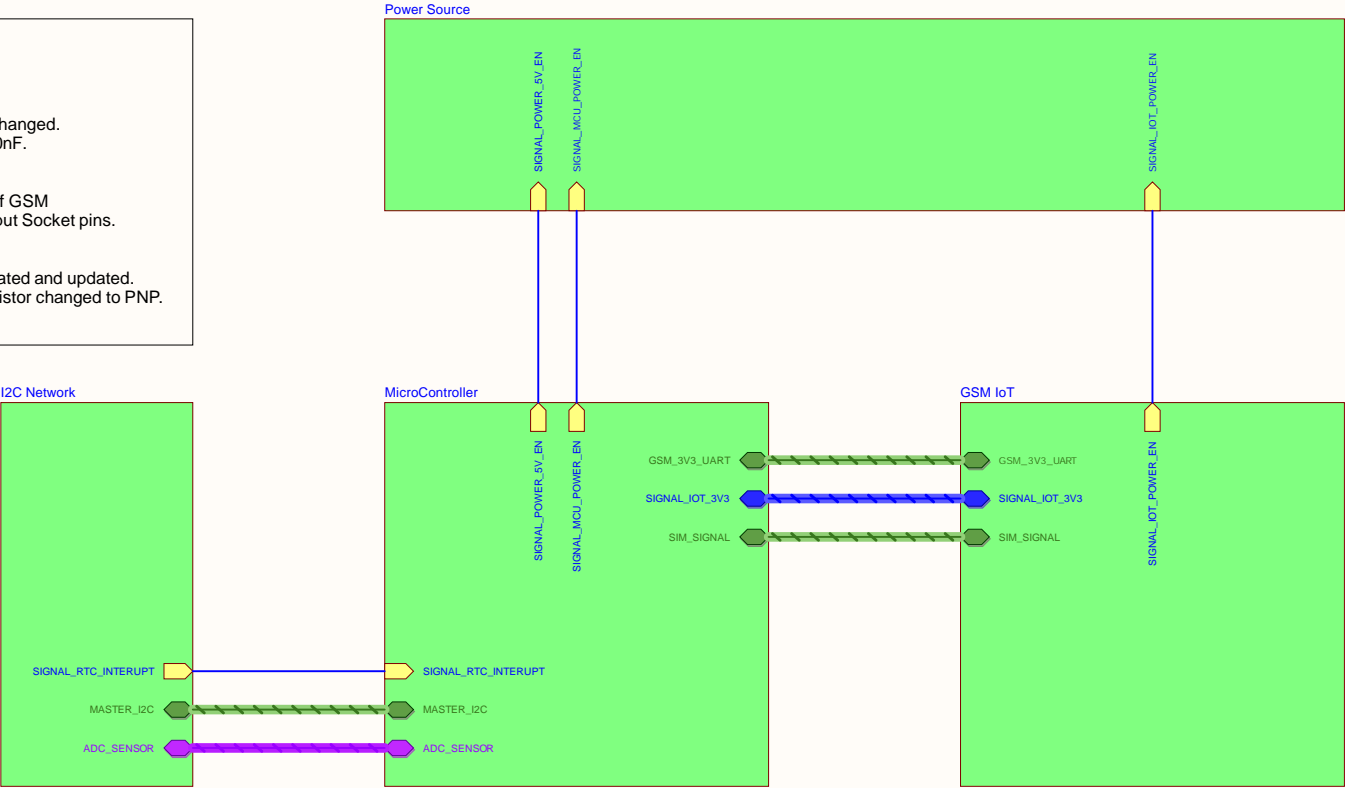


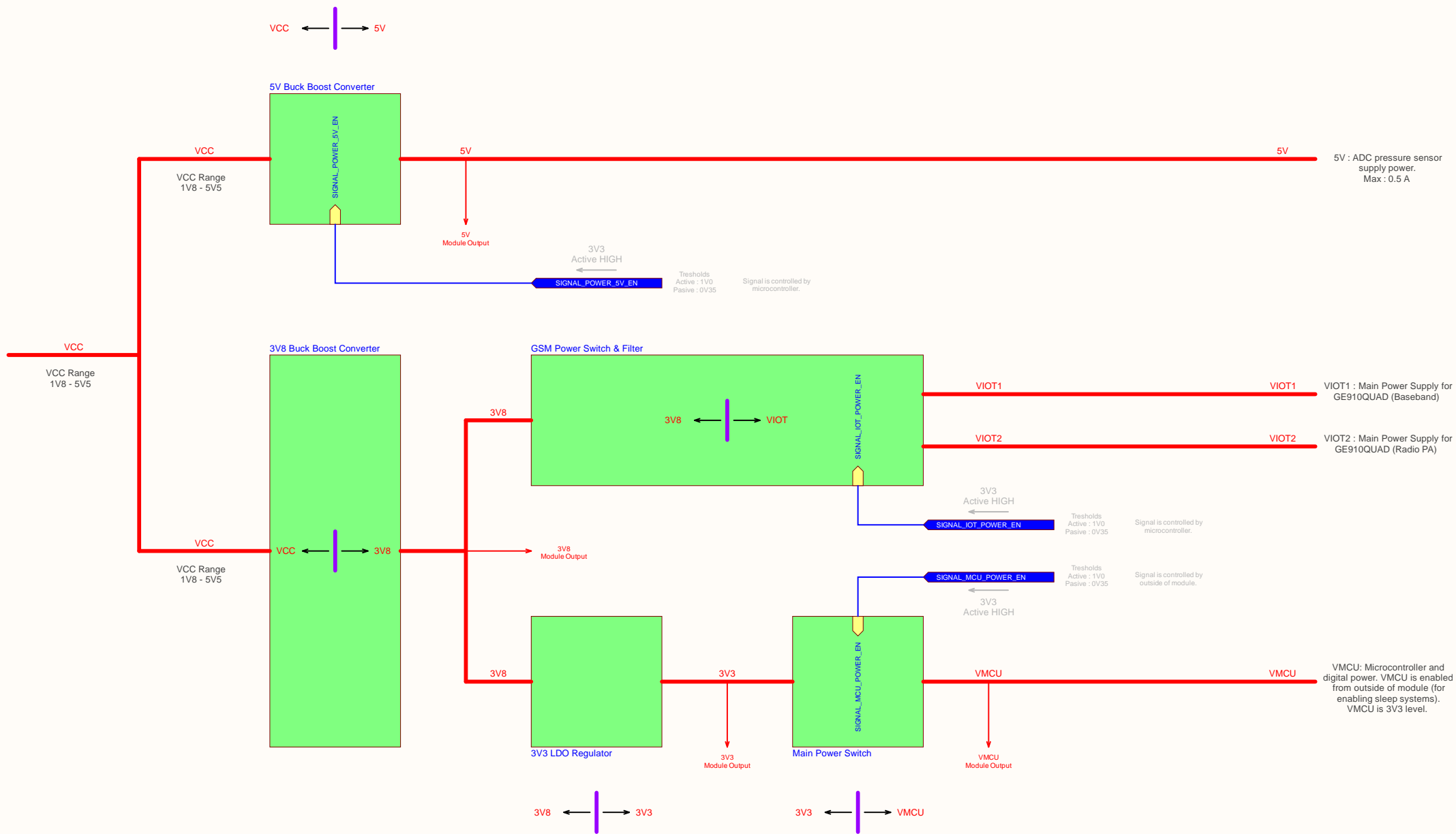
B100 - Master IoT MicroController

Revision History

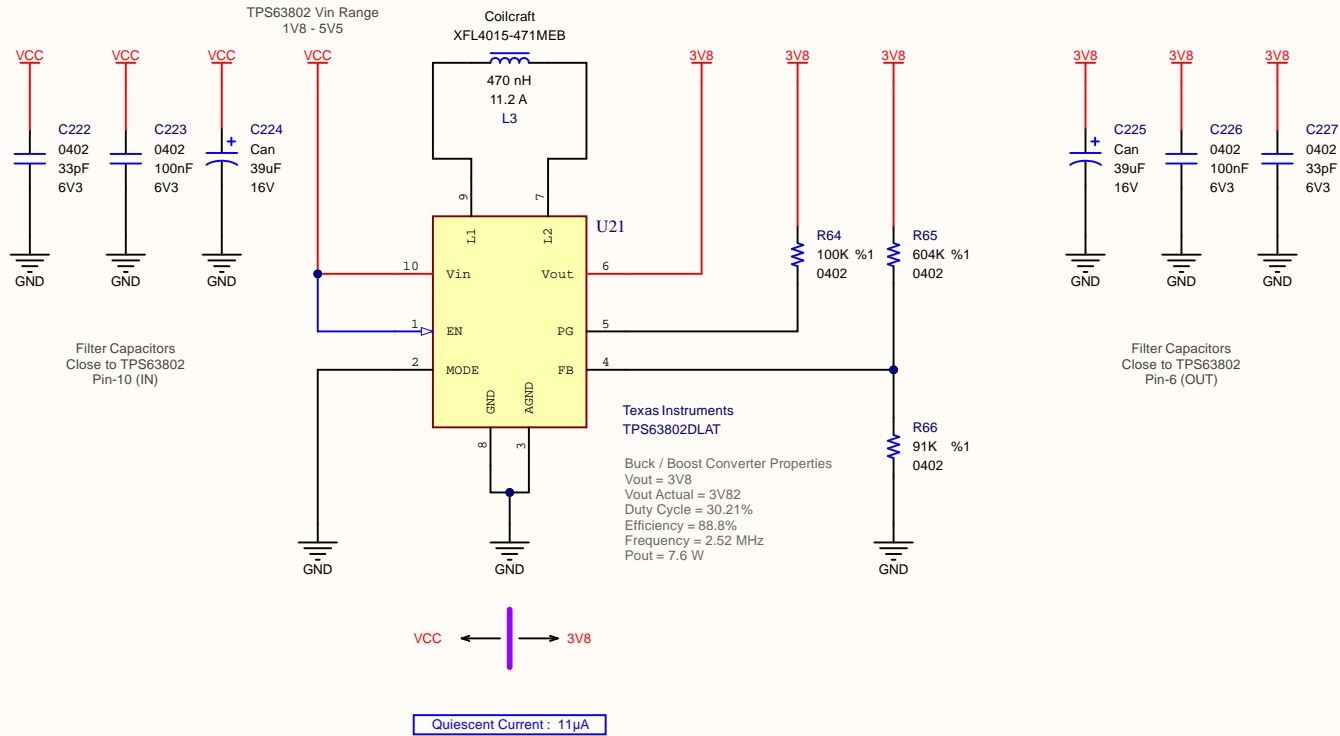
- AA001 (05.01.2021)
* Schematic creation.
- AA002 (11.01.2021)
* Bidirectional signal translator IC changed.
* SIM Vcc capacitor changed to 100nF.
- AA003 (19.01.2021)
* 33 pF capacitor added to VAUX of GSM
* 33 pF capacitors added to all Output Socket pins.
- AA004 (22.01.2021)
* GSM IoT LED resistors are calculated and updated.
* GSM IoT LED power enable transistor changed to PNP.




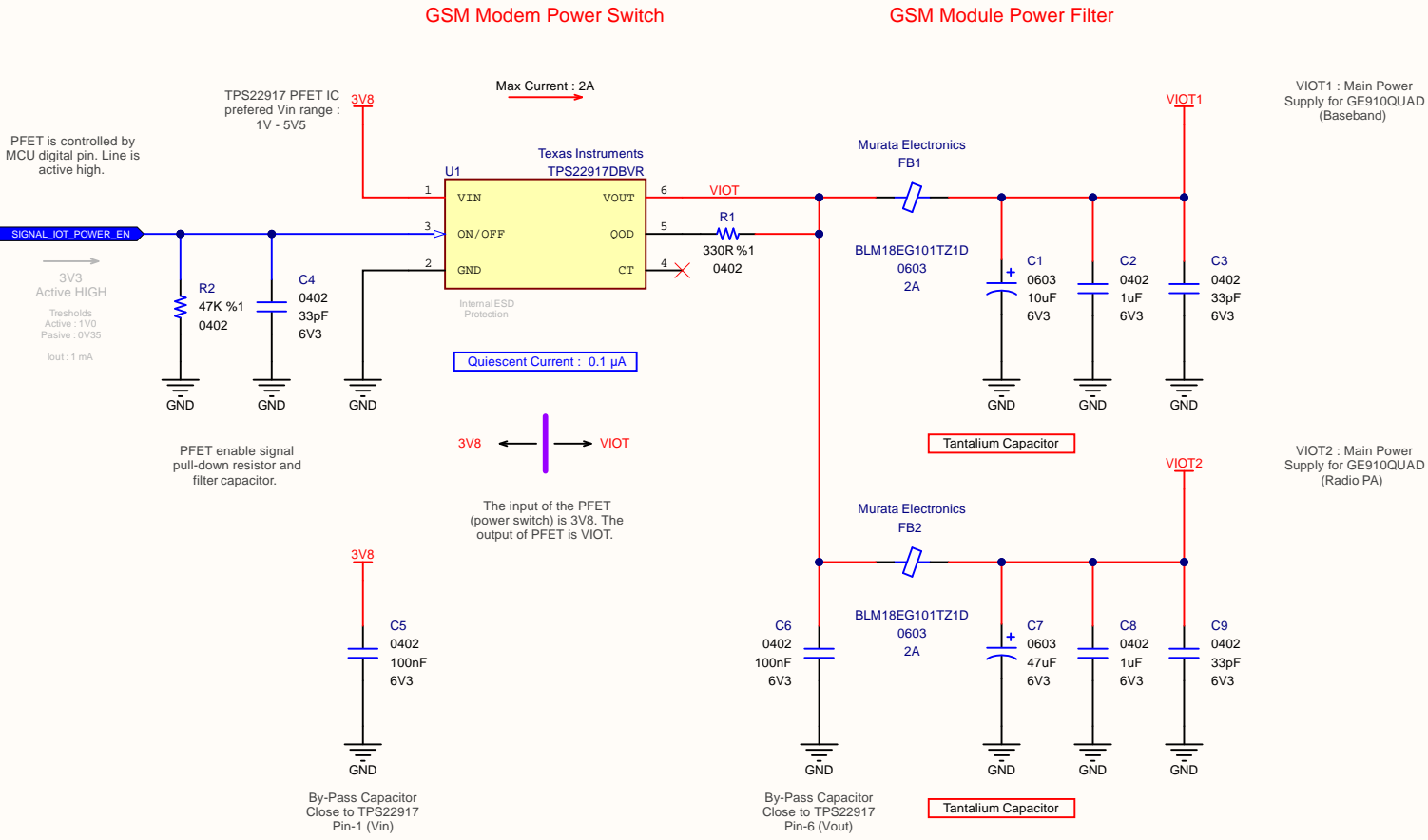
Power Archtechure



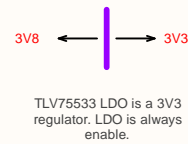
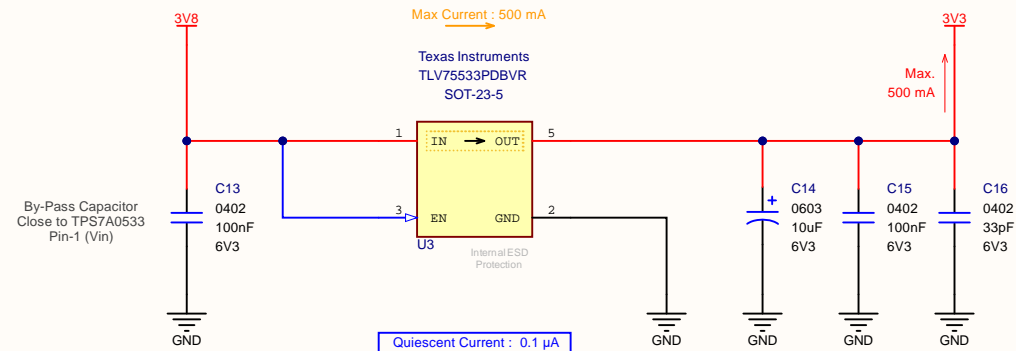
3V8 Buck Boost Converter




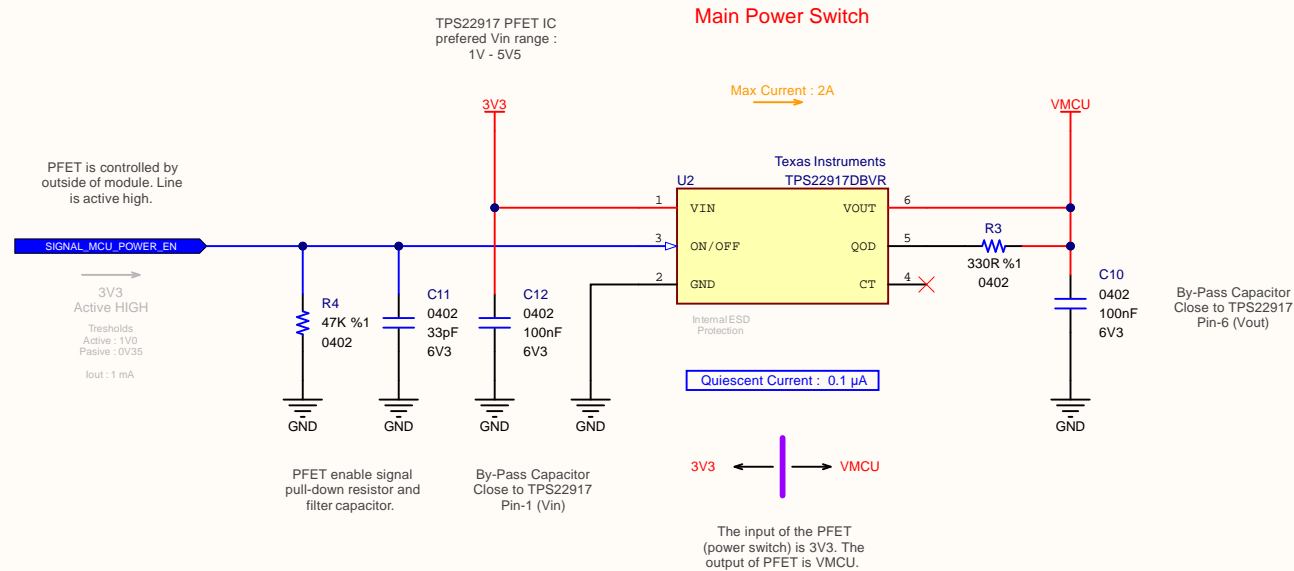
Title 3V8 DC/DC Buck Boost Converter			Ovoo Electronics		
Size: A4	Number: 3	Revision: B100AA R4	Necip Fazil Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 12.02.2021	Time: 15:07:57	Sheet 3 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\3V8 Buck Boost Converter.SchDoc					




