EFM8BB50 Pro Kit

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Revision History

Rev.	Description
A00	Initial version

PCB1

PCB5208A

SILICON LABS

Designed: PEP	Approved: RGU
Size: A3	Sheet Modified Date: Friday, September 03, 2021

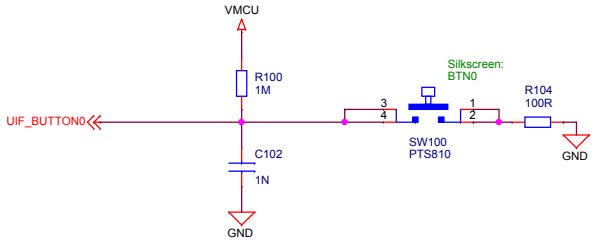
Board Name: **EFM8BB50 Pro Kit**

Page Title: **Title Page**

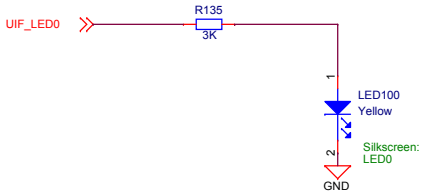
Board Number: **BRD5208A**

Revision: **A00**

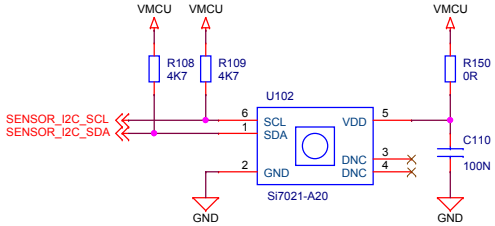
Push Buttons



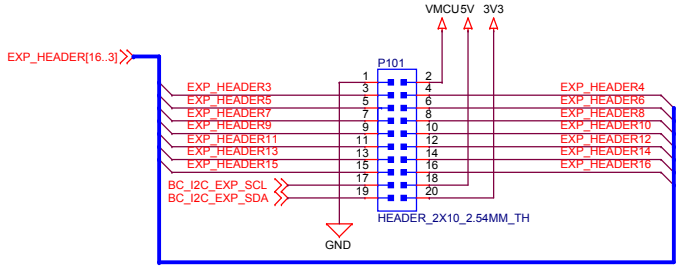
User LEDs



Relative Humidity & Temperature Sensor



EXP Header



EXP Header Functionality

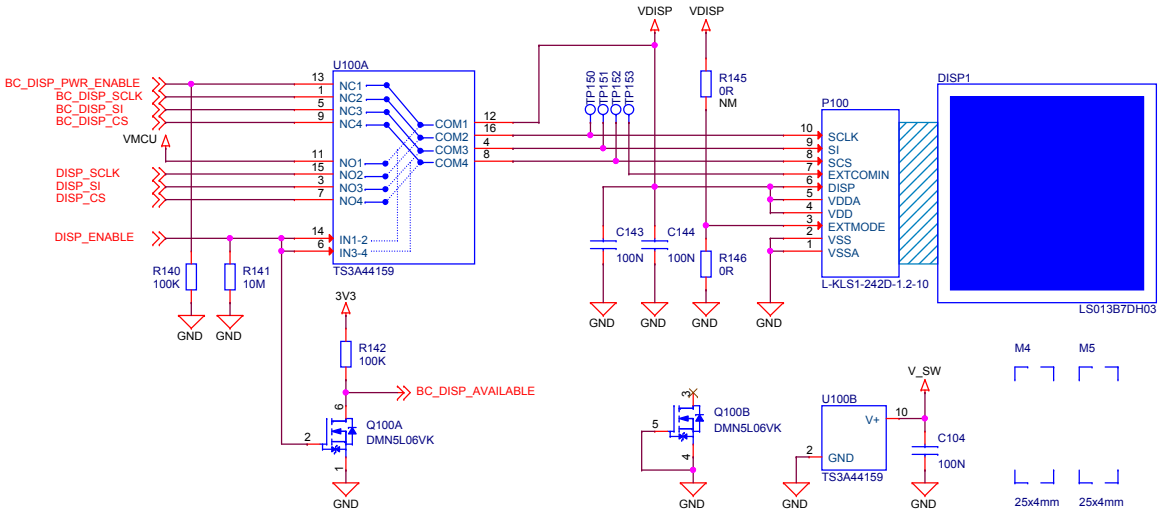
Top Row

1	GND		
3	P0.2	BTN	
5	P0.3	LED	
7	P0.7	JOYSTICK	
9	NC		CMP1.2/ADC0.11
11	NC		
13	NC		
15	P1.2	I2C_SCL	CMP1.1/ADC0.8
17	Reserved for EXP Board Identification		
19	Reserved for EXP Board Identification		

Bottom Row

2	VMCU		
4	NC		CMP1.0/ADC0.5
6	NC		CMP0.2/ADC0.4
8	NC		CMP0.4
10	NC		CMP1.0/ADC0.6
12	P0.4	UART_TX	CMP0.1/ADC0.2
14	P0.5	UART_RX	CMP0.3/ADC0.3
16	P1.1	I2C_SDA	CMP1.1/ADC0.7
18	5V		
20	3V3		

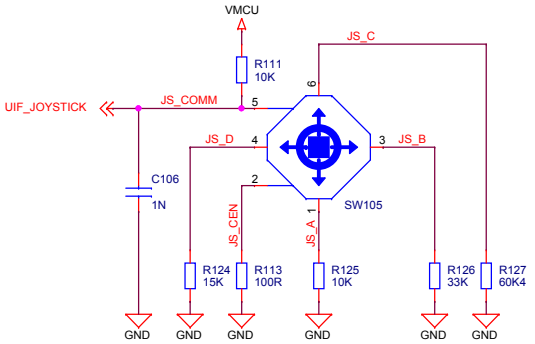
Memory LCD-TFT Display & Multiplexer



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	PEP
Approved	RGU
Size	A3
Sheet Modified Date	Friday, July 30, 2021

