EFM8SB1 Sleepy Bee STK

Revision History

Rev.	Description
A01	Update to new STK platform
A02	User Push buttons connection updated

PCB1

PCB5101B

SILICON LABS

Designed: MSV	Approved: RGU
Size: A3	Sheet Modified Date: Friday, June 17, 2022

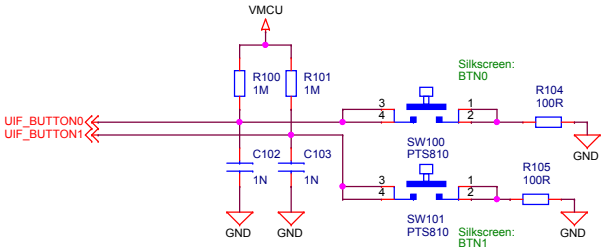
Board Name: **EFM8SB1 Sleepy Bee STK**

Page Title: **Title Page**

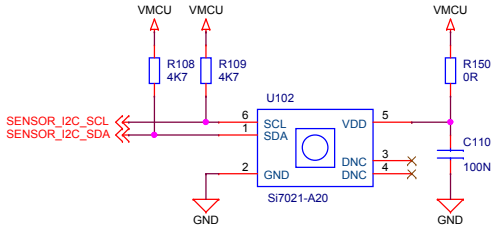
Board Number: **BRD5101B**

Revision: **A02**

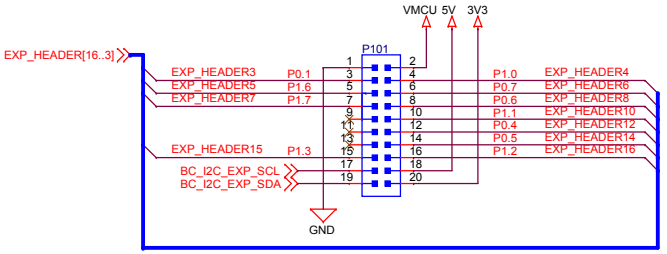
Push Buttons



Relative Humidity & Temperature Sensor



EXP Header



EXP-Header Functionality

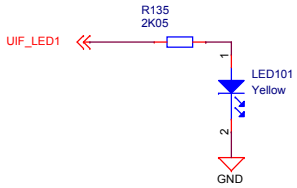
** Indicates potential STK hardware conflicts

1	GND		
3	P0.1		ADC0.1
5	P1.6		
7	P1.7		
9			
11			
13			
15	P1.3	I2C0_SCL	ADC0.11
17	Reserved for EXP Board Identification		
19	Reserved for EXP Board Identification		

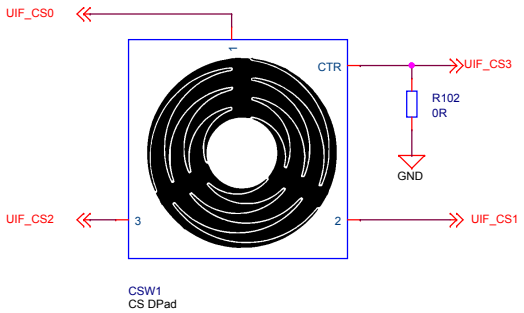
2	VMCU		
4	P1.0	SPI0_MOSI	CMP0P
6	P0.7	SPI0_MISO	ADC0.7
8	P0.6	SPI0_SCK	ADC0.6
10	P1.1	SPI0_NSS	CMP0N
12	P0.4	UART0_TX	ADC0.4
14	P0.5	UART0_RX	ADC0.5
16	P1.2	I2C0_SDA	ADC0.10
18	5V		
20	3V3		

