



Thunderboard Sense

EFR32MG12P332F1024GL125

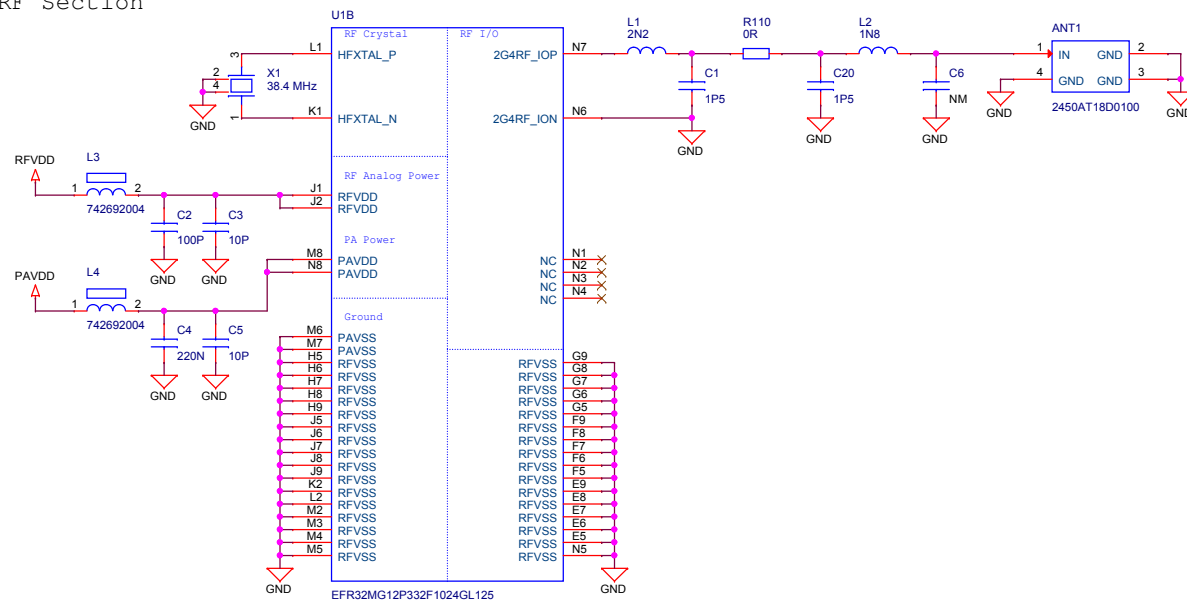
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MEMS Microphone & RGB LEDs	4
SPI & I2C Sensors	5
Debug MCU	6
Debug Misc. & Power	7

Revision History

Rev.	Description
A00	Initial prototype version.
B00	Updated EFR32 and debugger IC revisions. Replaced analog microphone with an I2S-based digital one.
B01	Changed microphone to Knowles SPH0645LM4H-B
C00	Updated microphone and SPI Flash pinout. Changed to Invensense microphone and 9-axis IMU.

