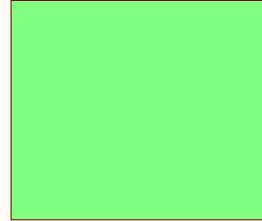


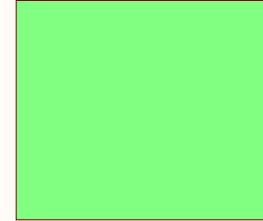
TABLE OF CONTENTS	
PAGE	DESCRIPTION
1	TITLE PAGE
2	TOP
3	Skywire
4	Power
5	Application Interfaces
6	ECO LIST

TITLE PAGE

TOP
TOP.SchDoc



ECO
ECO LIST.SchDoc



© NimbeLink Corp. 2020. All rights reserved.

NimbeLink Corp. provides this documentation in support of its products for the internal use of its current and prospective customers. The publication of this document does not create any other right or license in any party to use any content contained in or referred to in this document and any modification or redistribution of this document is not permitted.

While efforts are made to ensure accuracy, typographical and other errors may exist in this document. NimbeLink reserves the right to modify or discontinue its products and to modify this and any other product documentation at any time.

All NimbeLink products are sold subject to its published Terms and Conditions, subject to any separate terms agreed with its customers. No warranty of any type is extended by publication of this documentation, including, but not limited to, implied warranties of merchantability, fitness for a particular purpose and non-infringement.

Skywire and NimbeLink are trademarks of NimbeLink Corp. All other trademarks appearing in the document are the property of their respective owners.

IMPORTANT NOTES ABOUT THIS SCHEMATIC

DESIGN NOTE: Example text for the design note to show the note inside the colored box.

1) DESIGN NOTES in grey are information notes.

DESIGN NOTE: Example text for the design note to show the note inside the colored box.

2) DESIGN NOTES in red are critical, and must be understood and followed.

✘ 3) A red X indicates suppression of error checking on a pin/net. Commonly suppressed errors include: single-pin net, no driving source, etc.

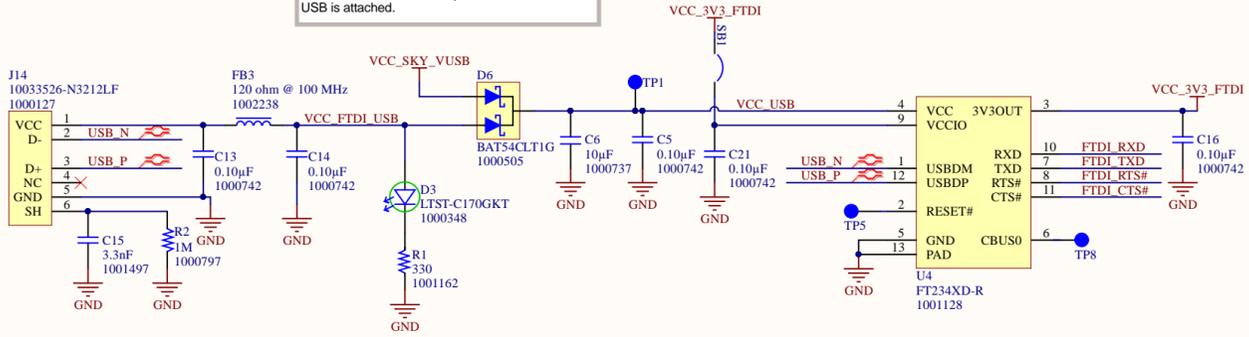
4) All unique components in this schematic should have a manufacturer's part number displayed; exceptions to this rule are commodity passives such as resistors and capacitors.

5) Finally, population vs. non-population intent is indicated by adding "NP" next to the part. All parts with "NP" next to the part are intended to be unplaced during assembly.

© NimbeLink Corp. 2020. All rights reserved.

