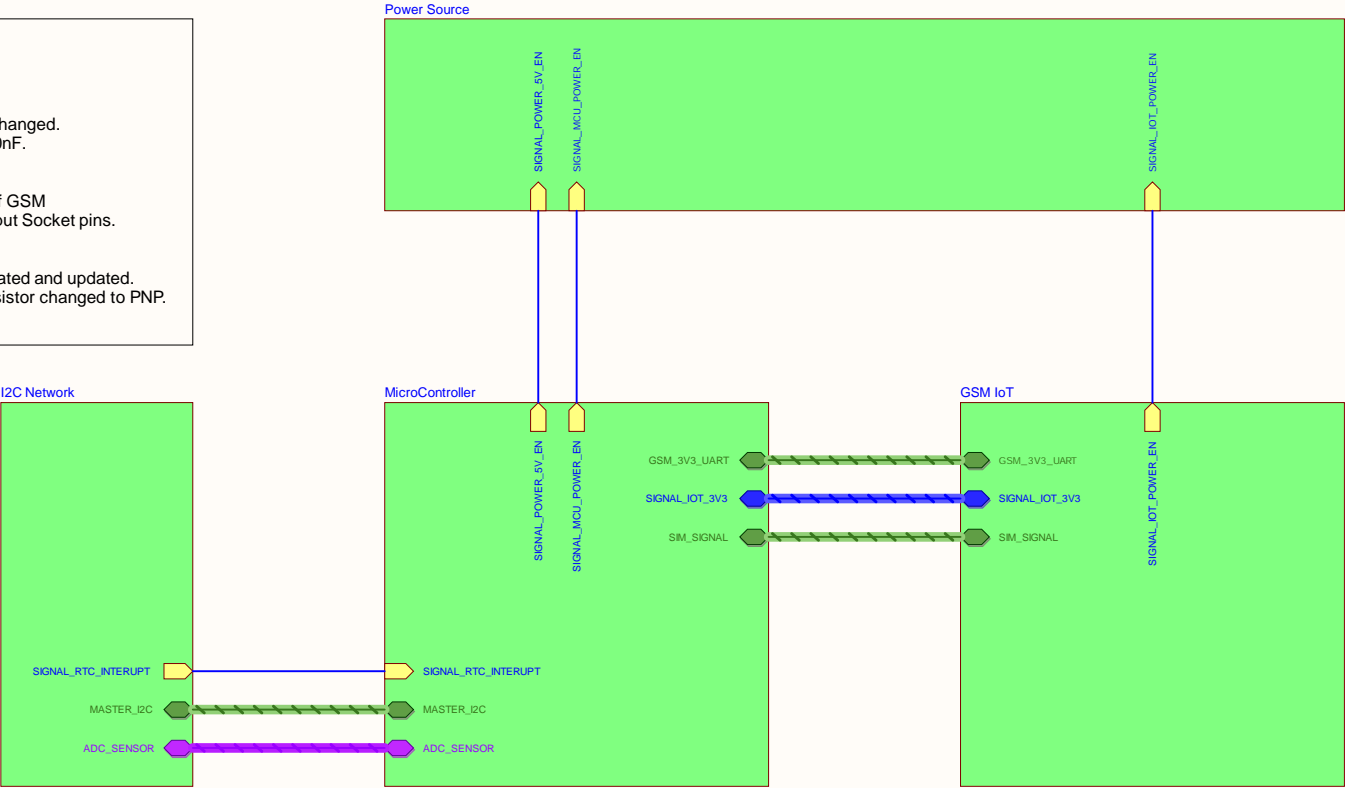


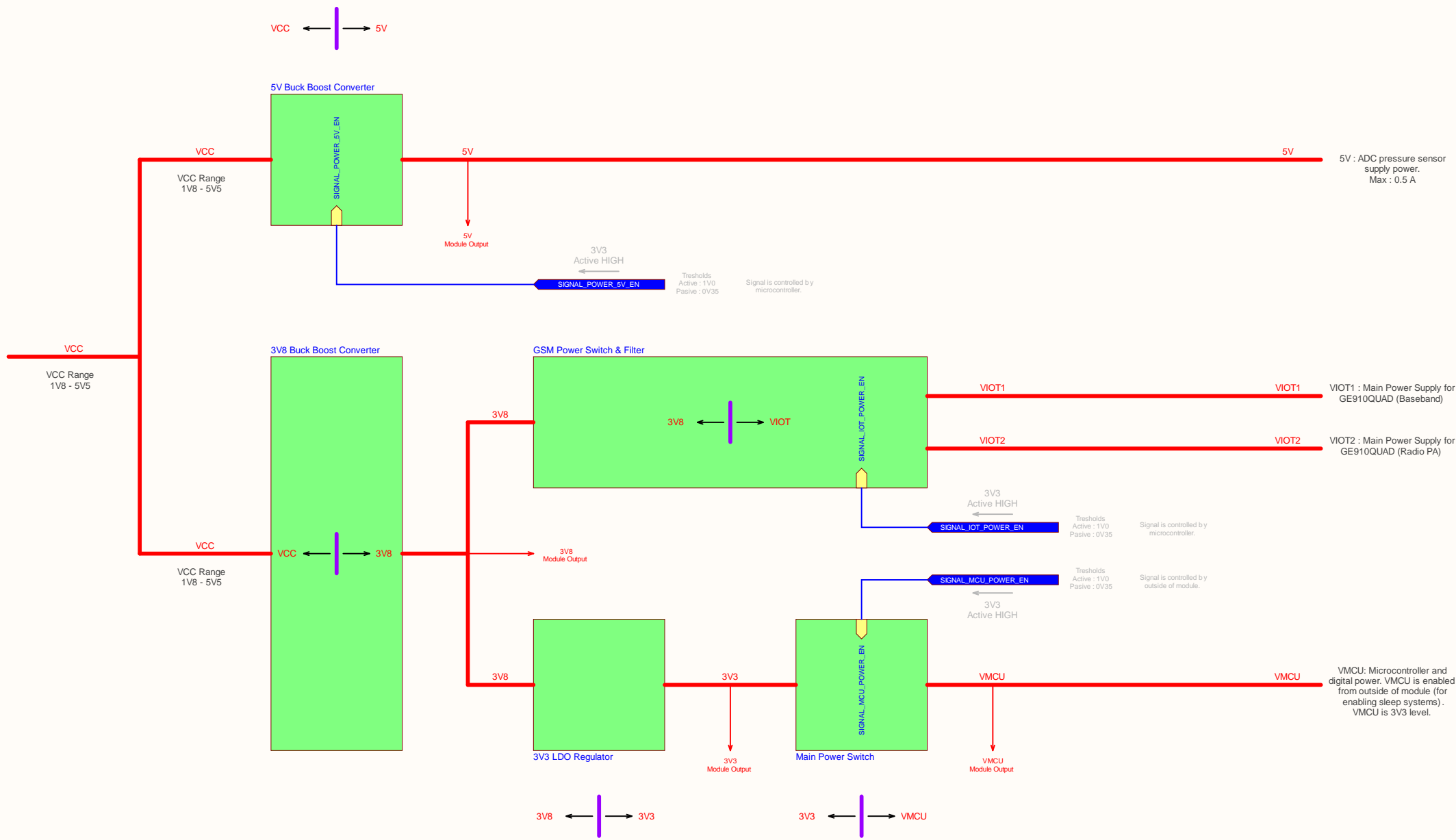
B100 - Master IoT MicroController

Revision History

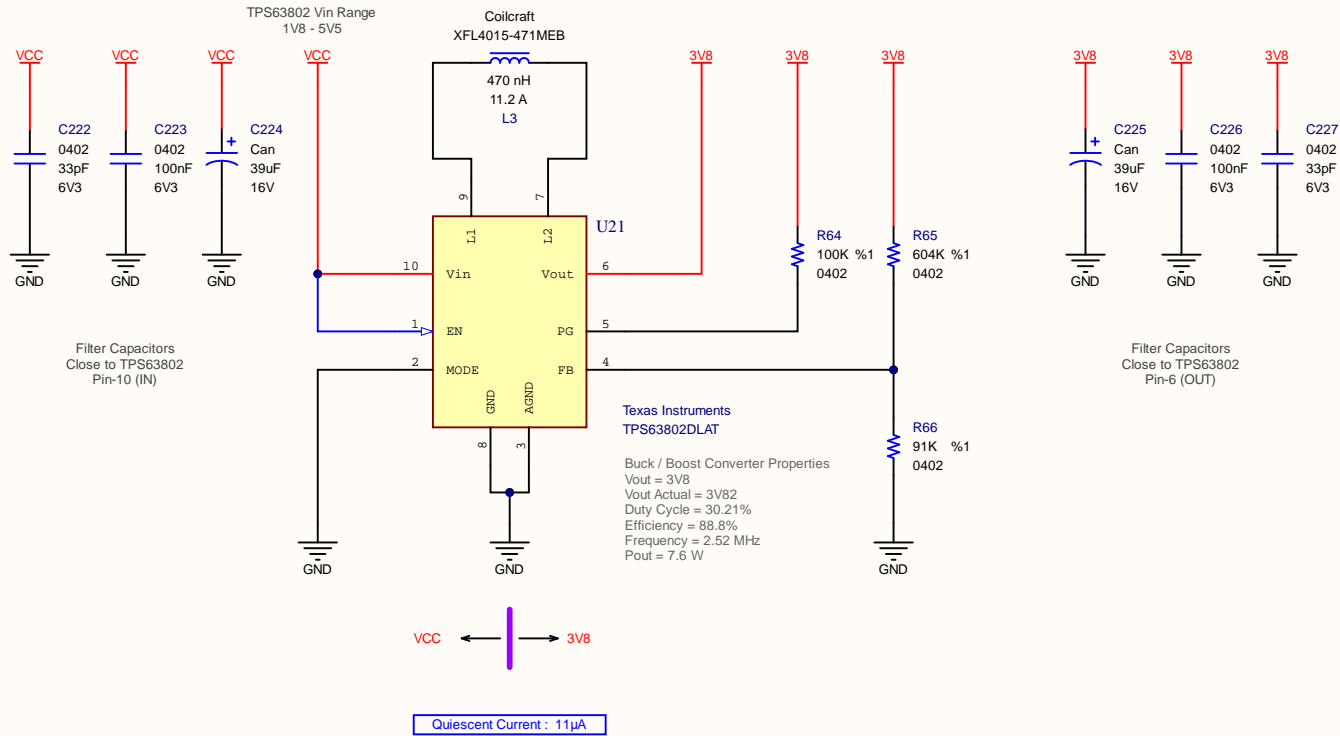
- AA001 (05.01.2021)
* Schematic creation.
- AA002 (11.01.2021)
* Bidirectional signal translator IC changed.
* SIM Vcc capacitor changed to 100nF.
- AA003 (19.01.2021)
* 33 pF capacitor added to VAUX of GSM
* 33 pF capacitors added to all Output Socket pins.
- AA004 (22.01.2021)
* GSM IoT LED resistors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




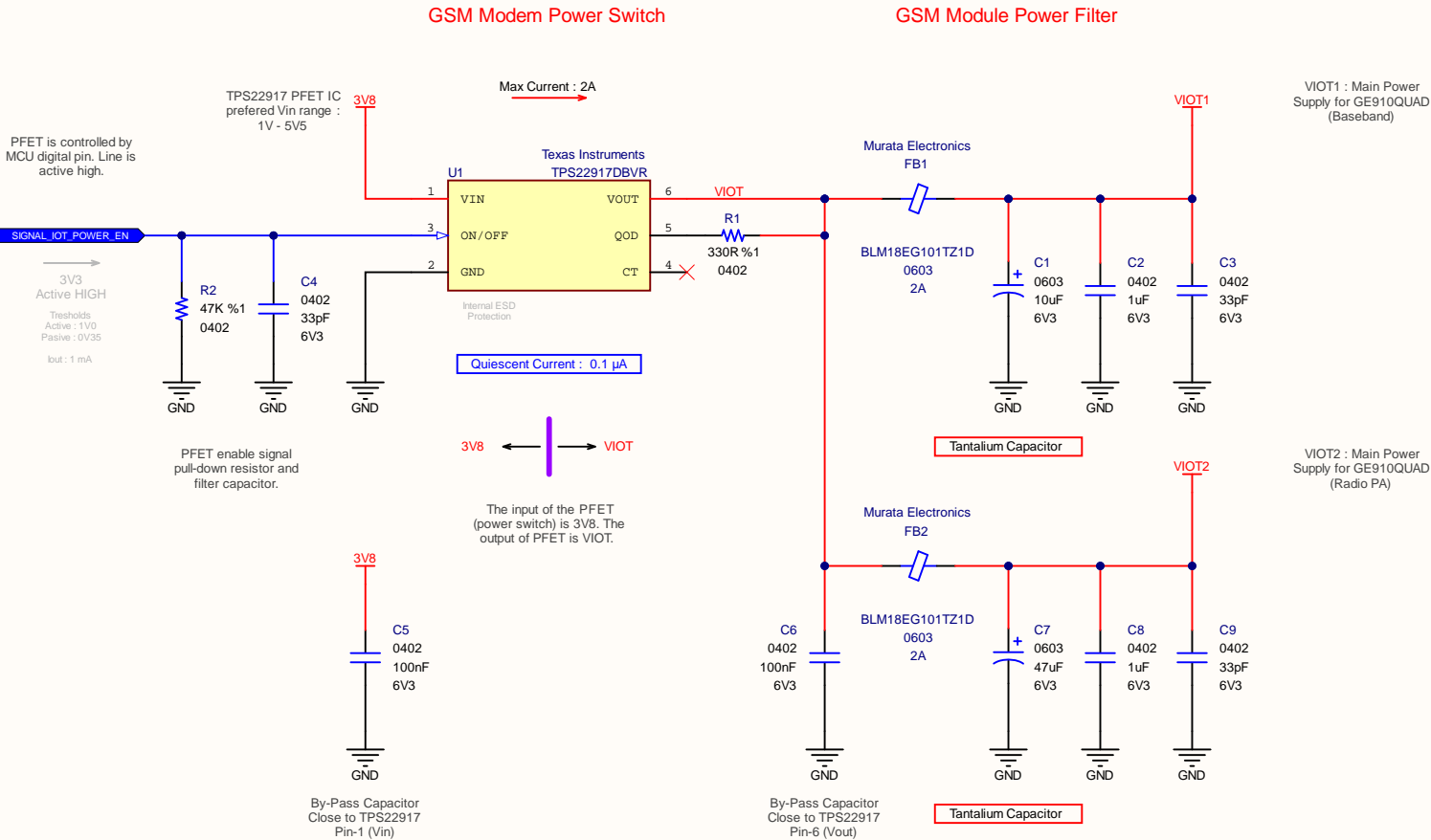
Power Archtechure



3V8 Buck Boost Converter

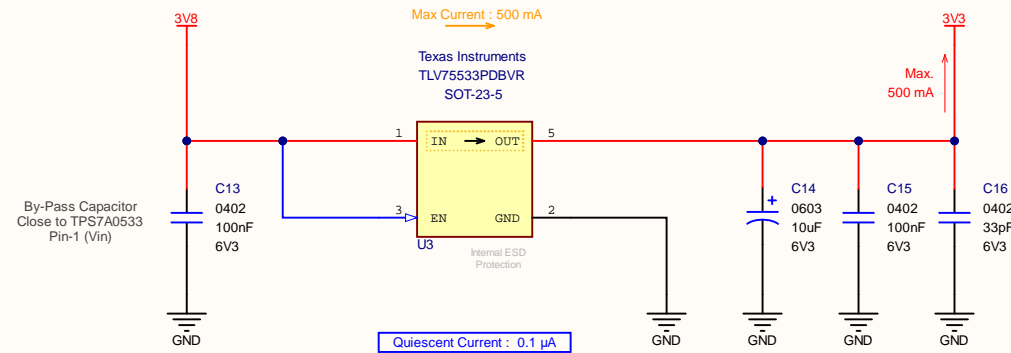


Title 3V8 DC/DC Buck Boost Converter			Ovoo Electronics		
Size: A4	Number: 3	Revision: B100AA R4	Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 21.02.2021	Time: 13:29:32	Sheet 3 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\3V8 Buck Boost Converter.SchDoc					




Title GSM Power Switch and Filter			Ovoo Electronics Necip Fazıl Mah. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: 4	Revision: B100AA R4	
Date: 21.02.2021	Time: 13:29:32	Sheet 4 of 54	
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\GSM Power.SchDoc			