** STK LED0

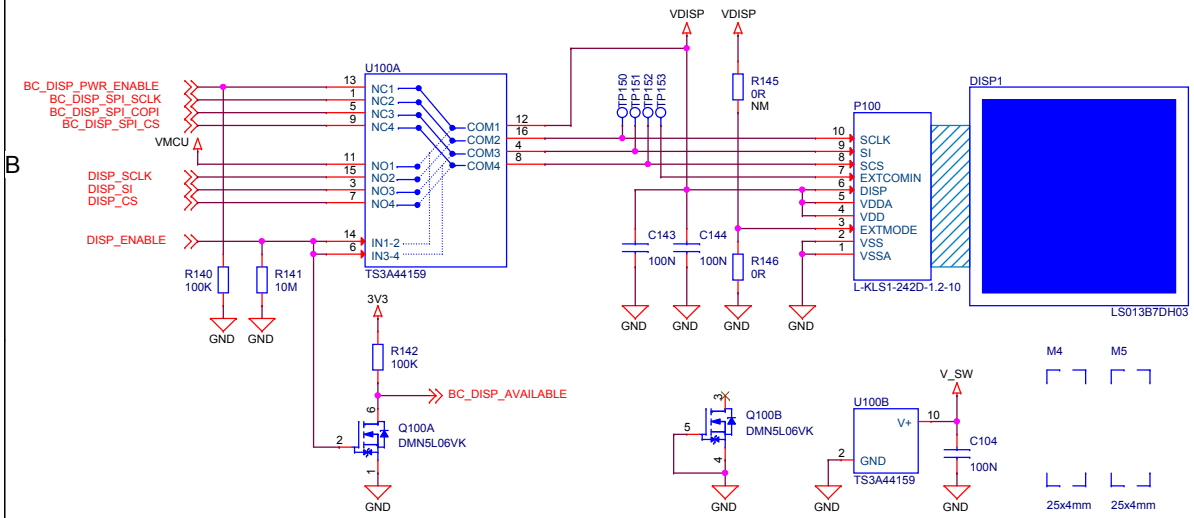
LED



Capsense Rotor



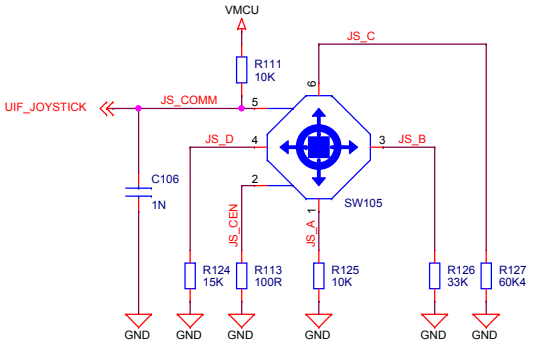
Memory LCD-TFT Display & Multiplexer



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



SILICON LABS

Designed: MSV	Approved: RGU
Size: A3	Sheet Modified Date: Friday, June 17, 2022

Board Name: **EFM8SB1 Sleepy Bee STK**

Page Title: **User Interface**

Board Number: **BRD5101B**

Revision: **A02**

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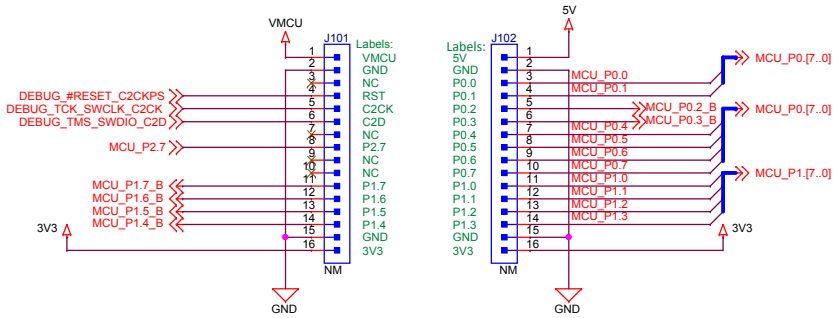
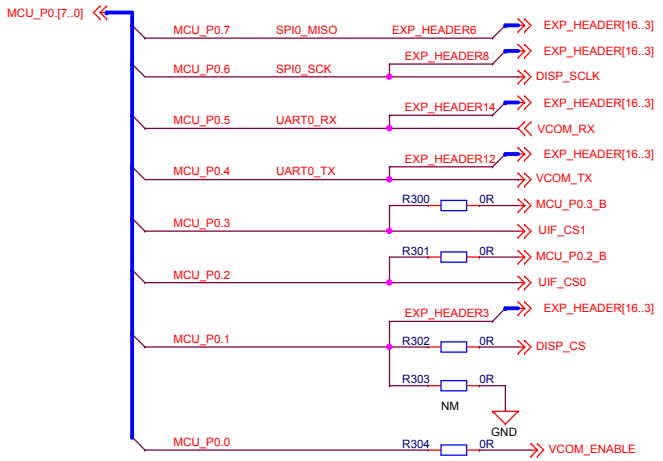
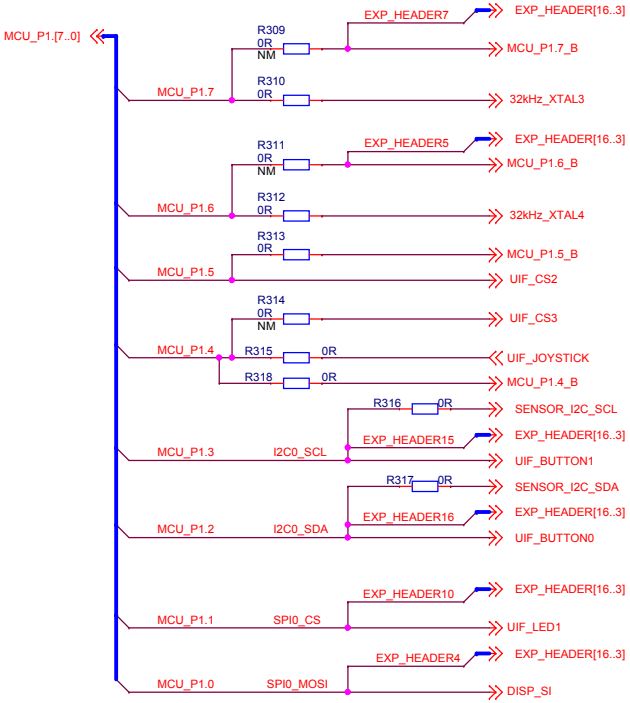
Breakout Connections



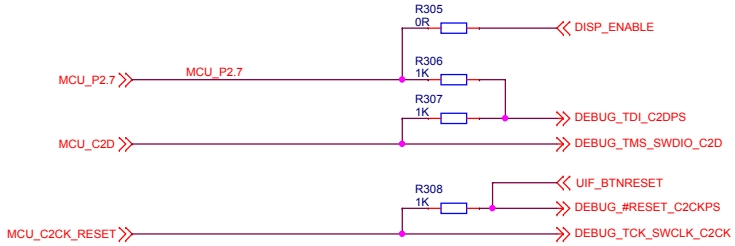
P0 Connections



P1 Connections



P2 & Debug Connections



SILICON LABS

Designed: MSV	Approved: RGU
Size: A3	Sheet Modified Date: Friday, June 17, 2022

Board Name: **EFM8SB1 Sleepy Bee STK**

Page Title: **Signal Assignments**

Board Number: **BRD5101B**

Revision: **A02**

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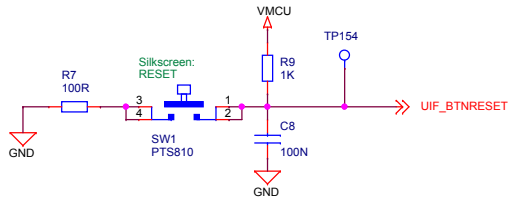
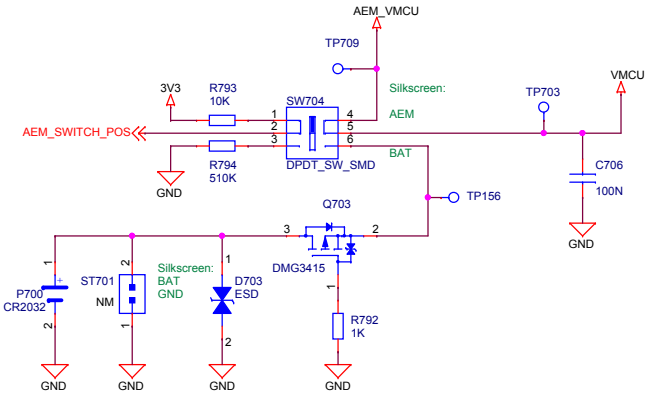
Reset Push Button

