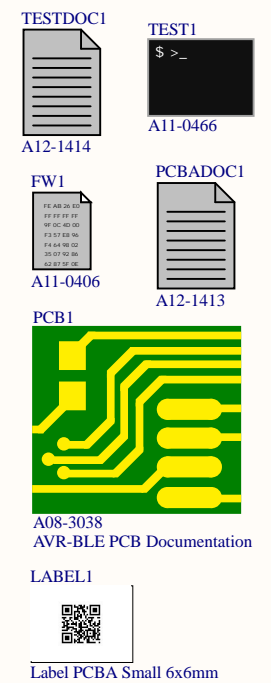
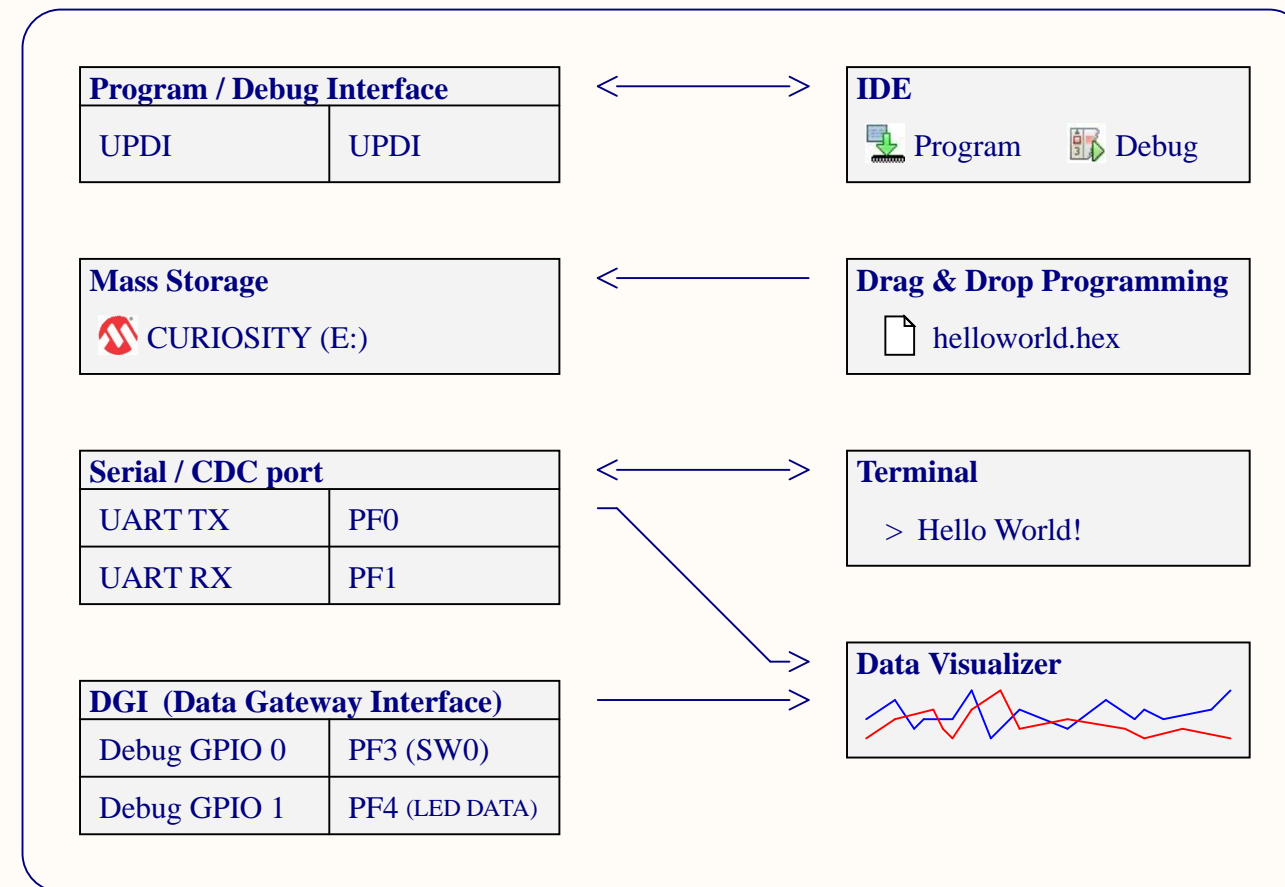
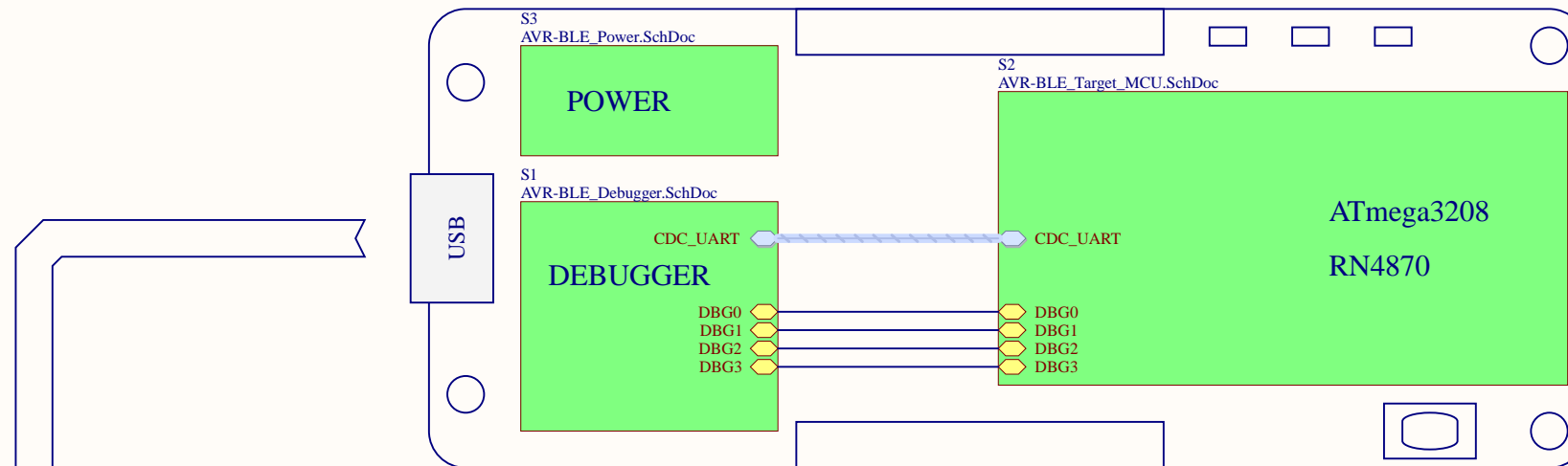


