



EFM8BB2 Busy Bee STK


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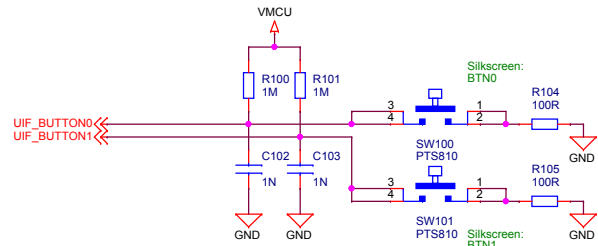
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Revision History

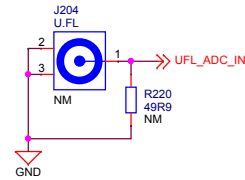
Rev.	Description
A01	Update to new STK platform

 SILICON LABS		Board Name	
		EFM8BB2 Busy Bee STK	
Designed DDC		Page Title Title Page	
Approved RGU		Board Number	
Size A3	Sheet Modified Date Wednesday, March 23, 2022	BRD5201B	Revision A01
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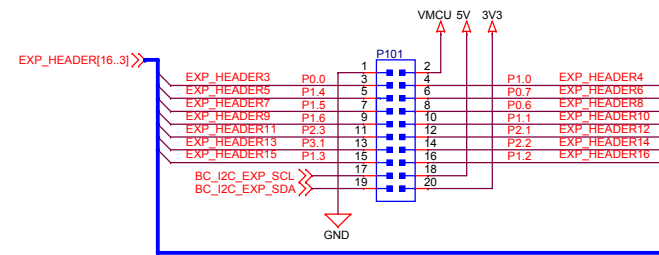
Push Buttons



U.FL ADC Connection



EXP Header



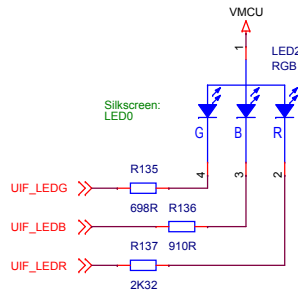
EXP-Header Functionality

** Indicates potential STK hardware conflicts

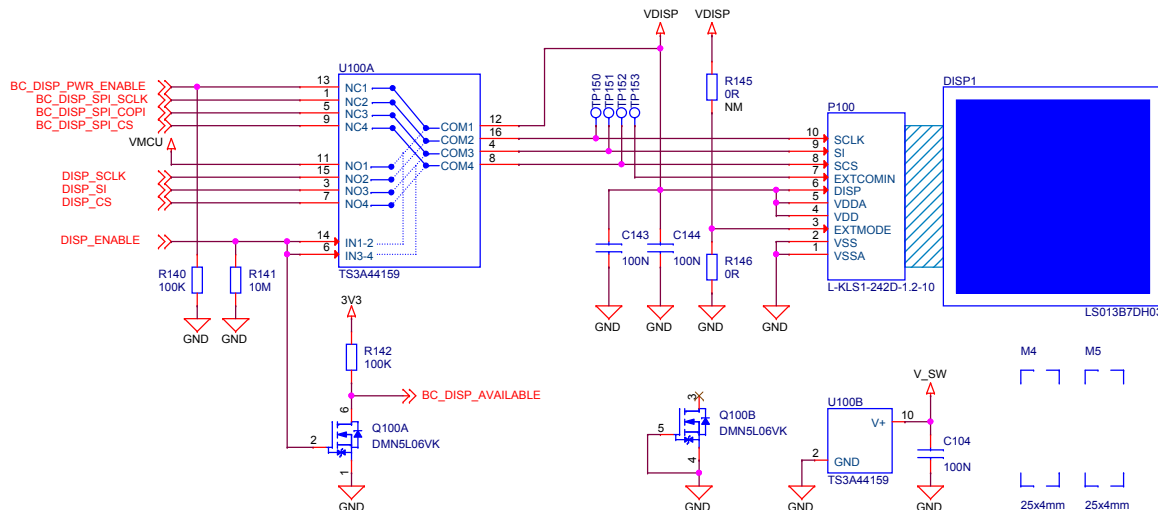
1	GND			
3	P0.0		CMP0.0/ADC0.0	
5	P1.4		CMP1.4/ADC0.12	** STK LED0
7	P1.5		CMP1.5/ADC0.13	** STK LED1
9	P1.6		CMP1.6/ADC0.14	** STK LED2
11	P2.3		CMP1.12/ADC0.23	
13	P3.1			
15	P1.3	I2C0_SCL	CMP1.3/ADC0.11	
17		Reserved for EXP Board Identification		
19		Reserved for EXP Board Identification		

