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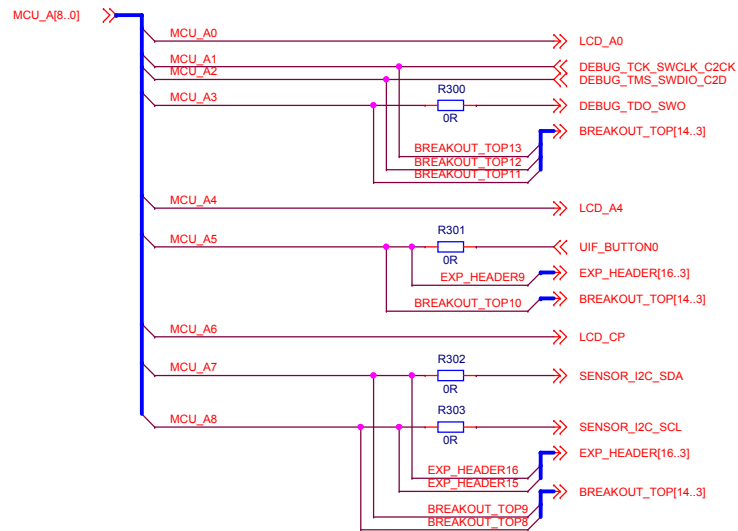


PG23 Pro Kit	
Board Function	Page
Title Page	1
User Interface	2
Signal Assignments	3
EFM32 Power	4
EFM32 I/O	5
Segment LCD	6
Target Voltage Supply	7
AEM & Voltage Sense	8
Debug Interface	9
Simplicity & VCOM	10
Power	11
Board Controller	12
Board Controller Misc	13

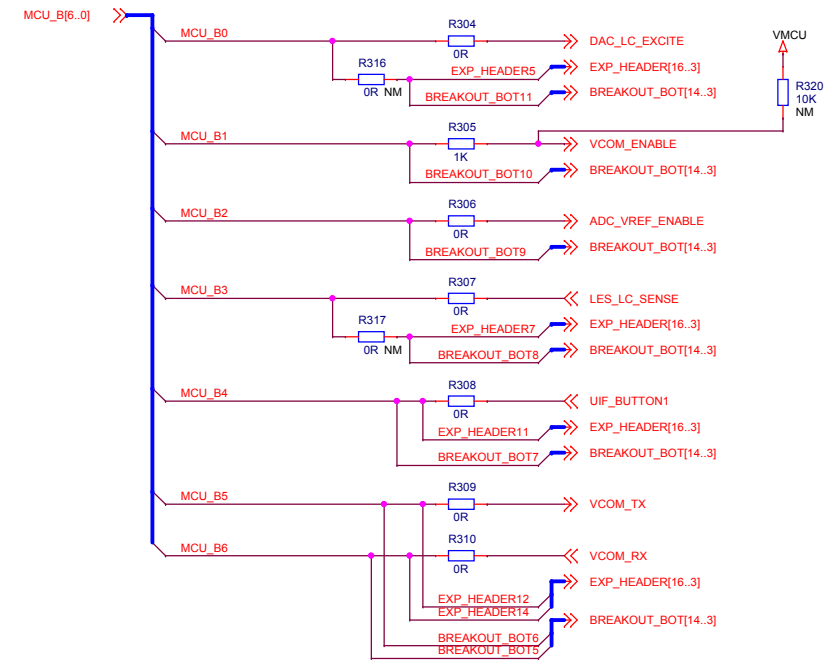
Revision History	
Rev.	Description
A00	Initial version.
A01	Bump U1 revision.
A02	Not mount clamping diodes for ADC input.
A03	Remove AEM bypass, clamping diodes.

		Board Name	
		EFM32PG23 Pro Kit	
Designed MAH		Approved RGU	
Size A3	Sheet Modified Date Friday, August 06, 2021	Board Number BRD2504A	
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		Sheet 1 of 13	

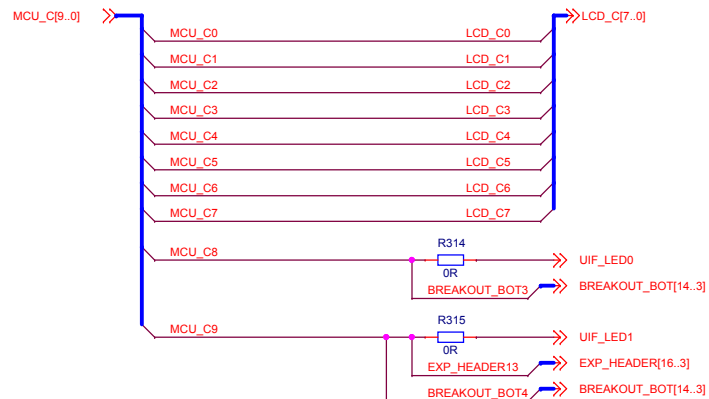
PA Connections



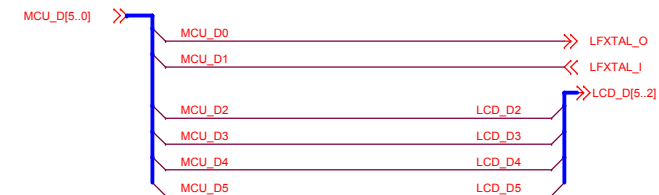
PB Connections



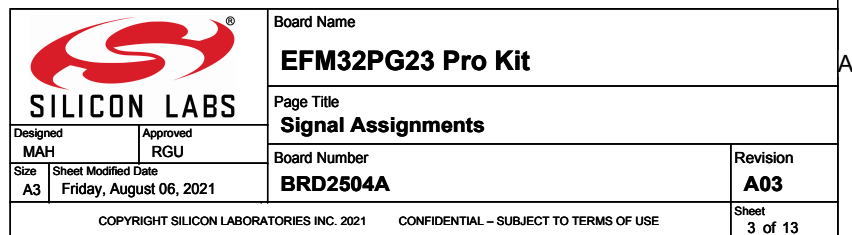
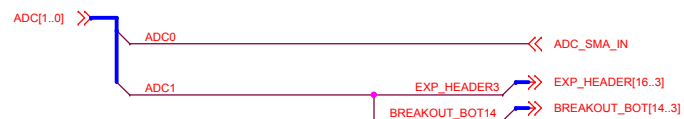
PC Connections



