



EFM8SB1 Sleepy Bee STK

Board Function	Page
Title Page	1
User Interface	2
Signal Assignments	3
EFM8 Power & I/O	4
Target Voltage Supply & AEM	5
Debug Interface	6
Simplicity & VCOM	7
Power	8
Board Controller	9
Board Controller Misc	10



LEGAL NOTICE:
SILICON LABORATORIES INC. ("SILICON LABS") AND/OR ITS LICENSORS DO NOT WARRANT THE ACCURACY OR COMPLETENESS OF THIS SCHEMATIC OR ANY INFORMATION CONTAINED WITHIN THIS SCHEMATIC. IT IS PROVIDED "AS-IS" FOR REFERENCE ONLY. SILICON LABS DOES NOT WARRANT THAT THIS DESIGN WILL MEET THE SPECIFICATIONS, BE SUITABLE FOR YOUR APPLICATION OR FIT FOR ANY PARTICULAR PURPOSE, OR WILL OPERATE IN YOUR IMPLEMENTATION. SILICON LABS AND ITS LICENSORS DO NOT WARRANT THAT THE DESIGN IMPLIED IN THIS SCHEMATIC IS PRODUCTION-WORTHY. YOU SHOULD COMPLETELY VALIDATE AND TEST YOUR DESIGN IMPLEMENTATION TO CONFIRM SYSTEM FUNCTIONALITY FOR YOUR APPLICATION.

Revision History

Rev.	Description
A01	Update to new STK platform



Designed MSV		Approved RGU		Title Page	
Size A3	Sheet Modified Date Friday, April 08, 2022			Board Number BRD5101B	Revision A01
COPYRIGHT SILICON LABORATORIES INC. 2022 CONFIDENTIAL – SUBJECT TO TERMS OF USE					Sheet 1 of 10

D



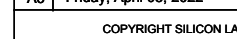
A



2



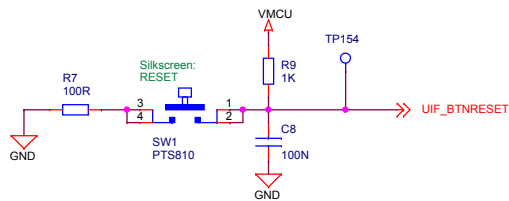
[D



Sheet
3 of 10

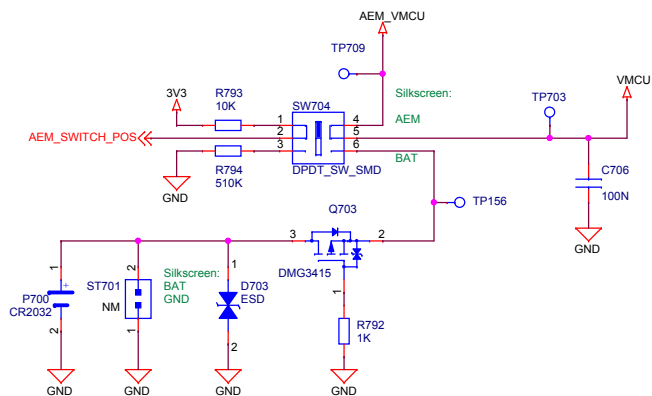
COPYRIGHT SILICON LABORATORIES INC. 2022 CONFIDENTIAL – SUBJECT TO TERMS OF USE

Reset Push Button

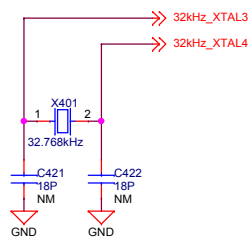


Power Select Switch: AEM/BAT

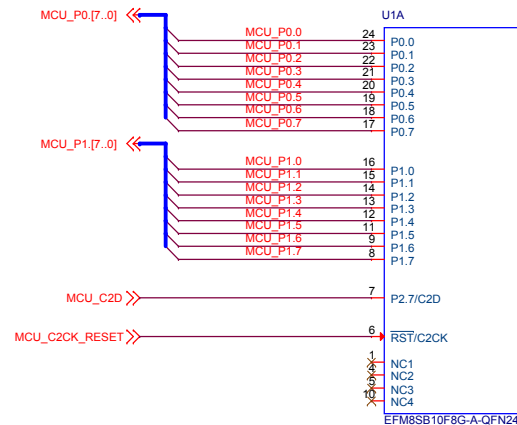
SWITCH POS	MODE DESCRIPTION
AEM	AEM Enabled, VMCU sourced from external 3.3V LDO powered by BC USB 5V supply
BAT	AEM Disabled, VMCU sourced from coin-cell battery or external power supply



