



EFM32 Giant Gecko STK	
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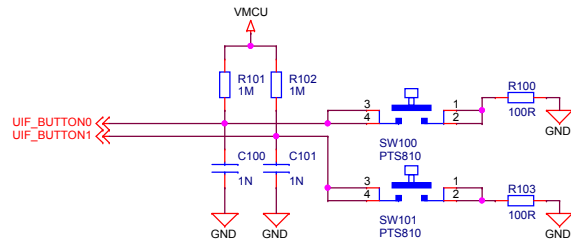


Revision History	
Rev.	Description
B00	updated to new STK platform

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BRD2200A

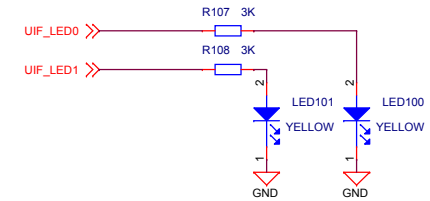
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SILICON LABS		EFM32 Wonder Gecko Starter Kit	
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Document number		Revision	
BRD2400A		B03	
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Tuesday, December 06, 2016		Monday, August 21, 2017	
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User Pushbuttons



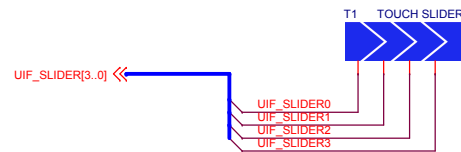
User LEDs

User LEDs

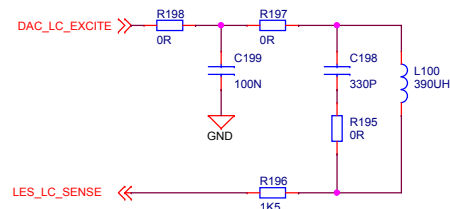


Touch Pads

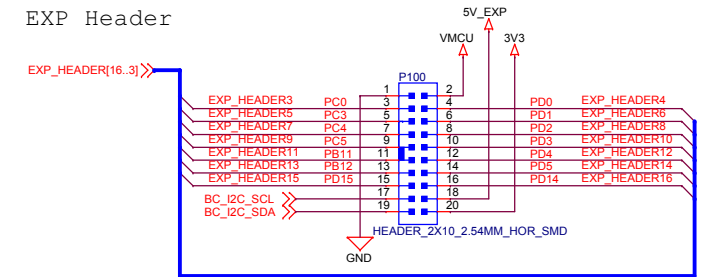
Touch slider



LESENSE LC-Sensor



EXP Header

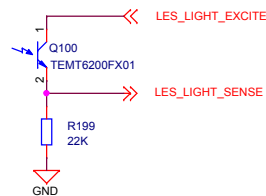


EXP-Header Functionality

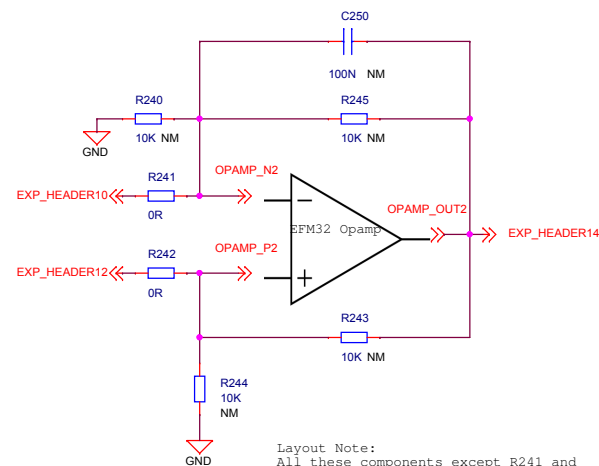
1	GND		
3	PC0		ACMP0_CH4
5	PC3		ACMP0_CH5
7	PC4		ACMP1_CH4
9	PC5		ACMP0_O
11	PB11		DAC0_OUT0
13	PB12		DAC0_OUT1
15	PB15	I2C0_SCL#3	
17	Reserved for EXP Board	Identification	
19	Reserved for EXP Board	Identification	

2	VMCU		
4	PD0	US1_TX	ADC0_CH0
6	PD1	US1_RX	ADC0_CH1
8	PD2	US1_CLK	ADC0_CH2
10	PD3	US1_CS	ADC0_CH3
12	PD4	LEU0_TX	ADC0_CH4
14	PD5	LEU0_RX	ADC0_CH5
16	PD6	I2C0_SDA#3	
18	5V		
20	3V3		