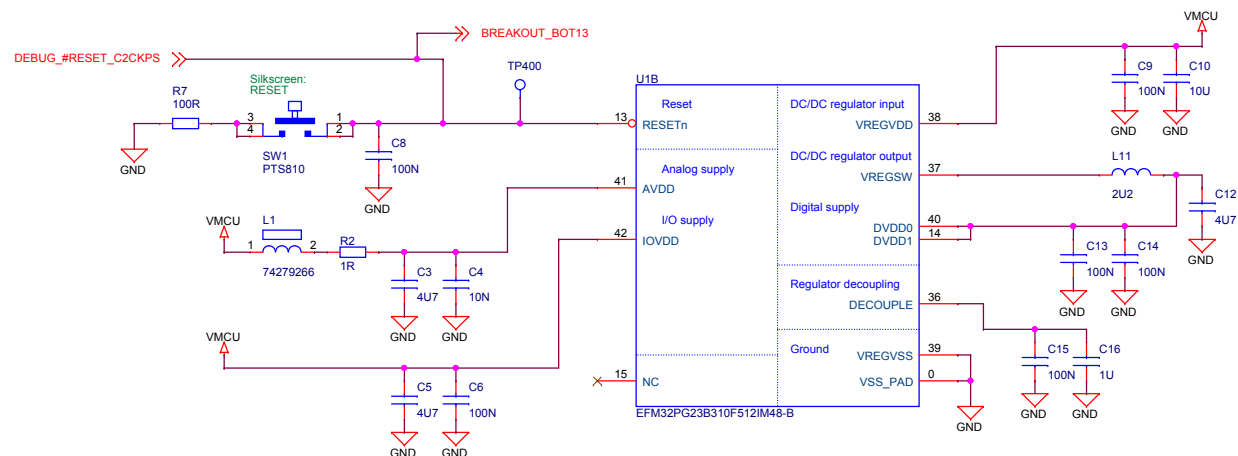
PD Connections



ADC Connections

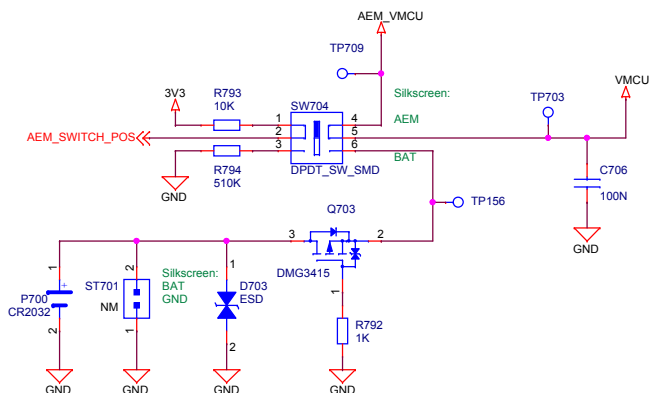


EFM32 Power and Decoupling

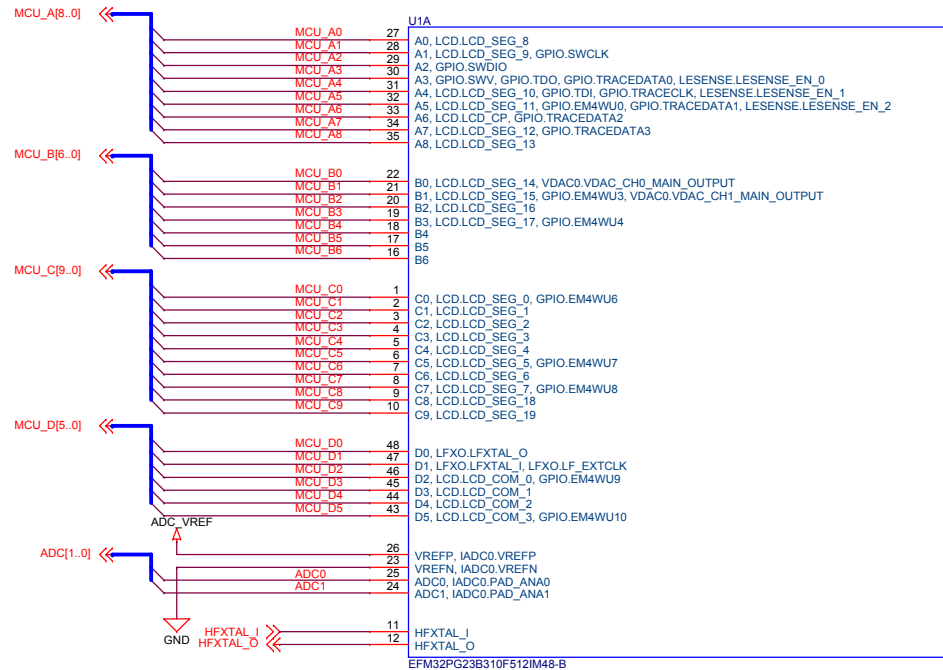


Power Select Switch: AEM/BAT

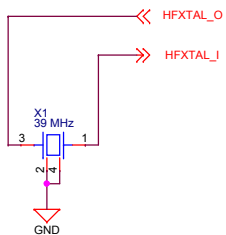
SWITCH POS	MODE DESCRIPTION
AEM	AEM Enabled, VMCU sourced from external 3.3V LDO powered by BC USB 5V supply
BAT	AEM Disabled, VMCU sourced from coin-cell battery or external power supply



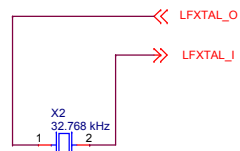
		Board Name EFM32PG23 Pro Kit	
		Page Title EFM32 Power	
Designed MAH	Approved RGU	Board Number BRD2504A	Revision A03
Size A3	Sheet Modified Date Friday, August 06, 2021	COPYRIGHT SILICON LABORATORIES INC. 2021 CONFIDENTIAL – SUBJECT TO TERMS OF USE Sheet 4 of 13	