Board Name: **EFM8BB50 Pro Kit**

Page Title: **User Interface**

Board Number: **BRD5208A**

Revision: **A00**

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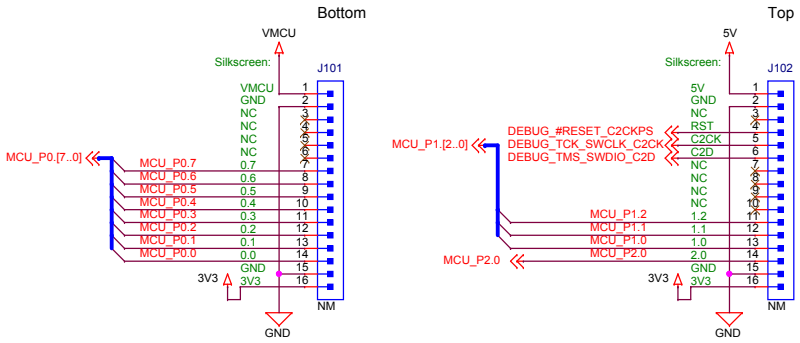
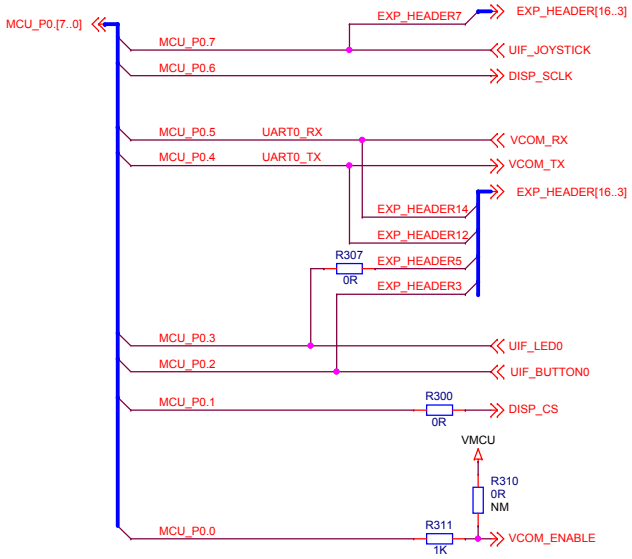
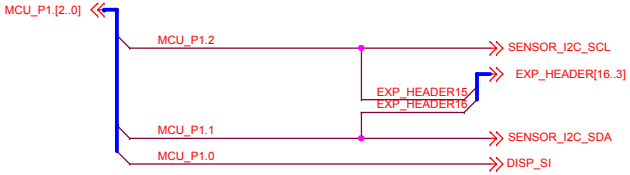
Breakout Connections



P0 Connections

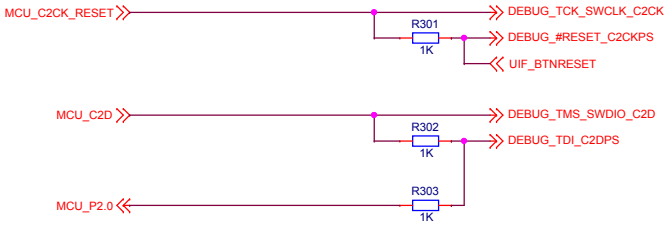


P1 Connections



P2 Connections

Debug Connections



Designed: PEP	Approved: RGU
Size: A3	Sheet Modified Date: Friday, July 30, 2021
Board Name: **EFM8BB50 Pro Kit**	
Page Title: **Signal Assignments**	
Board Number: **BRD5208A**	Revision: **A00**
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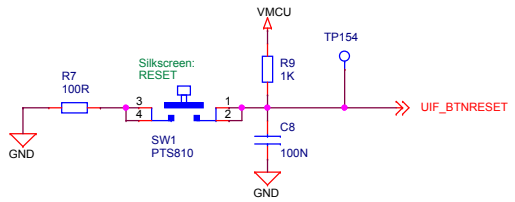
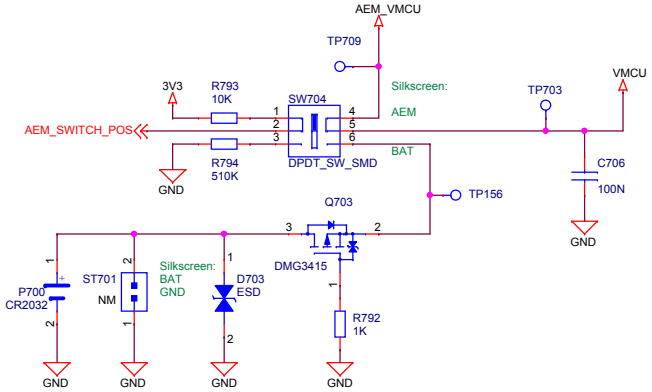
Reset Push Button