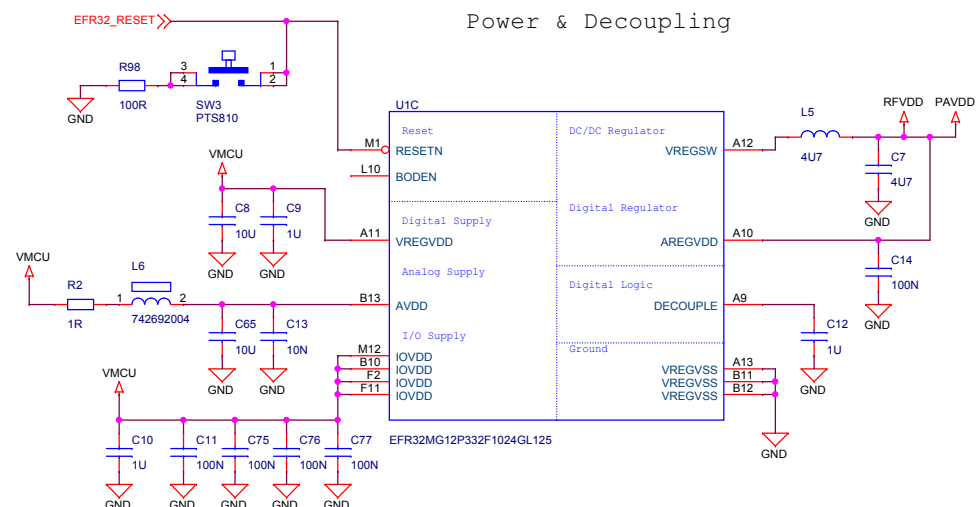
SCHEMATIC1

The Silicon Labs logo features a stylized red 'S' with a registered trademark symbol, positioned above the text 'SILICON LABS' in a bold, black, sans-serif font.		Schematic Title	
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Designed: DDB		Approved: JNO	
Size: A3	BOM Doc No: <Cage Code>	Document number: BRD4166A	Revision: C00
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M1 2.2 MM

