



EFM32 Zero Gecko STK	
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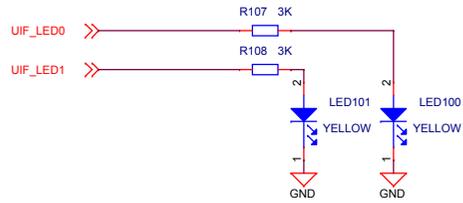
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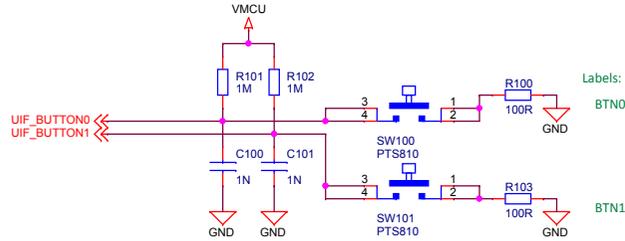
Revision History	
Rev.	Description
B00	Initial release for series production.
C01	Updated EFM32ZG chip revision + major updates to debugger

/ EFM32 ZG STK		Schematic Title	
		EFM32ZG Zero Gecko STK	
Designed: HEL Approved: JNO		Page Title	
Size: A3 BOM Doc No: <Cage Code>		Title Page	
Design Created Date: Wednesday, December 03, 2008		Document number <b>BRD2010A</b>	Revision <b>C02</b>
Sheet Created Date: Saturday, March 21, 2009		Sheet Modified Date: Tuesday, October 15, 2019	Sheet 1 of 10

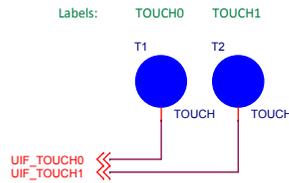
User LEDs



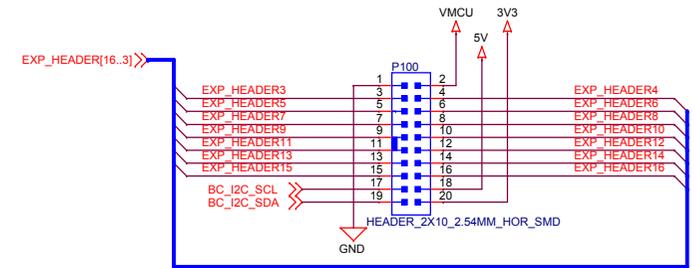
User Pushbuttons



Touch Pads



EXP Header

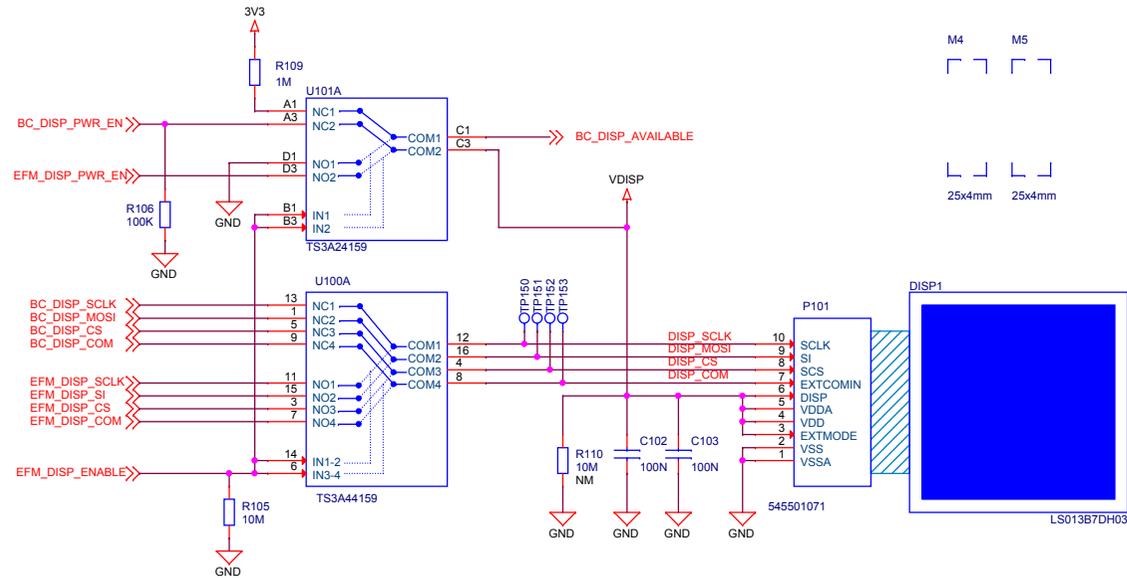


EXP-Header Functionality

1	GND	
3	PC0	ACMP0_CH0
5	PC1	ACMP0_CH1
7	PC2	ACMP0_CH2
9	PA0	
11	PB11	IDAC0_OUT
13	PA1	
15	PE13	I2C0_SCL
17	Reserved for EXP Board Identification	
19	Reserved for EXP Board Identification	

2	VMCU	
4	PD7	US1_TX
6	PD6	US1_RX
8	PC15	US1_CLK
10	PC14	US1_CS
12	PD4	LEU0_TX
14	PD5	LEU0_RX
16	PE12	I2C0_SDA
18	5V	
20	3V3	

Memory LCD-TFT Display & Multiplexer



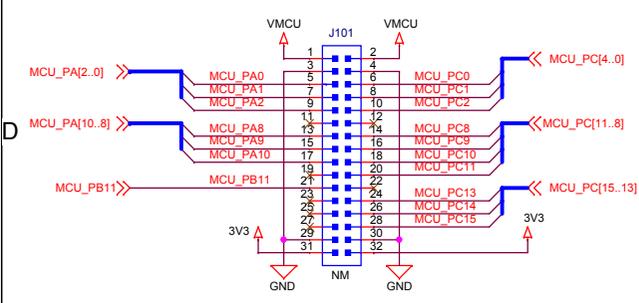
EFM_DISP_ENABLE	DISP_CTRL	VDISP	BC_DISP_AVAILABLE
1	EFM	EFM_DISP_PWR_EN	0
0	BC	BC_DISP_PWR_EN	1

The EFM32 always controls ownership of the display using the EFM\_DISP\_ENABLE signal.

