Wireless STK Mainboard

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Revision History

Rev.	Description
A00	Initial prodcution version.
A01	Minor updates for pre-production version.

PCB1

PCB4001

Wireless STK

Designed: DDB	Approved: JNO	Schematic Title: **Wireless Starter Kit Mainboard**	
Size: A3	BOM Doc No:	Page Title: **Title Page**	
Design Created Date: Wednesday, December 03, 2008		Document number: **BRD4001A**	Revision: A01
		Sheet Created Date: Saturday, March 21, 2009	Sheet Modified Date: Wednesday, December 12, 2018
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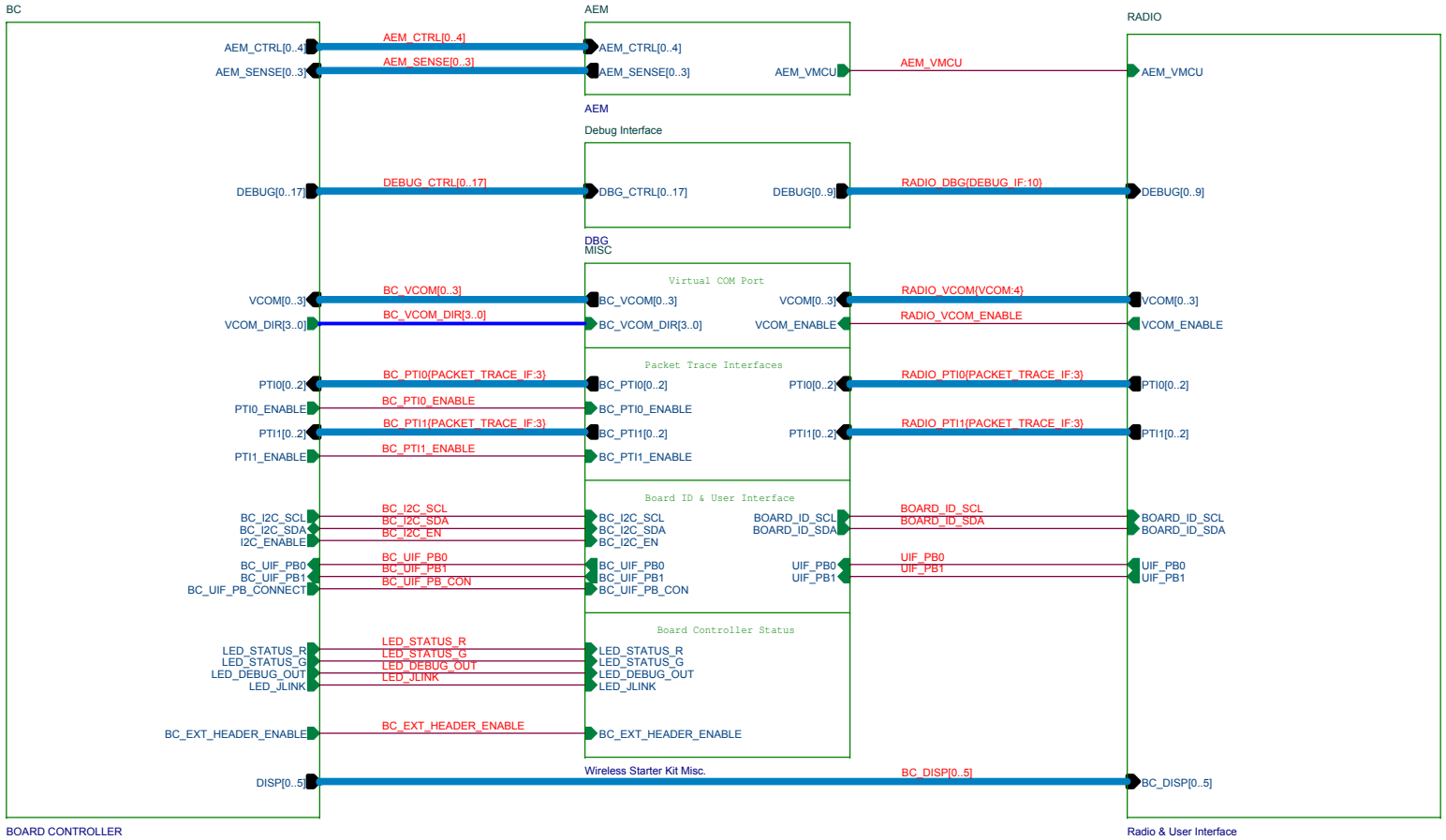