High Frequency Clock

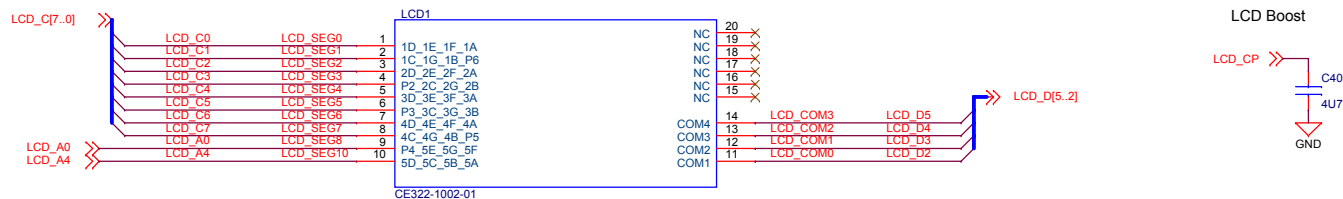


Low Frequency Clock



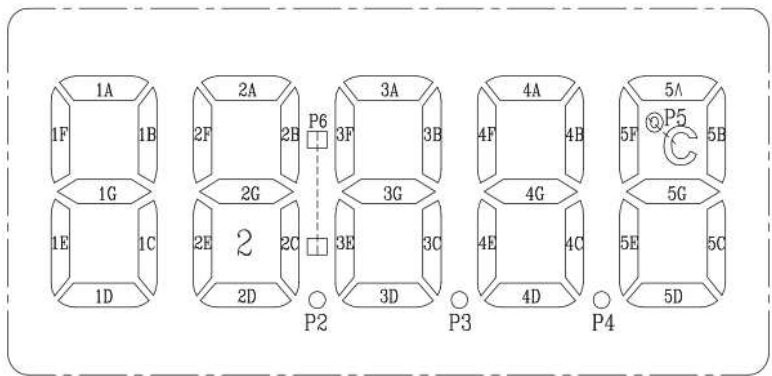
 SILICON LABS		Board Name	
		EFM32PG23 Pro Kit	
Designed MAH		Page Title	
Size A3		EFM32 I/O	
Sheet Modified Date Friday, August 06, 2021		Board Number	Revision
		BRD2504A	A03
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Segment LCD Signal Connections



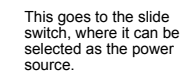
Segment Names

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
COM1	1D	1C	2D	P2	3D	P3	4D	4C	P4	5D	COM1	--	--	--	--	--	--	--	--	--
COM2	1E	1G	2E	2C	3E	3C	4E	4G	5E	5C	--	COM2	--	--	--	--	--	--	--	--
COM3	1F	1B	2F	2G	3F	3G	4F	4B	5G	5B	--	--	COM3	--	--	--	--	--	--	--
COM4	1A	P6	2A	2B	3A	3B	4A	P5	5F	5A	--	--	--	COM4	--	--	--	--	--	--



 SILICON LABS		Board Name	
		EFM32PG23 Pro Kit	
Designed MAH		Page Title	
Size A3		Segment LCD	
Sheet Modified Date Friday, August 06, 2021		Board Number	
		BRD2504A	
		Revision	
		A03	
		Sheet	
		6 of 13	