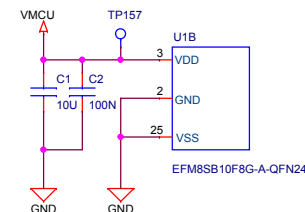
Low Frequency Clock



EFM8 I/O

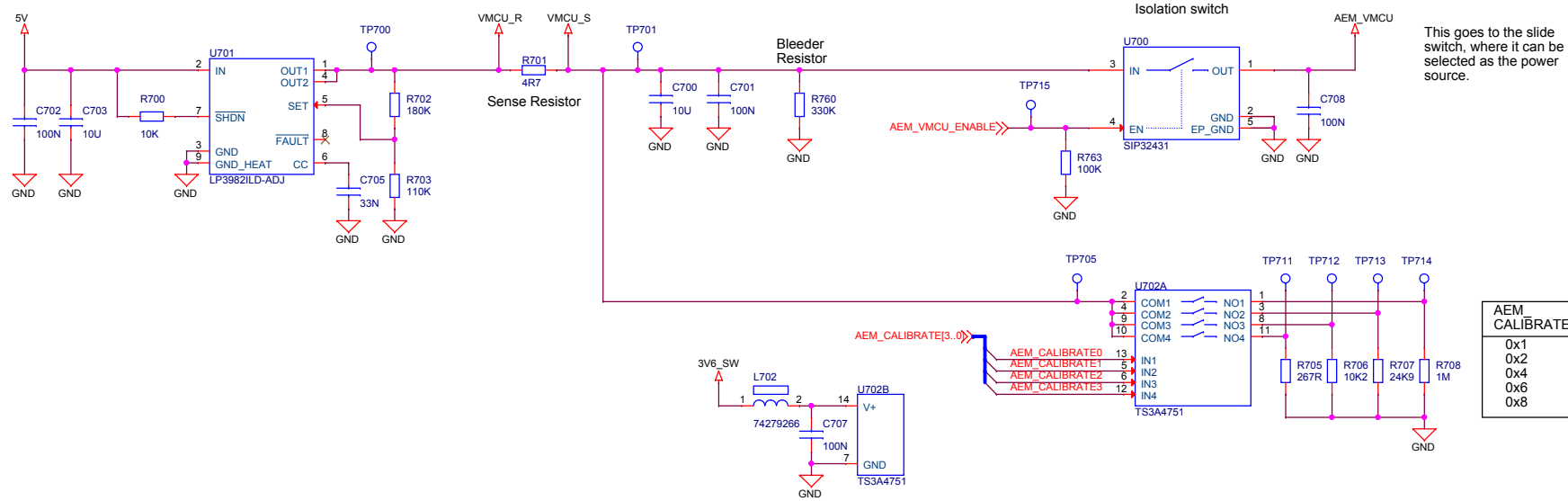


EFM8 Power and Decoupling



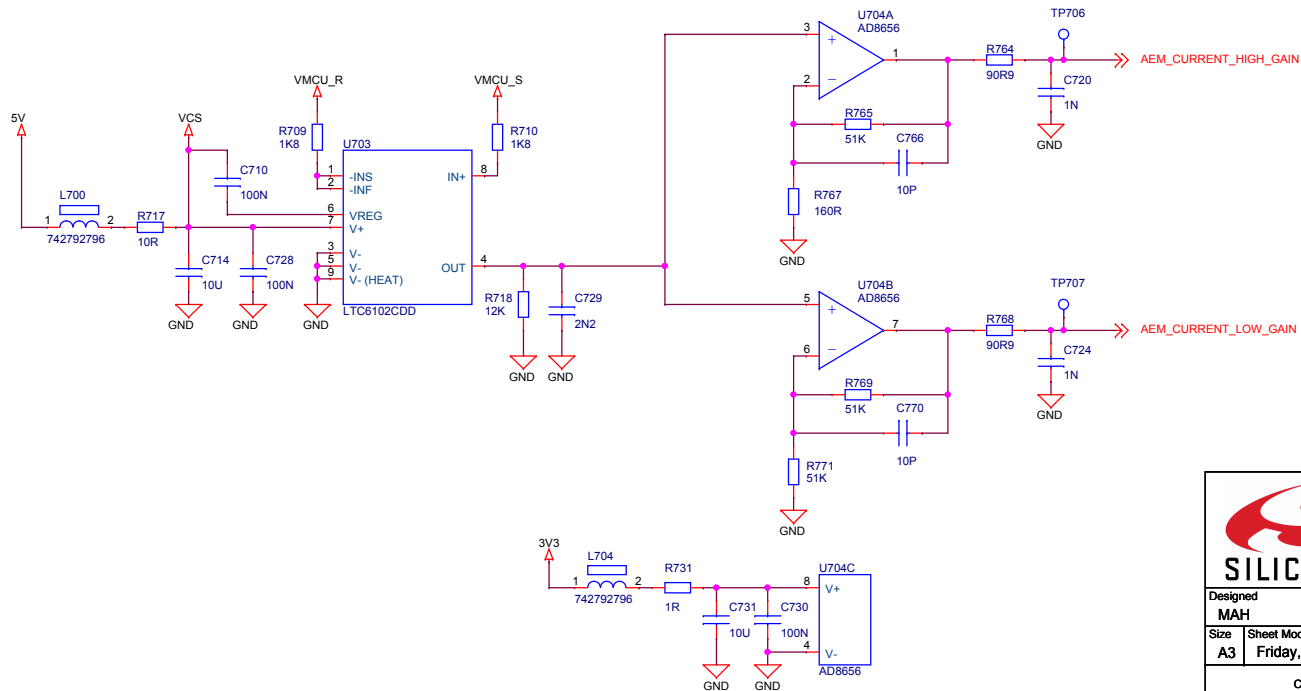
		Board Name	
		EFM8SB1 Sleepy Bee STK	
Designed MSV		Page Title	
Approved RGU		EFM8 Power & I/O	
Size A3		Board Number	Revision