EFM32 ZG STK

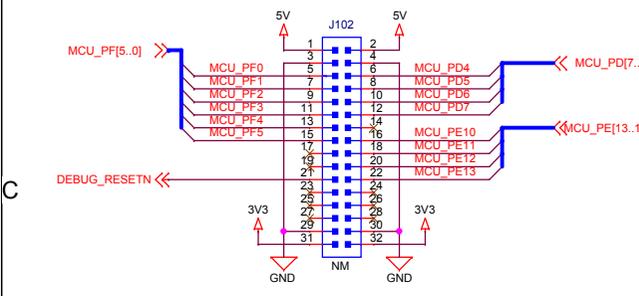
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Approved: JNO		Document number	
Design Created Date: Wednesday, December 03, 2008		BRD2010A	
BOM Doc No:		Revision C02	
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2		Sheet 2 of 10	

# Breakout Connections



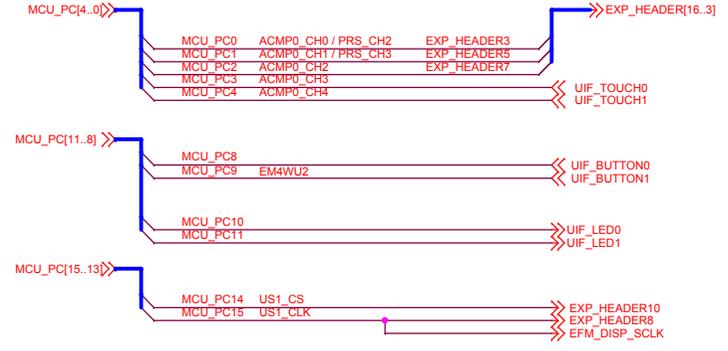
Breakout header labels:

VMCU	VMCU
GND	GND
A0	C0
A1	C1
A2	C2
NC	NC
A8	C8
A9	C9
A10	C10
NC	C11
B11	NC
NC	C13
NC	C14
NC	C15
GND	GND
3V3	3V3

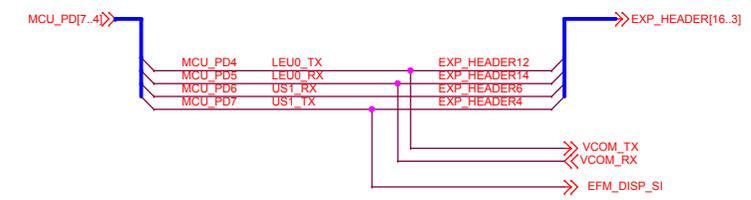


5V	5V
GND	GND
F0	D4
F1	D5
F2	D6
F3	D7
F4	NC
F5	E10
NC	E11
NC	E12
RST	E13
NC	NC
NC	NC
NC	NC
GND	GND
3V3	3V3

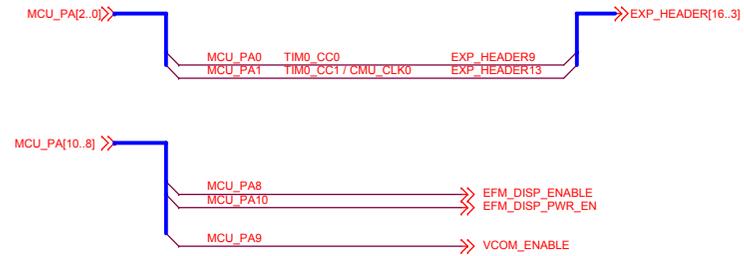
# PC Connections



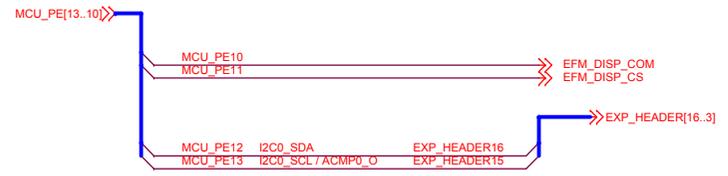
# PD Connections



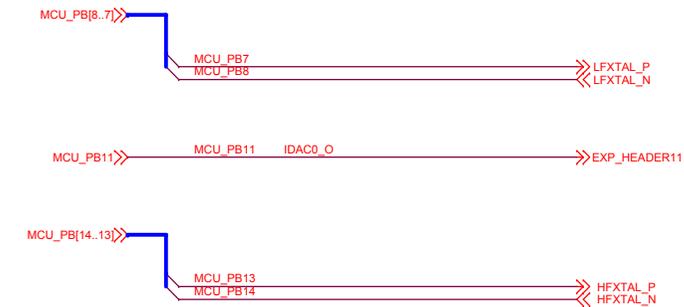
# PA Connections



# PE Connections



# PB Connections

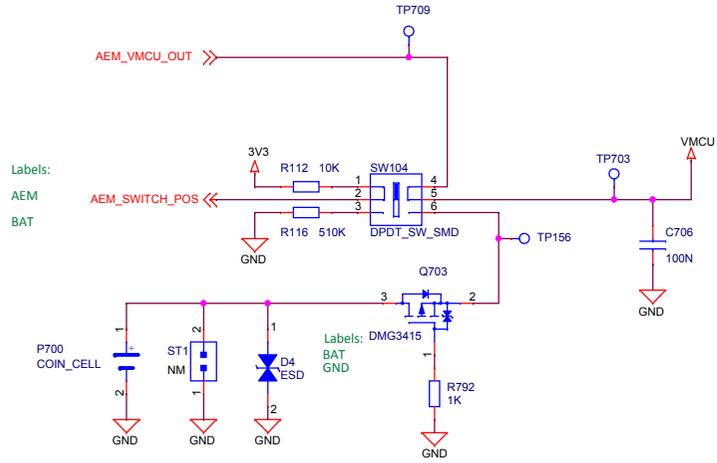


# PF Connections



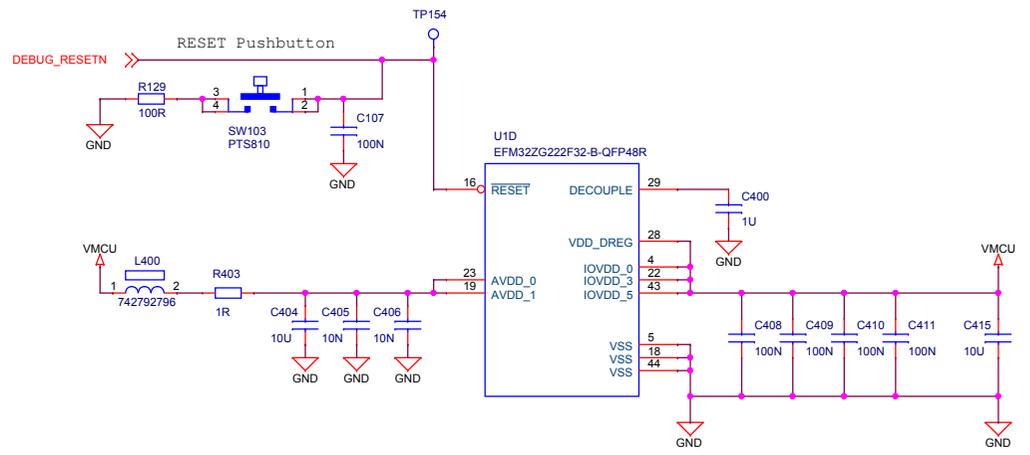
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Page Title		<b>EFM32 Signal Assignments</b>	
Designed: HEL	Approved: JNO	Document number	Revision
Size A3	BOM Doc No: <Cage Code>	<b>BRD2010A</b>	<b>C02</b>
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Power Select Switch: AEM/BAT

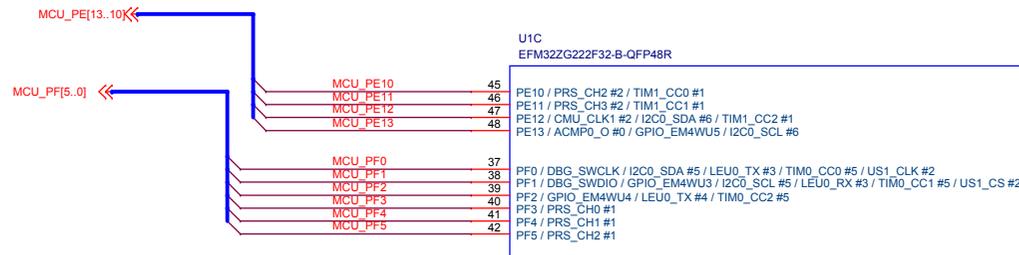
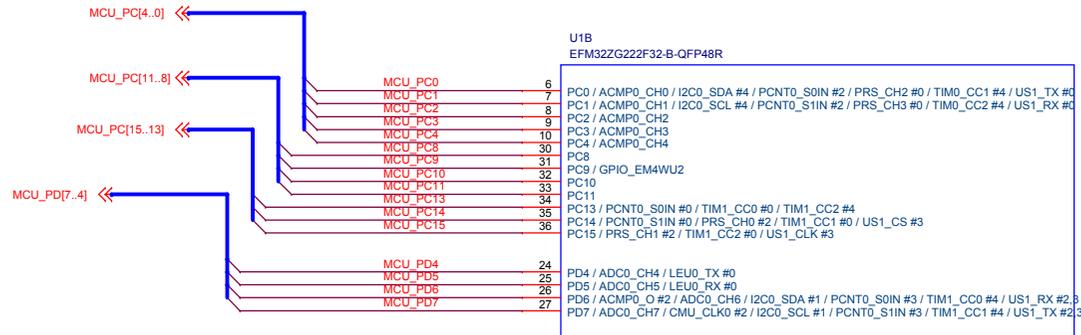
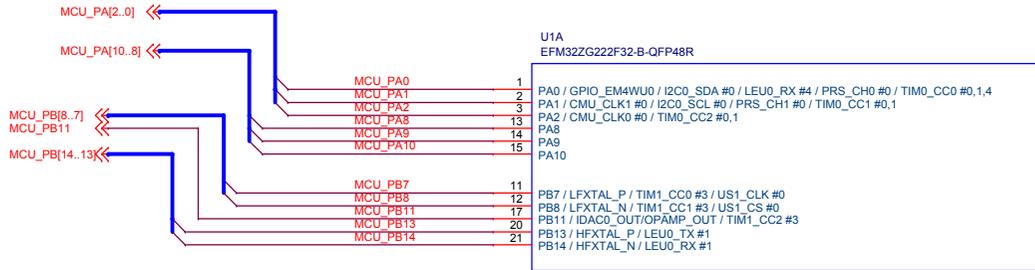


SWITCH POS	MODE DESCRIPTION
AEM	AEM Enabled, VMCU sourced from external 3.3v LDO powered by BC USB 5V supply
BAT	AEM Disabled, VMCU sourced from coin-cell battery or external power supply

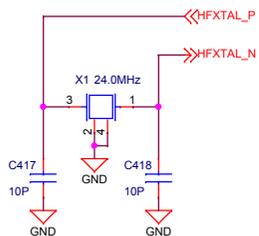
EFM32 Power and Decoupling



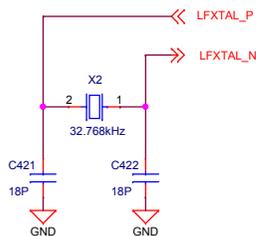
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		<b>EFM32ZG Zero Gecko STK</b>	
Designed: HEL Approved: JNO		Page Title	
		<b>EFM32 Power</b>	
Size: A3	BOM Doc No: <Cage Code>	Document number	Revision
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High Frequency Clock