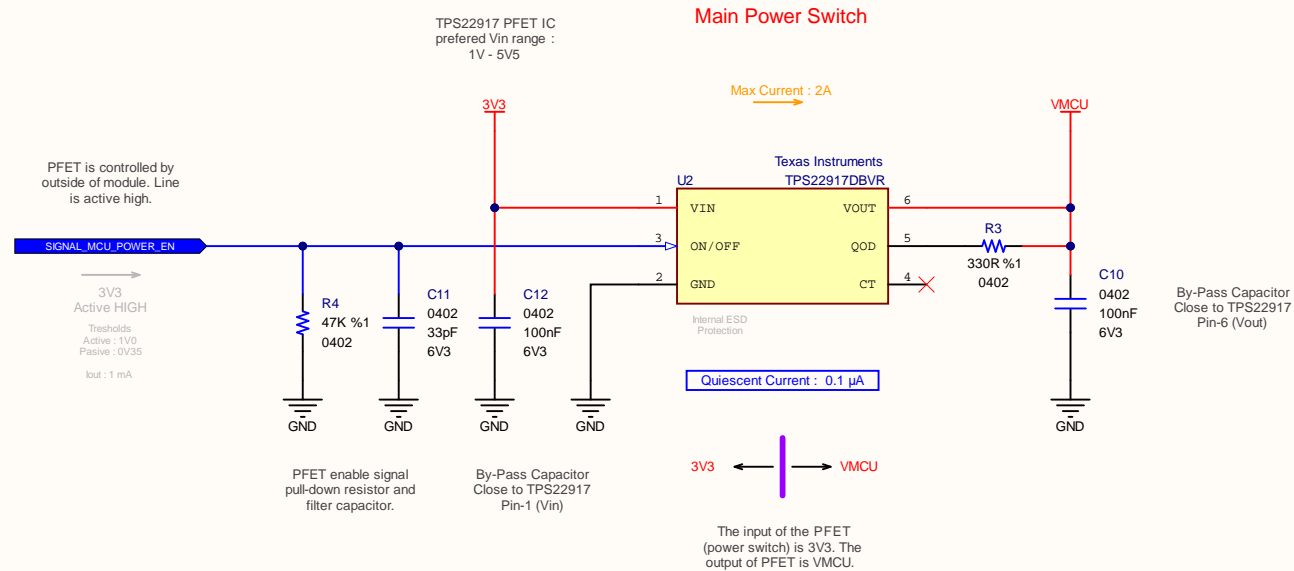
3V3 LDO Regulator




3V8 ← → 3V3

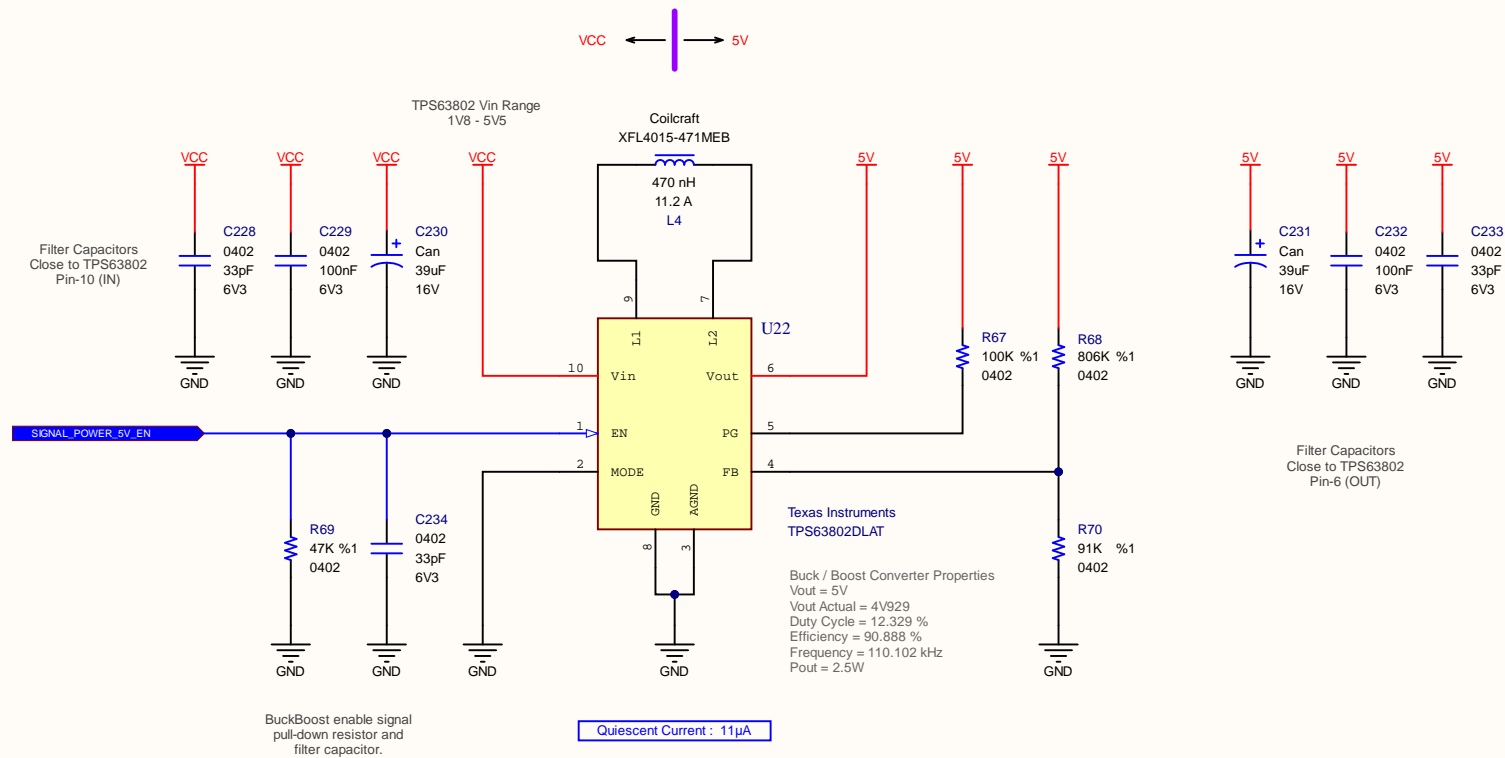
TLV75533 LDO is a 3V3 regulator. LDO is always enable.

Title 3V3 LDO Regulator			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 5	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:33	Sheet 5 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\3V3 LDO Regulator.SchDoc					

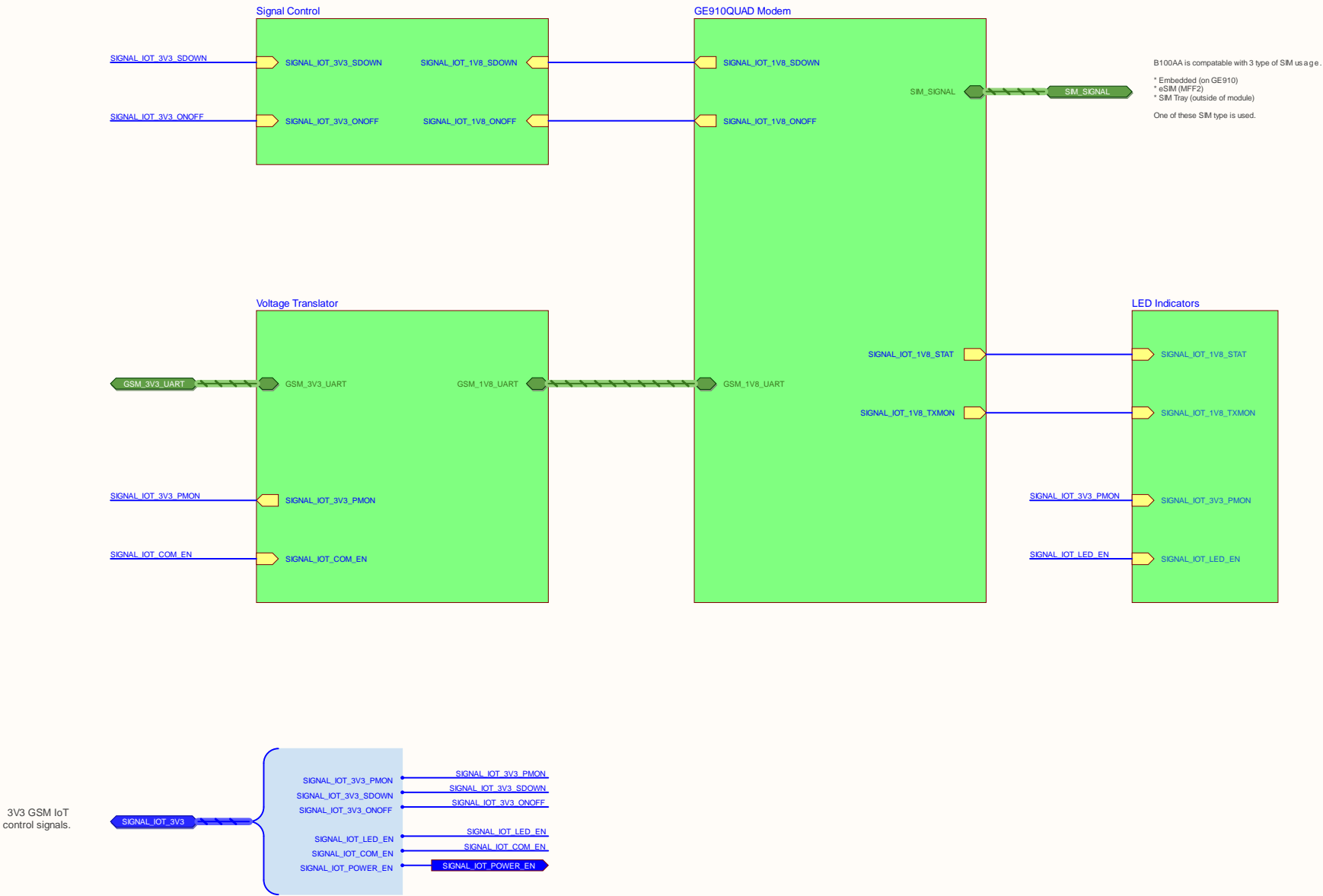


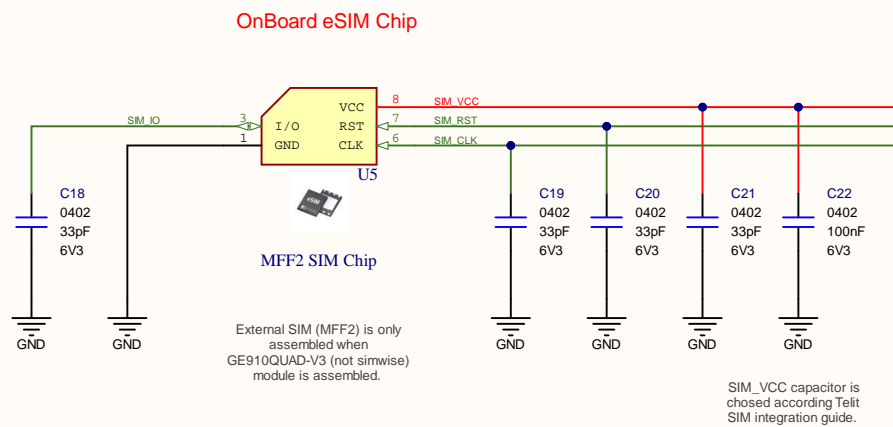
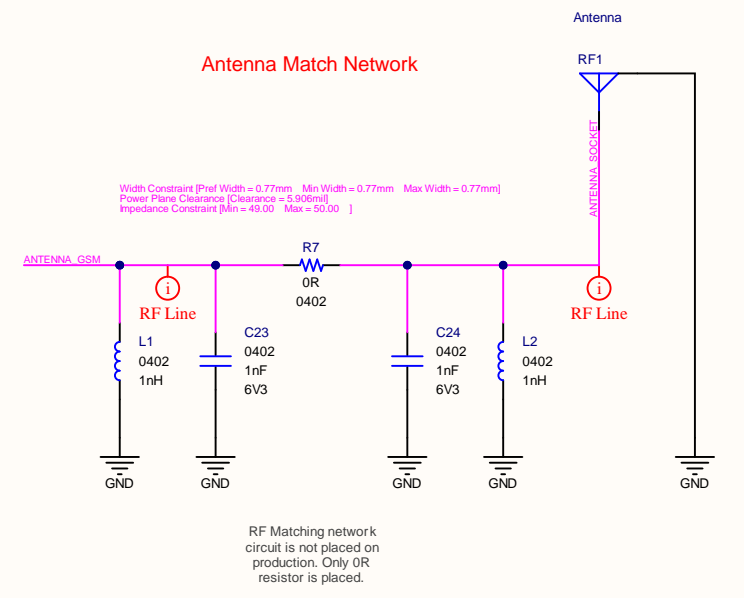
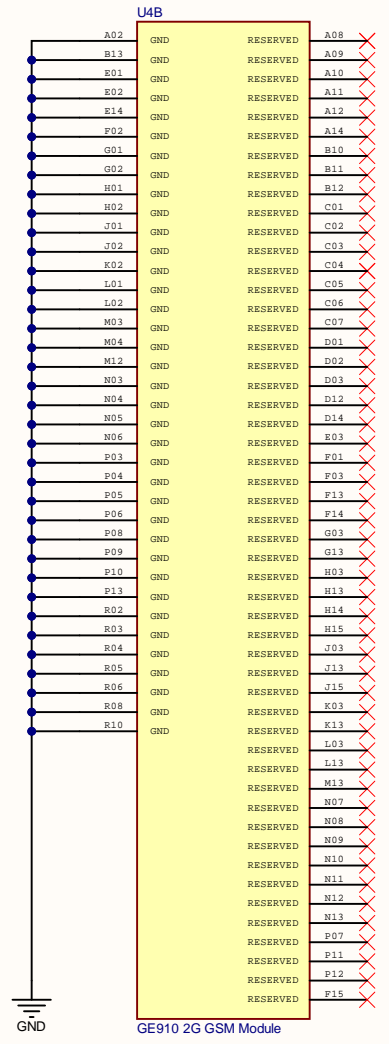
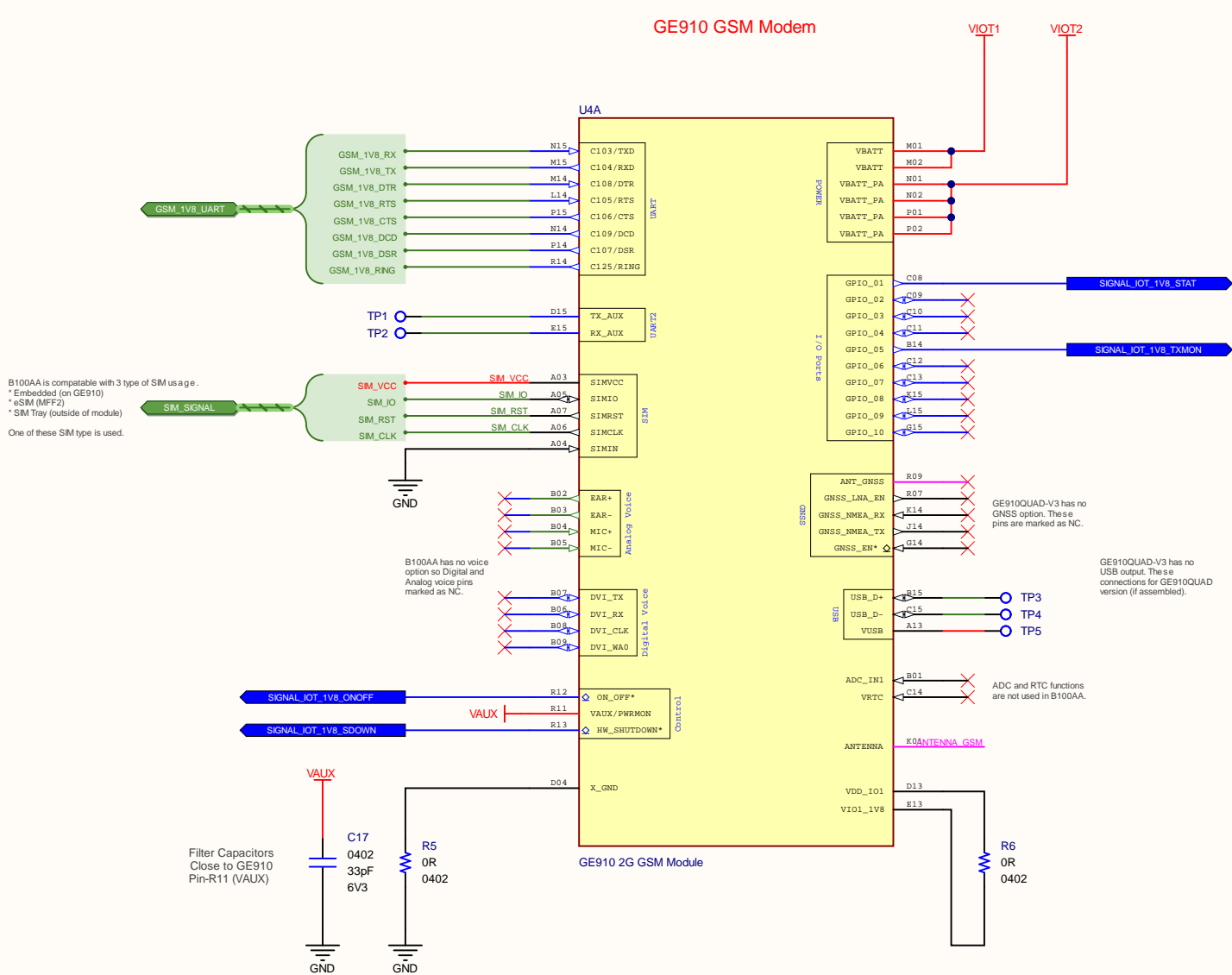
Title Main Power Switch			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 6	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:33	Sheet 6 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Main Power Switch.SchDoc					