Photo Transistor



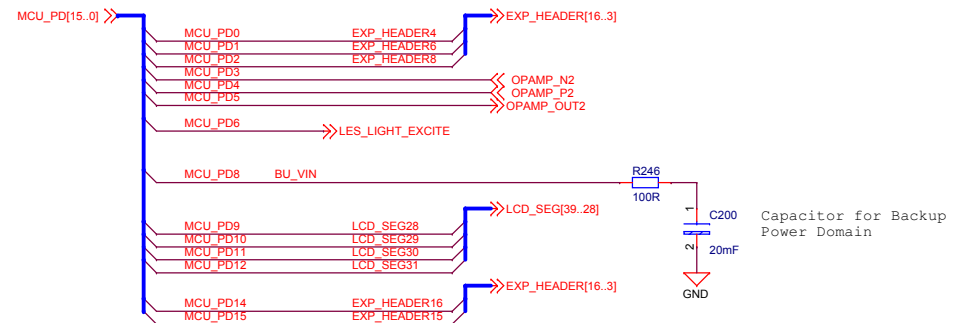
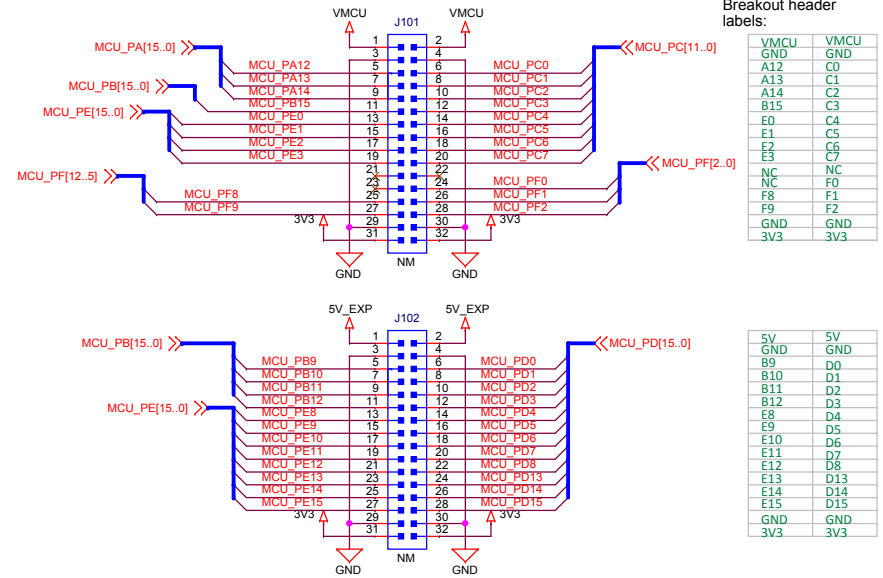
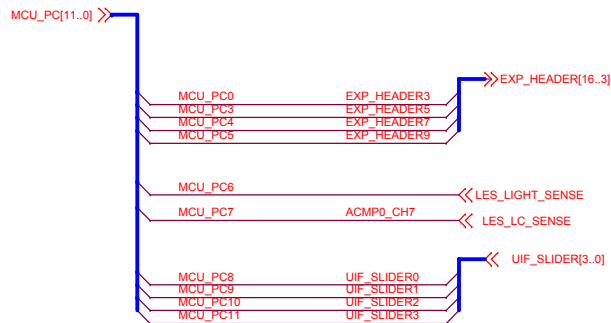
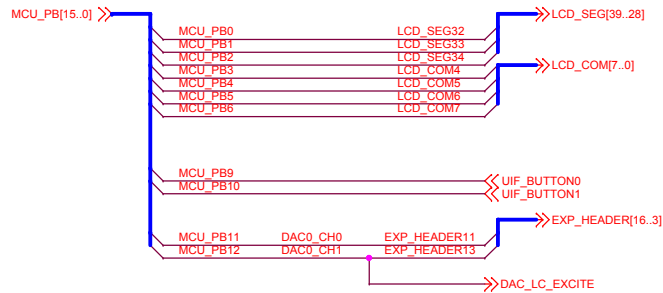
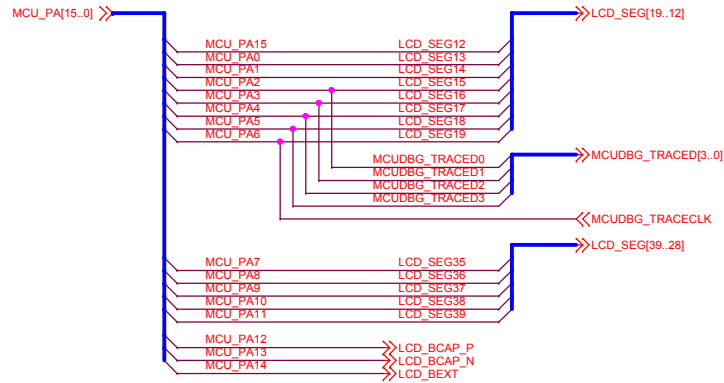
OPAMP Connection Footprint