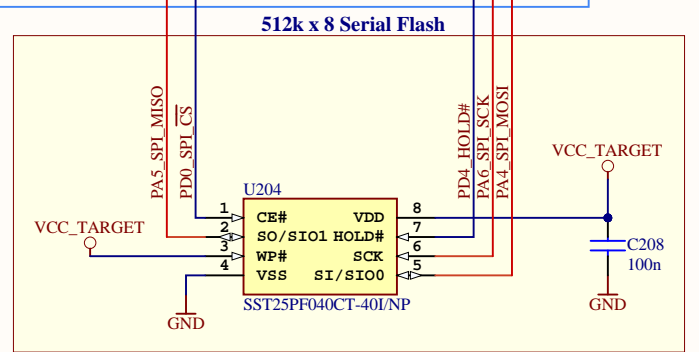
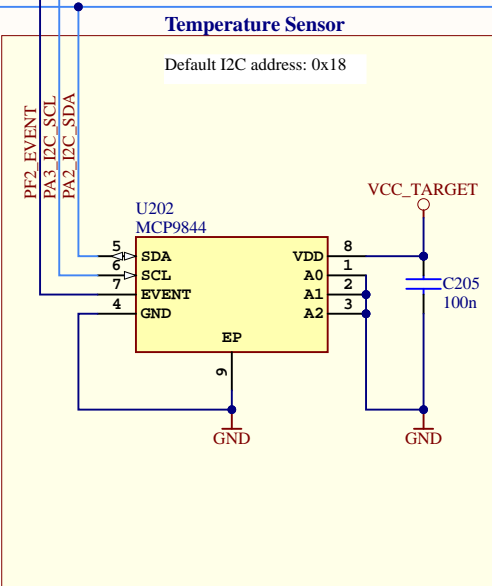
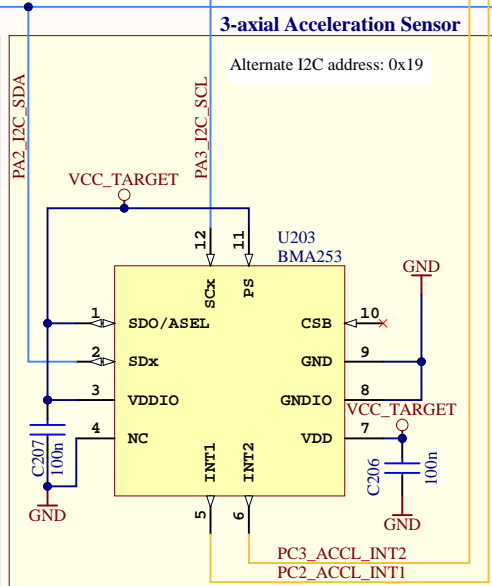
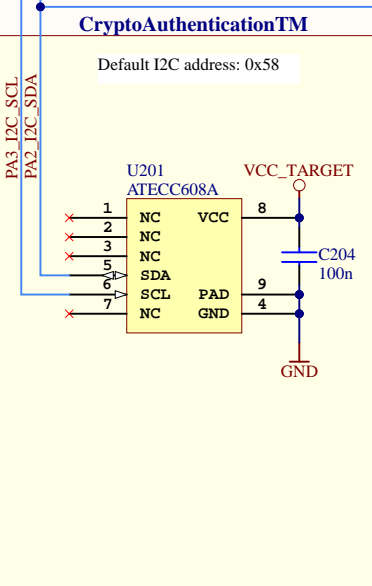
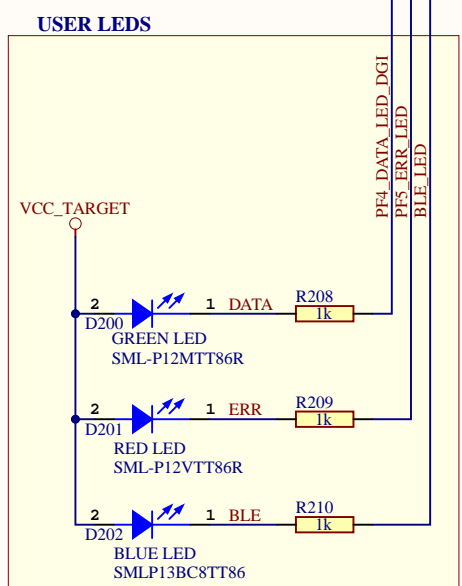
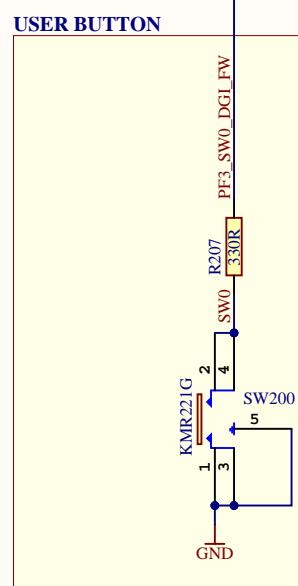
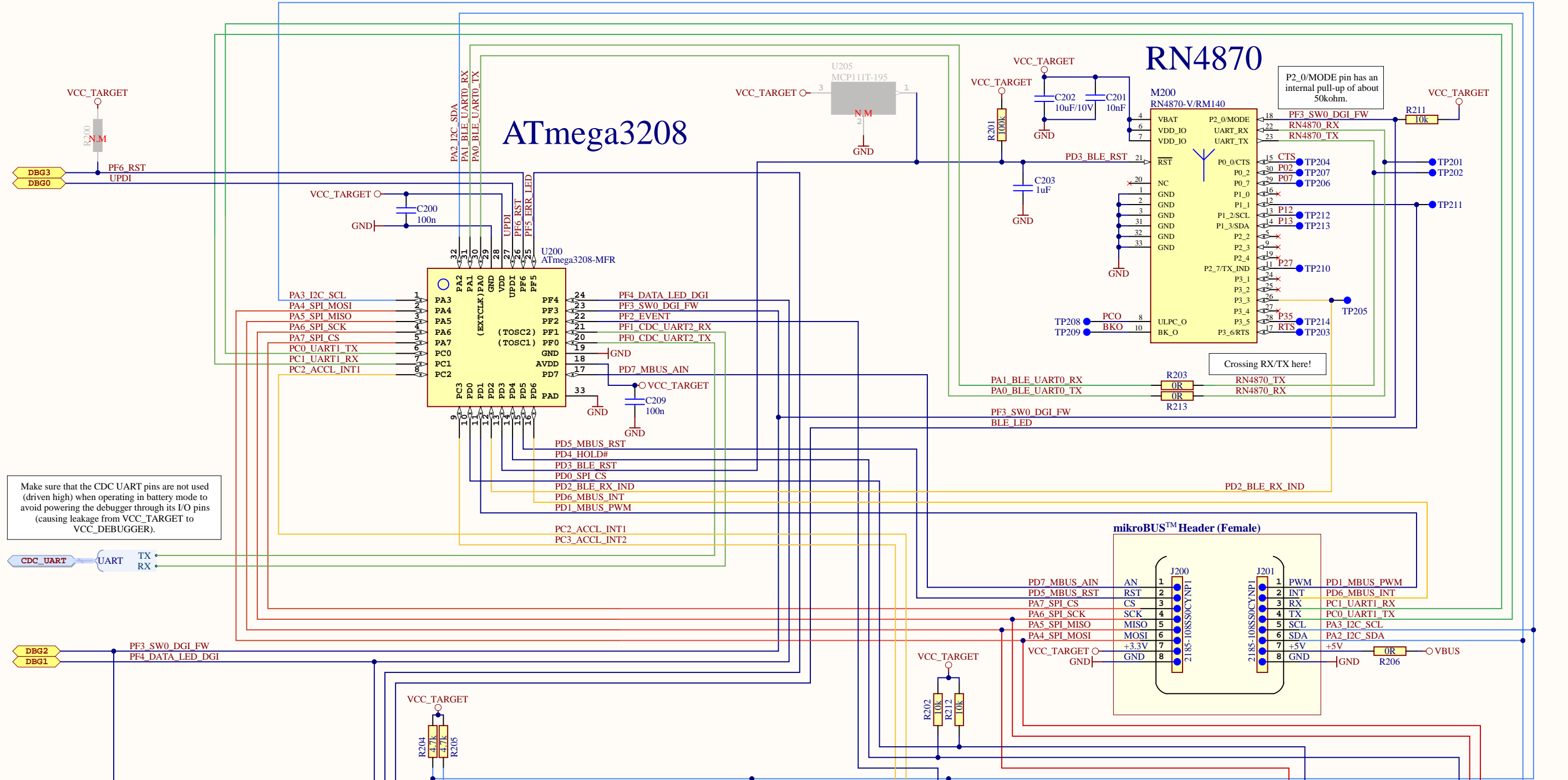
AVR-BLE