5V Buck Boost Converter

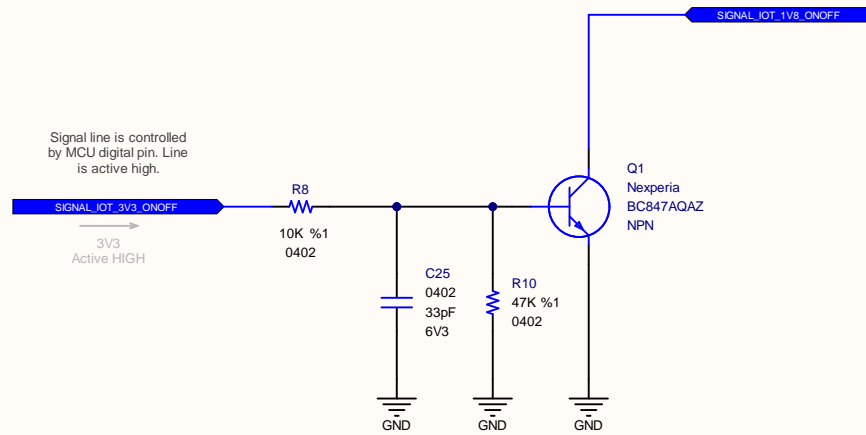


GSM IoT Communication Layer

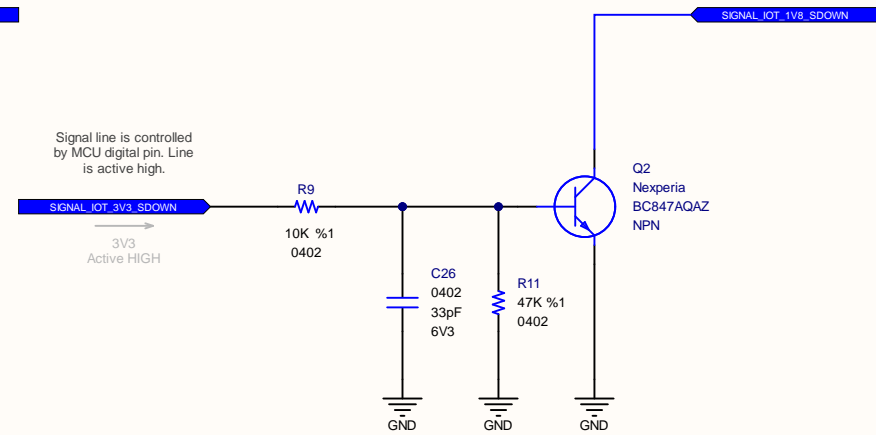




GSM Module On/Off Signal



GSM Module Shut Down Signal



Title GSM Control Signal Management

Size: A4

Number: 10

Revision: B100AA R4

Date: 21.02.2021

Time: 13:29:33

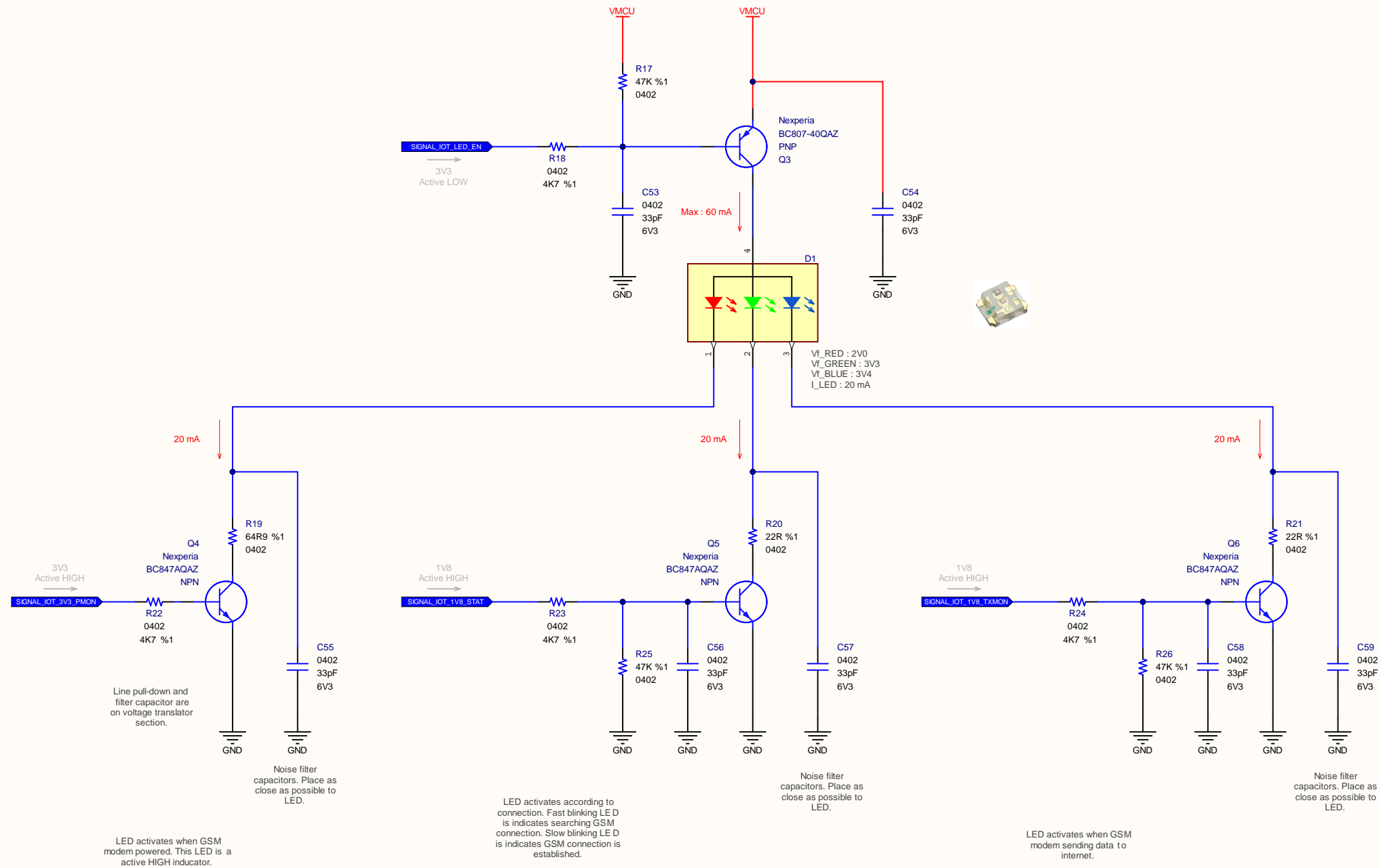
Sheet 10 of 54

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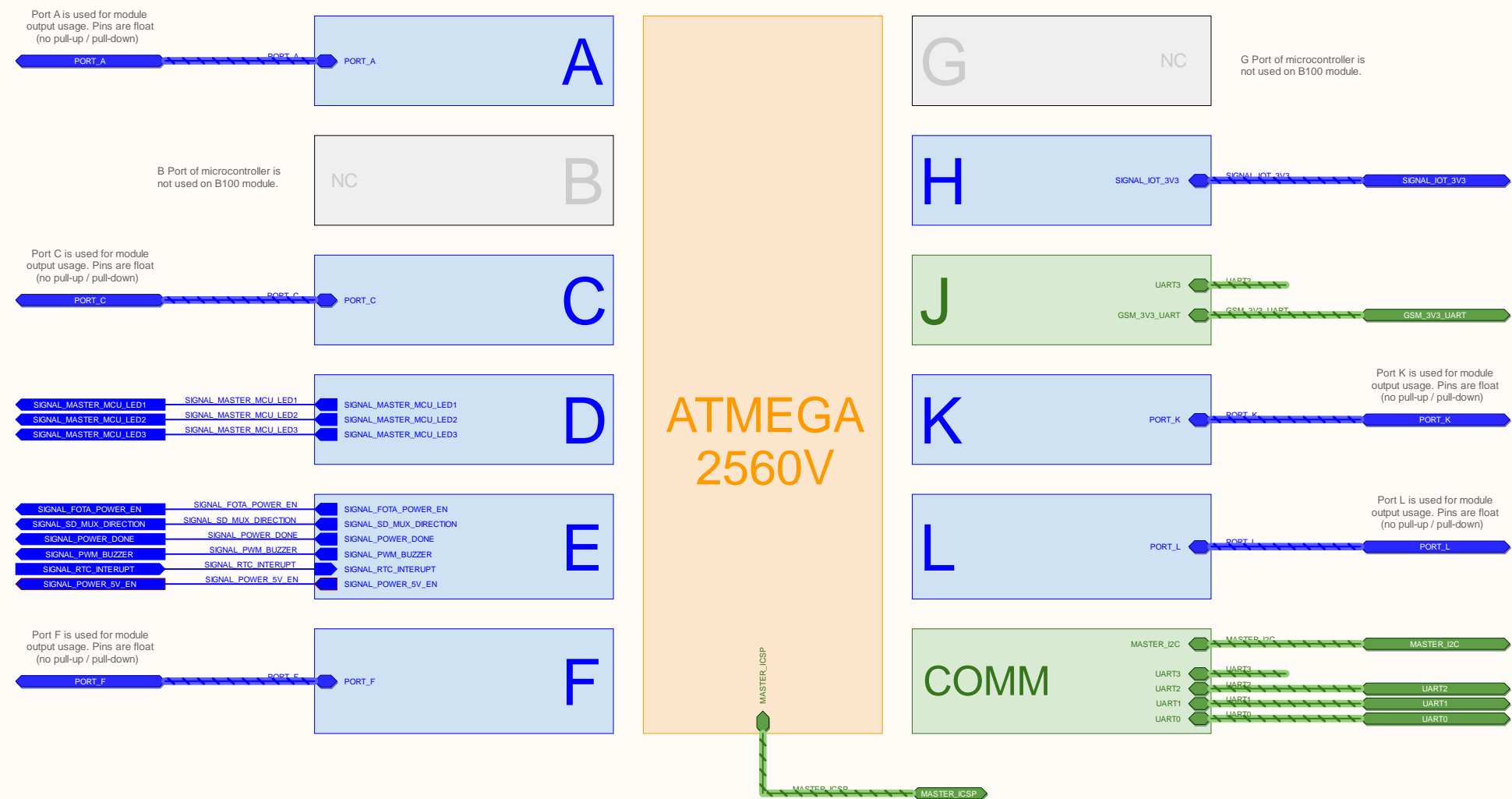
Ovoo Electronics


Necip Fazıl Mah. Ortanmak Sok.
Bırgöl Apt. No: 19/6
Meram / Konya
Türkiye

GSM IoT LED Indicators

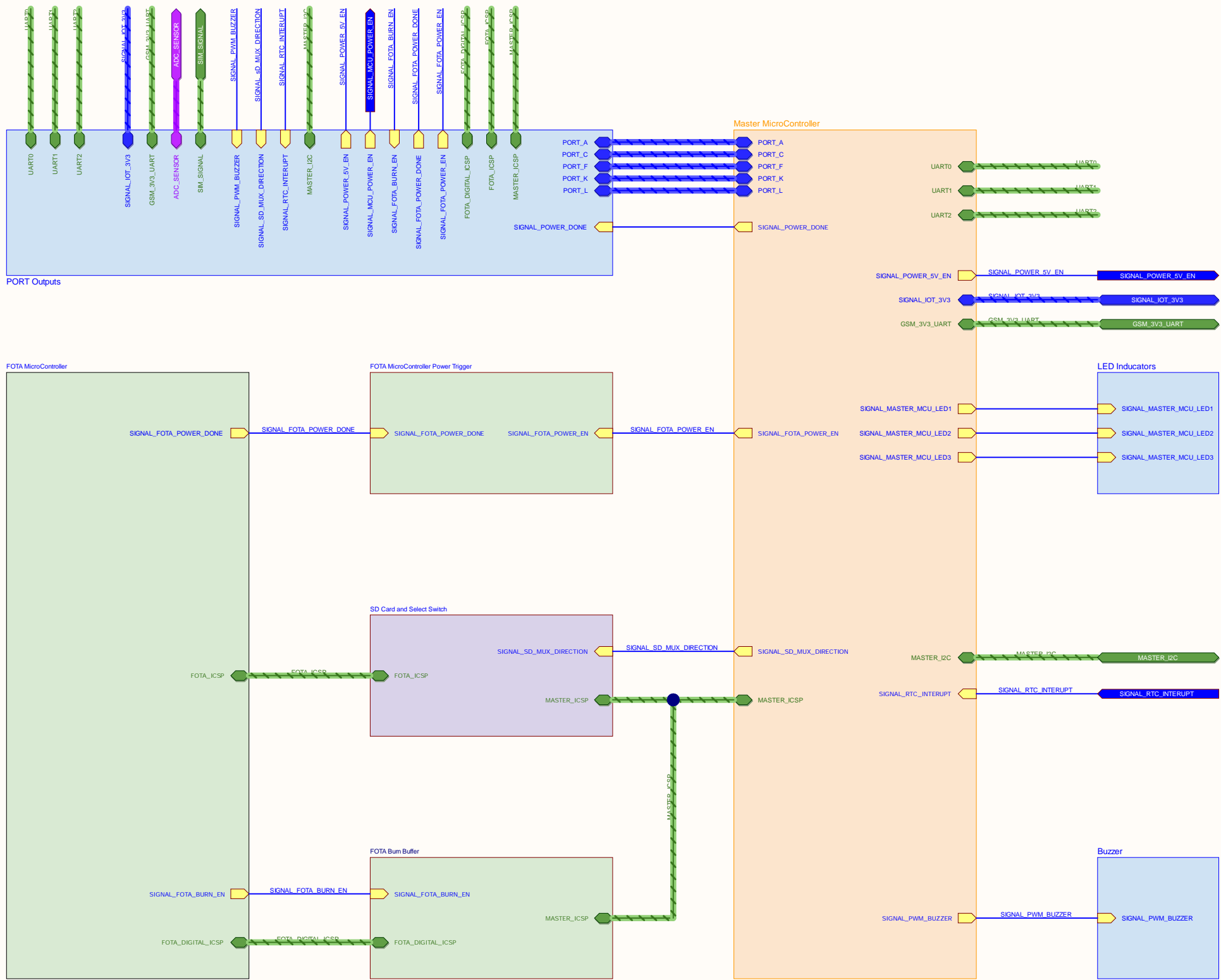


Master MicroController



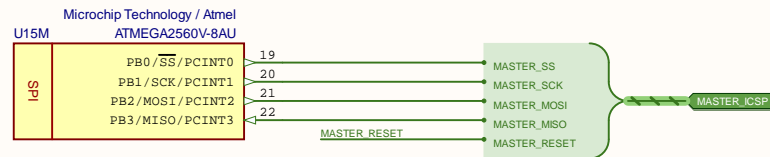
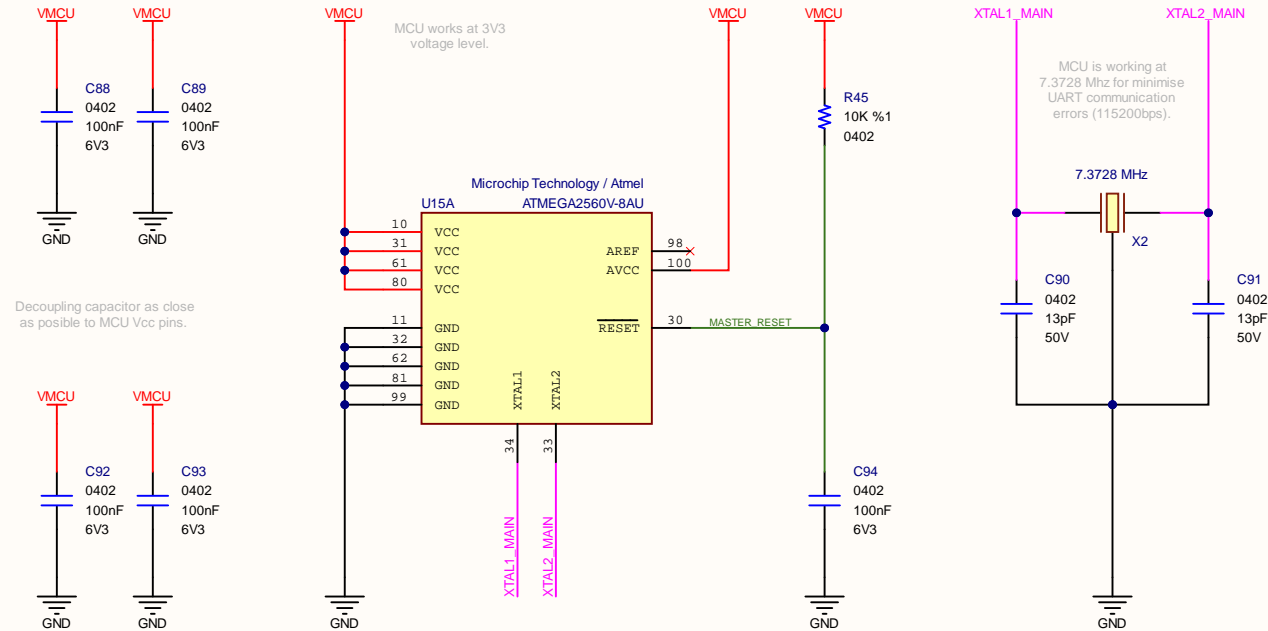
Title Master Micro Controller			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgıl Apt. No: 19/B Meram / Konya Türkiye		
Size: A3	Number: 13	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:33	Sheet 13 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master_MicroController.SchDoc					

B100 MicroController




MicroController

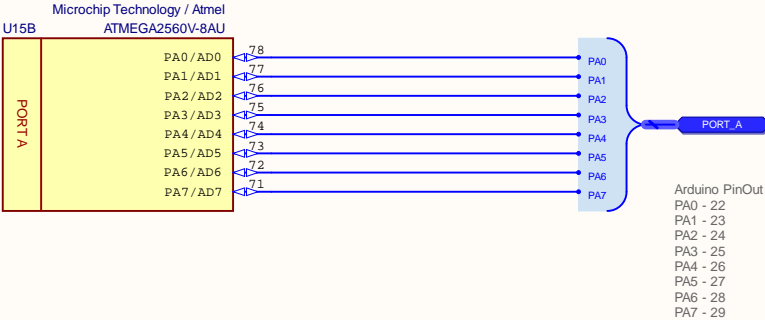
Crystal Oscillator




Master MicroController ICSP

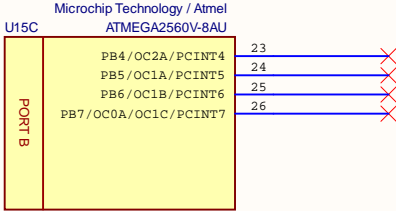
Title Master MicroController Core			Ovoo Electronics Necip Fazıl Mah. Ortanmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 15	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:33	Sheet 15 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Core.SchDoc				

Master MicroController A Port



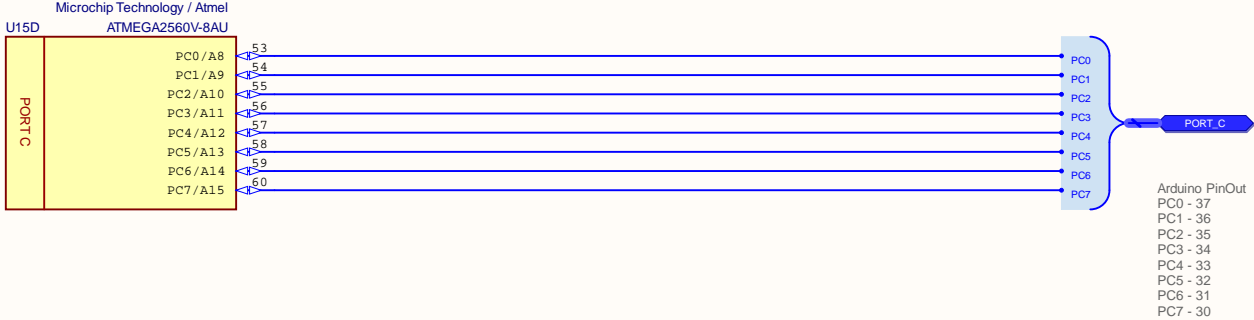
Title Master Micro Controller Port A Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 16	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:33	Sheet 16 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port A.SchDoc					

Master MicroController B Port

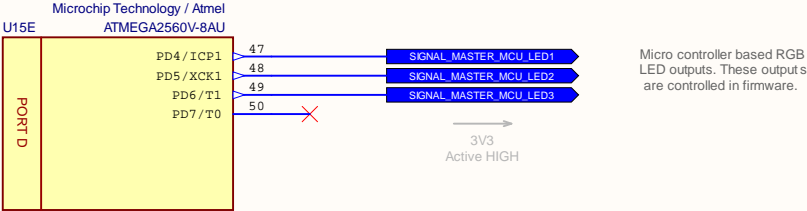



These ports are not used in B100 module. All un-used pins are NC.