Wireless STK

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Schematic Title

Wireless Starter Kit Mainboard

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Top Level Hierarchy

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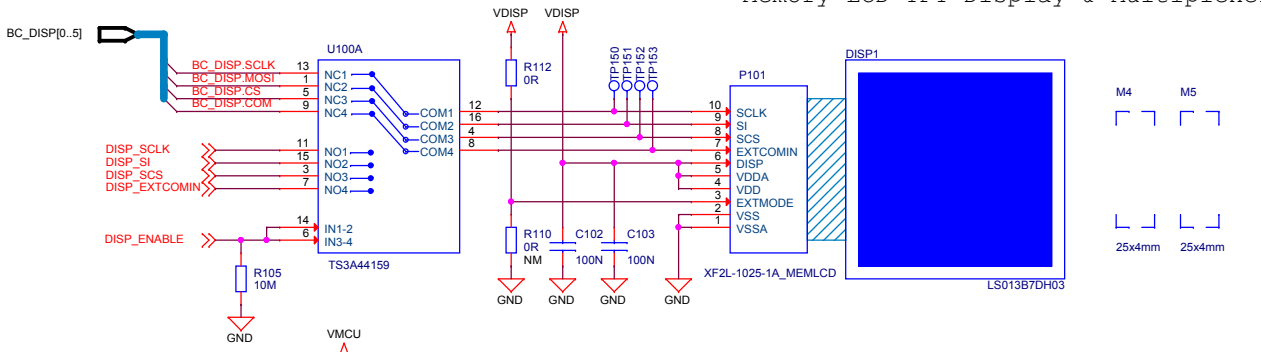
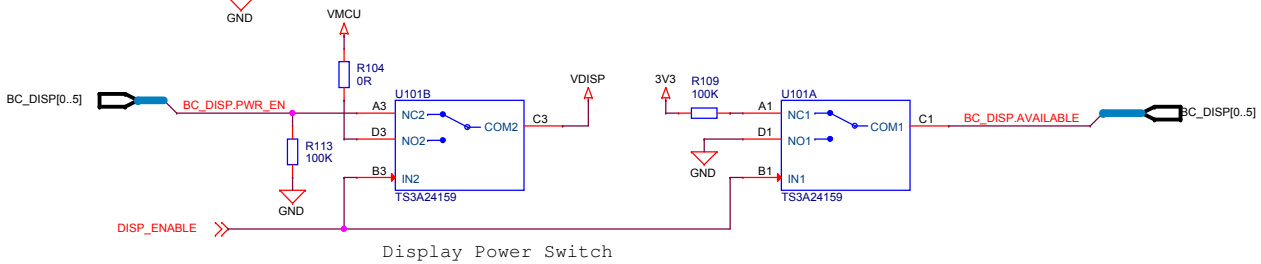
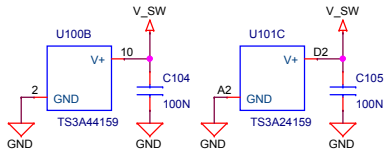
Memory LCD-TFT Display & Multiplexer