Layout Note:
All these components except R241 and R242 must be placed on the secondary side, and are not to be mounted in production.

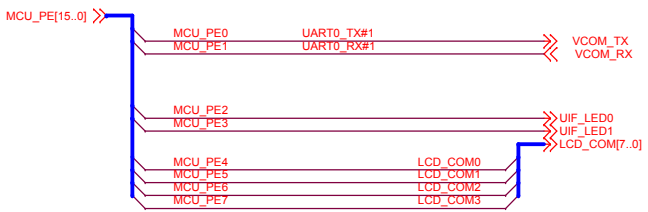
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Design Created Date: Tuesday, December 06, 2016		BRD2400A	
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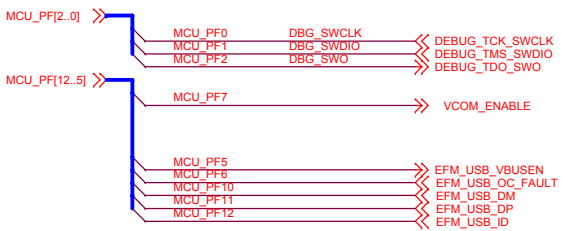


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PE Connections



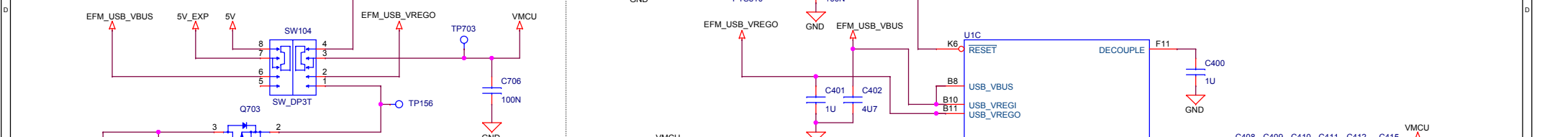
PF Connections



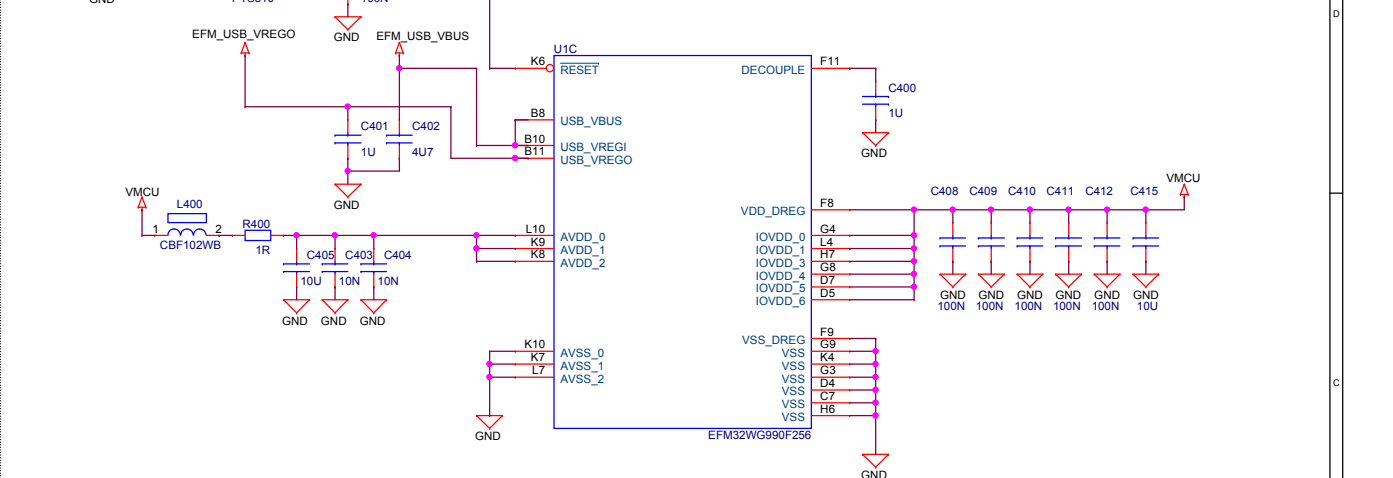
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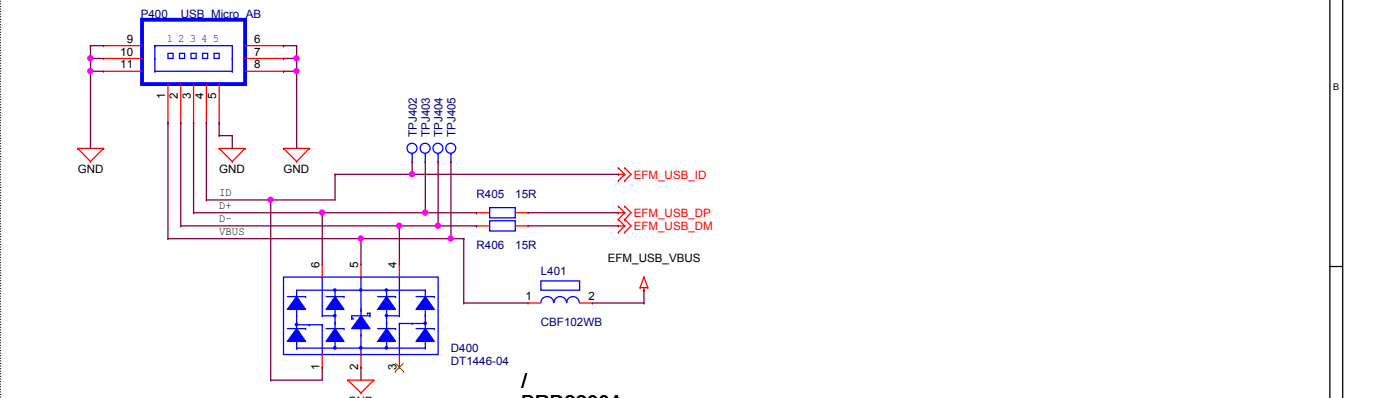
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		Page Title Signal Assignments	
