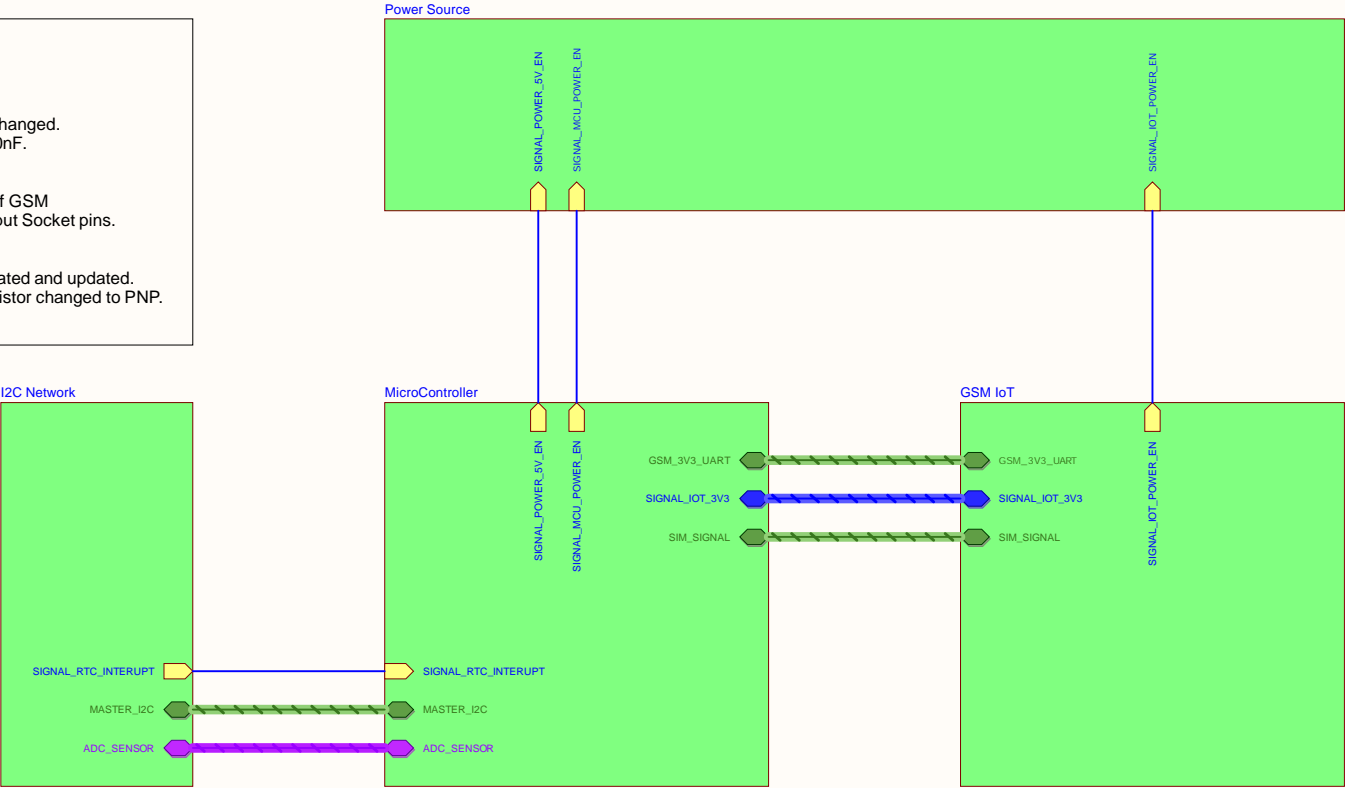



B100 - Master IoT MicroController

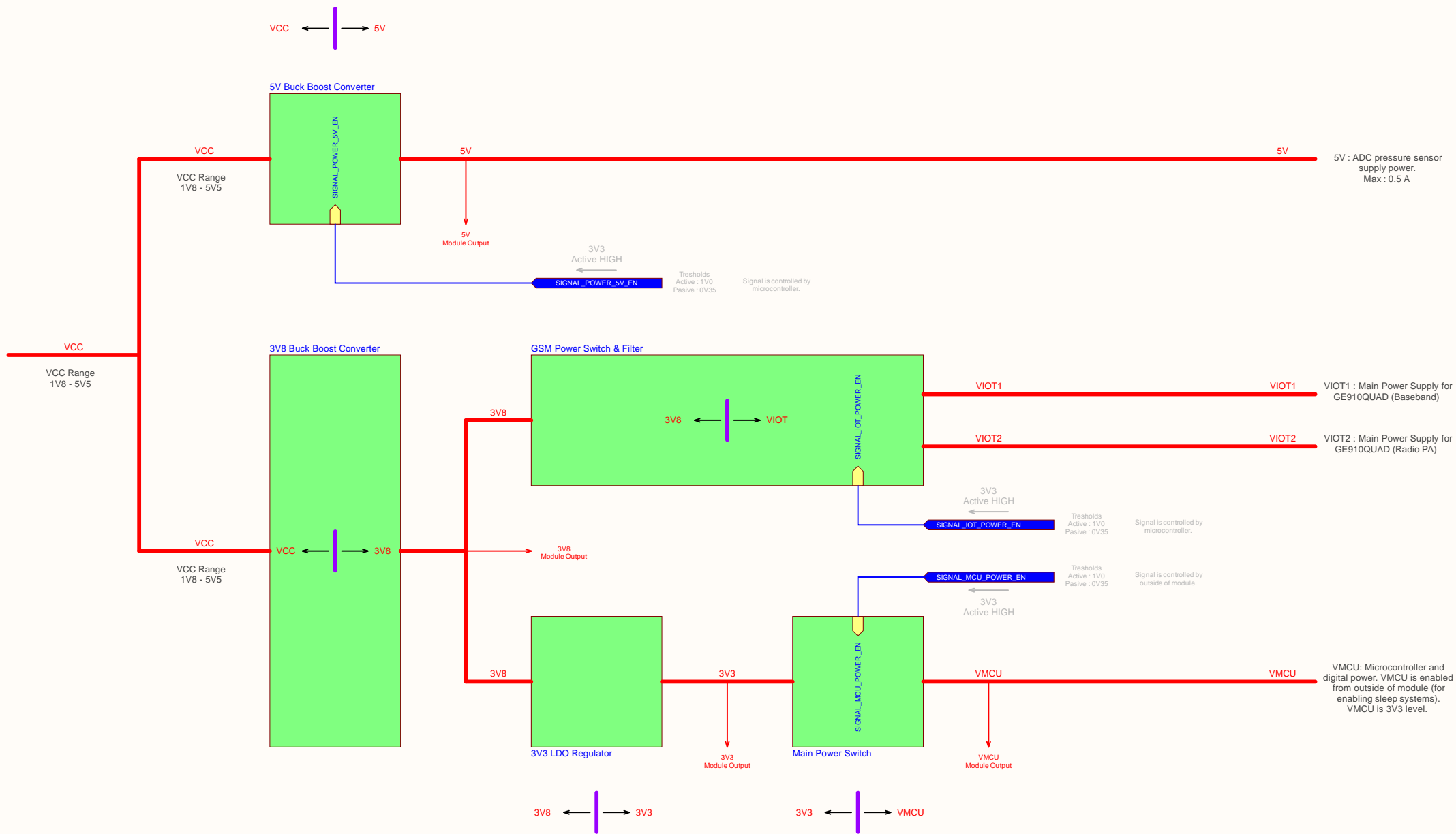
Revision History

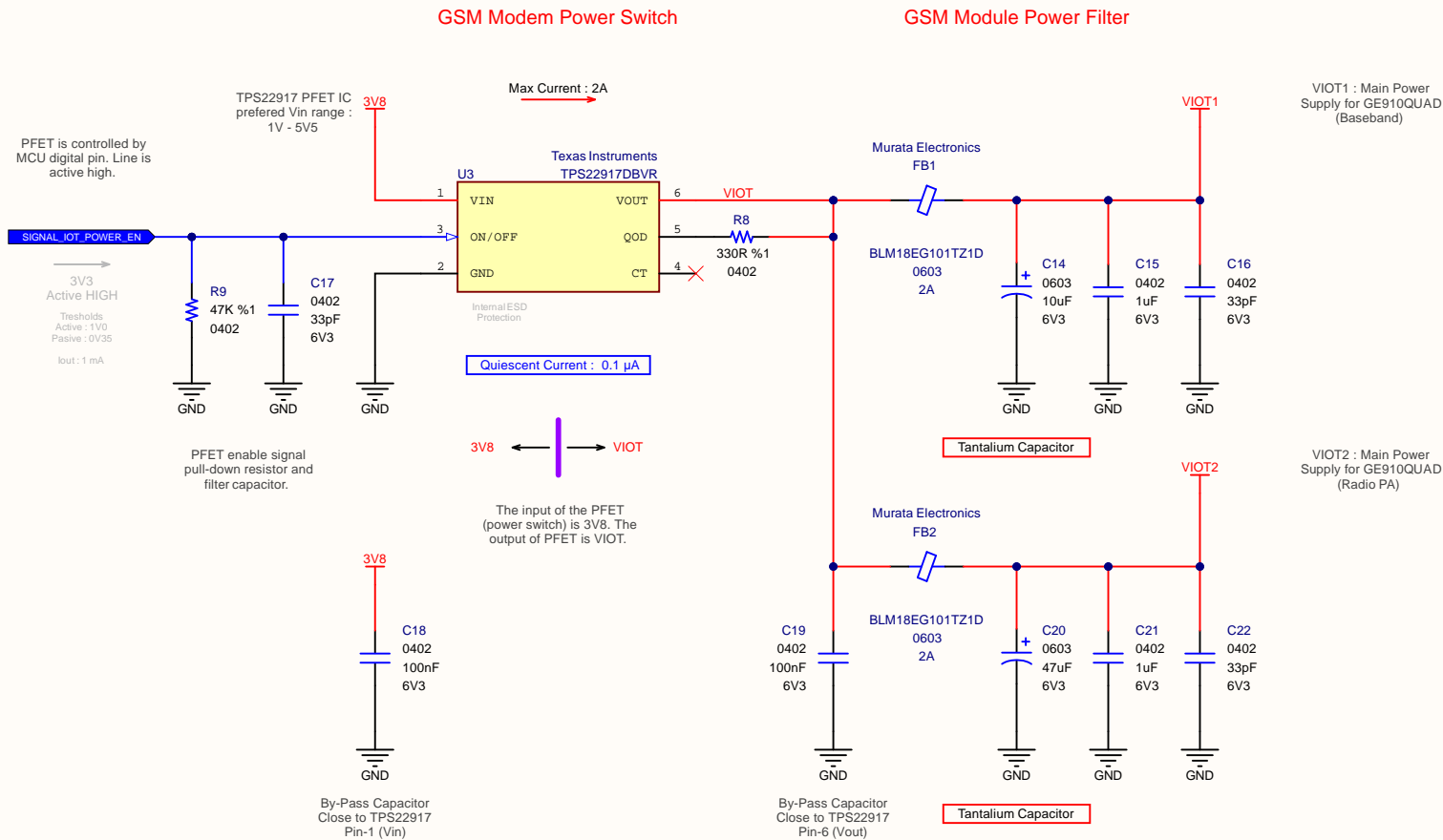
- AA001 (05.01.2021)
* Schematic creation.
- AA002 (11.01.2021)
* Bidirectional signal translator IC changed.
* SIM Vcc capacitor changed to 100nF.
- AA003 (19.01.2021)
* 33 pF capacitor added to VAUX of GSM
* 33 pF capacitors added to all Output Socket pins.
- AA004 (22.01.2021)
* GSM IoT LED resistors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