3V3 LDO Regulator

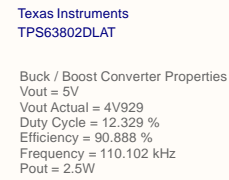



Title 3V3 LDO Regulator			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 5	Revision: B100AA R4			
Date: 12.02.2021	Time: 15:07:57	Sheet 5 of 54			
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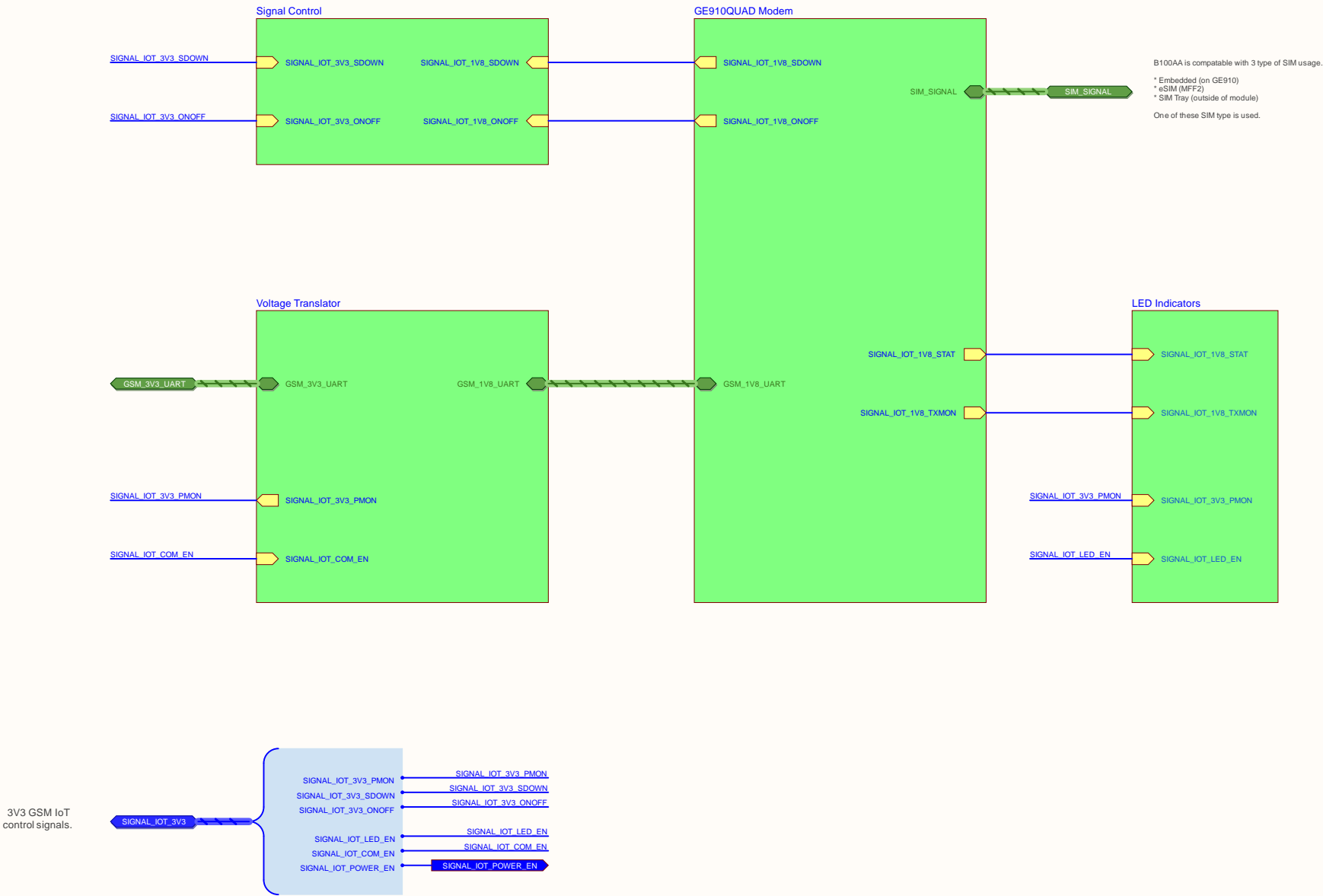
Title Main Power Switch			Ovoo Electronics Necip Fazıl Mah, Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 6	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:57	Sheet 6 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Main Power Switch.SchDoc				

VCC ← | → 5V

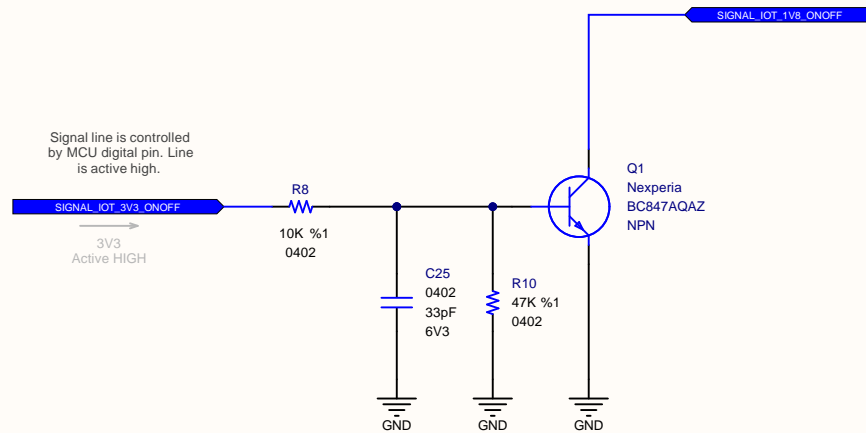


Title 5V DC/DC Buck Boost Converter			Ovoo Electronics Necip Fazıl Mah. Ofisarmak Sok. Bırgıl Apt. No: 19/B Meram / Konya Türkiye		
Date: A4	Number: 7	Revision: B100AA R4			
Date: 12.02.2021	Time: 15:07:57	Sheet 7 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\5V Buck Boost Converter.SchDoc					

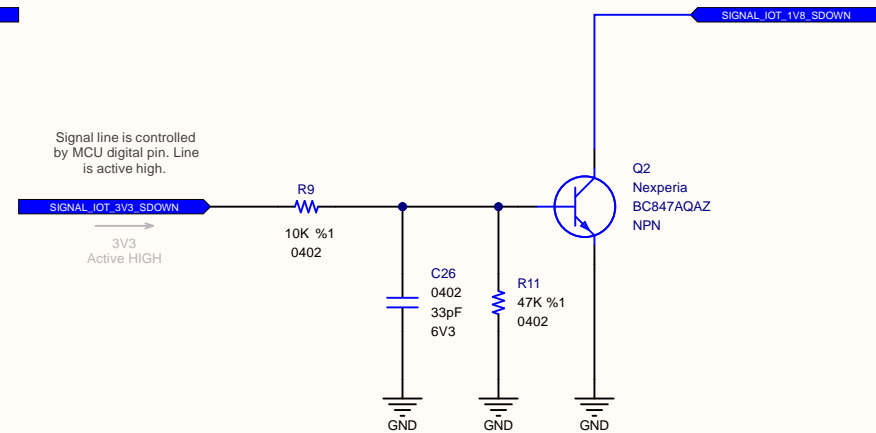
GSM IoT Communication Layer



GSM Module On/Off Signal



GSM Module Shut Down Signal



Title GSM Control Signal Management

Size: A4

Number: 10

Revision: B100AA R4

Date: 12.02.2021

Time: 15:07:57

Sheet 10 of 54

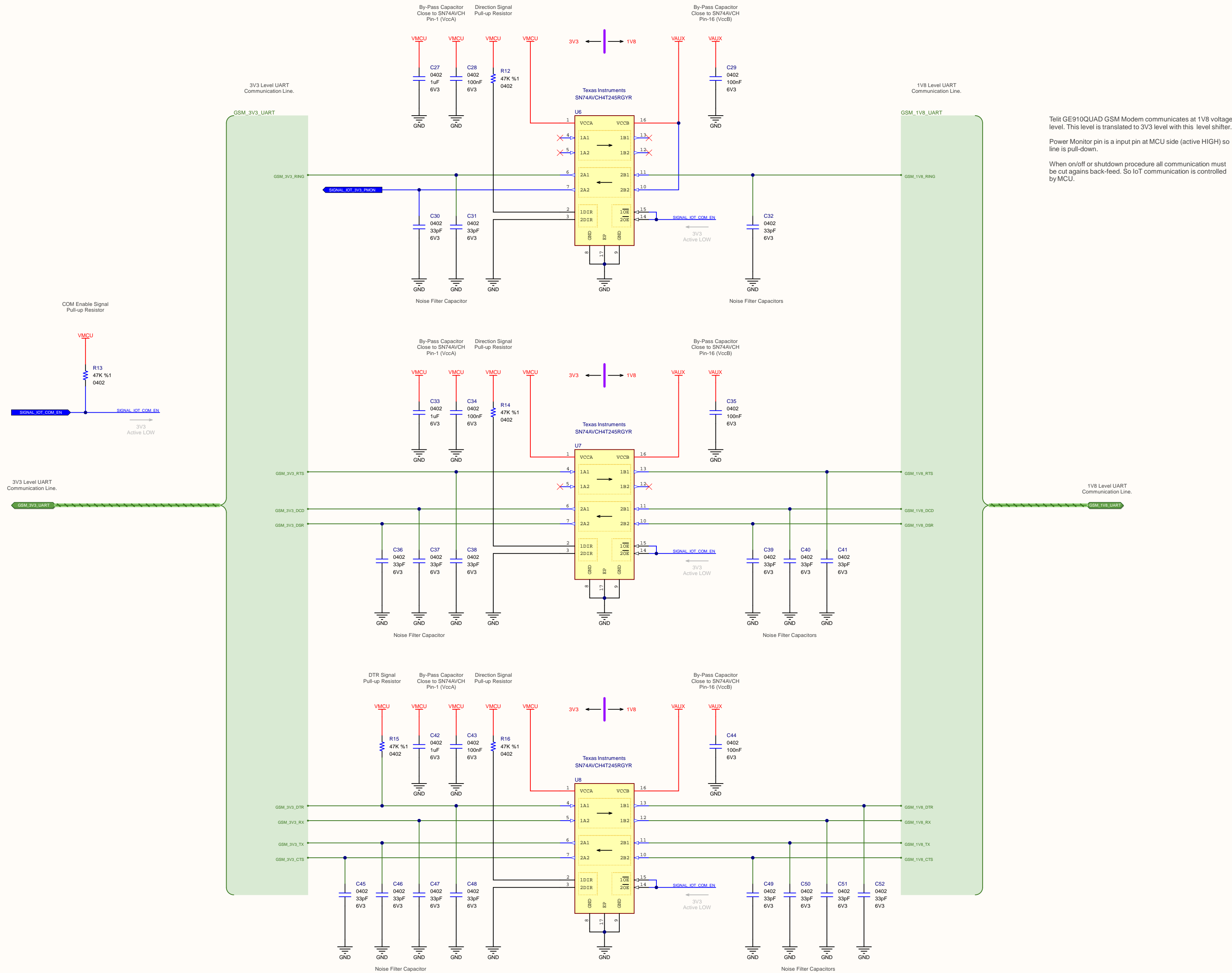
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\GSM Signal Control.SchDoc

Ovoo Electronics

Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye

OVOO

BiDirectional Level Shifter

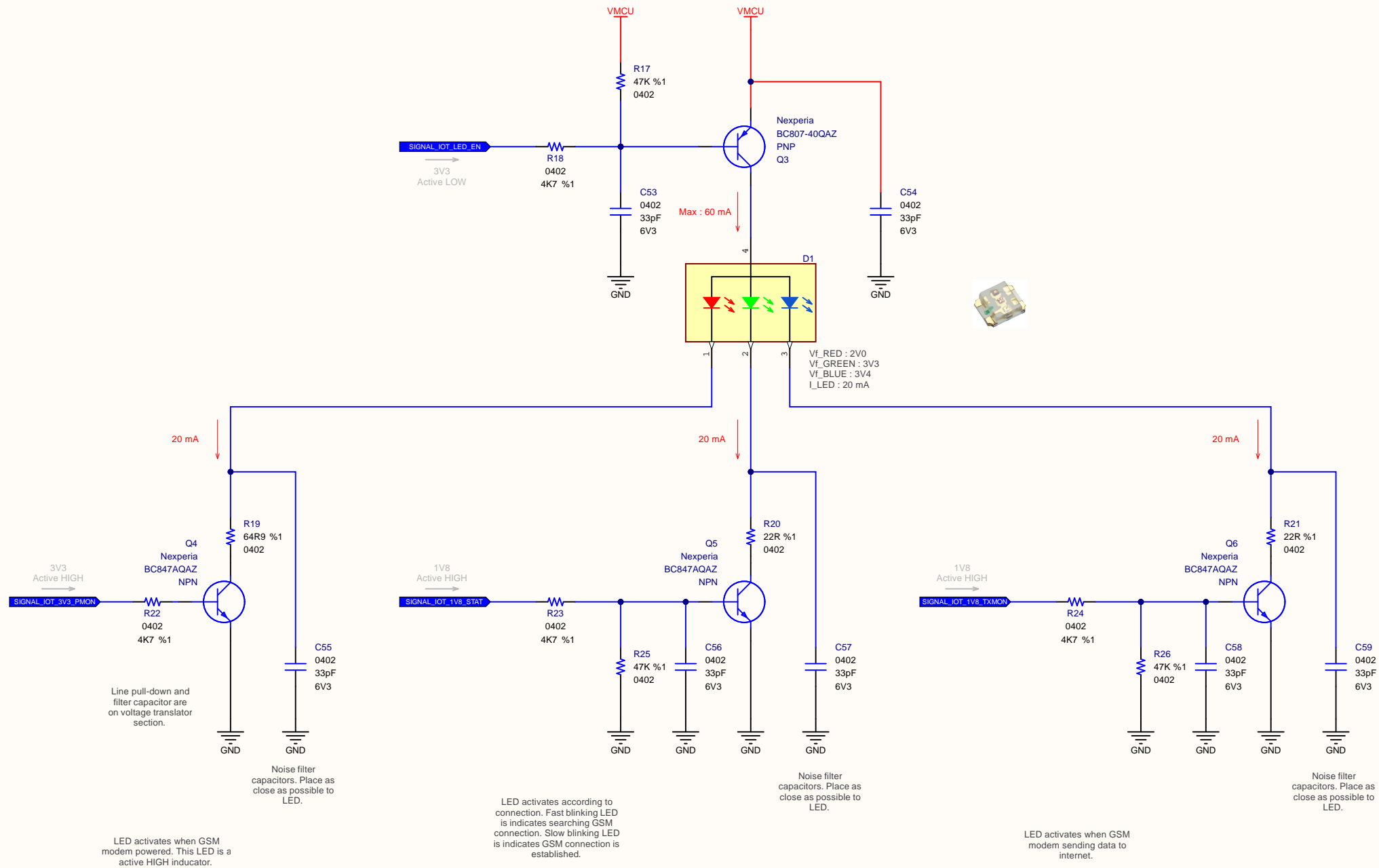


Telit GE910QUAD GSM Modem communicates at 1V8 voltage level. This level is translated to 3V3 level with this level shifter.

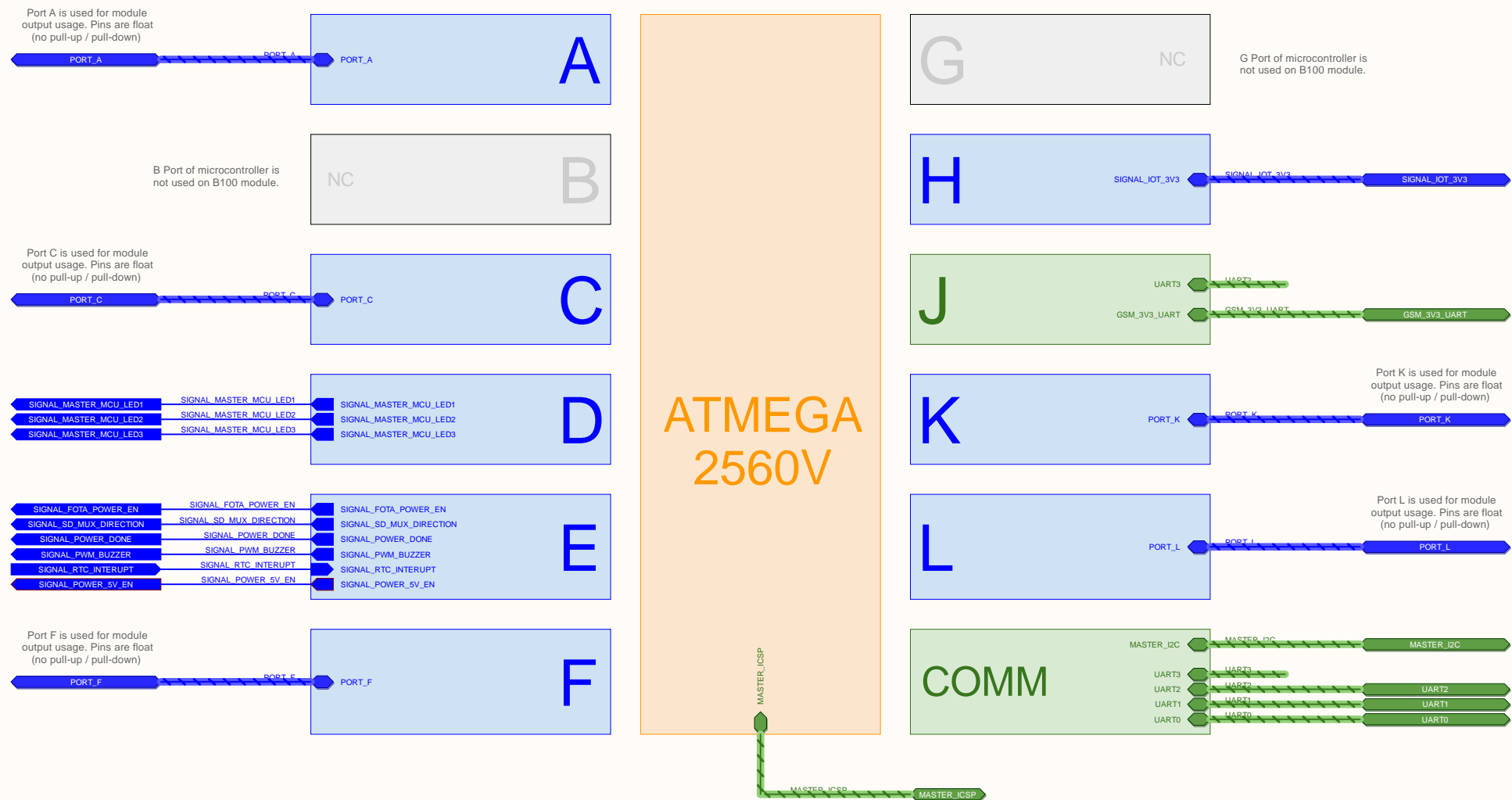
Power Monitor pin is a input pin at MCU side (active HIGH) so line is pull-down.