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Size A3	BOM Doc No: <Cage Code>	Sheet Created Date Tuesday, June 20, 2017	Sheet Modified Date Monday, August 21, 2017
Design Created Date: Tuesday, December 06, 2016		Sheet 4 of 12	

5	4	3	2	1
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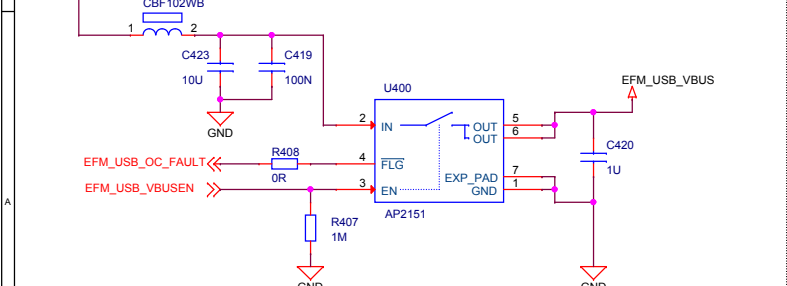


SWITCH POS	MODE DESCRIPTION
AEM	AEM Enabled, VMCU sourced from external 3.3V LDO powered by BC USB 5V supply, EXP header and breakout 5V sourced from BC USB 5V supply
USB	AEM Disabled, VMCU sourced from internal 3.3V LDO powered by MCU USB 5V supply, EXP header and breakout 5V sourced from MCU USB 5V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





CBF-102WB

[illegible]