Title B100 Block Diagram			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 1.	Revision: B100AA R4			
Date: 22.01.2021	Time: 10:14:44	Sheet 1 of 54			
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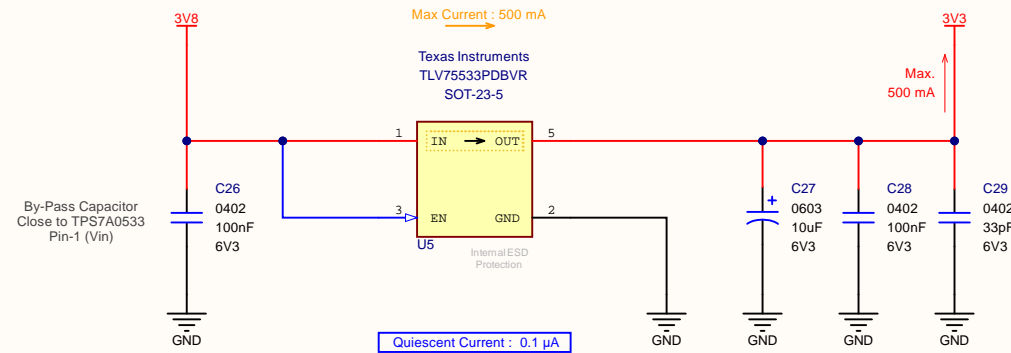
Power Archtechure






Title GSM Power Switch and Filter			Ovoo Electronics Necip Fazıl Mah, Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 4.	Revision: B100AA R4		
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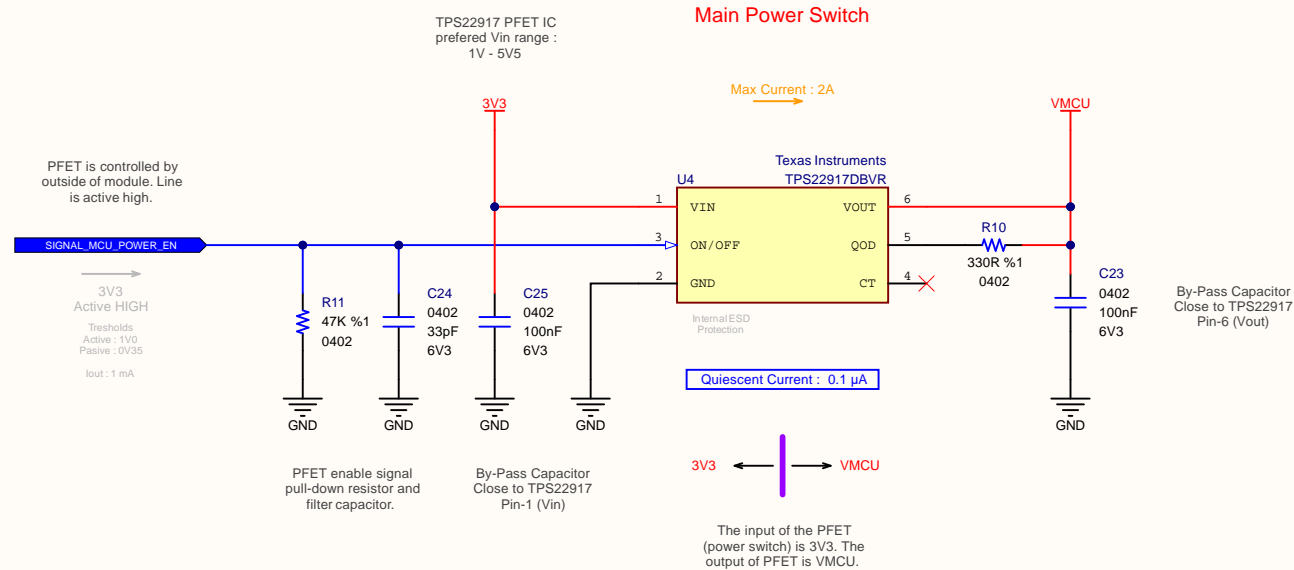
3V3 LDO Regulator