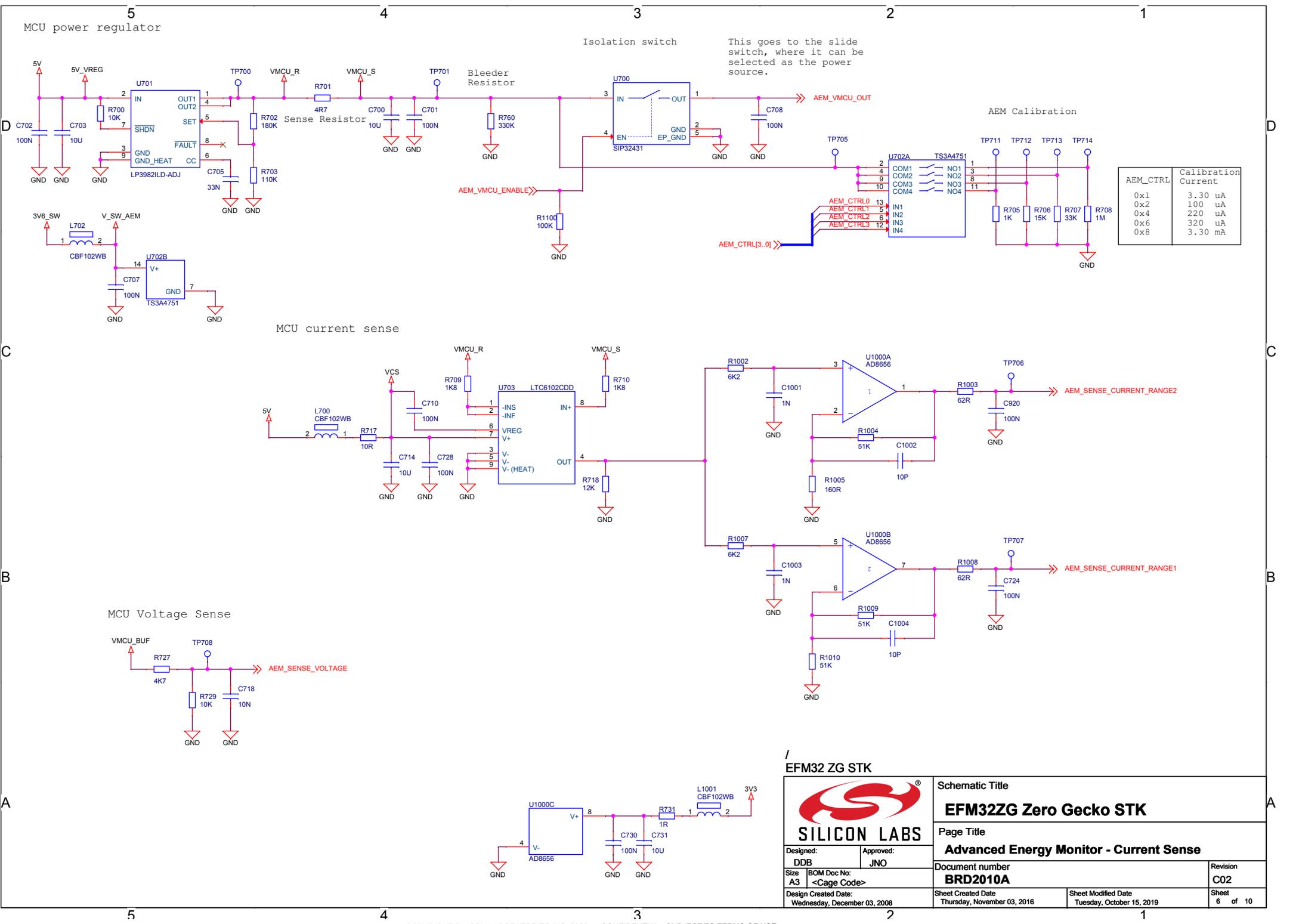


Low Frequency Clock



Designed:	Approved:
HEL	JNO
Size:	BOM Doc No:
A3	<Cage Code>
Design Created Date:	Wednesday, December 03, 2008

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<b>EFM32ZG Zero Gecko STK</b>			
Page Title			
<b>EFM32 I/O</b>			
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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

This goes to the slide switch, where it can be selected as the power source.