EFM32 Wonder Gecko Starter Kit

EFM32 Power

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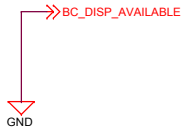
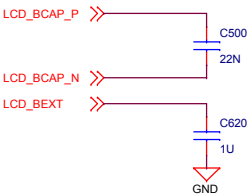
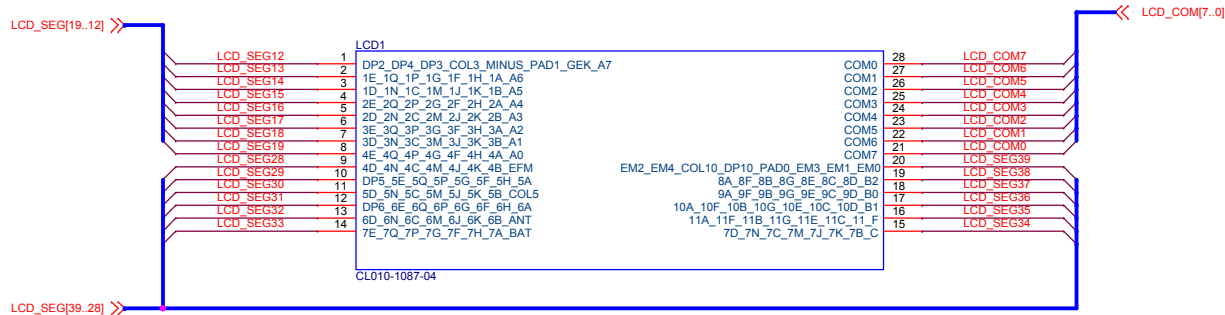
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LCD signal connections

LCD Boost

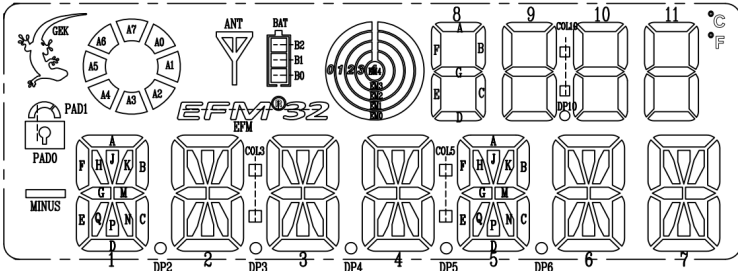


Segment names

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
---	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13
COM0	DP2	1 E	1 D	2 E	2 D	3 E	3 D	4 E	4 D	DP5	5 D	DP6	6 D	7 E
COM1	DP4	1 Q	1 N	2 Q	2 N	3 Q	3 N	4 Q	4 N	5 E	5 N	6 E	6 N	7 Q
COM2	DP3	1 P	1 C	2 P	2 C	3 P	3 C	4 P	4 C	5 Q	5 C	6 Q	6 C	7 P
COM3	COL3	1 G	1 M	2 G	2 M	3 G	3 M	4 G	4 M	5 P	5 M	6 P	6 M	7 G
COM4	MINUS	1 F	1 J	2 F	2 J	3 F	3 J	4 F	4 J	5 G	5 J	6 G	6 J	7 F
COM5	PAD1	1 H	1 K	2 H	2 K	3 H	3 K	4 H	4 K	5 F	5 K	6 F	6 K	7 H
COM6	GEK	1 A	1 B	2 A	2 B	3 A	3 B	4 A	4 B	5 H	5 B	6 H	6 B	7 A
COM7	A7	A6	A5	A4	A3	A2	A1	A0	EFM	5 A	COL5	6 A	ANT	BAT

PIN	15	16	17	18	19	20	21	22	23	24	25	26	27	28
---	S14	S15	S16	S17	S18	S19	COM7	COM6	COM5	COM4	COM3	COM2	COM1	COM0
COM0	7 D	11 A	10 A	9 A	8 A	EM2							COM1	COM0
COM1	7 N	11 F	10 F	9 F	8 F	EM4								
COM2	7 C	11 B	10 B	9 B	8 B	COL10						COM2		
COM3	7 M	11 G	10 G	9 G	8 G	DP10					COM3			
COM4	7 J	11 E	10 E	9 E	8 E	PAD0				COM4				
COM5	7 K	11 C	10 C	9 C	8 C	EM3		COM5						
COM6	7 B	11 D	10 D	9 D	8 D	EM1		COM6						
COM7	*C	*F	B1	B0	B2	EM0	COM7							

Segment placement



BRD2200A

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Schematic Title

EFM32 Wonder Gecko Starter Kit

Page Title

LCD

Document number

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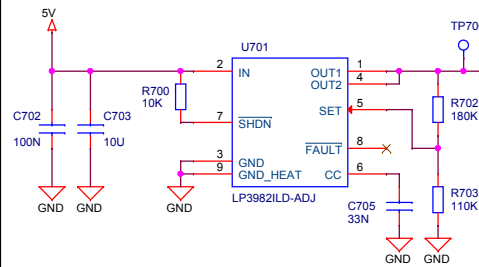
Revision