3V8 \longleftrightarrow 3V3

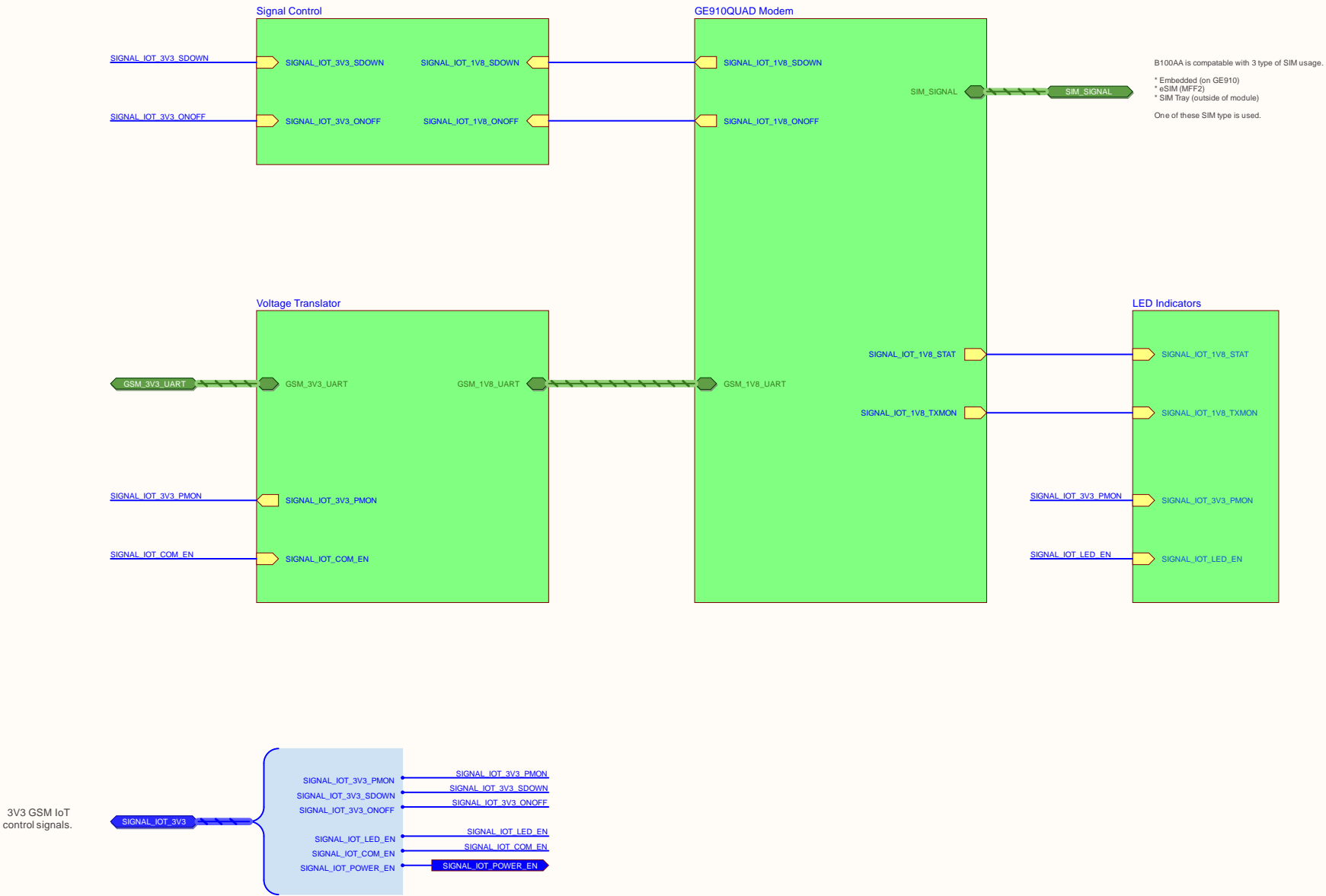
TLV75533 LDO is a 3V3 regulator. LDO is always enable.