When on/off or shutdown procedure all communication must be cut agains back-feed. So IoT communication is controlled by MCU.

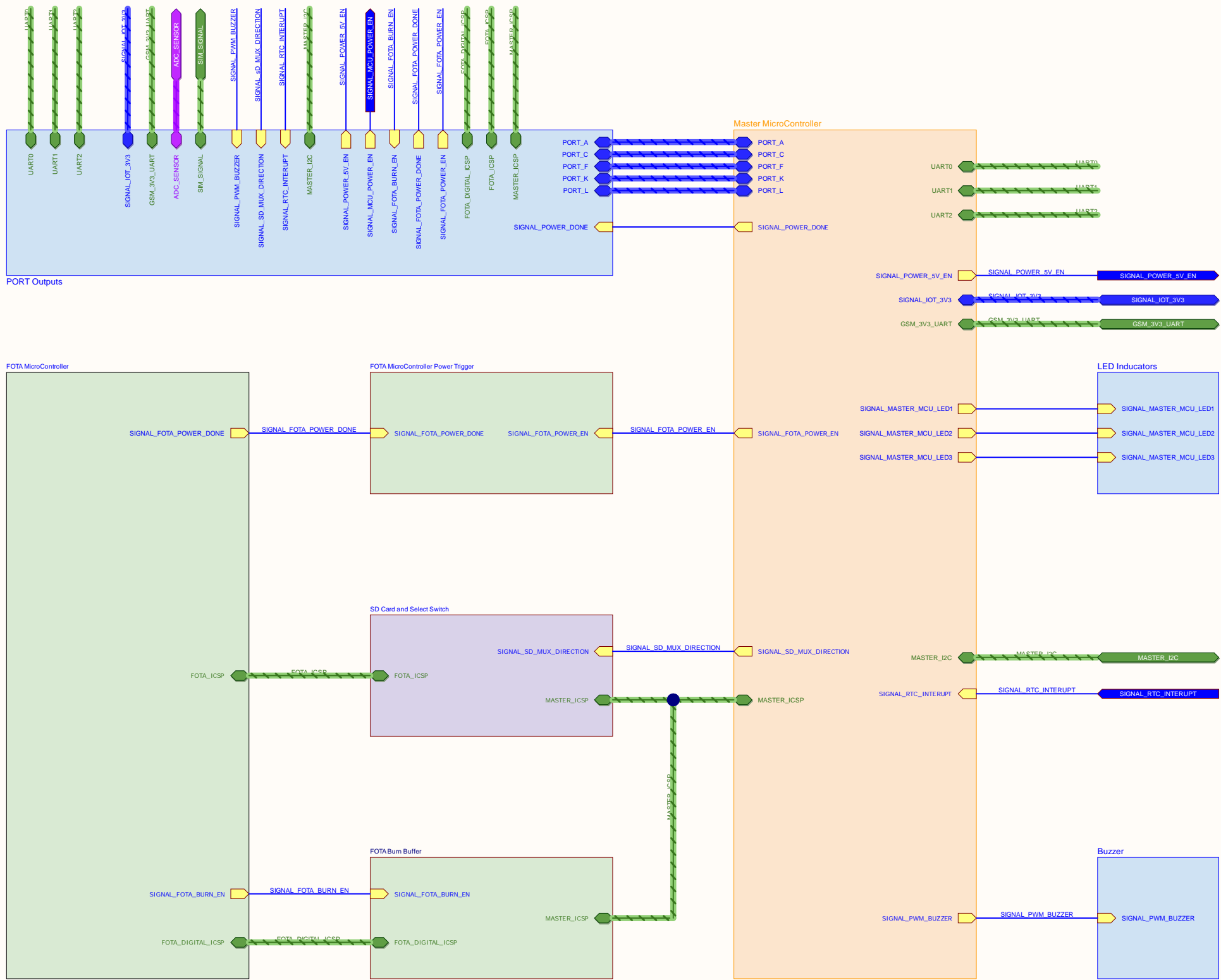
GSM IoT LED Indicators



Master MicroController

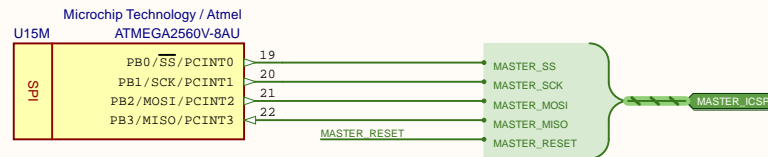
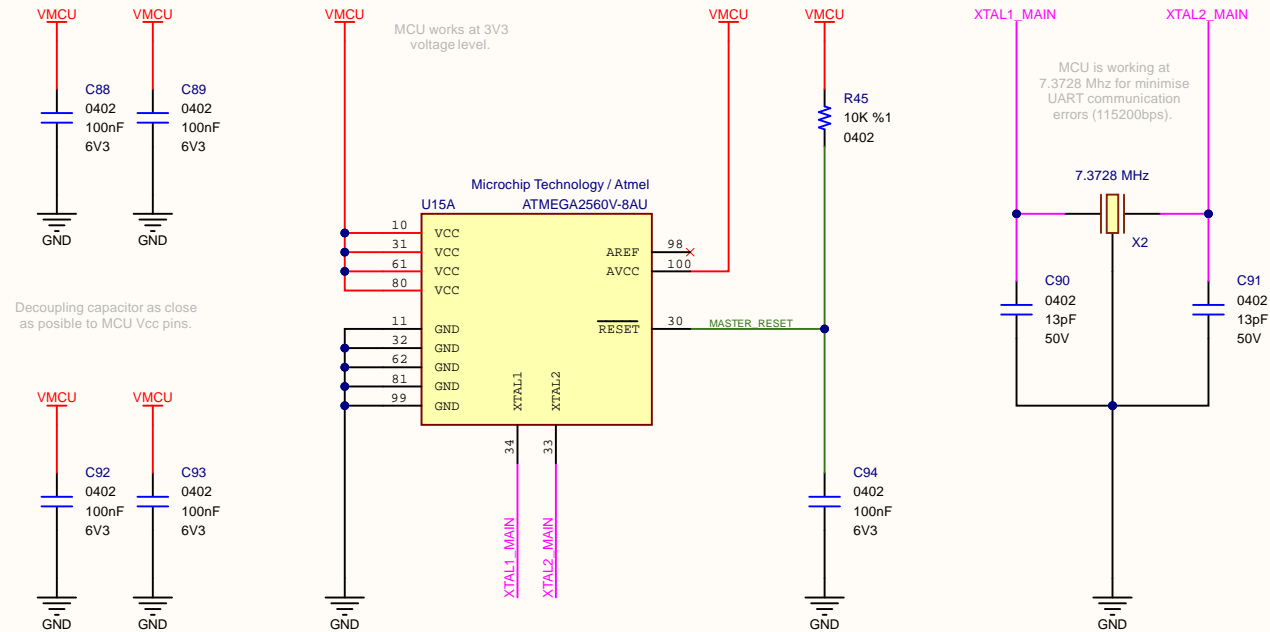


B100 MicroController




MicroController

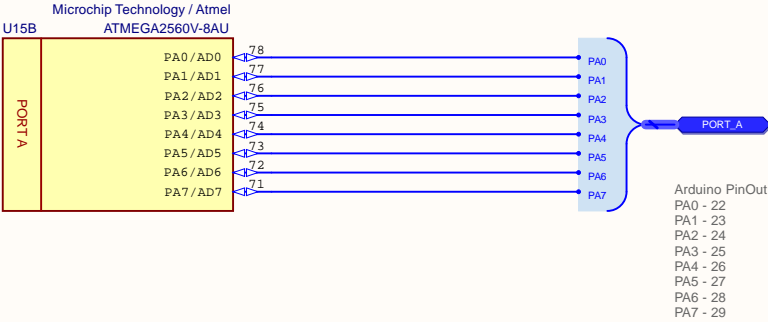
Crystal Oscillator

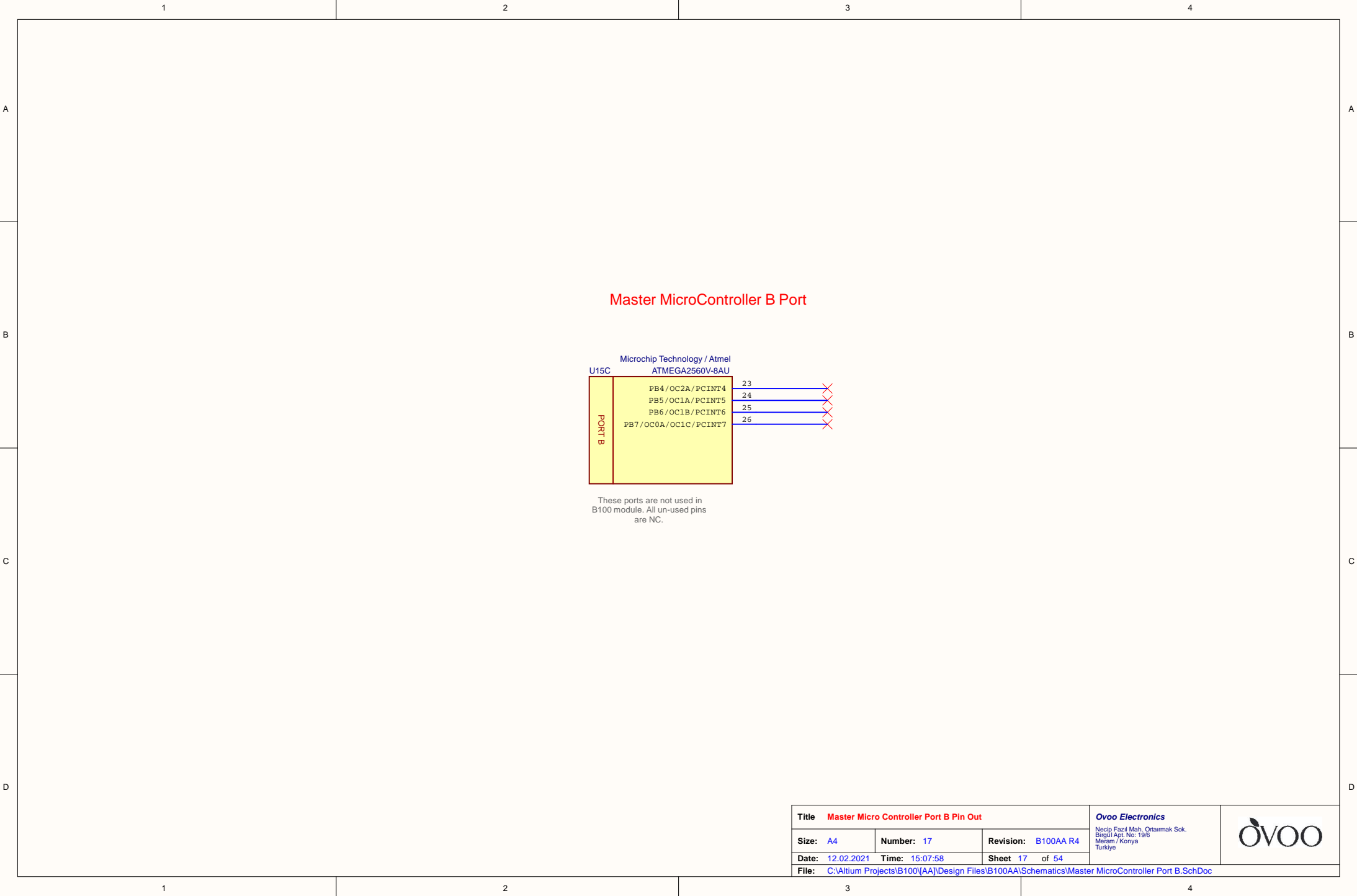


Master MicroController ICSP

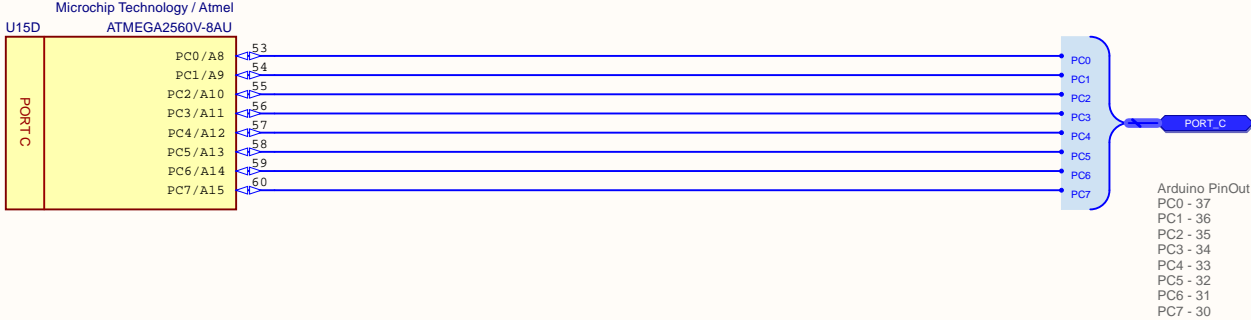
Title Master MicroController Core			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/B Meram / Konya Türkiye		
Size: A4	Number: 15	Revision: B100AA R4			
Date: 12.02.2021	Time: 15:07:58	Sheet 15 of 54			
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Master MicroController A Port

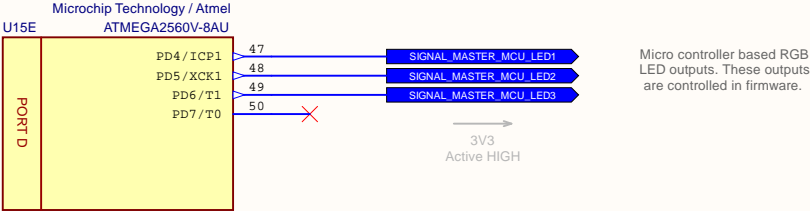





Master MicroController C Port



Master MicroController D Port



Title Master Micro Controller Port D Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 19	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:58	Sheet 19 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port D.SchDoc				

A

B

C

D

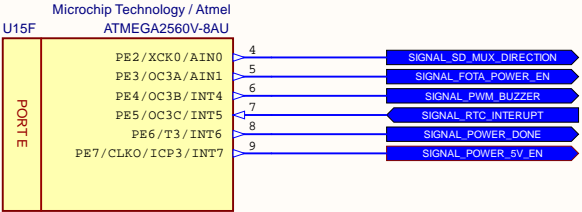
A


B

C

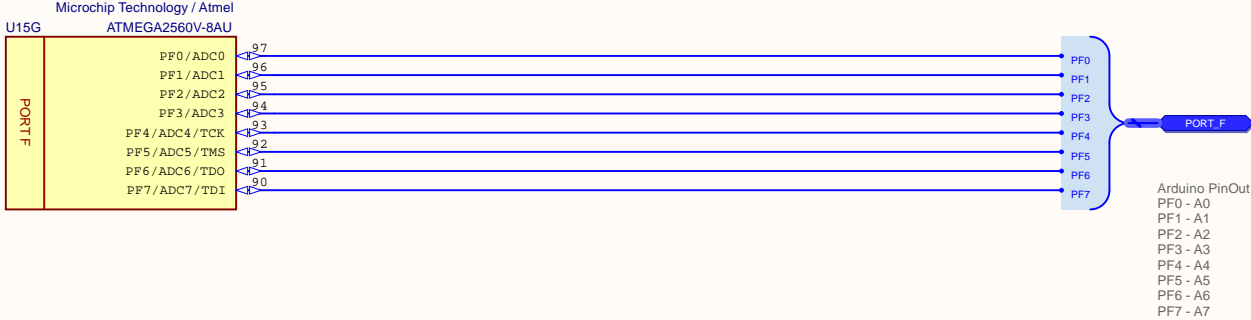
D

Master MicroController E Port

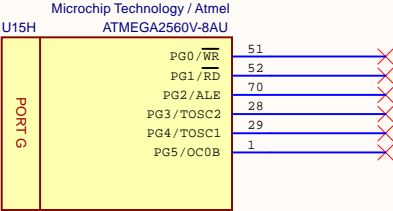


Title Master Micro Controller Port E Pin Out			<div>Ovoo Electronics</div> <div>Necip Fazıl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye</div> <div></div>
Size: A4	Number: 20	Revision: B100AA R4	
Date: 12.02.2021	Time: 15:07:58	Sheet 20 of 54	
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port E.SchDoc			


Master MicroController F Port



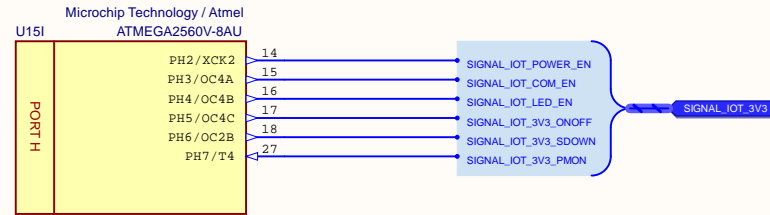
Master MicroController G Port




These ports are not used in B100 module. All un-used pins are NC.