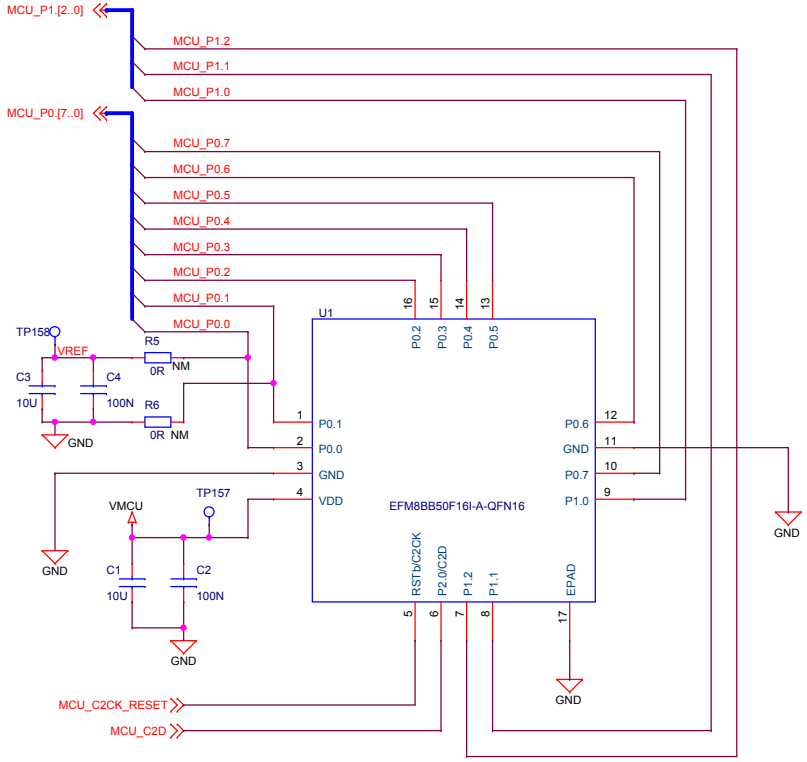


Power Select Switch: AEM/BAT

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



EFM8 I/O



Board Name	EFM8BB50 Pro Kit
Page Title	EFM8 Power & I/O
Designed	PEP
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Revision	A00
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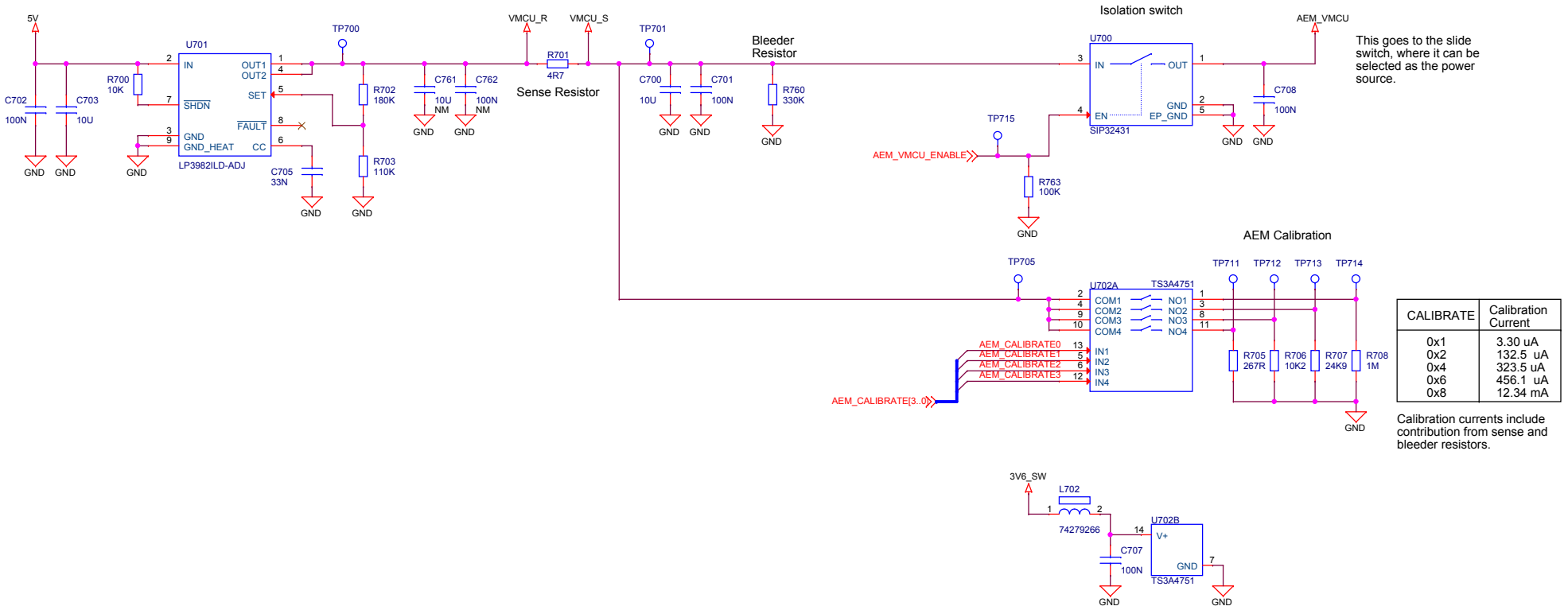
MCU Power Regulator



CALIBRATE	Calibration Current
0x1	3.30 uA
0x2	132.5 uA
0x4	323.5 uA
0x6	456.1 uA
0x8	12.34 mA

Calibration currents include contribution from sense and bleeder resistors.