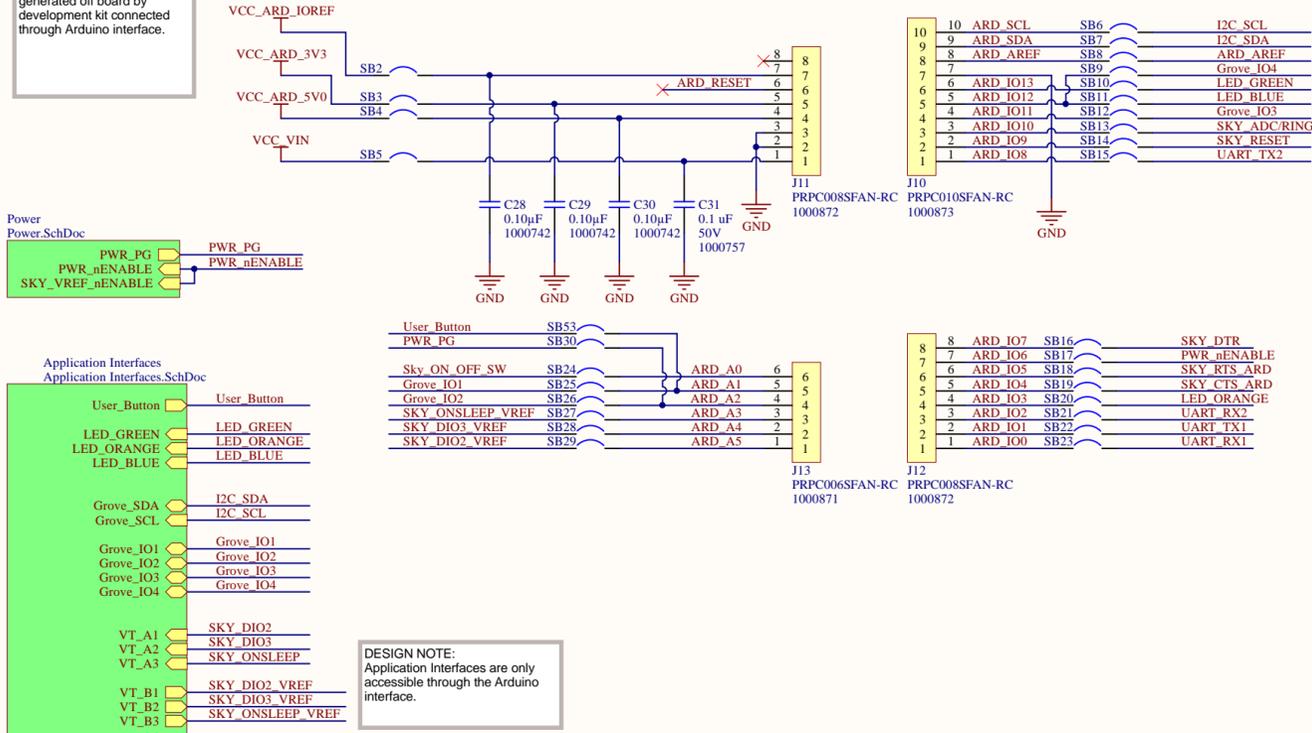
		<small>www.nimbelink.com MINNEAPOLIS</small>	
Title: TITLE			
Project: Dev Kit, SWDK2	Size: B	Sheet 1	of 6
Number: 1002211	Rev: E	Modified: 9/2/2020	3:32:58 PM
Prepared for: SWDK2 Dev Kit			

DESIGN NOTE:
U4 VCC power is diode OR'd with both USB connectors to ensure VCC_3V3_FTDI is available for modern VREF when only the direct modem USB is attached.