Master MicroController C Port

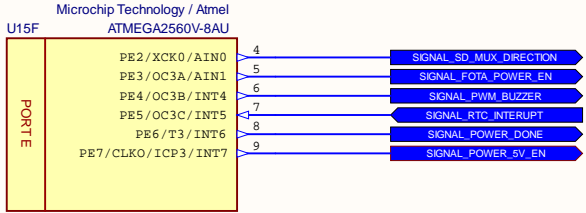



Master MicroController D Port



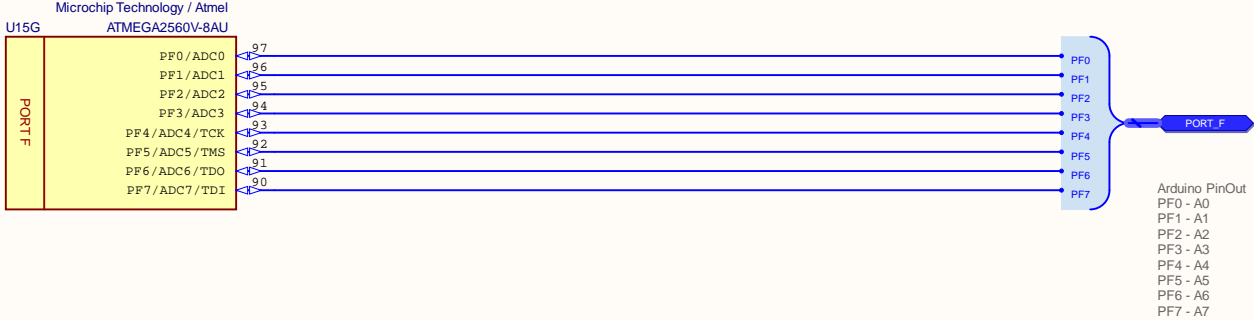
Title Master Micro Controller Port D Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 19	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:34	Sheet 19 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port D.SchDoc				

Master MicroController E Port

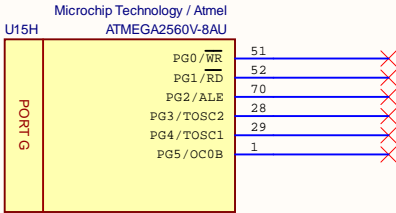


Title Master Micro Controller Port E Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 20	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:34	Sheet 20 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port E.SchDoc				


Master MicroController F Port



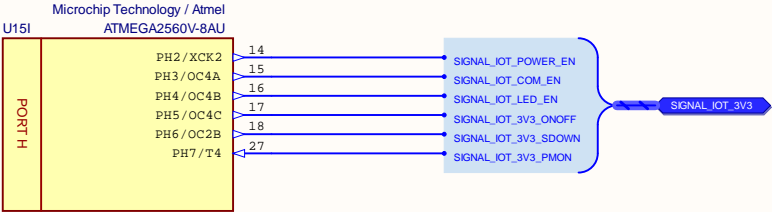
Master MicroController G Port




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

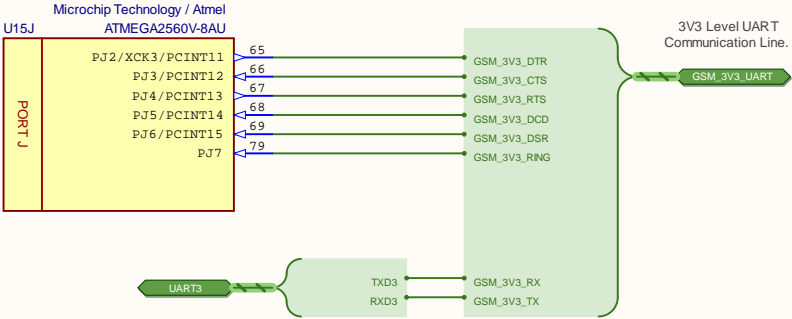
Title Master Micro Controller Port G Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 22	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:34	Sheet 22 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port G.SchDoc				


Master MicroController H Port



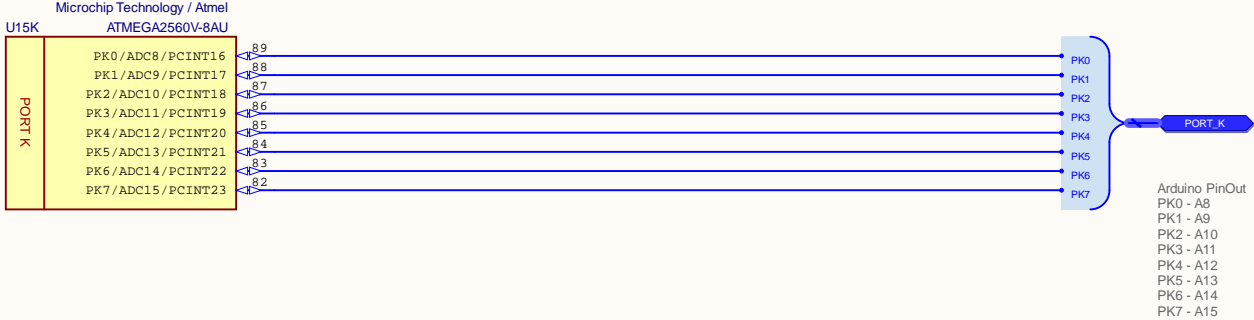
Title Master Micro Controller Port H Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 23	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:34	Sheet 23 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port H.SchDoc				

GSM IoT Communication Pins

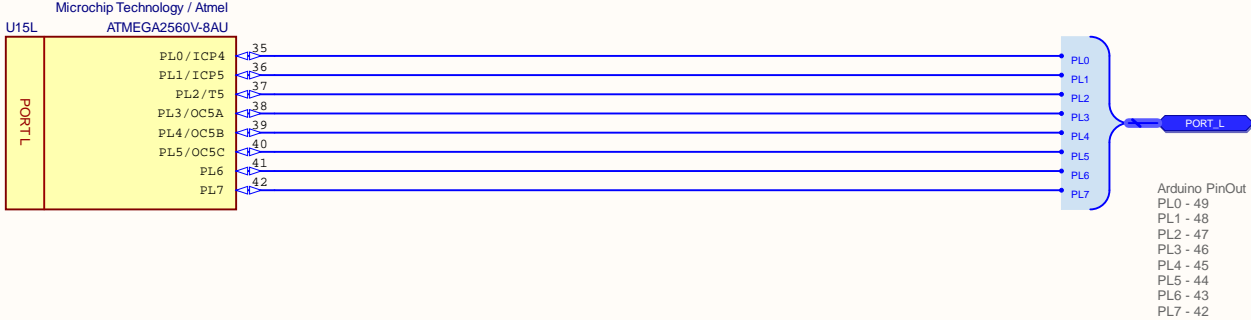


Title Master Micro Controller Port J Pin Out			Ovoo Electronics Necip Fazl Mah. Ortarmak Sok. Birgül Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 24	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:34	Sheet 24 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port J.SchDoc				

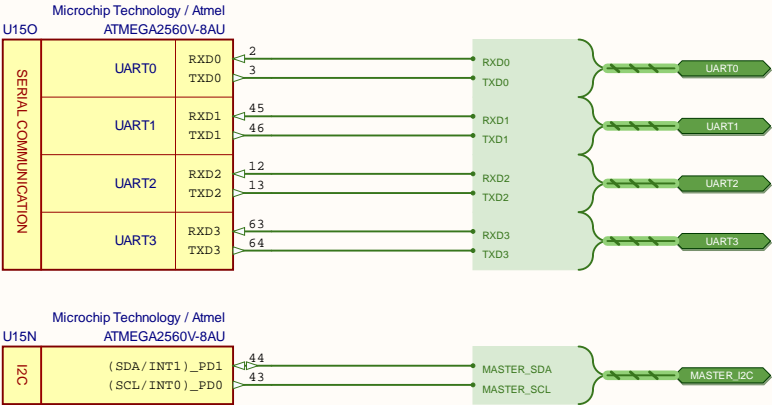
Master MicroController K Port



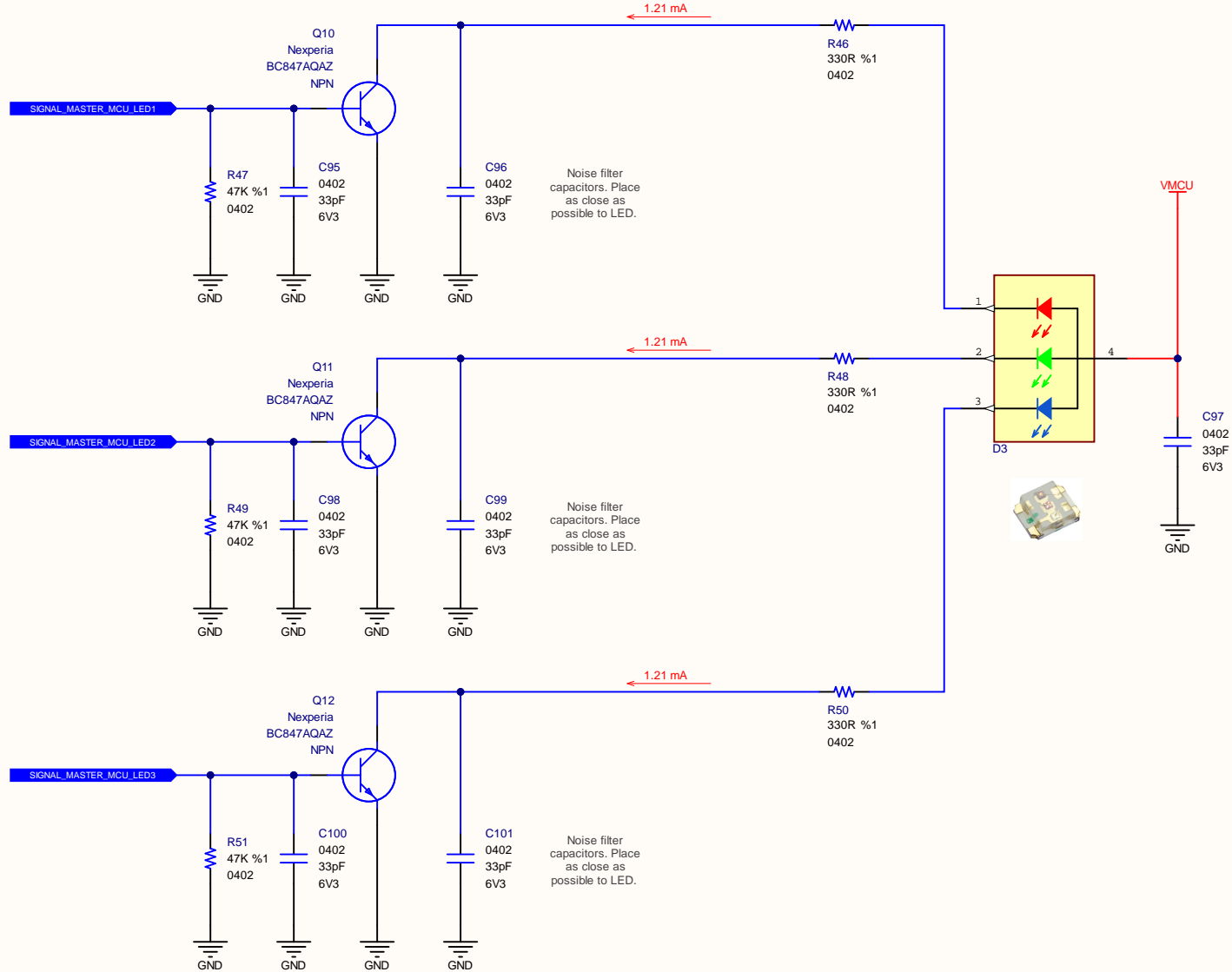
Master MicroController L Port




Communication Ports

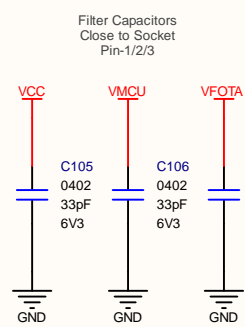
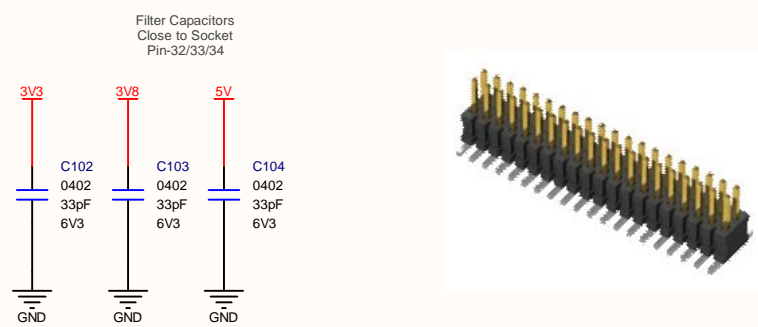


Main Microcontroller Status LED Indicators

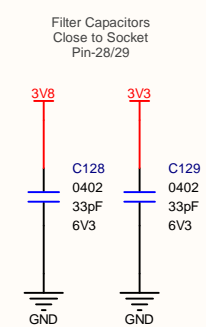
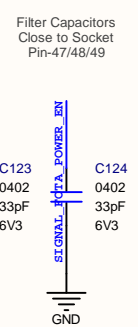
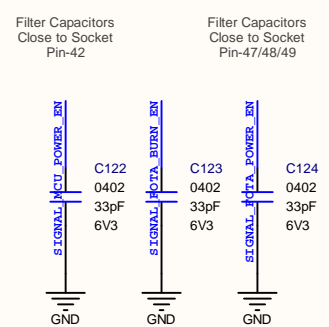
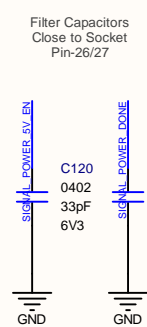
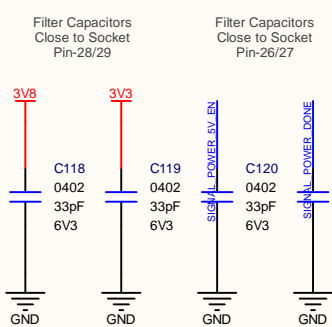
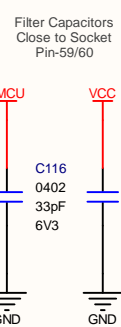
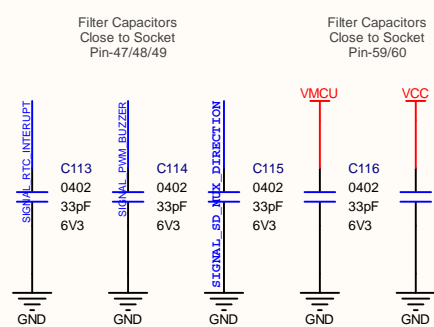
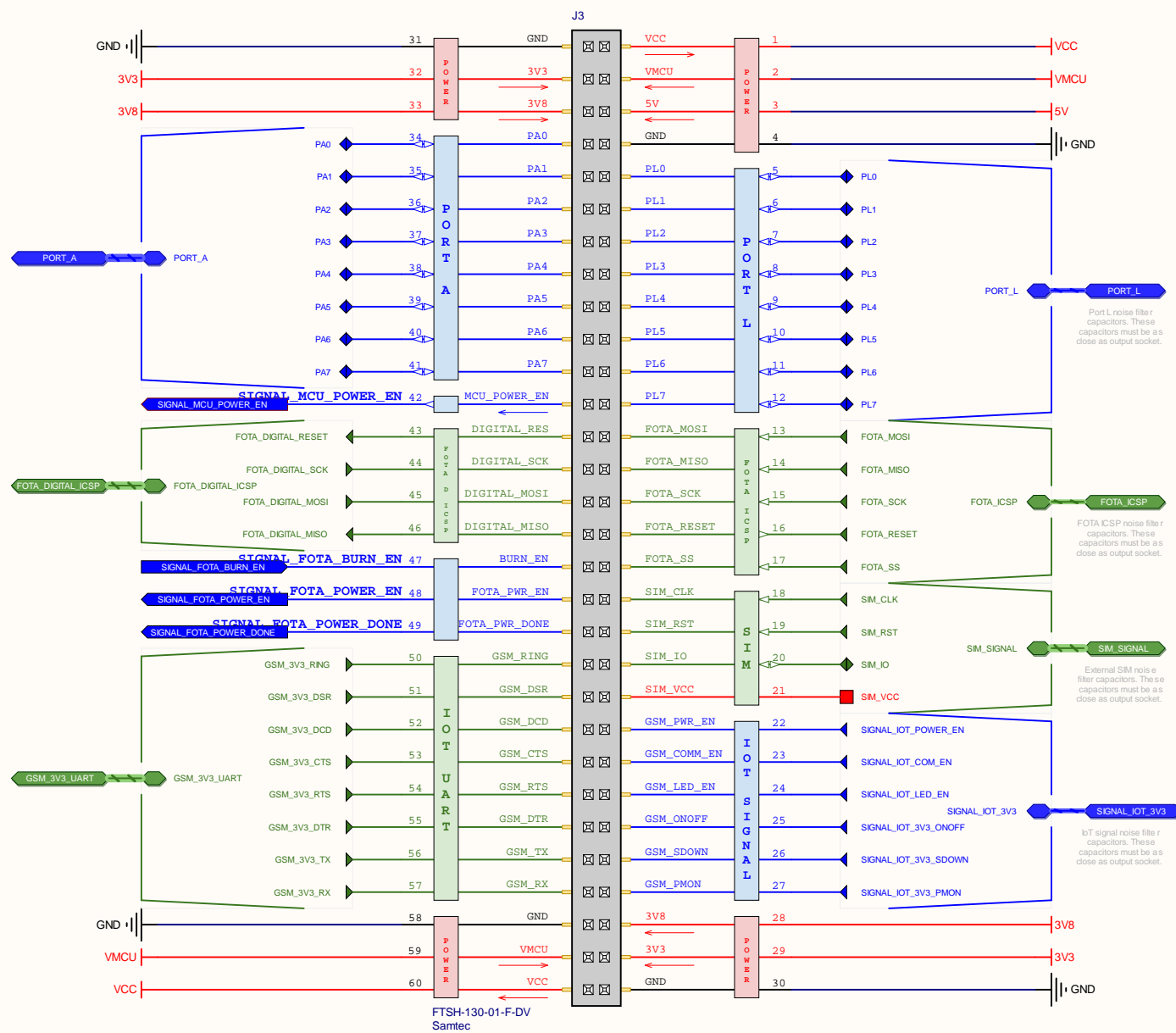
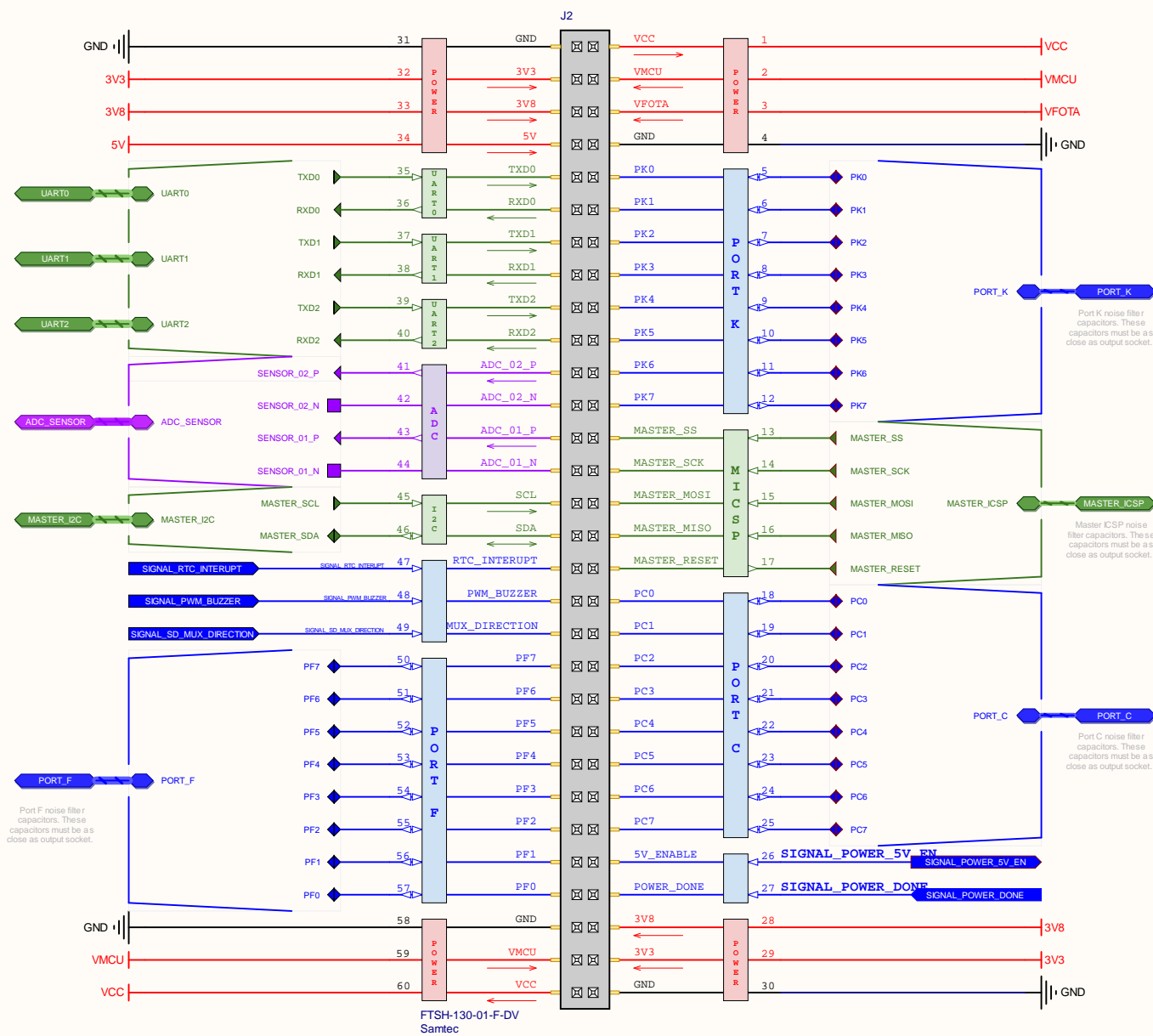
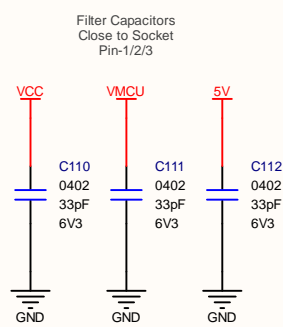
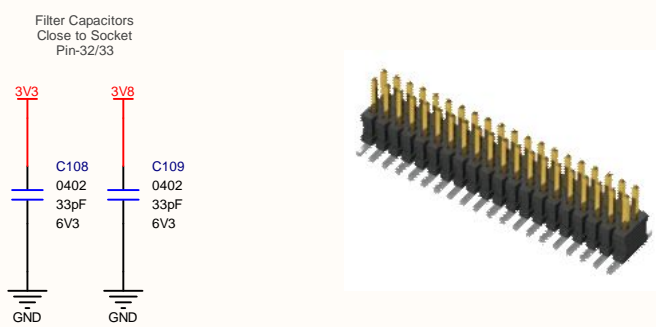


