

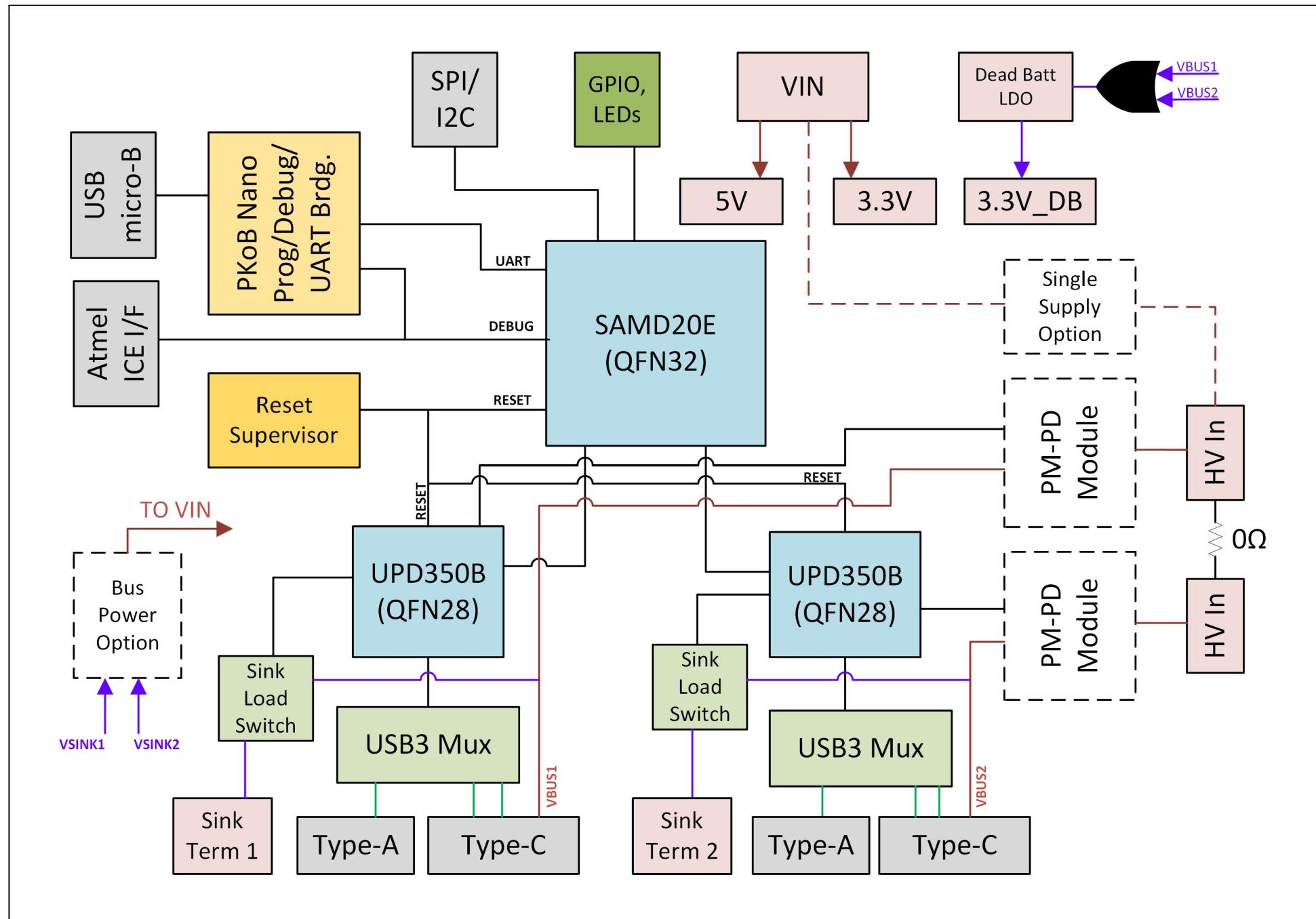
USB Power Delivery Software Framework EVB

Table of Contents

Sheet	Description
1	TOC and Block Diagram
2	SAMD20 and UPD350
3	Signal Breakout, Headers and Debug
4	PD Port Data
5	PD Port Power
6	Board Power Supplies
7	LED Signal and Power Indicators

Revision History

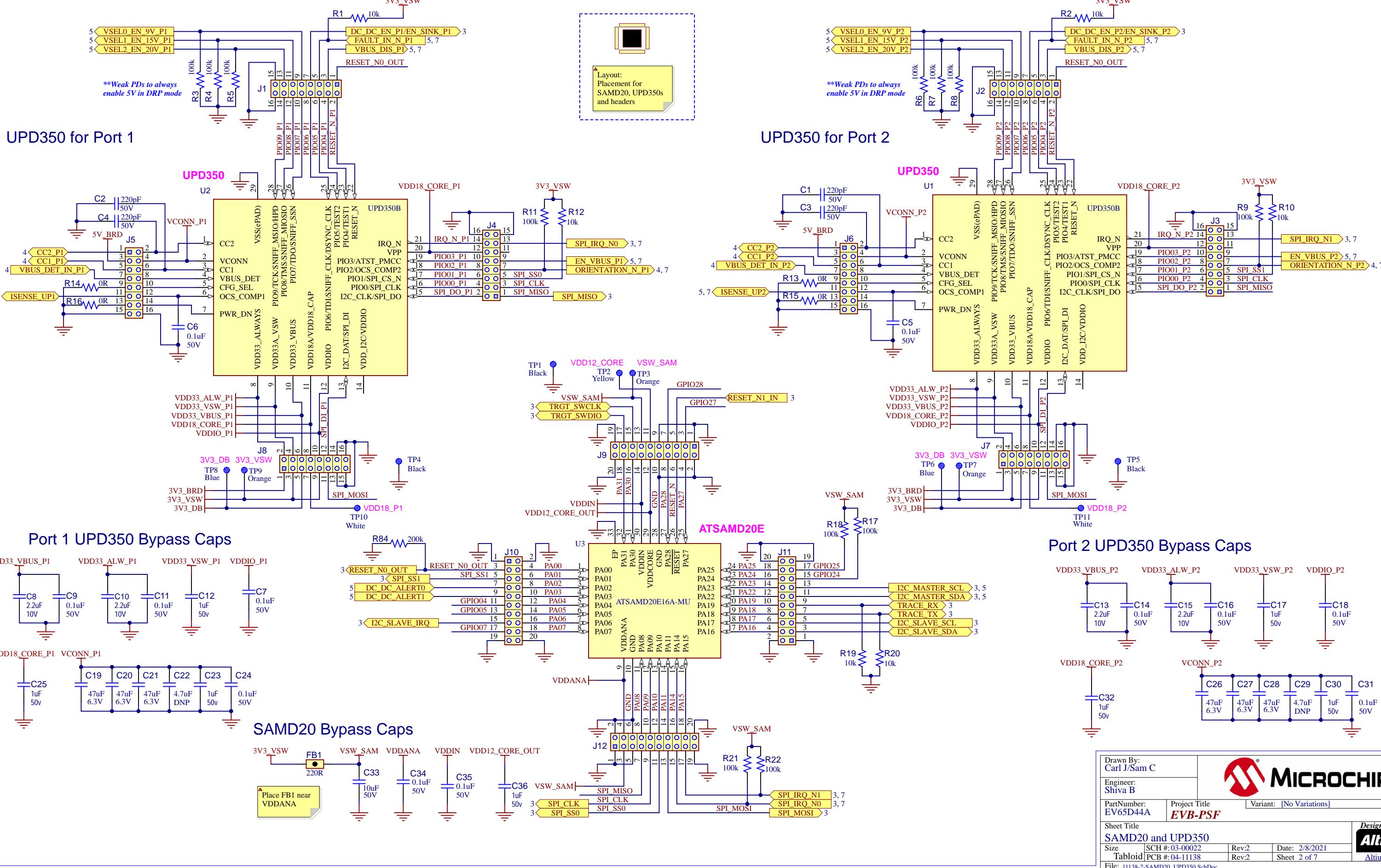
Revision	Date	Revision Summary	Author
1.00	04/02/2020	Initial Public Release	Shiva Balasubramanian
1.10	06/23/2020	UART TX/RX swap for PKOB, silk errata and block diagram fixed	Shiva Balasubramanian
2.00	02/05/2021	BOM changes for U6, JP1 & LABEL1. China RoHS logo revised. Board Silk updated.	Shiva Balasubramanian