**EFM32 ZG STK**

**Schematic Title**  
**EFM32ZG Zero Gecko STK**

**Page Title**  
**Advanced Energy Monitor - Current Sense**

Designed: DDB      Approved: JNO

Size: A3      BOM Doc No: <Cage Code>

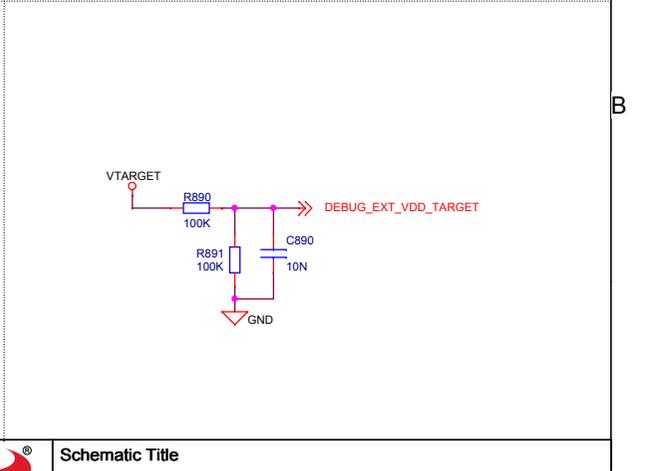
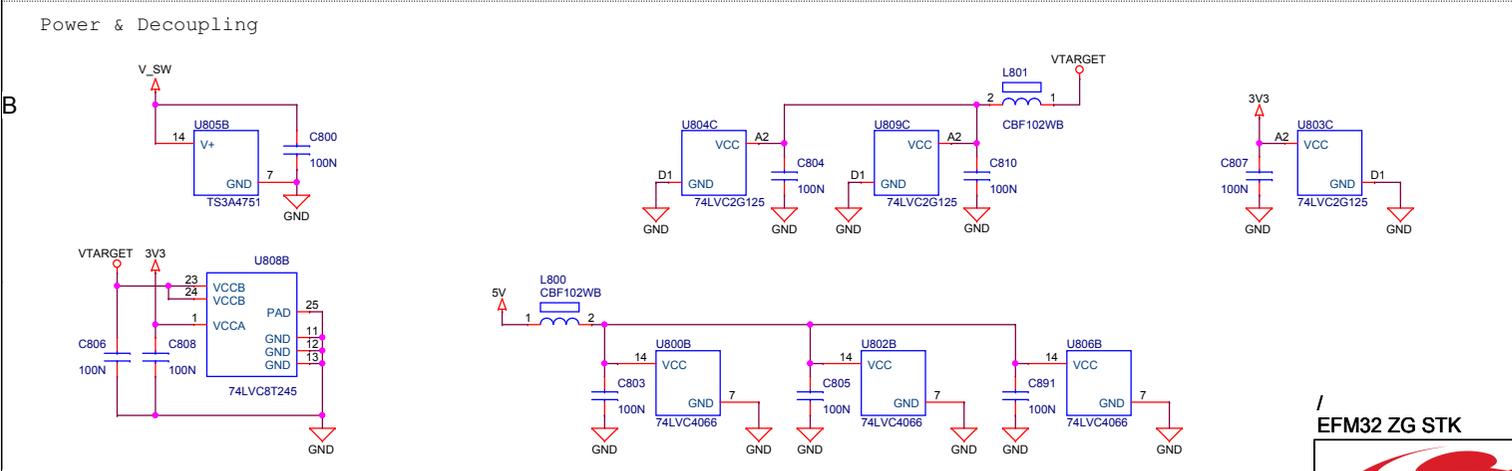
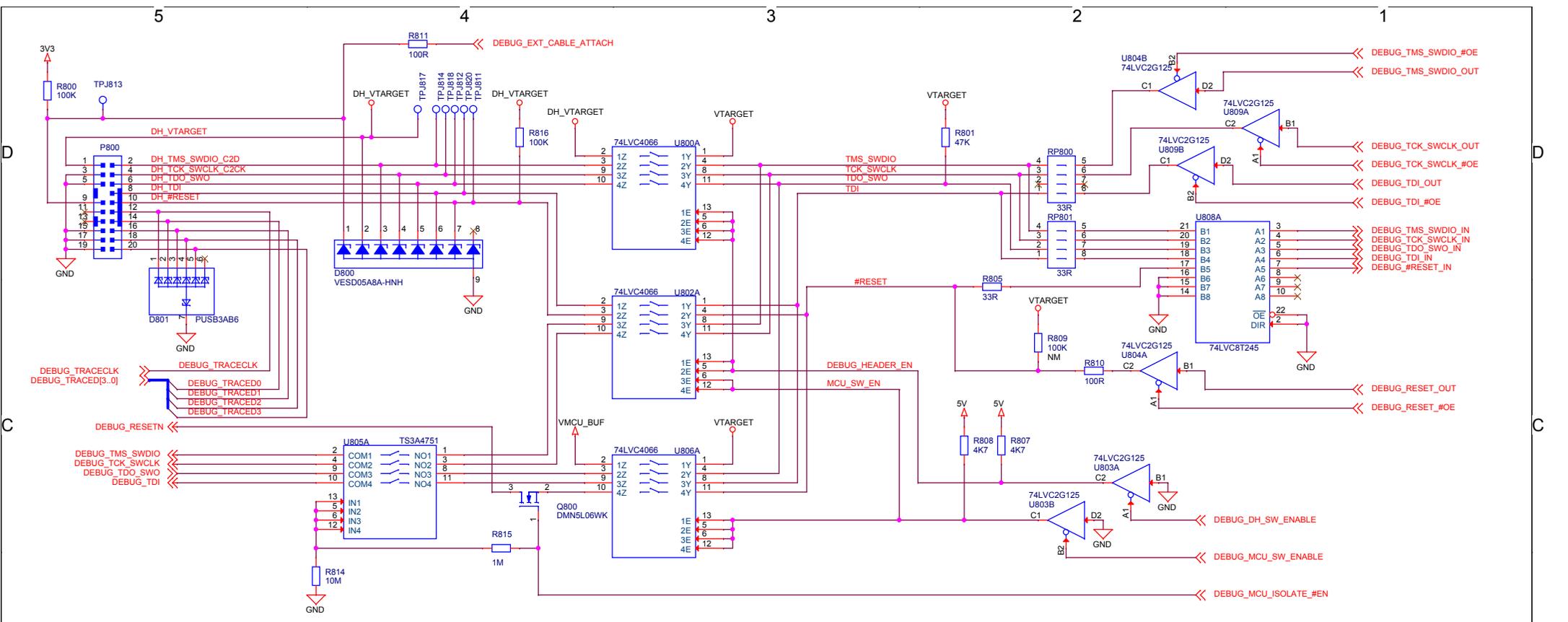
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Document number: **BRD2010A**

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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	-	-