Title Master MicroController LED			Ovoo Electronics		
Size: A4	Number: 28	Revision: B100AA R4	Necip Fazil Mah. Ortamak Sok.		
			Bırgöl Apt. No: 19/6		
Date: 21.02.2021		Time: 13:29:34		Meram / Konya	
		Sheet 28		Türkiye	
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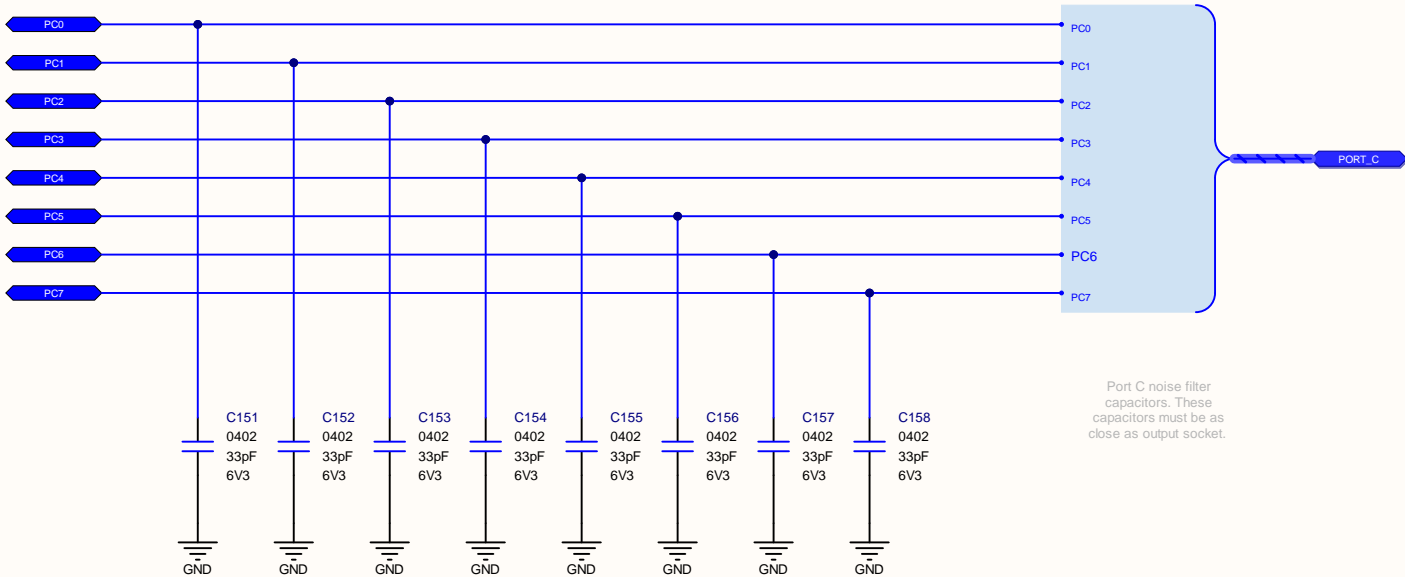
Module Output Socket A



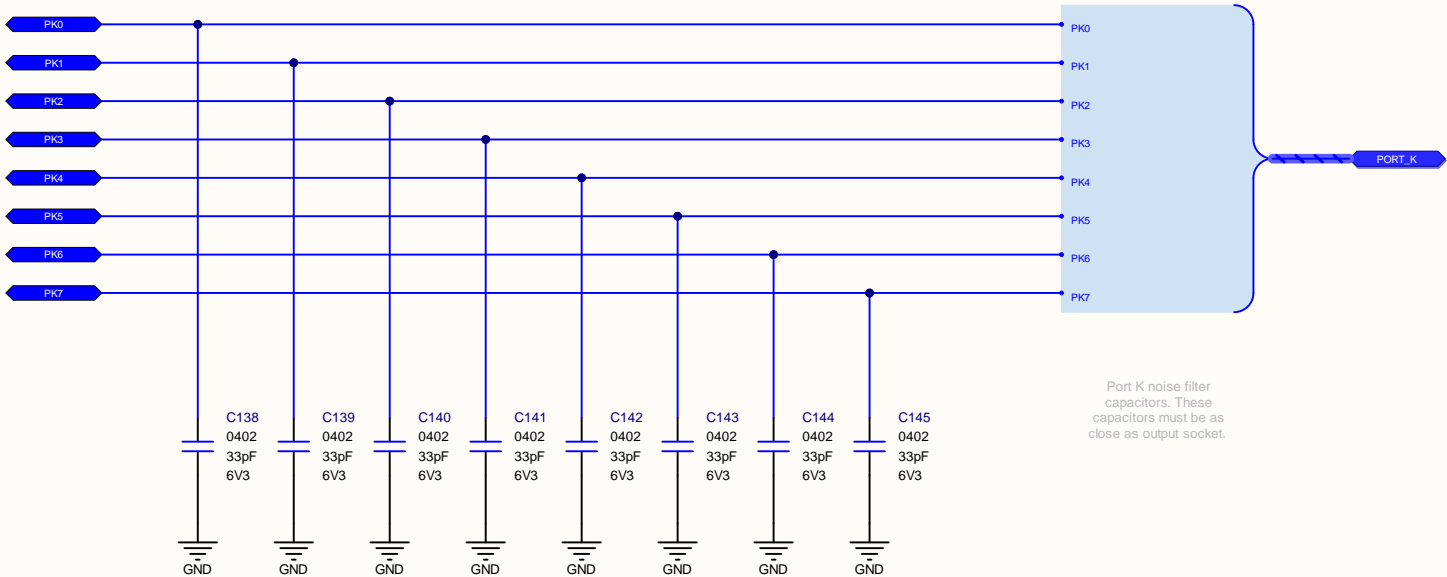
Module Output Socket B



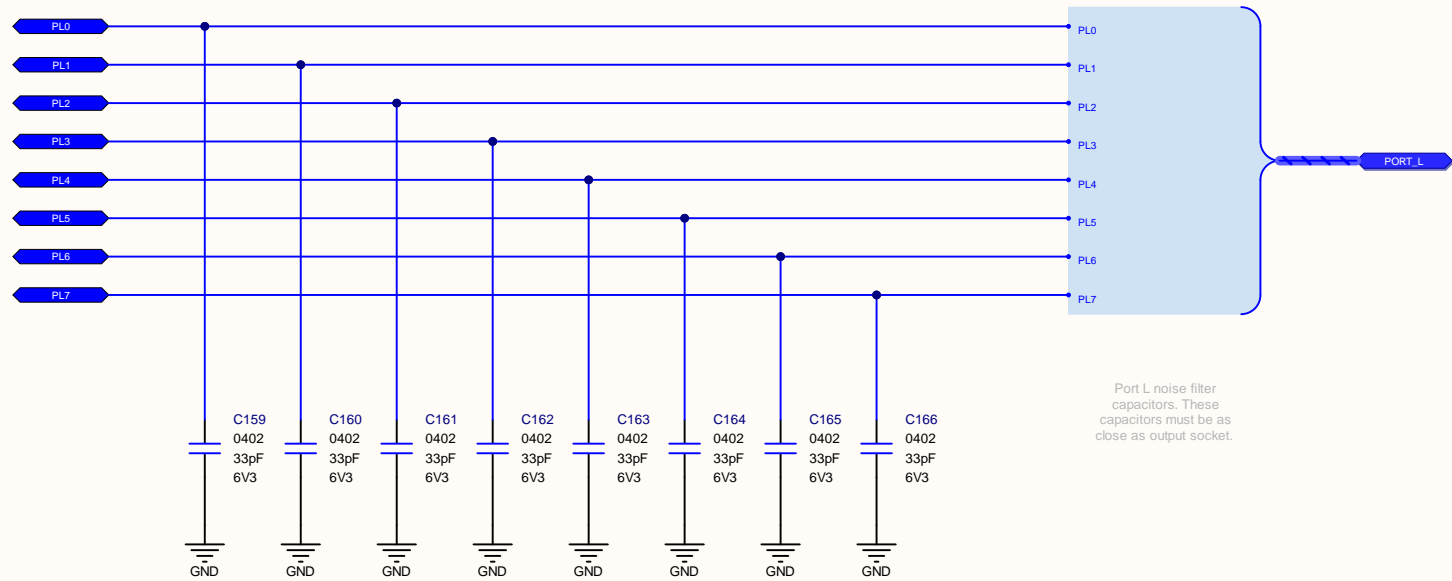
Port C Output Socket Noise Capacitors




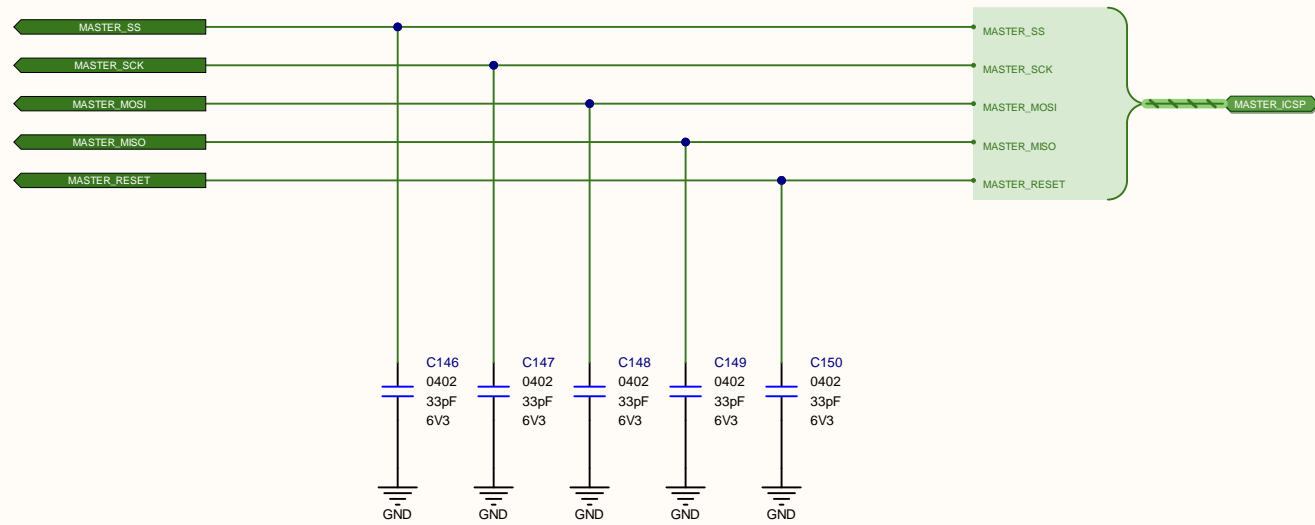
Port K Output Socket Noise Capacitors




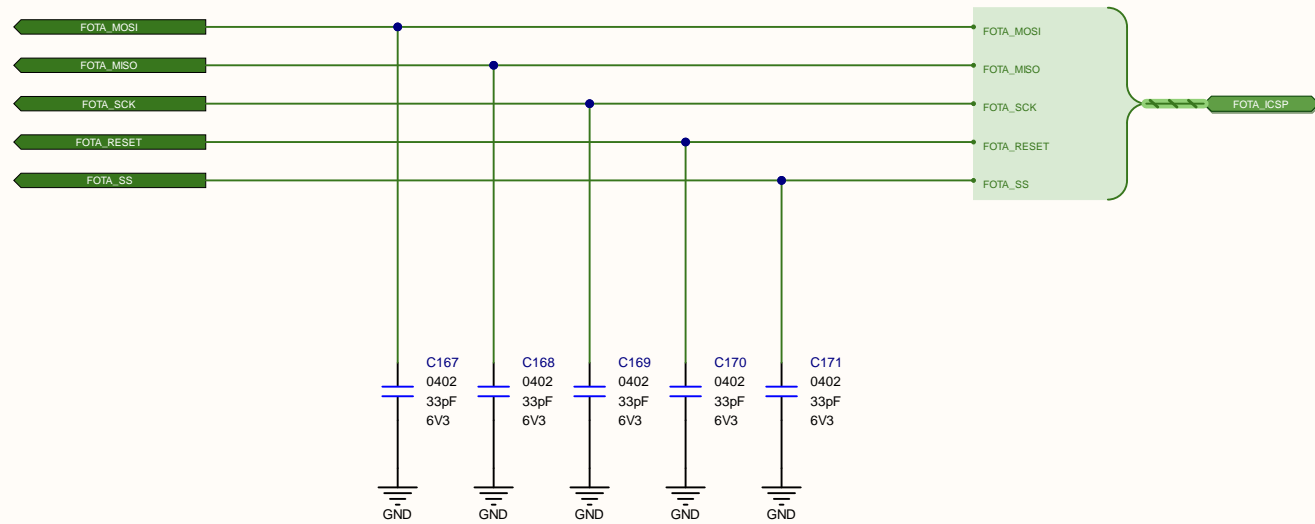
Port L Output Socket Noise Capacitors

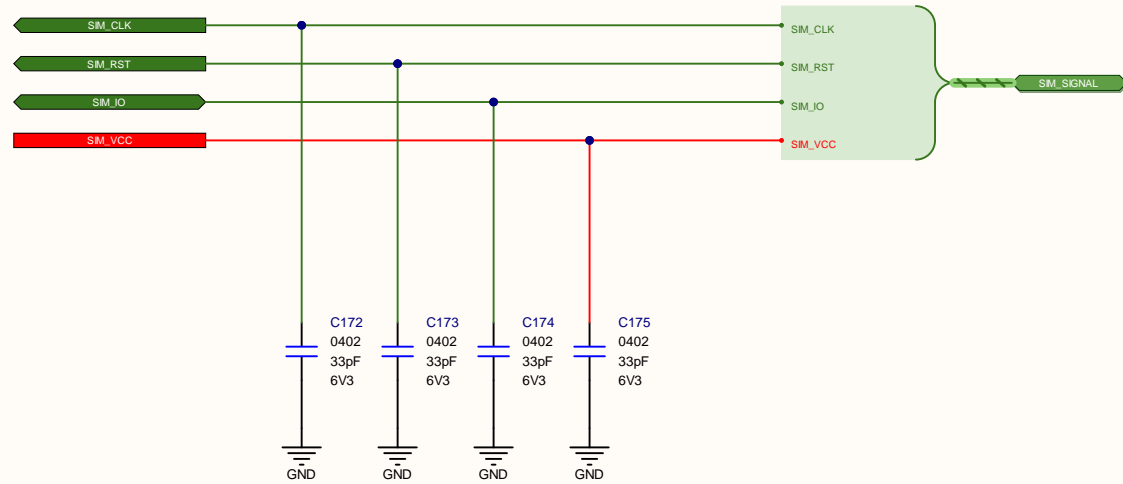



Title PORT L Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 32	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:34	Sheet 32 of 54		
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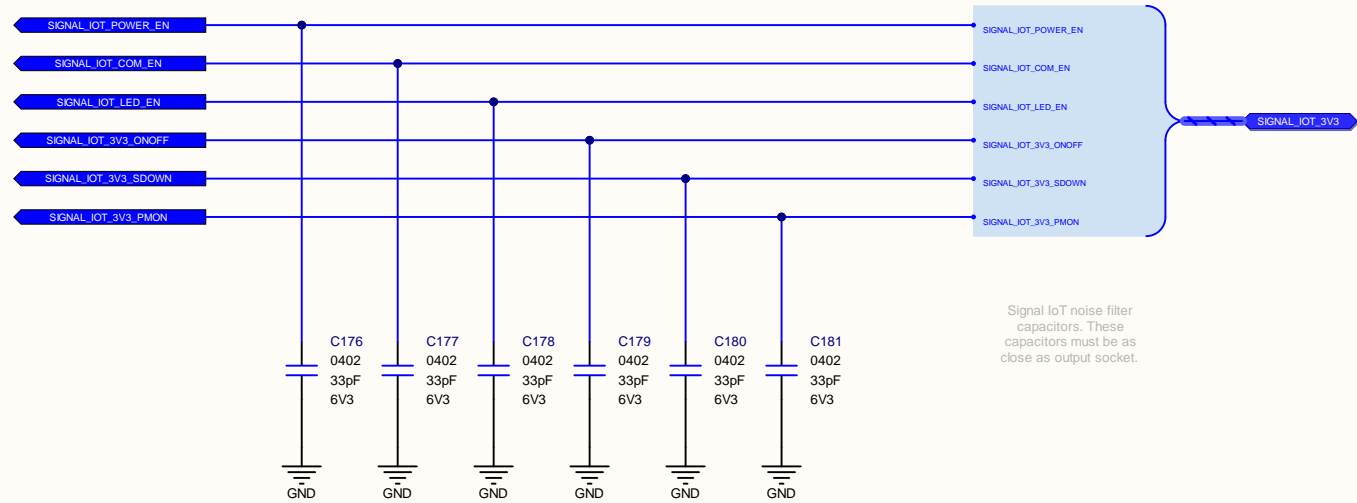
Title Master ICSP Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Birgül Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 33	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:34	Sheet 33 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - Master ICSP.SchDoc					