2	VMCU			
4	P1.0	SPI0_MOSI	CMP1.0/ADC0.8	
6	P0.7	SPI0_MISO	CMP0.7/ADC0.7	
8	P0.6	SPI0_SCK	CMP0.6/ADC0.6	
10	P1.1	SPI0_NSS	CMP1.1/ADC0.9	
12	P2.1	UART1_TX	CMP1.10/ADC0.21	
14	P2.2	UART1_RX	CMP1.11/ADC0.22	
16	P1.2	I2C0_SDA	CMP1.2/ADC0.10	
18	5V			
20	3V3			

RGB LED



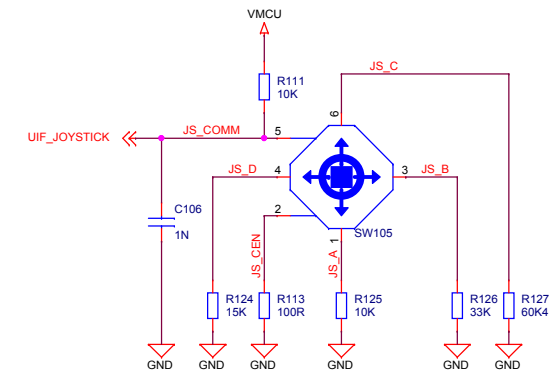
Memory LCD-TFT Display & Multiplexer



The EFM8 always controls ownership of the display using the DISP_ENABLE signal.

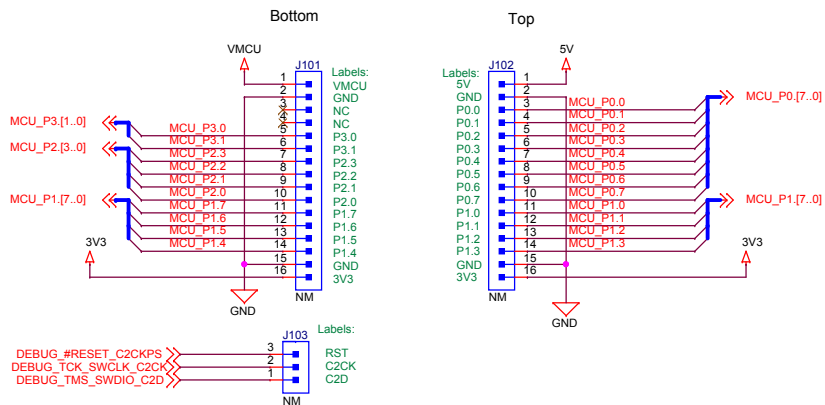
DISP_ENABLE	Connected	VDISP	BC_DISP_AVAILABLE
1	MCU	VMCU	GND
0	BC	BC_DISP_PWR_ENABLE	3V3

Analog Joystick

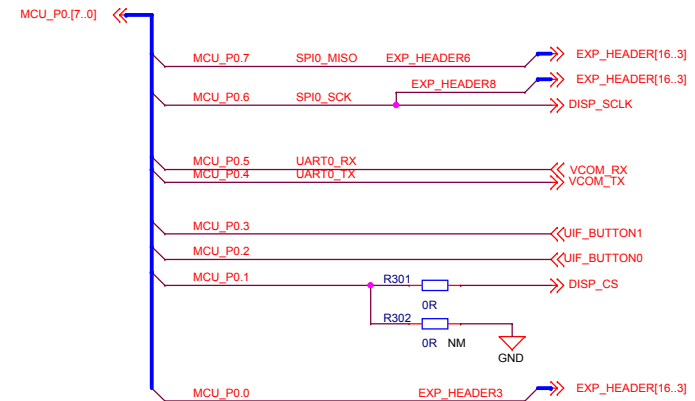


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Designed ATA		Page Title	
Size A3		User Interface	
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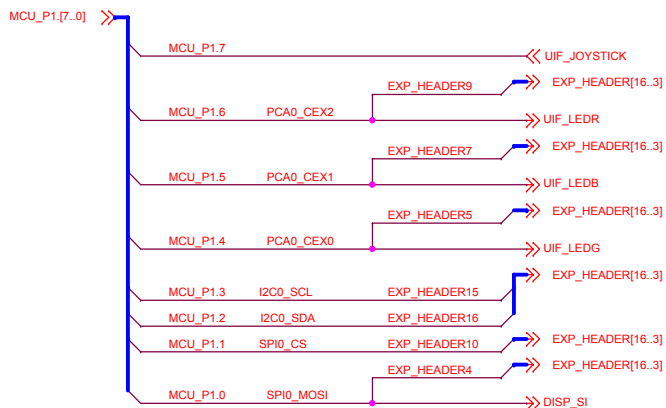
Breakout Connections



