPF-29705			B2
Date:	Friday, January 26, 2018	Sheet	8	of 8