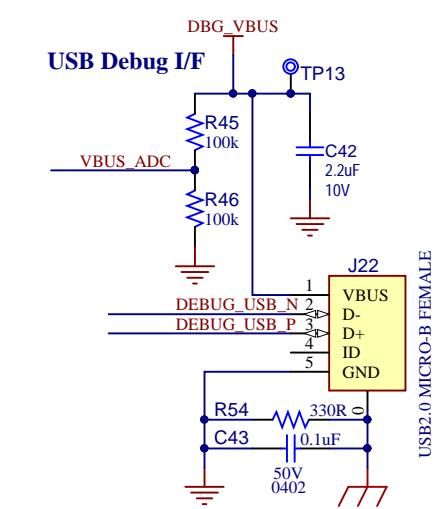
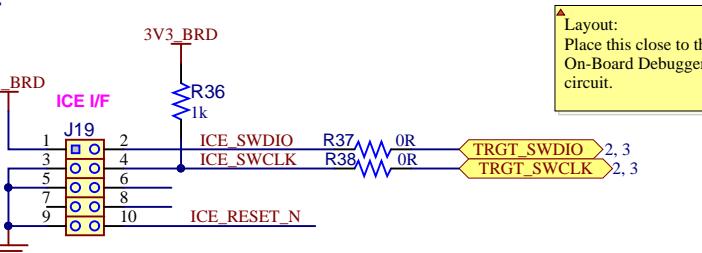
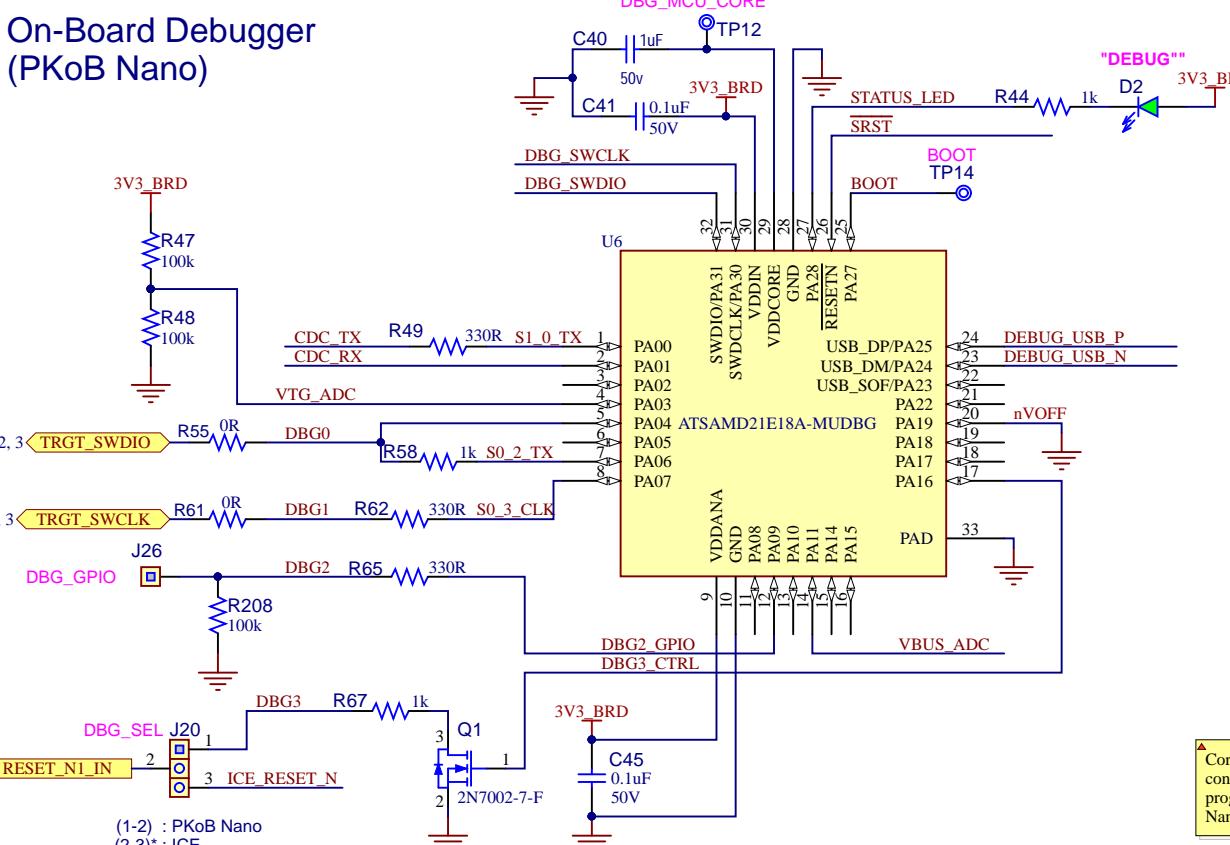
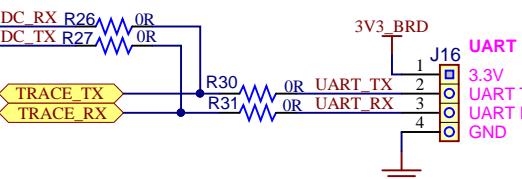
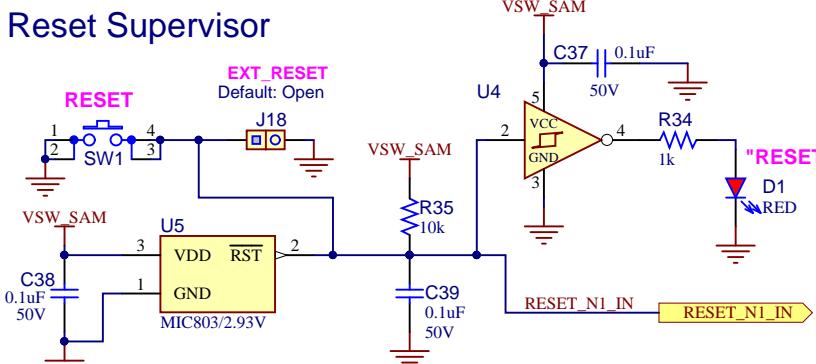
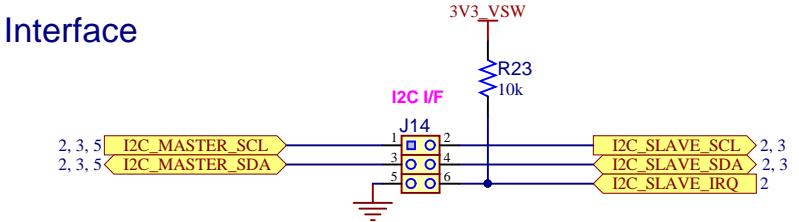
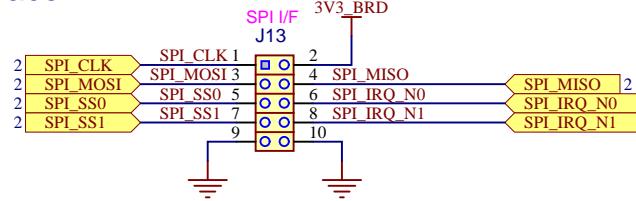
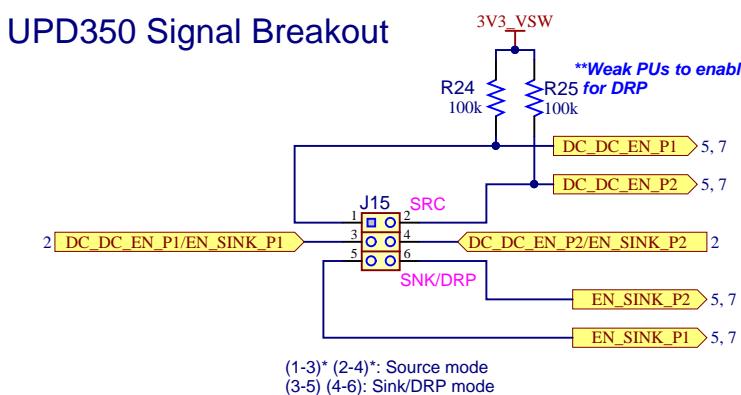
Notes