M2 2.2 MM



Power & Decoupling



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Thunderboard Sense 2

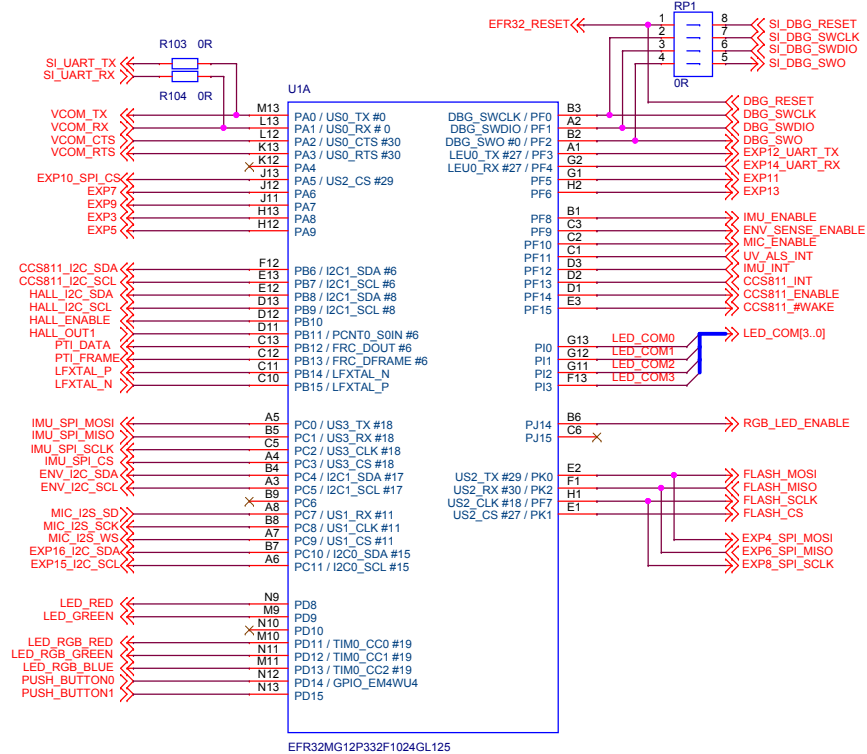
EFR32 - RF, power & IO

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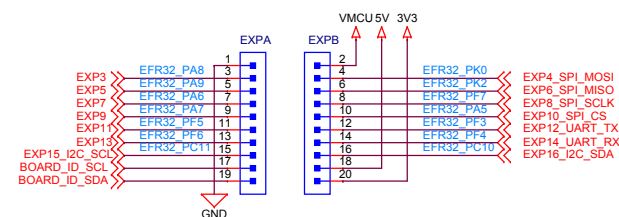
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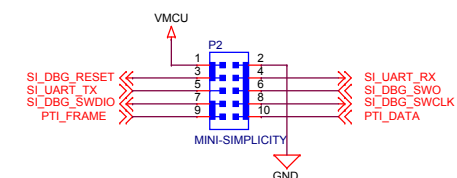
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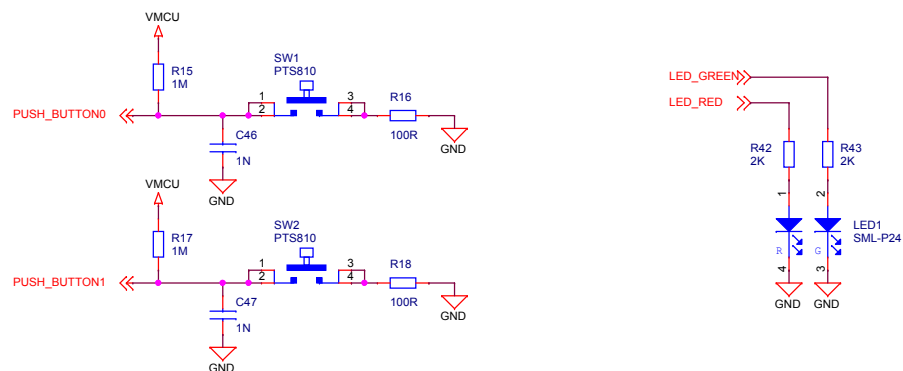
Breakout Pads - EXP Header