Designed: PEP	Approved: RGU
Size: A3	Sheet Modified Date: Friday, October 29, 2021
Board Name: **EFM8BB50 Pro Kit**	
Page Title: **Target Voltage Supply**	
Board Number: **BRD5208A**	Revision: **A00**
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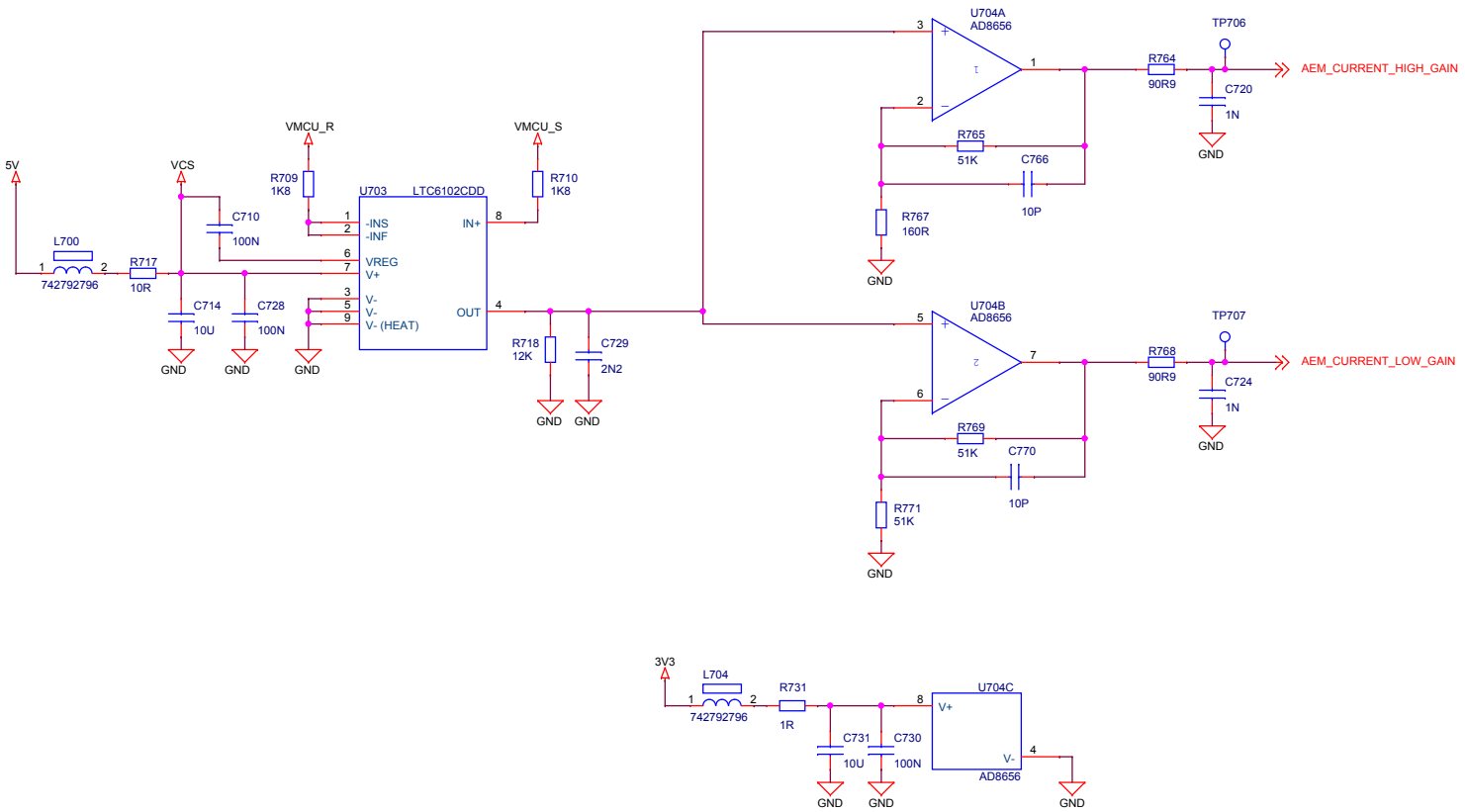
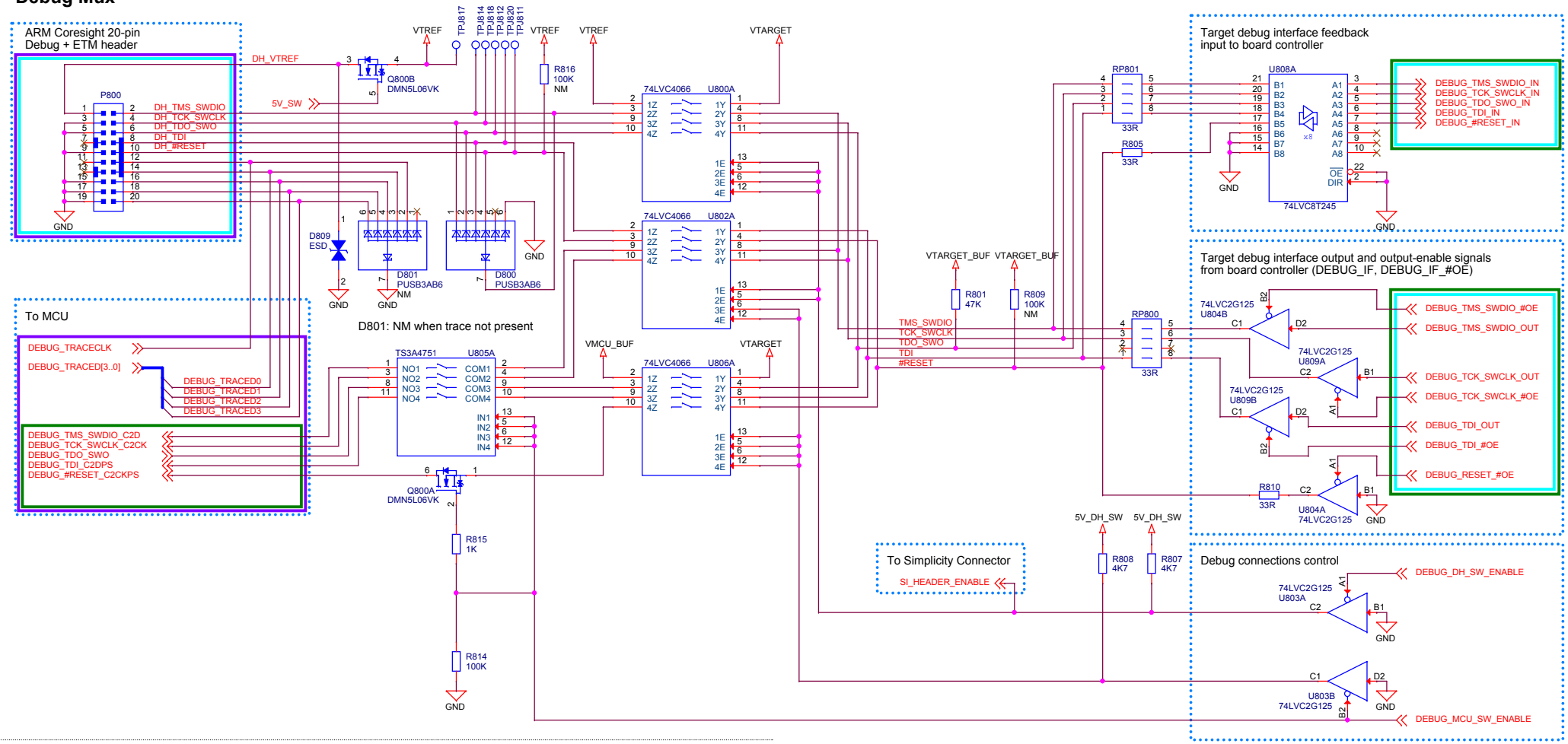
MCU Current Sense