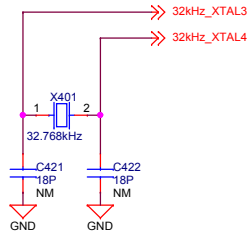


Power Select Switch: AEM/BAT

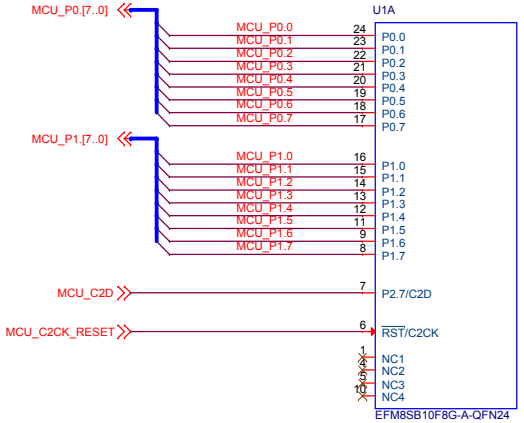
SWITCH POS	MODE DESCRIPTION
AEM	AEM Enabled, VMCU sourced from external 3.3V LDO powered by BC USB 5V supply
BAT	AEM Disabled, VMCU sourced from coin-cell battery or external power supply



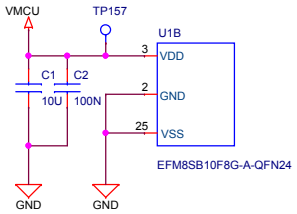
Low Frequency Clock



EFM8 I/O



EFM8 Power and Decoupling



Board Name	**EFM8SB1 Sleepy Bee STK**
Page Title	**EFM8 Power & I/O**
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Size: A3 / Sheet Modified Date: Friday, June 17, 2022	
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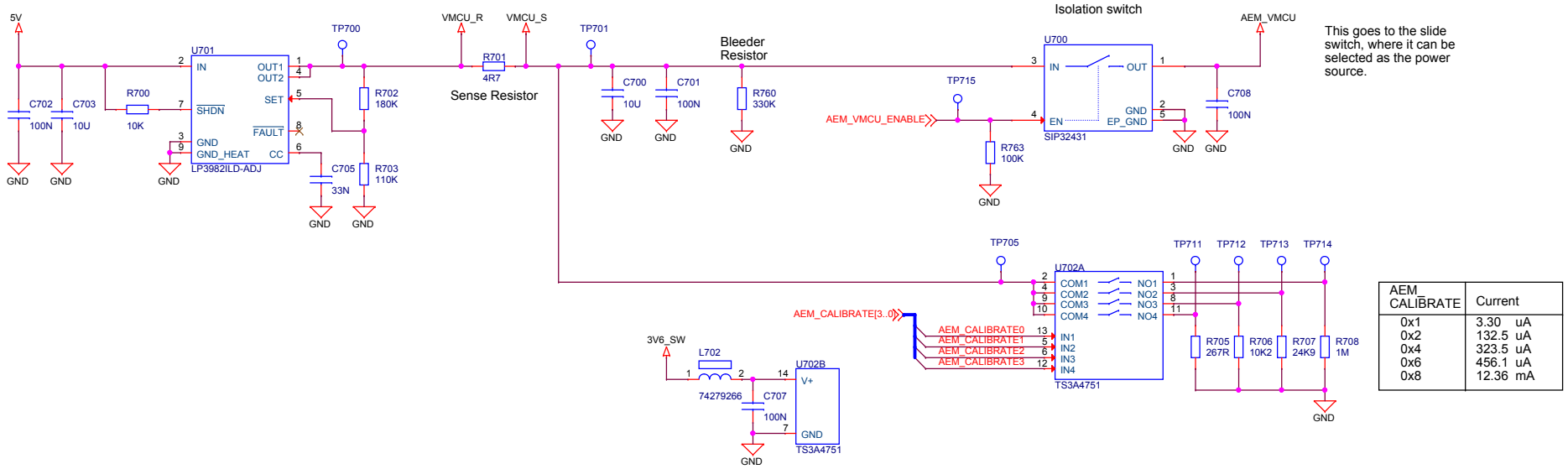
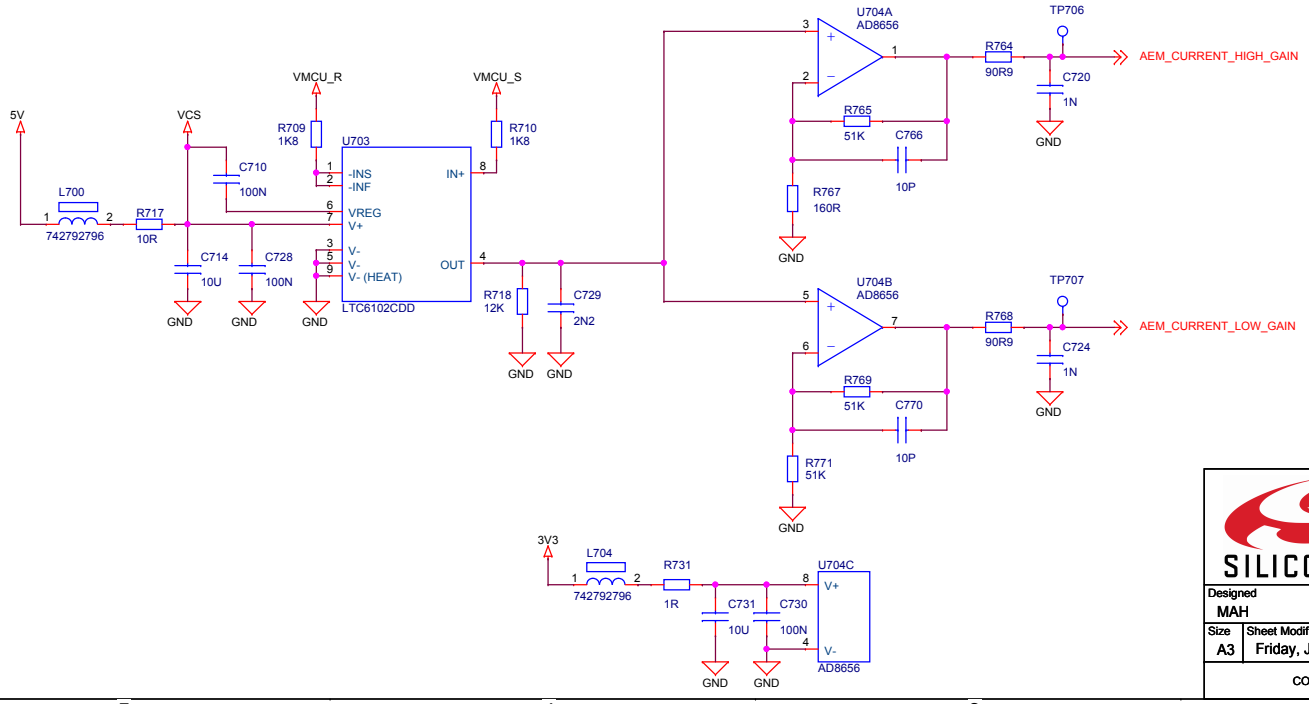
MCU Power Regulator