- 01 All resistors to have +/- 1% tolerance.
- 02 This design will fail the USB PD source mode compliance test for "unpowered CC Voltage" since it uses the UPD350 with dead battery support.
- 03 Default jumper placements can be found in the kit user guide and the board assembly drawing (02-00022-D).

SAMD20 and UPD350



Signal Breakout, Headers and Debug



<i>Interface Signal</i>	ICSP TARGET	UPDI TARGET	SWD TARGET
CDC TX	UART RX	UART RX	UART RX
CDC RX	UART TX	UART TX	UART TX
DBG0	DAT	UPDI	SWDIO
DBG1	CLK	GPIO	SWCLK
DBG2	GPIO	GPIO	GPIO
DBG3	MCLR_N	-	RST

Drawn By:
Carl J/Sam G

Can J Sam C

Engineer:
Shiva B

PartNumber: **EV65D41A** Project Title **EV65D41A**

EV65D44A EVB-PS

Sheet Title

 ©

MICROCHIR

Microchip

Variant: [No Variations]

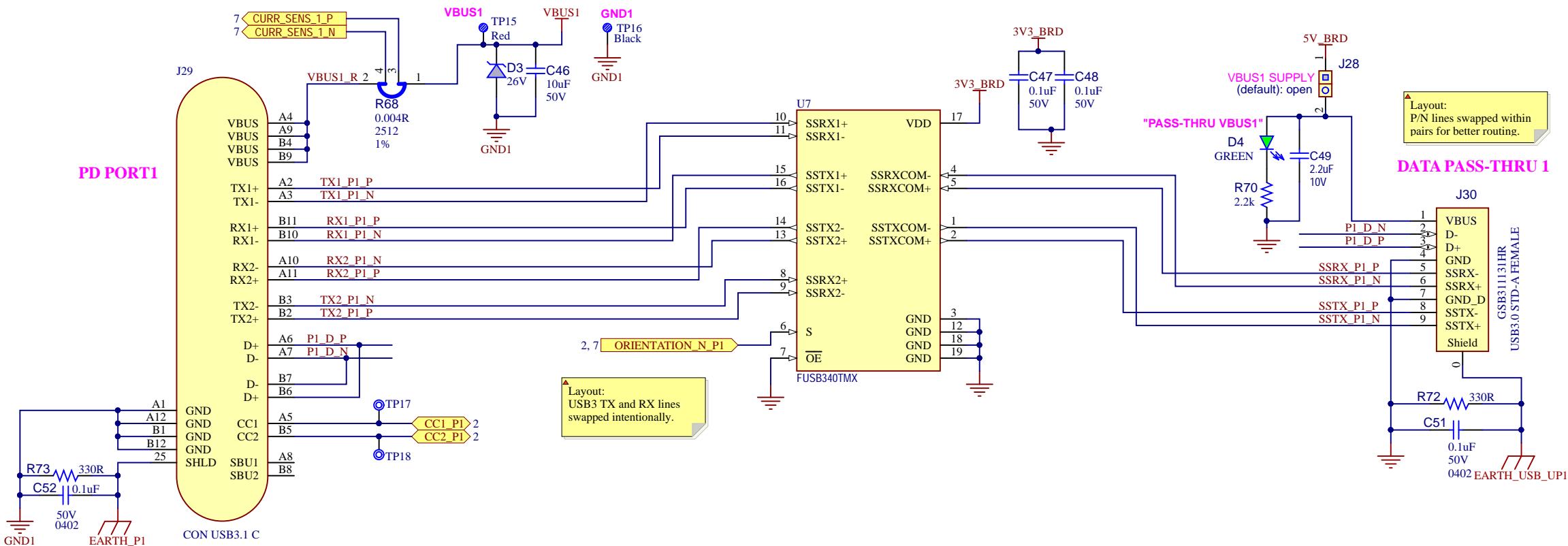
Designed with

