




EFM8LB1 Laser Bee STK	
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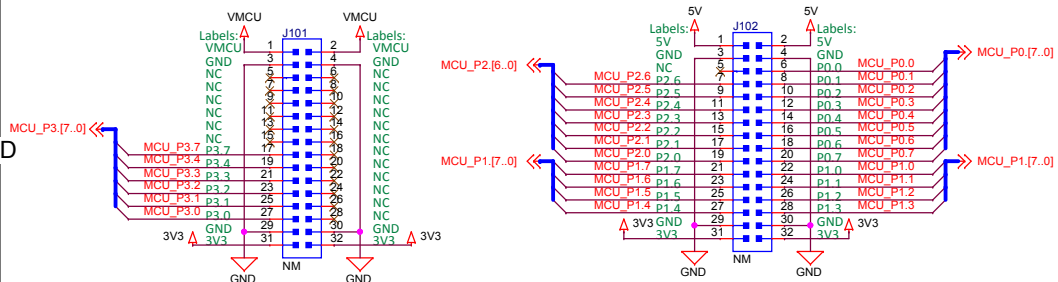
Revision History	
Rev.	Description
A00	Initial release.
A01	Changed to surface mounted joystick and smaller reset switch.
A02	Cleaned up sine generator circuit. Updated silk print.
A03	Updated revision on EFM8LB1. Moved reset switch. Update: Fixed EXP pinout description (documentation update change only)

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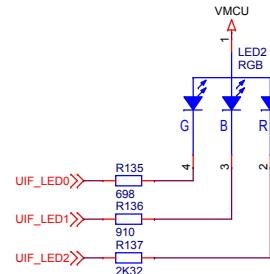


STK		Schematic Title	
 SILICON LABS		EFM8LB1 Laser Bee Starter Kit	
Page Title		Title Page	
Designed: MRW	Approved: JNO	Document number	Revision
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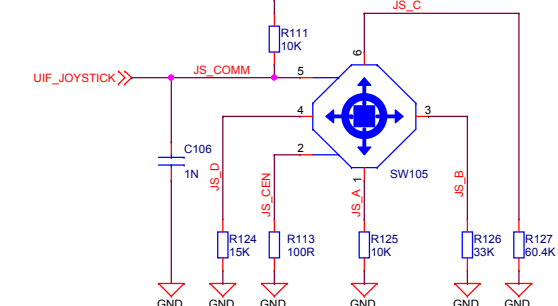
5 Breakout Connections



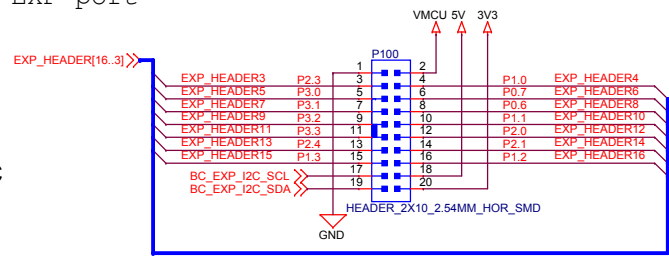
3 RGB LED



2 Analog Joystick



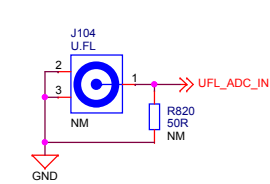
EXP port



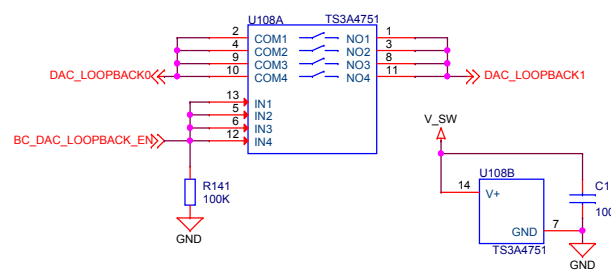
EXP-Header Functionality

1	GND		CMP1.5/ADC0.16
3	P2.3		DAC0
5	P3.0		DAC1
7	P3.1		DAC2
9	P3.2		DAC3
11	P3.3		CMP1.6/ADC0.17
13	P2.4		P1.3
15	P1.3		I2C0_SCL
17			Reserved for EXP Board Identification
19			Reserved for EXP Board Identification
2	VMCU		
4	P1.0	SPI0_MOSI	CMP1.1/ADC0.6
6	P0.7	SPI0_MISO	CMP0.5/ADC0.5
8	P0.6	SPI0_SCK	CMP0.4/ADC0.5
10	P1.1	SPI0_NSS	CMP0.7/ADC0.7
12	P2.0	UART1_TX	CMP1.3/ADC0.14
14	P2.1	UART1_RX	CMP1.4/ADC0.15
16	P1.2	I2C0_SDA	CMP0.8/ADC0.8
18	5V		
20	3V3		