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

Advanced Energy Monitoring



Board Name	EFM8SB1 Sleepy Bee STK
Page Title	Target Voltage Supply & AEM
Designed	MAH
Approved	RGU
Size	A3
Sheet Modified Date	Friday, June 17, 2022
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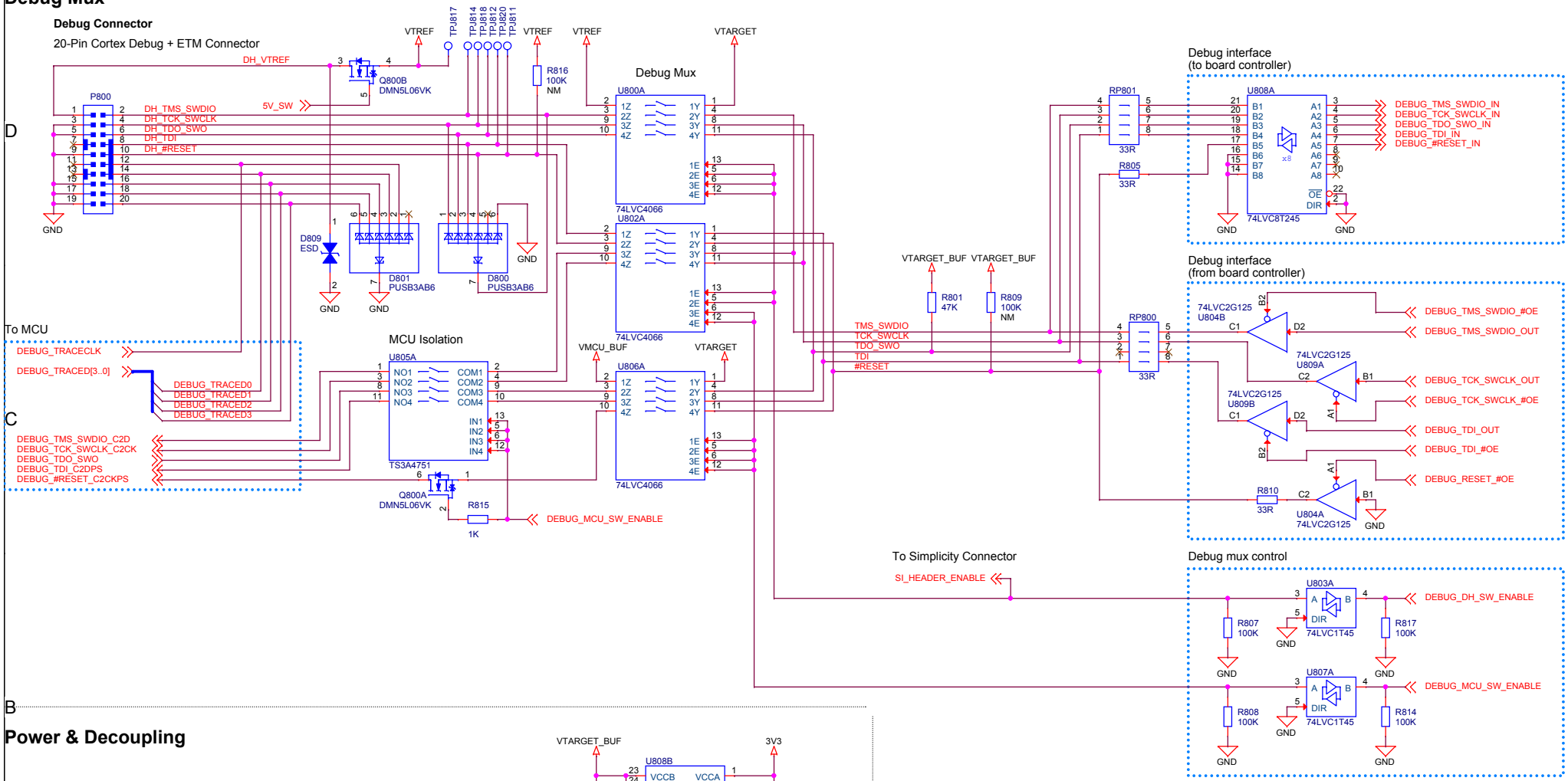
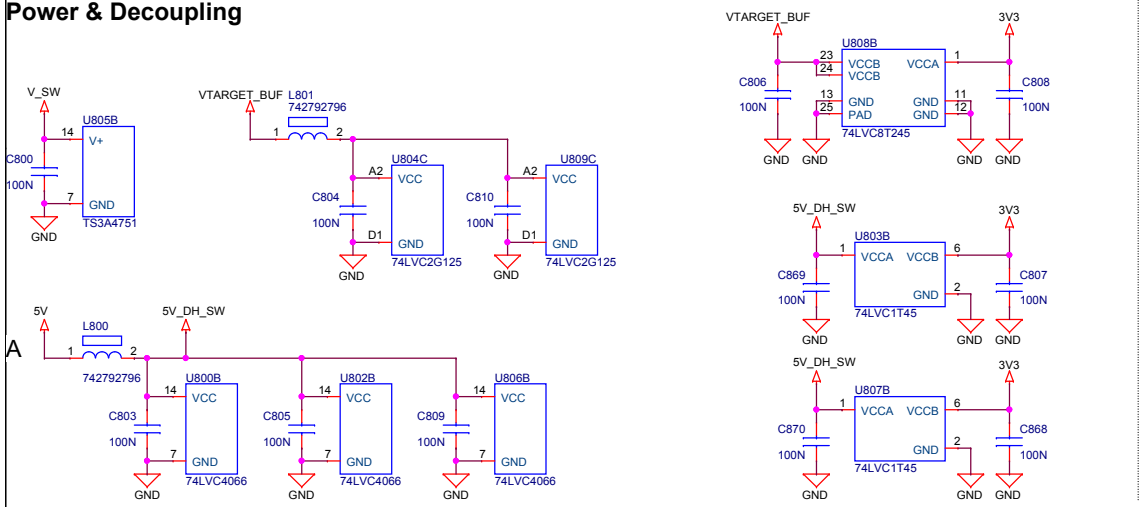
Debug Mux