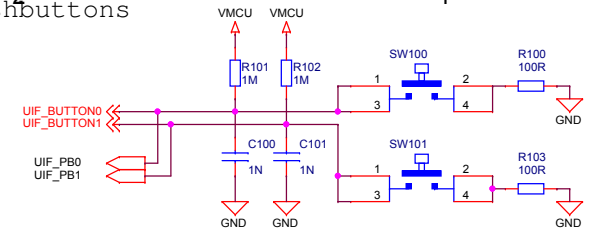


Display Power Switch

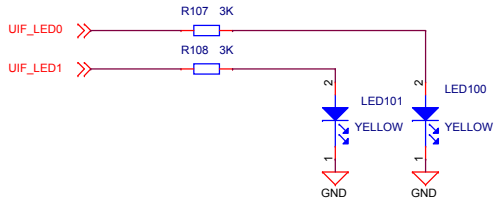


DISP_ENABLE	Connected	VDISP	BC_DISP_AVAILABLE
1	RADIO	VMCU	GND
0	BC	BC_DISP_PWR_EN	3V3

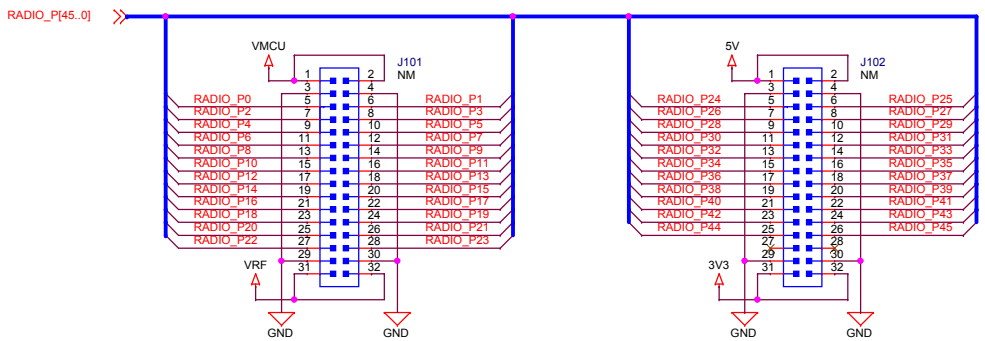
User pushbuttons



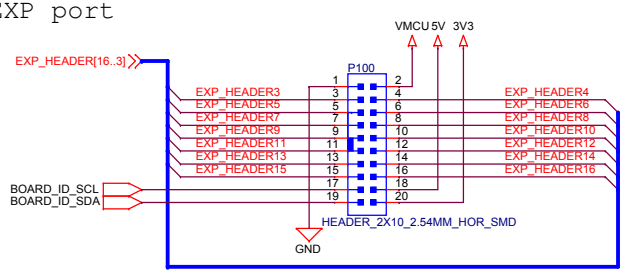
User LEDs



Breakout Connections



EXP port



EXP-Header Functionality

1	GND	
3		ACMP
5		ACMP
7		ACMP
9		ACMP
11		DAC
13		DAC
15	I2C_SCL	ADC
17	Reserved for EXP Board ID	
19	Reserved for EXP Board ID	

2	VMCU	
4	SPI_MOSI	ADC
6	SPI_MISO	ADC
8	SPI_SCLK	ADC
10	SPI_#CS	ADC
12	UART_TX	ADC
14	UART_RX	ADC
16	I2C_SDA	ADC
18	5V	
20	3V3	

Radio & User Interface

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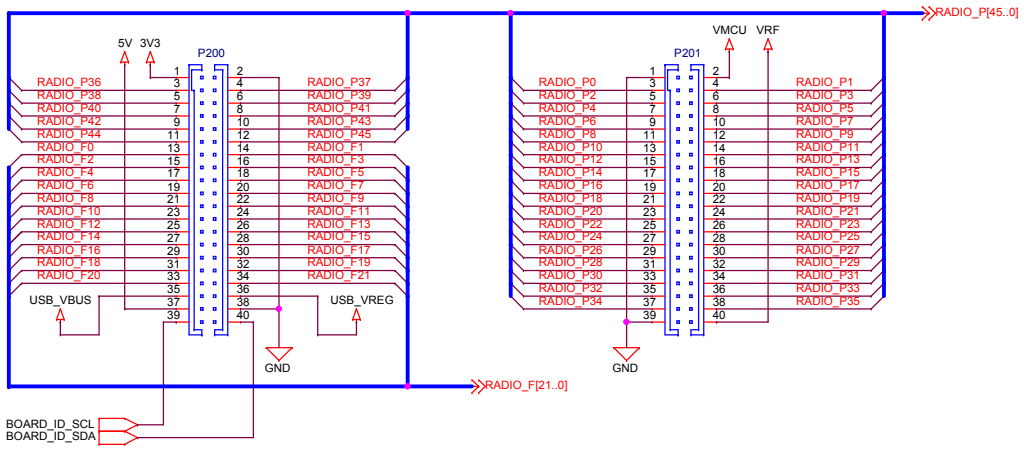
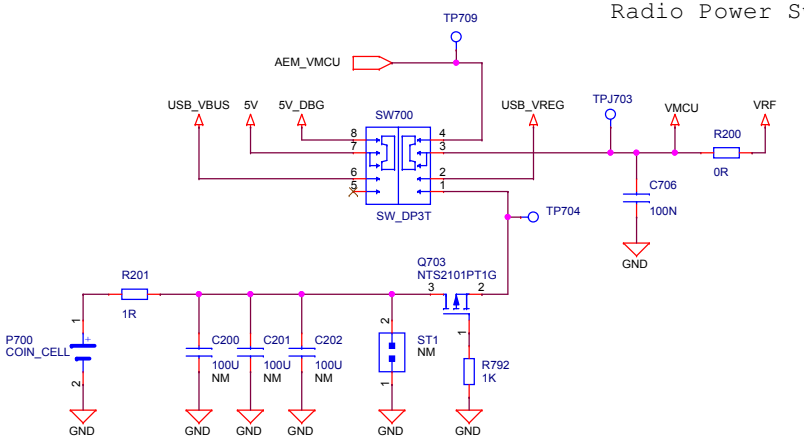
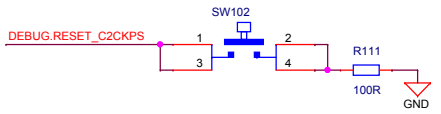
Radio Board Connectors