Sheet Modified Date Friday, April 08, 2022		BRD5101B	A01
COPYRIGHT SILICON LABORATORIES INC. 2022 CONFIDENTIAL – SUBJECT TO TERMS OF USE			Sheet 4 of 10

MCU Power Regulator



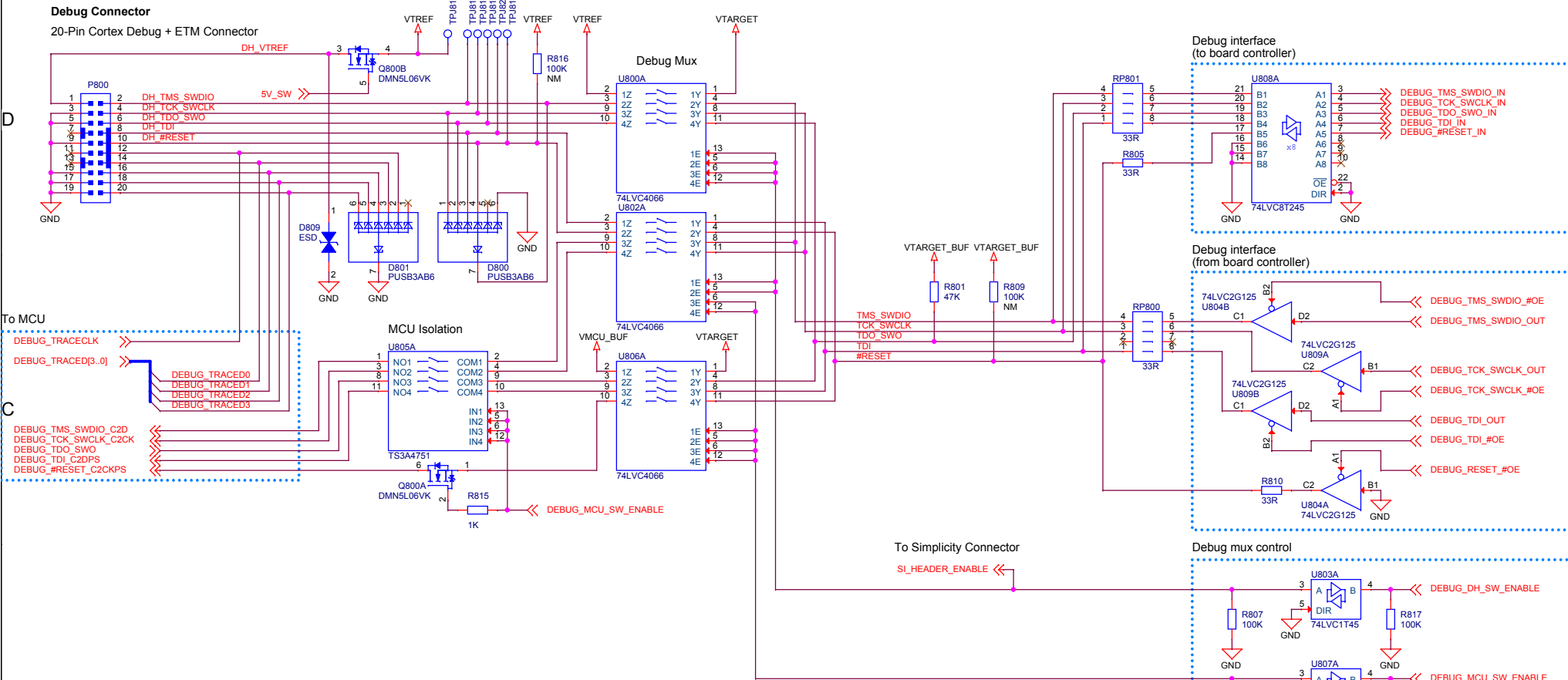
AEM CALIBRATE	Current
0x1	3.30 uA
0x2	132.5 uA
0x4	323.5 uA
0x6	456.1 uA
0x8	12.36 mA