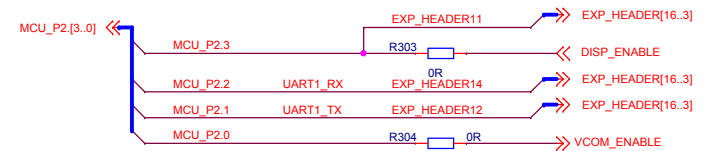
P0 Connections



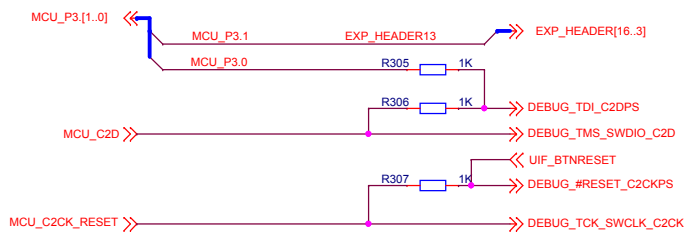
P1 Connections




P2 Connections



P3 & Debug Connections



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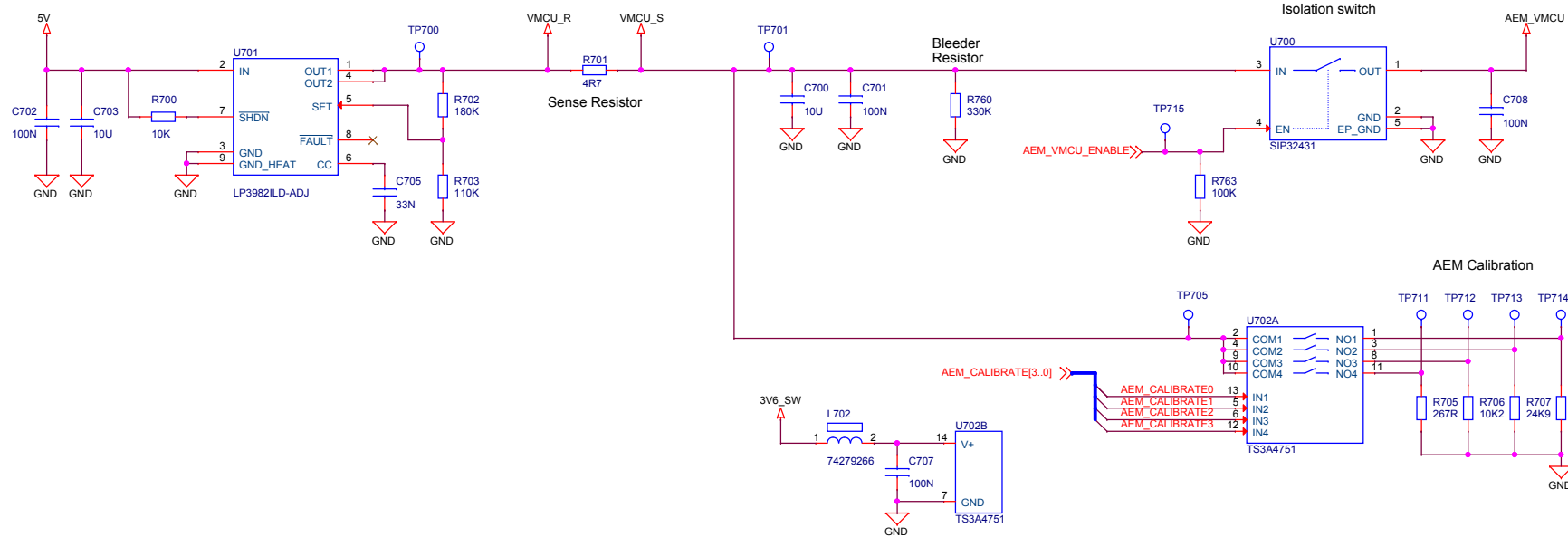
D