Designed with Altium

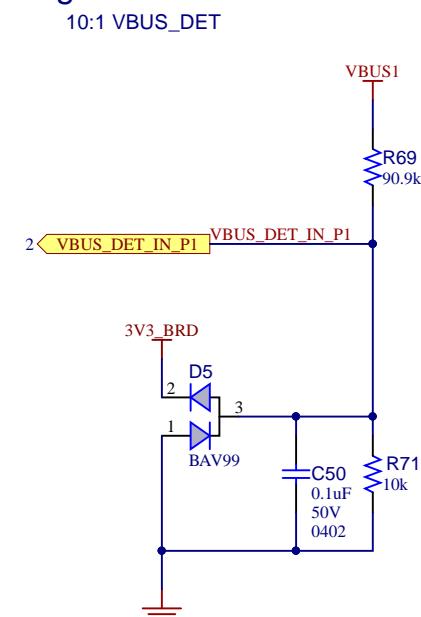
Rev:2 Date: 2/8/2021

PD Port Data

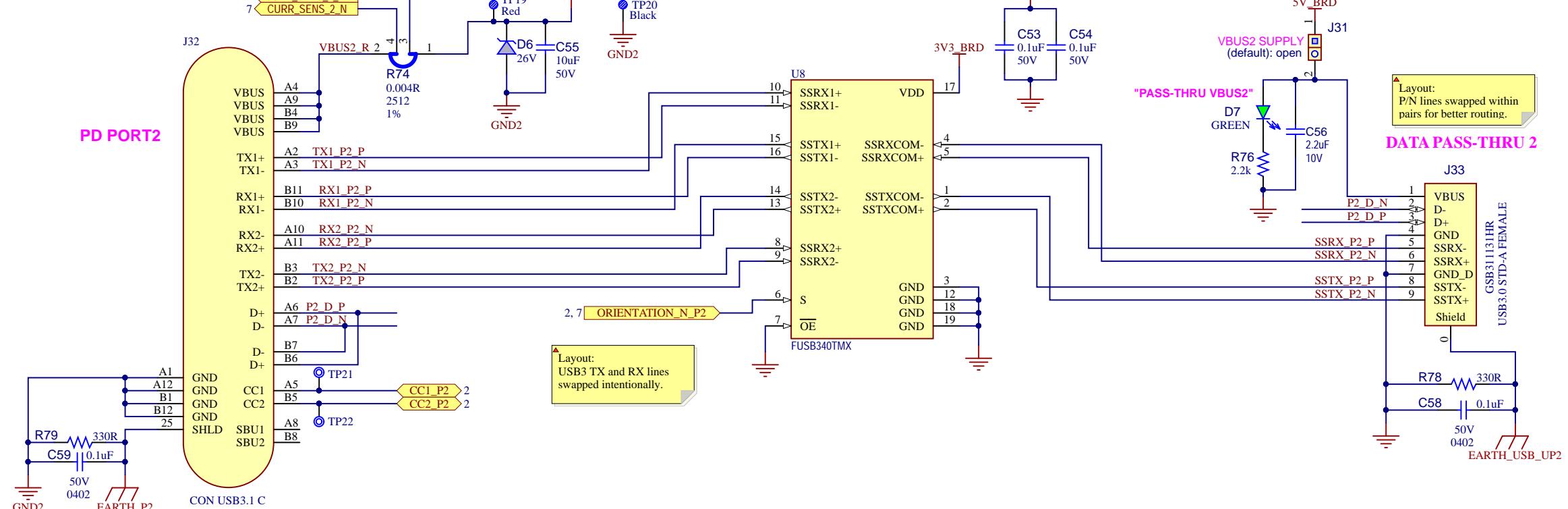
PD Port 1



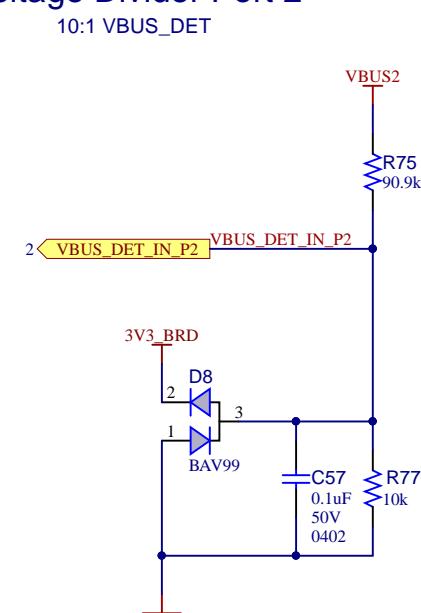
Voltage Divider Port 1



PD Port 2



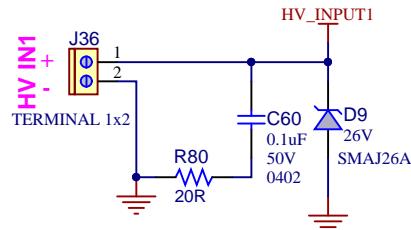
Voltage Divider Port 2



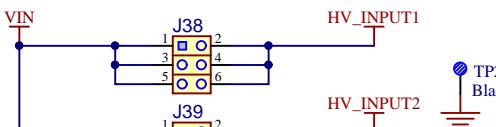
Drawn By: Carl J/Sam C	MICROCHIP		
Engineer: Shiva B			
Part Number: EV65D44A	Project Title EVB-PSF	Variant: [No Variations]	
Sheet Title PD Port Data			Designed with Altium Altium.com
Size Tabloid	SCH #: 03-00022 PCB #: 04-11138	Rev:2	Date: 2/8/2021 Sheet 4 of 7

PD Port Power

PM-PD Input for Port 1

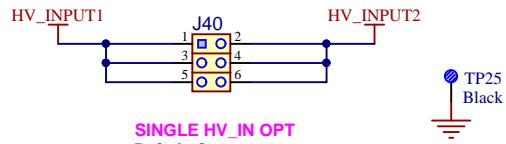


Single Power Supply Option



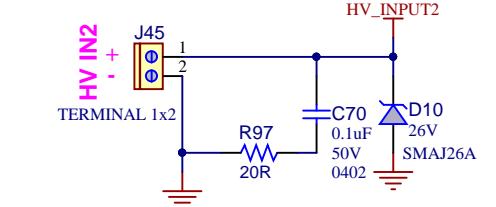
(1-2)*(3-4)*(5-6)*: Single Input Supply (Default)