S4
AVR-BLE_Revision_History.SchDoc

Drawn By: Microchip Norway		
Engineer: TF/PB		
Project Title AVR-BLE		
Sheet Title Top Level		
Size A3	PCB Assembly Number: A09-3314	PCBA Revision: 3
	PCB Number: A08-3038	PCB Revision: 2
File: AVR-BLE_TopLevel.SchDoc		Page: 1 of 5

Designed with
Altium
Altium.com



Drawn By: Microchip Norway
 Engineer: TF

Project Title: **AVR-BLE**
 Sheet Title: Target MCU

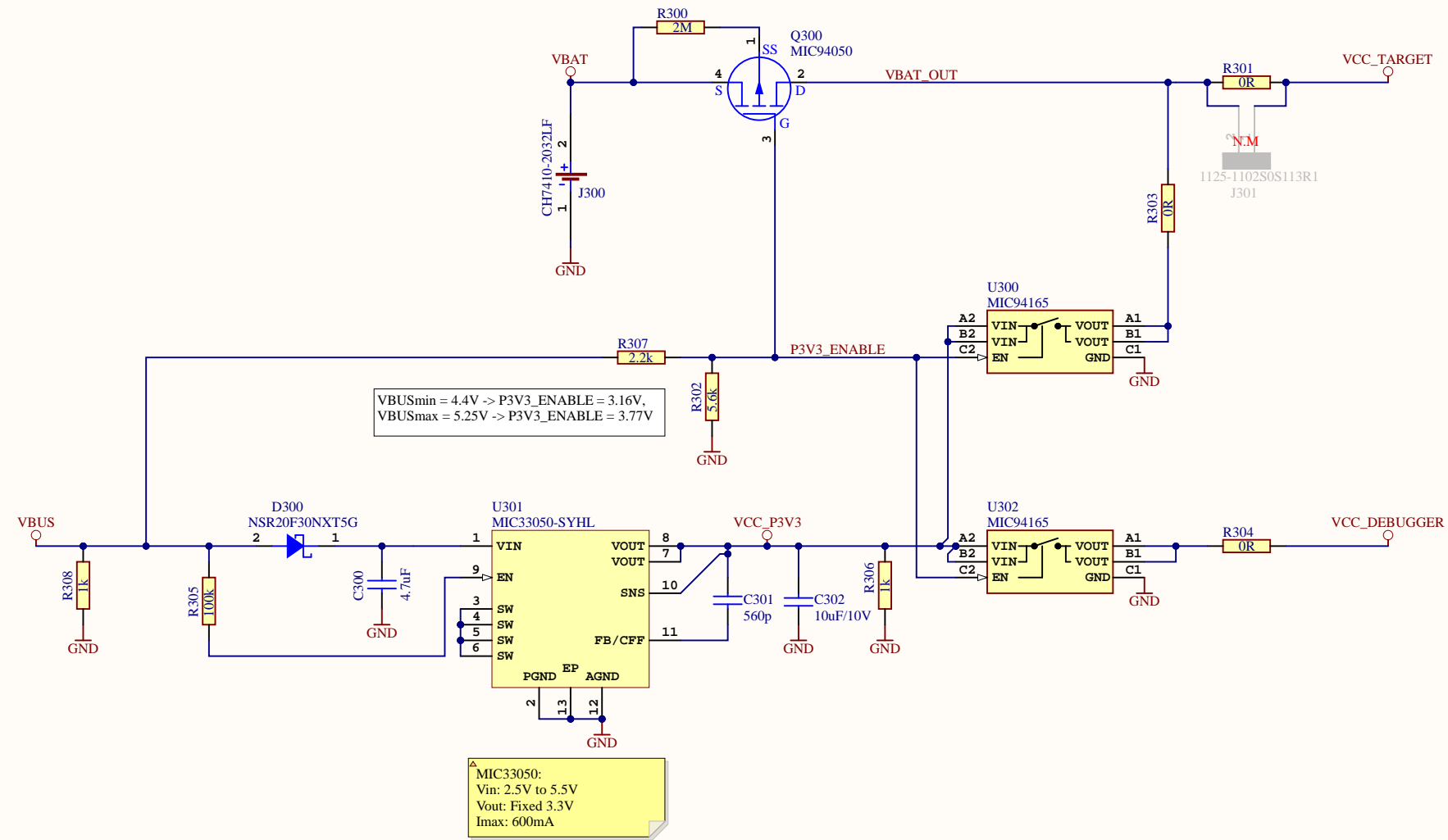
Size: A3
 PCB Assembly Number: A09-3314
 PCB Number: A08-3038


