UPD301C Basic Sink Application Example

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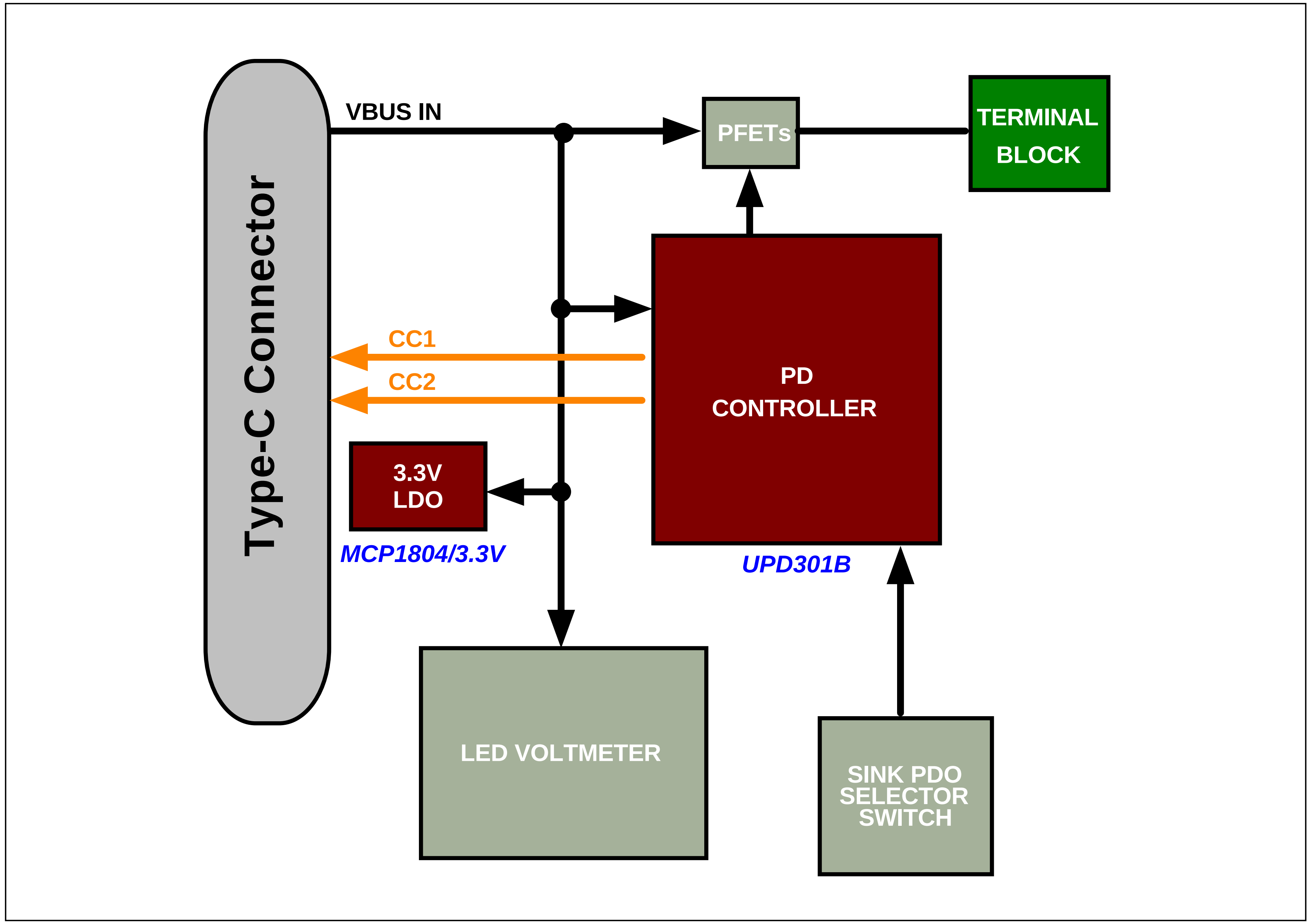
Revision History

Revision	Date	Revision Summary	Author
A00	10/5/2020	Release for Schematic Review	Shiva Balasubramanian
R 1.0	02/14/2020	Release for DevTools	Mick Davis