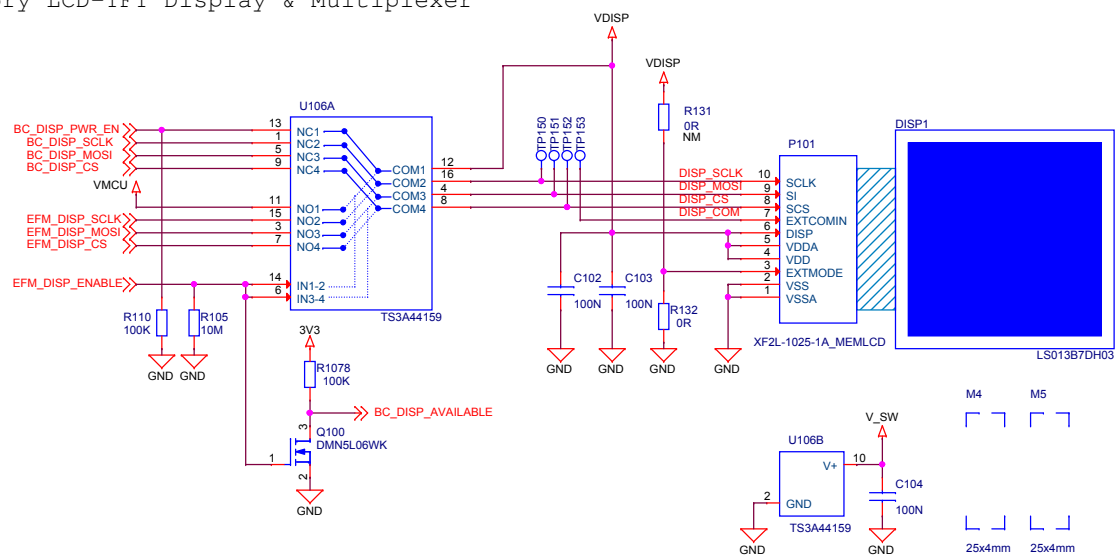
U.F.L. ADC Connection



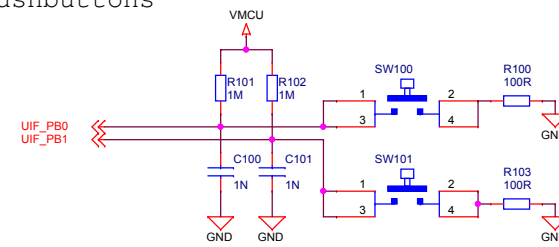
DAC Loopback Analog Switch



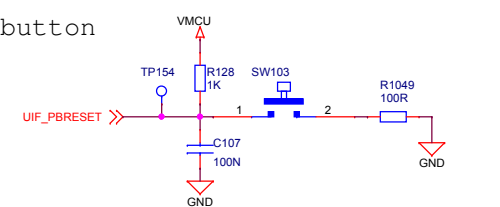
Memory LCD-TFT Display & Multiplexer



User pushbuttons



RESET Pushbutton

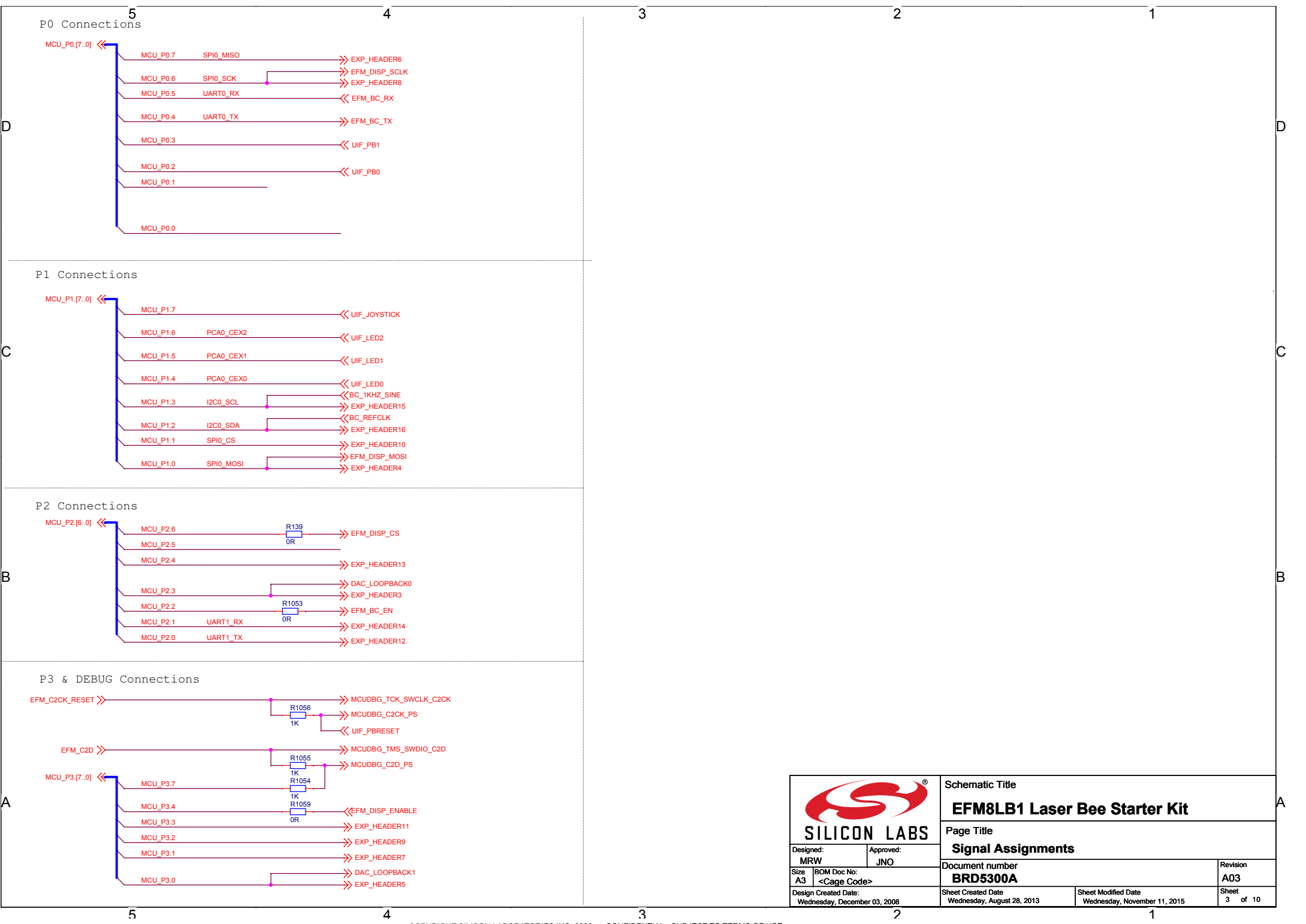


The EFM8 always controls ownership of the display using the EFM_DISP_ENABLE signal.

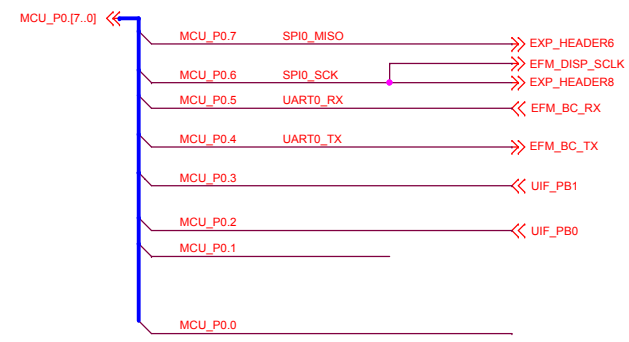
EFM_DISP_ENABLE	DISP_CTRL	VDISP
0	BC	BC_DISP_PWR_EN
1	EFM	VMCU