Advanced Energy Monitoring

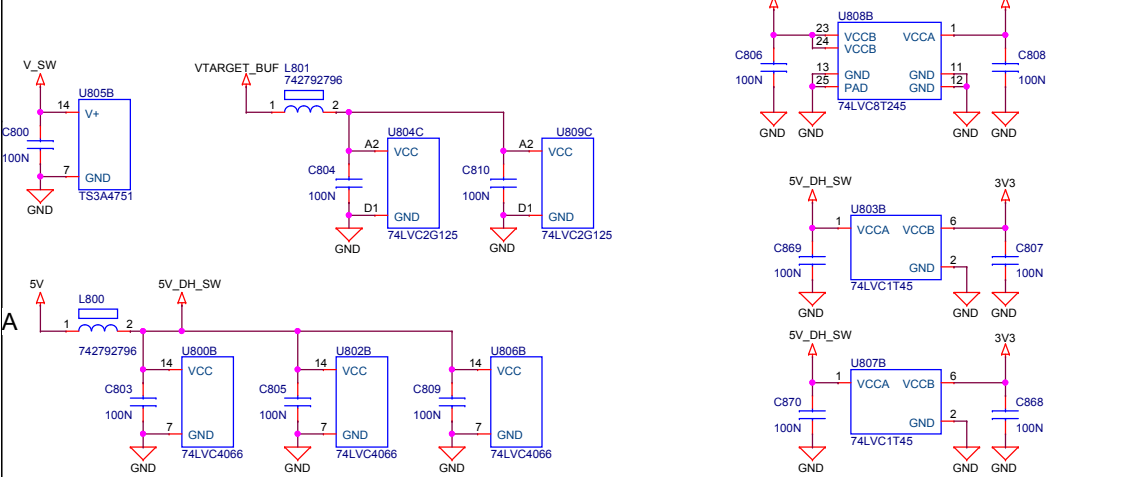


 SILICON LABS		Board Name	
		EFM8SB1 Sleepy Bee STK	
Designed MAH		Page Title	
Size A3		Target Voltage Supply & AEM	
Sheet Modified Date Friday, April 08, 2022		Board Number	Revision
		BRD5101B	A01
COPYRIGHT SILICON LABORATORIES INC. 2022 CONFIDENTIAL – SUBJECT TO TERMS OF USE			Sheet 5 of 10