USB to UART Converter

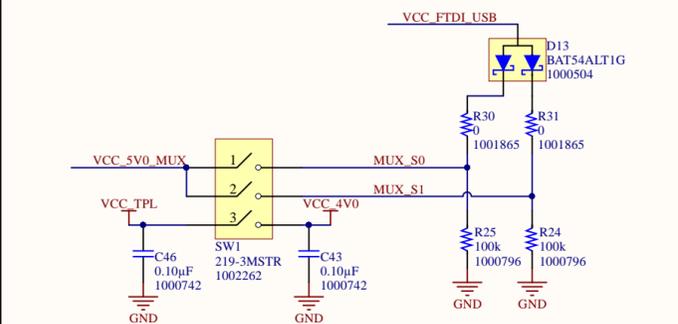
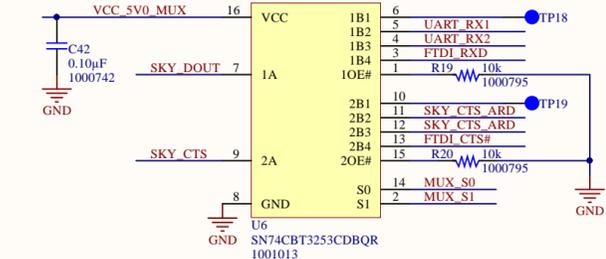
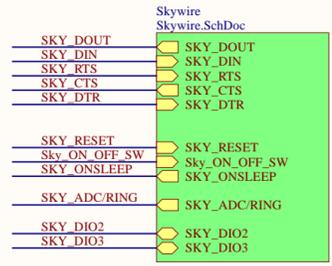
DESIGN NOTE:
VCC_ARD_3V3, VCC_ARD_5V0, and VCC_ARD_IOREF are generated off board by development kit connected through Arduino interface.



Arduino Interface



Skywire



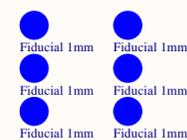
DESIGN NOTE:
SW1 controls the routing of the modem's serial interface and the automatic modem power-on functionality.

UART Routing	SW1-1	SW1-2	U3/U6 IO	U3/U6 Function
Test Points	OFF	OFF	B1	A=B1
ARD UART1	ON	OFF	B2	A=B2
ARD UART2	OFF	ON	B3	A=B3
USB-SERIAL*	ON	ON	B4	A=B4