Radio Power Switch

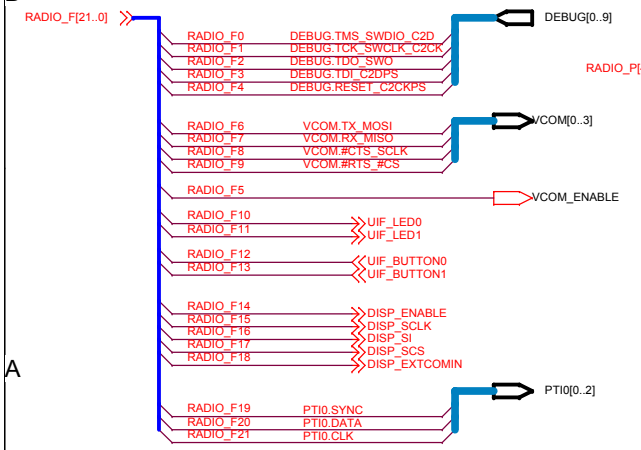


Radio Reset

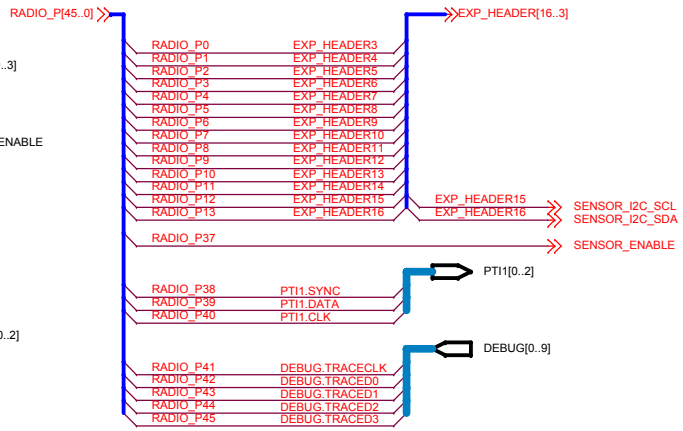


Switch Pos.	Target Supply	EXP Header 5V
1	Output from AEM	J-Link 5V_DBG
2	Target USB_VREG	Target USB_VBUS
3	Coin Cell Battery	(J-Link 5V_DBG)

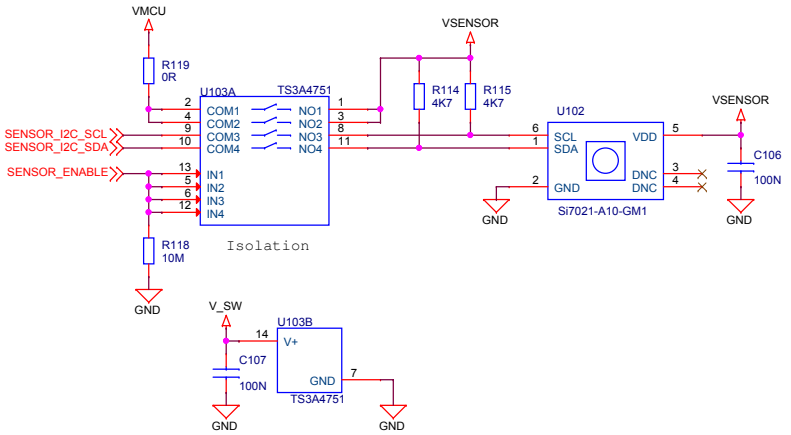
Dedicated functions on RF Board Connectors