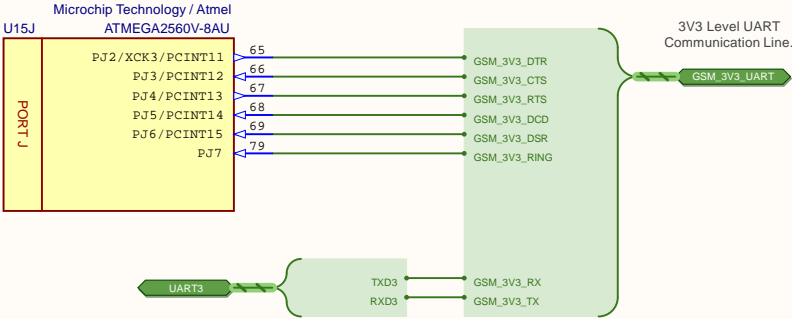
Title Master Micro Controller Port G Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 22	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:58	Sheet 22 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port G.SchDoc				


Master MicroController H Port



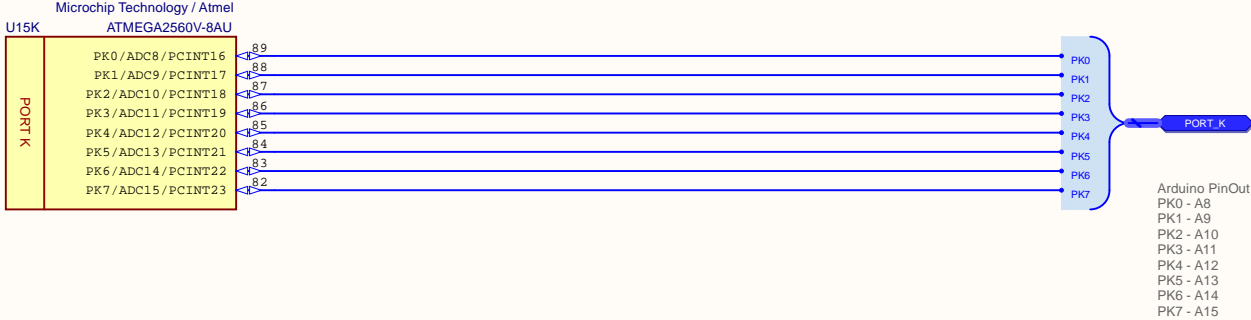
Title Master Micro Controller Port H Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 23	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:58	Sheet 23 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port H.SchDoc				

GSM IoT Communication Pins

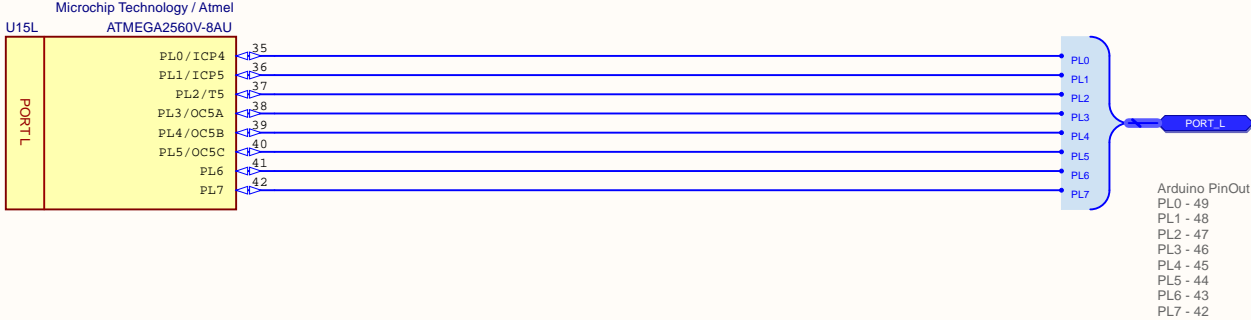


Title Master Micro Controller Port J Pin Out			Ovoo Electronics Necip Fazıl Mah, Ortairmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 24	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:58	Sheet 24 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port J.SchDoc				

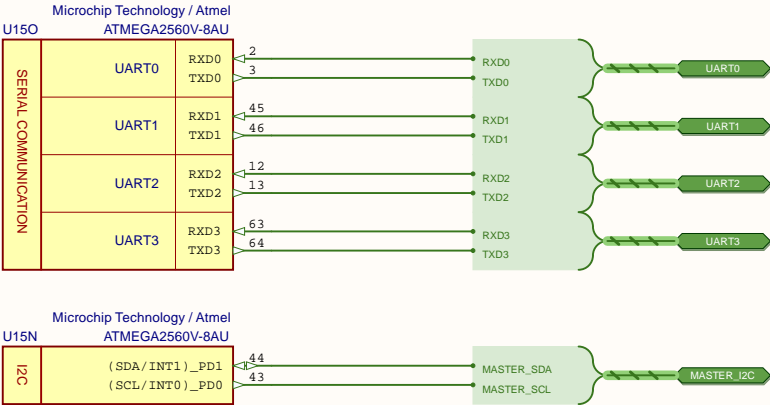
Master MicroController K Port



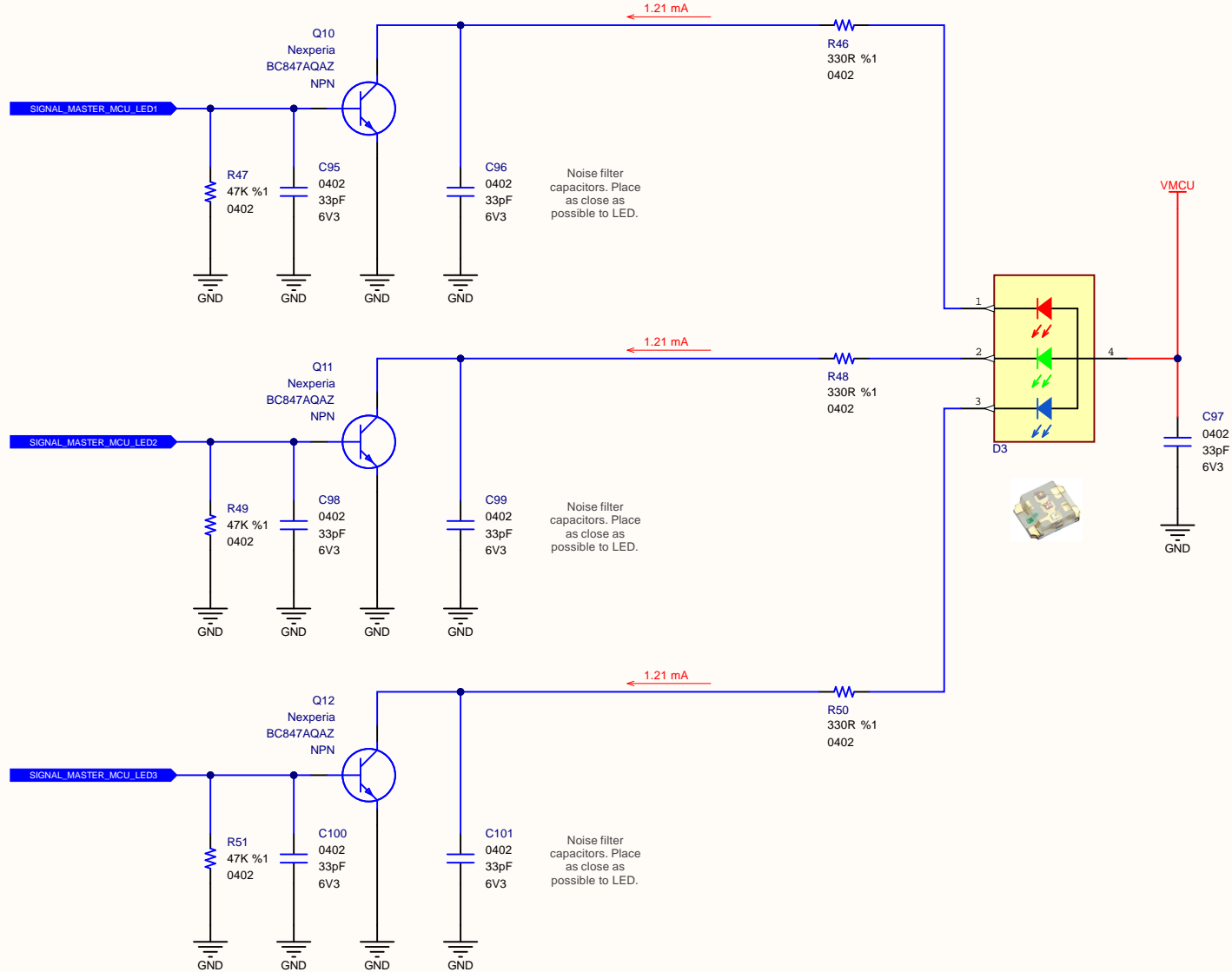
Master MicroController L Port




Communication Ports



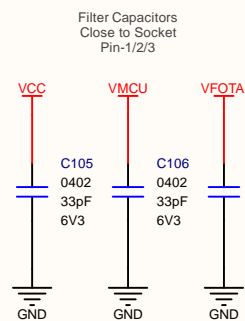
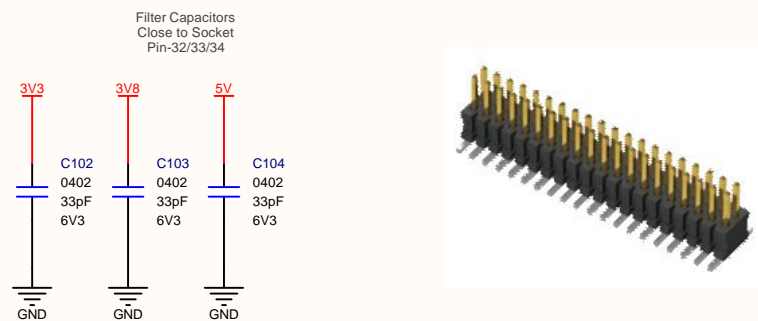
Main Microcontroller Status LED Indicators



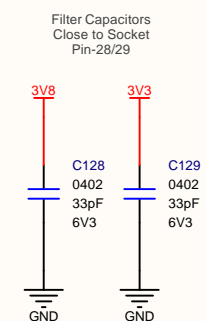
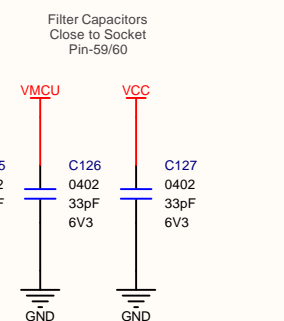
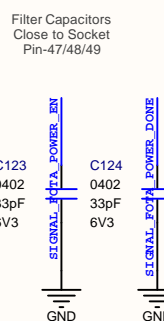
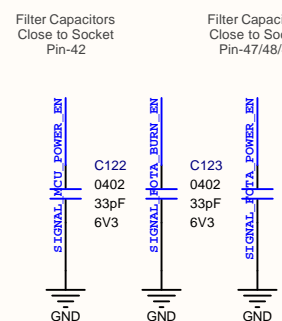
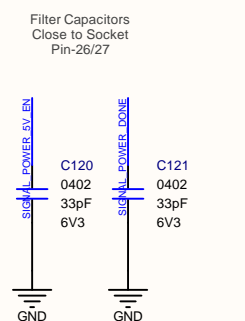
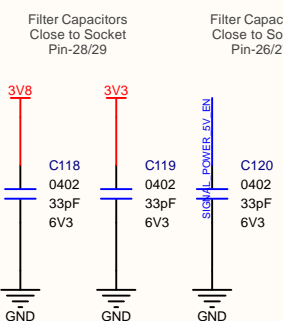
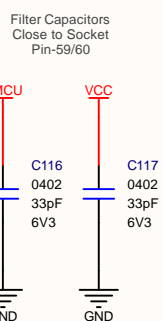
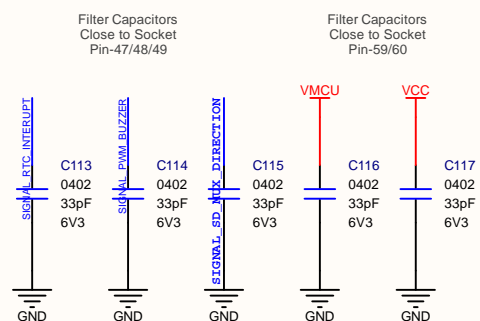
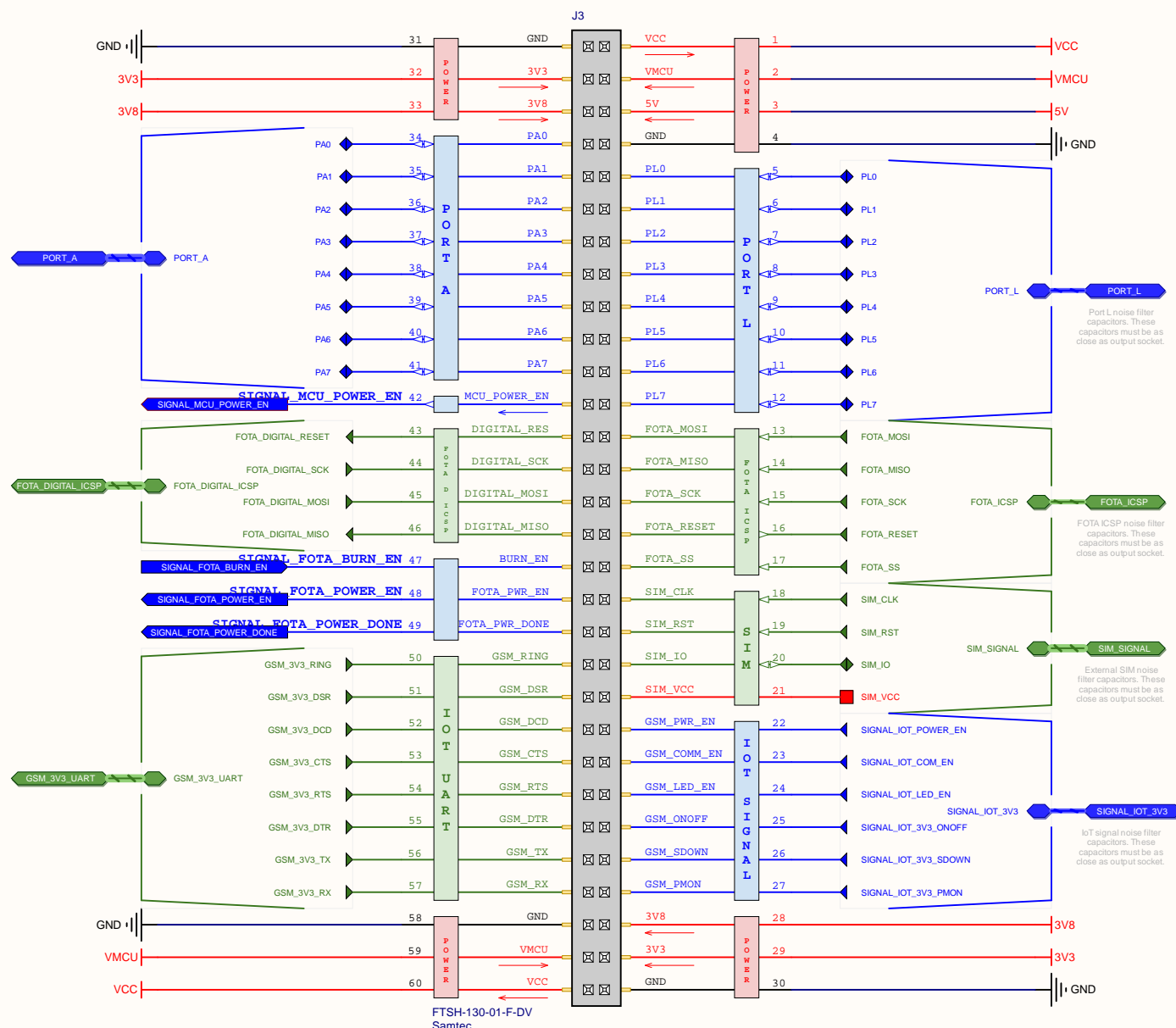
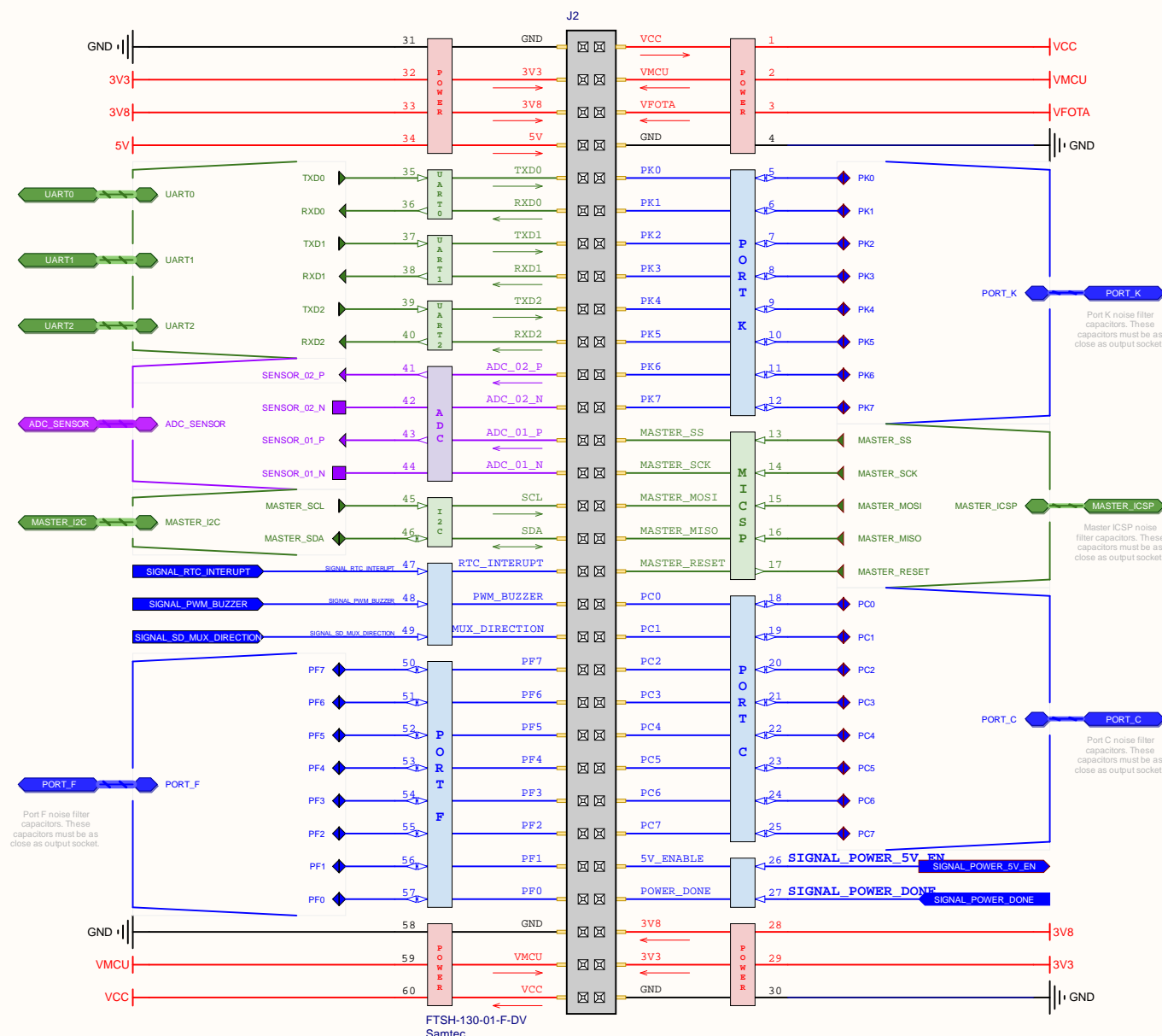
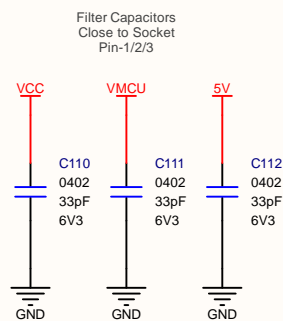
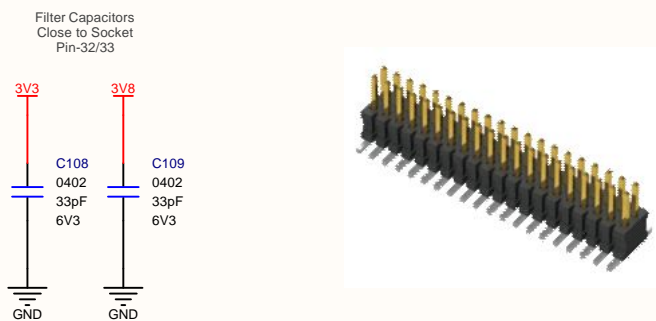
Title Master MicroController LED			Ovoo Electronics		
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Number: 28			Revision: B100AA R4		
Date: 12.02.2021			Sheet 28 of 54		
Time: 15:07:58					
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController LED.SchDoc					