Notes

01	All resistors to have +/- 1% tolerance unless marked otherwise

Application Specific I/O Configuration

Pin	Source	Config	Net Name	Description
1	SAMD20 PA28	Output: Push/Pull	n/a	Unused. Always Drive Low.
11	SAMD20 PA01	Output: Push/Pull Active High	1.5A_IND	***STANDARD PSF PIN ROLE*** (Unused) Asserts if detected/ negotiated current is 1.5A or more.
12	SAMD20 PA02	Output: DAC	DAC_I	***STANDARD PSF PIN ROLE*** Scaled linear DAC Output. Indicates the negotiated PD sink current level.
13	SAMD20 PA03	Output: Push/Pull	n/a	Unused. Always Drive Low.
17	SAMD20 PA04	Input: ADC	PDO_SEL	Application defined pin role used to select desired Sink capability PDO
18	SAMD20 PA05	Input: ADC	I_SENSE	Application defined pin role used to detect actual current measurement as signaled by current sense amp
26	UPD350 PIO2	Output: Push/Pull Active High	ORIENTATION	***STANDARD PSF PIN ROLE*** Asserts if CC is detected on CC2
30	SAMD20 PA15	Output: Push/Pull Active High	3.0A_IND	***STANDARD PSF PIN ROLE*** (Unused) Asserts if detected/ negotiated current is 3.0A or more.
36	SAMD20 PA22	Output: Open Drain Active High	EN_SNK	***STANDARD PSF PIN ROLE*** Asserts if VBUS voltage is in vSafe5V or at negotiated voltage
37	SAMD20 PA23	Output: Open Drain Active Low	CAP_MIS-MATCH	***STANDARD PSF PIN ROLE*** Asserts if PD Sink Negotiation is successful but mismatched.
38	UPD350 PIO8	Output: Push/Pull Active High	VBUS_DIS	***STANDARD PSF PIN ROLE*** Asserts after USB detach or fault condition for fast VBUS discharge.
39	UPD350 PIO9	Input: Active Low	FAULT_IN_N	***STANDARD PSF PIN ROLE*** (Unused) Digital input which can be used to indicate a fault to UPD301C

Drawn By: Mick Davis
Engineer: Mick Davis
PartNumber: EV11L78A
Project Title: *UPD301C Basic Sink Application Example*
Variant: [No Variations]
Sheet Title: Table of Contents
Size: Tabloid
SCH #: 03-00056 Rev:1.0 Date: 2/12/2021
PCB #: 04-11131 Rev:1.0 Sheet 1 of 3
File: 01-11131-TOC.SchDoc
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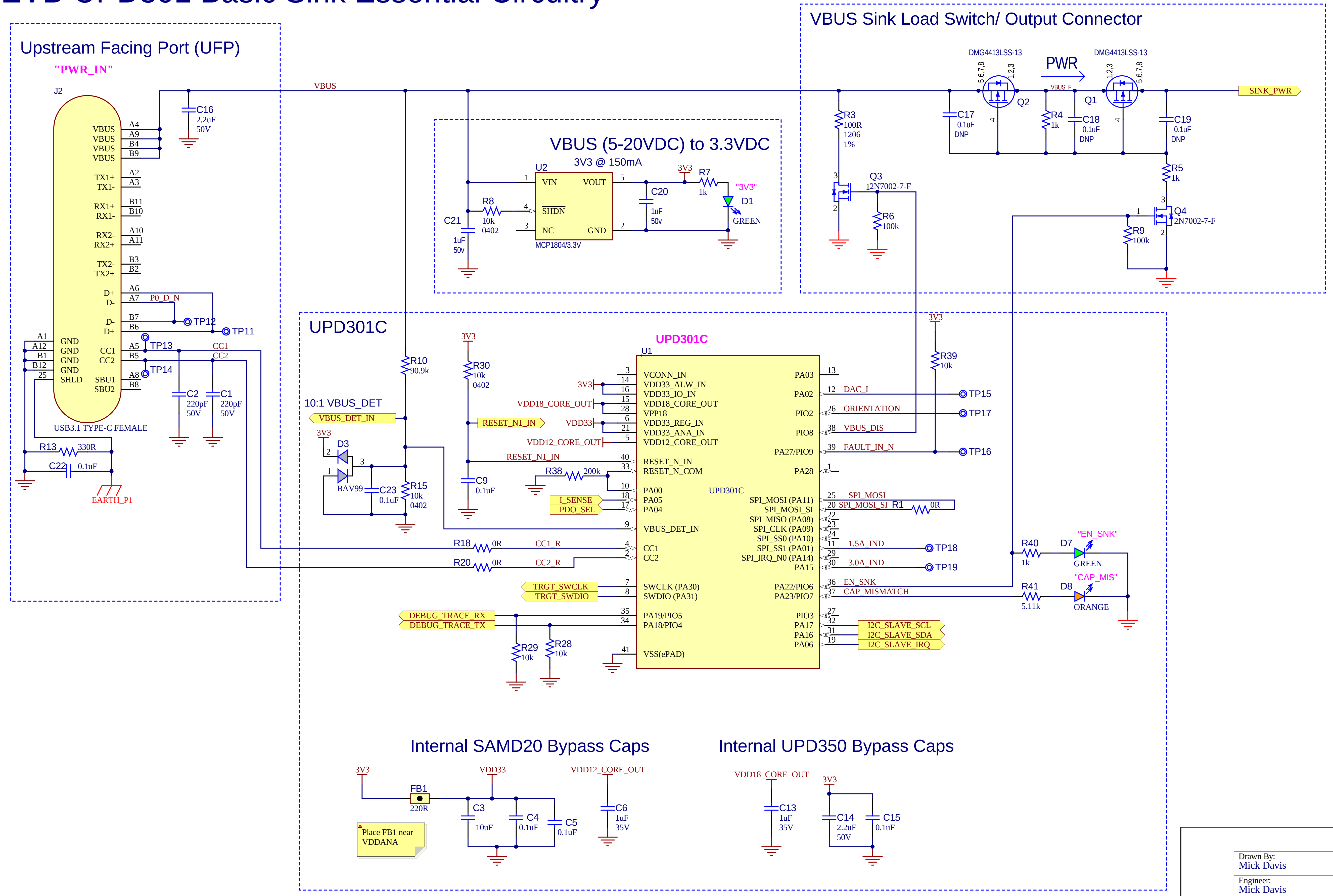
EVB-UPD301 Basic Sink Essential Circuitry