PCBA Revision: 3
 PCB Revision: 2

Date: 1/14/2020
 Page: 2 of 5

Designed with **Altium**
 Altium.com

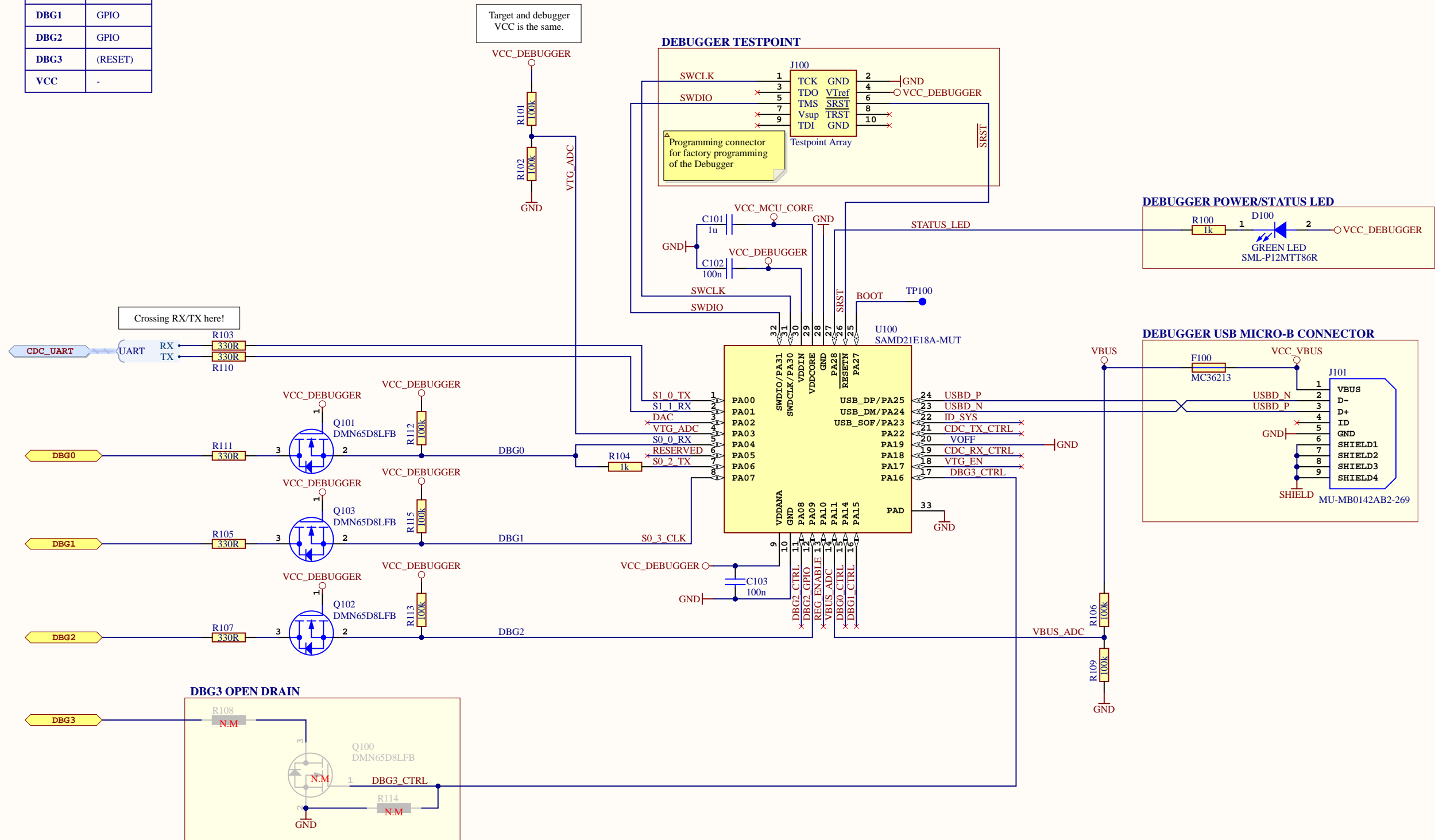
POWER





Drawn By: Microchip Norway		
Engineer: TF		
Project Title AVR-BLE	<i>Designed with</i> Altium Altium.com	
Sheet Title Power		
Size A3	PCB Assembly Number: A09-3314	PCBA Revision: 3
	PCB Number: A08-3038	PCB Revision: 2
File: AVR-BLE_Power.SchDoc		Date: 1/14/2020
		Page: 3 of 5