Functions shared with breakout pins on RF Board Connectors



Relative Humidity & Temperature Sensor



Radio & User Interface

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Schematic Title	**Wireless Starter Kit Mainboard**
Page Title	**Radio Module Interface**
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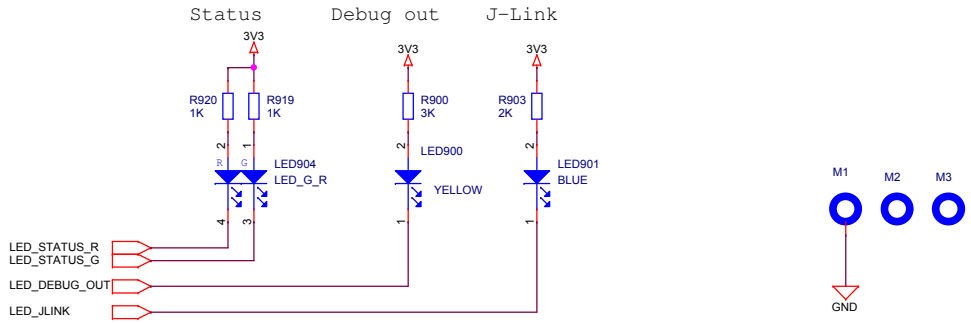
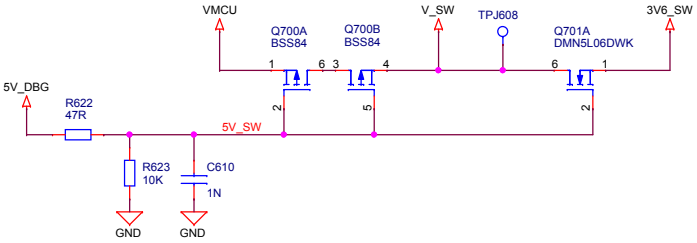
Indicators:

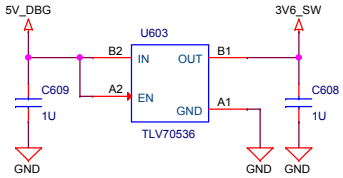


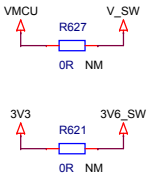
Power Supply for Analog Switches

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

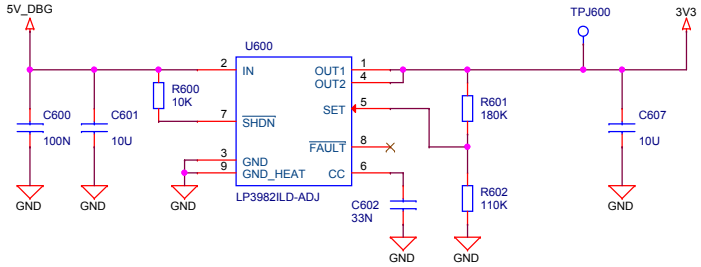
J-Link USB Cable	PMOS State	NMOS State	V_SW	VMCU_SENSE
Connected	Off	ON	3.6V	VMCU
Disconnected	ON	OFF	VMCU	Isolated