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Engineer: Mick Davis	
PartNumber: EV11L78A	Project Title: *UPD301C Basic Sink Application Example* — Variant: [No Variations]
Sheet Title: Basic Sink Essential Circuitry	Designed with Altium
Size: Tabloid	SCH #: 03-00056 — Rev:1.0 — Date: 2/12/2021
	PCB #: 04-11131 — Rev:1.0 — Sheet 2 of 3 — Altium.com
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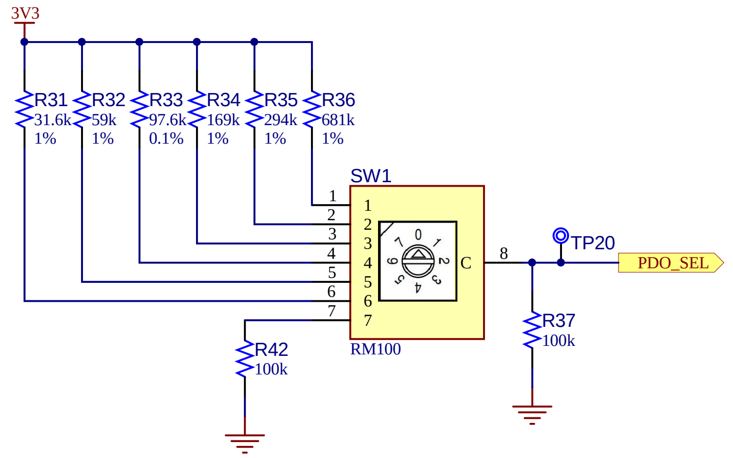
Demo and Optional Support Circuitry

Sink PDO Capability Selector Switch

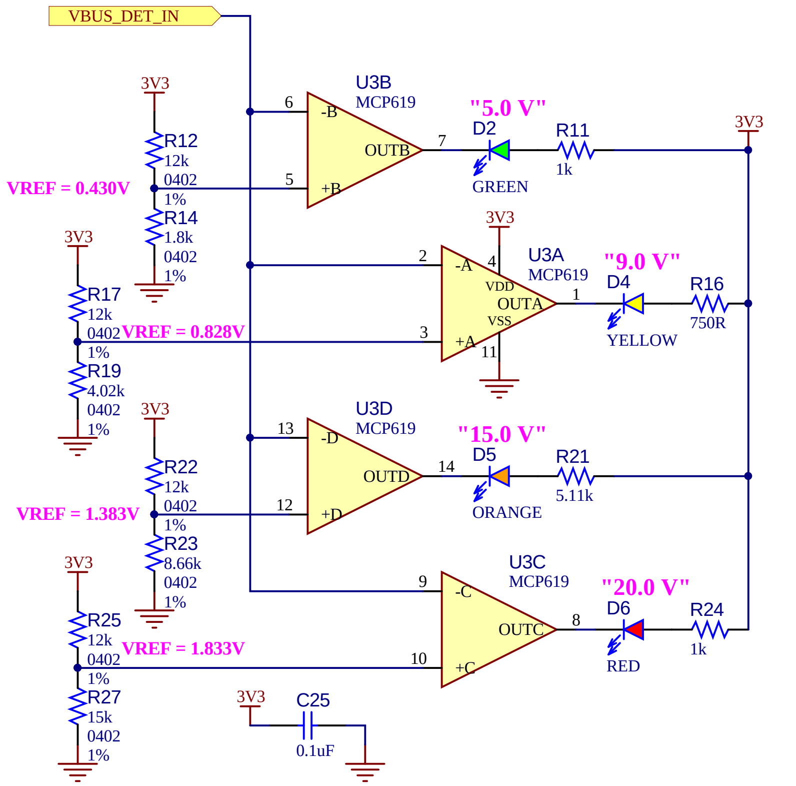


Switch Position	PDO_SEL Voltage
1	0.42V
2	0.83V
3	1.25V
4	1.66V
5	2.08V
6	2.50V
7	0.0V

Use of the PDO Selector Switch depends on PSF application.