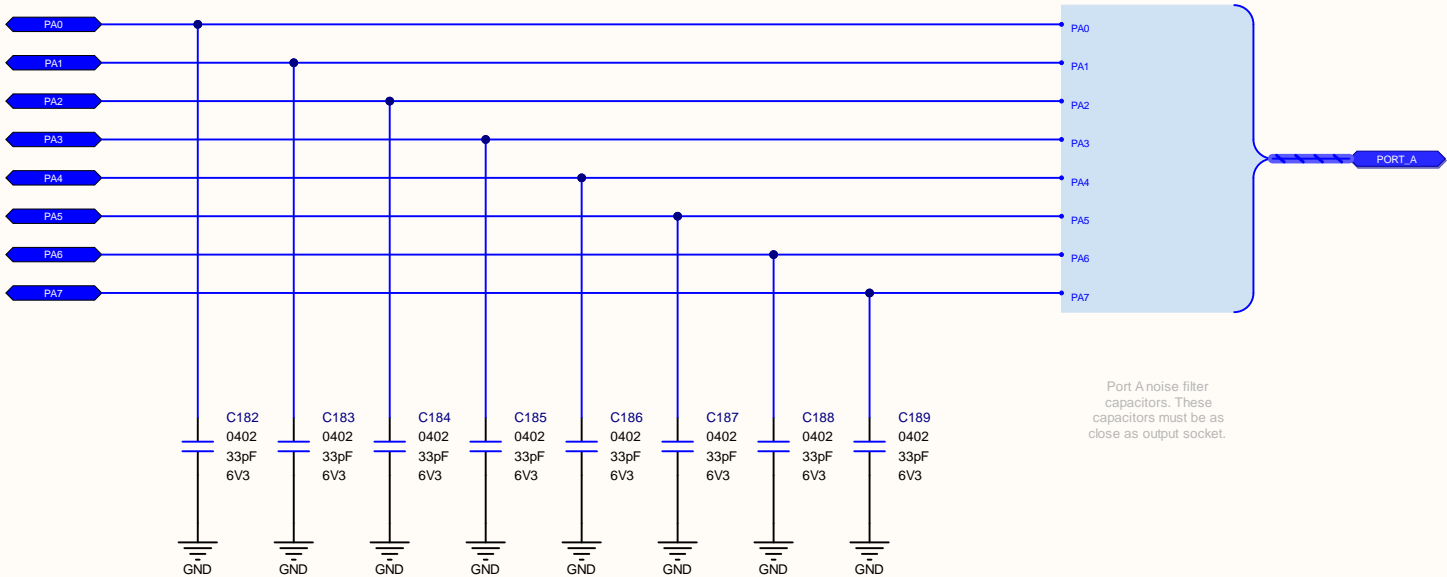
Title External SIM Filter Capacitors			Ovoo Electronics		
Size: A4		Number: 35	Revision: B100AA R4		
Date: 21.02.2021		Time: 13:29:35		Sheet 35 of 54	
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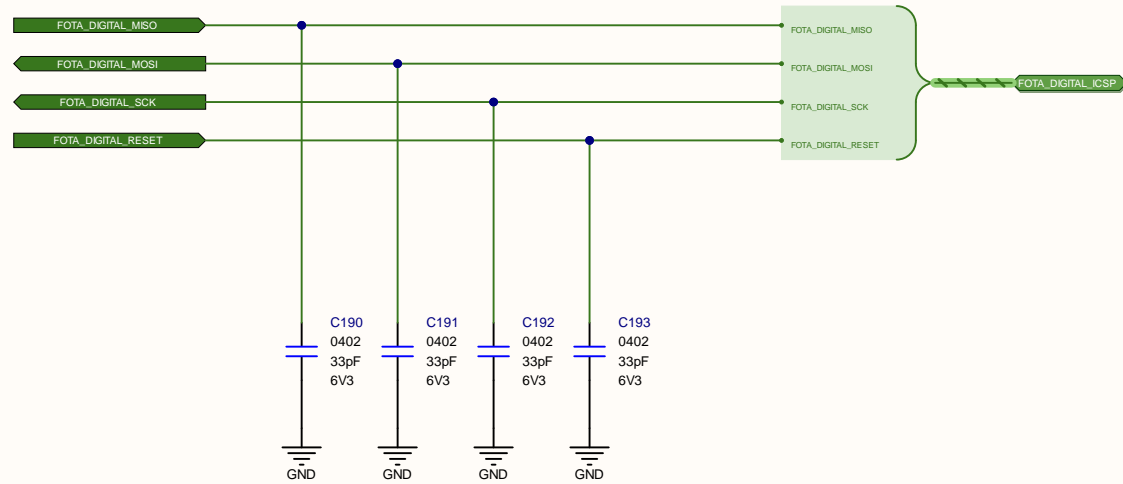
Signal IoT Output Socket Noise Capacitors




Title Signal IoT Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 36	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:35	Sheet 36 of 54		
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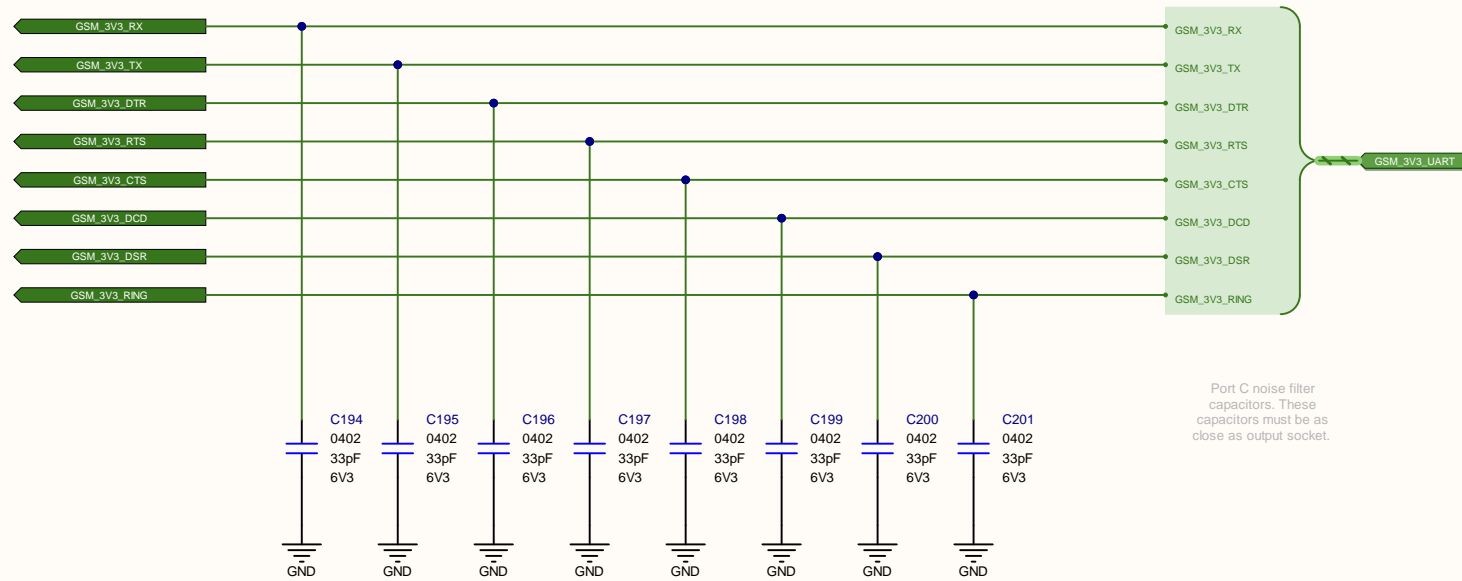
Port A Output Socket Noise Capacitors






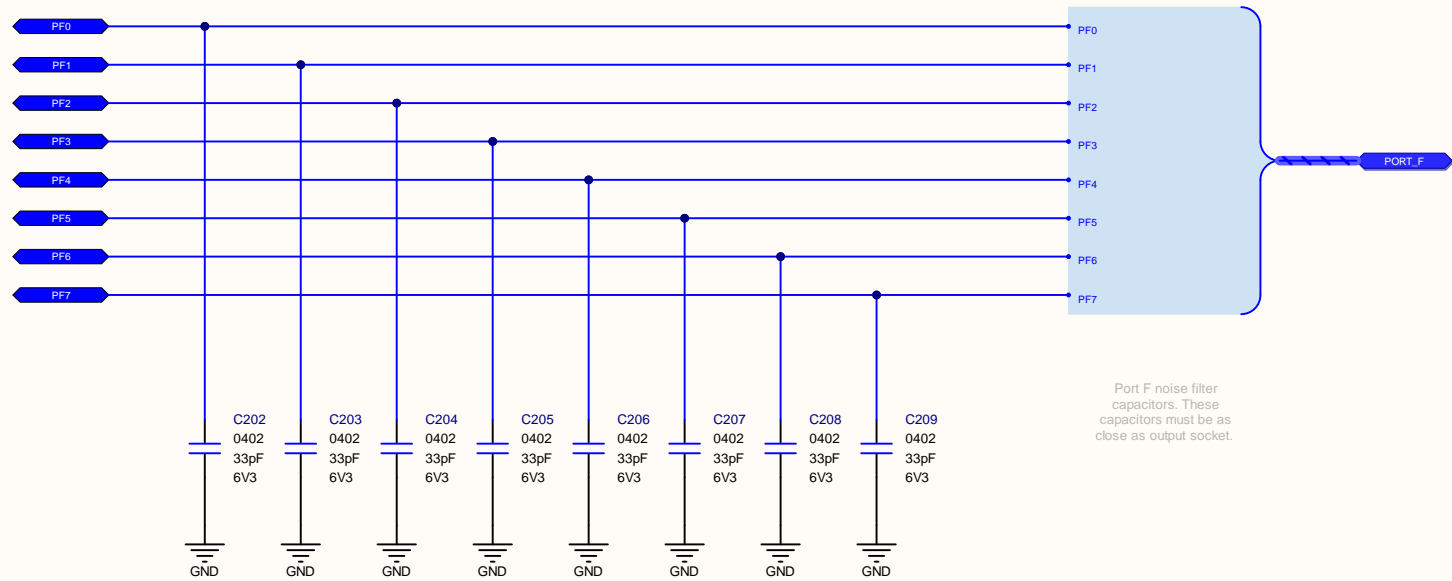
Title FOTA Digital ICSP Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortanmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 38	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:35	Sheet 38 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - FOTA Digital ICSP.SchDoc					


IoT UART Output Socket Noise Capacitors

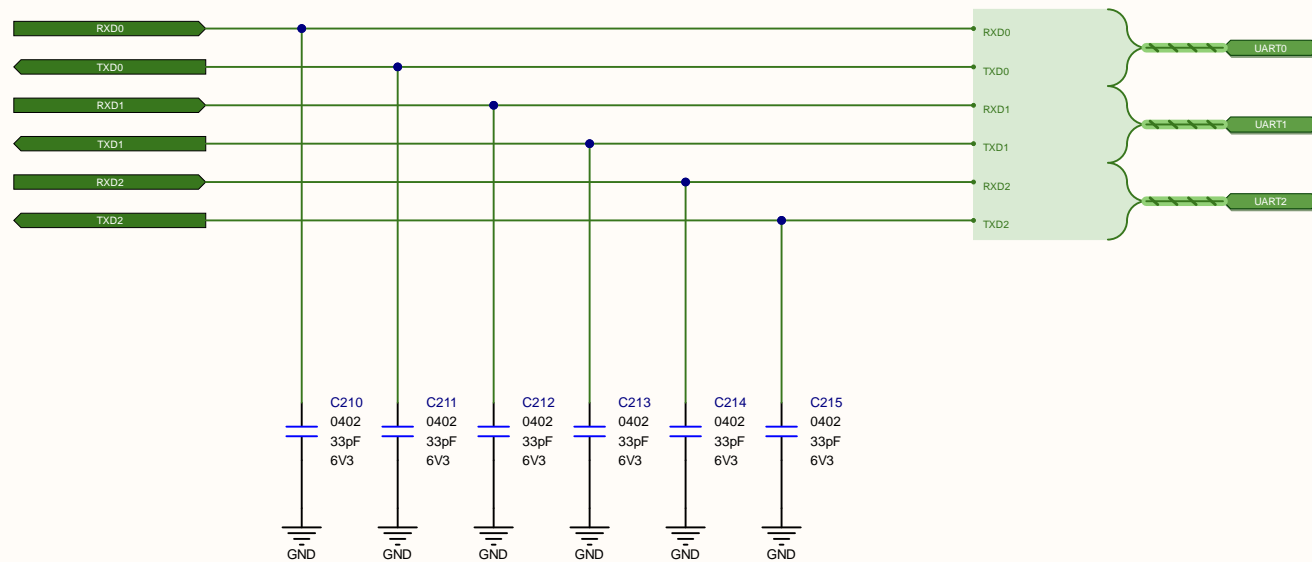


Title IoT UART Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye 
Size: A4	Number: 39	Revision: B100AA R4	
Date: 21.02.2021	Time: 13:29:35	Sheet 39 of 54	
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - IoT UART.SchDoc			

Port F Output Socket Noise Capacitors

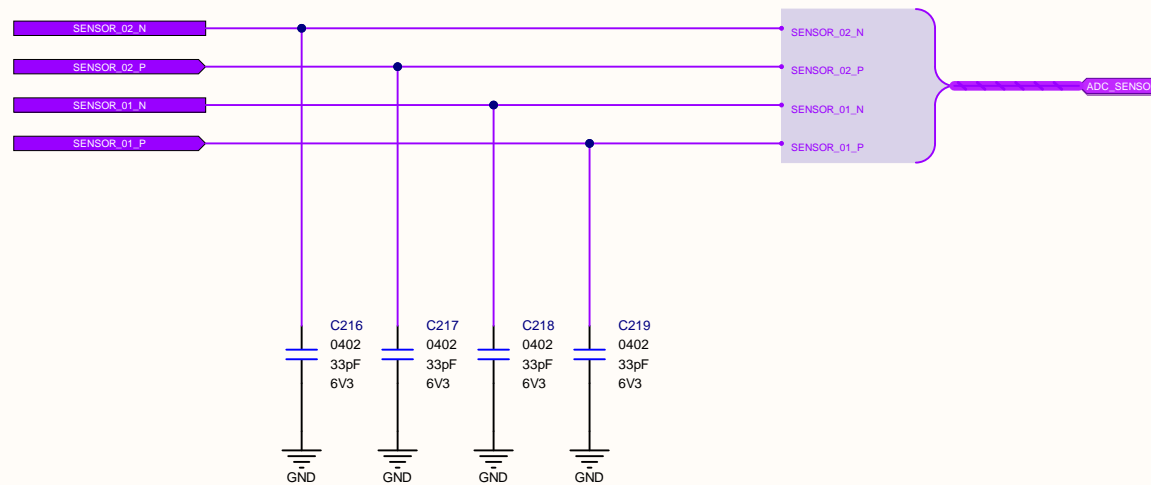



Title PORT F Filter Capacitors			Ovoo Electronics Necip Fazil Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 40	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:35	Sheet 40 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - Port F.SchDoc				

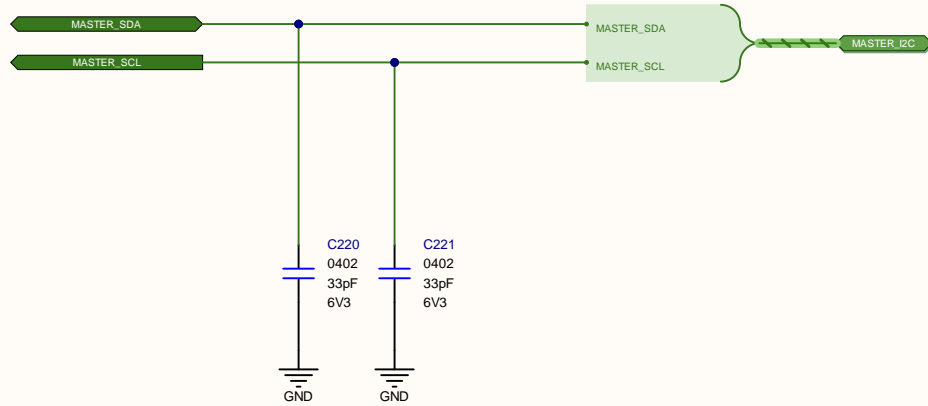



Title Serial Communication Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 41	Revision: B100AA R4	Sheet 41 of 54	
Date: 21.02.2021	Time: 13:29:35	File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - Serial Communication.SchDoc		





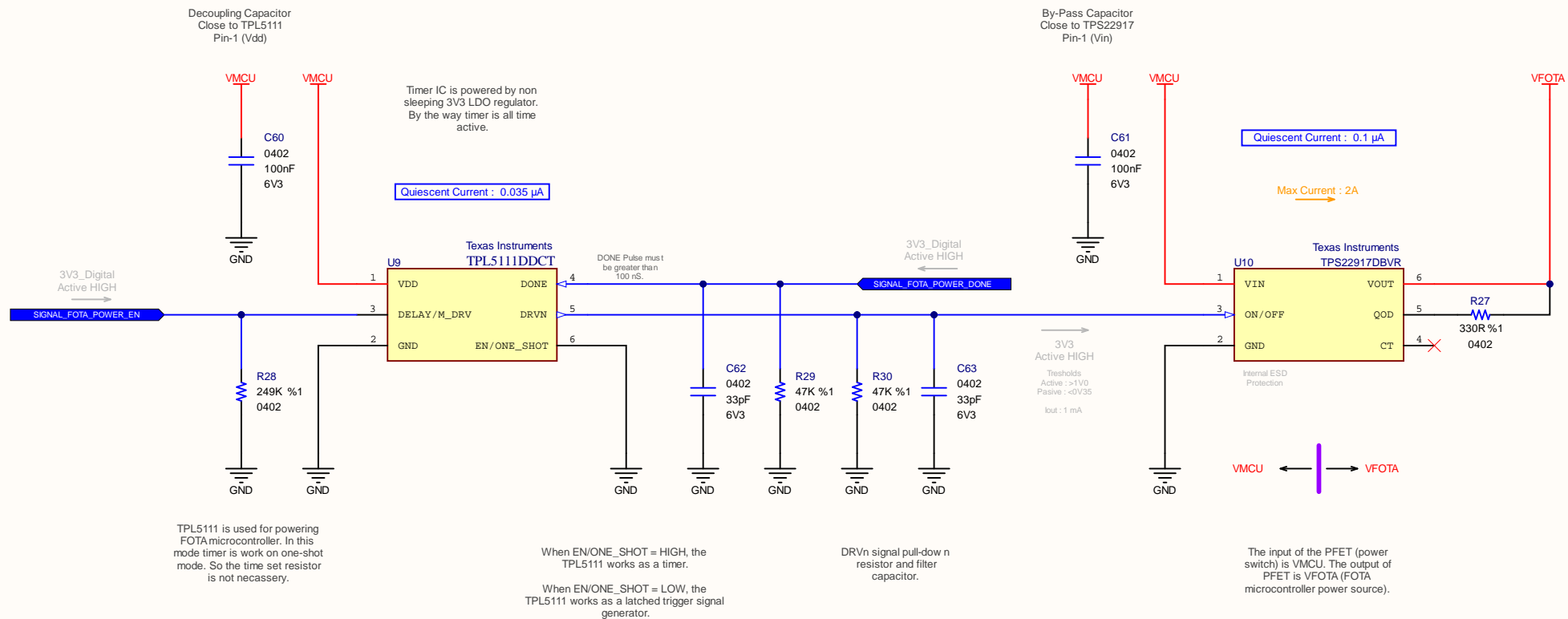
Title ADC Sensor Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 42	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:35	Sheet 42 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - ADC Sensor.SchDoc					