B

A

MCU Power Regulator

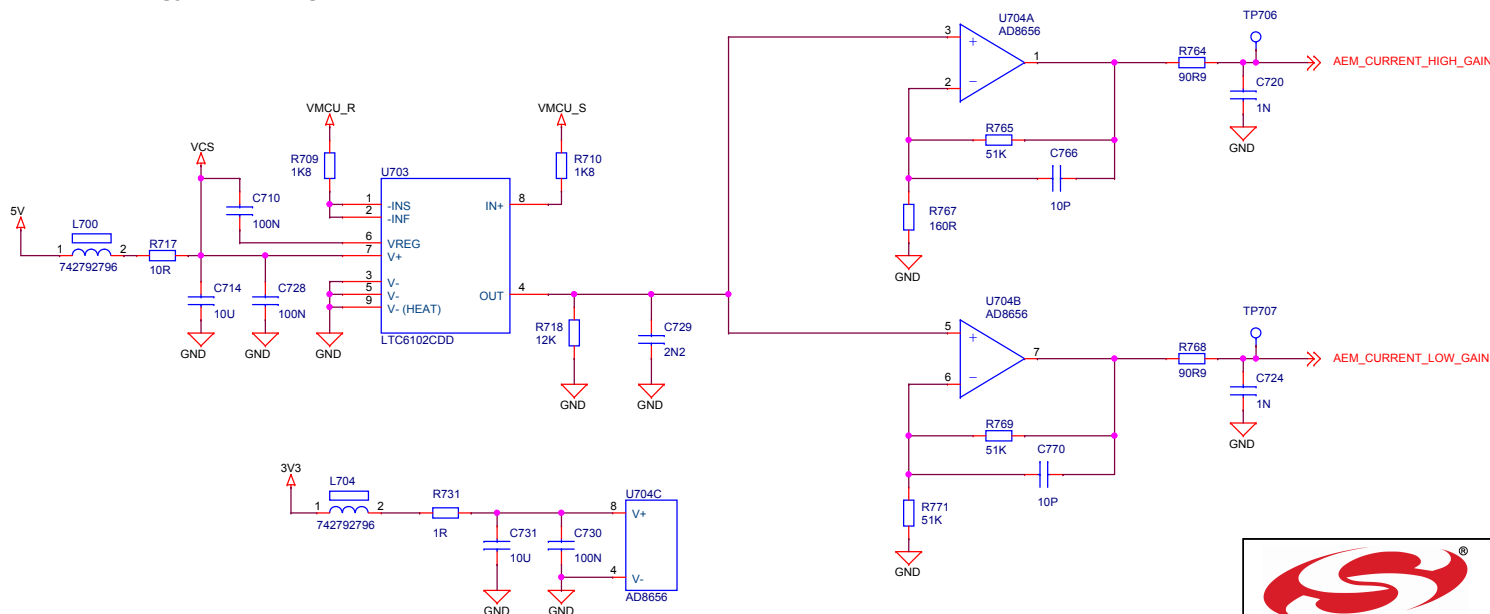



This goes to the slide switch, where it can be selected as the power source.

CALIBRATE	Calibration Current
0x1	3.30 uA
0x2	132.5 uA
0x4	323.5 uA
0x6	456.1 uA
0x8	12.36 mA

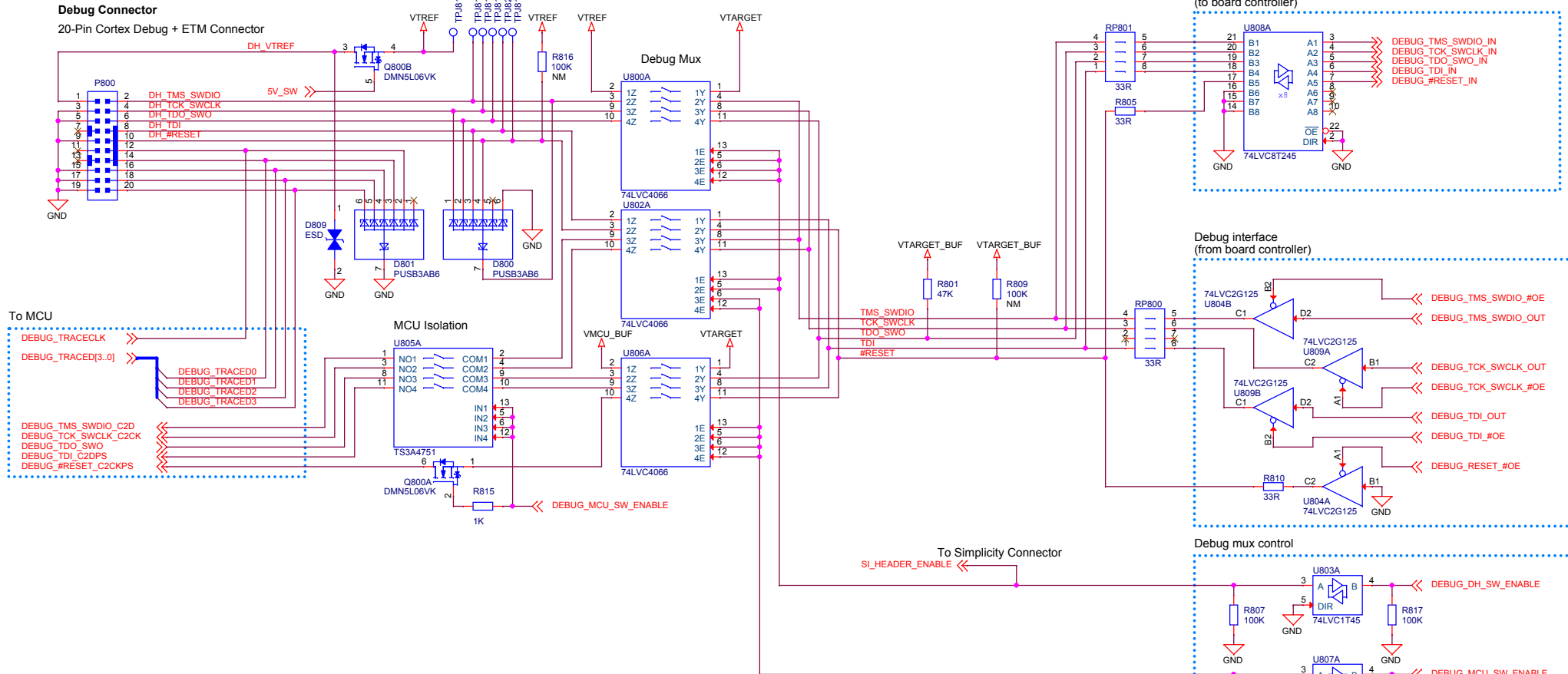
Calibration currents include contribution from sense and bleeder resistors.