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



SILICON LABS

Designed MAH Approved RGU

Size A3 Sheet Modified Date Friday, April 08, 2022

Board Name

EFM8SB1 Sleepy Bee STK

Page Title

Debug Interface

Board Number

BRD5101B

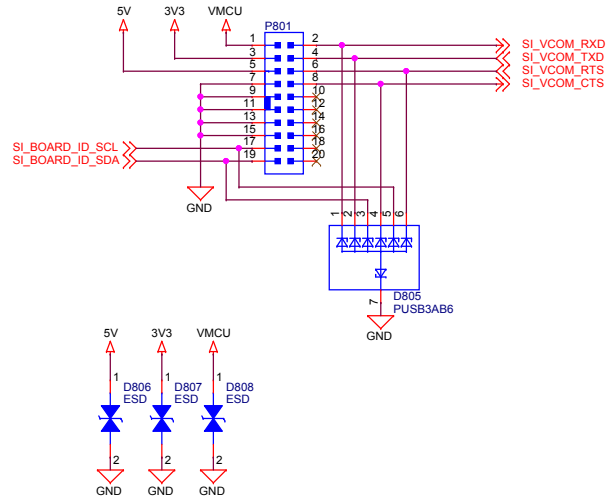
Revision

A01

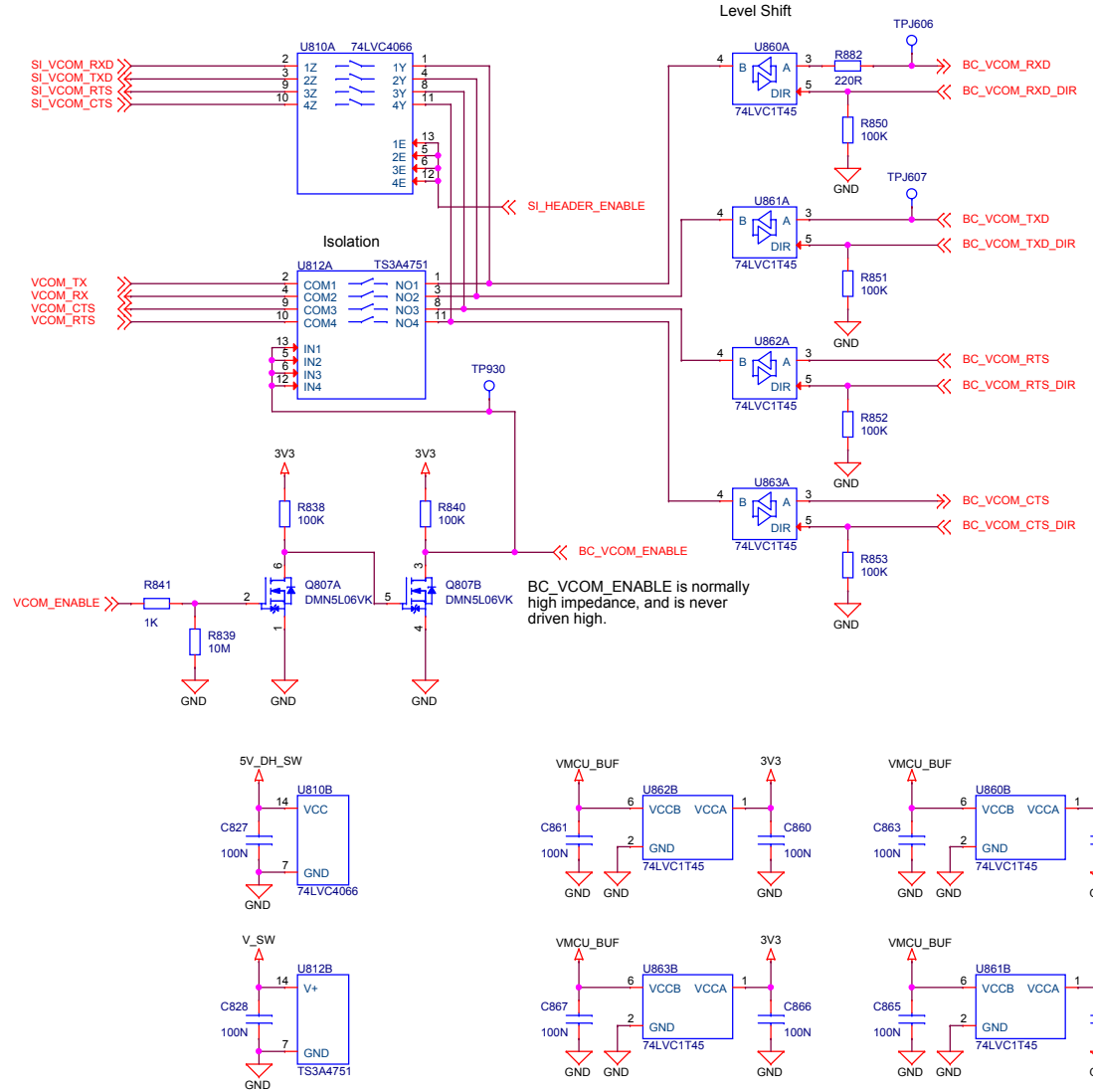
COPYRIGHT SILICON LABORATORIES INC. 2022 CONFIDENTIAL – SUBJECT TO TERMS OF USE