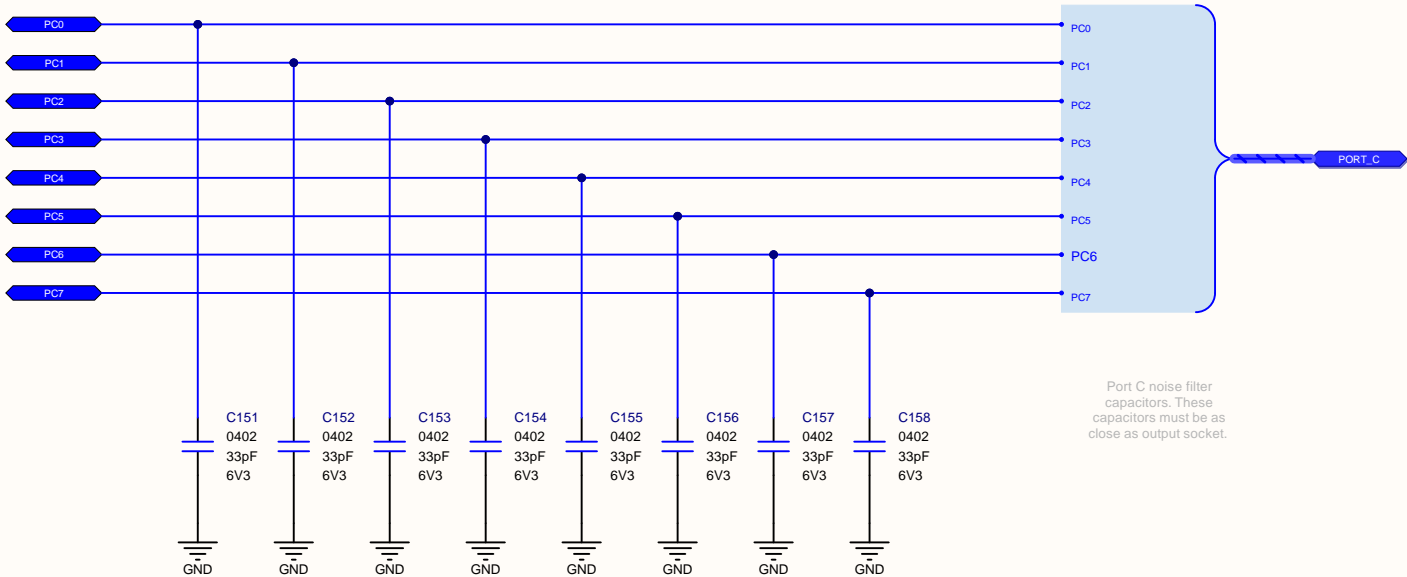
Module Output Socket A



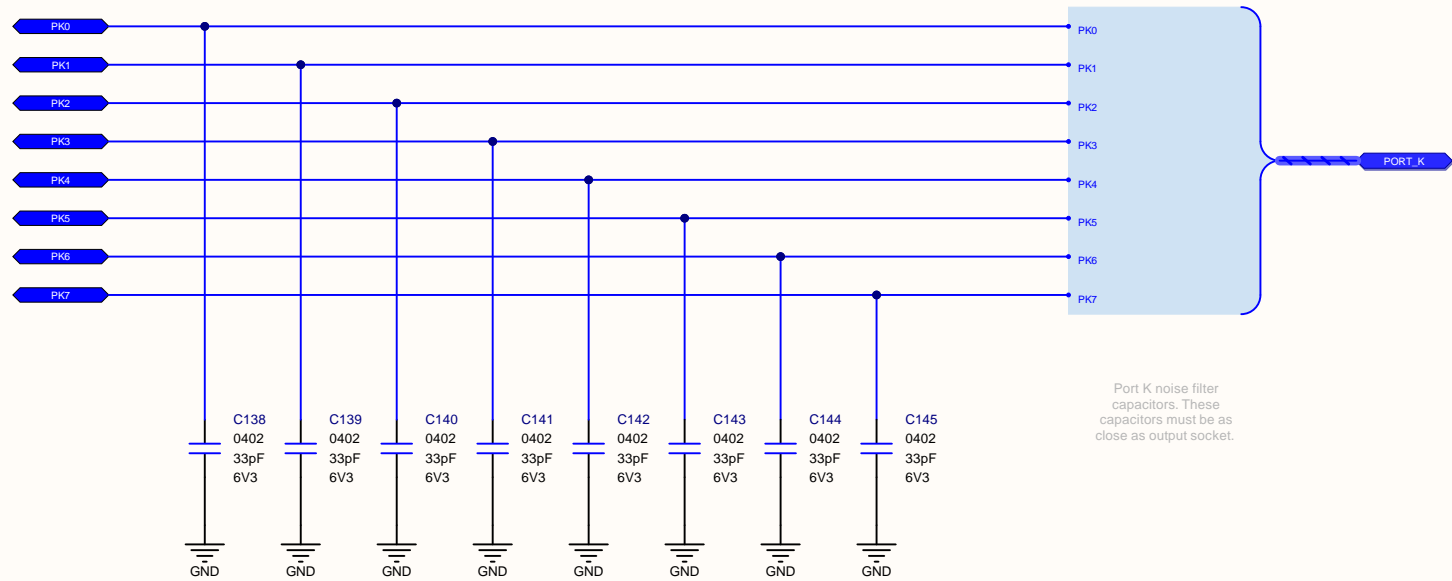
Module Output Socket B




Port C Output Socket Noise Capacitors

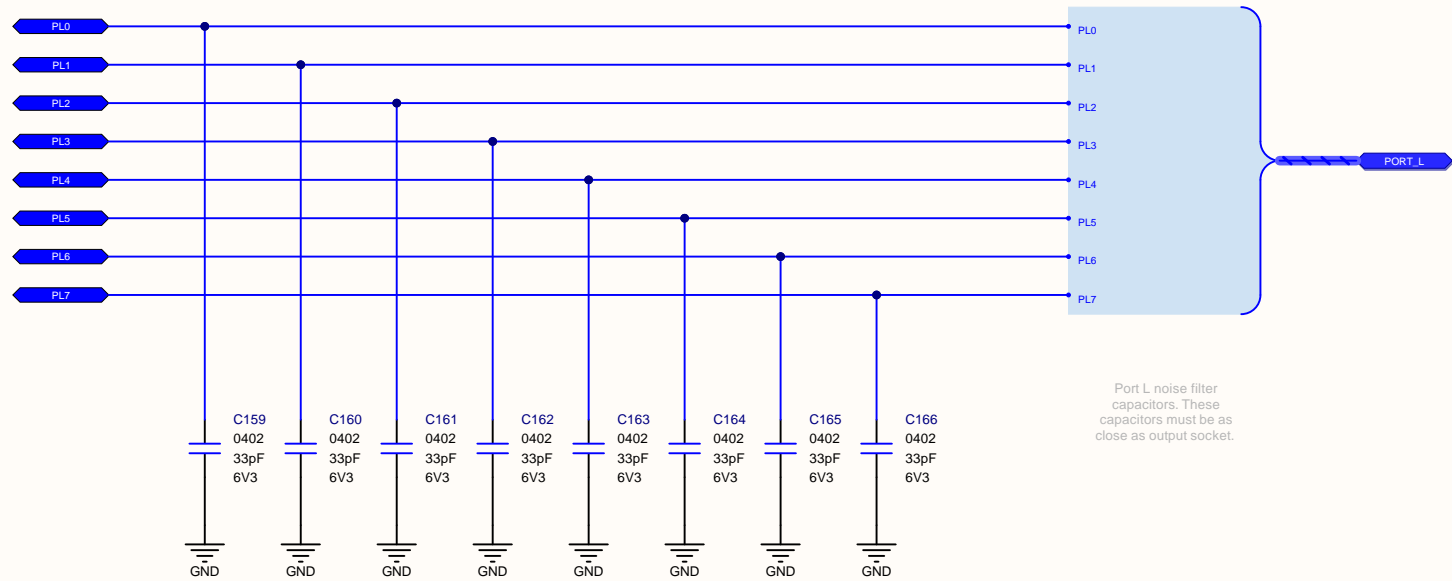



Port K Output Socket Noise Capacitors

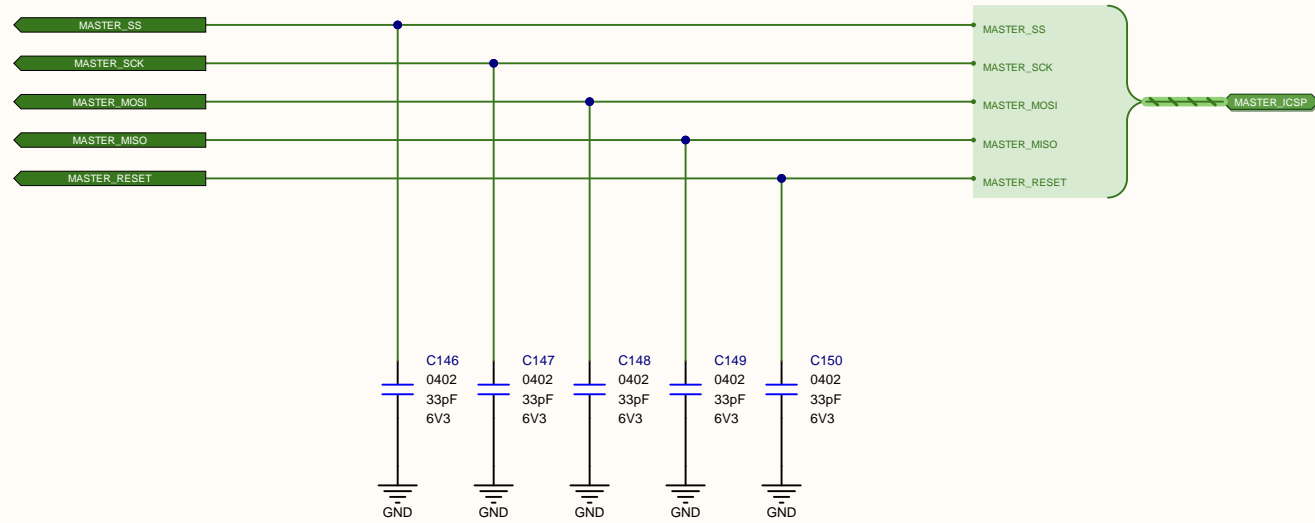


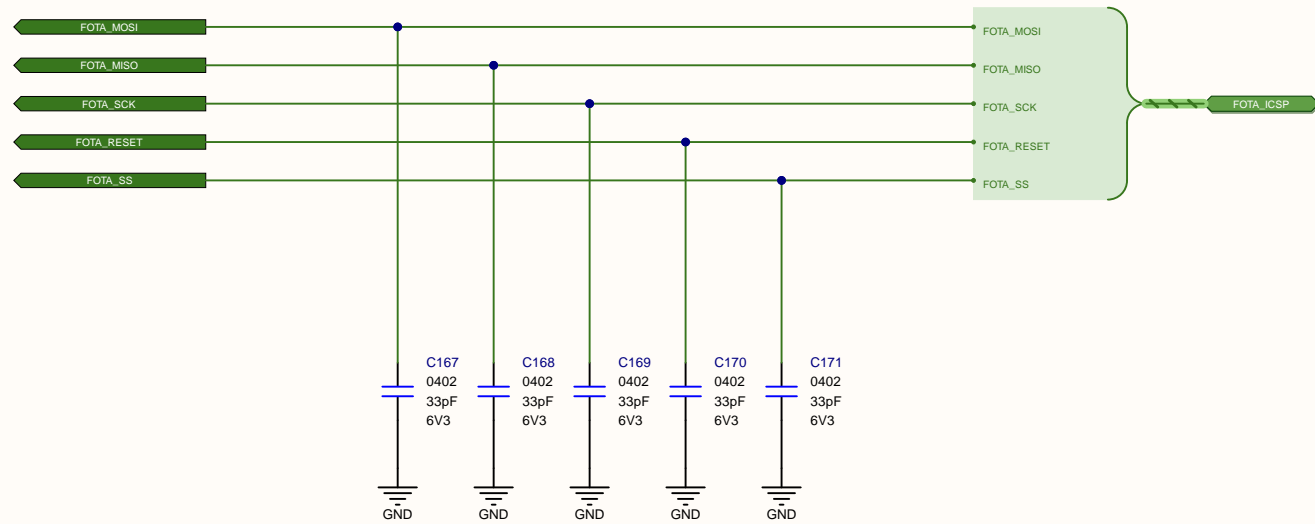
Title PORT K Filter Capacitors			Ovoo Electronics Necip Fazil Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 31	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:59	Sheet 31 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - Port K.SchDoc				

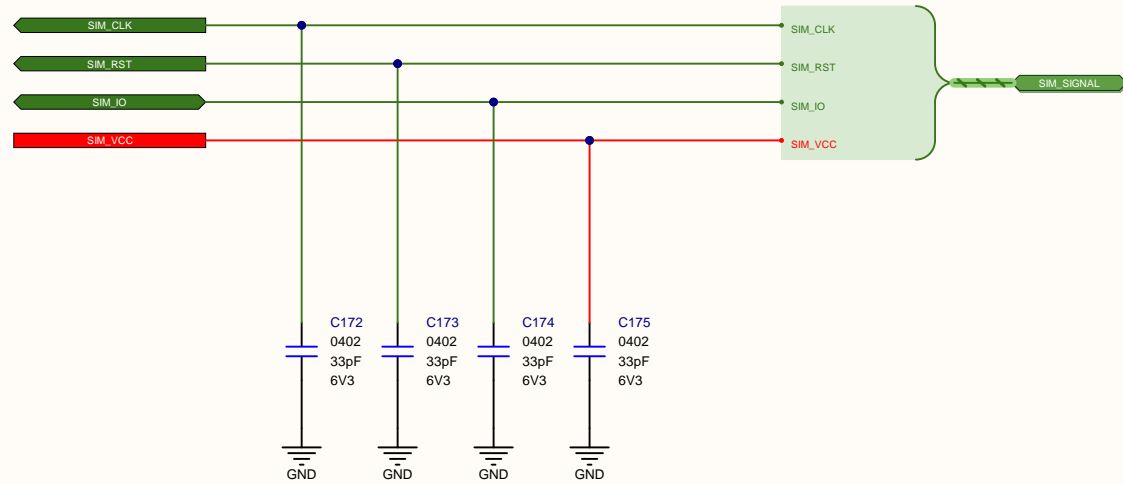
Port L Output Socket Noise Capacitors




Title PORT L Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 32	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:59	Sheet 32 of 54		
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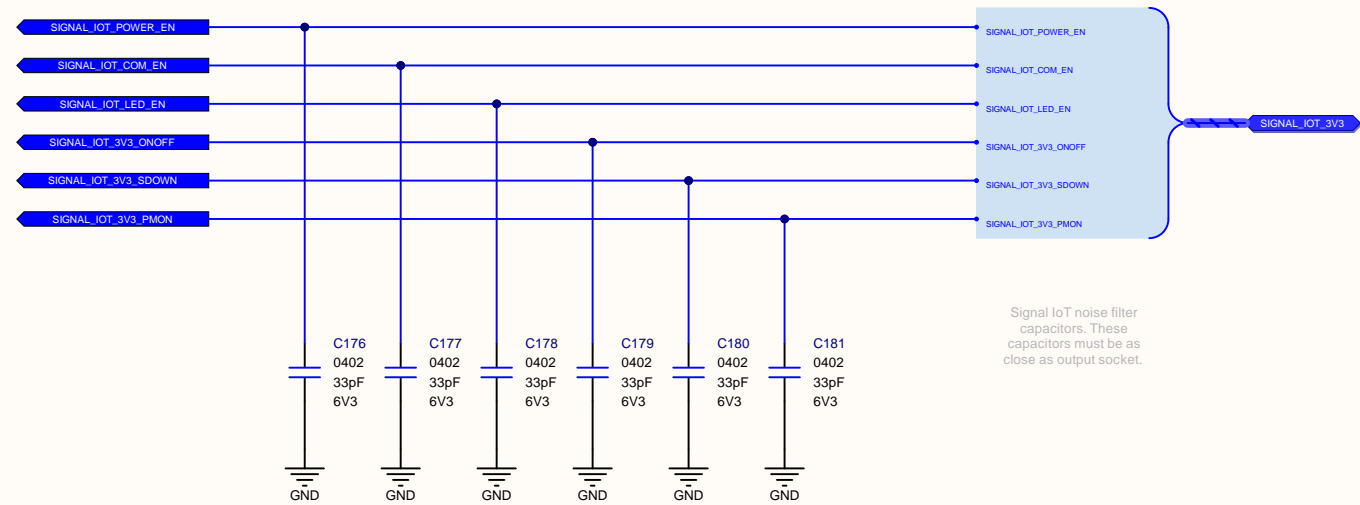