Advanced Energy Monitoring

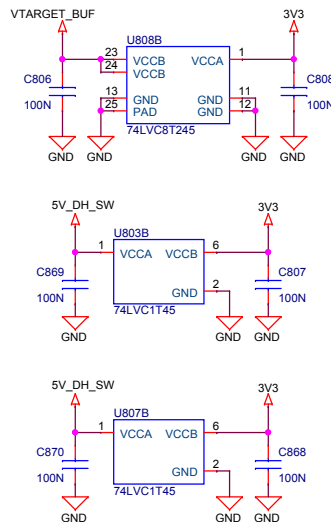
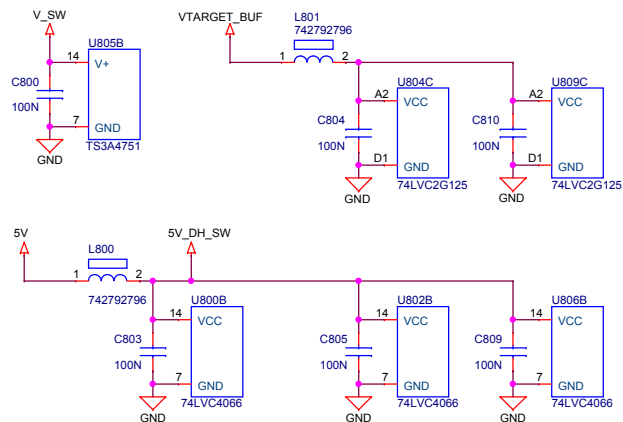


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Size A3		Target Voltage Supply	
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Debug Mux