Sheet 6 of 10

Simplicity Connector

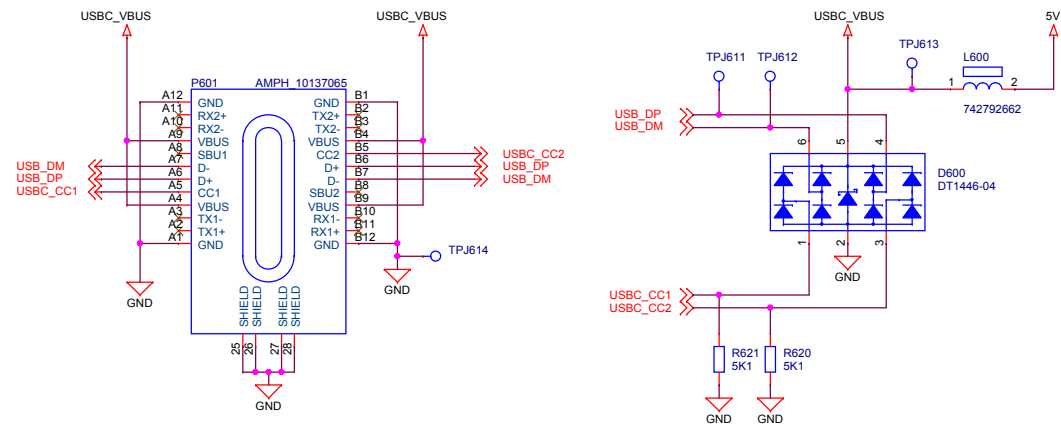


VCOM Interface

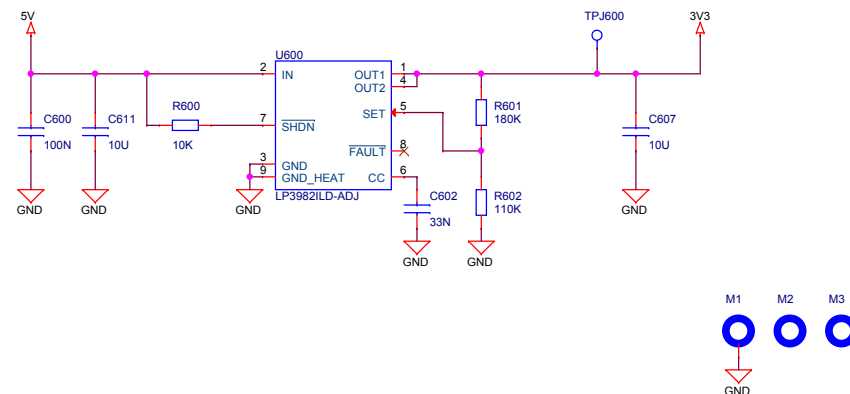


		Board Name	
		EFM8SB1 Sleepy Bee STK	
Designed MAH		Page Title	
Approved RGU		Simplicity & VCOM	
Size A3		Board Number	
Sheet Modified Date Friday, April 08, 2022		BRD5101B	
COPYRIGHT SILICON LABORATORIES INC. 2022		CONFIDENTIAL – SUBJECT TO TERMS OF USE	
		Revision A01	
		Sheet 7 of 10	