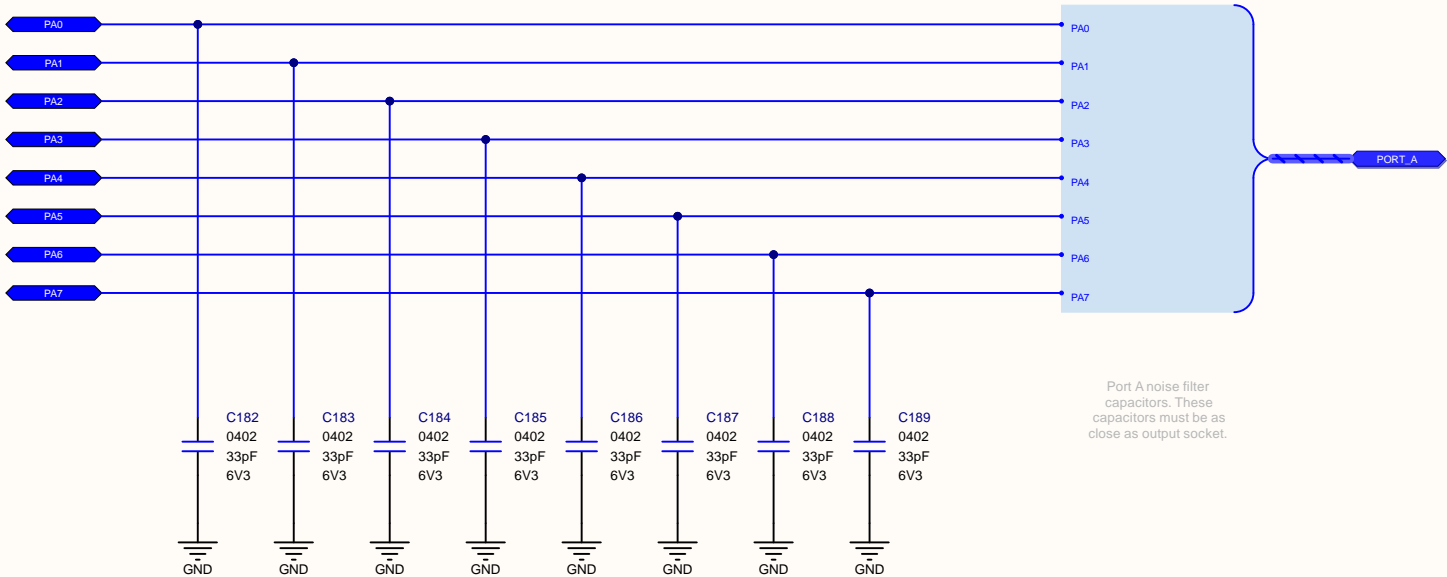


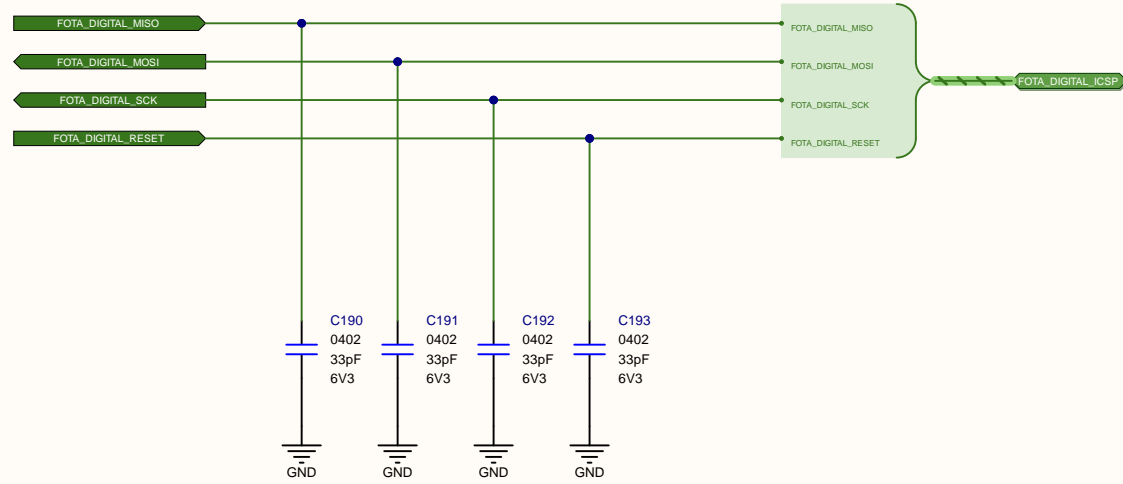
Title External SIM Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 35	Revision: B100AA R4			
Date: 12.02.2021	Time: 15:07:59	Sheet 35 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Fiter Capacitors - External SIM.SchDoc					


Signal IoT Output Socket Noise Capacitors



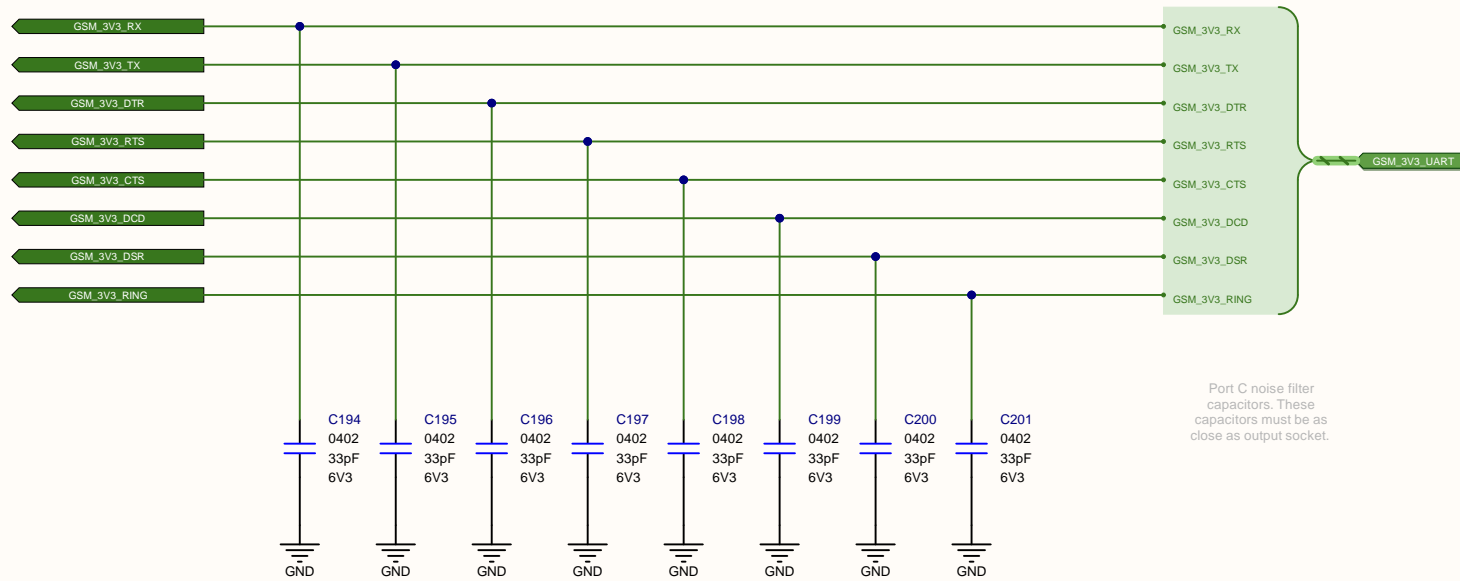
Port A Output Socket Noise Capacitors






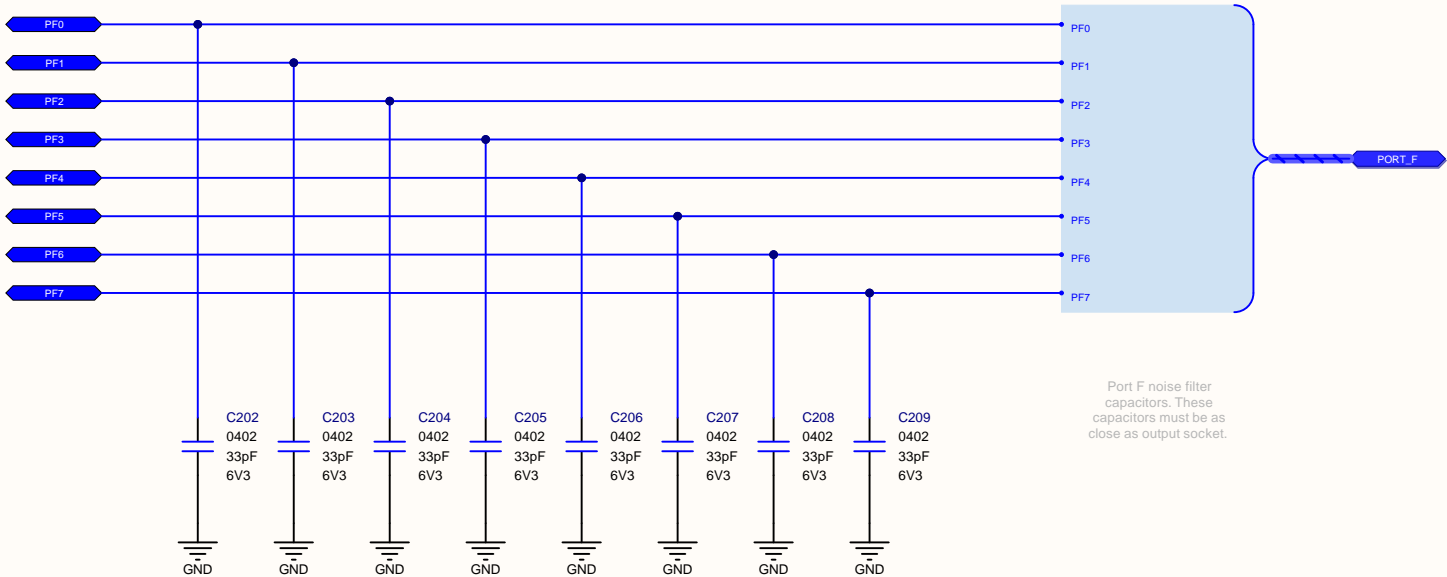
Title FOTA Digital ICSP Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 38	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:59	Sheet 38 of 54		
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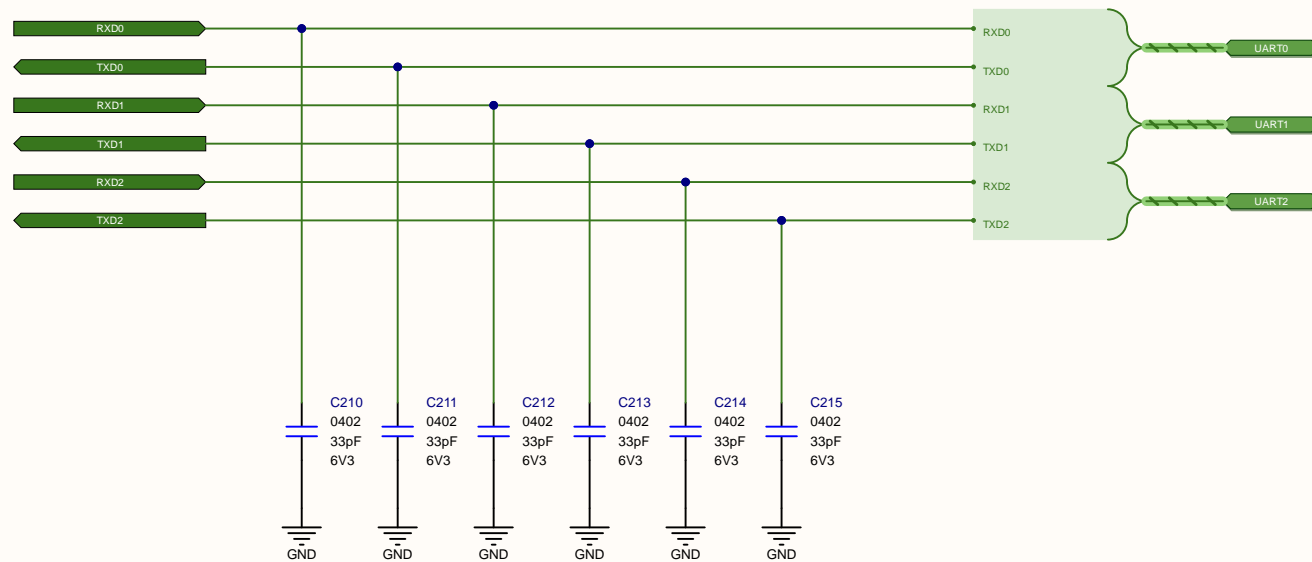
IoT UART Output Socket Noise Capacitors




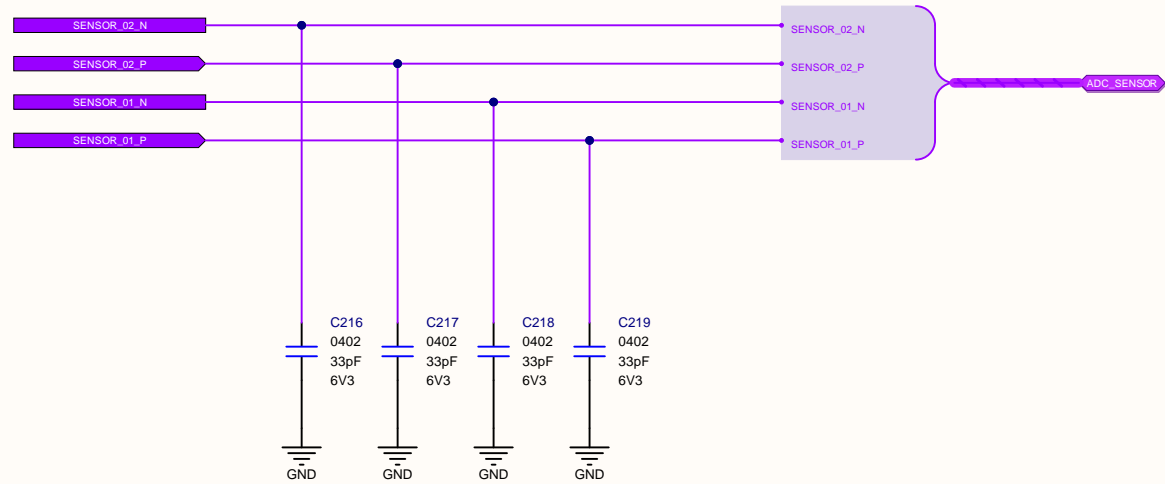
Title IoT UART Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 39	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:59	Sheet 39 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Fiter Capacitors - IoT UART.SchDoc				


Port F Output Socket Noise Capacitors

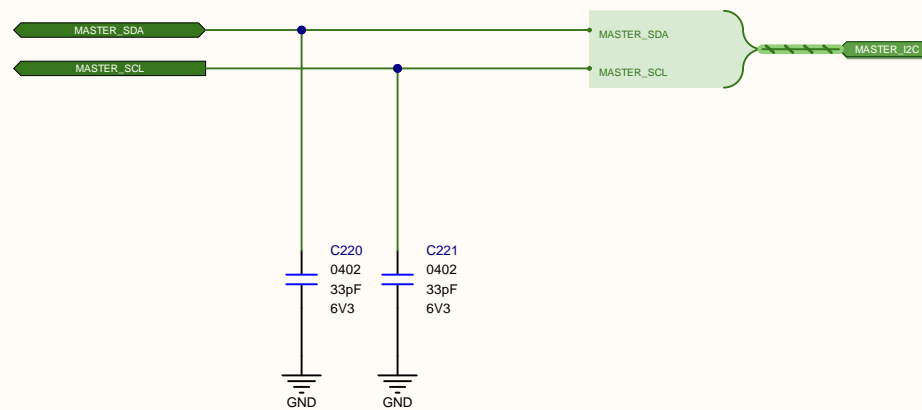




Title Serial Communication Filter Capacitors			Ovoo Electronics Necip Fazıl Mah, Ortairmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 41	Revision: B100AA R4			
Date: 12.02.2021	Time: 15:07:59	Sheet 41 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - Serial Communication.SchDoc					



Title ADC Sensor Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 42	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:59	Sheet 42 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - ADC Sensor.SchDoc				



Title I2C Filter Capacitors

Size: A4

Number: 43

Revision: B100AA R4

Date: 12.02.2021

Time: 15:07:59

Sheet 43 of 54

File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\FILTER Capacitors - I2C.SchDoc

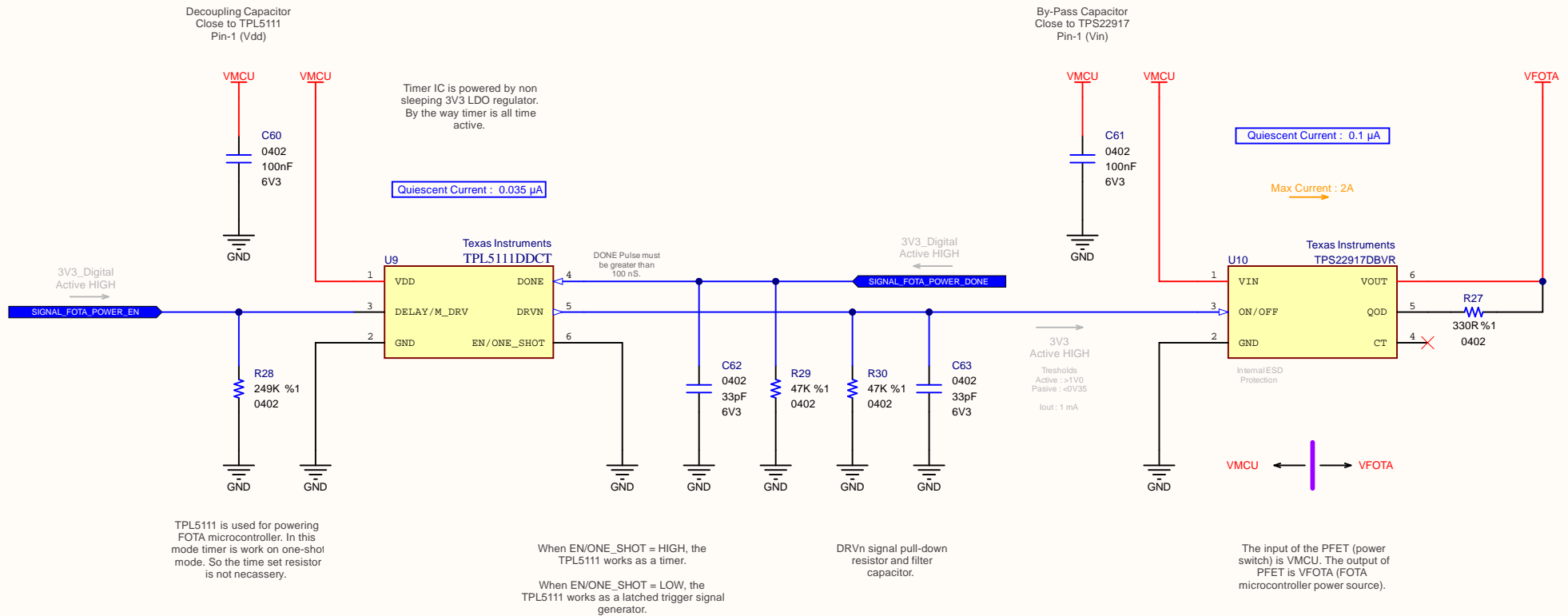
Ovoo Electronics

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Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye