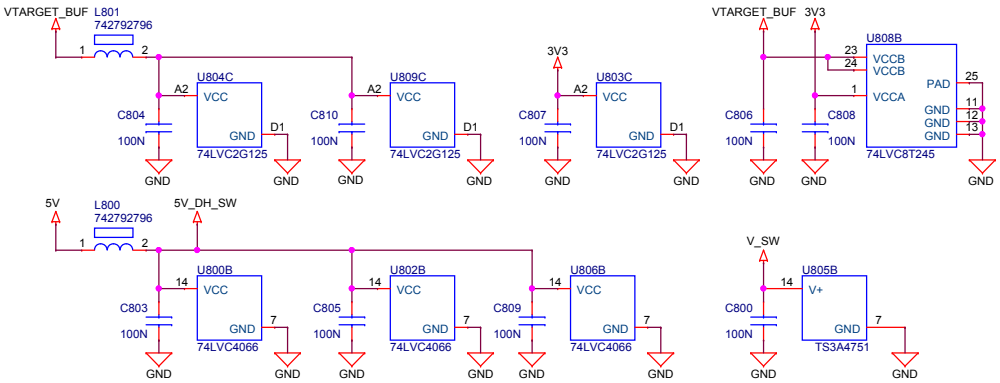


Board Name	**EFM8BB50 Pro Kit**
Page Title	**AEM**
Designed: PEP / Approved: RGU	
Size: A3 / Sheet Modified Date: Friday, July 30, 2021	Board Number: **BRD5208A** / Revision: **A00**
	Sheet: 6 of 11

Debug Mux



Power & Decoupling



Mode	DEBUG_DH_SW_ENABLE	DEBUG_MCU_SW_ENABLE	DEBUG_IF_#OE	VTREF	VTARGET
Debug Out	1	0	0/1	External voltage	External voltage
MCU Debug	0	1	0/1	Disconnected	VMCU
Debug In	1	1	1	VMCU	VMCU
Debug Off	0	0	1	-	-

Color coded frames indicates which groups of signal nodes that are active in a given debug mode

SILICON LABS

Designed	PEP
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Board Name: **EFM8BB50 Pro Kit**

Page Title: **Debug Interface**

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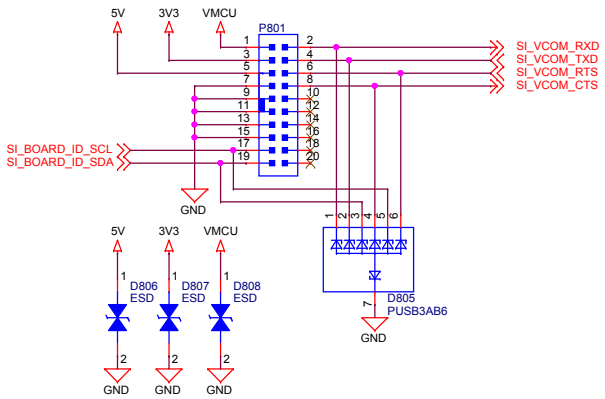
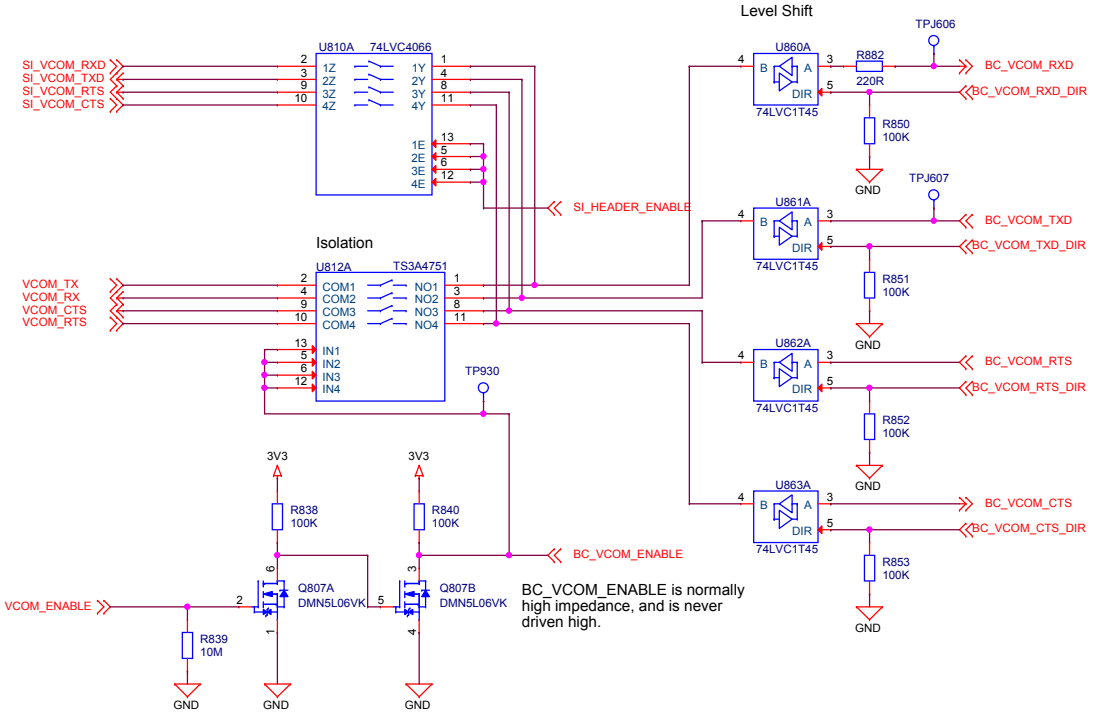
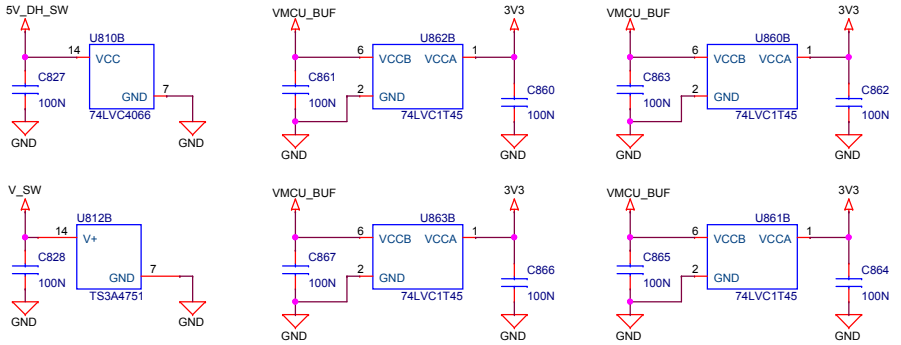
Simplicity Connector