Interface Signal	UPDI TARGET
CDC TX	UART RX
CDC RX	UART TX
DBG0	UPDI
DBG1	GPIO
DBG2	GPIO
DBG3	(RESET)
VCC	-

DEBUGGER



Drawn By: Microchip Norway		
Engineer: TF		
Project Title AVR-BLE	Designed with 	
Sheet Title Debugger	Altium.com	
Size A3	PCB Assembly Number: A09-3314	PCBA Revision: 3
	PCB Number: A08-3038	PCB Revision: 2
File: AVR-BLE_Debugger.SchDoc	Date: 1/14/2020	Page: 4 of 5

Revision History

PCB Assembly Rev 1:

Design Changes:

Initial Design

PCB:

PCB revision 1

PCB Assembly Rev 2:

Design Changes:

- Removed 100nF cap on RESET for U100: SAMD21
- Added 100k pull-down on gate on Q100
- Added Level-shifter on DBG0 (UPDI) to prevent leakage from VCC_TARGET
- Added Level-shifter on DBG1 (UPDI) to prevent leakage from VCC_TARGET
- Added Level-shifter on DBG2 (UPDI) to prevent leakage from VCC_TARGET
- Added 0-ohm resistors on UART lines to RN4870 module
- Added footprint for MCP111T-195 on reset line to RN4870 module
- Added missing decoupling on AVDD on target MCU.
- Removed vias in center pad in target MCU footprint

PCB:

PCB revision 2


PCB Assembly Rev 3:

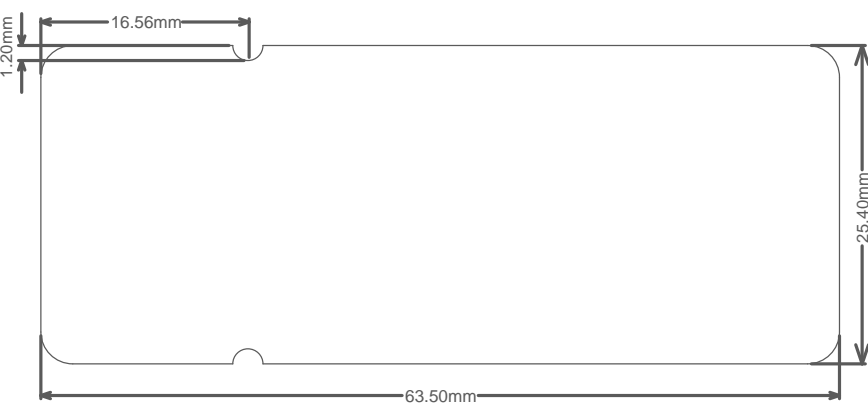
Design Changes:

- Changed RN4870 to rev 1.40
- Renamed PD2_BLE_RX_INT to PD2_BLE_RX_IND

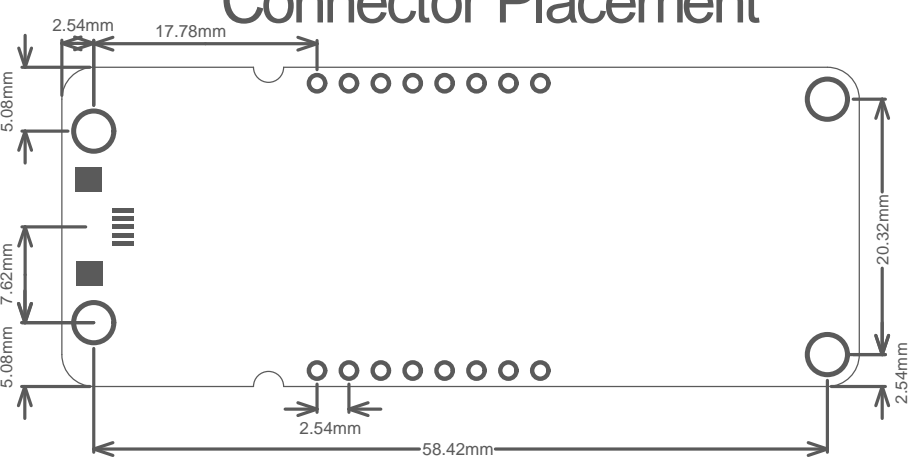
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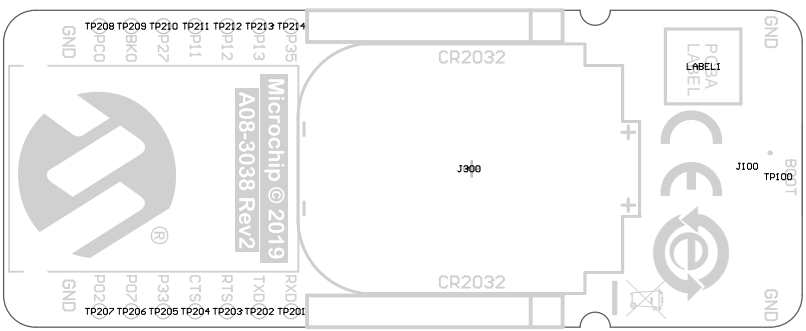
PCB revision 2

Drawn By: Microchip Norway			
Engineer: TF			
Project Title AVR-BLE	<i>Designed with</i> Altium Altium.com		
Sheet Title Revision History			
Size A3	PCB Assembly Number: A09-3314	PCBA Revision: 3	Date: 1/14/2020
	PCB Number: A08-3038	PCB Revision: 2	Page: 5 of 5
File: AVR-BLE_Revision_History.SchDoc			