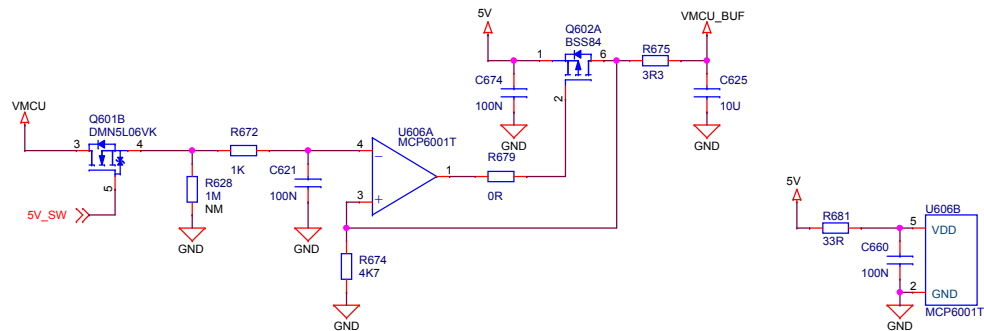
J-Link USB Port



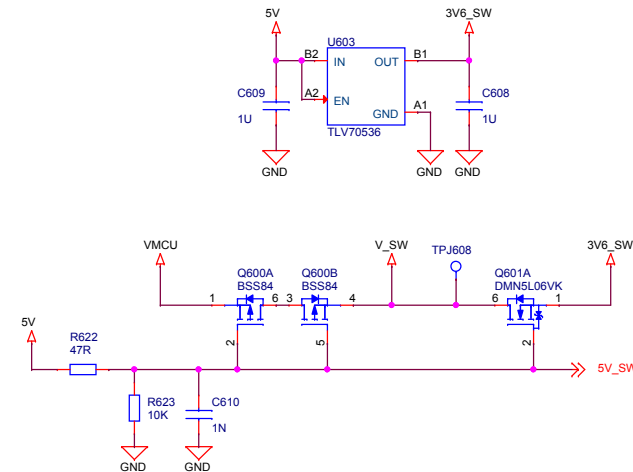
3V3 Regulator



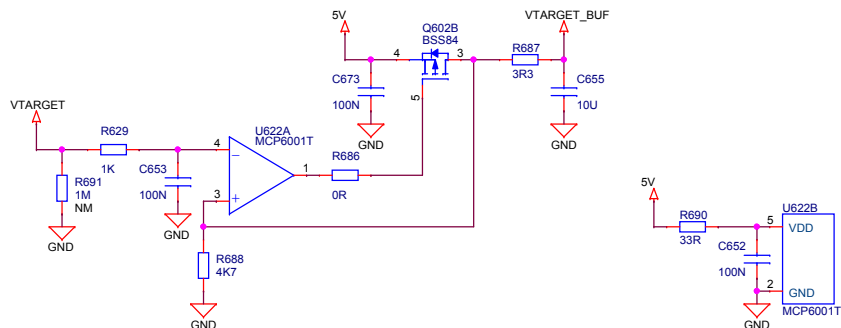
VMCU Voltage Mirror



Power Supply for Analog Switches



VTarget Voltage Mirror

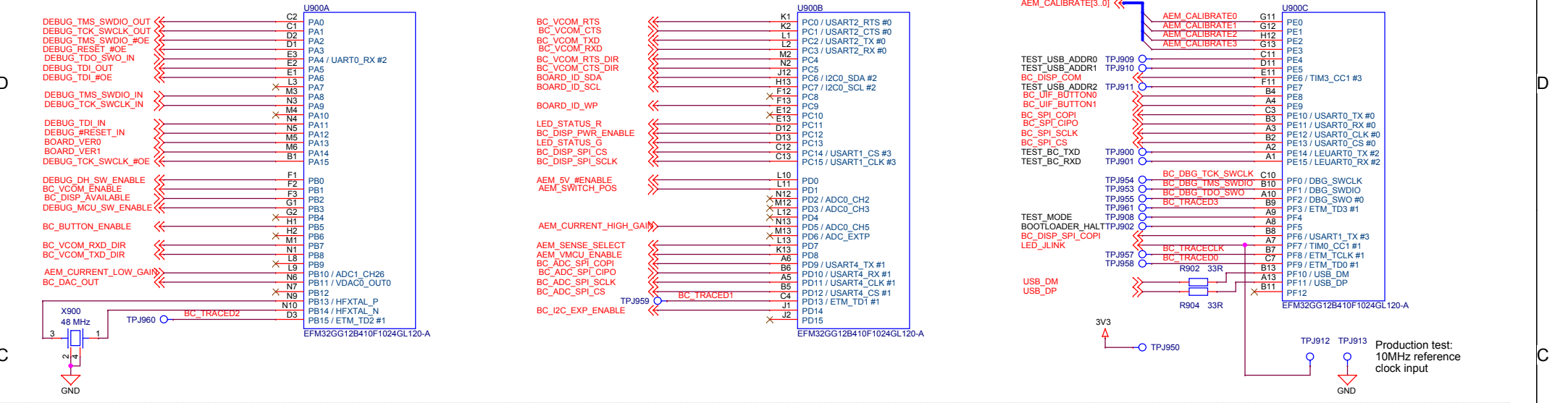


J-Link USB Cable	Q600 State	Q601A State	V_SW	VMCU_SENSE
Connected	OFF	ON	3.6V VMCU	VMCU Isolated
Disconnected	ON	OFF	3.6V VMCU	VMCU Isolated

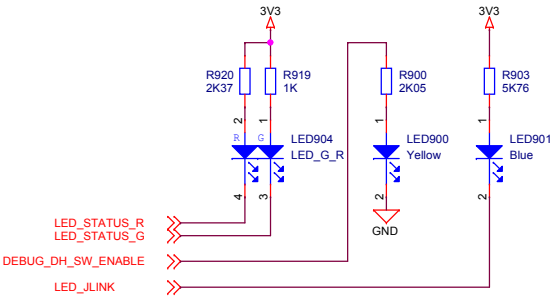
Isolation switches are powered by 3V6_SW when the USB cable is connected, otherwise by VMCU.

		Board Name	
		EFM8SB1 Sleepy Bee STK	
Designed MAH		Page Title	
Size A3		Power	