STK

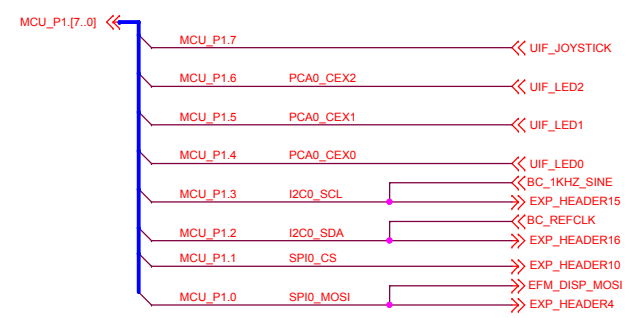
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		EFM8LB1 Laser Bee Starter Kit	
Designed: MRW Approved: JNO		Page Title	
		User Interfaces	
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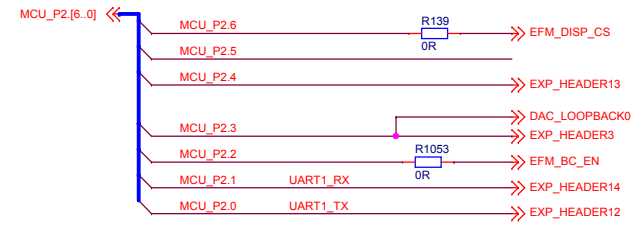
P0 Connections



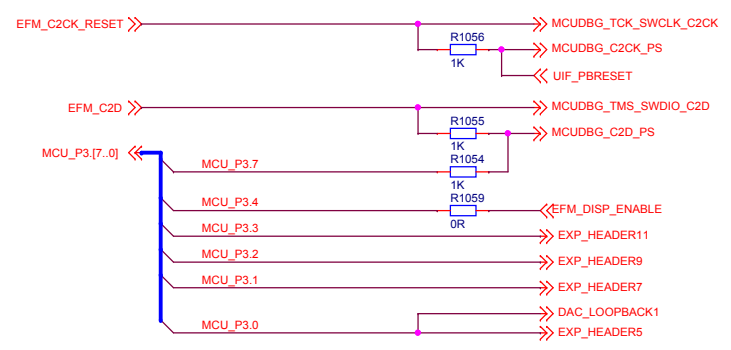
P1 Connections



P2 Connections



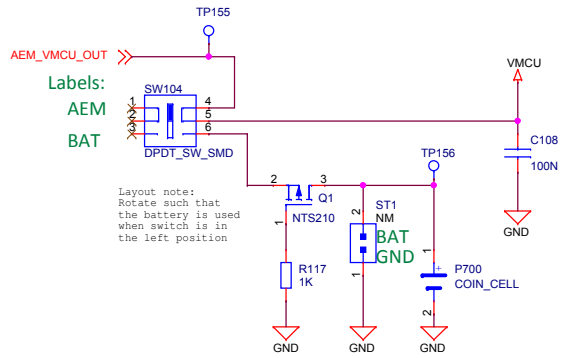
P3 & DEBUG Connections



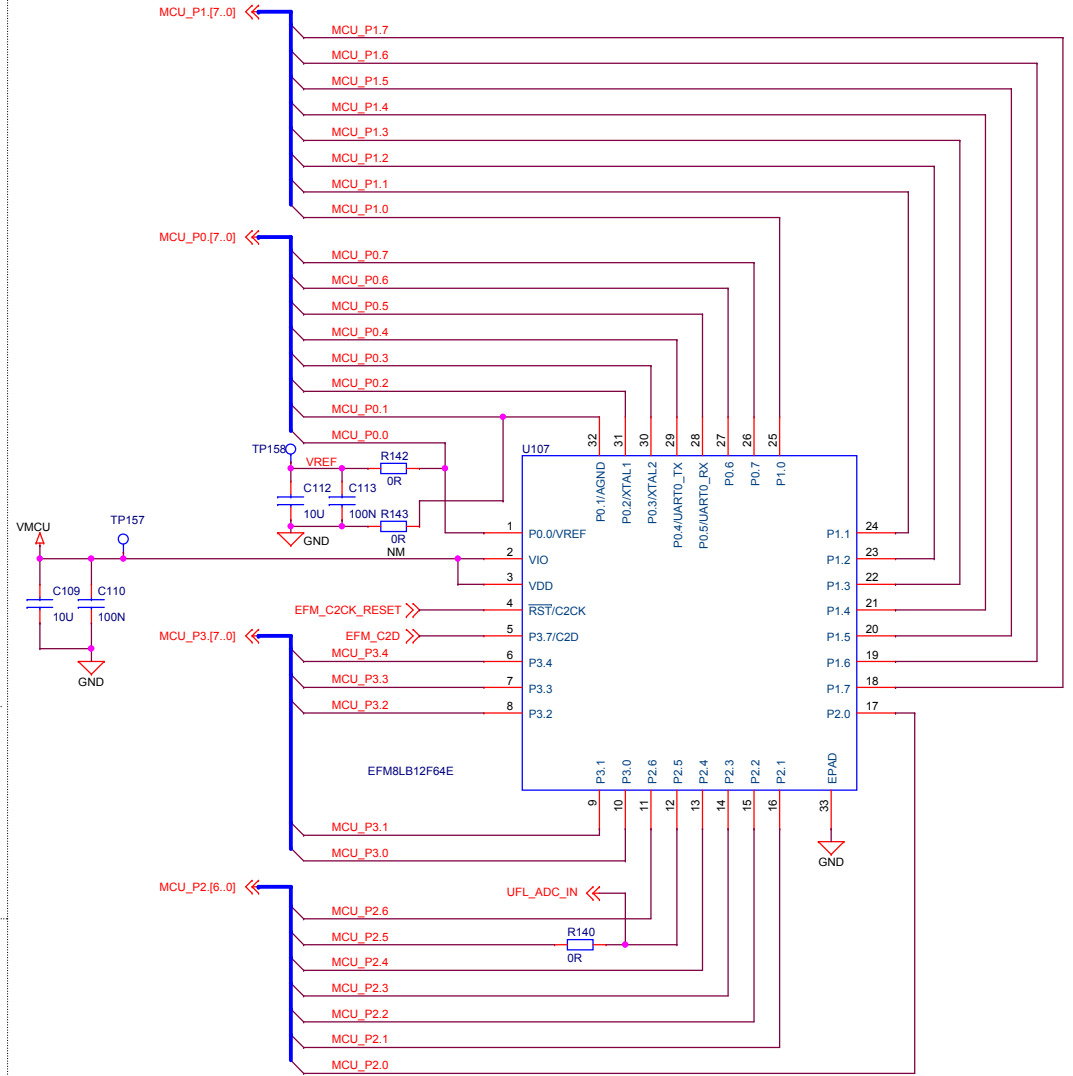
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Designed: MRW Approved: JNO		Page Title	
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Power Switch