Debug Mode	DH_SW_ENABLE	MCU_SW_ENABLE
MCU	0	1
Debug Out	1	0
Debug In	1	1
Debug Off	0	0

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

Power & Decoupling



Board Name	
EFM8SB1 Sleepy Bee STK	
Page Title	
Debug Interface	
Designed: MAH	Approved: RGU
Board Number: **BRD5101B**	Revision: **A02**
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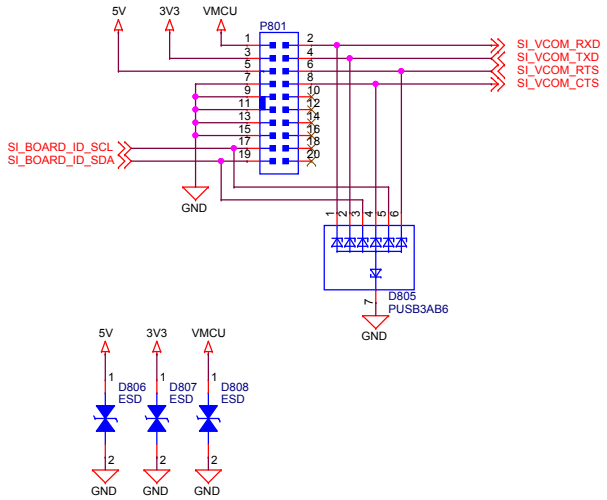
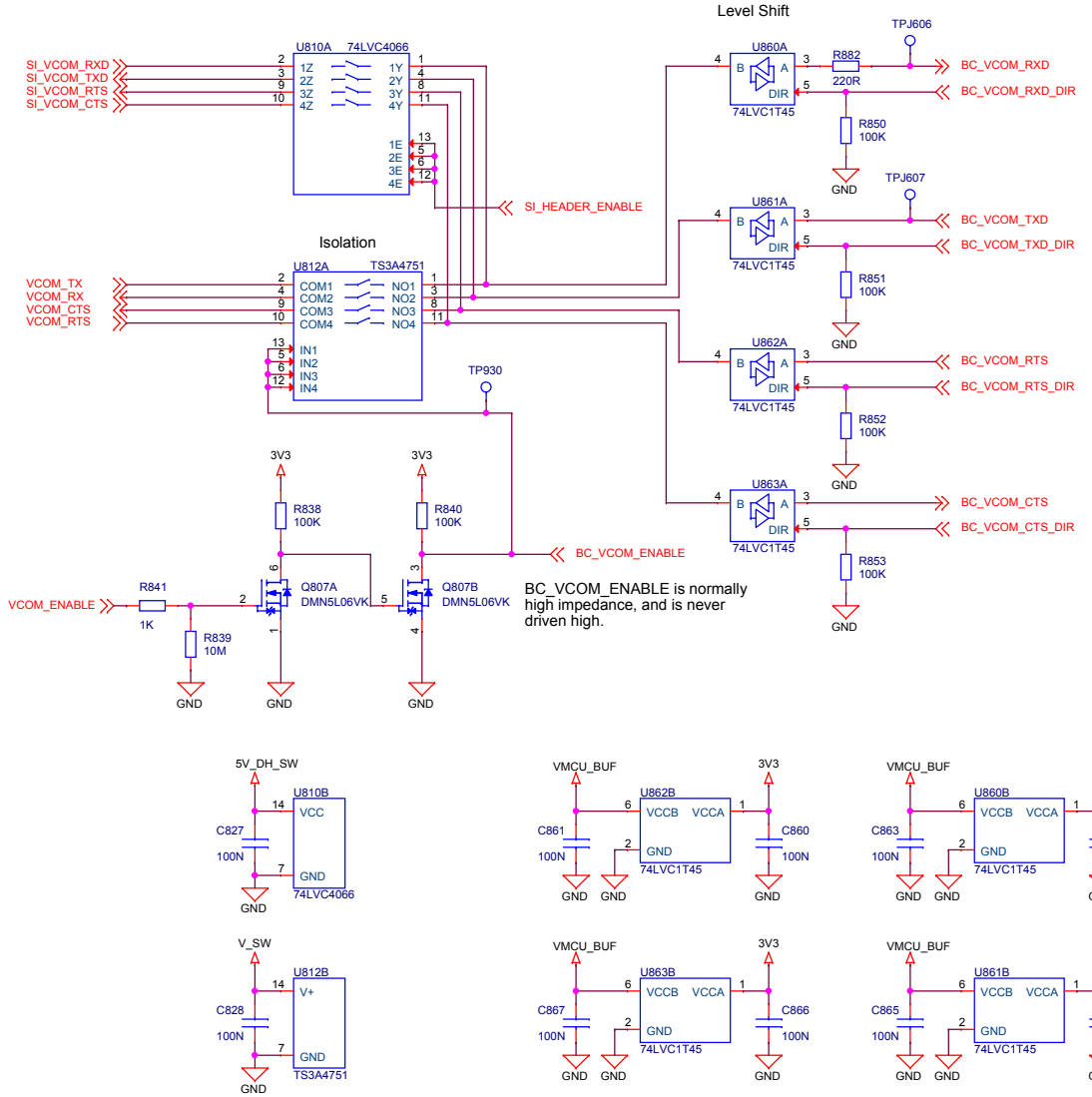
Simplicity Connector