**EFM32 ZG STK**

**SILICON LABS**

**Schematic Title**  
**EFM32ZG Zero Gecko STK**

**Page Title**  
**Debug Interface**

**Document number**  
**BRD2010A**

**Revision**  
**C02**

**Design:** DDB | **Approved:** JNO

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

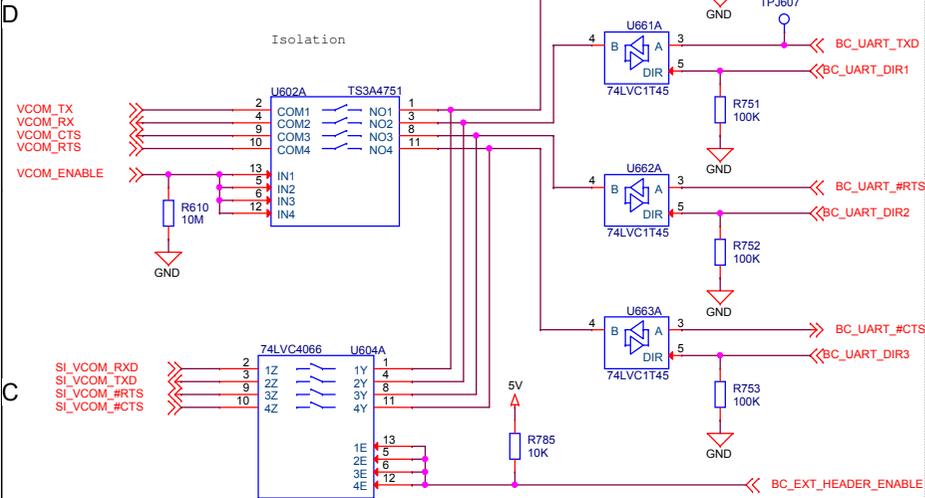
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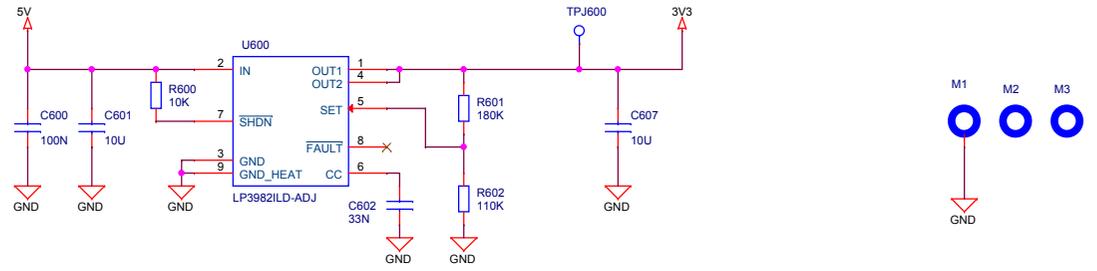
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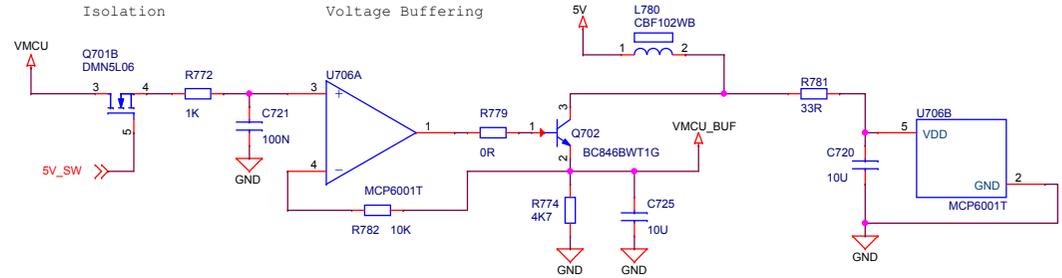
# Virtual COM Port Interface



# 3V3 Regulator



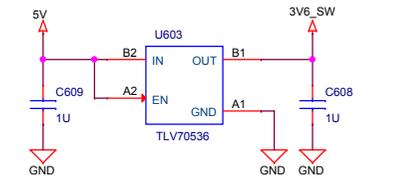
# VMCU Voltage Mirror



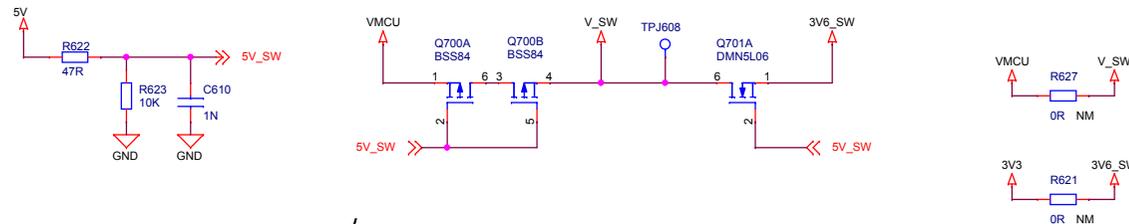
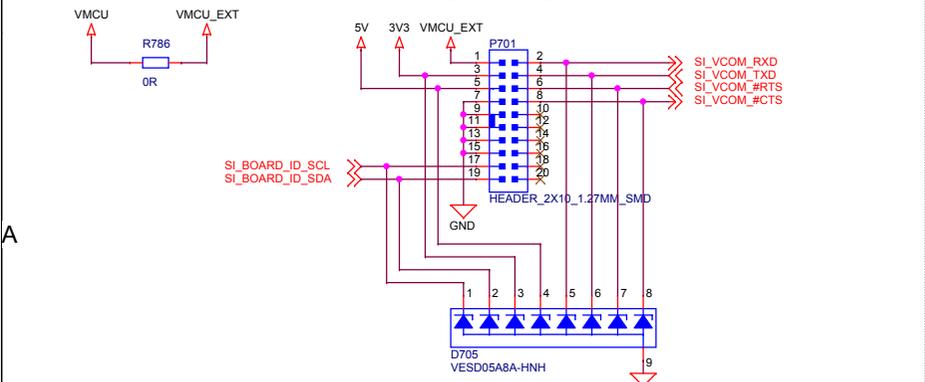
# Power Supply for Analog Switches