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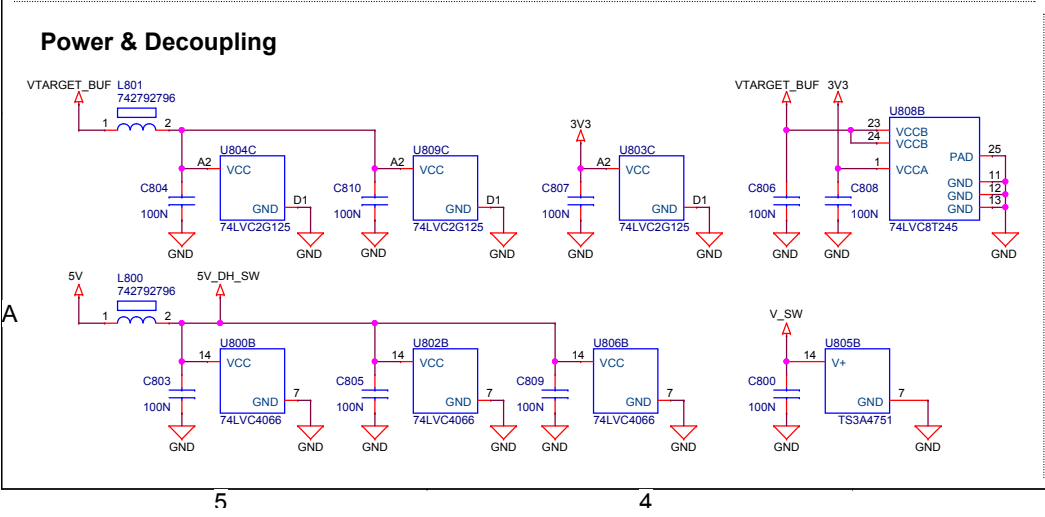
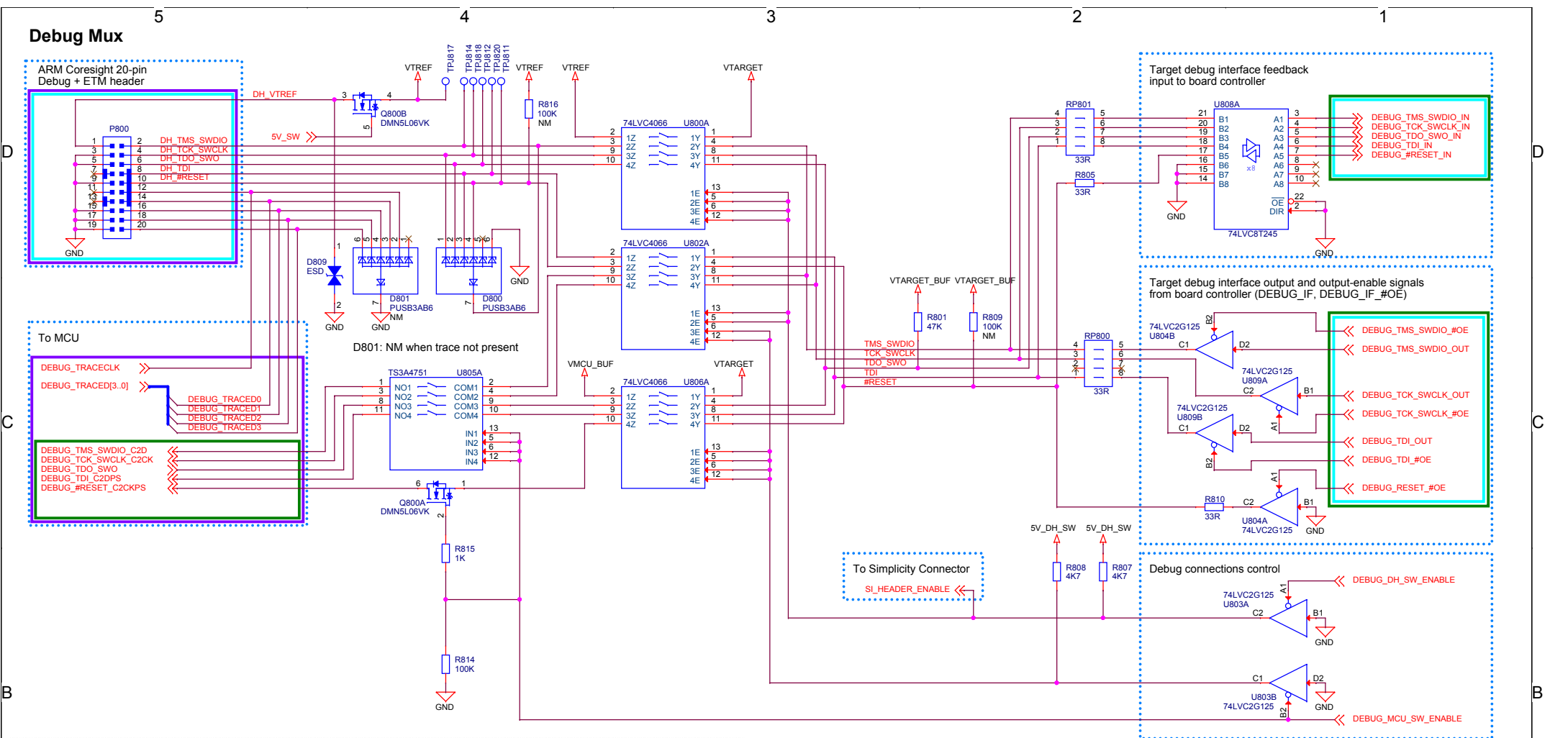


CALIBRATE	Calibration Current
0x1	3.30 uA
0x2	132.5 uA
0x4	323.5 uA
0x6	456.1 uA
0x8	12.36 mA



A





Mode	DEBUG_DH_SW_ENABLE	DEBUG_MCU_SW_ENABLE	DEBUG_IF_#OE	VTREF	VTARGET
Debug Out	1	0	0/1	External voltage	External voltage
MCU Debug	0	1	0/1	Disconnected	VMCU
Debug In	1	1	1	VMCU	VMCU
Debug Off	0	0	1	-	-

Color coded frames indicates which groups of signal nodes that are active in a given debug mode