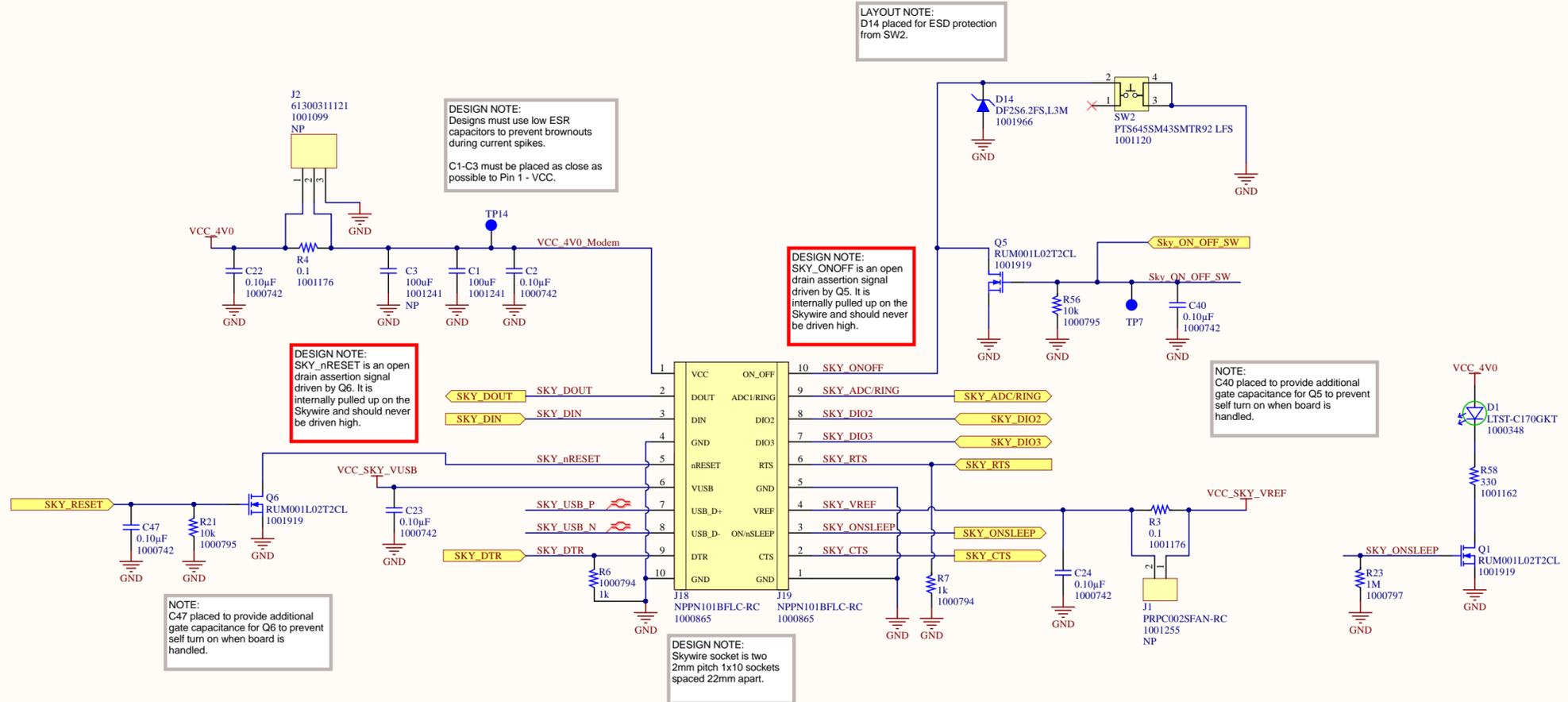
SW1-1	ON
SW1-2	ON
SW1-3	ON

DESIGN NOTE:
*Modem UART is automatically routed to the USB to UART Converter when J14, the USB to UART USB Interface, is connected.