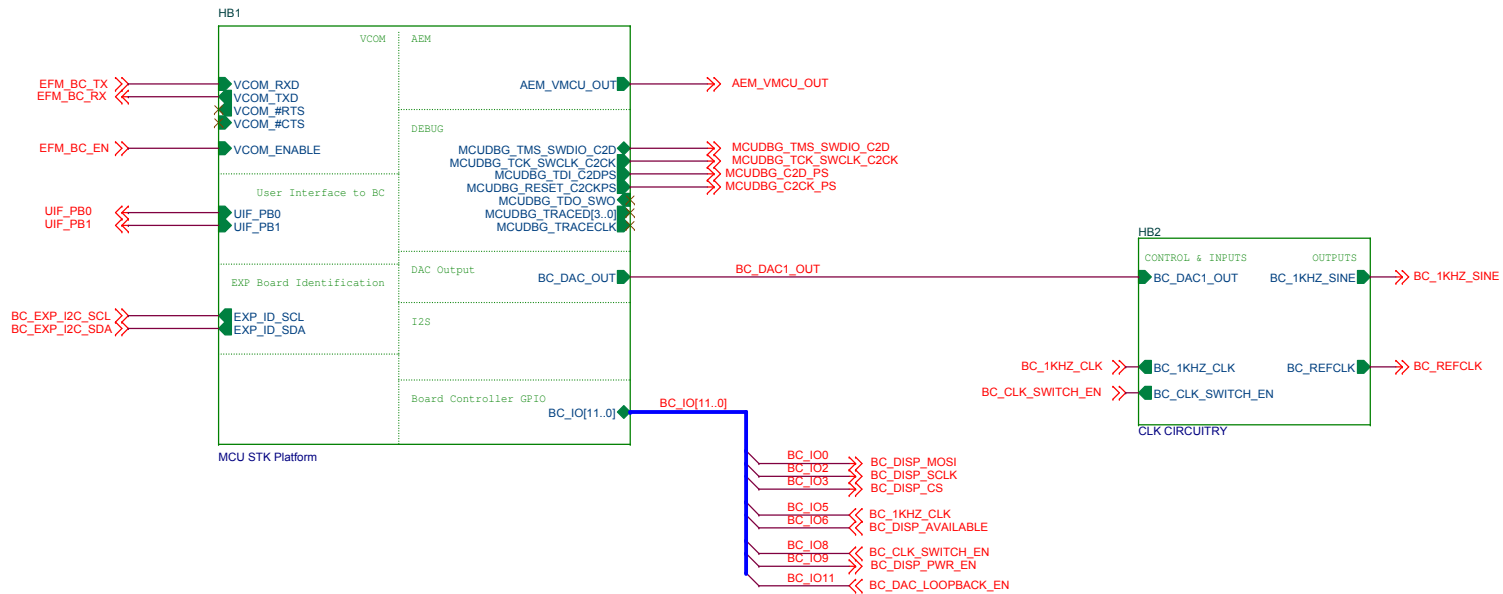
SWITCH POS	MODE DESCRIPTION
AEM	AEM Enabled, VMCU sourced from external 3.3V LDO powered by BC USB 5V supply
BAT	AEM Disabled, VMCU sourced from external coin-cell battery or external power supply