SILICON LABS

Designed MAH Approved RGU

Size A3 Sheet Modified Date Friday, August 06, 2021

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Board Name

EFM32PG23 Pro Kit

Page Title

Debug Interface

Board Number

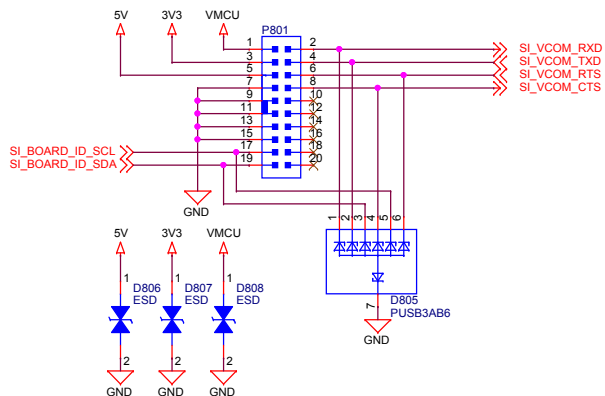
BRD2504A

Revision

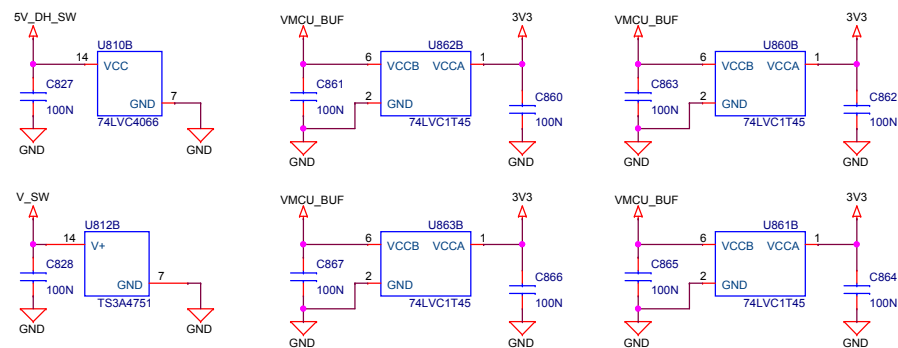
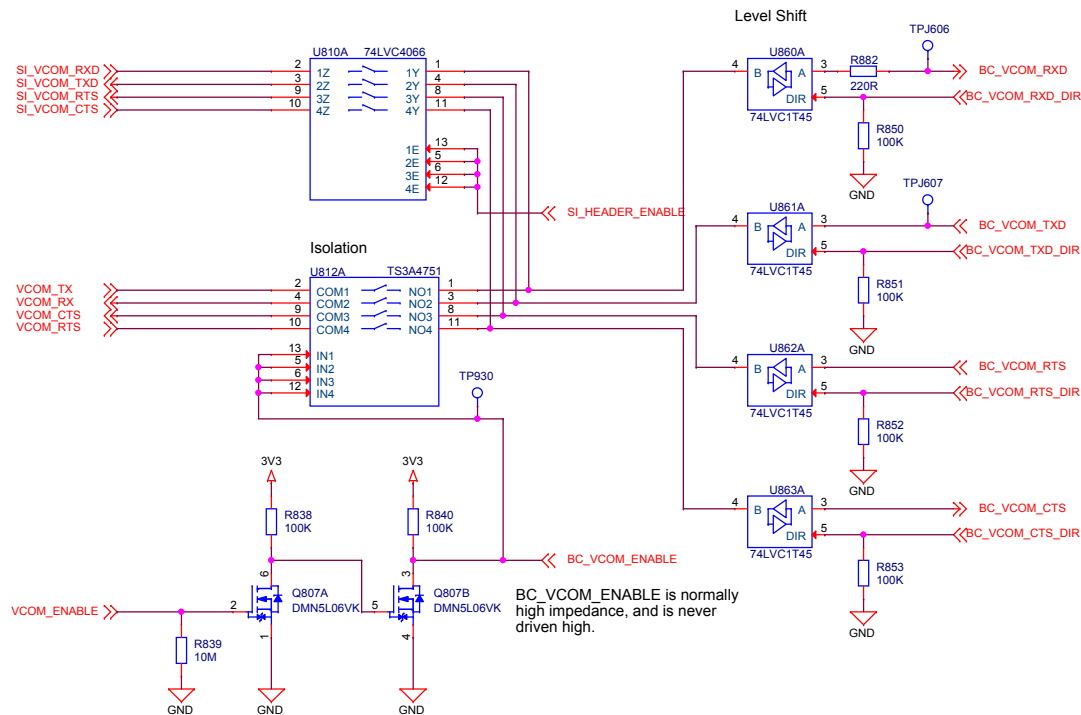
A03

Sheet 9 of 13

Simplicity Connector

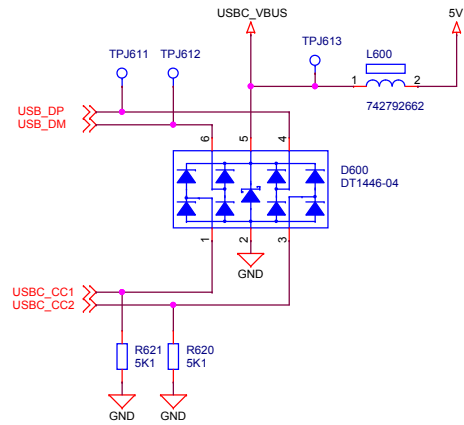
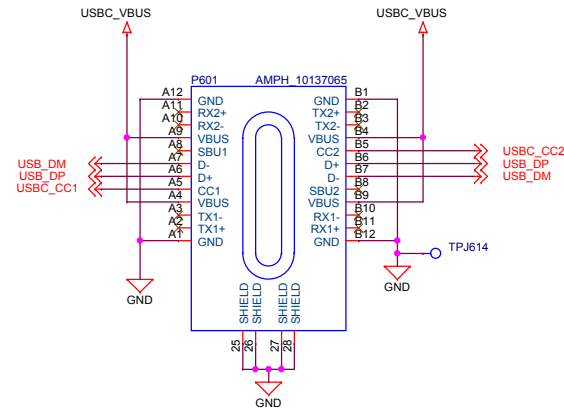


VCOM Interface

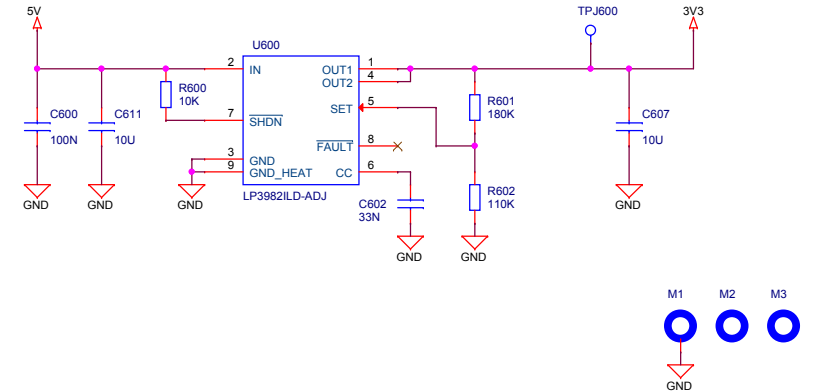


		Board Name	
		EFM32PG23 Pro Kit	
Designed MAH		Page Title	
Size A3		Simplicity & VCOM	
Sheet Modified Date Friday, August 06, 2021		Board Number	Revision
		BRD2504A	A03
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Sheet 10 of 13			