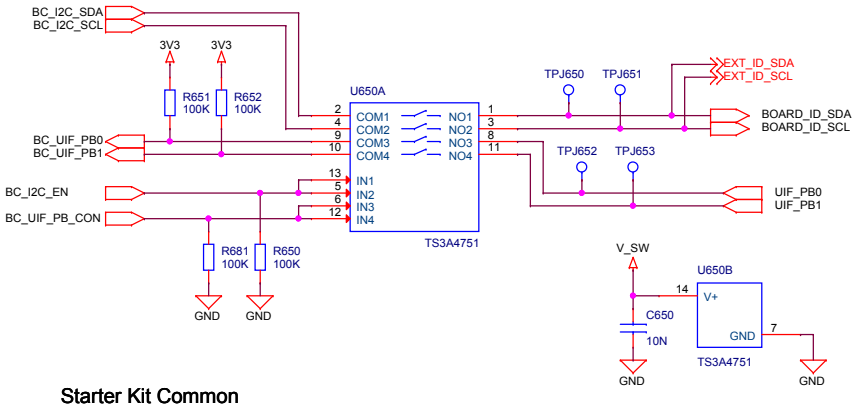




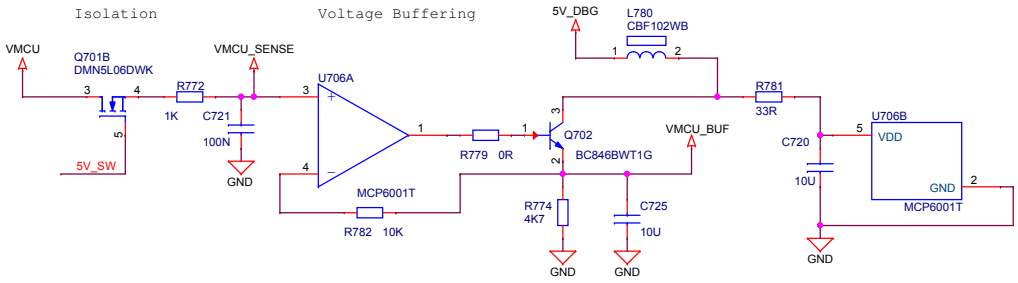
3V3 Regulator



I2C & Push Button <-> Board Controller Isolation



VMCU Voltage Mirror



Starter Kit Common

SILICON LABS

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Design Created Date: Wednesday, June 12, 2013	

Schematic Title: **Wireless Starter Kit Mainboard**

Page Title: **Voltage Regulators**

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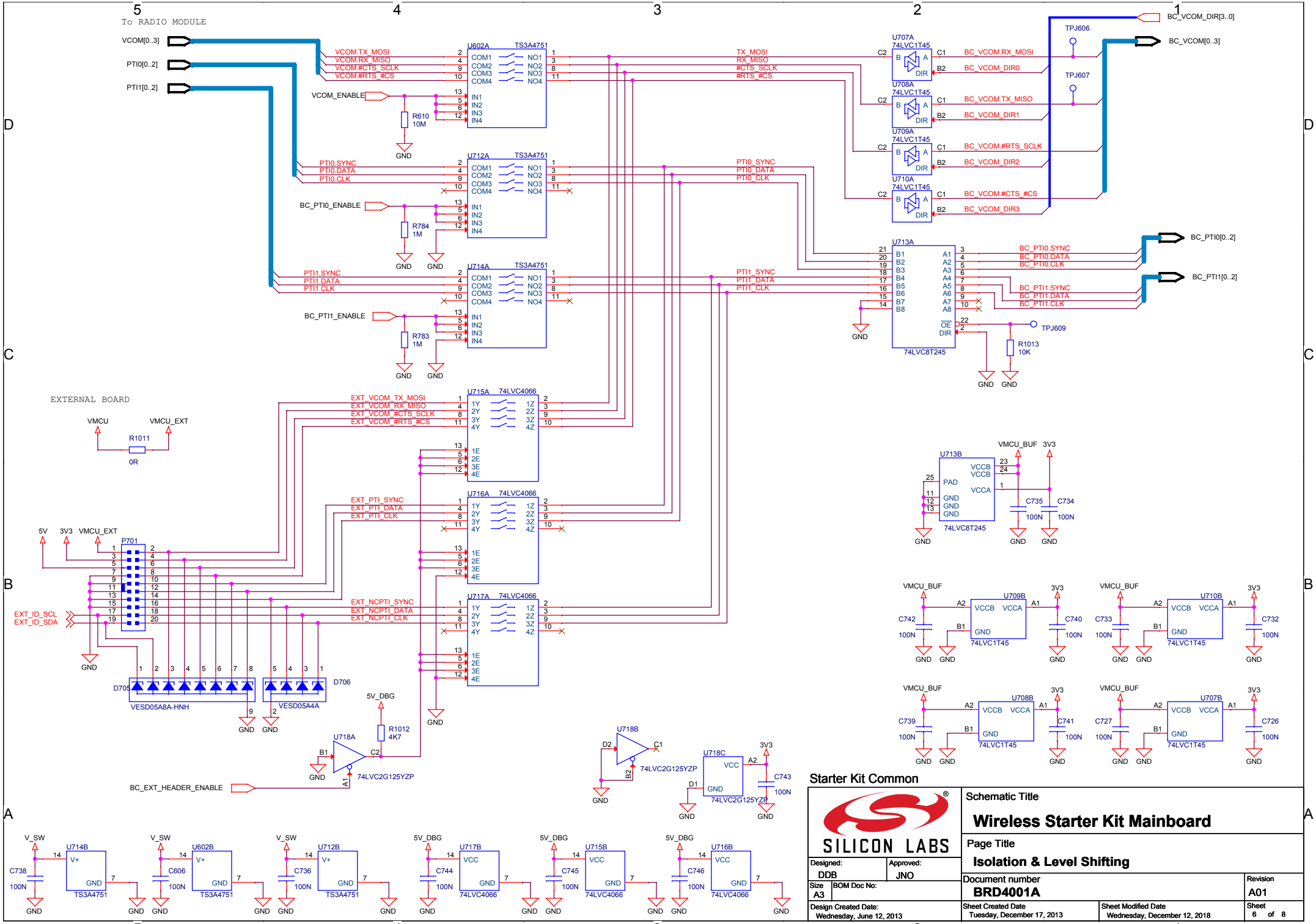