VCOM Interface



Board Name	**EFM8SB1 Sleepy Bee STK**
Page Title	**Simplicity & VCOM**
Designed: MAH / Approved: RGU	
Size: A3 / Sheet Modified Date: Friday, June 17, 2022	
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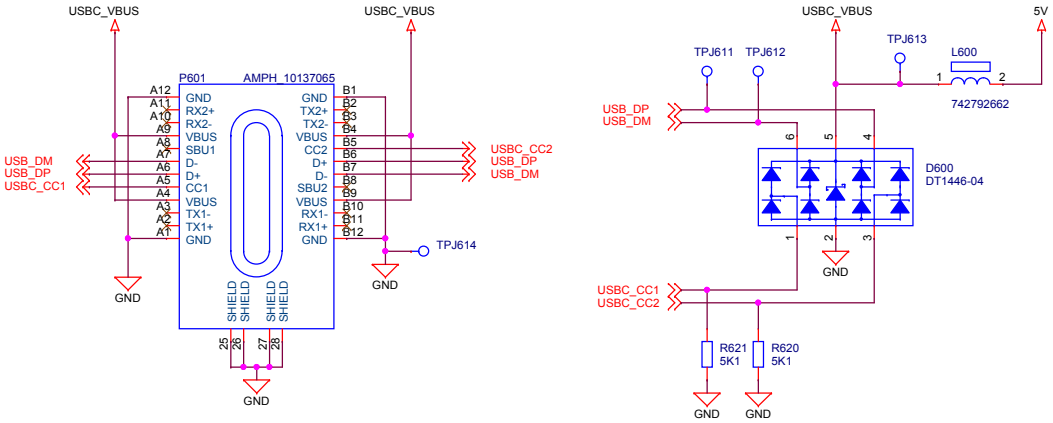
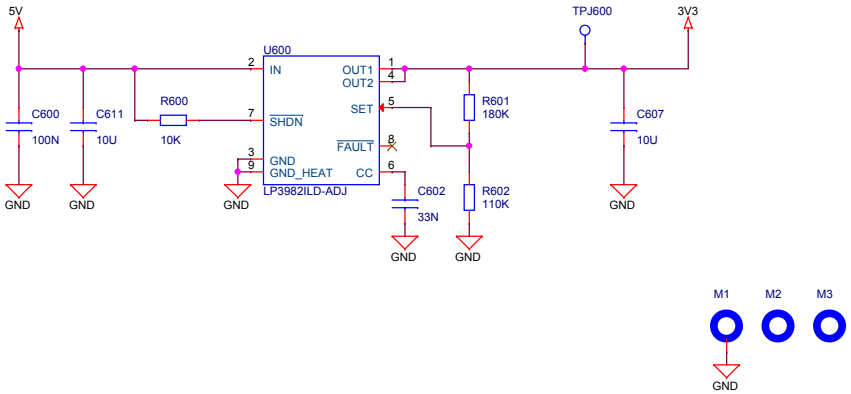
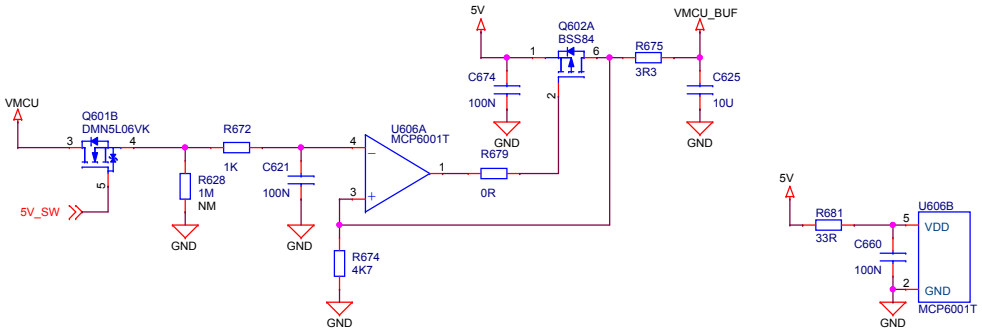
J-Link USB Port