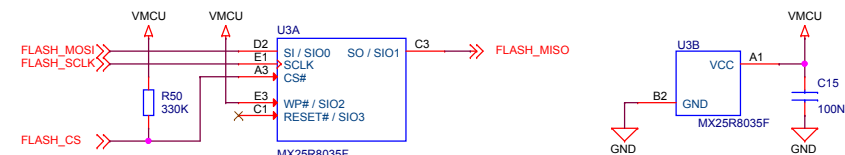
Mini Simplicity Connector




Push Buttons & LEDs



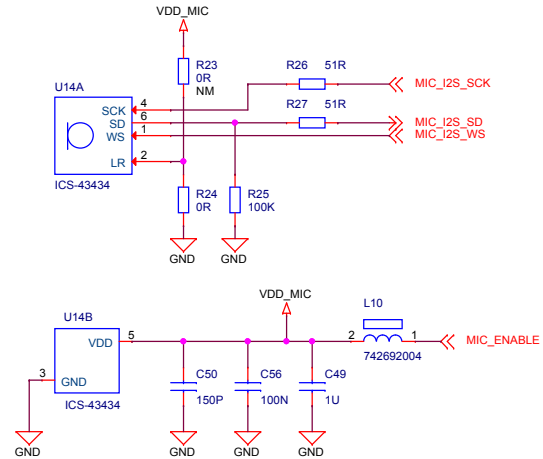
SPI Flash



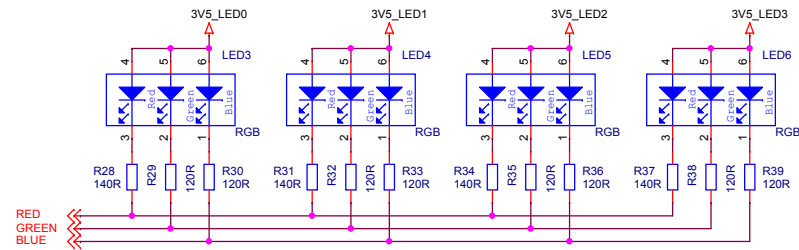
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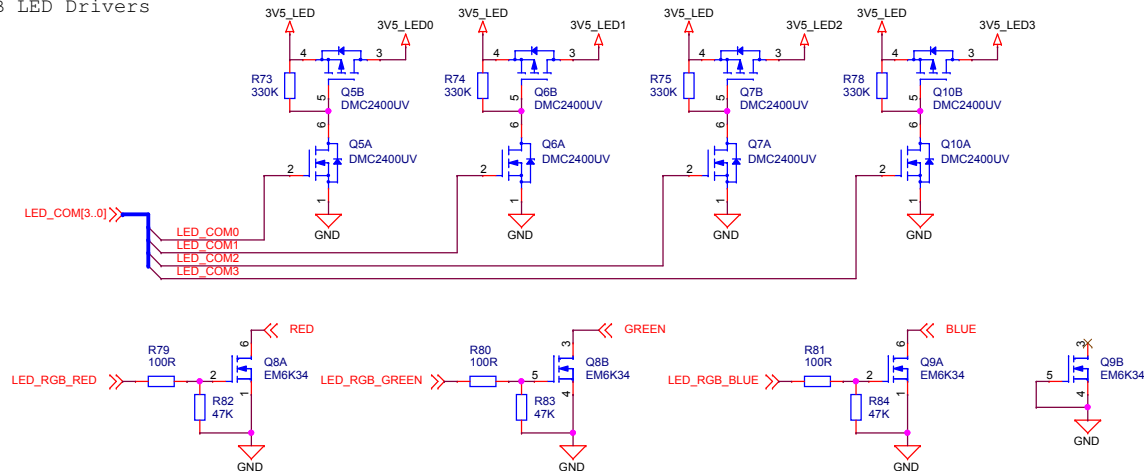
MEMS Microphone