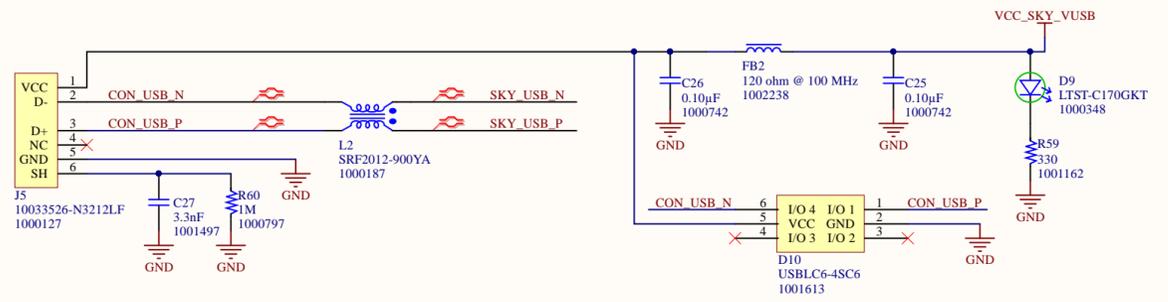
UART Interface Selection



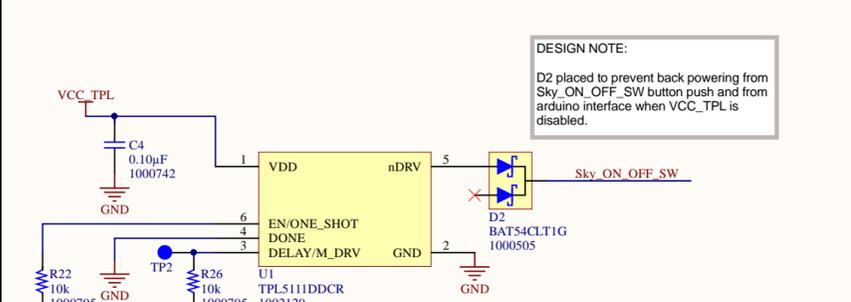
Schematic
1002211
PCB
1002583



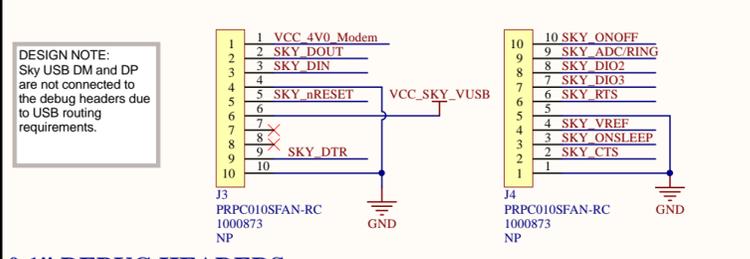
Skywire Interface



Skywire USB Interface

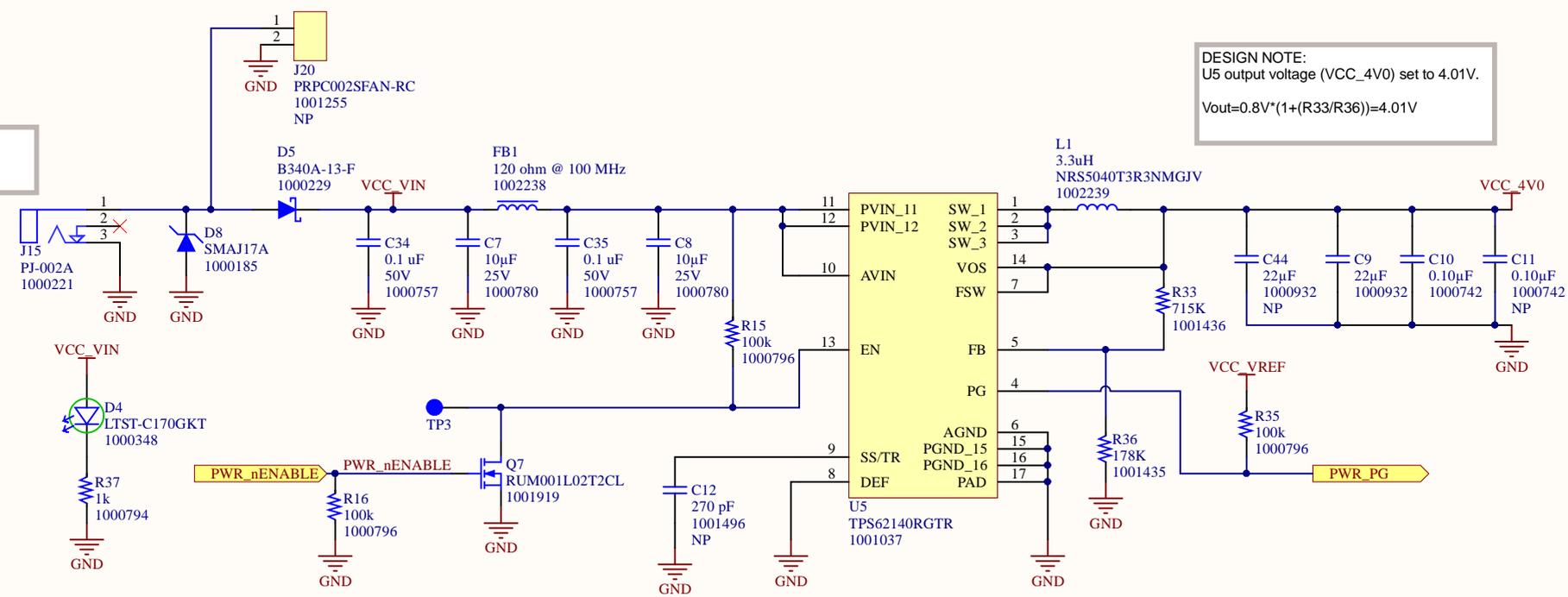