Single PM-PD Input (HV_IN) Option

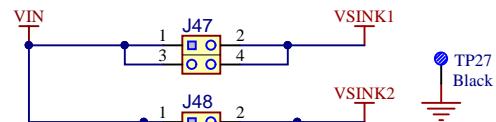


Default: Open
(1-2)(3-4)(5-6): Single HV Input Supply

PM-PD Input for Port 2

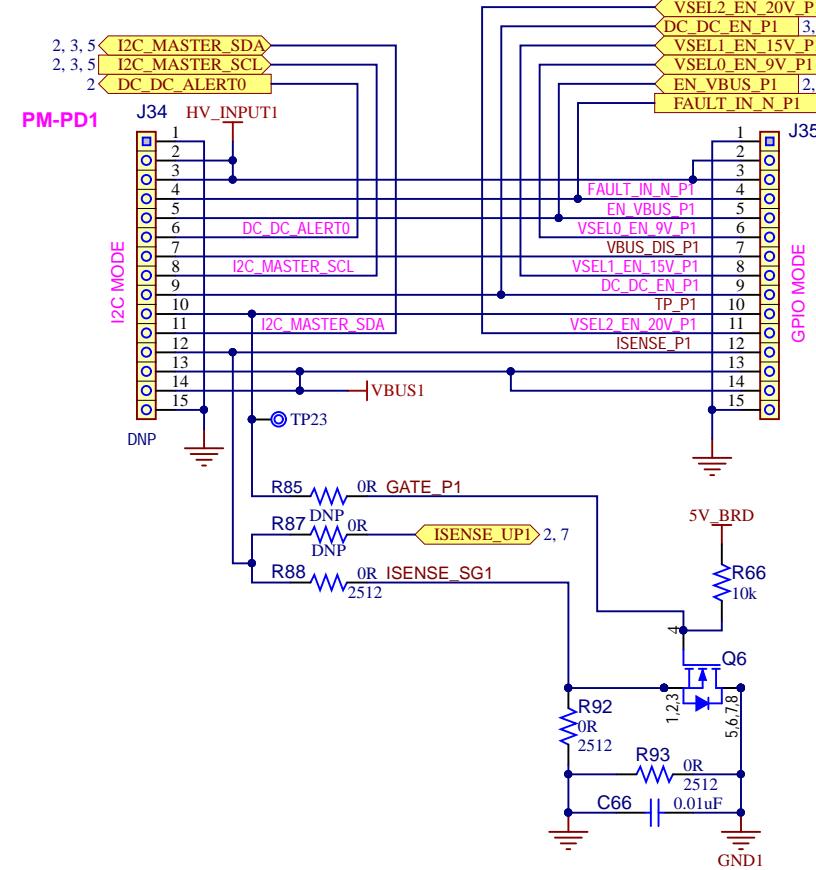


Bus Power Option

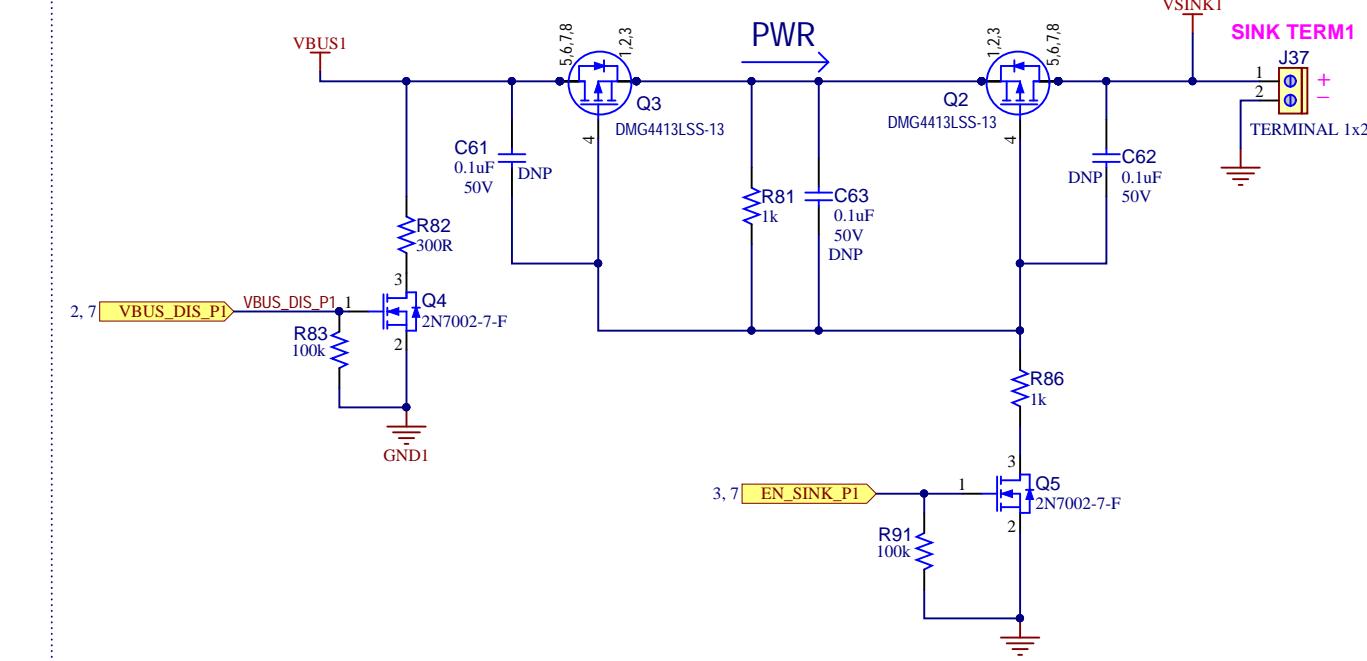


BUS POWER OPT

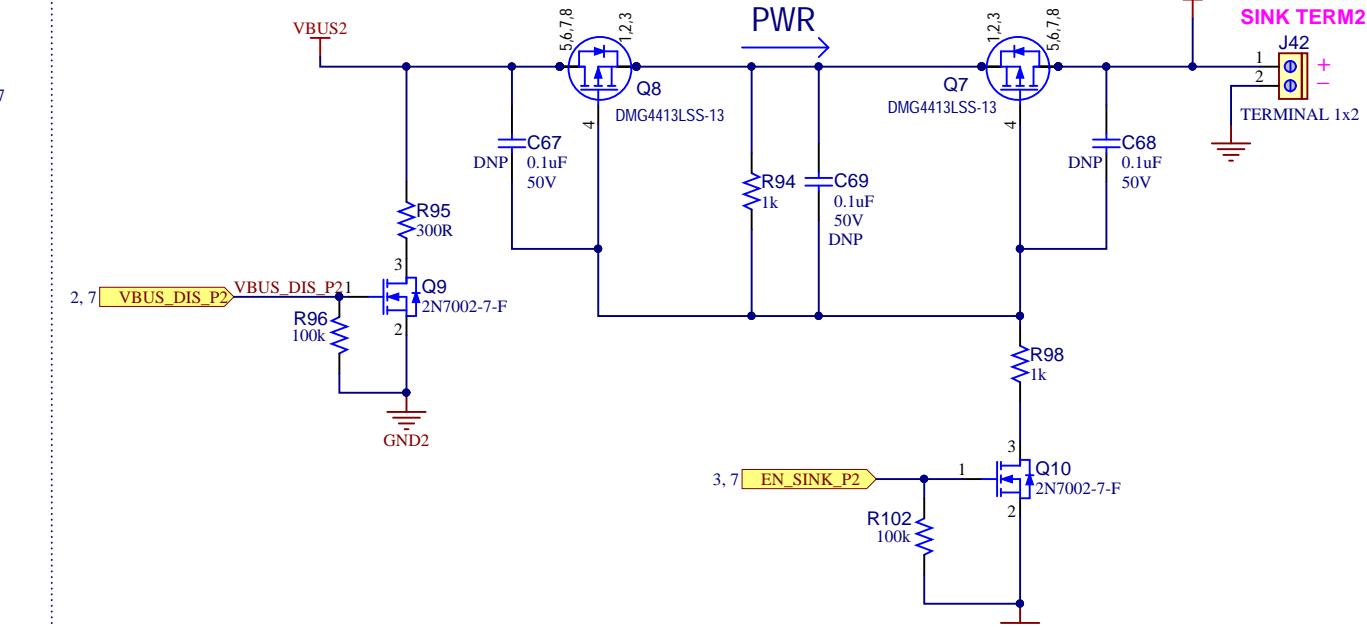
PM-PD Module for Port 1



Port 1 VBUS Sink Load Switch/ Output Connector