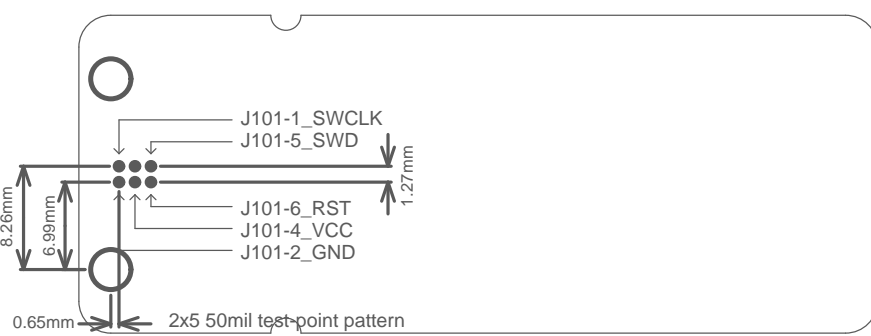


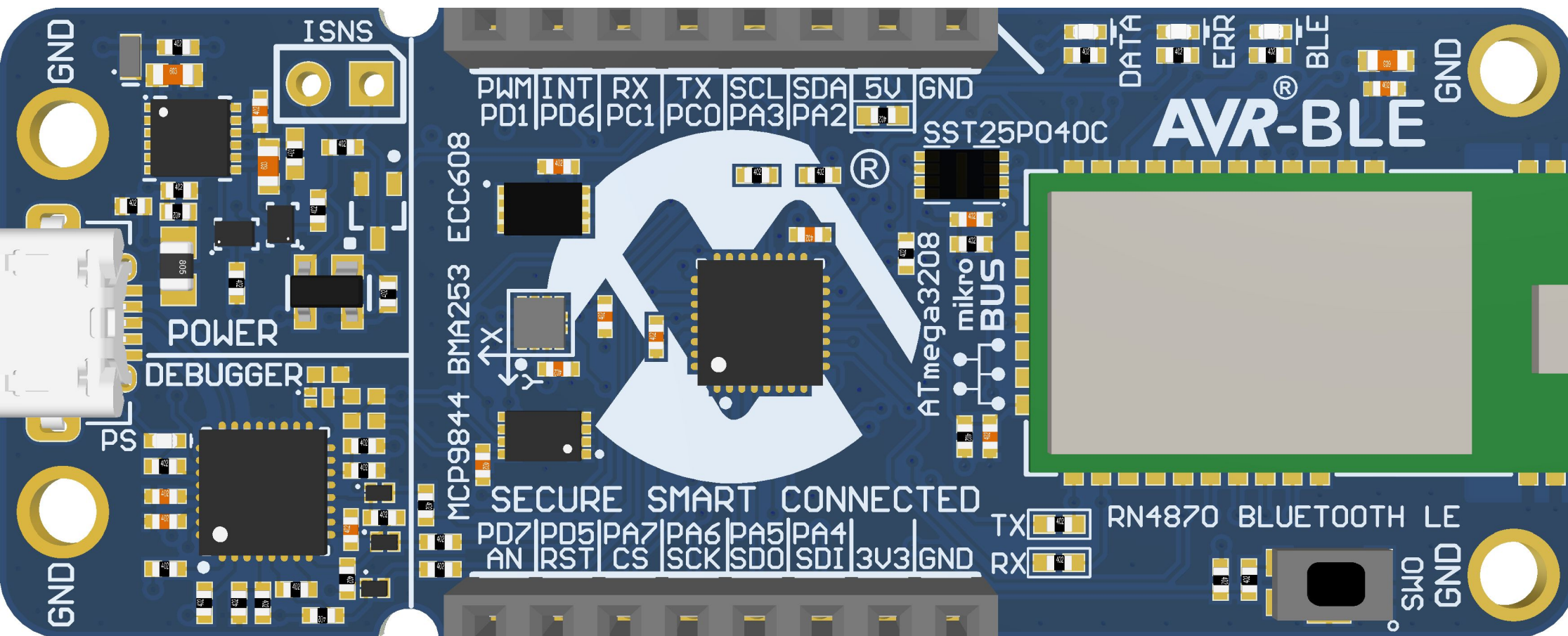
Connector Placement

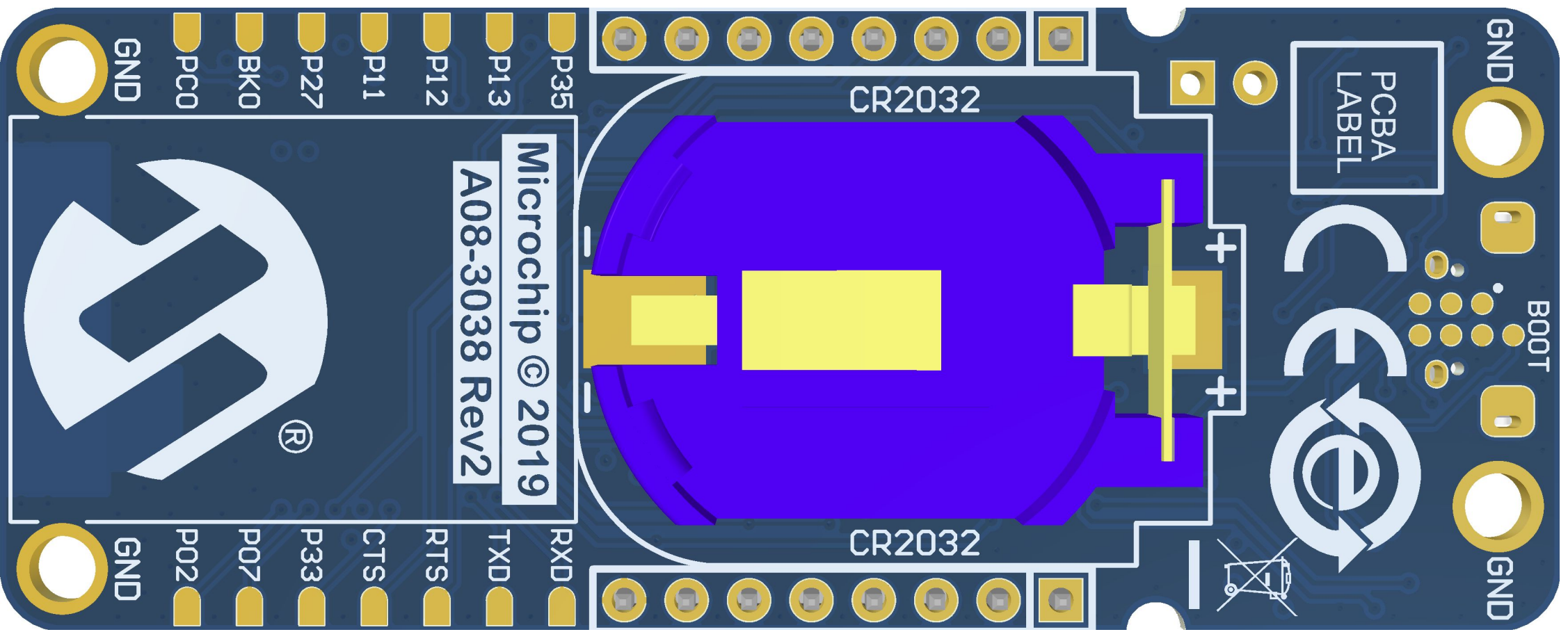


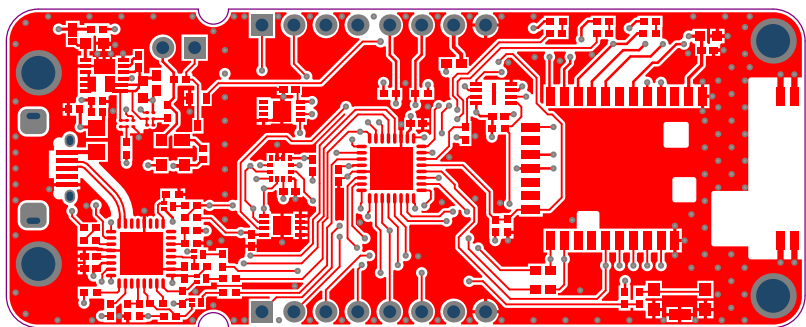


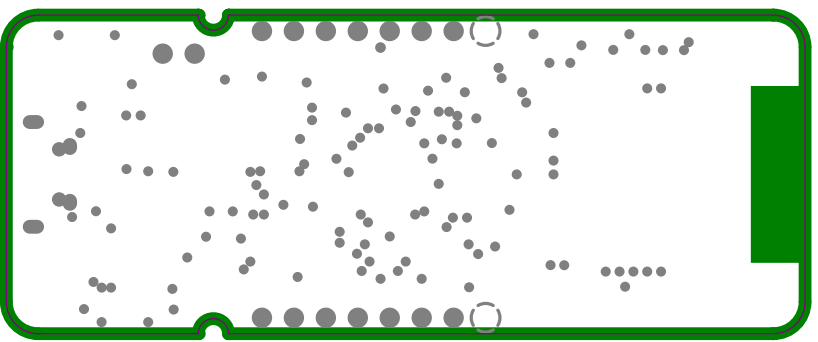
Test Point Placement

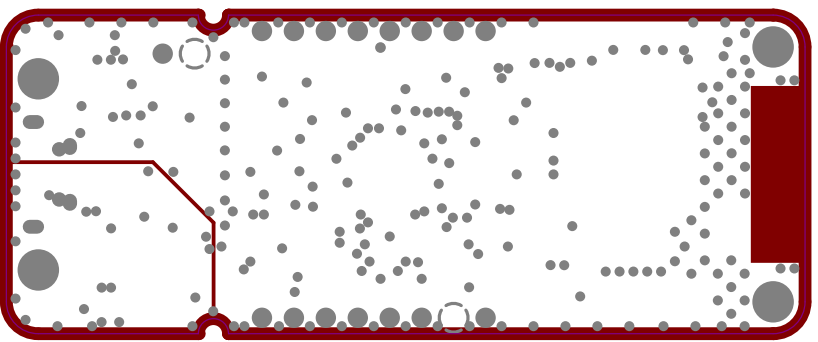


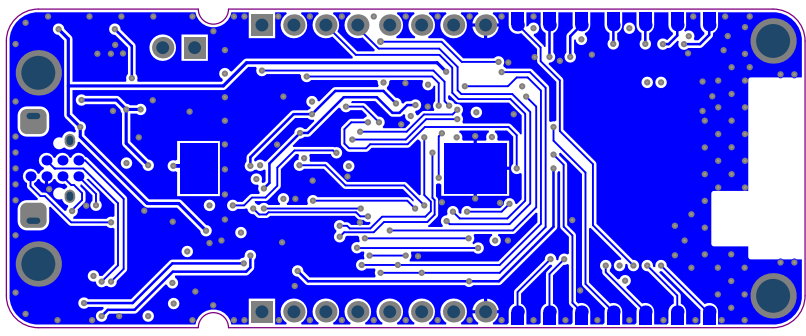












Component list

Bill of Materials Fitted for Variant [Default Assembly] of Project [AVR-BLE.PrjPcb] (No PCB Document Selected)

Source Data From: AVR-BLE.PrjPcb
 Project: AVR-BLE.PrjPcb
 Variant: Default Assembly



Report Date: 1/14/2020 12:27 PM
 Print Date:

Fitted	Designator	Quantity	Value	Manufacturer	MPN	Description
Fitted	C101	1	1u	Kemet	C0402C105K9PAC	Ceramic capacitor, SMD 0402, X5R, 6.3V, +/-10% (de26942)
Fitted	C102, C103, C200, C204, C205, C206, C207, C208, C209	9	100n	Kemet	C0402C104K4RACTU	Ceramic capacitor, SMD 0402, X7R, 16V, +/-10%
Fitted	C201	1	10nF	Murata	GRM155R71E103KA01D	Ceramic capacitor, SMD 0402, X7R, 25V, 10%
Fitted	C202, C302	2	10uF10V	AVX	0603ZD106MA1ZA	Ceramic capacitor, SMD 0603, X5R, 10V, 10UF A± 20%
Fitted	C203	1	1uF	AVX	0402ZD105KAT2A	Ceramic capacitor, SMD 0402, X5R, 10V, ±10 %
Fitted	C300	1	4.7uF	WALSIN Technology Corporation	0603X475K100CT	Ceramic capacitor, SMD 0603, X5R, 10V, 10% (de31036)
Fitted	C301	1	560p			Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%
Fitted	D100, D200	2	GREEN LED	ROHM	SML-P12MT86R	LED, SMD 0402, Green, Wave length=569nm, 2.1mcd @ (1mA, 1.9V)rohm
Fitted	D201	1	RED LED	ROHM	SML-P12VT86R	LED, SMD 0402, Red, Wave length=630nm, 2.1mcd @ (1mA, 1.7V)rohm
Fitted	D202	1	BLUE LED	ROHM	SMLP13BC8T86	LED, SMD 0402, Blue, Wave length=470nm, 25mcd @ (5mA, 2.9V)rohm
Fitted	D300	1	NSR20F30NXT5G	ON Semiconductor	NSR20F30NXT5G	NSR20F30NXT5G Schottky Diode, Icontinuous = 2.0A, Vdrop = 0.48V @ 2A, 0603 package
Fitted	F100	1	MC36213	Multicomp	MC36213	Resettable PTC fuse, Ih = 0.5A, It = 1.0A, 0805 package
Fitted	FW1	1	nEDBG firmware			nEDBG firmware
Fitted	J101	1	MJ-MB0142AB2-269	Allen Creations Corp.	MJ-MB0142AB2-269	USB micro AB, Surface mount signals and DIP shield
Fitted	J200, J201	2	2185-108SS0CYNP1	WCCON	2185-108SS0CYNP1	1x8 receptacle pin header, 2.54mm pitch THM, PIP
Fitted	J300	1	CH7410-2032LF	Multicomp	CH7410-2032LF	Battery Holder, SMT, 20 mm
Fitted	LABEL1	1	Label PCB A Small 6x6mm	ACT Logimark AS	505462	PCBA identification label PP Top White Gloss
Fitted	M200	1	RN4870-V/RM140	Microchip	RN4870-V/RM140	Bluetooth LE Module
Fitted	PCB1	1	AVR-BLE PCB Documentation			AVR-BLE PCB Documentation
Fitted	PCBADOC1	1	AVR-BLE PCB Documentation			AVR-BLE PCB Documentation
Fitted	Q101, Q102, Q103	3	DMN65D8LFB	Diodes Incorporated	DMN65D8LFB-7	N-channel MOSFET, DFN1006-3 (SOT883), 60V, 330mA, 4Ohm
Fitted	Q300	1	MC94050	Microchip	MC94050YM4-TR	MC94050 4-terminal P-channel MOSFET with separate substrate pin
Fitted	R100, R104, R208, R209, R210, R306, R308	7	1k	ASJ Holdings	CR10-1001-FK	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R101, R102, R106, R109, R112, R113, R115, R201, R305	9	100k	ASJ Holdings	CR10-1003-FK	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R103, R105, R107, R110, R111, R207	6	330R	Yageo	RC0402FR-07330RL	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R202, R211, R212	3	10k	Yageo	RC0402FR-0710KL	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R203, R206, R213, R301, R303, R304	6	0R	(n/a)	RMCF0402Z10R00	RES 0.0 OHM 1/16W 0402 SMD
Fitted	R204, R205	2	4.7k	Yageo	RC0402FR-074K7L	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R300	1	2M	Yageo	RC0402FR-072ML	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R302	1	5.6k	Yageo	RC0402FR-075K6L	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R307	1	2.2k	ASJ Holdings	CR10-2201-FK	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	SW200	1	KMR221G	ITT Corporation	KMR221G	Microminiature Tact Switch for SMT
Fitted	TEST1	1	AVR-BLE TEST			Fixture Test for AVR-BLE
Fitted	TESTDOC1	1	AVR-BLE TEST Instructions			AVR-BLE TEST Instructions
Fitted	U100	1	SAMD21E18A-MUT	Microchip	ATSAMD21E18A-MUT	Atmel 32-bit RISC MCU 32pin
Fitted	U200	1	ATmega3208-MFR	Microchip	ATmega3208-MFR	MCHP MCU 8-Bit 20MHz 32k FLASH VQFN-32
Fitted	U201	1	ATECC608A I2C (Google Cloud)	Microchip	ATECC608A-MAH1H-S	ATECC608A with an I2C interface and a 8 Pin UDFN
Fitted	U202	1	MCP9844	Microchip	MCP9844T-BEMNY	±1°C Maximum Accuracy Digital Temperature Sensor, I2C/SMBus, 1.7V - 3.6V, 8DFN 2x3mm
Fitted	U203	1	BMA253	Bosch Sensortec	BMA253	Digital, triaxial acceleration sensor, LGA12 2x2x1.0mm
Fitted	U204	1	SST25FF040CT-40WNP	Microchip	SST25FF040CT-40WNP	4mB 512K X 8 SPI Serial Flash 2.3-3.6V USON-8 2X3mm
Fitted	U300, U302	2	MC94165	Microchip	MC94165YCS-TR	Loadswitch, Rds(on) = 14.5mohm, 1.0mm x 1.5mm WLCSP, reverse blocking, 2.7ms Soft Start
Fitted	U301	1	MC33050-SYHL	Microchip	MC33050-SYHL-TR	3.3V Fixed, 4MHz, 600mA, Buck regulator with internal inductor with HyperLight Load
Not Fitted	J301	0	1125-1102S0S113R1	WCCON	1125-1102S0S113R1	1x2 pin header, 2.54mm pitch, Pin-in-Paste THM
Not Fitted	Q100	0	DMN65D8LFB	Diodes Incorporated	DMN65D8LFB-7	N-channel MOSFET, DFN1006-3 (SOT883), 60V, 330mA, 4Ohm
Not Fitted	R114	0	100k	ASJ Holdings	CR10-1003-FK	Thick film resistor, SMD 0402, 1/16W, 1%
Not Fitted	R200	0	10k	Yageo	RC0402FR-0710KL	Thick film resistor, SMD 0402, 1/16W, 1%
Not Fitted	U205	0	MCP111T-195	Microchip	MCP111T-195/LB	Micropower Voltage Detector/Supervisor, SC-70, 3-pin, Vtrip=1.90V

Approved 83 Notes

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