Skywire Auto ON Circuitry

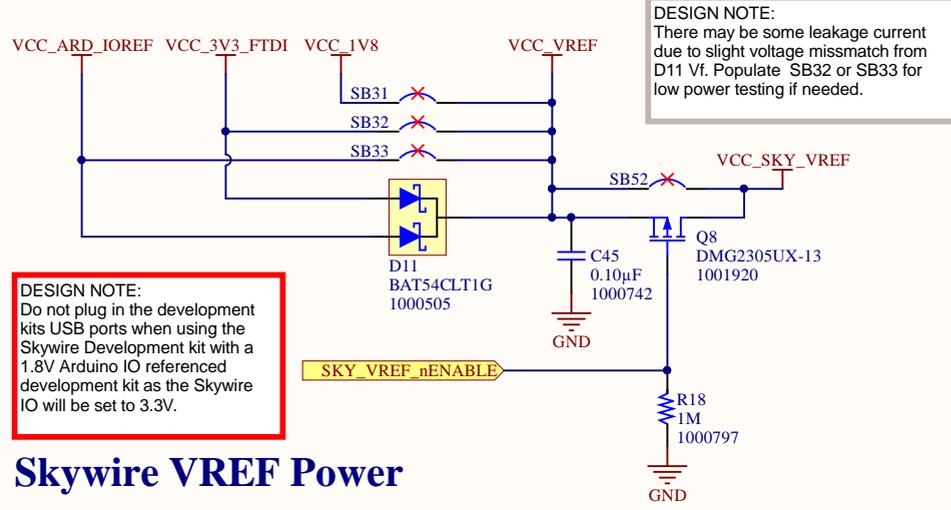


DESIGN NOTE:
12V input voltage.

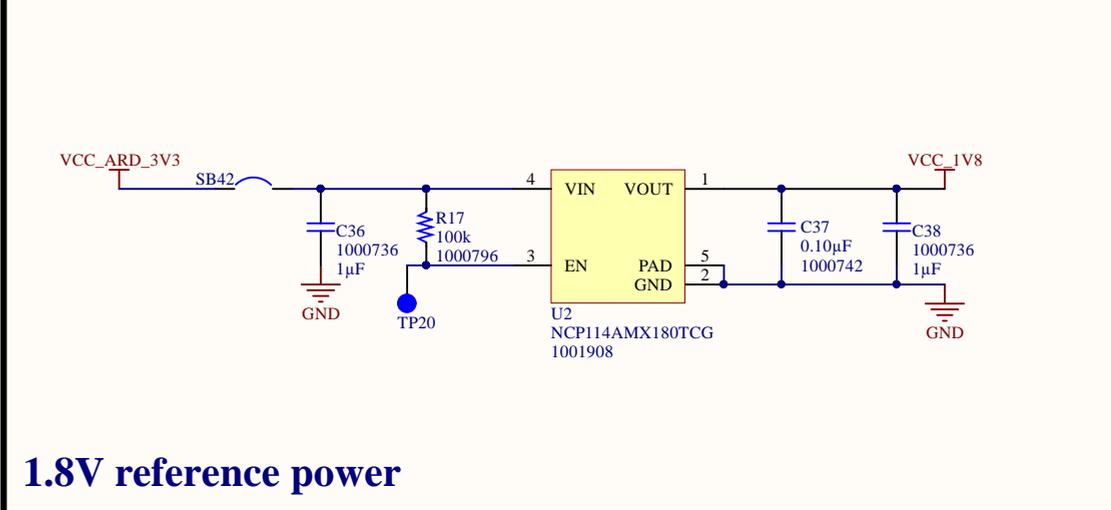
DESIGN NOTE:
U5 output voltage (VCC_4V0) set to 4.01V.
 $V_{out} = 0.8V * (1 + (R33/R36)) = 4.01V$