Sheet Modified Date		Board Number	
Friday, April 08, 2022		BRD5101B	
Revision		A01	
Copyright Silicon Laboratories Inc. 2022		CONFIDENTIAL – SUBJECT TO TERMS OF USE	
Sheet 8 of 10			

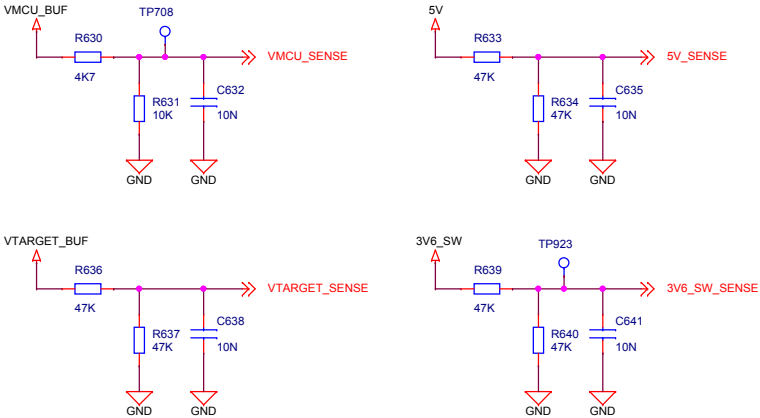
Board Controller



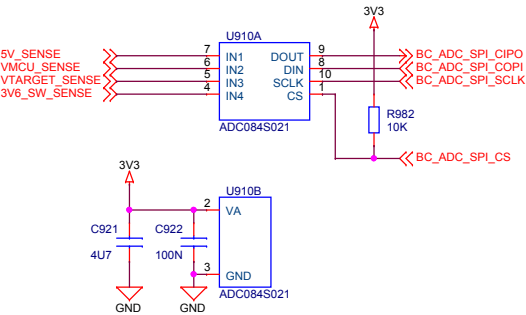
Indicator LEDs



BC Voltage Sense



BC Voltage Sense ADC



 SILICON LABS		Board Name		EFM8SB1 Sleepy Bee STK			
		Page Title		Board Controller Misc			
Designed MAH		Approved RGU		Board Number		Revision	
Size A3		Sheet Modified Date Friday, April 08, 2022		BRD5101B		A01	
COPYRIGHT SILICON LABORATORIES INC. 2022				CONFIDENTIAL – SUBJECT TO TERMS OF USE			
				Sheet 10 of 10			