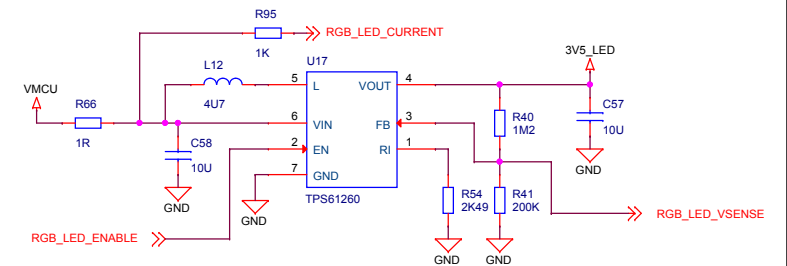
RGB LEDs




RGB LED Drivers



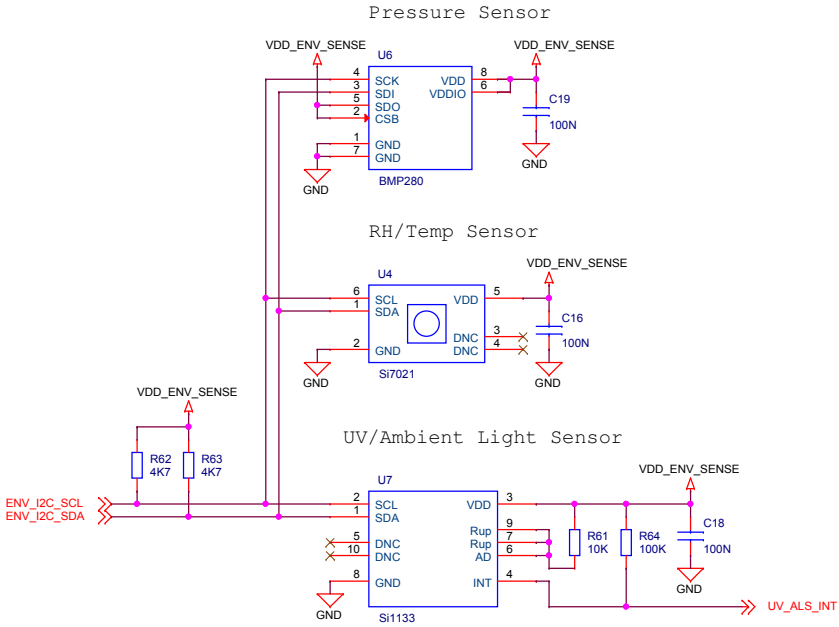
RGB LED power supply



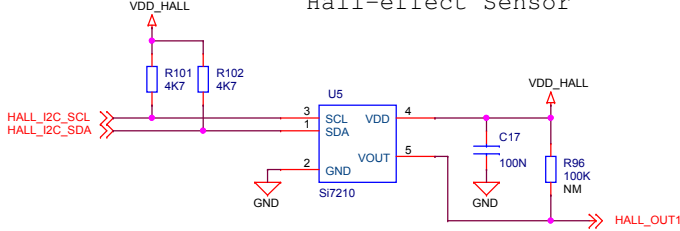
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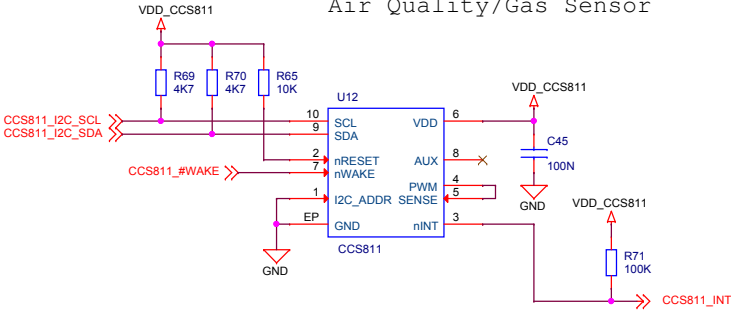
Environmental Sensors