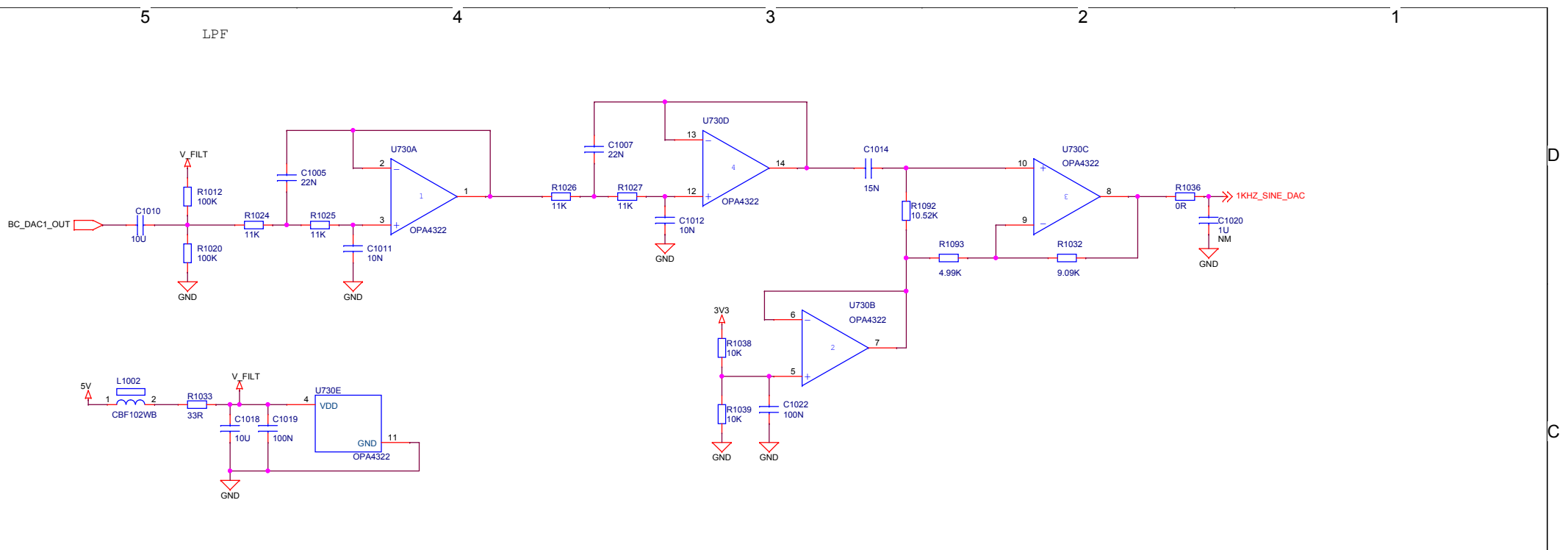
C2 Debug Header



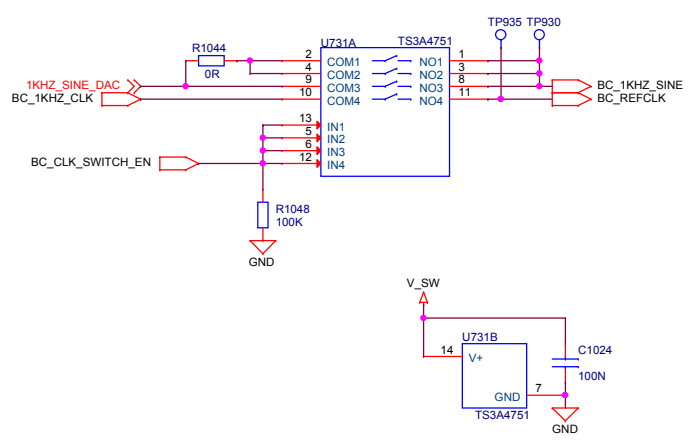
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		EFM8LB1 Laser Bee Starter Kit	
Designed: MRW Approved: JNO Size: A3 BOM Doc No: <Cage Code>		Page Title	
		EFM8 I/O & Power	
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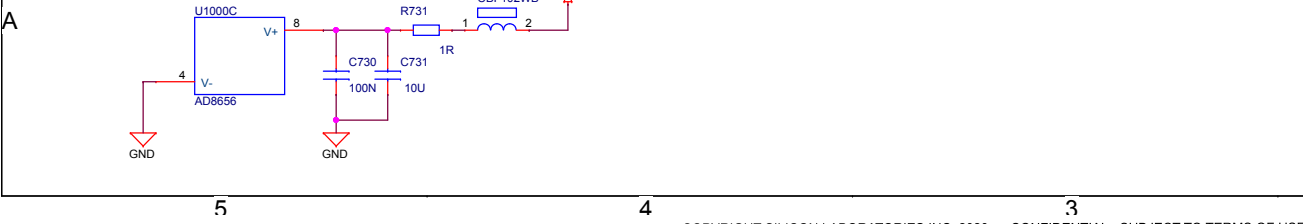
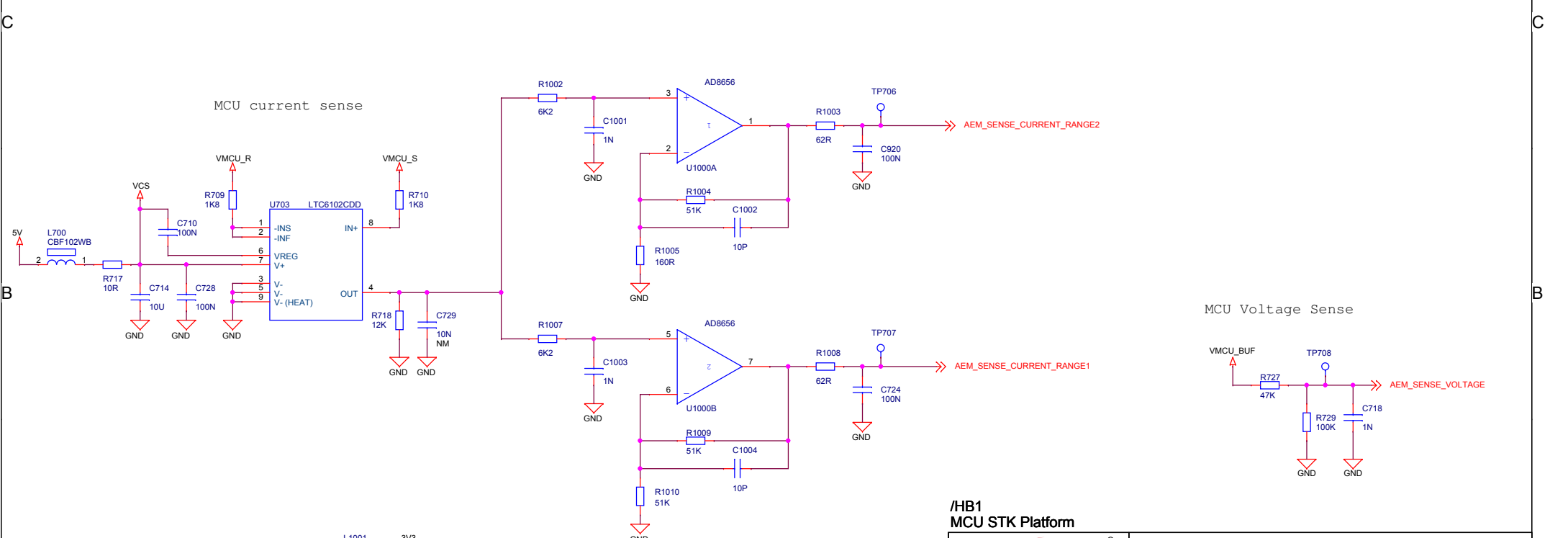
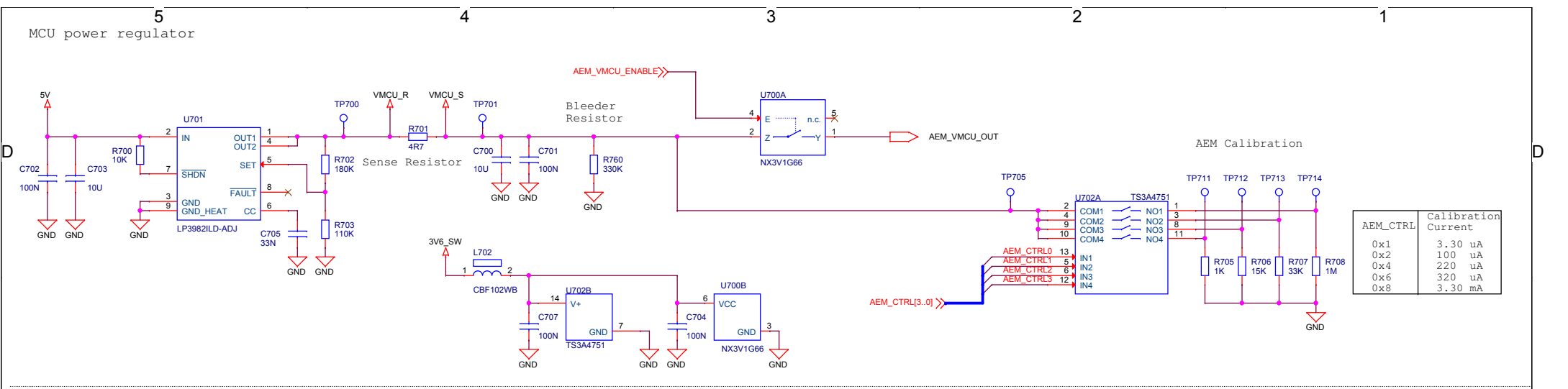
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		EFM8LB1 Laser Bee Starter Kit	
Designed: MRW Approved: JNO		Page Title	
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Analog Switch