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

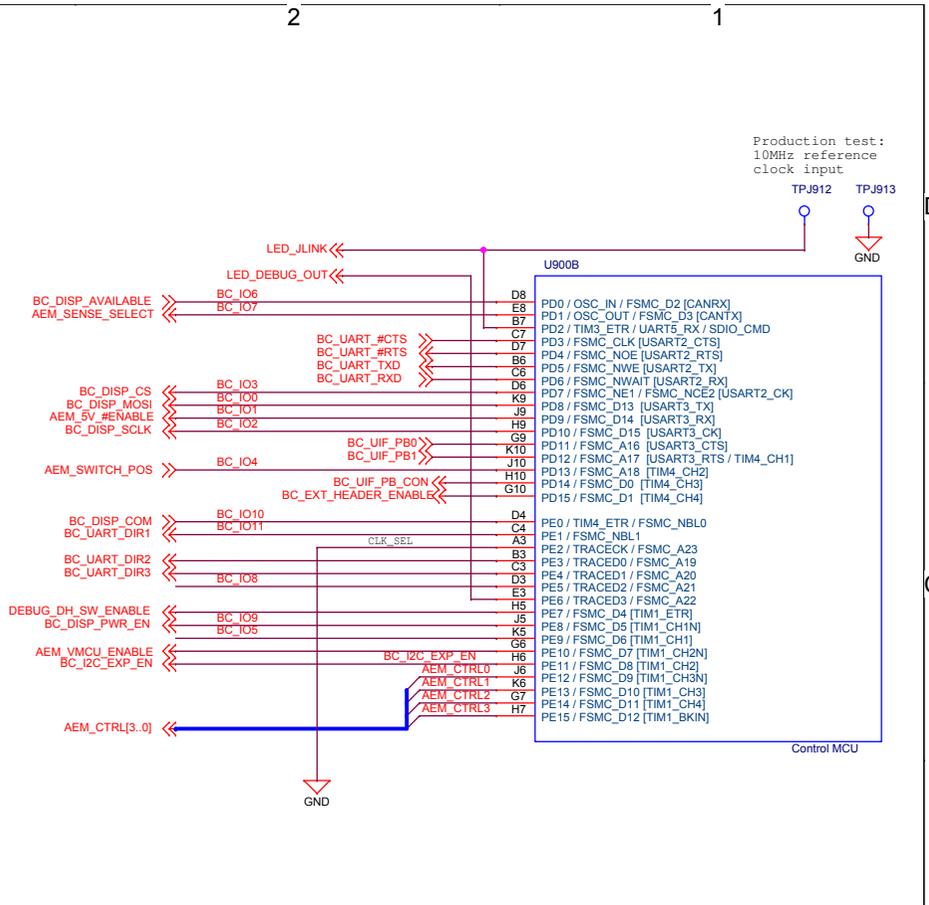
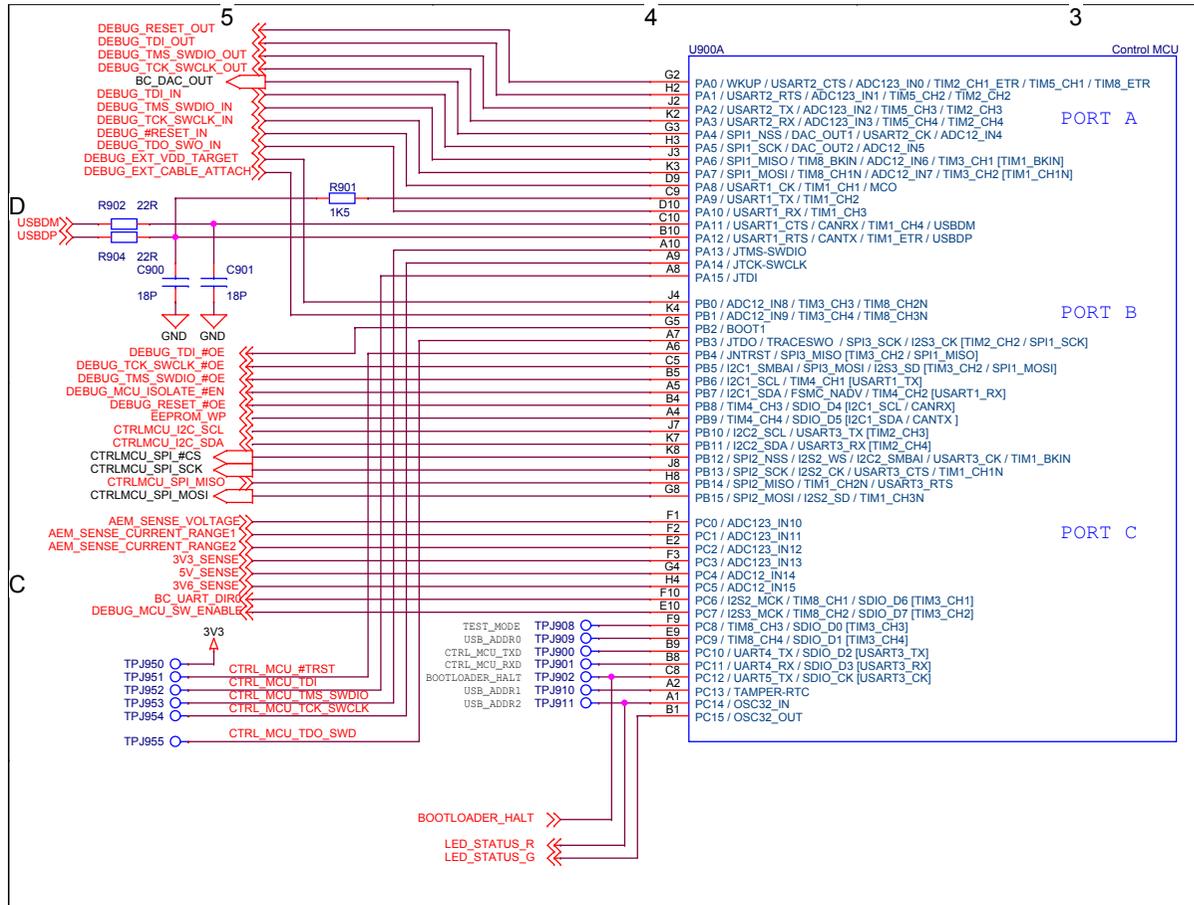