Starter Kit Common

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Schematic Title

Wireless Starter Kit Mainboard

Page Title

Isolation & Level Shifting

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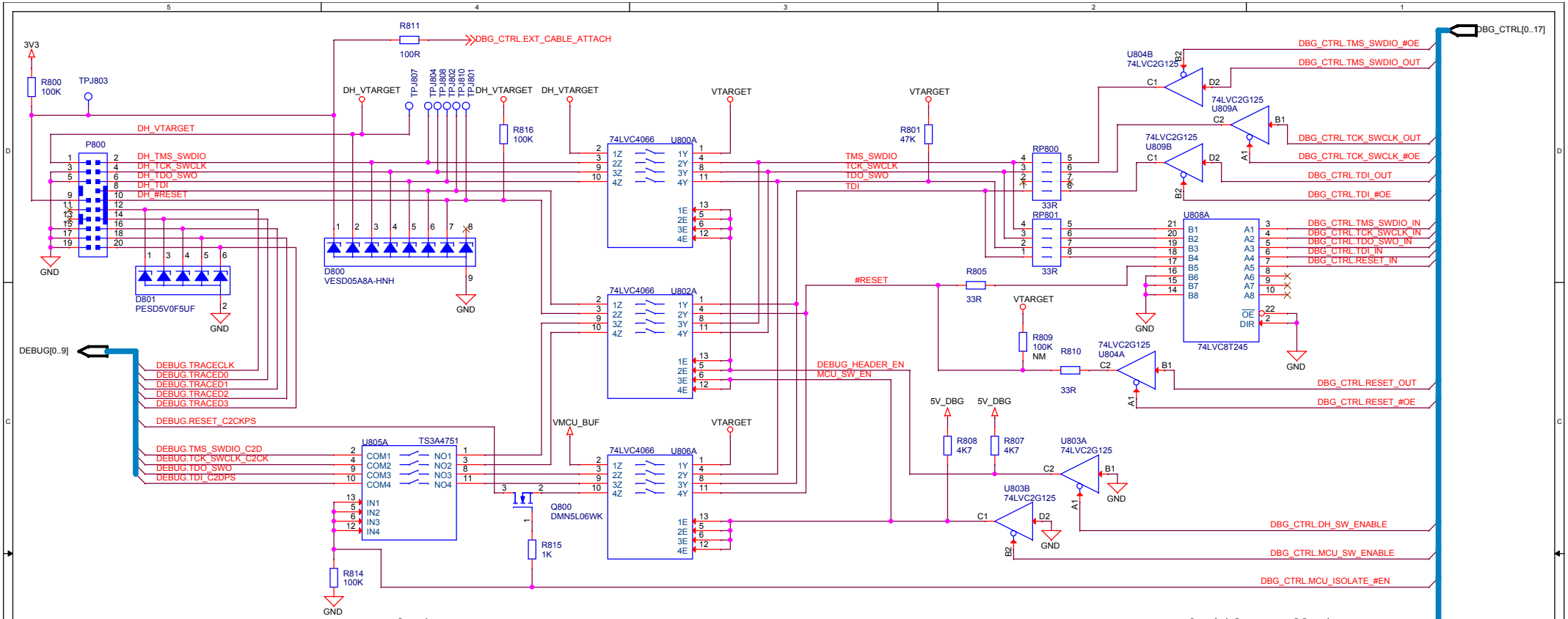

Mode	DEBUG_MCU_SW_ENABLE	DEBUG_DH_SW_ENABLE	DEBUG_BUF_#OE	ISOLATE_#EN	DH_VTARGET	VTARGET
Debug Out	0	1	0	0	External voltage	External voltage
MCU Debug	1	0	0	1	Disconnected	VMCU
Debug In	1	1	1	1	VMCU	VMCU
Debug Off	0	0	1	0	-	-