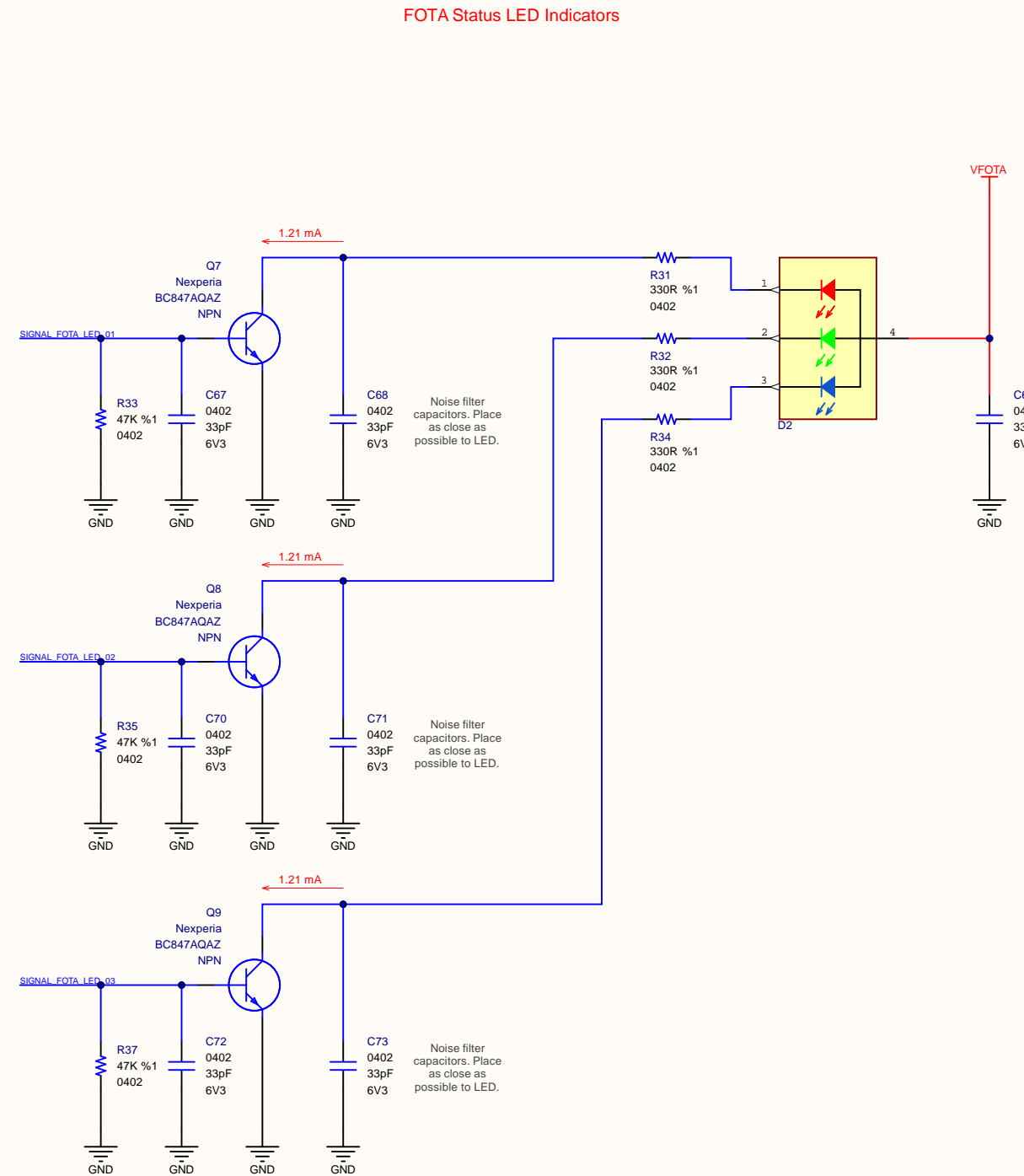
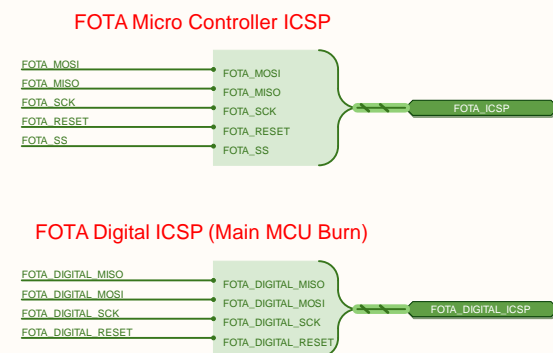
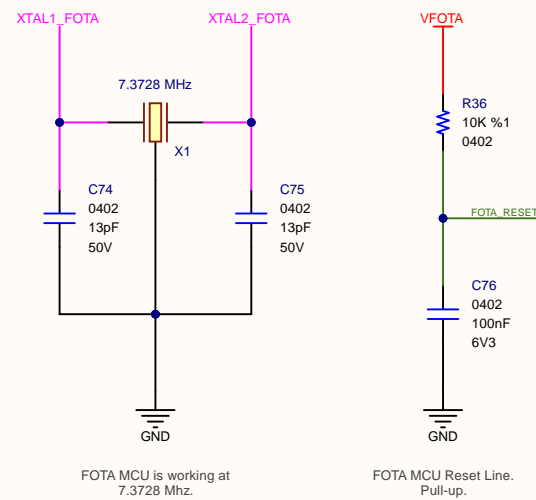
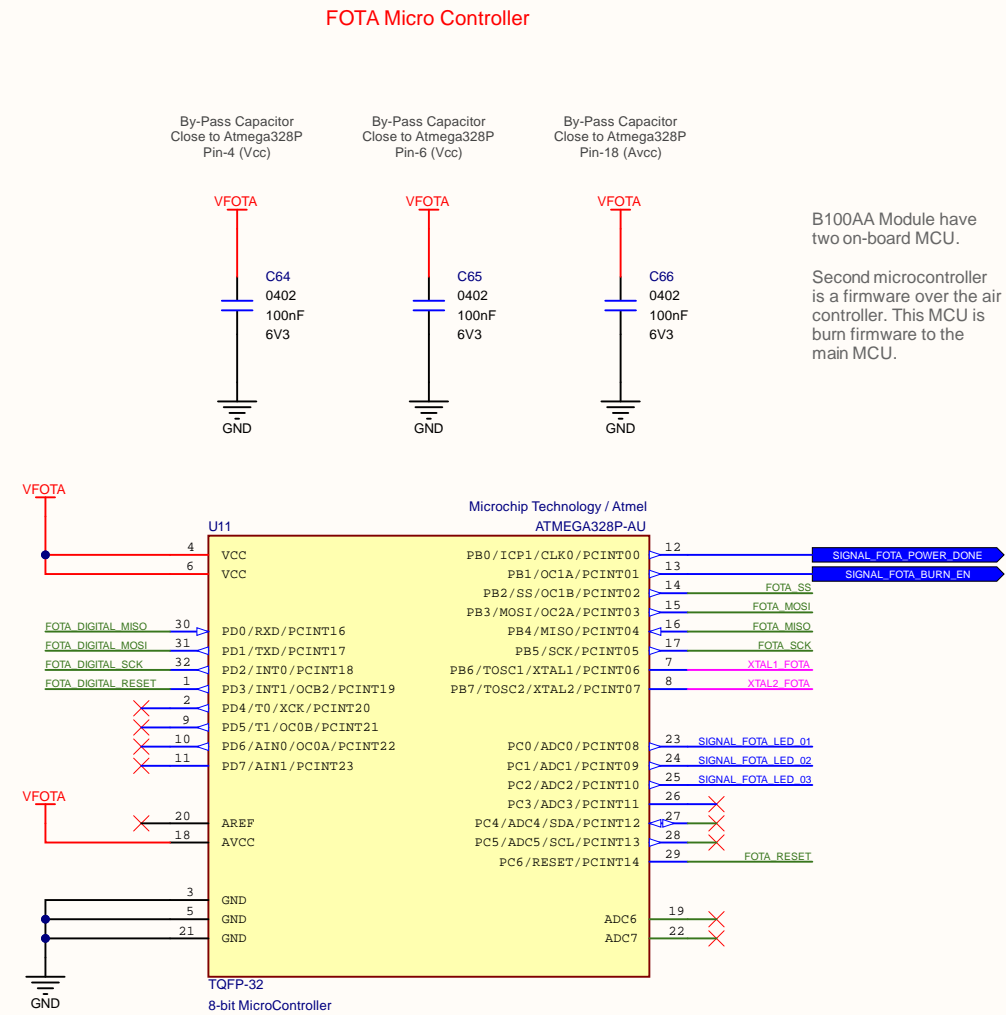
Power Trigger


Power Switch

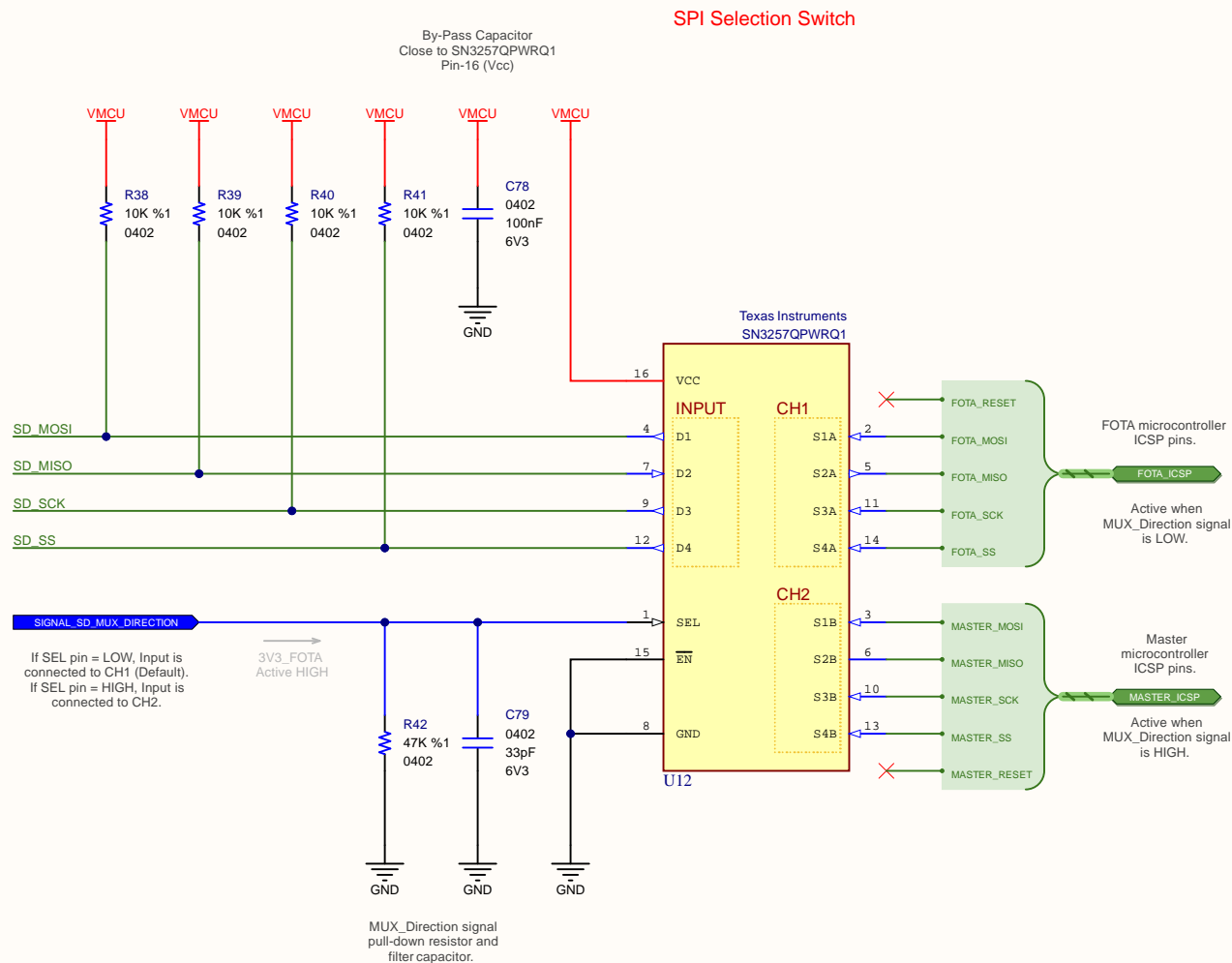
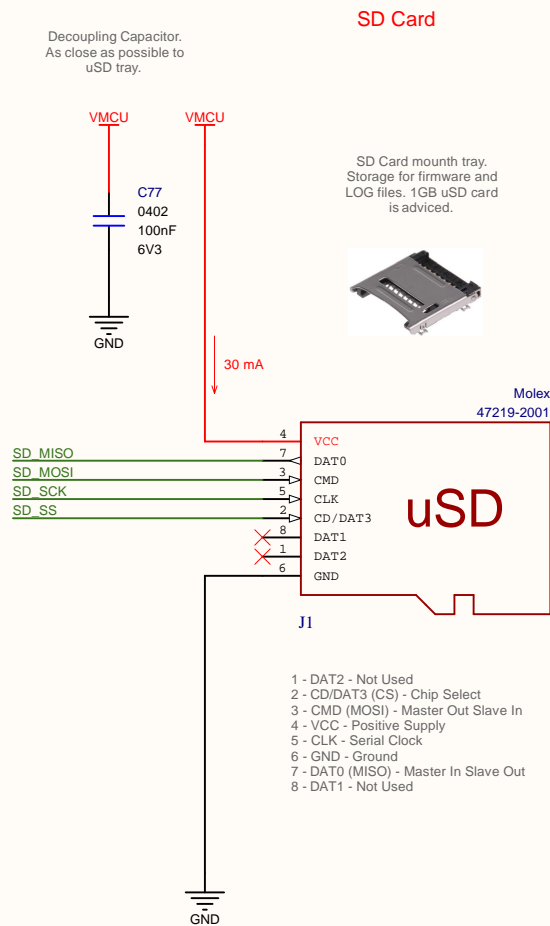



Title FOTA MicroController Latched Power Trigger			Ovoo Electronics	
Size: A4	Number: 44	Revision: B100AA R4	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Date: 12.02.2021	Time: 15:07:59	Sheet 44 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\FOTA MicroController Power Switch.SchDoc				