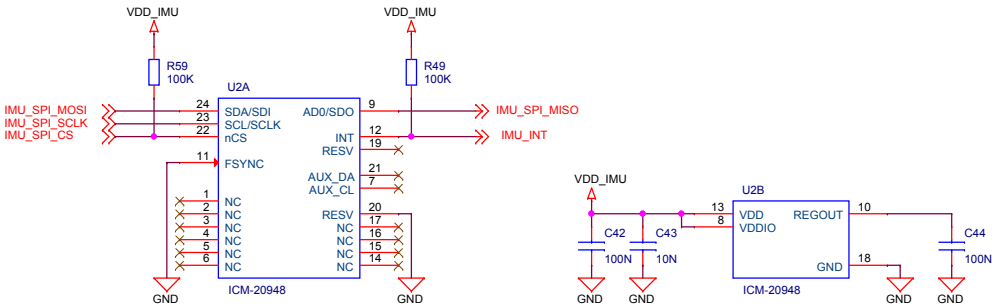
Hall-effect Sensor



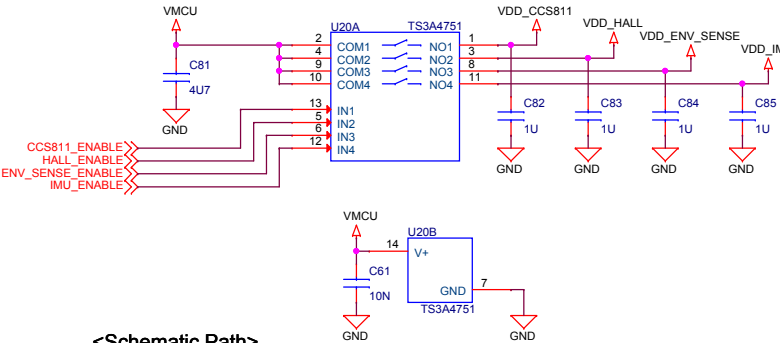
Air Quality/Gas Sensor




9-axis inertial sensor



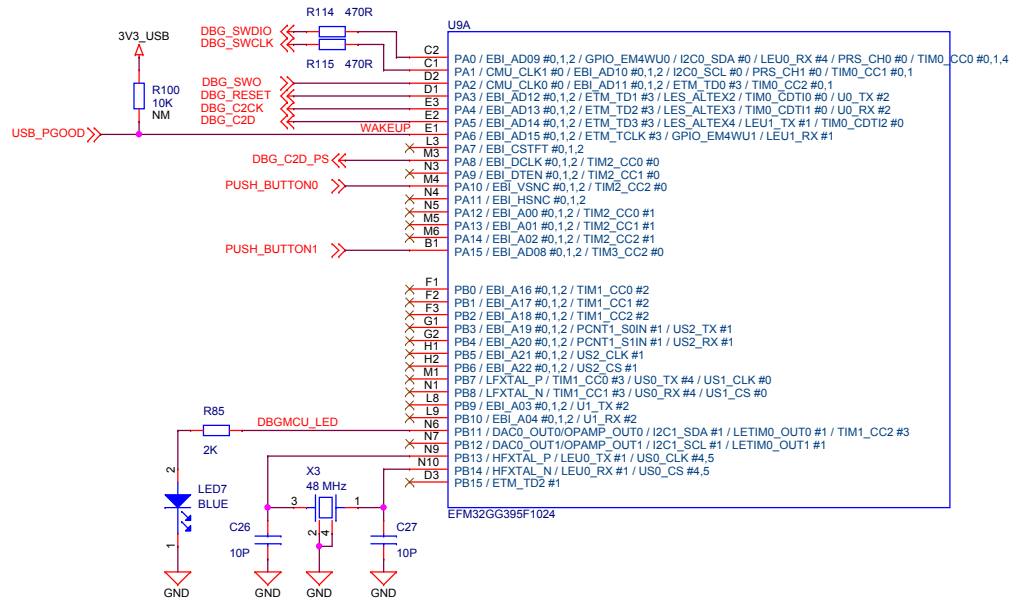
Sensor Power Control



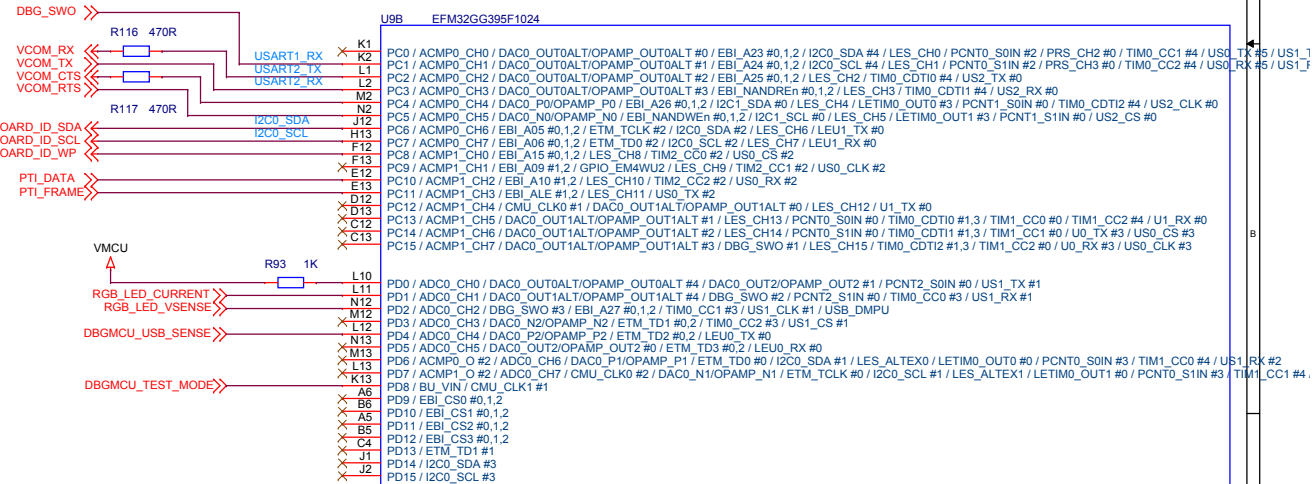
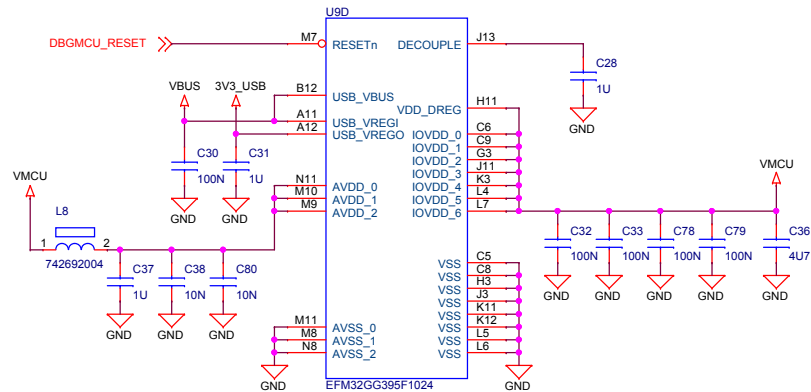
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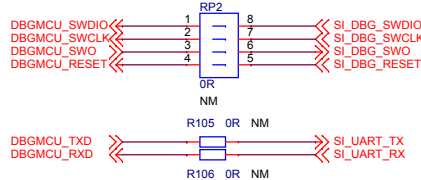
Debug MCU Connections