SILICON LABS

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Page Title: **Debug Multiplexer**

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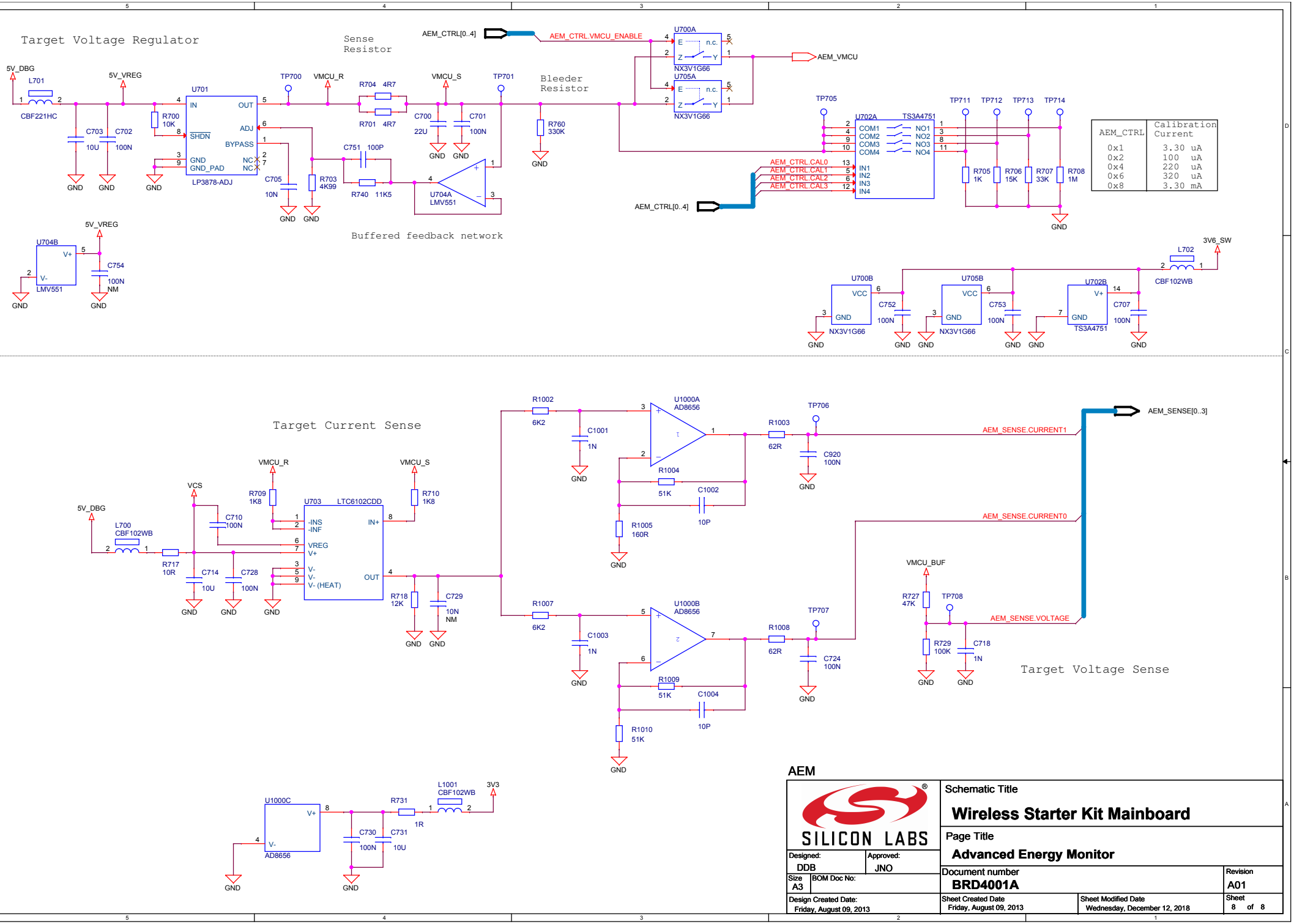

AEM_CTRL	Calibration Current
0x1	3.30 uA
0x2	100 uA
0x4	220 uA
0x6	320 uA
0x8	3.30 mA

AEM

SILICON LABS

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Size A3	BOM Doc No:
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Schematic Title

Wireless Starter Kit Mainboard

Page Title

Advanced Energy Monitor

Document number	Revision
BRD4001A	A01

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