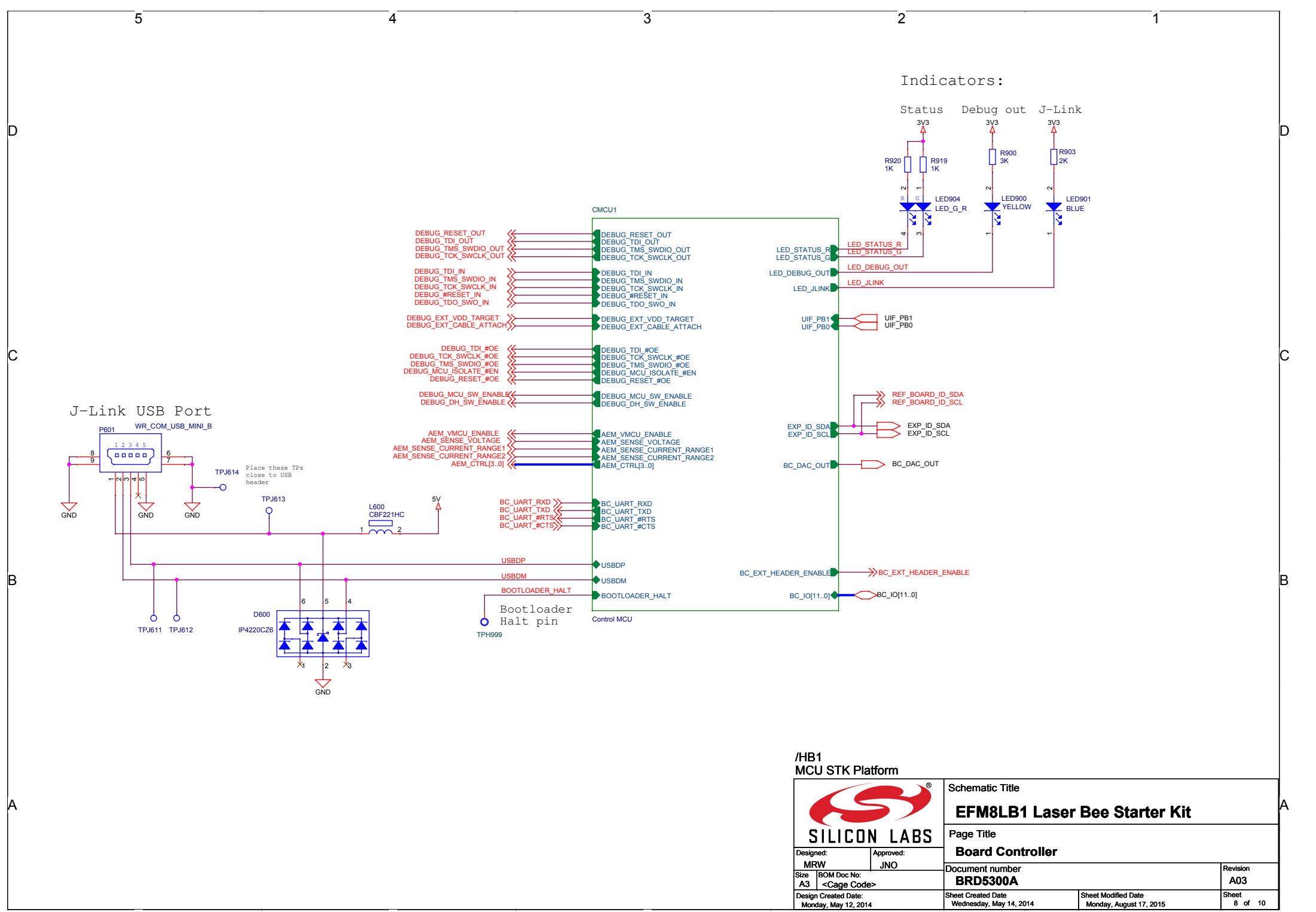


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		EFM8LB1 Laser Bee Starter Kit	
Designed: MRW Approved: JNO Size: A3 BOM Doc No: <Cage Code> Design Created Date: Wednesday, December 03, 2008		Page Title	
		1 kHz Signal Generator	
Document number BRD5300A		Revision	
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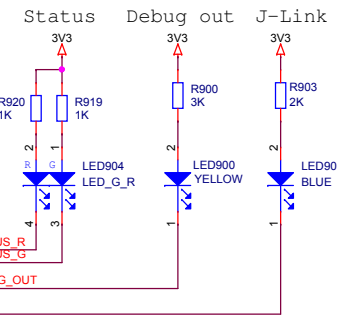