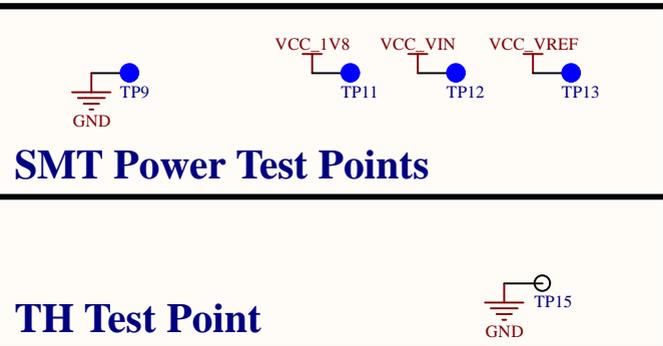
Skywire 4V Power



Skywire VREF Power



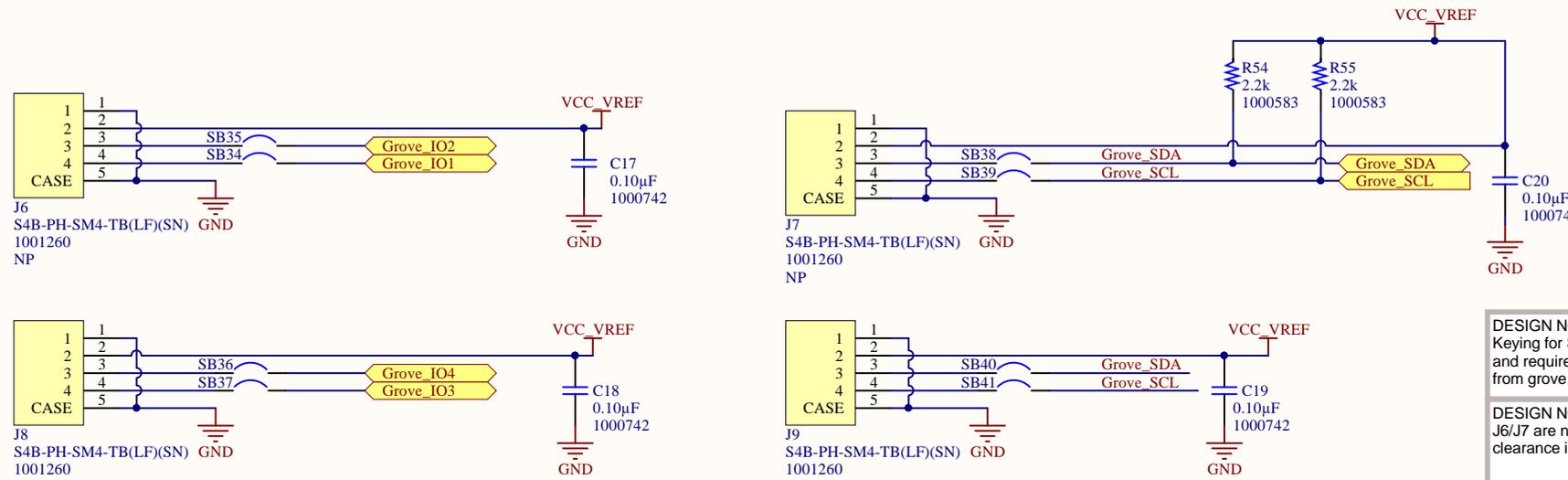
1.8V reference power



SMT Power Test Points

TH Test Point

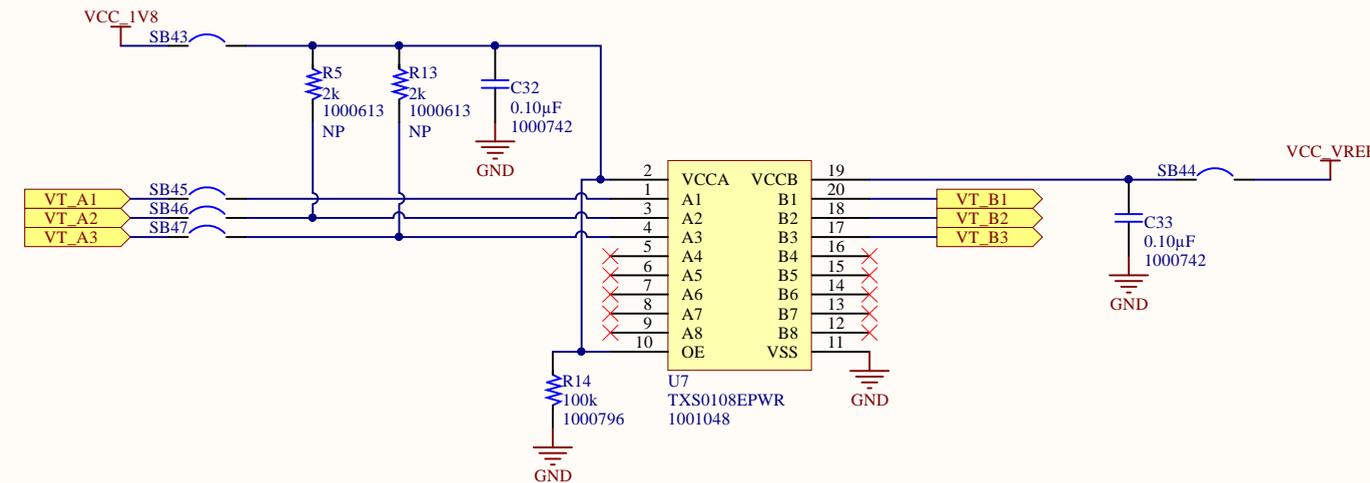
Application Interfaces



DESIGN NOTE:
Keying for SMT Grove connectors is reversed and requires the pin interface to be mirrored from grove standard.