VCOM Interface





SILICON LABS

Designed: PEP	Approved: RGU
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Board Name: **EFM8BB50 Pro Kit**

Page Title: **Simplicity & VCOM**

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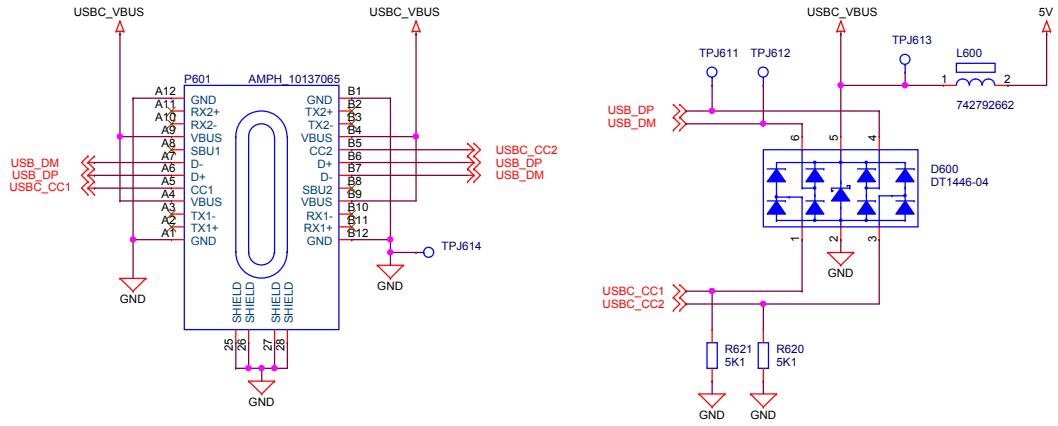
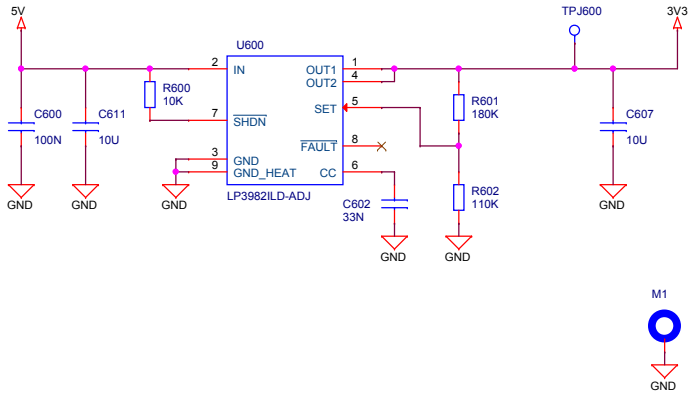
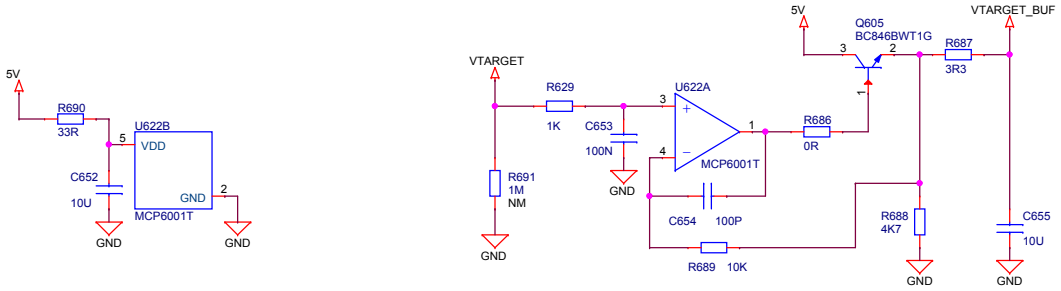
J-Link USB Port