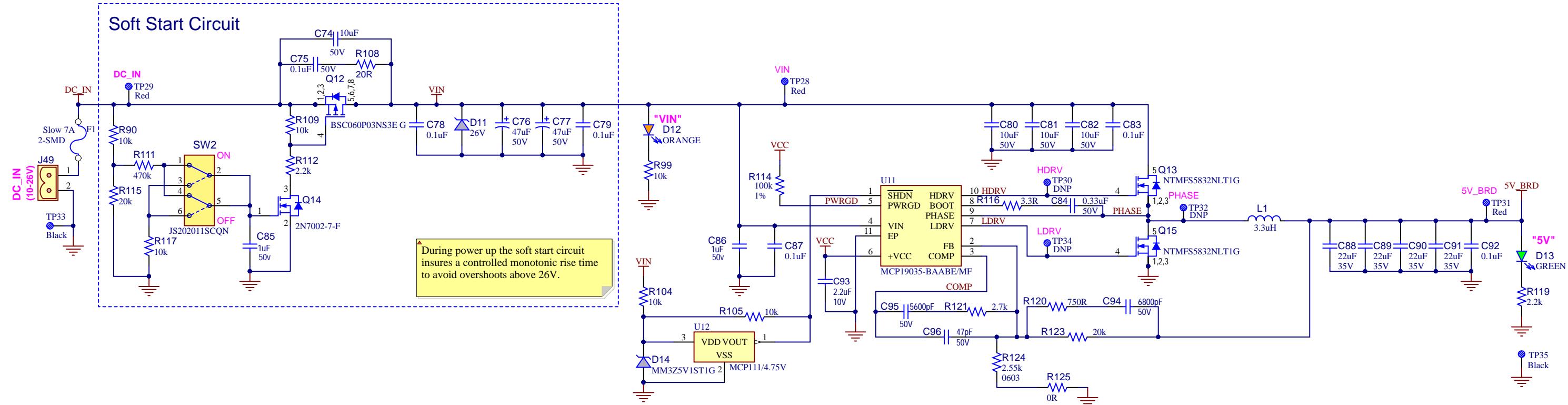
Port 2 VBUS Sink Load Switch/ Output Connector



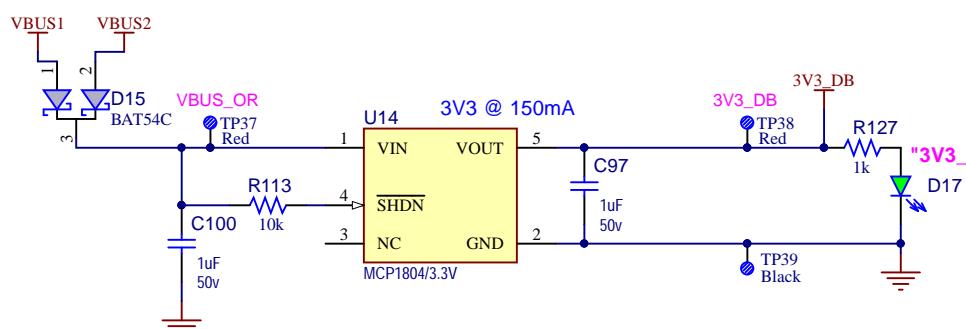
Drawn By: Carl J/Sam C		 MICROCHIP [®]	
Engineer: Shiva B			
PartNumber: EV65D44A	Project Title EVB-PSF	Variant: [No Variations]	
Sheet Title PD Port Power			
Size Tabloid	SCH #: 03-00022 PCB #: 04-11138	Rev 2	Date: 2/8/2021
File: 11138-5-PD_Port_Power.SchDoc			<i>Designed with</i> Allium Altium.com