Title I2C Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 43	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:35	Sheet 43 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - I2C.SchDoc					

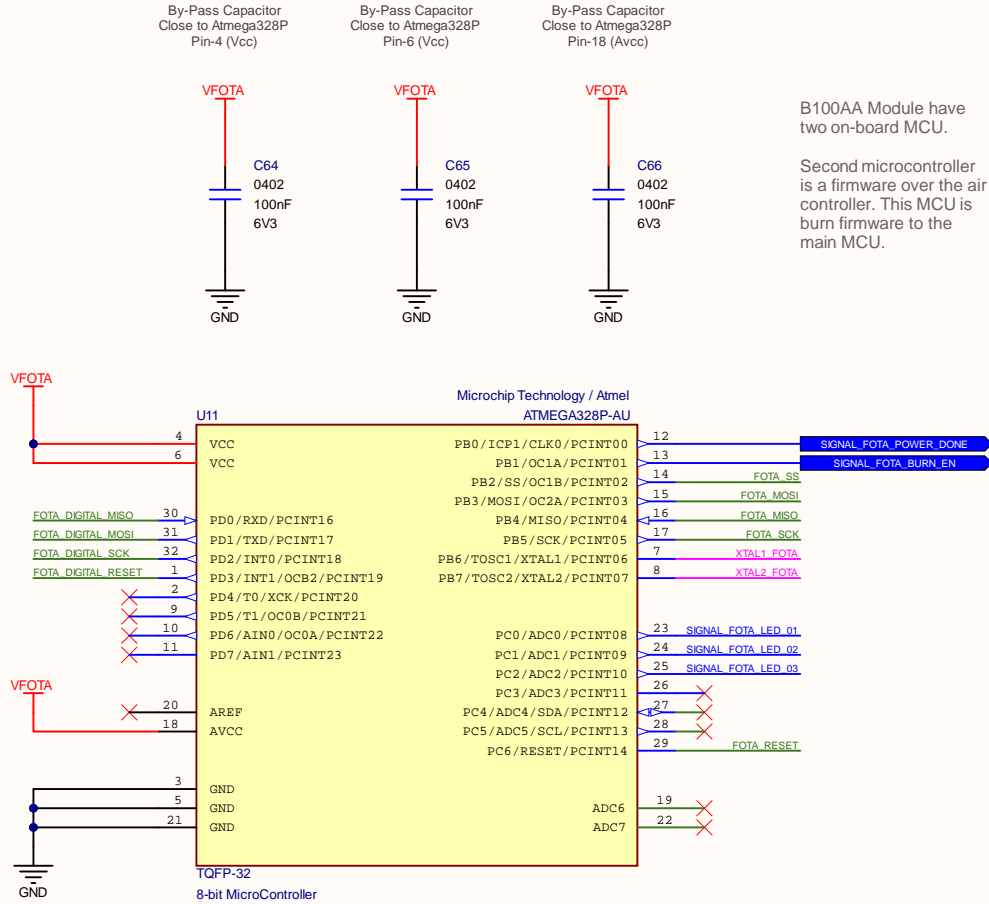
Power Trigger

Power Switch



Title FOTA MicroController Latched Power Trigger			Ovoo Electronics Necip Fazil Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 44	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:35	Sheet 44 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\FOTA MicroController Power Switch.SchDoc				

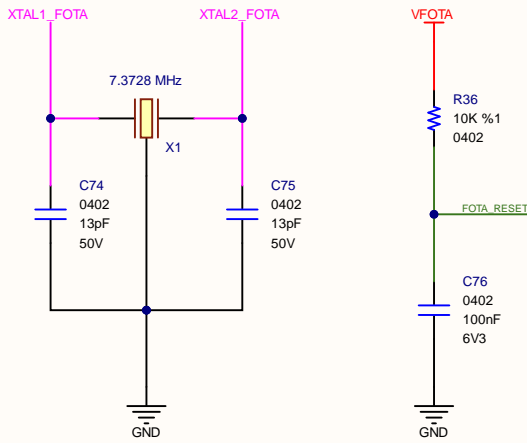
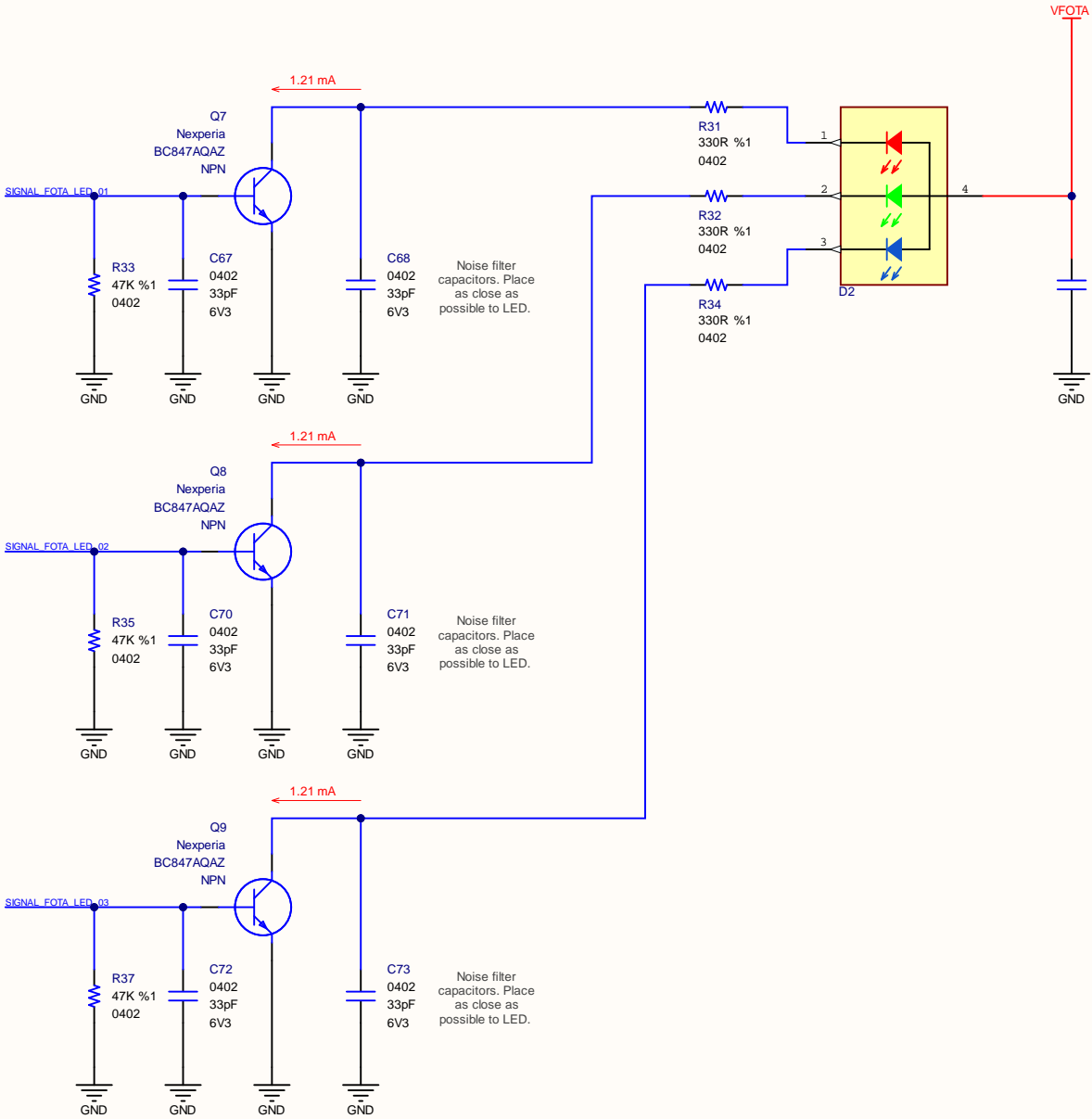
FOTA Micro Controller



B100AA Module have two on-board MCU.

Second microcontroller is a firmware over the air controller. This MCU is burn firmware to the main MCU.

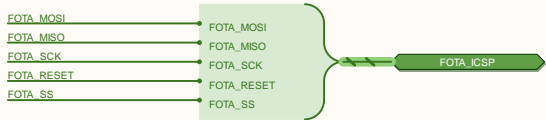
FOTA Status LED Indicators



FOTA MCU is working at 7.3728 Mhz.

FOTA MCU Reset Line. Pull-up.

FOTA Micro Controller ICSP



FOTA Digital ICSP (Main MCU Burn)



A

B

C

D

A

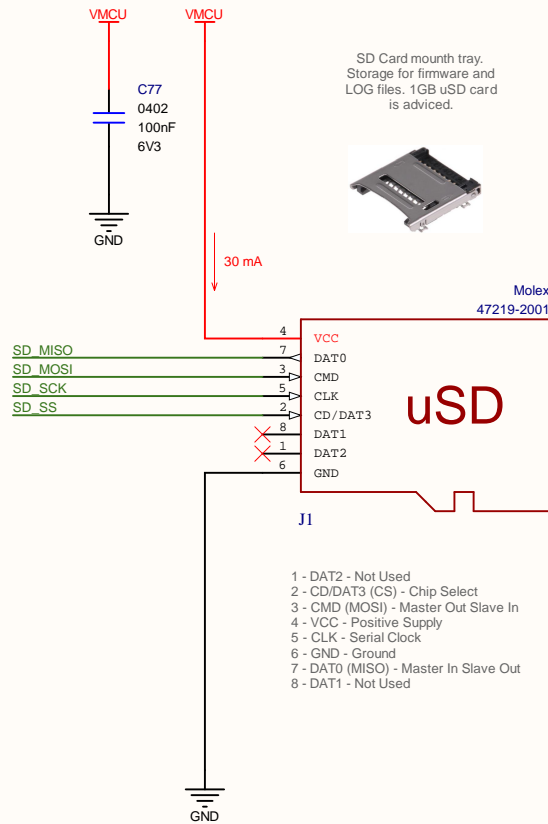
B

C

D

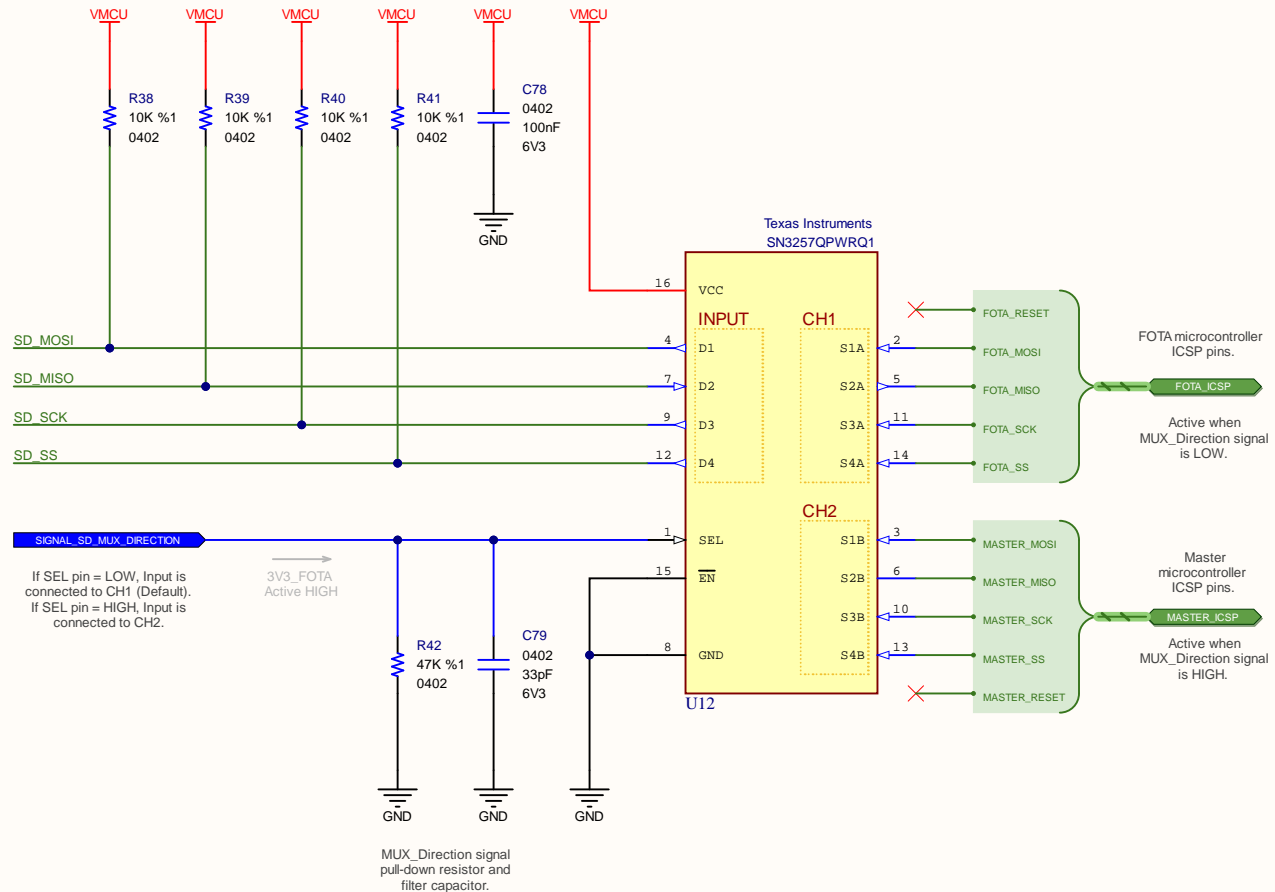
Decoupling Capacitor.
As close as possible to
uSD tray.


SD Card



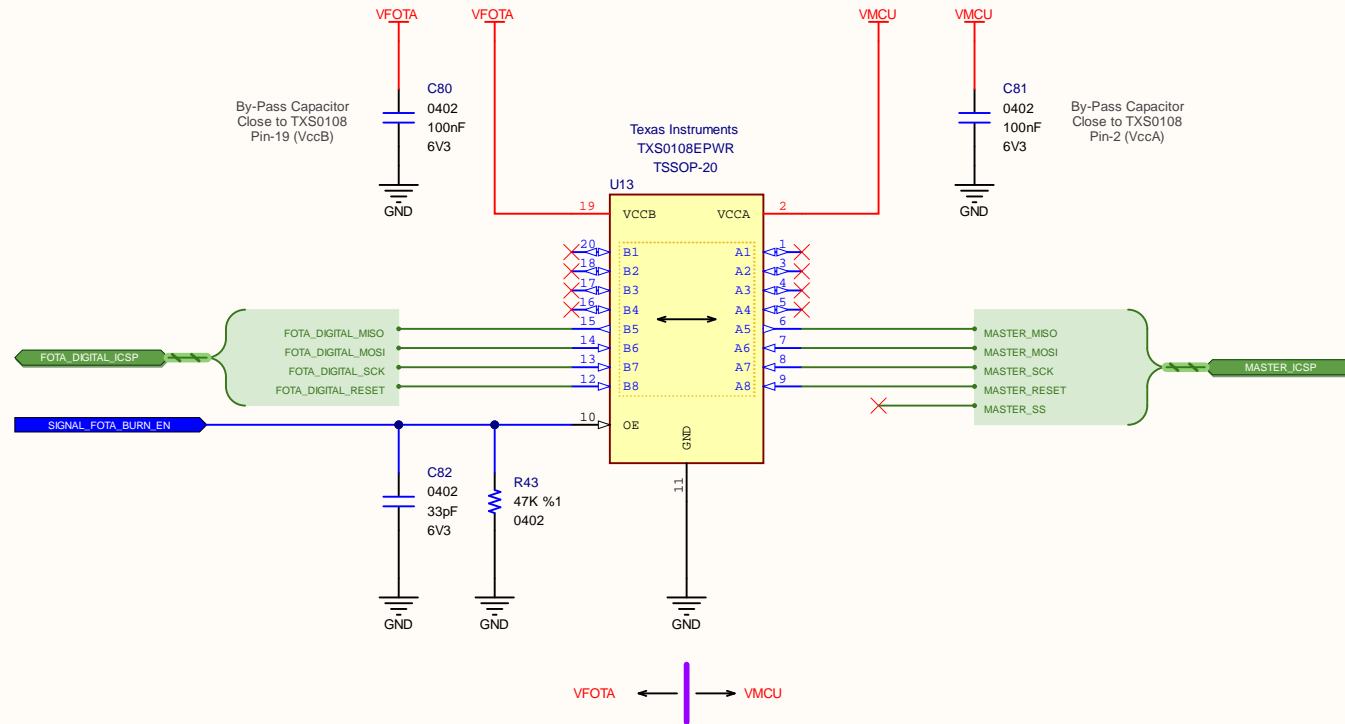
By-Pass Capacitor
Close to SN3257QPWRQ1
Pin-16 (Vcc)

SPI Selection Switch



Title SD Card & Select Switch			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 46	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:35	Sheet 46 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\SD Card.SchDoc					