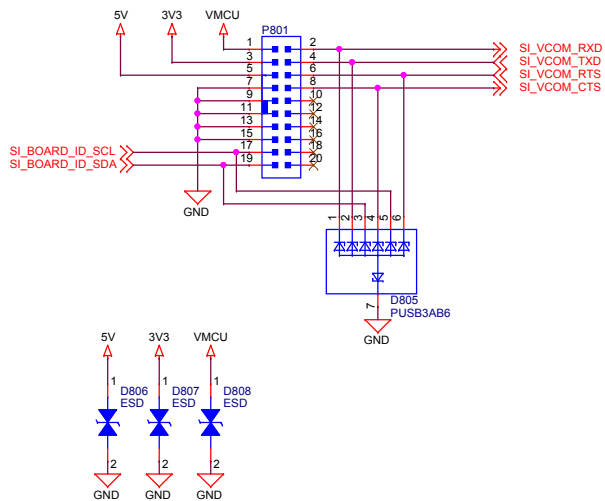
Power & Decoupling



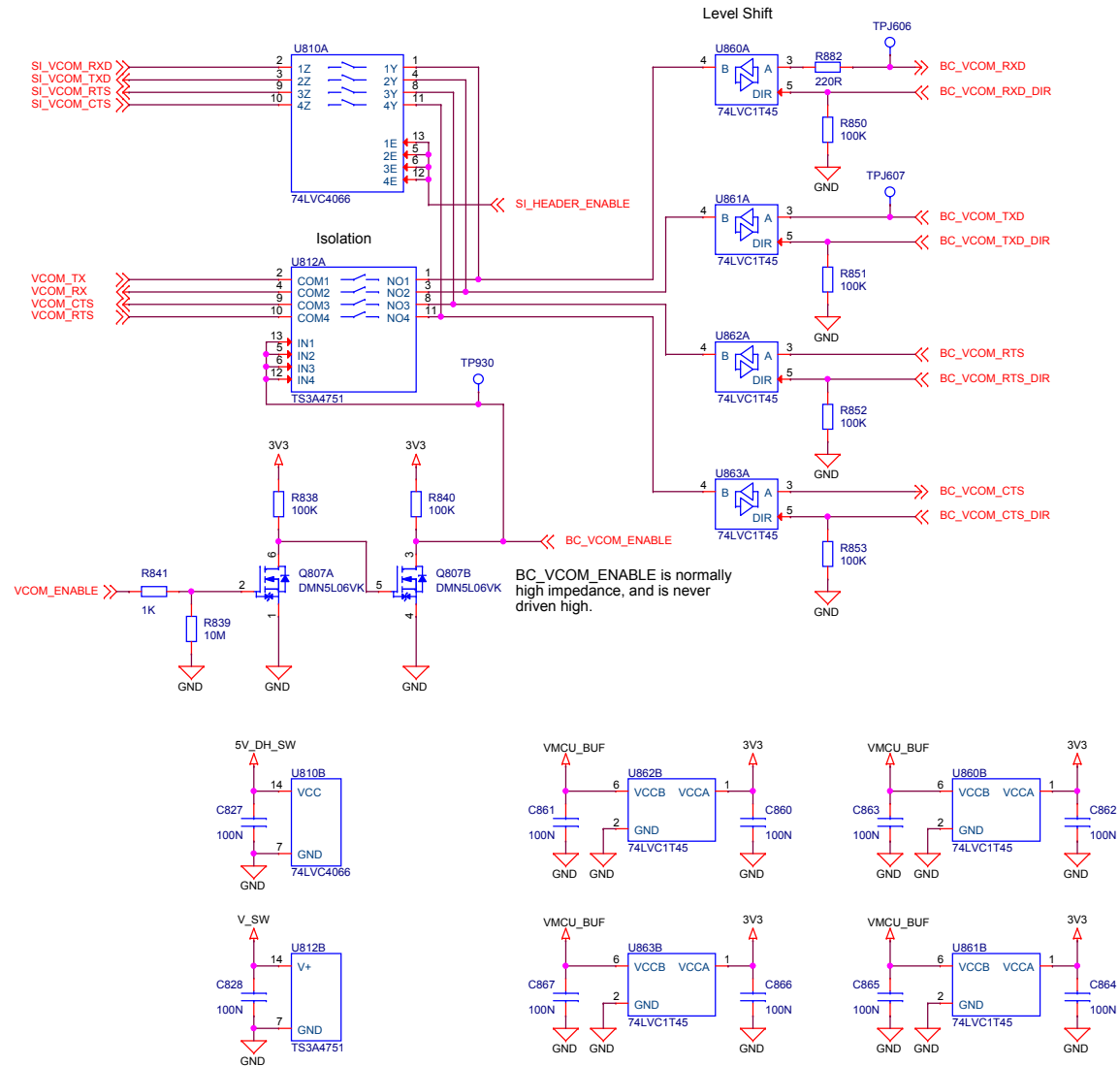
Debug Mode	DH_SW_ENABLE	MCU_SW_ENABLE	Debug Mode	VTARGET Source	VTREF Source
MCU	0	1	MCU	VMCU	None
Debug Out	1	0	Debug Out	VTREF (EXT)	External
Debug In	1	1	Debug In	VMCU	VMCU_BUF
Debug Off	0	0	Debug Off	None	None