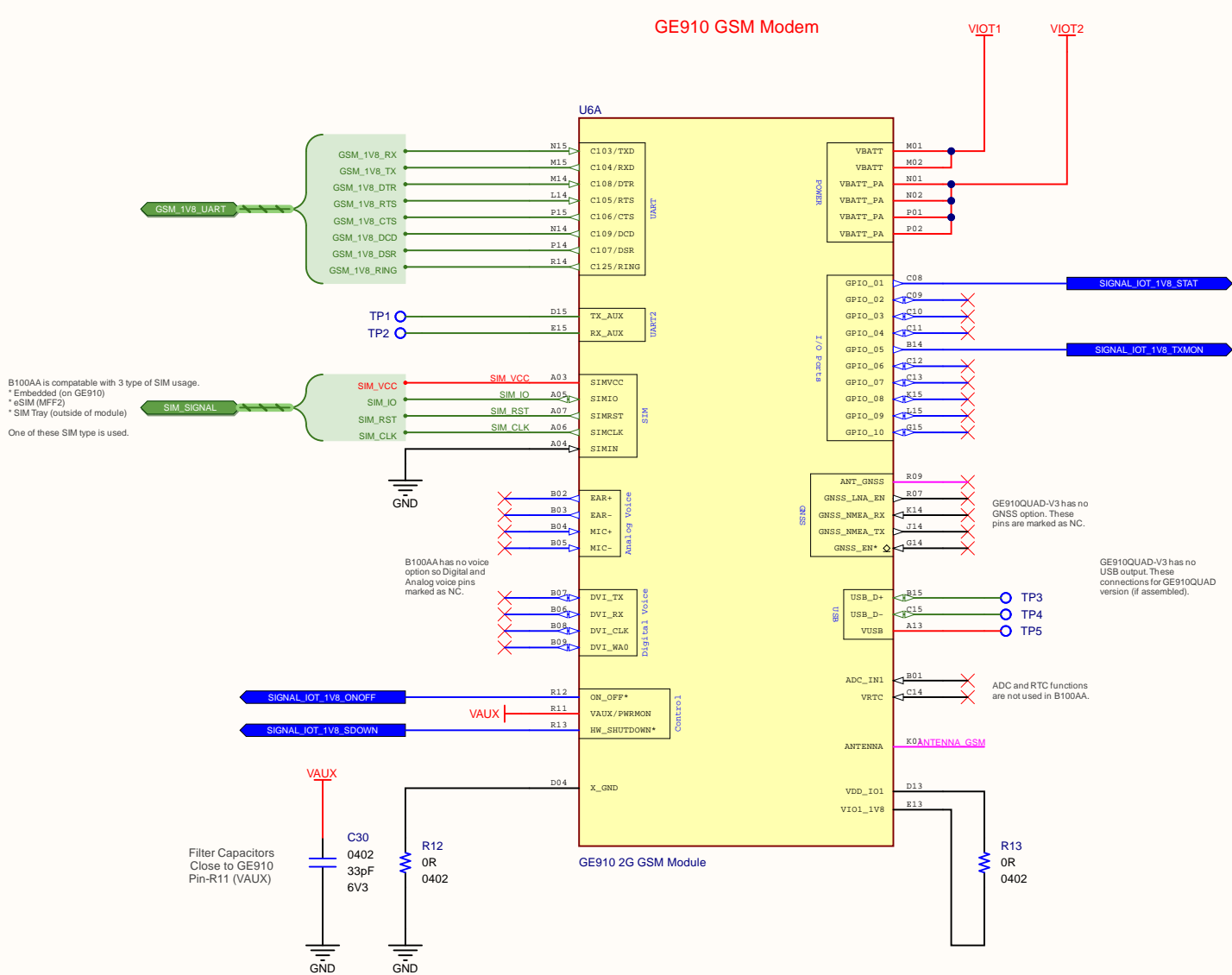
Title 3V3 LDO Regulator			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
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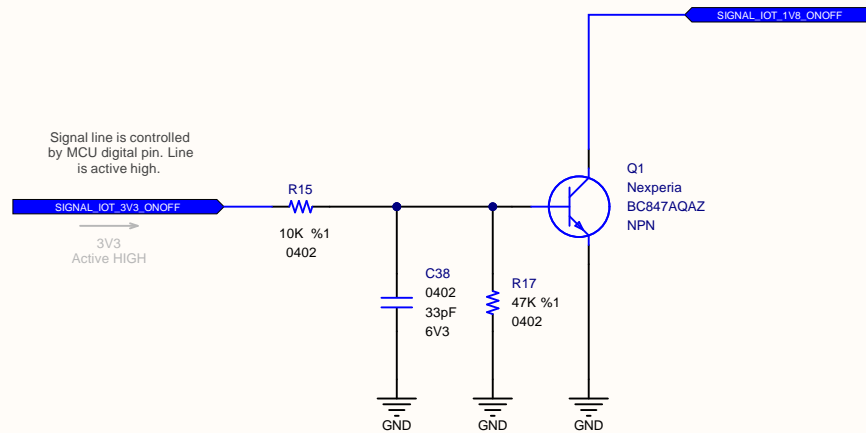
Title Main Power Switch			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 6.	Revision: B100AA R4			
Date: 22.01.2021	Time: 10:14:44	Sheet 6 of 54			
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GSM IoT Communication Layer

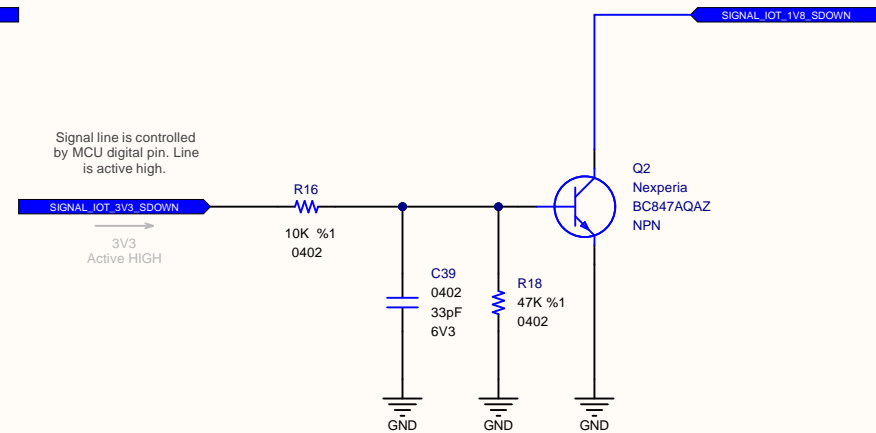




GSM Module On/Off Signal



GSM Module Shut Down Signal



Title GSM Control Signal Management

Size: A4

Number: 9.

Revision: B100AA R4

Date: 22.01.2021

Time: 10:14:45

Sheet 9 of 54

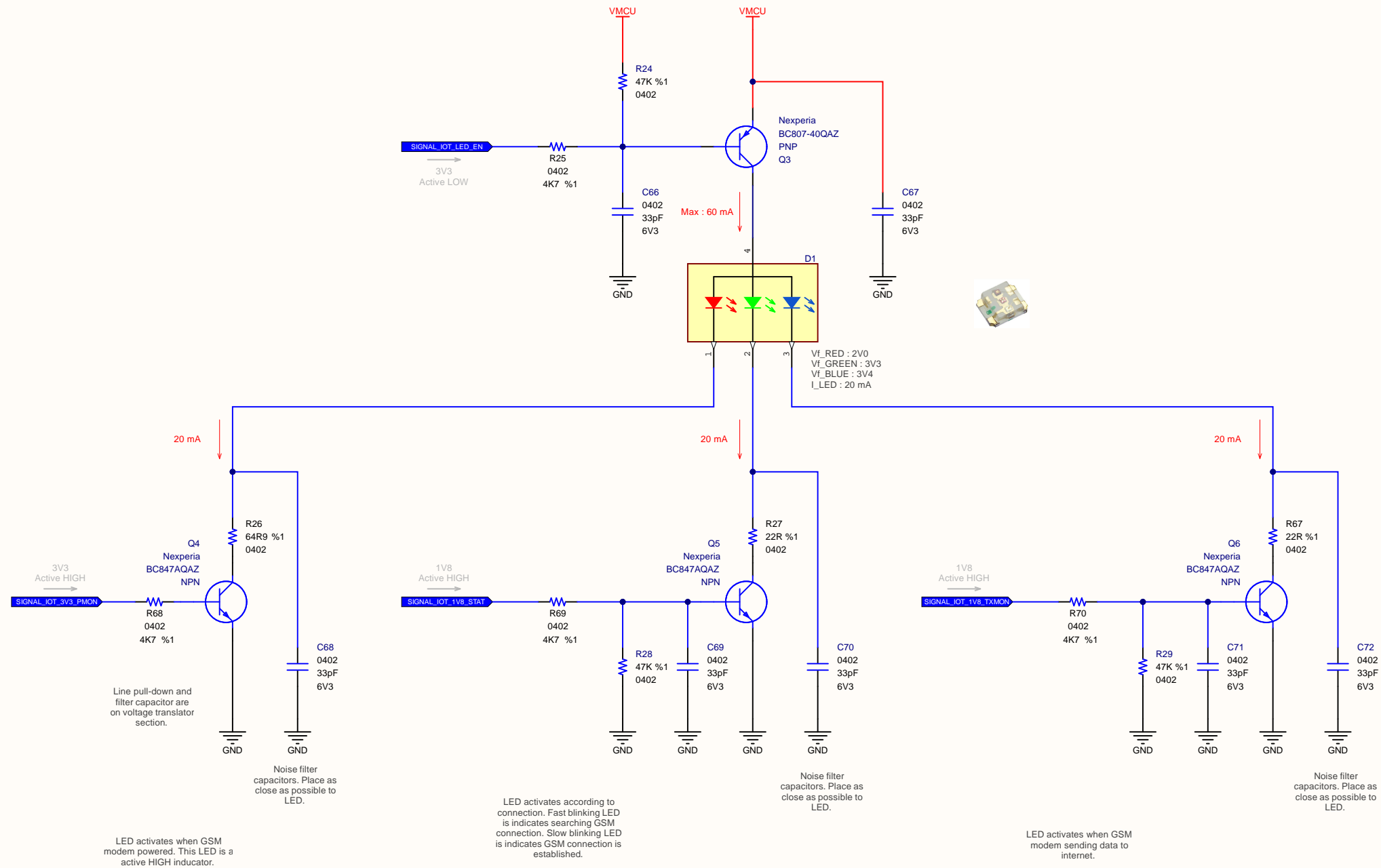
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Ovoo Electronics