DESIGN NOTE:
J6/J7 are not populated due to potential clearance issue with some Skywire modems.

Grove Connectors

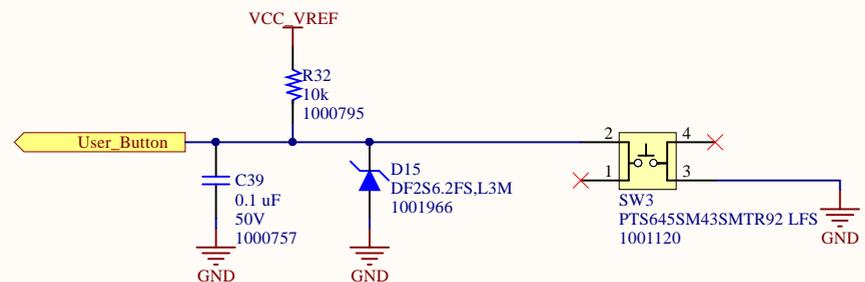


DESIGN NOTE:
Use of U7 in end designs is optional. U7 placed to allow for easy level translation of 1.8V Skywire signals for Arduino interface and to allow for compatibility across multiple development kits. Level shifting is not required for these signals for processor IO that support 1.8V IO or for designs that are not using these pins.

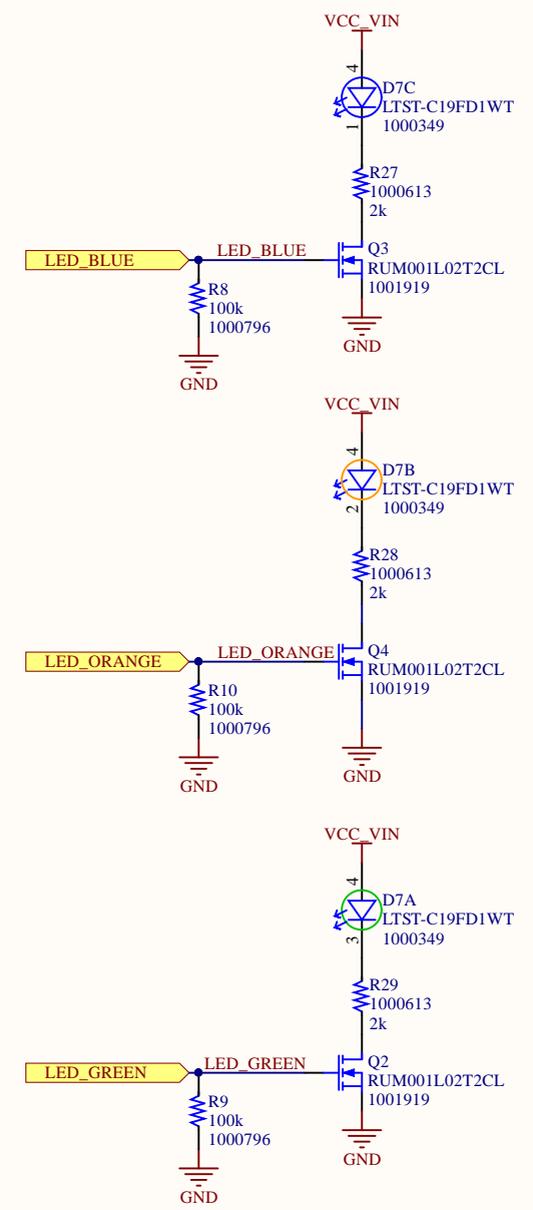
DESIGN NOTE:
Disconnect SB43-SB47, and SB42 (Power Page) for low power testing.

R5 and R13 Pullup footprints are placed to support QBG96 I2C interface.

1.8V IO Level Shifter



User Button



LED's