/HB1
MCU STK Platform

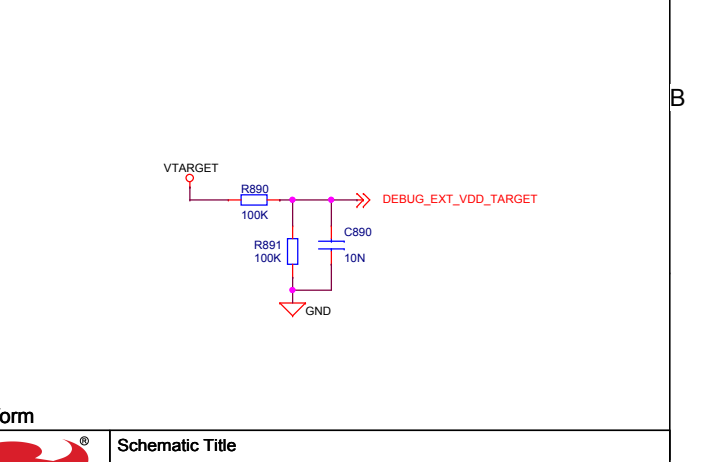
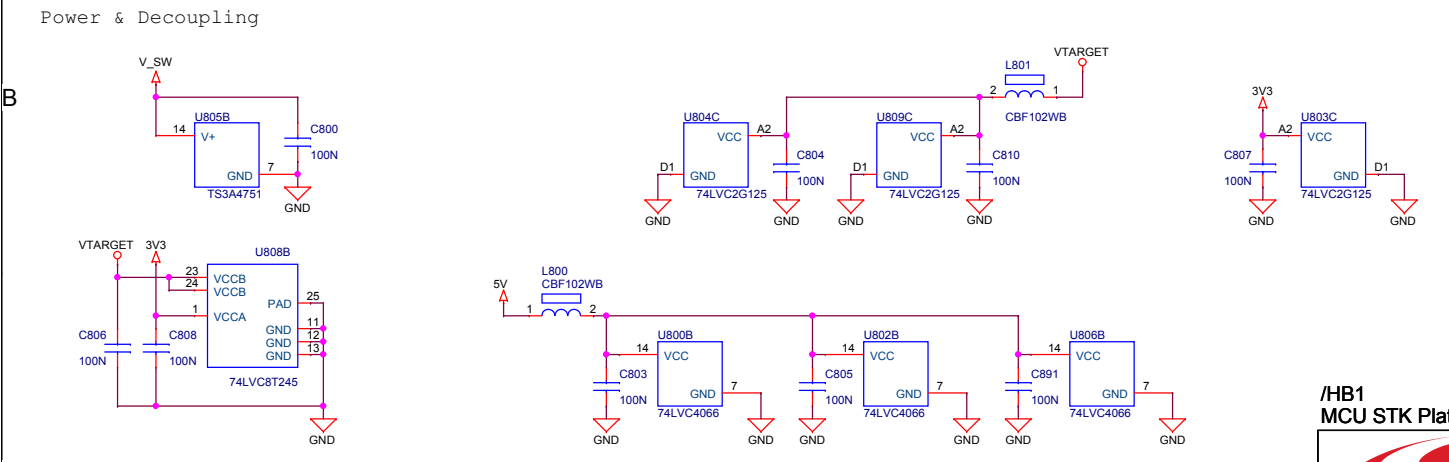
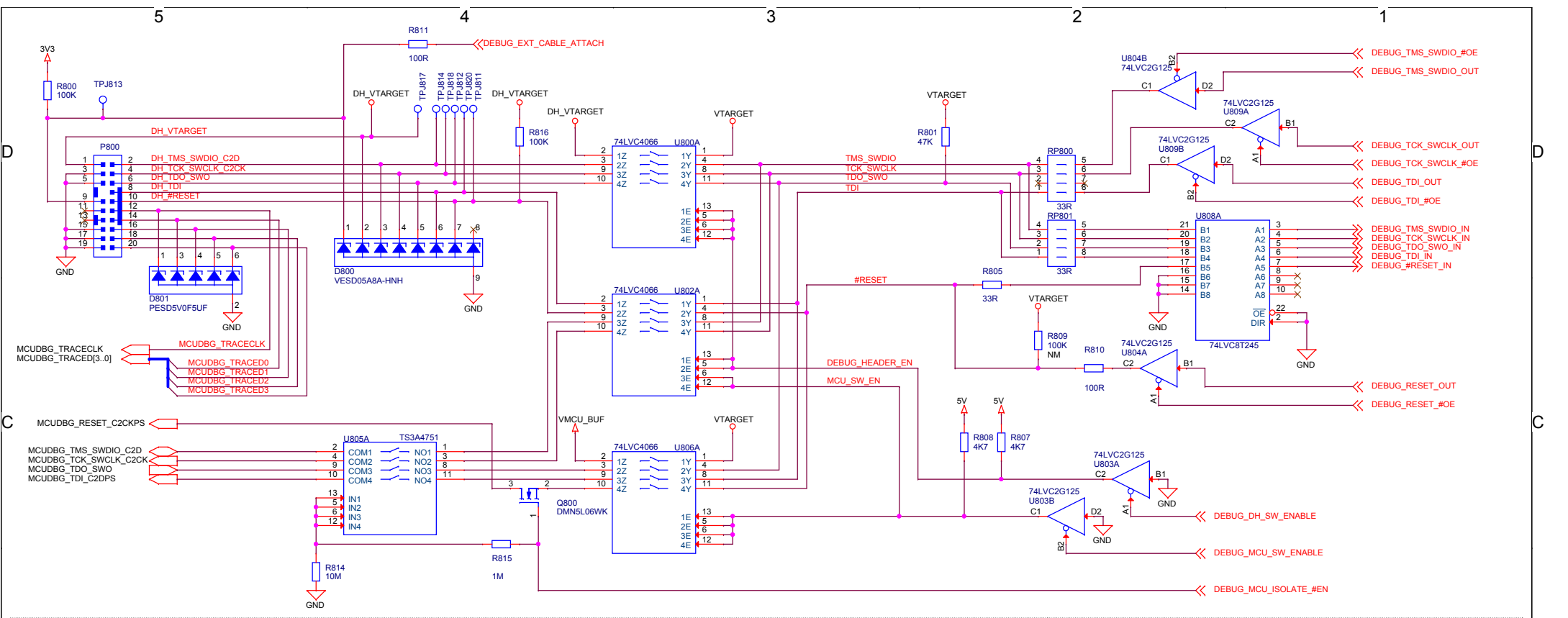
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Page Title		Advanced Energy Monitor	
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Indicators:



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		Board Controller		
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Mode	DEBUG_MCU_SW_ENABLE	DEBUG_DH_SW_ENABLE	DEBUG_BUF_#OE	ISOLATE_#EN	DH_VTARGET	VTARGET
Debug Out	0	1	0	0	External voltage	External voltage
MCU Debug	1	0	0	1	Disconnected	VMCU
Debug In	1	1	1	1	VMCU	VMCU
Debug Off	1	1	1	0	-	-