Board Power Supplies

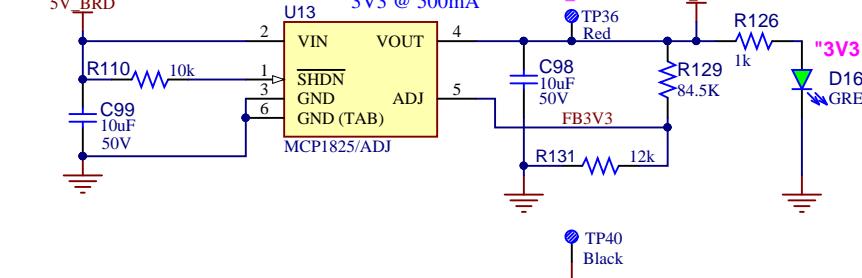
VIN (10-26VDC) TO 5VDC



DEAD BATTERY LDO VBUS(5-20VDC) to 3.3VDC



5VDC to 3.3VDC



Terminal Plug
Populated at Final Assembly



LABEL1
Product number/revision
Serial number
PCBA LABEL 18x6mm

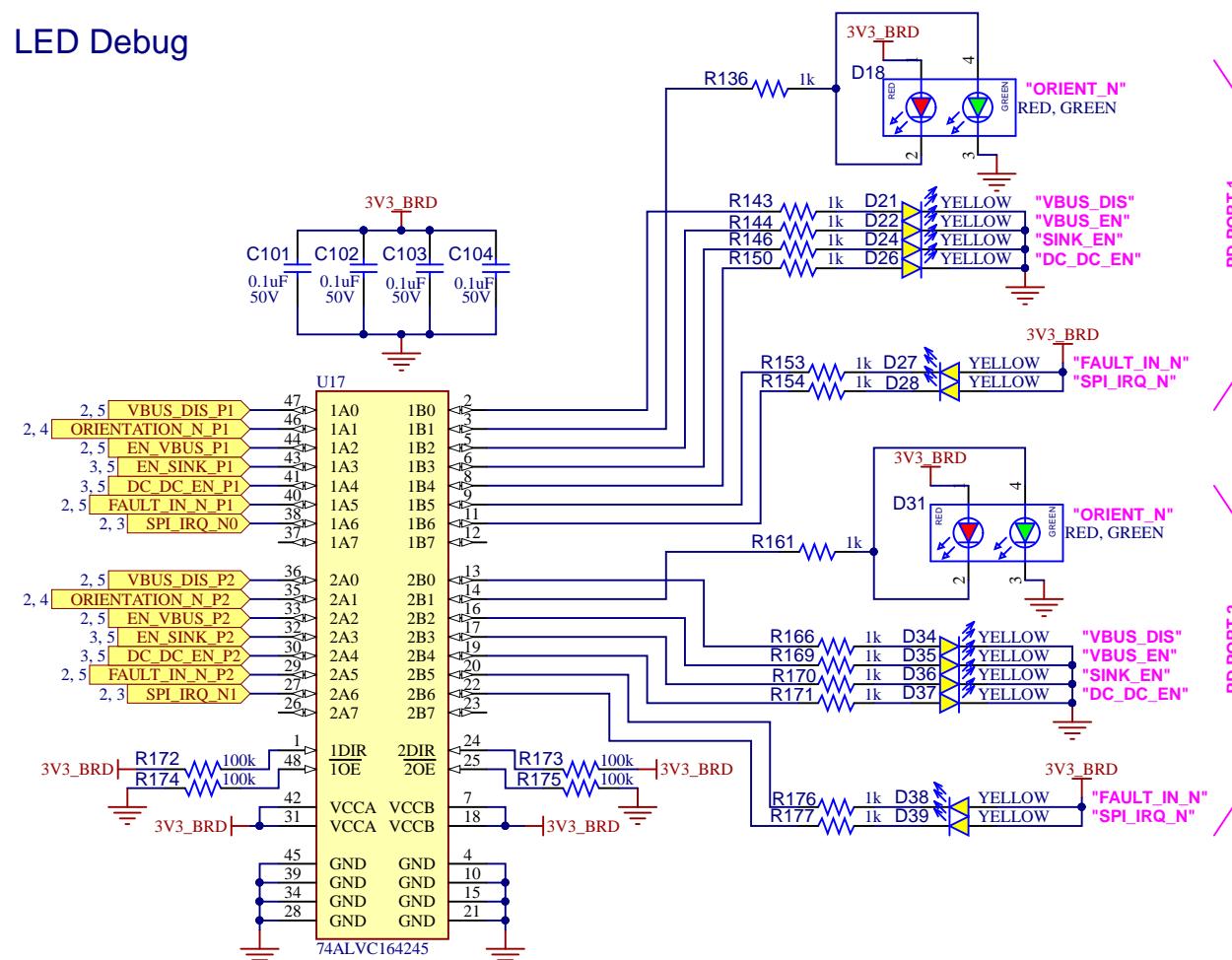


Mounting Holes
MTHOLE 4-40 120DL 220PAD
MH1 MH2 MH3 MH4 MH5
RUBBER PAD D9.5 H4.8
PAD1 PAD2 PAD3 PAD4 PAD5

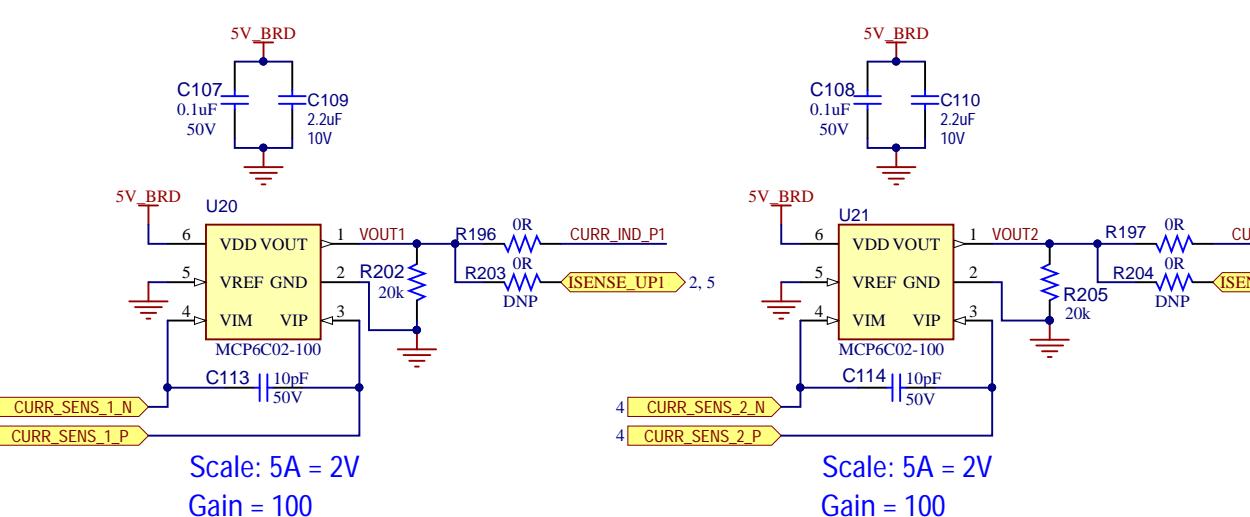
Drawn By: Carl J/Sam C	Engineer: Shiva B	MICROCHIP
PartNumber: EV65D44A	Project Title EVB-PSF	Variant: [No Variations]
Sheet Title Board Power Supplies	Designed with Altium	Altium.com
Size SCh #: 03-00022	Rev:2	Date: 2/8/2021
Tabloid PCB #: 04-11138	Rev:2	Sheet 6 of 7
File: 11138-6-Board Power Supplies.SchDoc		

LED Signal and Power Indicators

LED Debug



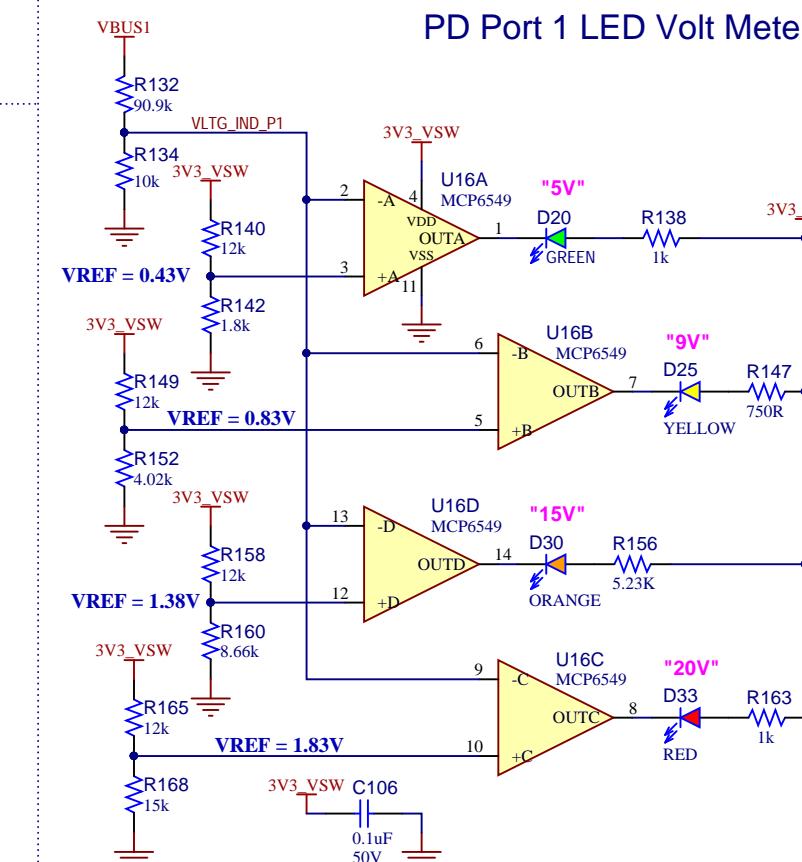
Current Sense Amplifier for PD Port 1 and 2