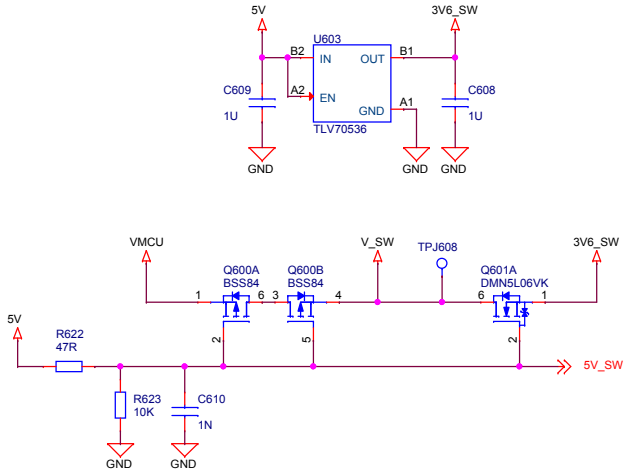
3V3 Regulator



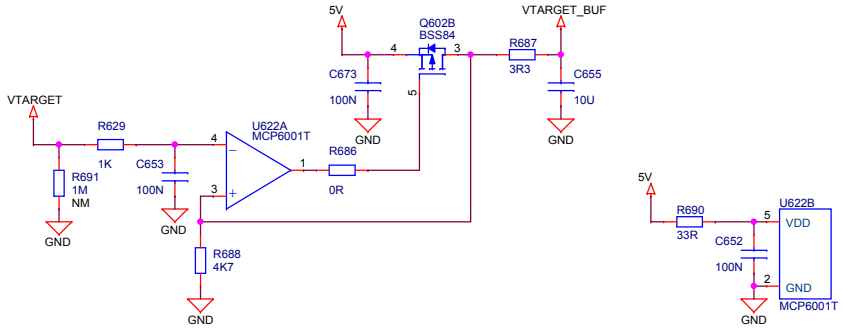
VMCU Voltage Mirror



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
Disconnected	ON	OFF	VMCU	Isolated

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

SILICON LABS

Designed	MAH
Approved	RGU
Size	A3
Sheet Modified Date	Friday, June 17, 2022

Board Name: **EFM8SB1 Sleepy Bee STK**

Page Title: **Power**

Board Number: **BRD5101B**

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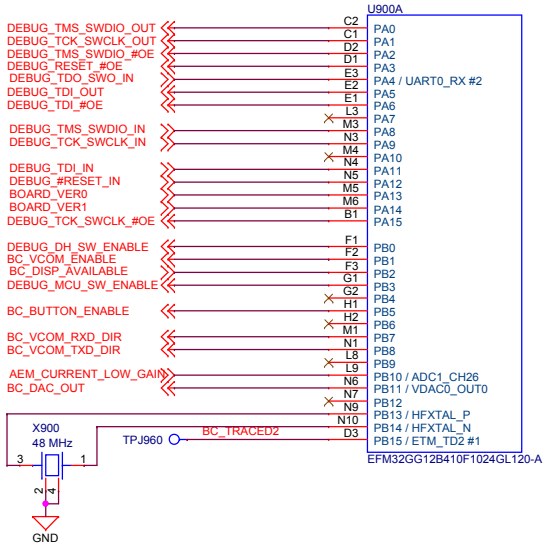
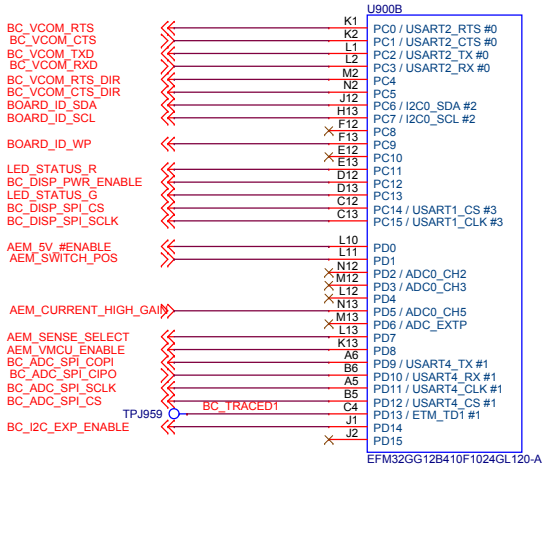
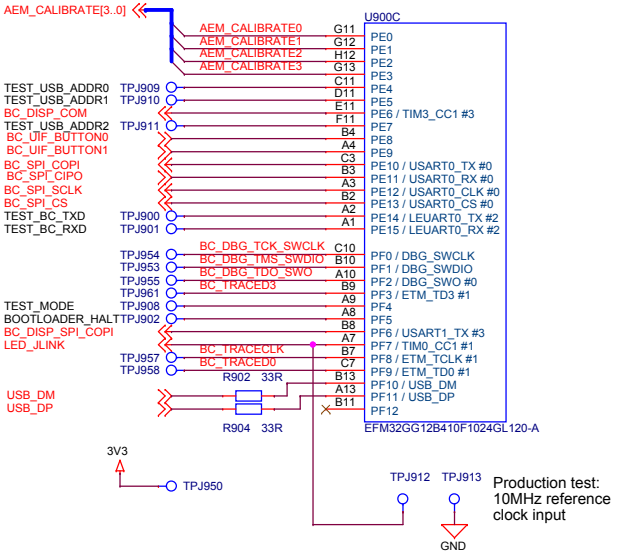
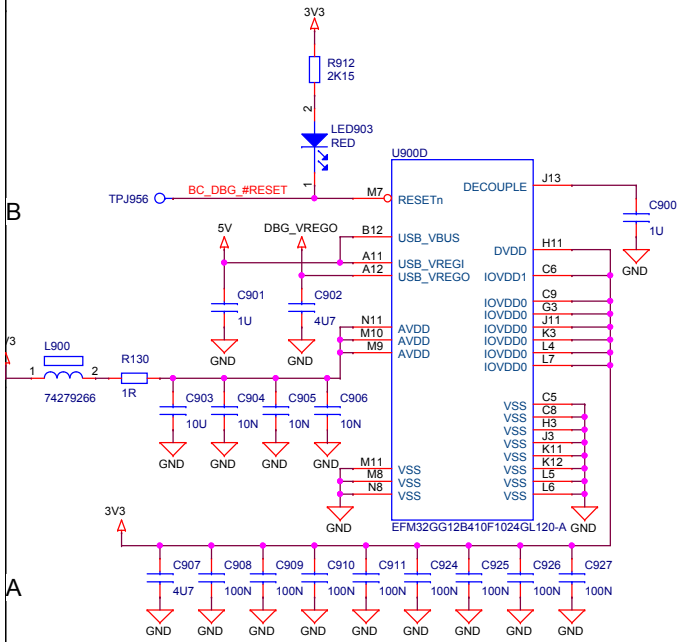
Board Controller