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Simplicity Connector

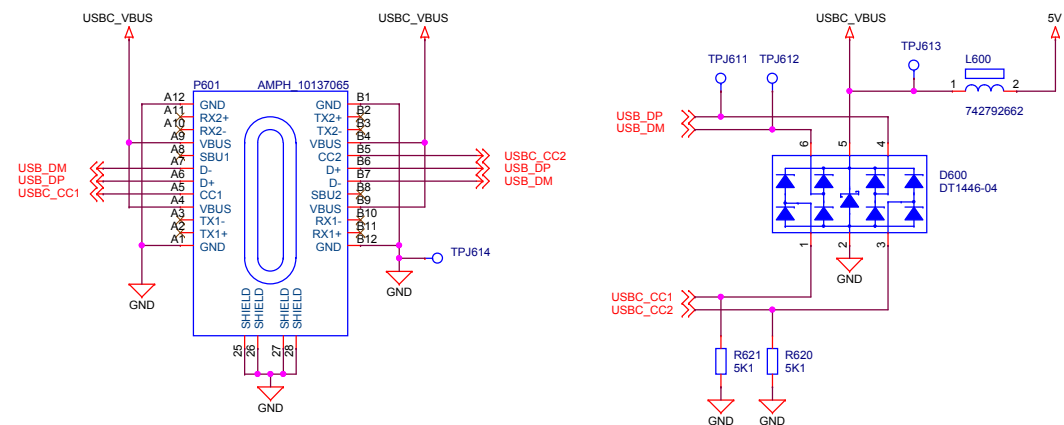


VCOM Interface

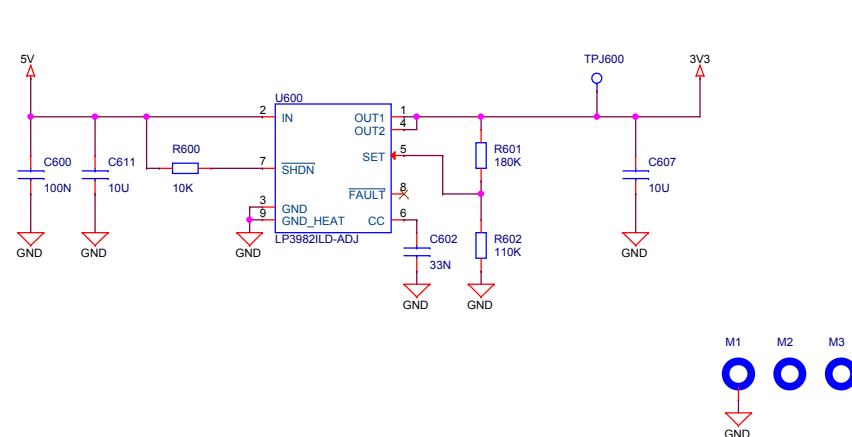


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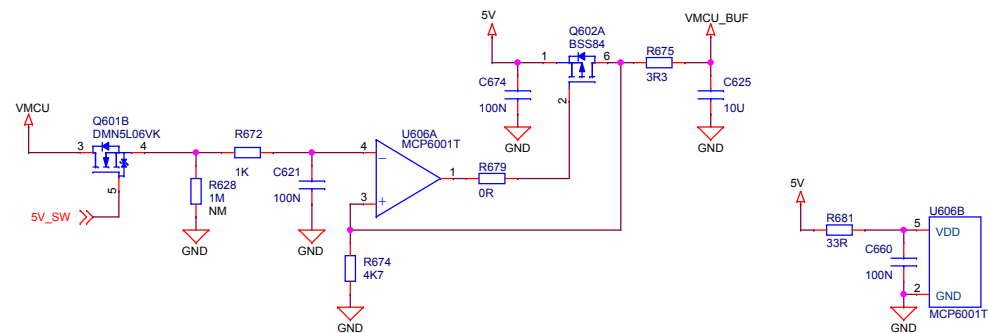
J-Link USB Port