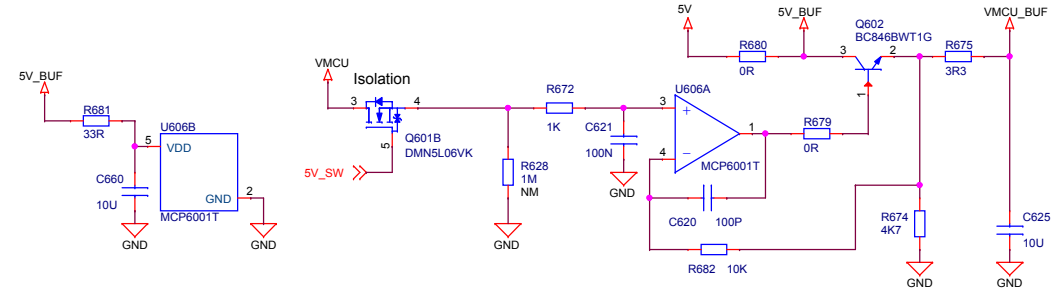
3V3 Regulator



VTarget Voltage Mirror



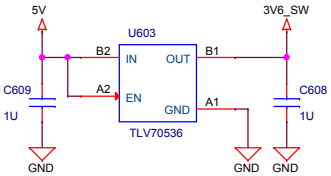
VMCU Voltage Mirror

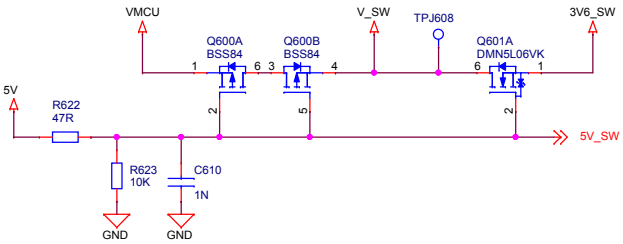


Power Supply for Analog Switches

Analog switches used for isolation are powered by 3V6_SW when the USB cable is connected, otherwise by VMCU.

J-Link USB Cable	PMOS State	NMOS State	V_SW	VMCU_SENSE
Connected	Off	On	3.6V	VMCU
Disconnected	On	Off	VMCU	Isolated





SILICON LABS		Board Name	EFM8BB50 Pro Kit
		Page Title	Power
Designed: PEP	Approved: RGU		
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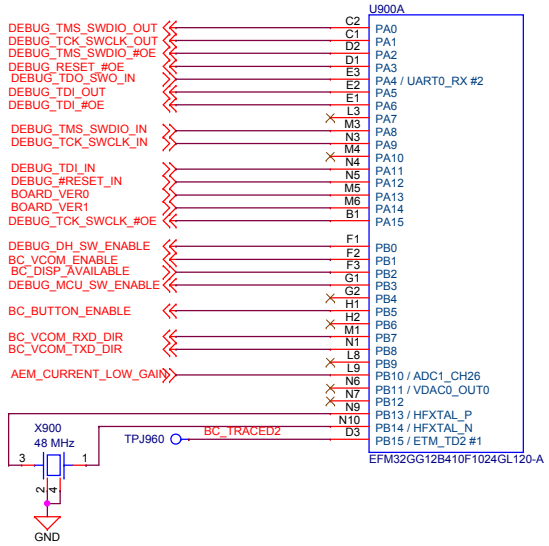
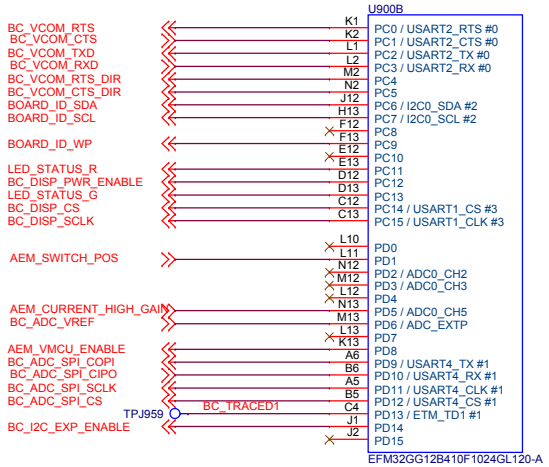
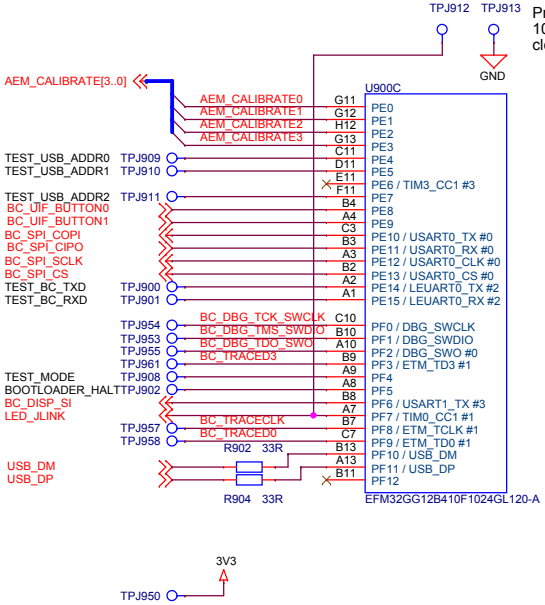
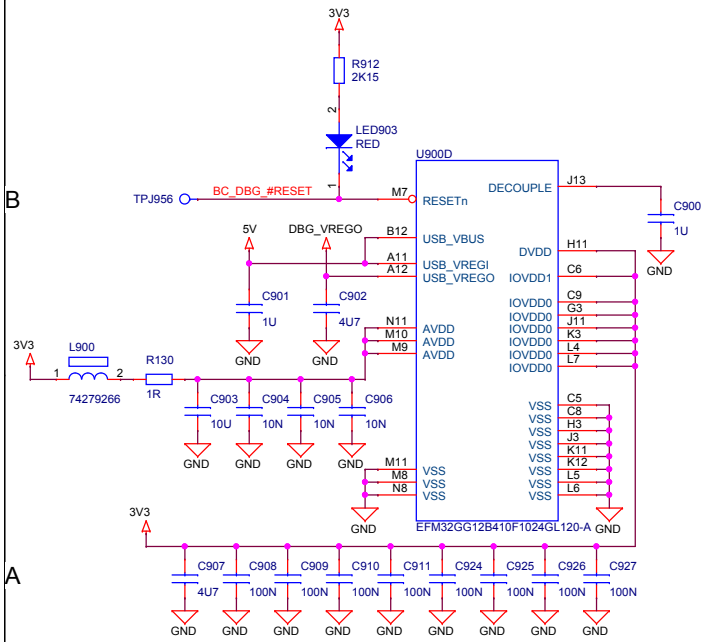
Board Controller