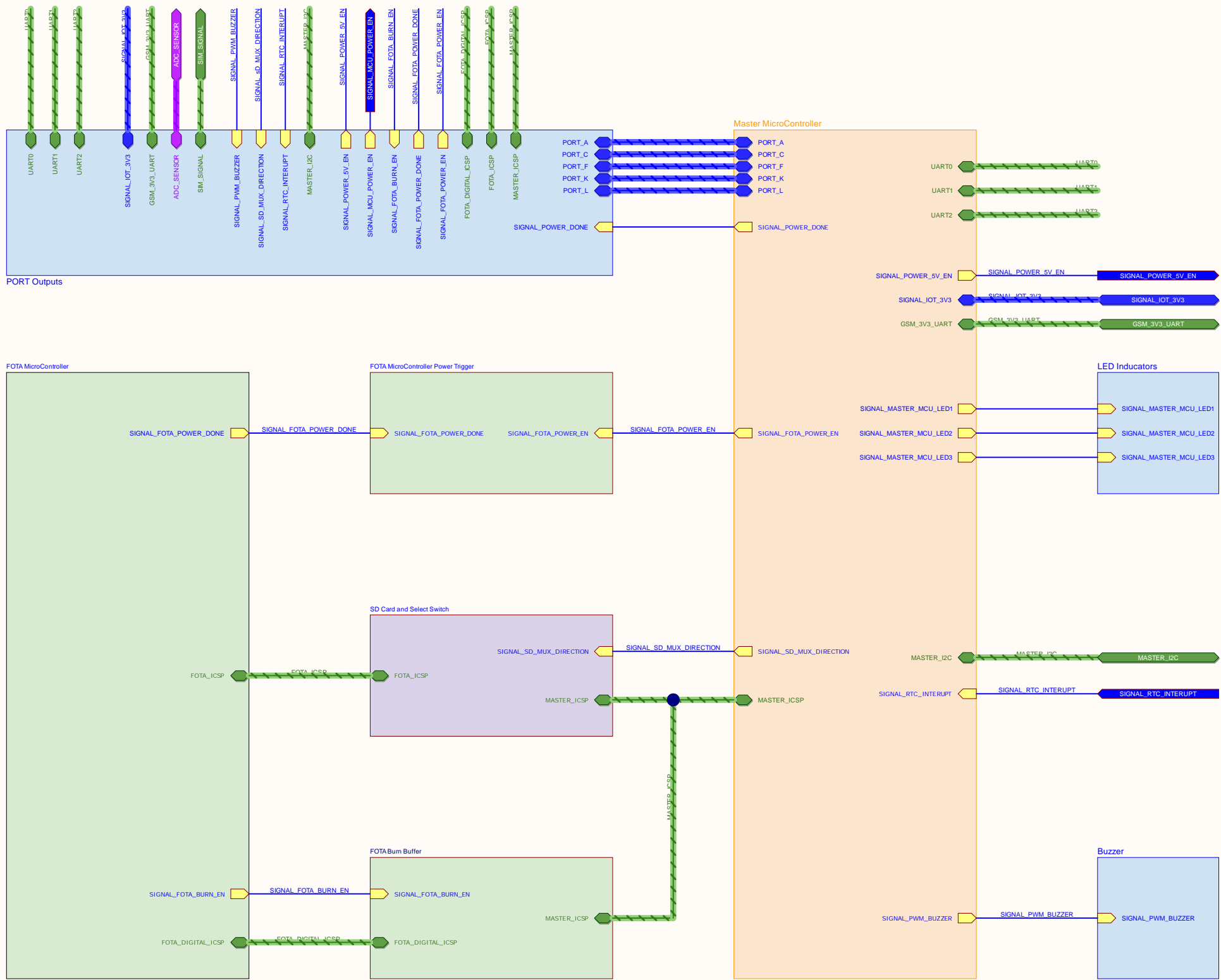
Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye

OVOO

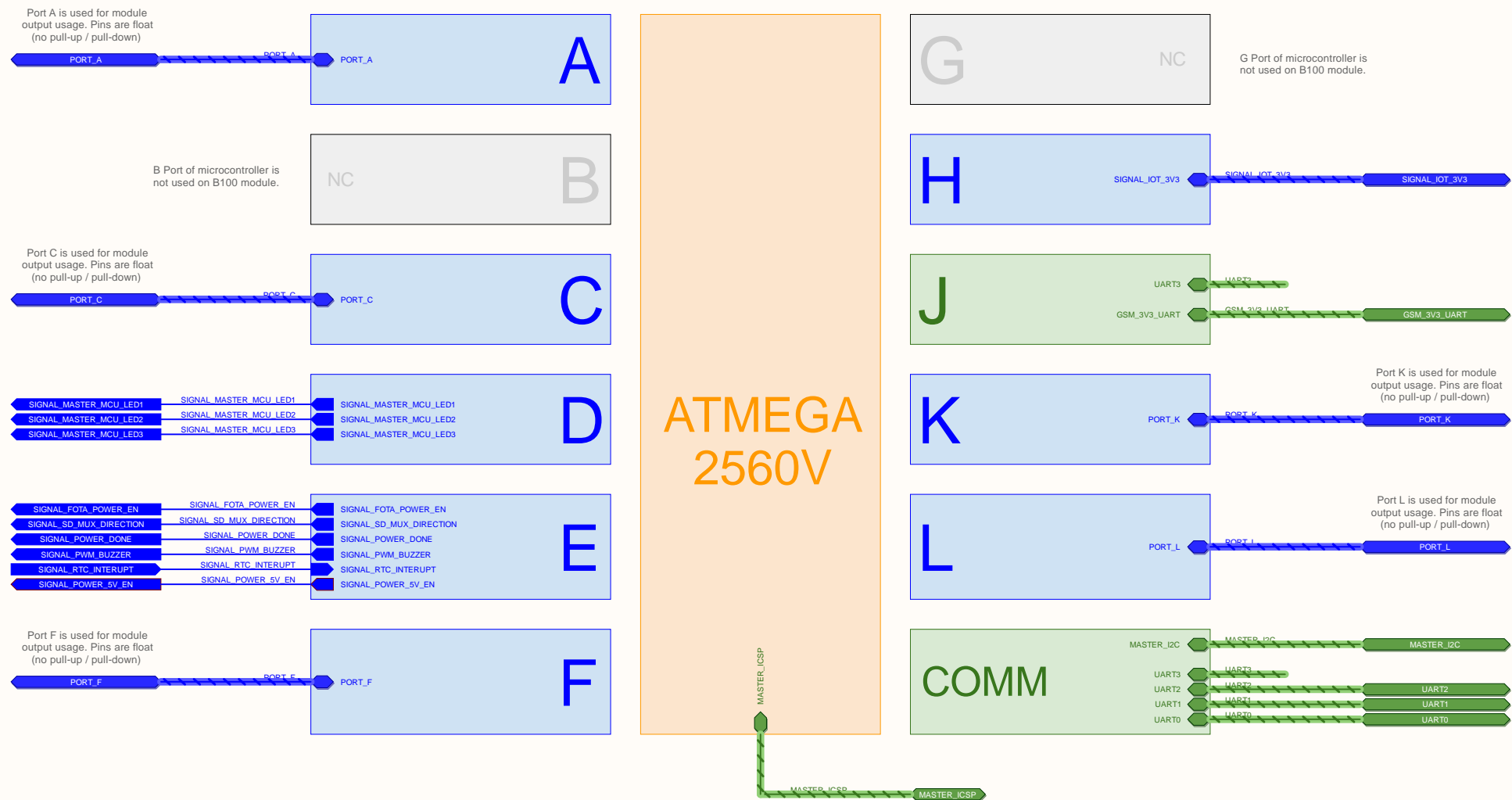
GSM IoT LED Indicators



B100 MicroController

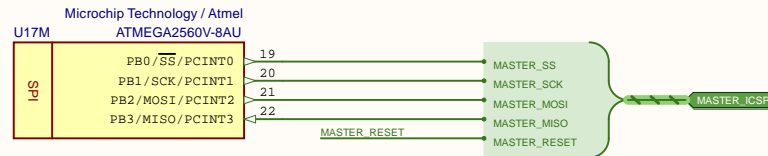
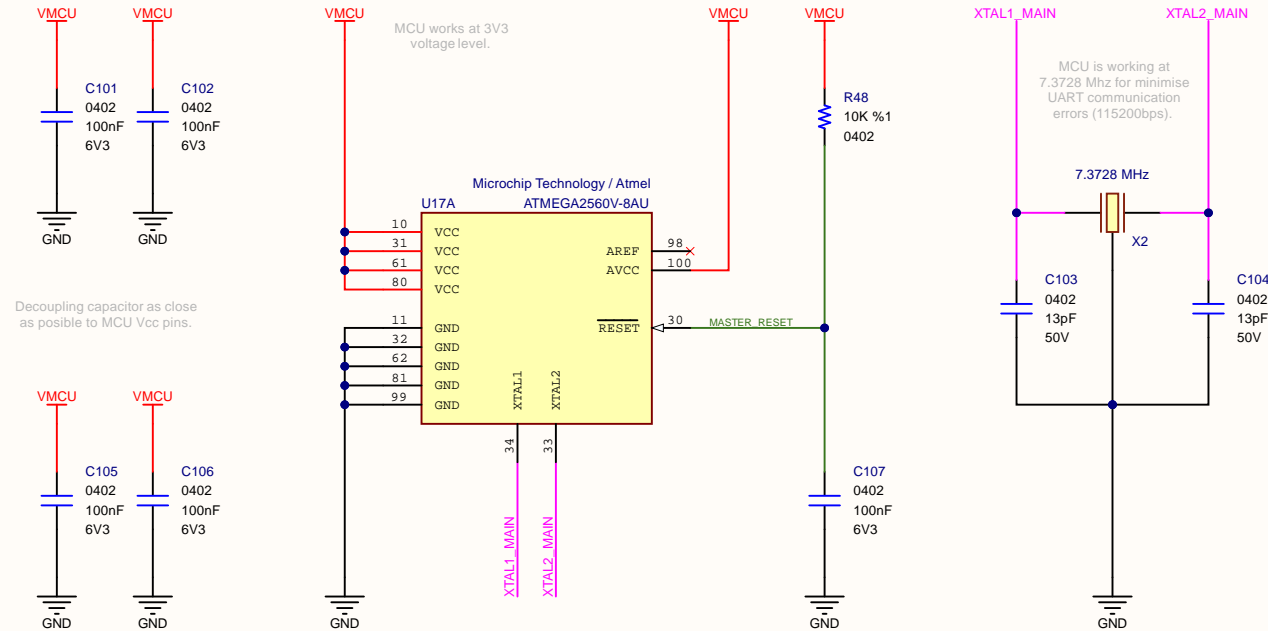