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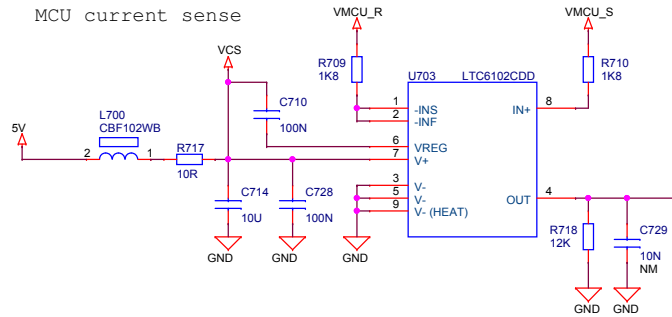
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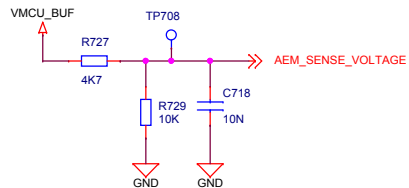
MCU power regulator



MCU current sense



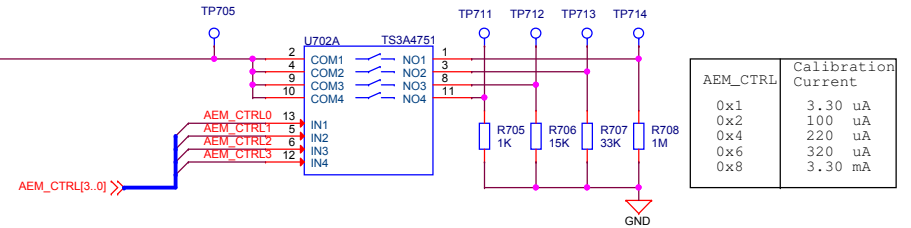
MCU Voltage Sense



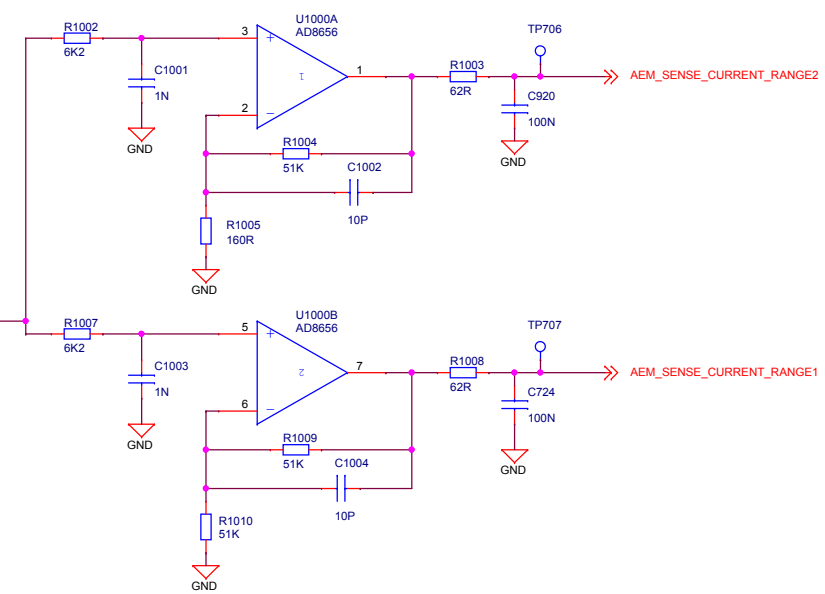
Isolation switch

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

AEM Calibration



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



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Schematic Title
EFM32 Wonder Gecko Starter Kit