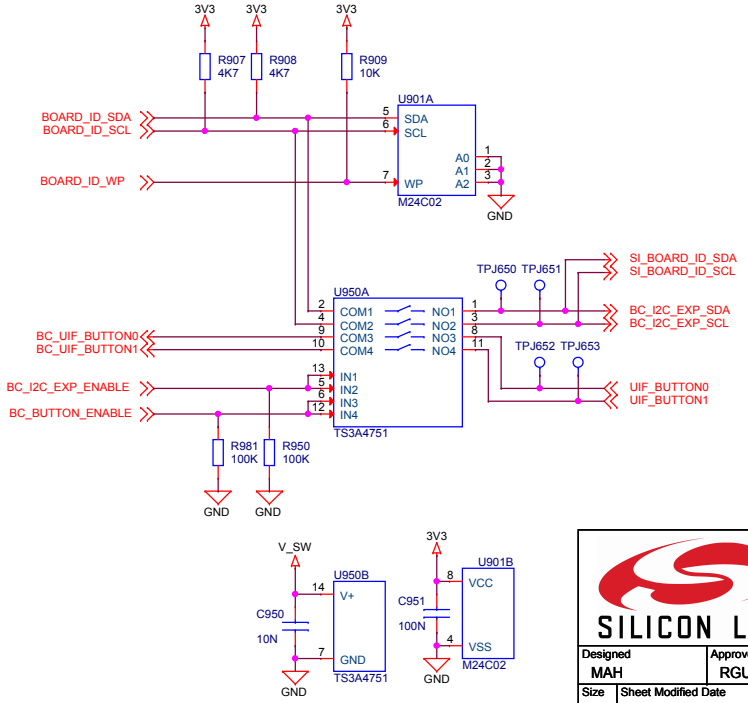




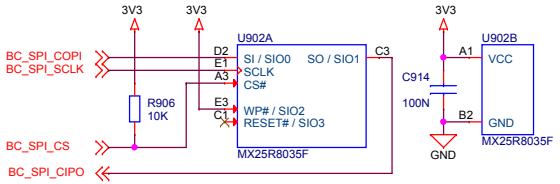
Power & Decoupling



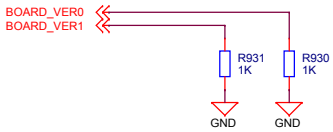
Board ID & Button Isolation



BC Serial Flash



Board Version



Board Name	**EFM8SB1 Sleepy Bee STK**
Page Title	**Board Controller**
Designed: MAH	Approved: RGU
Size: A3	Sheet Modified Date: Friday, June 17, 2022
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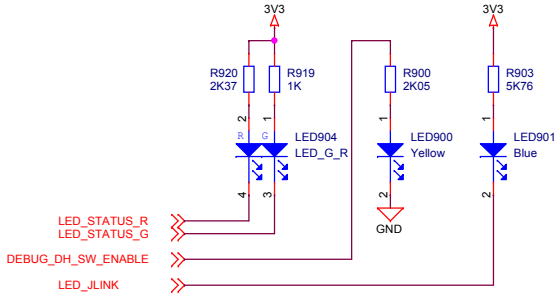
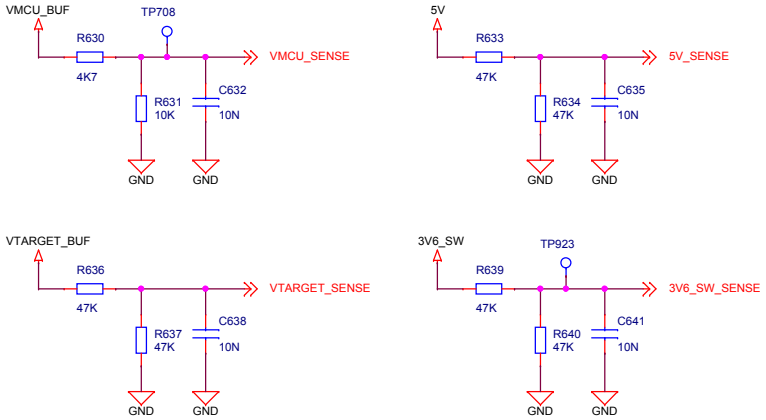
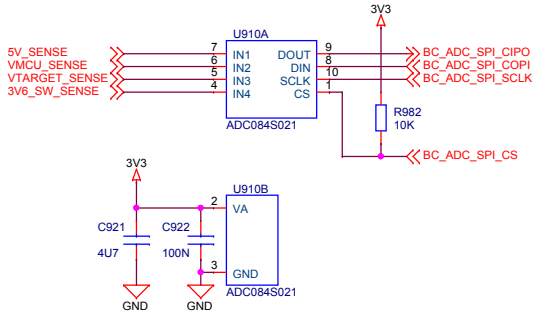
Indicator LEDs



BC Voltage Sense



BC Voltage Sense ADC



Board Name	**EFM8SB1 Sleepy Bee STK**
Page Title	**Board Controller Misc**
Designed: MAH / Approved: RGU	
Size: A3 / Sheet Modified Date: Friday, June 17, 2022	
Board Number: **BRD5101B**	Revision: **A02**
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