Master MicroController




MicroController

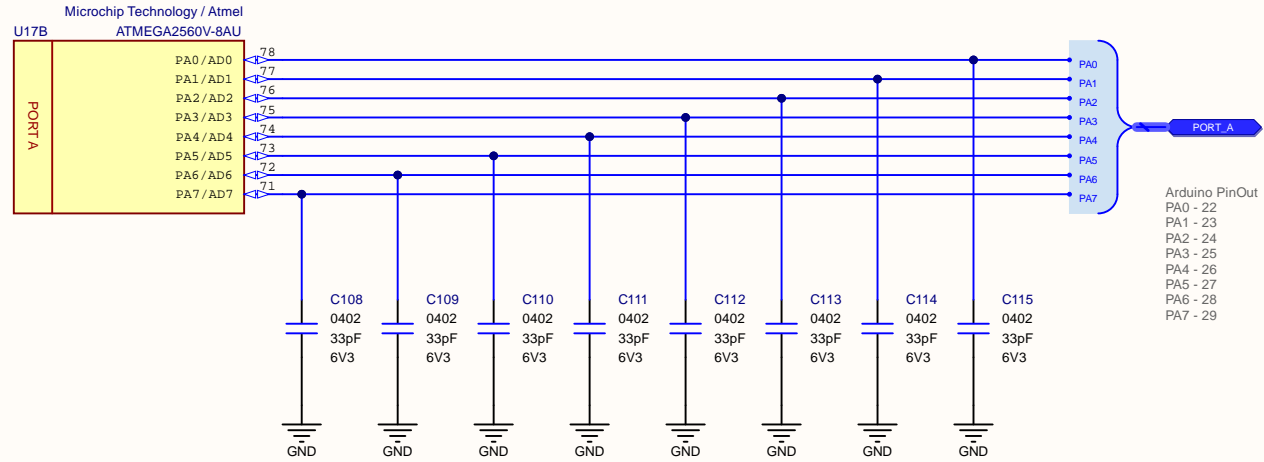
Crystal Oscillator




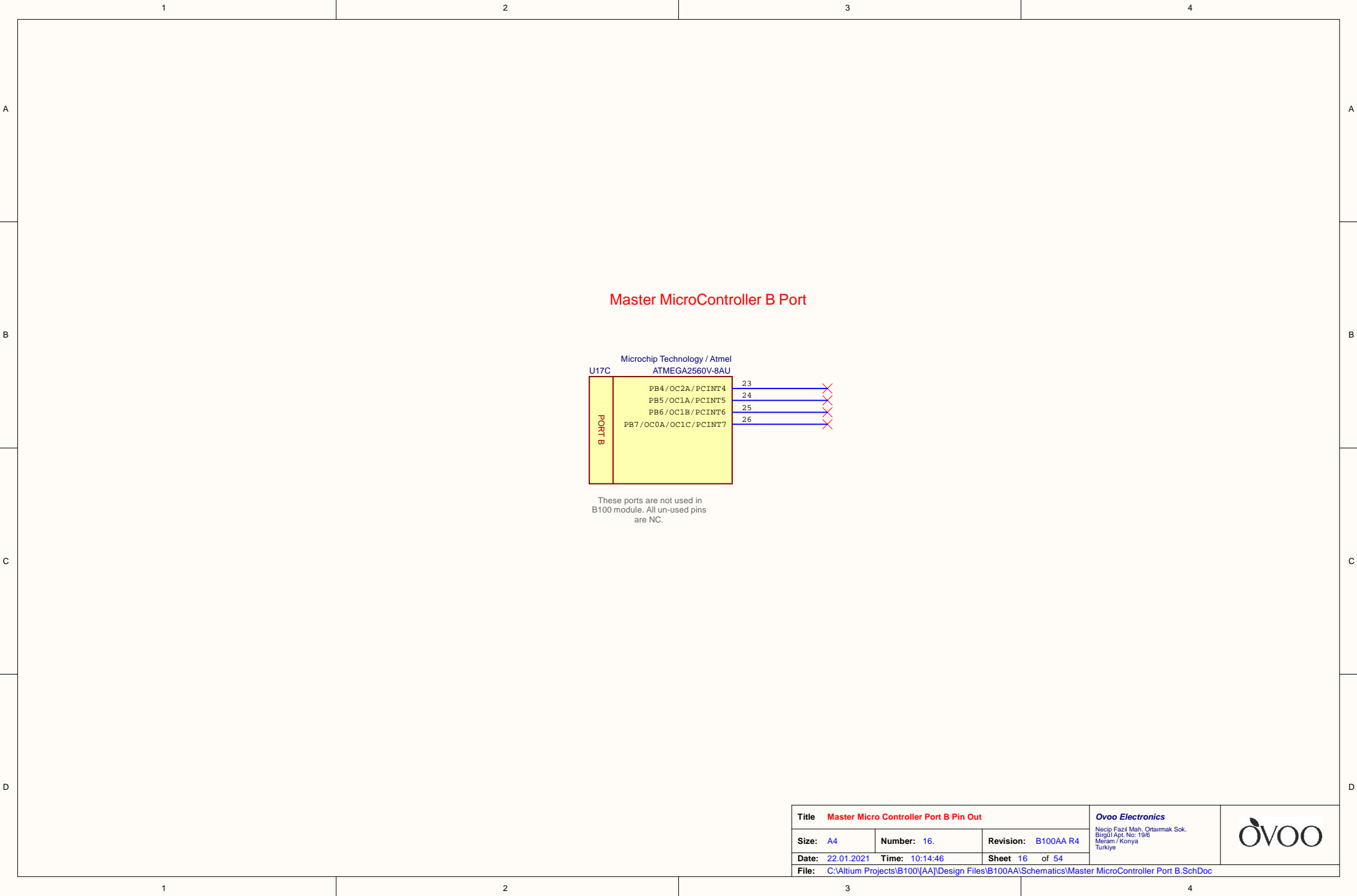
Master MicroController ICSP

Title Master MicroController Core			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
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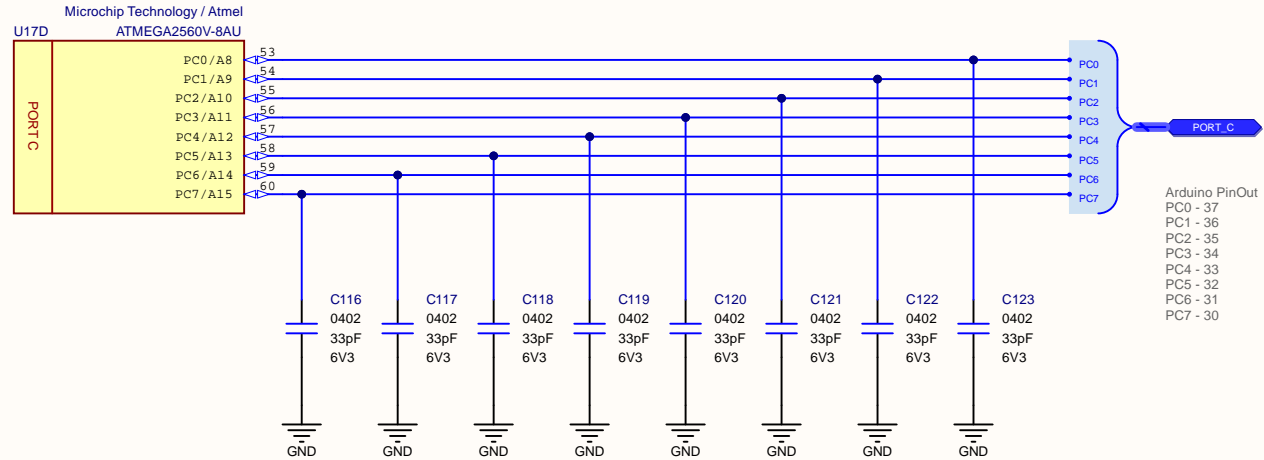
Master MicroController A Port




Title Master Micro Controller Port A Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 15.	Revision: B100AA R4		
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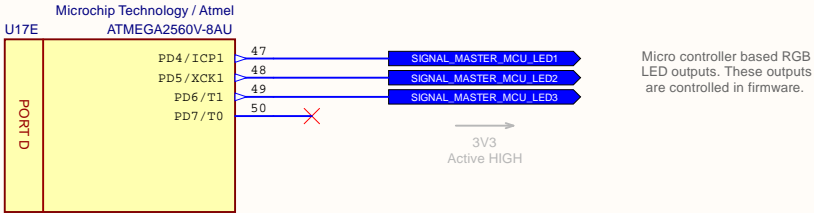