Page Title
Advanced Energy Monitor

Document number
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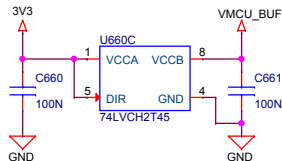
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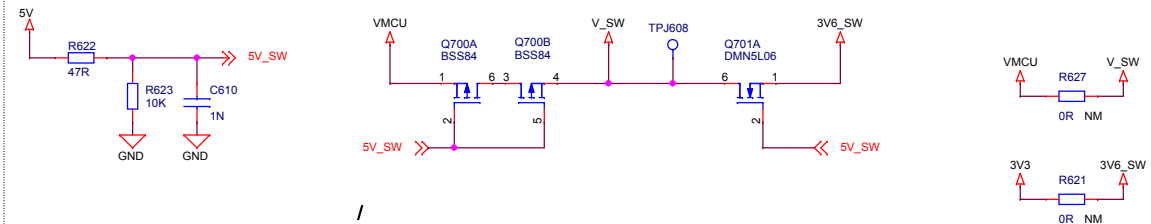
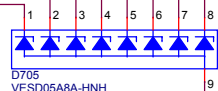
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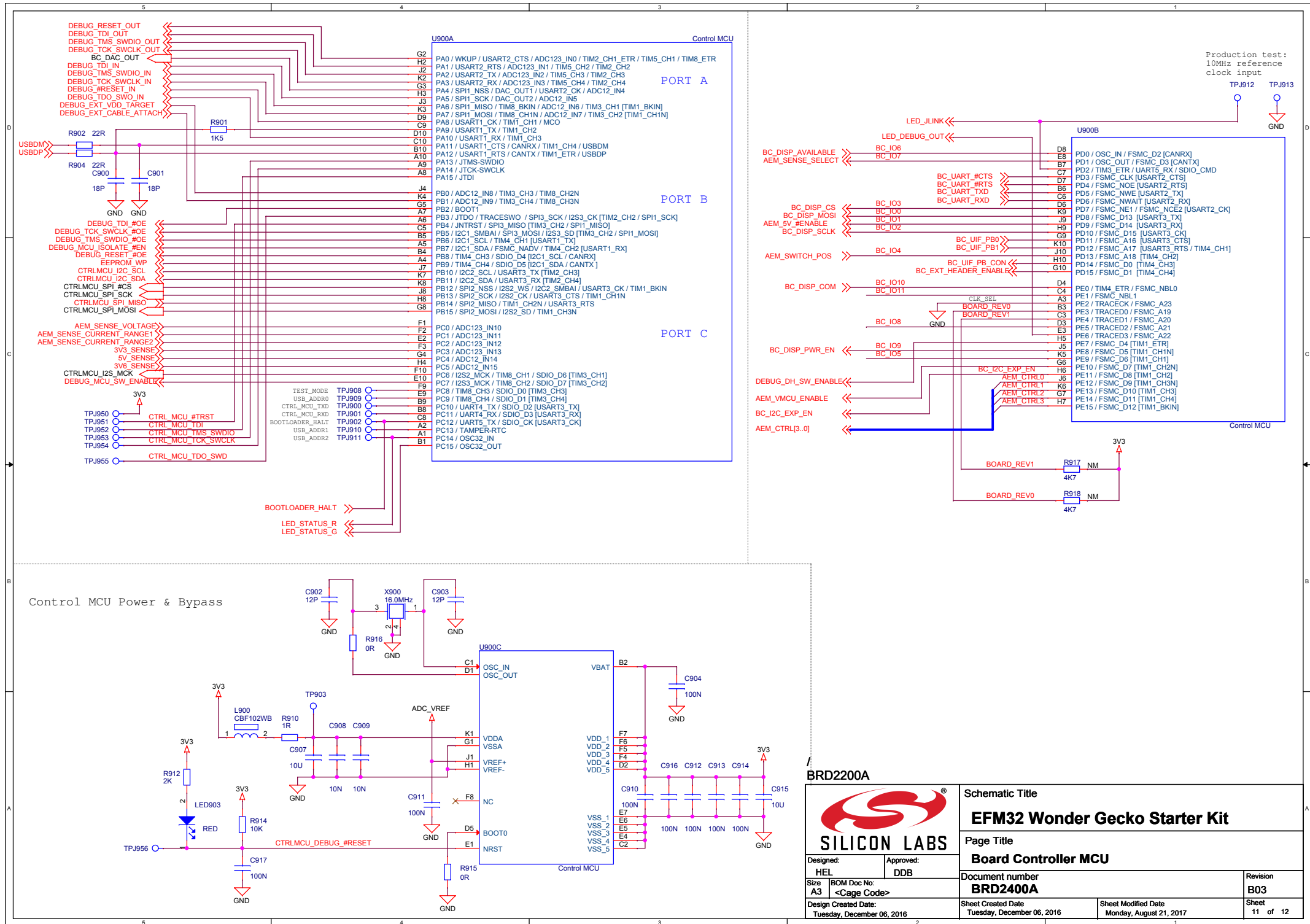
Level Shift