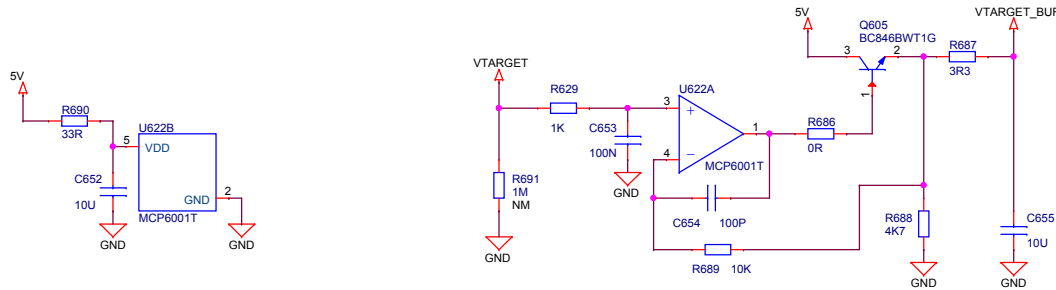
J-Link USB Port



3V3 Regulator



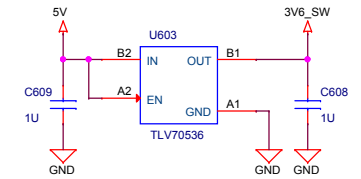
VTarget Voltage Mirror



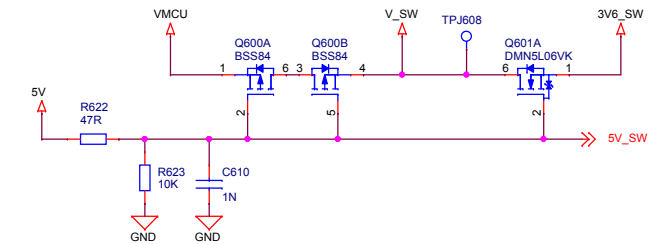
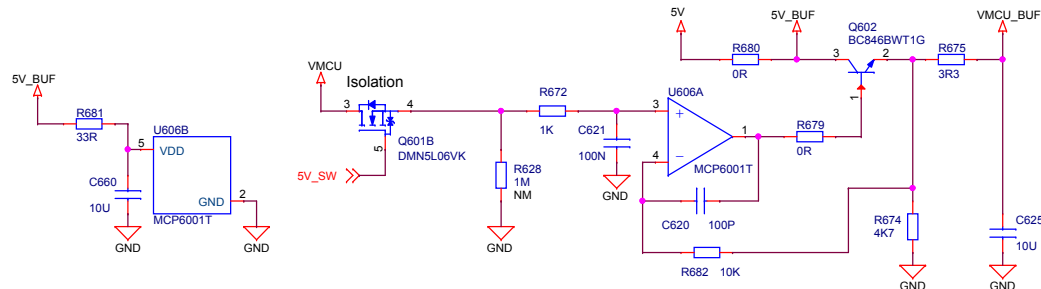
Power Supply for Analog Switches

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



VMCU Voltage Mirror



 SILICON LABS		Board Name	
		EFM32PG23 Pro Kit	
Designed MAH		Page Title	
Size A3		Power	
Sheet Modified Date Friday, August 06, 2021		Board Number	
		BRD2504A	
		Revision	
		A03	
		Sheet 11 of 13	

The schematic diagram illustrates the Board Controller, featuring three main components: U900A, U900B, and U900C. The diagram shows the following connections and components:

- U900A:**
 - PA0, PA1, PA2, PA3, PA4 / UART0_RX #2, PA5, PA6, PA7, PA8, PA9, PA10, PA11, PA12, PA13, PA14, PA15.
 - PB0, PB1, PB2, PB3, PB4, PB5, PB6, PB7, PB8, PB9, PB10 / ADC1_CH26, PB11 / VDAG0_OUT0, PB12, PB13 / HFXTAL_P, PB14 / HFXTAL_N, PB15 / ETM_TD2 #1.
 - PA0, PA1, PA2, PA3, PA4 / UART0_RX #2, PA5, PA6, PA7, PA8, PA9, PA10, PA11, PA12, PA13, PA14, PA15.
 - PB0, PB1, PB2, PB3, PB4, PB5, PB6, PB7, PB8, PB9, PB10 / ADC1_CH26, PB11 / VDAG0_OUT0, PB12, PB13 / HFXTAL_P, PB14 / HFXTAL_N, PB15 / ETM_TD2 #1.
- U900B:**
 - K1, K2, L1, L2, M2, N2, N4, N5, N6, N7, N8, N9, N10, N11, N12, N13, N14, N15.
 - PD0, PD1, PD2 / ADC0_CH2, PD3 / ADC0_CH3, PD4, PD5 / ADC0_CH5, PD6 / ADC_EXT, PD7, PD8, PD9 / USART4_TX #1, PD10 / USART4_RX #1, PD11 / USART4_CLK #1, PD12 / USART4_CS #1, PD13 / ETM_TD1 #1, PD14, PD15.
- U900C:**
 - G11, G12, G13, G14, G15, G16, G17, G18, G19, G20, G21, G22, G23, G24, G25, G26, G27, G28, G29, G30, G31, G32, G33, G34, G35, G36, G37, G38, G39, G40, G41, G42, G43, G44, G45, G46, G47, G48, G49, G50, G51, G52, G53, G54, G55, G56, G57, G58, G59, G60, G61, G62, G63, G64, G65, G66, G67, G68, G69, G70, G71, G72, G73, G74, G75, G76, G77, G78, G79, G80, G81, G82, G83, G84, G85, G86, G87, G88, G89, G90, G91, G92, G93, G94, G95, G96, G97, G98, G99, G100, G101, G102, G103, G104, G105, G106, G107, G108, G109, G110, G111, G112, G113, G114, G115, G116, G117, G118, G119, G120.
- Other Components:**
 - X900: 48 Mhz.
 - R902: 33R.
 - R904: 33R.
 - TPJ950, TPJ951, TPJ952, TPJ953, TPJ954, TPJ955, TPJ956, TPJ957, TPJ958, TPJ959, TPJ960, TPJ961, TPJ962, TPJ963, TPJ964, TPJ965, TPJ966, TPJ967, TPJ968, TPJ969, TPJ970, TPJ971, TPJ972, TPJ973, TPJ974, TPJ975, TPJ976, TPJ977, TPJ978, TPJ979, TPJ980, TPJ981, TPJ982, TPJ983, TPJ984, TPJ985, TPJ986, TPJ987, TPJ988, TPJ989, TPJ990, TPJ991, TPJ992, TPJ993, TPJ994, TPJ995, TPJ996, TPJ997, TPJ998, TPJ999, TP1000, TP1001, TP1002, TP1003, TP1004, TP1005, TP1006, TP1007, TP1008, TP1009, TP1010, TP1011, TP1012, TP1013, TP1014, TP1015, TP1016, TP1017, TP1018, TP1019, TP1020, TP1021, TP1022, TP1023, TP1024, TP1025, TP1026, TP1027, TP1028, TP1029, TP1030, TP1031, TP1032, TP1033, TP1034, TP1035, TP1036, TP1037, TP1038, TP1039, TP1040, TP1041, TP1042, TP1043, TP1044, TP1045, TP1046, TP1047, TP1048, TP1049, TP1050, TP1051, TP1052, TP1053, TP1054, TP1055, TP1056, TP1057, TP1058, TP1059, TP1060, TP1061, TP1062, TP1063, TP1064, TP1065, TP1066, TP1067, TP1068, TP1069, TP1070, TP1071, TP1072, TP1073, TP1074, TP1075, TP1076, TP1077, TP1078, TP1079, TP1080, TP1081, TP1082, TP1083, TP1084, TP1085, TP1086, TP1087, TP1088, TP1089, TP1090, TP1091, TP1092, TP1093, TP1094, TP1095, TP1096, TP1097, TP1098, TP1099, TP1100, TP1101, TP1102, TP1103, TP1104, TP1105, TP1106, TP1107, TP1108, TP1109, TP1110, TP1111, TP1112, TP1113, TP1114, TP1115, TP1116, TP1117, TP1118, TP1119, TP1120, TP1121, TP1122, TP1123, TP1124, TP1125, TP1126, TP1127, TP1128, TP1129, TP1130, TP1131, TP1132, TP1133, TP1134, TP1135, TP1136, TP1137, TP1138, TP1139, TP1140, TP1141, TP1142, TP1143, TP1144, TP1145, TP1146, TP1147, TP1148, TP1149, TP1150, TP1151, TP1152, TP1153, TP1154, TP1155, TP1156, TP1157, TP1158, TP1159, TP1160, TP1161, TP1162, TP1163, TP1164, TP1165, TP1166, TP1167, TP1168, TP1169, TP1170, TP1171, TP1172, TP1173, TP1174, TP1175, TP1176, TP1177, TP1178, TP1179, TP1180, TP1181, TP1182, TP1183, TP1184, TP1185, TP1186, TP1187, TP1188, TP1189, TP1190, TP1191, TP1192, TP1193, TP1194, TP1195, TP1196, TP1197, TP1198, TP1199, TP1200, TP1201, TP1202, TP1203, TP1204, TP1205, TP1206, TP1207, TP1208, TP1209, TP1210, TP1211, TP1212, TP1213, TP1214, TP1215, TP1216, TP1217, TP1218, TP1219, TP1220, TP1221, TP1222, TP1223, TP1224, TP1225, TP1226, TP1227, TP1228, TP1229, TP1230, TP1231, TP1232, TP1233, TP1234, TP1235, TP1236, TP1237, TP1238, TP1239, TP1240, TP1241, TP1242, TP1243, TP1244, TP1245, TP1246, TP1247, TP1248, TP1249, TP1250, TP1251, TP1252, TP1253, TP1254, TP1255, TP1256, TP1257, TP1258, TP1259, TP1260, TP1261, TP1262, TP1263, TP1264, TP1265, TP1266, TP1267, TP1268, TP1269, TP1270, TP1271, TP1272, TP1273, TP1274, TP1275, TP1276, TP1277, TP1278, TP1279, TP1280, TP1281, TP1282, TP1283, TP1284, TP1285, TP1286, TP1287, TP1288, TP1289, TP1290, TP1291, TP1292, TP1293, TP1294, TP1295, TP1296, TP1297, TP1298, TP1299, TP1300, TP1301, TP1302, TP1303, TP1304, TP1305, TP1306, TP1307, TP1308, TP1309, TP1310, TP1311, TP1312, TP1313, TP1314, TP1315, TP1316, TP1317, TP1318, TP1319, TP1320, TP1321, TP1322, TP1323, TP1324, TP1325, TP1326, TP1327, TP1328, TP1329, TP1330, TP1331, TP1332, TP1333, TP1334, TP1335, TP1336, TP1337, TP1338, TP1339, TP1340, TP1341, TP1342, TP1343, TP1344, TP1345, TP1346, TP1347, TP1348, TP1349, TP1350, TP1351, TP1352, TP1353, TP1354, TP1355, TP1356, TP1357, TP1358, TP1359, TP1360, TP1361, TP1362, TP1363, TP1364, TP1365, TP1366, TP1367, TP1368, TP1369, TP1370, TP1371, TP1372, TP1373, TP1374, TP1375, TP1376, TP1377, TP1378, TP1379, TP1380, TP1381, TP1382, TP1383, TP1384, TP1385, TP1386, TP1387, TP1388, TP1389, TP1390, TP1391, TP1392, TP1393, TP1394, TP1395, TP1396, TP1397, TP1398, TP1399, TP1400, TP1401, TP1402, TP1403, TP1404, TP1405, TP1406, TP1407, TP1408, TP1409, TP1410, TP1411, TP1412, TP1413, TP1414, TP1415, TP1416, TP1417, TP1418, TP1419, TP1420, TP1421, TP1422, TP1423, TP1424, TP1425, TP1426, TP1427, TP1428, TP1429, TP1430, TP1431, TP1432, TP1433, TP1434, TP1435, TP1436, TP1437, TP

[illegible]

Board ID & Button Isolation

BC Serial Flash

Board Version

SILICON LABS

Designed
MAH

Approved
RGU

Size
A3

Sheet Modified Date
Friday, August 06, 2021

Board Name
EFM32PG23 Pro Kit

Page Title
Board Controller

Board Number
BRD2504A

Revision
A03

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Sheet
12 of 13

BC Serial Flash

BC_SPI_COP1
BC_SPI_SCLK
3V3
3V3
D2
E1
A3
C1
C3
U902A
SI / SIO0
SCLK
CS#
WP# / SIO2
RESET# / SIO3
MX25R8035F
BC_SPI_CS
BC_SPI_CPO
3V3
C914
100nF
GND
GND
U902B
VCC
GND
B2
MX25R8035F
GND
GND
BOARD_VER0
BOARD_VER1
R931
1K
GND
R930
1K
GND

BC Serial Flash

BC_SPI_COP1
BC_SPI_SCLK
BC_SPI_CS
BC_SPI_CPO
3V3
R906 10K
U902A
SI / SIO0
SCLK
CS#
WP# / SIO2
RESET# / SIO3
MX25R8035F
C3
3V3
C914 100N
GND
U902B
VCC
GND
B2
MX25R8035F
GND
BOARD_VER0
BOARD_VER1
R931 1K
R930 1K
GND
GND