**/HB1
MCU STK Platform**

Schematic Title
EFM8LB1 Laser Bee Starter Kit

Page Title
Debug Interface

Designed: MRW | Approved: JNO

Size: A3 | BOM Doc No: <Cage Code>

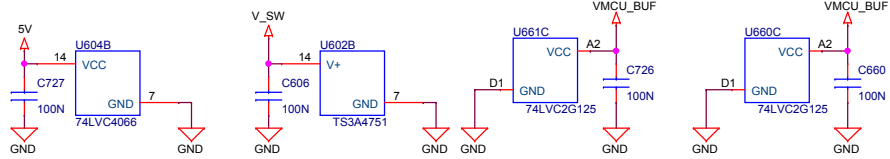
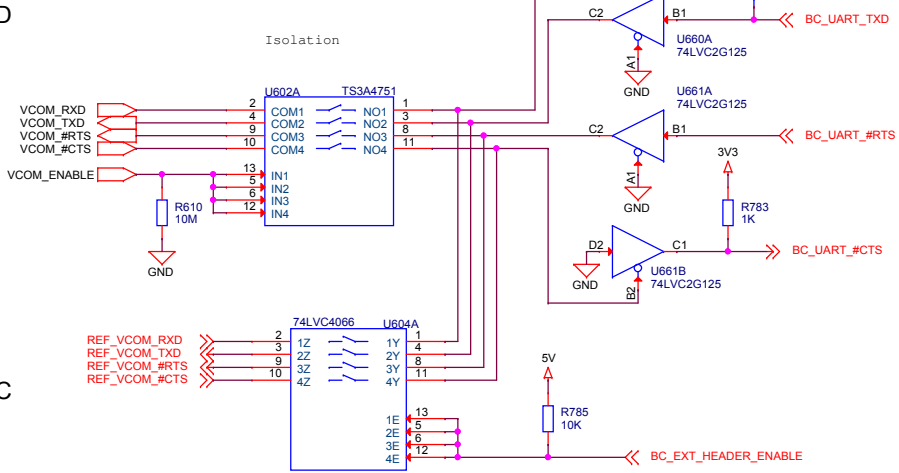
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Document number
BRD5300A

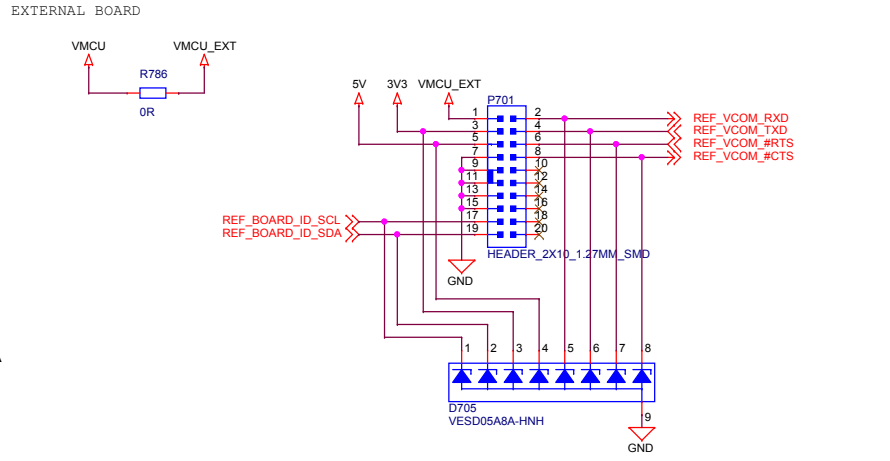
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A03

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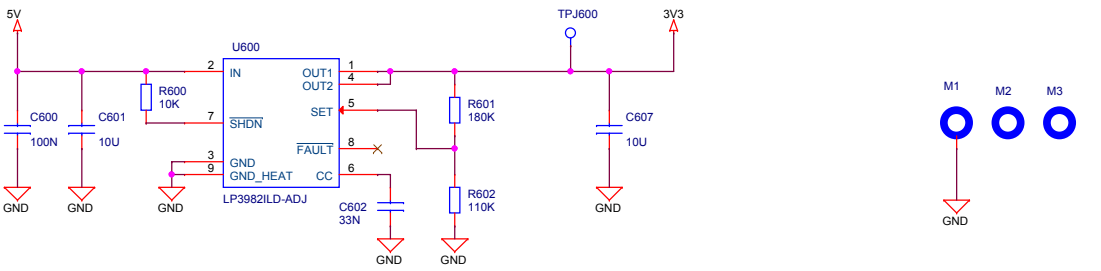
Virtual COM Port Interface



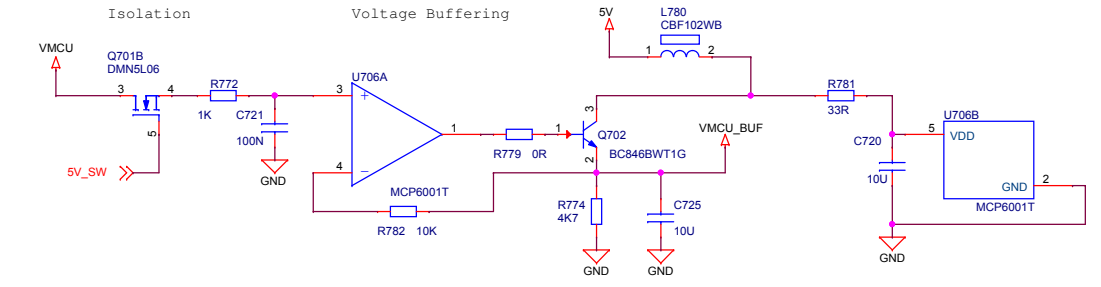
Connector for external reference designs boards



3V3 Regulator



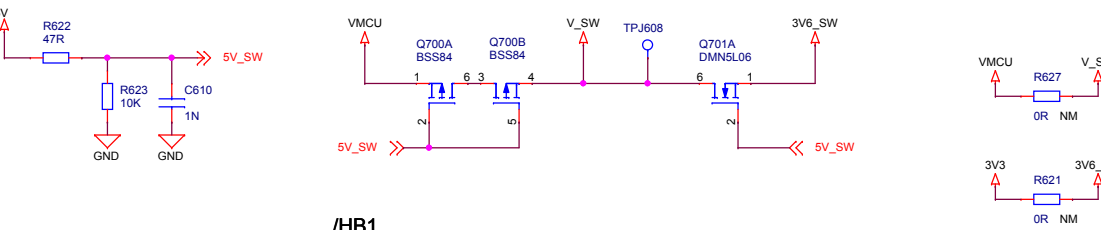
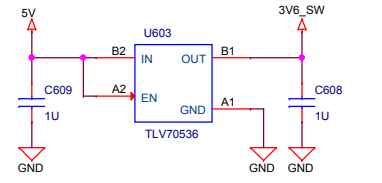
VMCU Voltage Mirror



Power Supply for Analog Switches

The USB VBUS voltage is used to bias these transistors, turning the P-Channel MOSFETs (Q700) off, and the N-Channel MOSFETs (Q701) on.

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



/HB1
MCU STK Platform

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		Power & Misc	
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