Debug MCU Decoupling



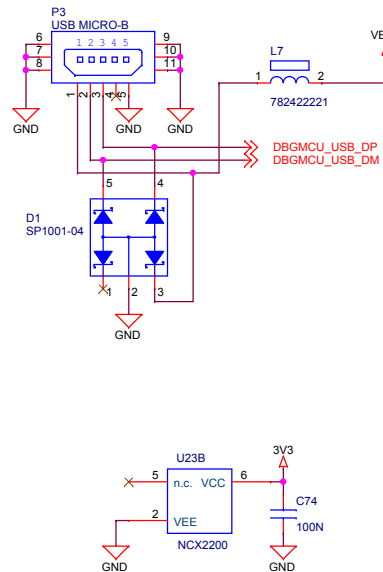
Debug MCU Connections to Mini Simplicity Header



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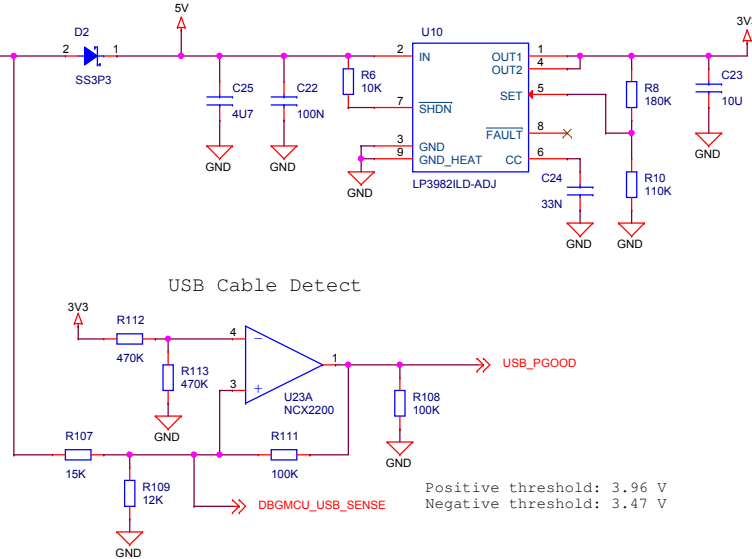
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USB Connector