VMCU	VMCU_EXT
00000000	00000000
00000001	00000001
00000002	00000002
00000003	00000003
00000004	00000004
00000005	00000005
00000006	00000006
00000007	00000007
00000008	00000008
00000009	00000009
0000000A	0000000A
0000000B	0000000B
0000000C	0000000C
0000000D	0000000D
0000000E	0000000E
0000000F	0000000F
00000010	00000010
00000011	00000011
00000012	00000012
00000013	00000013
00000014	00000014
00000015	00000015
00000016	00000016
00000017	00000017
00000018	00000018
00000019	00000019
0000001A	0000001A
0000001B	0000001B
0000001C	0000001C
0000001D	0000001D
0000001E	0000001E
0000001F	0000001F
00000020	00000020
00000021	00000021
00000022	00000022
00000023	00000023
00000024	00000024
00000025	00000025
00000026	00000026
00000027	00000027
00000028	00000028
00000029	00000029
0000002A	0000002A
0000002B	0000002B
0000002C	0000002C
0000002D	0000002D
0000002E	0000002E
0000002F	0000002F
00000030	00000030
00000031	00000031
00000032	00000032
00000033	00000033
00000034	00000034
00000035	00000035
00000036	00000036
00000037	00000037
00000038	00000038
00000039	00000039
0000003A	0000003A
0000003B	0000003B
0000003C	0000003C
0000003D	0000003D
0000003E	0000003E
0000003F	0000003F
00000040	00000040
00000041	00000041
00000042	00000042
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0000006B	0000006B
0000006C	0000006C
0000006D	0000006D
0000006E	0000006E
0000006F	0000006F
00000070	00000070
00000071	00000071
00000072	00000072
00000073	00000073



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The diagram shows a PCB layout for a USB Mini-B connector. A blue box labeled 'P601' represents the connector, with pins 1 through 5 labeled. Pin 1 is connected to a 5V supply through an L600 CBF221HC inductor. Pin 2 is connected to a 5V supply through an L600 CBF221HC inductor. Pin 3 is connected to a 5V supply through an L600 CBF221HC inductor. Pin 4 is connected to a 5V supply through an L600 CBF221HC inductor. Pin 5 is connected to a 5V supply through an L600 CBF221HC inductor. The layout includes several test points (TPJ611, TPJ612, TPJ613, TPJ614) and ground connections. A note states: 'Place these TPs close to USB header'. A component box labeled 'D802' contains six diodes (DT1446-04) and is connected to the USB D+ and D- lines. The USB D+ and D- lines are labeled 'USBDP' and 'USBDM' respectively. The layout also shows a 5V supply and a GND connection.

The schematic diagram illustrates the CTRLMCU EEPROM circuit. It features two 24AA024 EEPROMs (U601A and U601B) and a TS3A4751 multiplexer (U650A). U601A is connected to CTRLMCU_I2C_SDA and CTRLMCU_I2C_SCL. U601B is connected to BC_UIF_PB0 and BC_UIF_PB1. U650A is connected to BC_I2C_EXP_EN and BC_UIF_PB_CON. The circuit also includes resistors R607, R608, R609, R651, R652, R681, and R650, and capacitors C605 and C650. Power is supplied by 3V3 and V_SW.

The diagram illustrates the LED status and debug out circuit. It is organized into three main sections: Status, Debug out, and J-Link. Each section features an LED connected to a 3V3 supply through a current-limiting resistor. The Status section includes a red LED (LED904) and a green LED (LED905) with resistors R920 (1K) and R919 (1K) respectively. The Debug out section features a yellow LED (LED900) with resistor R900 (3K). The J-Link section features a blue LED (LED901) with resistor R903 (2K). All LEDs have their cathodes connected to a common ground line. This ground line is connected to the Bootloader Halt pin (TPH999) and also branches out to connect to the LED_STATUS_R, LED_STATUS_G, and LED_DEBUG_OUT pins.

The image displays three circuit diagrams for power rail sensing:

- Top Left Diagram (3V3 Sense):** A 3V3 power source is connected to a sense resistor R603 (100K). The output of R603 is connected to a sense point labeled 3V3_SENSE. A parallel combination of a sense resistor R605 (100K) and a capacitor C603 (100N) is connected between the sense point and ground (GND).
- Top Right Diagram (3V6 Sense):** A 3V6_SW power source is connected to a sense resistor R611 (100K). The output of R611 is connected to a sense point labeled 3V6_SENSE. A parallel combination of a sense resistor R612 (100K) and a capacitor C611 (100N) is connected between the sense point and ground (GND). A TP923 component is also connected to the sense point.
- Bottom Diagram (5V Sense):** A 5V power source is connected to a sense resistor R604 (100K). The output of R604 is connected to a sense point labeled 5V_SENSE. A parallel combination of a sense resistor R606 (100K) and a capacitor C604 (100N) is connected between the sense point and ground (GND).



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