ICSP Burn Buffer



Title FOTA Burn Buffer

Size: A4

Number: 47

Revision: B100AA R4

Date: 21.02.2021

Time: 13:29:35

Sheet 47 of 54

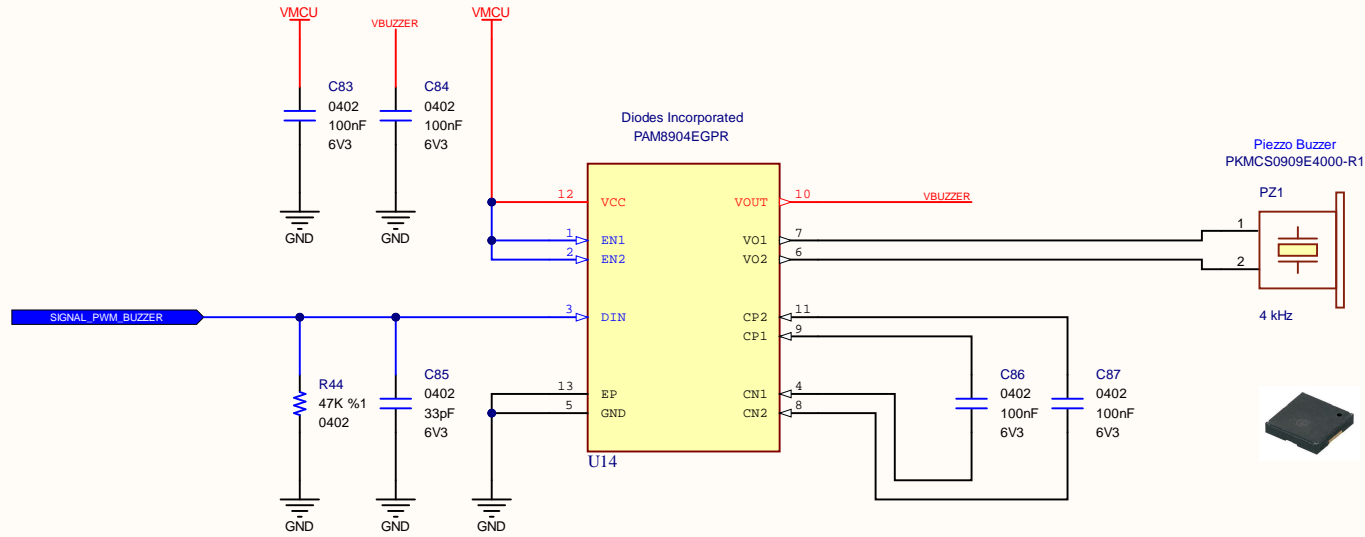
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Ovoo Electronics

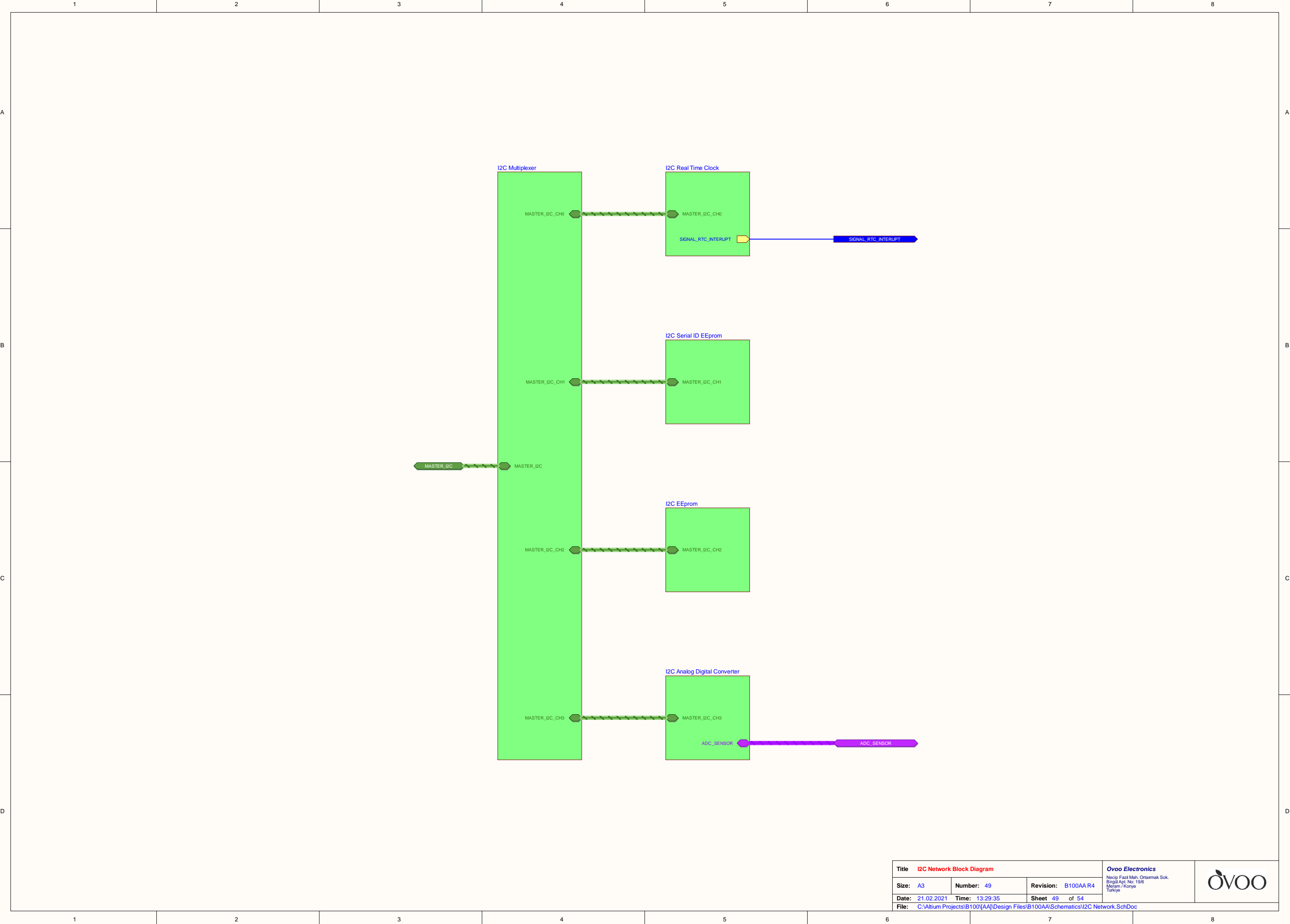
Necip Fazıl Mah. Ortanmak Sok.
Bırgöl Apt. No: 19/6
Meram / Konya
Türkiye

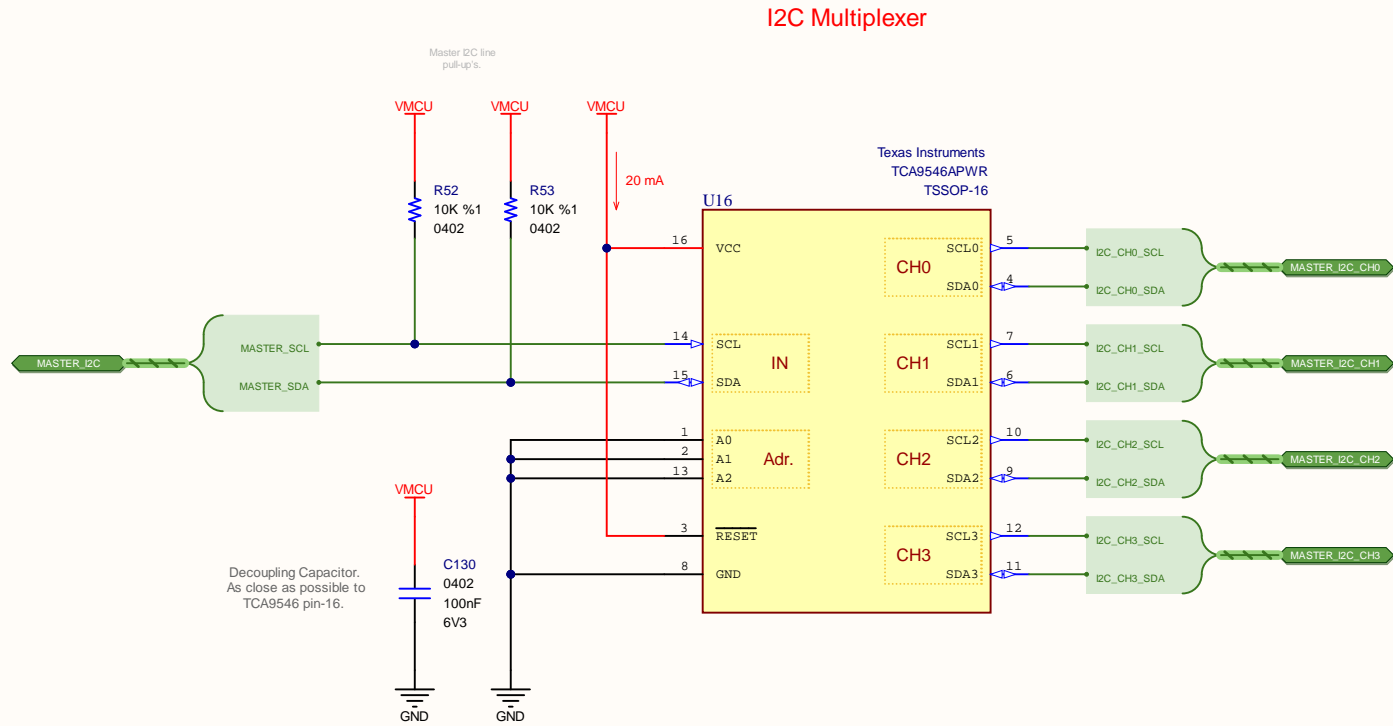
OVOO


Piezzo Buzzer



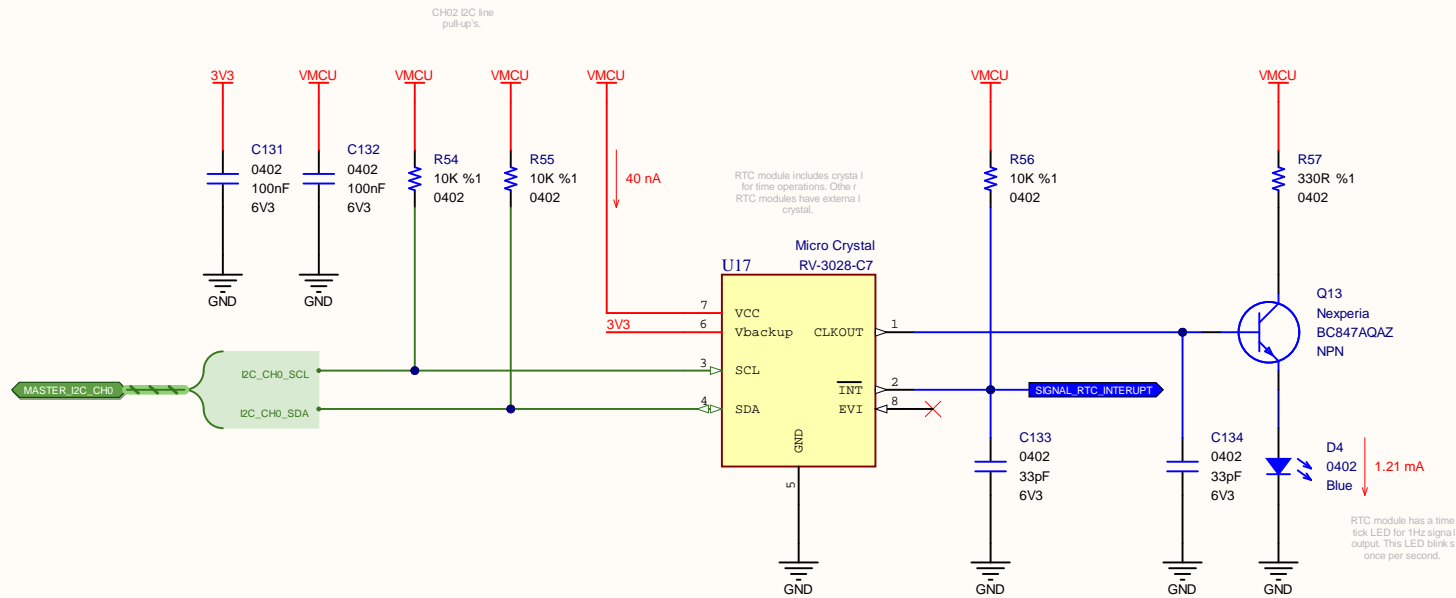
Title Buzzer			Ovoo Electronics Necip Fazil Mah. Ortamak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 48	Revision: B100AA R4		
Date: 21.02.2021	Time: 13:29:35	Sheet 48 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Buzzer.SchDoc				





Title I2C Multiplexer			Ovoo Electronics Necip Fazıl Mah. Ortanmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 50	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:35	Sheet 50 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\I2C Multiplexer.SchDoc					

Real Time Clock



Title I2C Real Time Clock

Size: A4

Number: 51

Revision: B100AA R4

Date: 21.02.2021

Time: 13:29:36

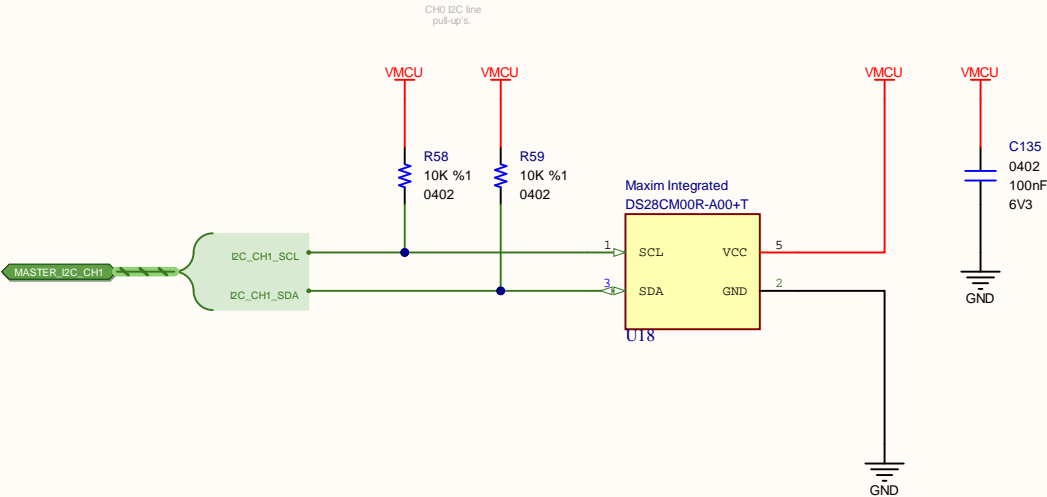
Sheet 51 of 54

File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Real Time Clock.SchDoc

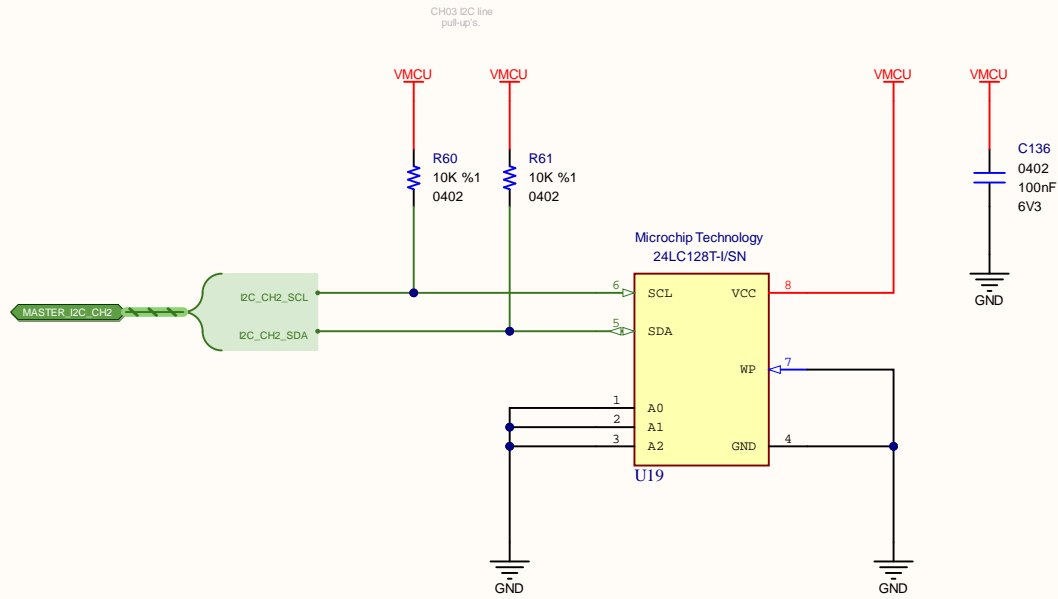
Ovoo Electronics


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

I2C Serial ID EEPROM

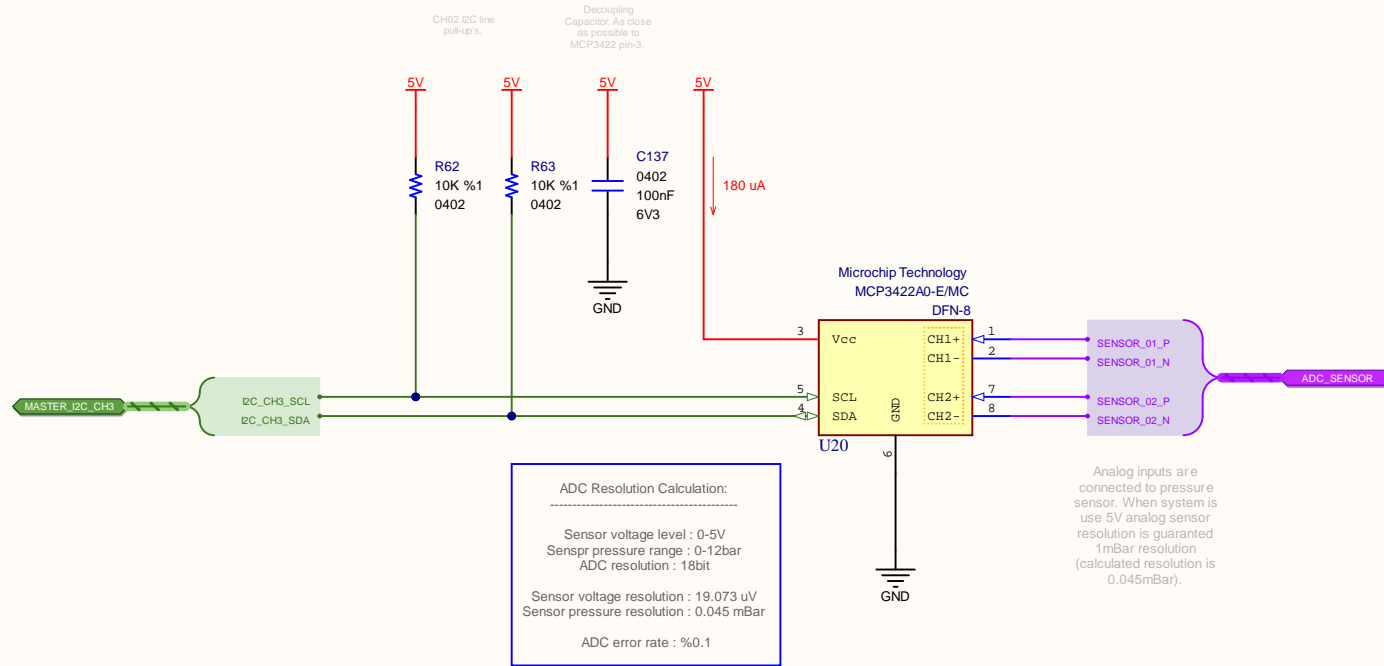



EEPROM



Title I2C EEprom			Ovoo Electronics		
Size: A4	Number: 53	Revision: B100AA R4	Necip Fazil Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 21.02.2021	Time: 13:29:36	Sheet 53 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\EEPROM.SchDoc					

Analog Digital Converter



Title Analog Digital Converter			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 54	Revision: B100AA R4			
Date: 21.02.2021	Time: 13:29:36	Sheet 54 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Analog Digital Converter.SchDoc					