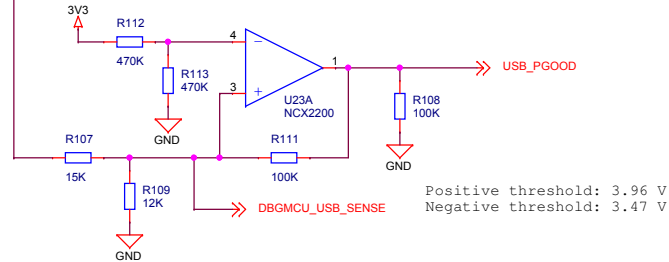


User can supply 3.6 - 5.5 on "5V" pin instead of using the USB cable

3.3 V Regulator

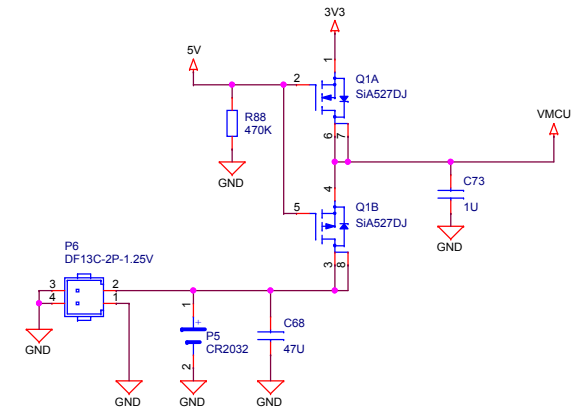


USB Cable Detect



Positive threshold: 3.96 V
Negative threshold: 3.47 V

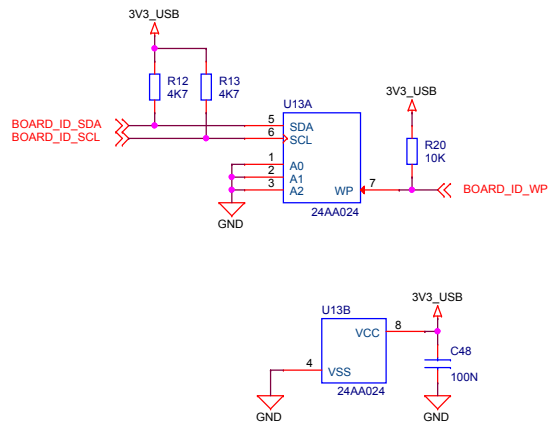
Board power select circuit



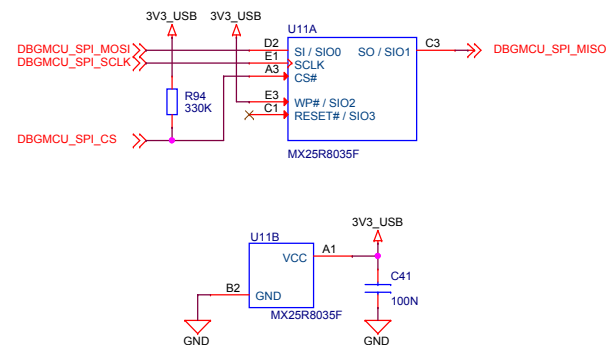
Q1 switches from battery power to USB when USB is plugged in.

Additionally, the Mini Simplicity Debug connector can supply power directly to the target voltage domain.

Board ID EEPROM

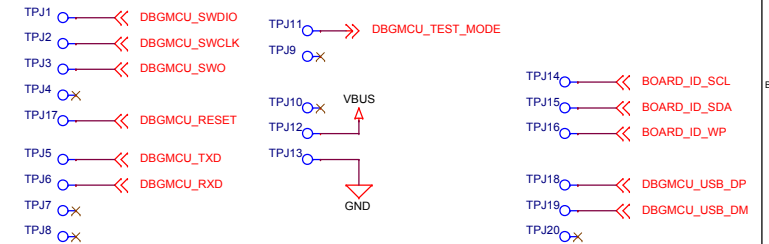


SPI Flash




Note: The SPI flash is only available to the debug mcu when the USB cable is plugged in!

Test Points



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