A recommended use-case is to use the knob to select on Sink PDO from a pre-configured list of Sink PDO options.

VBUS LED Volt Meter

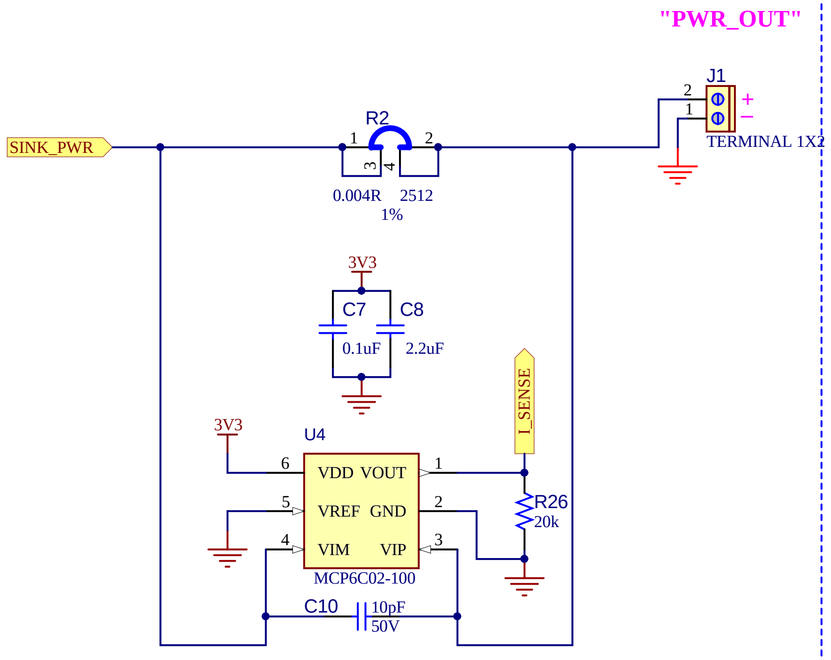


The LED Voltmeter provides a visual indication of the approximate voltage at the PD connector.

Current Sense Amplifier

A discrete current sense amplifier is not required for PSF applications.

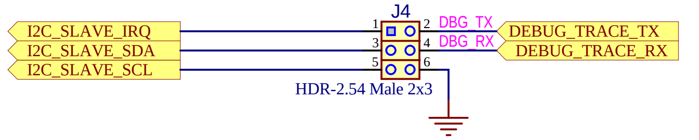
This is an optional component which may be used to sense current draw and use that information in an application specific way (i.e.: shutdown in an overcurrent condition)



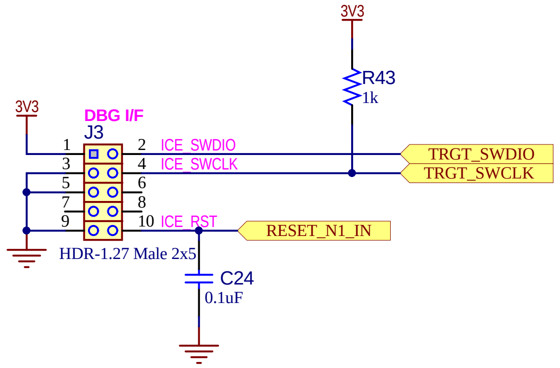
Scale: 5A = 2V

Gain = 100

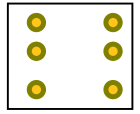
Debug/Status



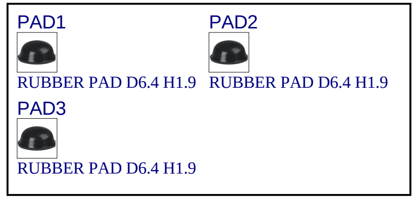
Programming
Atmel ICE I/F



Fiducials



Rubber Feet



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Sheet Title Demo and Optional Support Circuitry			Designed with Altium Altium.com
Size Tabloid	SCH #: 03-00056 PCB #: 04-11131	Rev:1.0 Rev:1.0	Date: 2/12/2021 Sheet 3 of 3
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