# Simplicity Connector

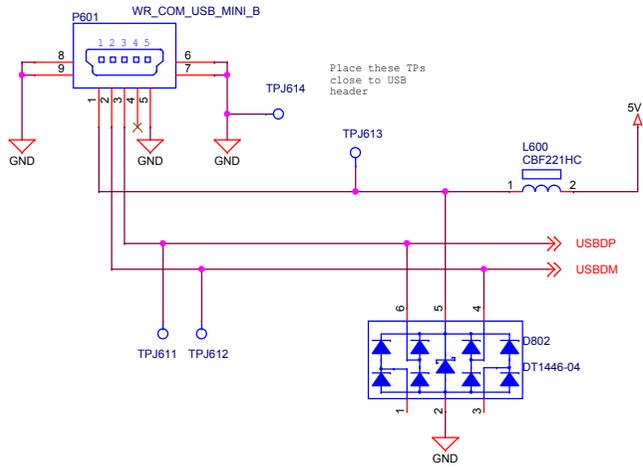


# EFM32 ZG STK

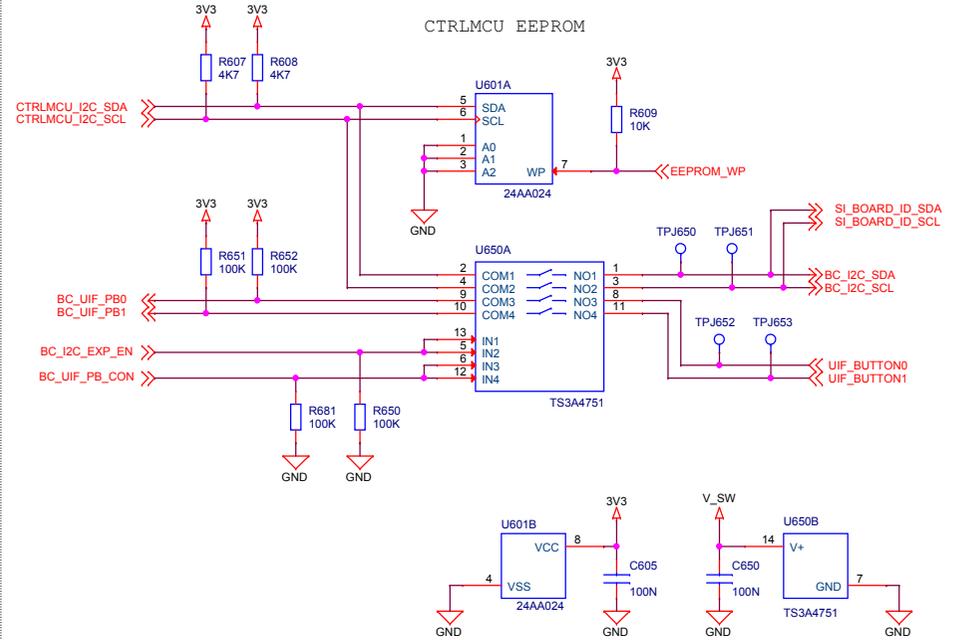
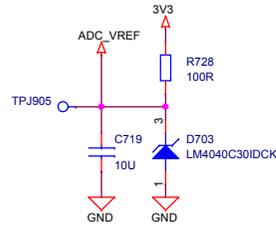
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Designed: DDB	Approved: JNO	Document number	
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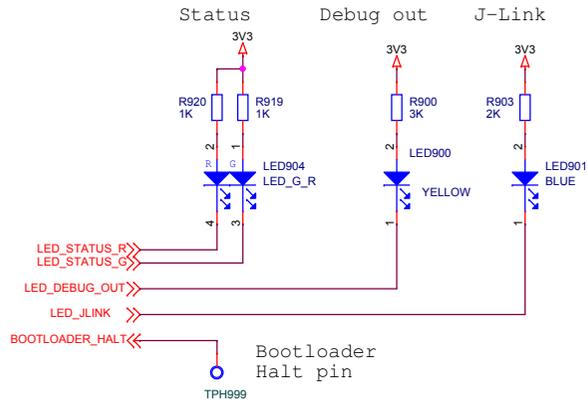
### J-Link USB Port



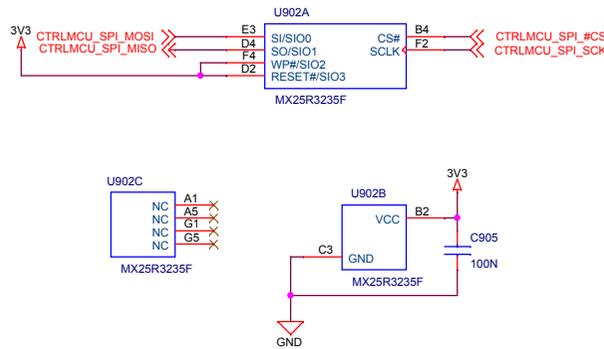
### ADC reference voltage



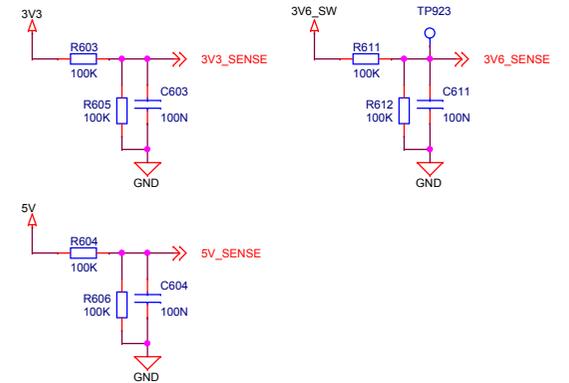
### Indicators:



### CTRLMCU SERIAL FLASH



### POWER SENSE



EFM32 ZG STK



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