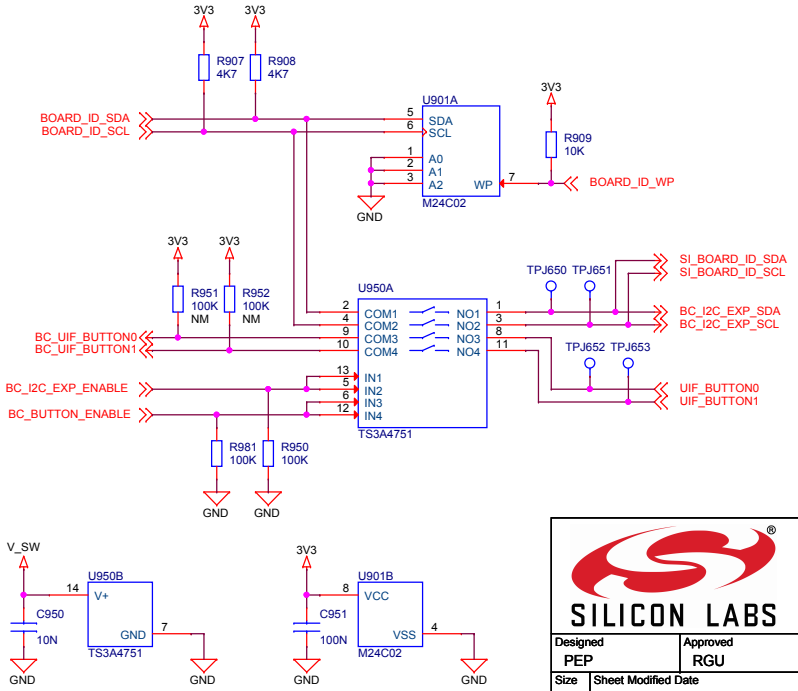




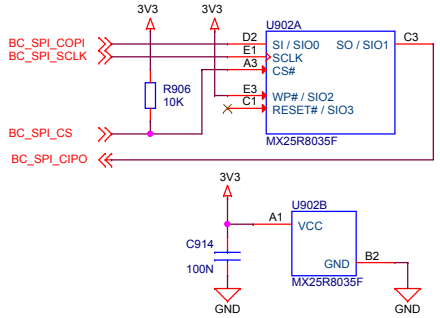
Power & Decoupling



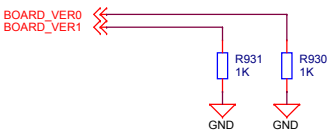
Board ID & Button Isolation



BC Serial Flash



Board Version



SILICON LABS

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EFM8BB50 Pro Kit

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Board Controller

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BRD5208A

Revision
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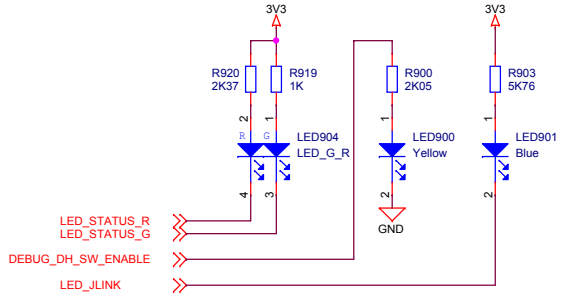
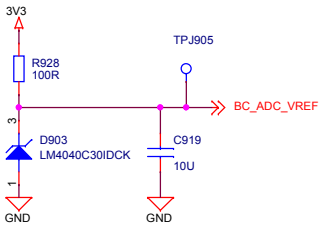
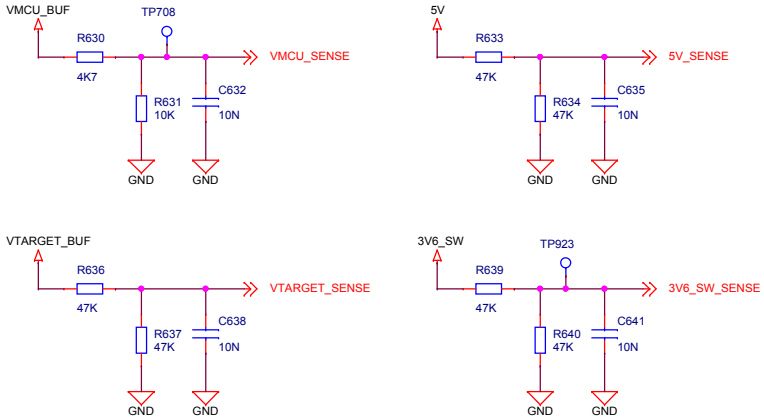
Indicator LEDs



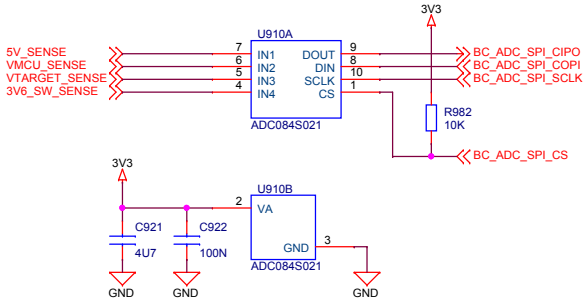
BC ADC Reference



BC Voltage Sense



BC Voltage Sense ADC



Board Name	**EFM8BB50 Pro Kit**
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