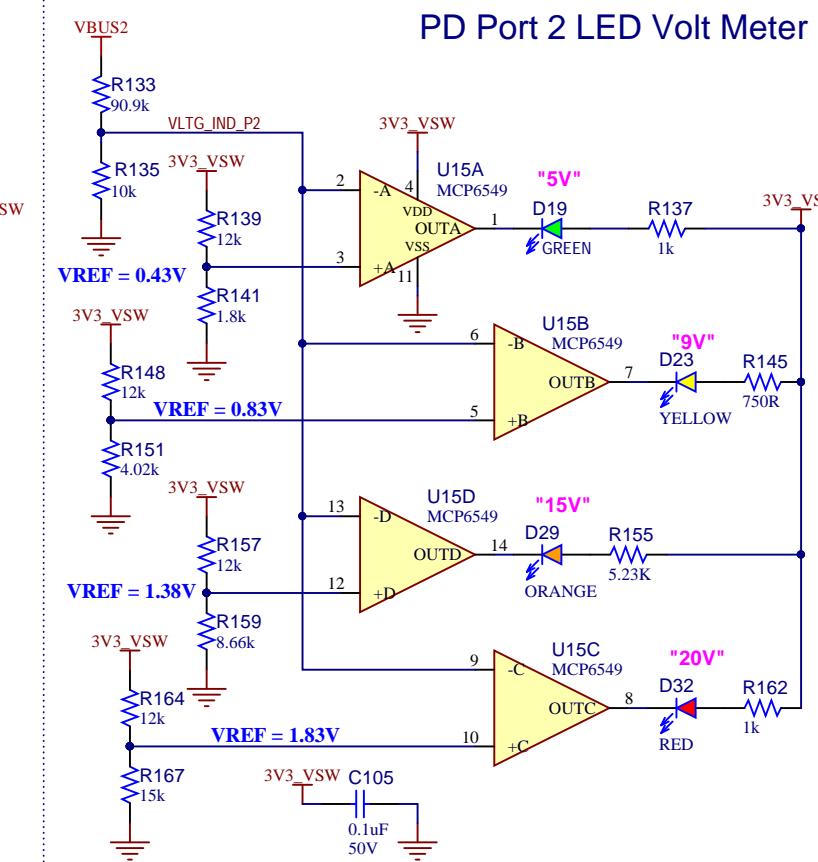
Scale: 5A = 2V
Gain = 100

Scale: 5A = 2V
Gain = 100

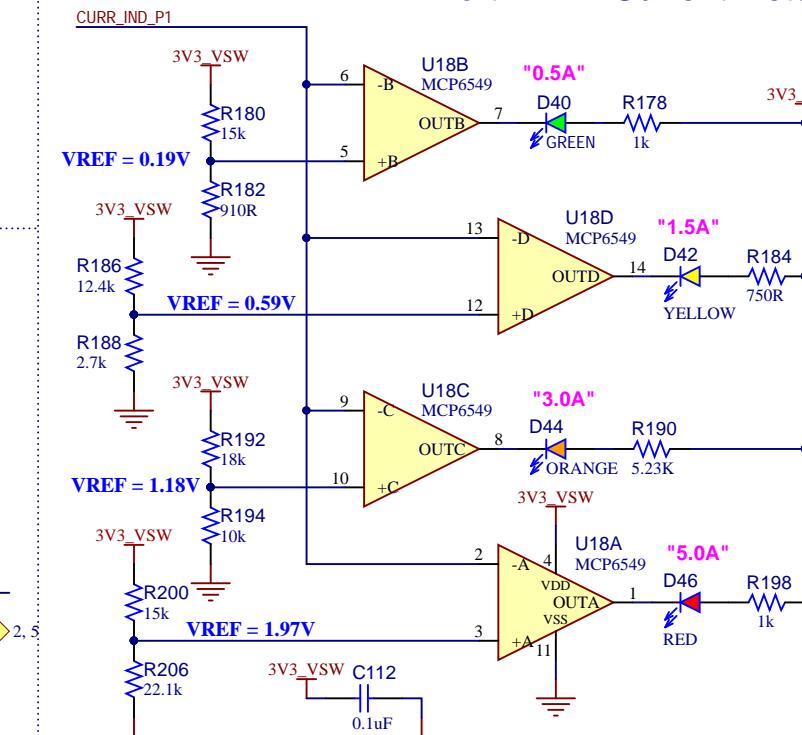
PD Port 1 LED Volt Meter



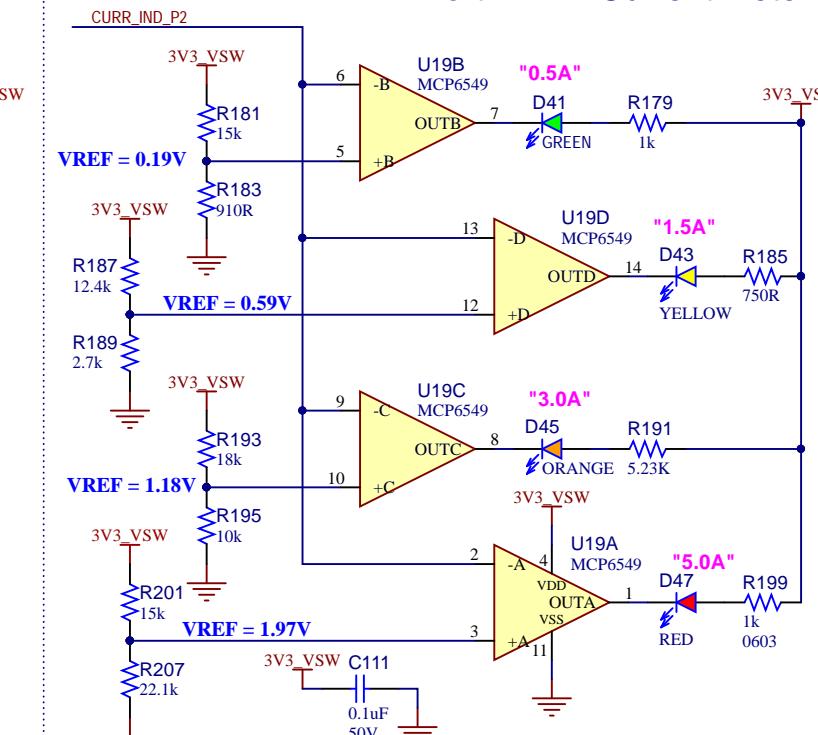
PD Port 2 LED Volt Meter



PD Port 1 LED Current Meter



PD Port 2 LED Current Meter



The LED meters provide a visual indication of the approximate voltage and current at the PD connector.

Drawn By: Carl J/Sam C	
Engineer: Shiva B	
PartNumber: EV65D44A	Project Title EVB-PSF
Sheet Title LED Signal and Power Indicators	Variant: [No Variations]
Size Tabloid	Rev:2 PCB #: 04-11138
Date 2/8/2021	
Altium.com	