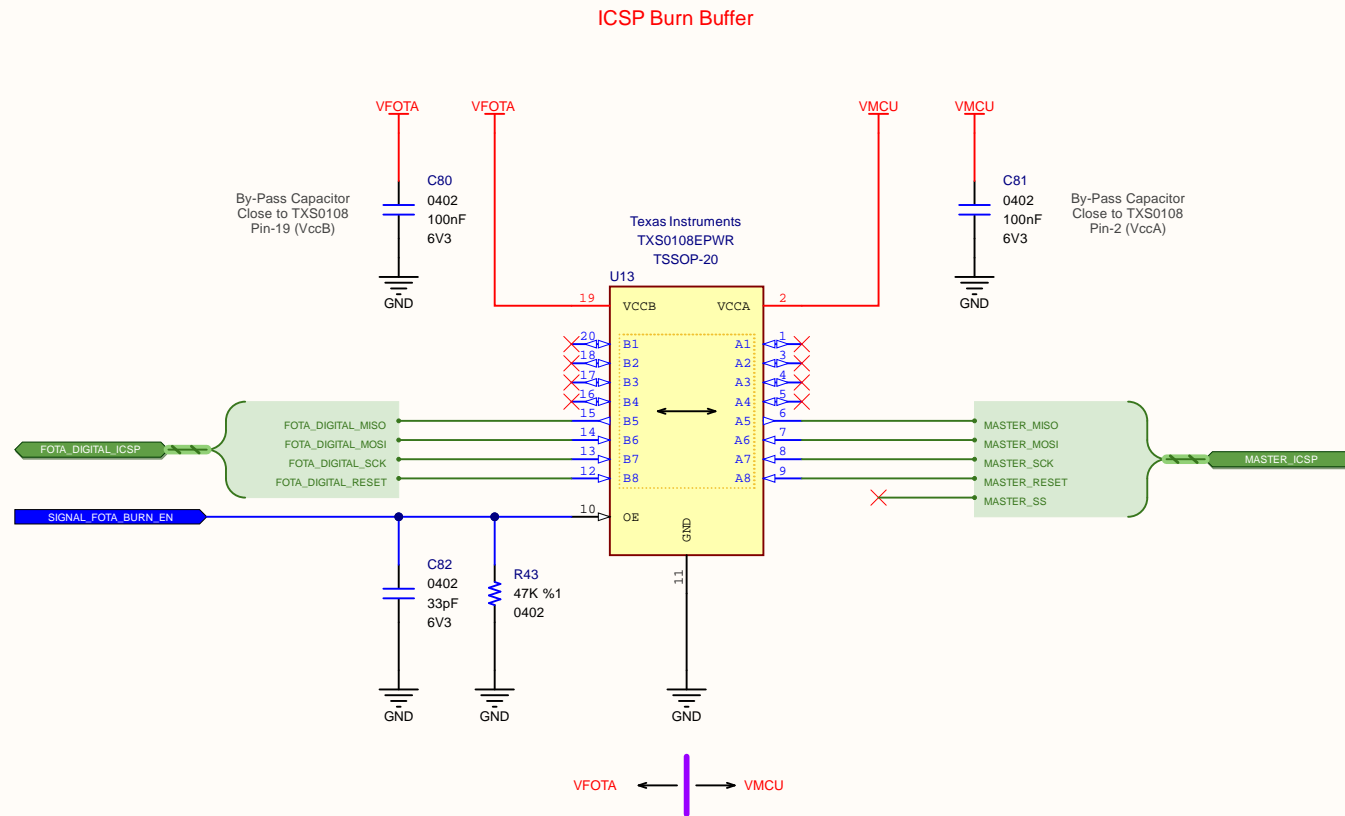




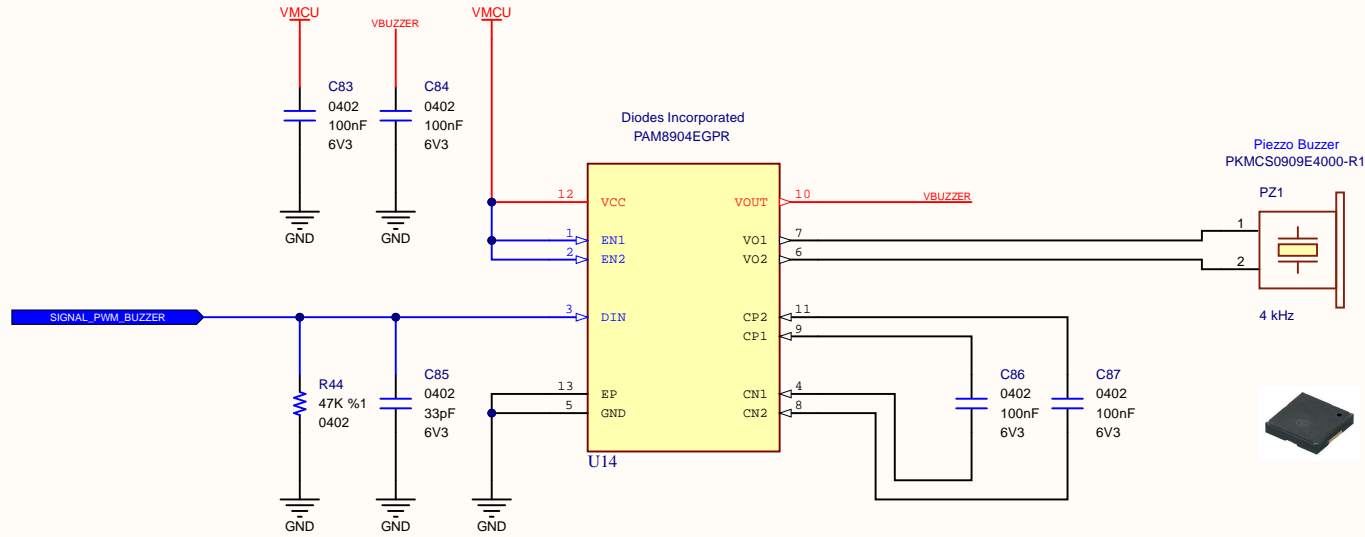
Title FOTA MicroController			Ovoo Electronics Necip Fazıl Mah. Otaurmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A3	Number: 45	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:07:59	Sheet 45 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\FOTA MicroController.SchDoc				




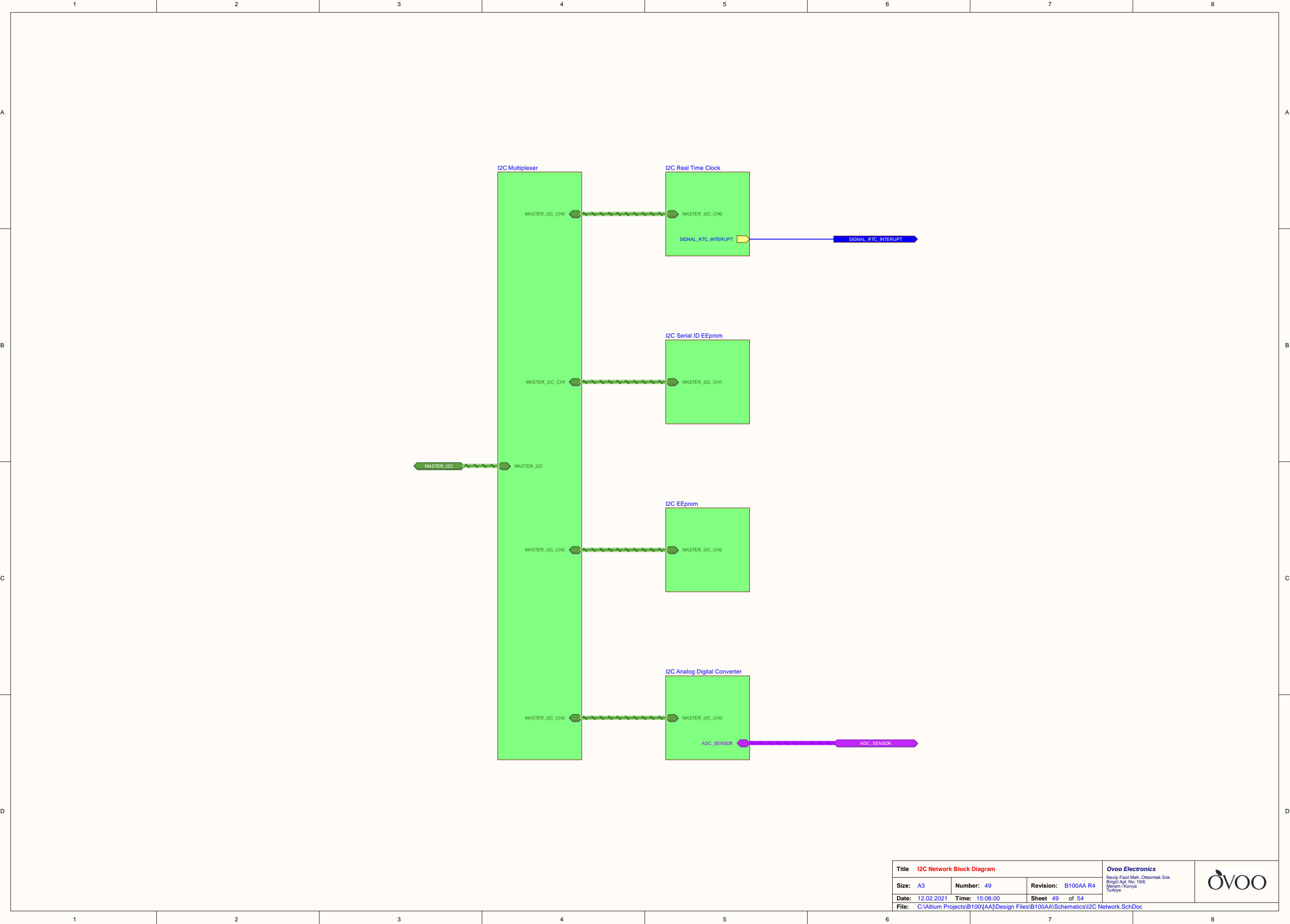
Title SD Card & Select Switch			Ovoo Electronics Necip Fazıl Mah. Otaurmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 46	Revision: B100AA R4		
Date: 12.02.2021	Time: 15:08:00	Sheet 46 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\SD Card.SchDoc				

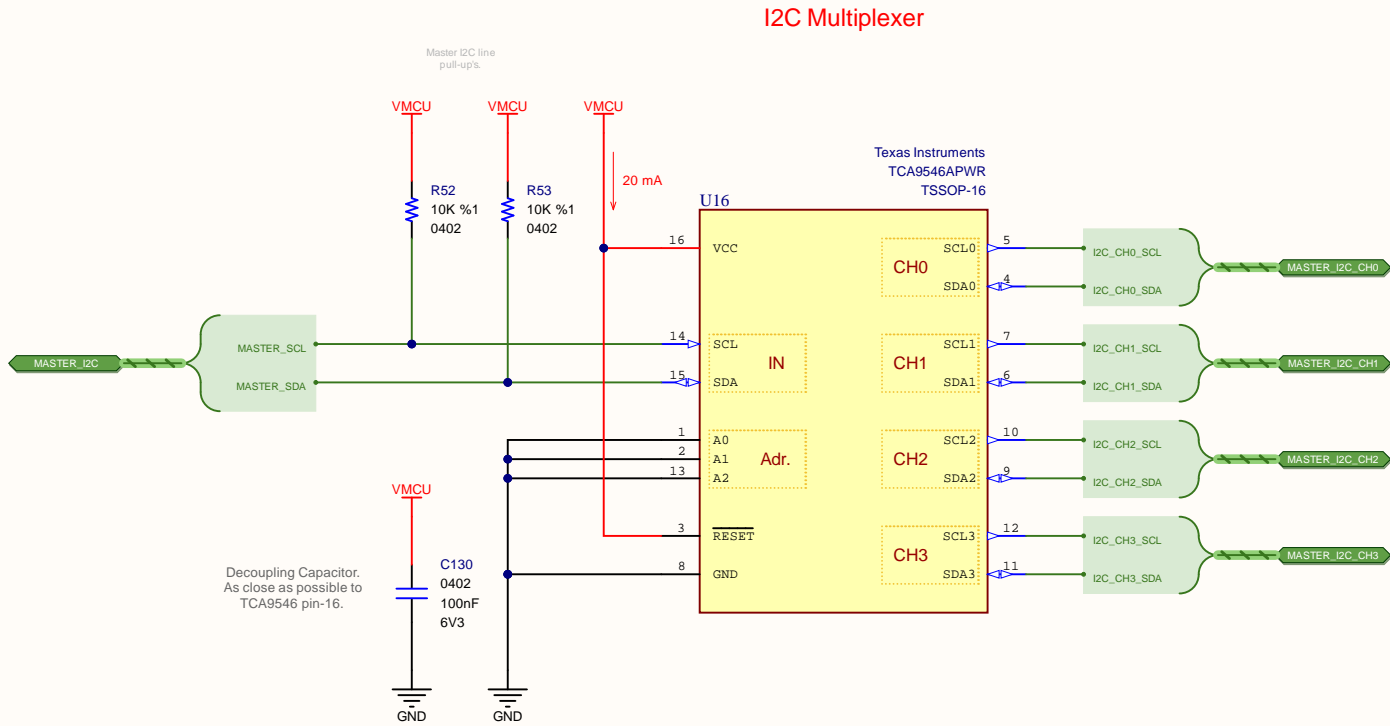
**Title** FOTA Burn Buffer**Size:** A4**Number:** 47**Revision:** B100AA R4**Date:** 12.02.2021**Time:** 15:08:00**Sheet** 47 **of** 54**File:** C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\ICSP Burn Buffer.SchDoc**Ovoo Electronics**Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye


Piezzo Buzzer



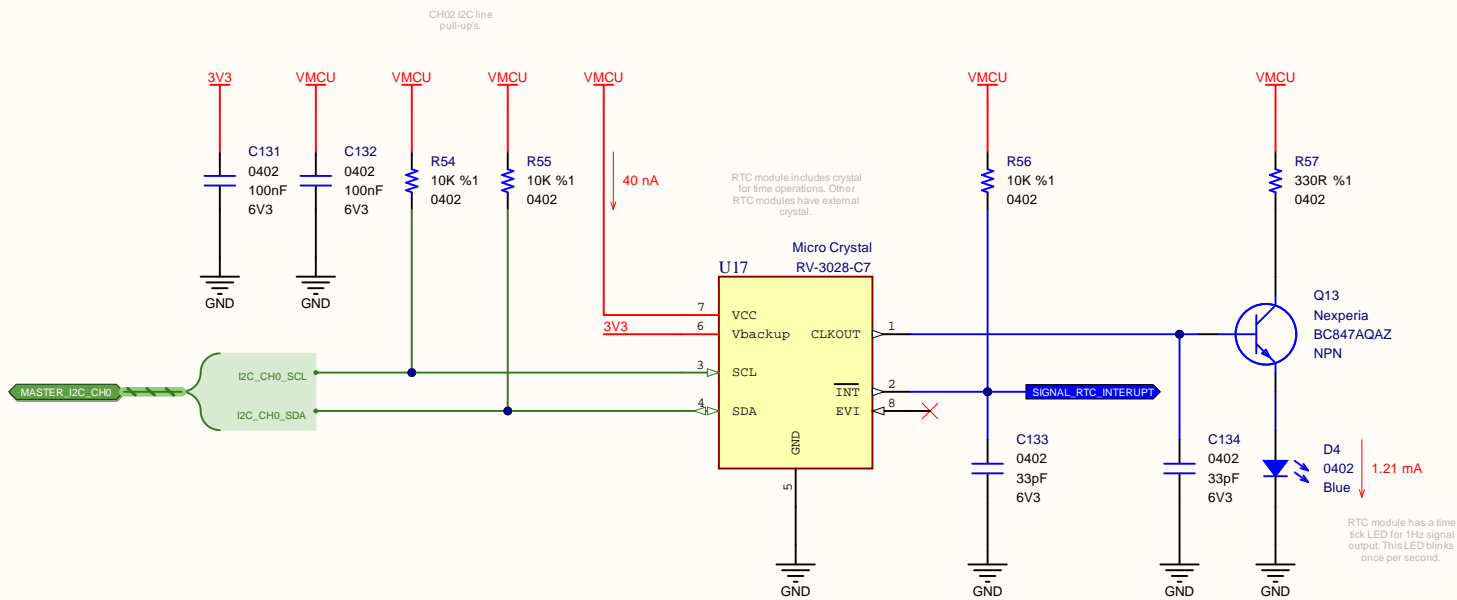
Title Buzzer			Ovoo Electronics		
Size: A4	Number: 48	Revision: B100AA R4	Necip Fazil Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 12.02.2021	Time: 15:08:00	Sheet 48 of 54			
File: C:\Altium Projects\B100(AA)\Design Files\B100AA\Schematics\Buzzer.SchDoc					



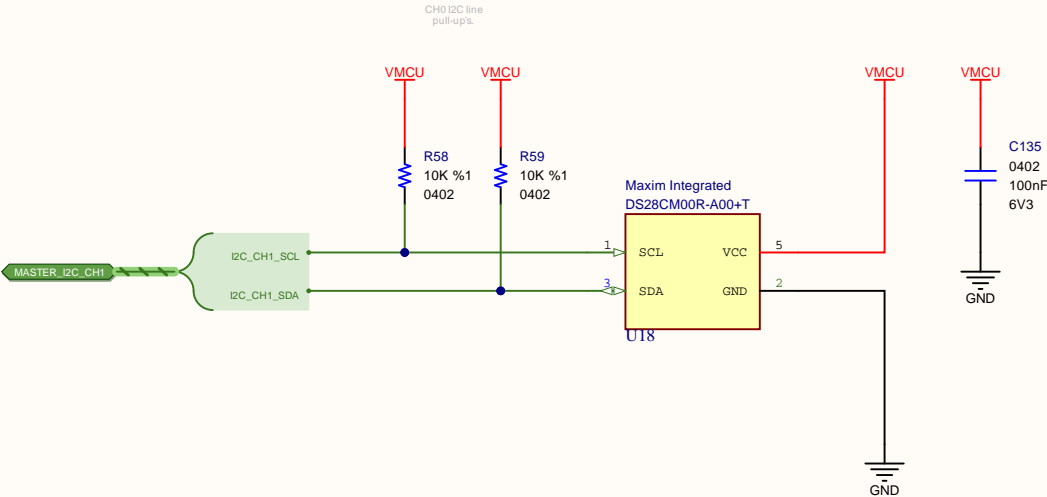



Title I2C Multiplexer			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 50	Revision: B100AA R4			
Date: 12.02.2021	Time: 15:08:00	Sheet 50 of 54			
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Real Time Clock

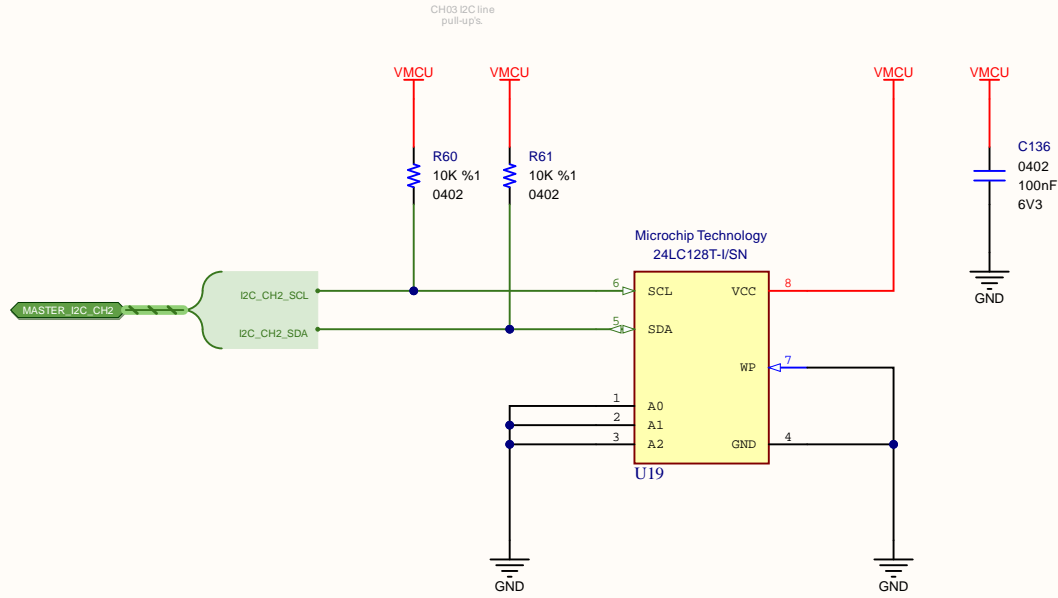


I2C Serial ID EEPROM



Title I2C Serial ID EEprom			Ovoo Electronics		
Size: A4	Number: 52	Revision: B100AA R4	Necip Fazl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 12.02.2021	Time: 15:08:00	Sheet 52 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Serial ID EEPROM.SchDoc					

EEPROM



Title I2C EEprom

Size: A4

Number: 53

Revision: B100AA R4

Date: 12.02.2021

Time: 15:08:00

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File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\EEPROM.SchDoc

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Türkiye



Analog Digital Converter