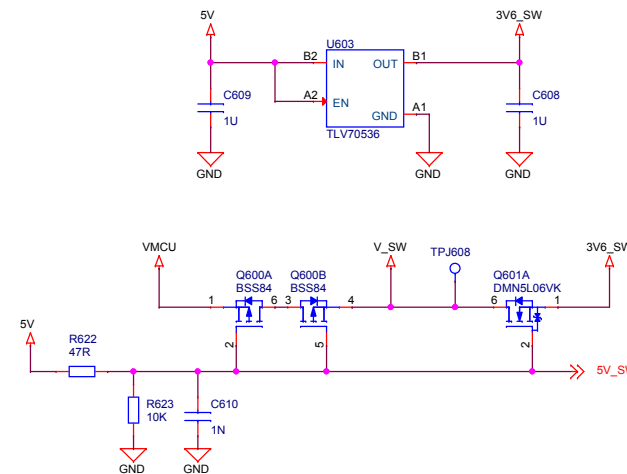
3V3 Regulator



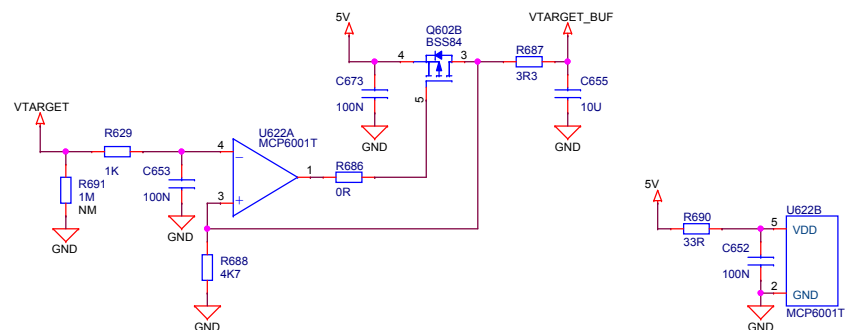
VMCU Voltage Mirror



Power Supply for Analog Switches




VTARGET Voltage Mirror



J-Link USB Cable	Q600 State	Q601A State	V_SW	VMCU_SENSE
Connected	OFF	ON	3.6V VMCU	VMCU Isolated
Disconnected	ON	OFF	3.6V VMCU	VMCU Isolated

Isolation switches are powered by 3V6_SW when the USB cable is connected, otherwise by VMCU.

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[illegible]

Power & Decoupling

[illegible]

BC Serial Flash

BC_SPI_COPI
BC_SPI_SCLK
BC_SPI_CS
BC_SPI_CIP0

3V3
3V3
3V3

U902A
SI / SIO0
SO / SIO1
SCLK
CS#
WP# / SIO2
RESET# / SIO3
MX25R8035F

U902B
VCC
GND
MX25R8035F

C914
100N

R906
10K

Board Version

BOARD_VER0
BOARD_VER1

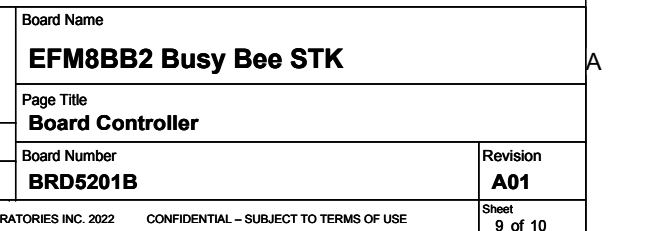
R931
1K
GND

R930
1K
GND

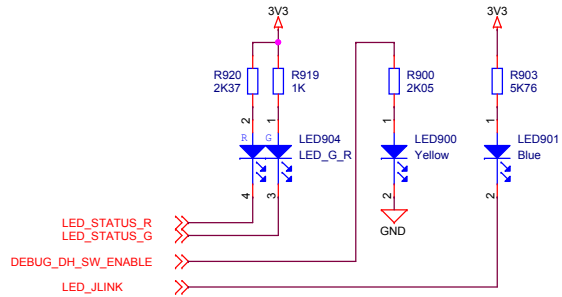
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Page Title
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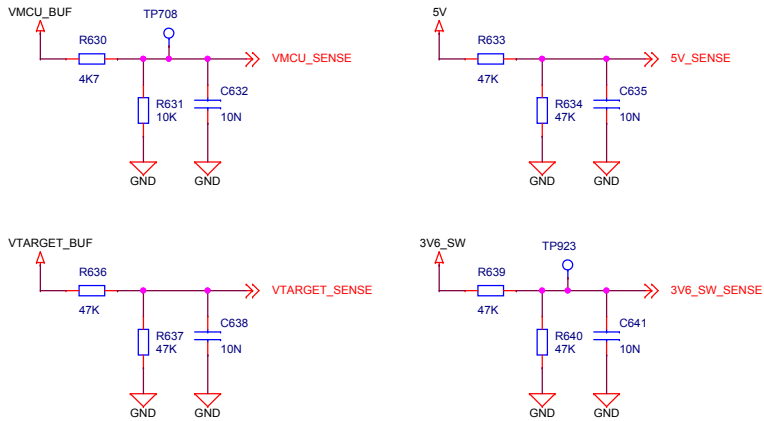
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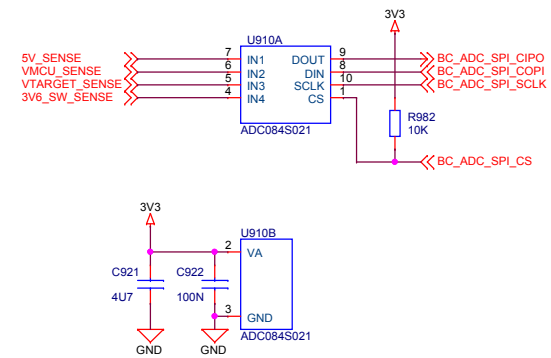
Indicator LEDs




BC Voltage Sense



BC Voltage Sense ADC



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