Board Version

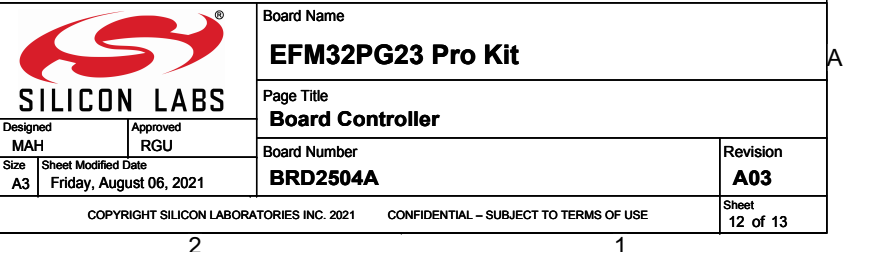
BOARD_VER0
BOARD_VER1
R931 1K
R930 1K
GND
GND

FM32PG23 Pro Kit

Title ard Controller	
Part Number D2504A	Revision A03
DATE INC. 2021	Sheet 12 of 13

CONFIDENTIAL – SUBJECT TO TERMS OF USE

1



Board Name EFM32PG23 Pro Kit		A
Page Title Board Controller		
Board Number BRD2504A		Revision A03
LABORATORIES INC. 2021 CONFIDENTIAL – SUBJECT TO TERMS OF USE		Sheet 12 of 13

Board Name EFM32PG23 Pro Kit		A
Page Title Board Controller		
Board Number BRD2504A		Revision A03
LABORATORIES INC. 2021 CONFIDENTIAL – SUBJECT TO TERMS OF USE		Sheet 12 of 13

Board Name EFM32PG23 Pro Kit		A
Page Title Board Controller		
Board Number BRD2504A		Revision A03
LABORATORIES INC. 2021 CONFIDENTIAL – SUBJECT TO TERMS OF USE		Sheet 12 of 13

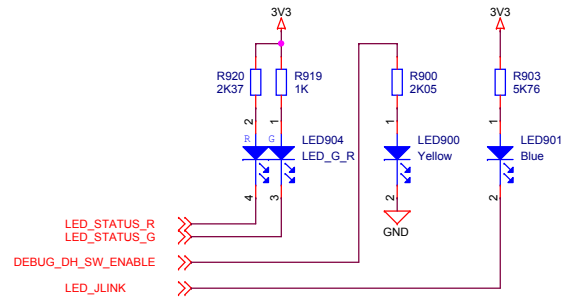
Board Name EFM32PG23 Pro Kit		A
Page Title Board Controller		
Board Number BRD2504A		Revision A03
LABORATORIES INC. 2021 CONFIDENTIAL – SUBJECT TO TERMS OF USE		Sheet 12 of 13

Board Name EFM32PG23 Pro Kit		A
Page Title Board Controller		
Board Number BRD2504A		Revision A03
LABORATORIES INC. 2021 CONFIDENTIAL – SUBJECT TO TERMS OF USE		Sheet 12 of 13

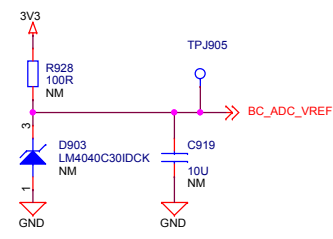
Board Name EFM32PG23 Pro Kit		A
Page Title Board Controller		
Board Number BRD2504A		Revision A03
LABORATORIES INC. 2021 CONFIDENTIAL – SUBJECT TO TERMS OF USE		Sheet 12 of 13

 SILICON LABS		Board Name	
		EFM32PG23 Pro Kit	
Page Title		Board Controller	
Board Number			
Designed MAH	Approved RGU	Board Number	Revision
Size A3	Sheet Modified Date Friday, August 06, 2021	BRD2504A	A03
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		Sheet 12 of 13	

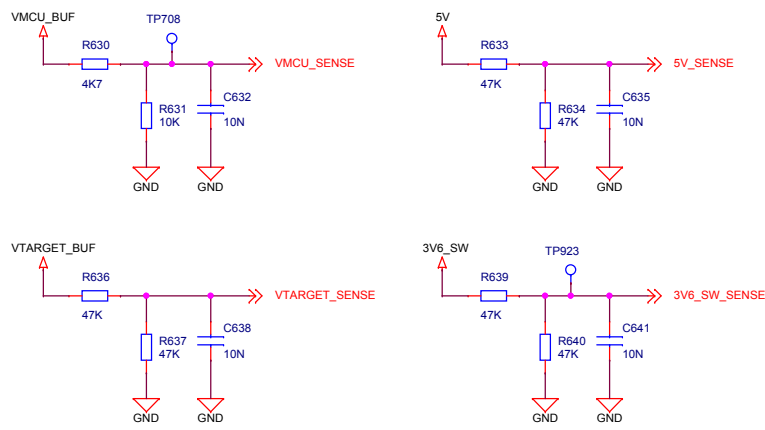
Indicator LEDs



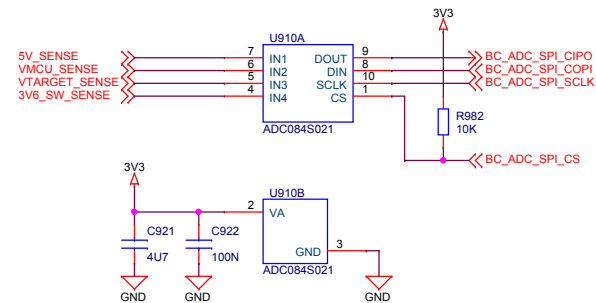
BC ADC Reference



BC Voltage Sense



BC Voltage Sense ADC



		Board Name	
		EFM32PG23 Pro Kit	
Designed MAH		Page Title	
Size A3		Board Controller Misc	
Sheet Modified Date Friday, August 06, 2021		Board Number	Revision
		BRD2504A	A03
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