Master MicroController C Port

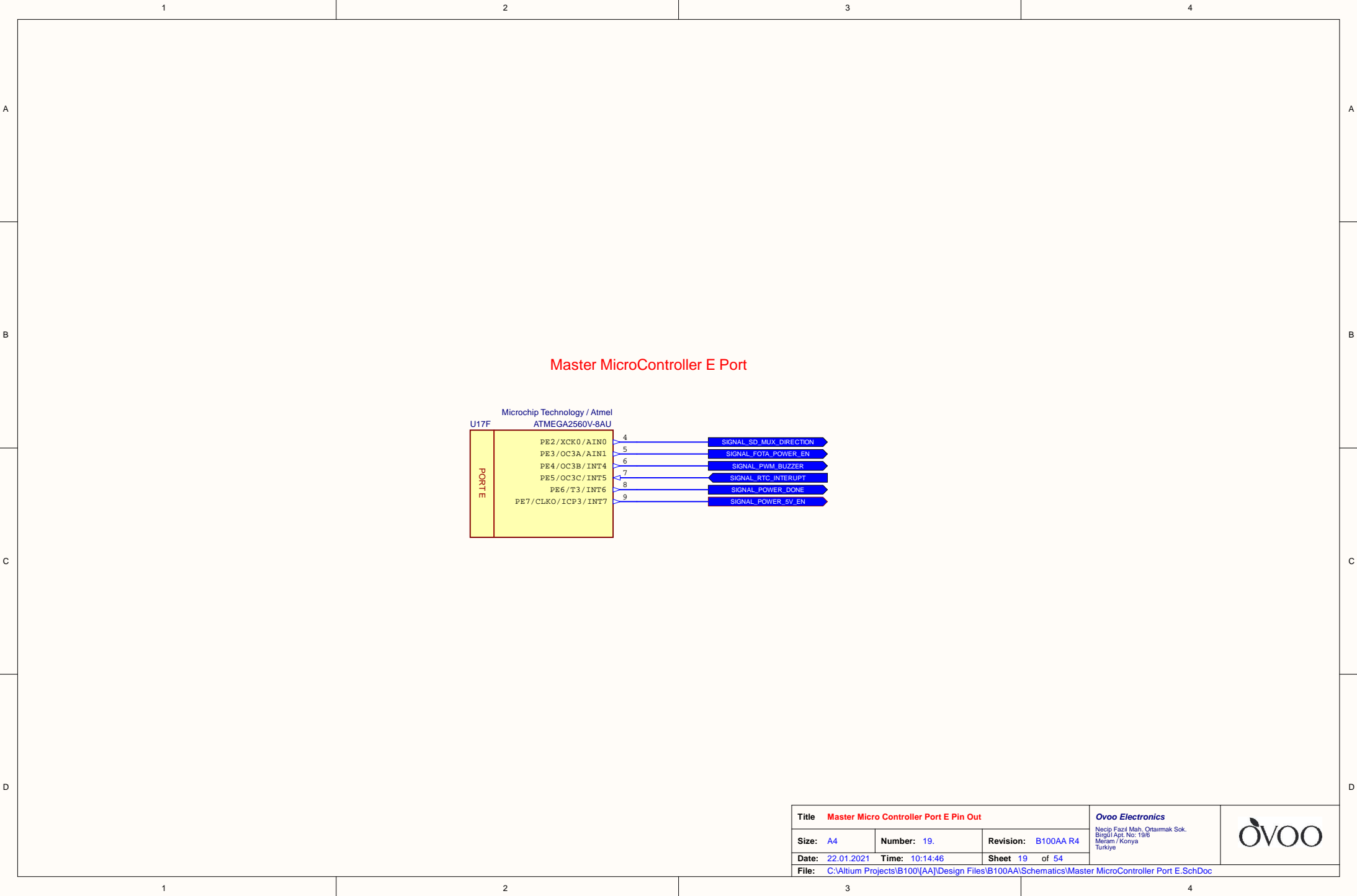


Title Master Micro Controller Port C Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
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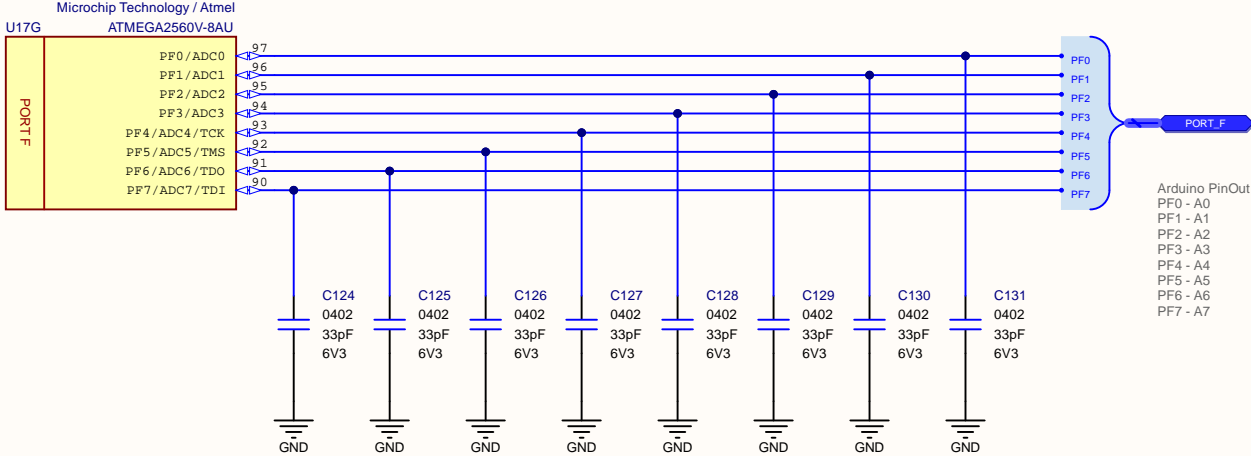
Master MicroController D Port




Title Master Micro Controller Port D Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 18.	Revision: B100AA R4		
Date: 22.01.2021	Time: 10:14:46	Sheet 18 of 54		
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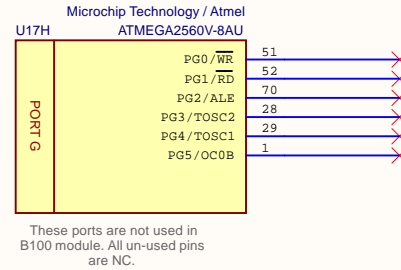



Master MicroController F Port



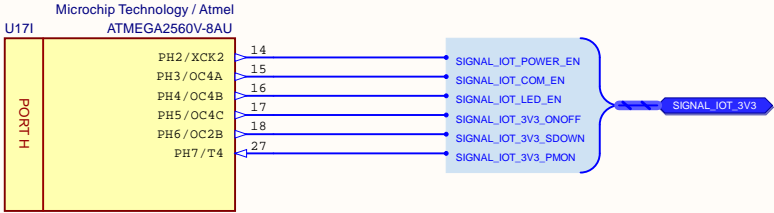
Title Master Micro Controller Port F Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 20.	Revision: B100AA R4			
Date: 22.01.2021	Time: 10:14:46	Sheet 20 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port F.SchDoc					


Master MicroController G Port



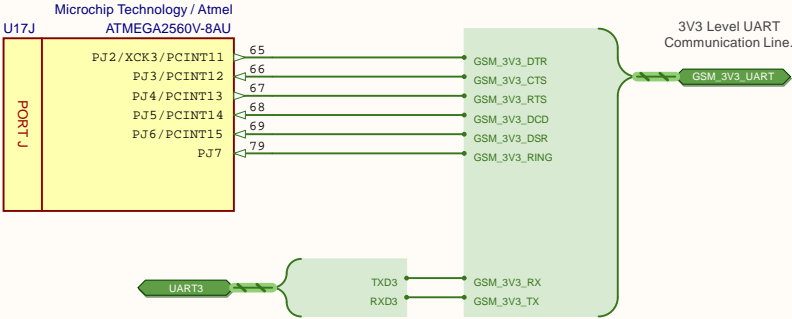
Title Master Micro Controller Port G Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
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Date: 22.01.2021	Time: 10:14:46	Sheet 21 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port G.SchDoc				


Master MicroController H Port



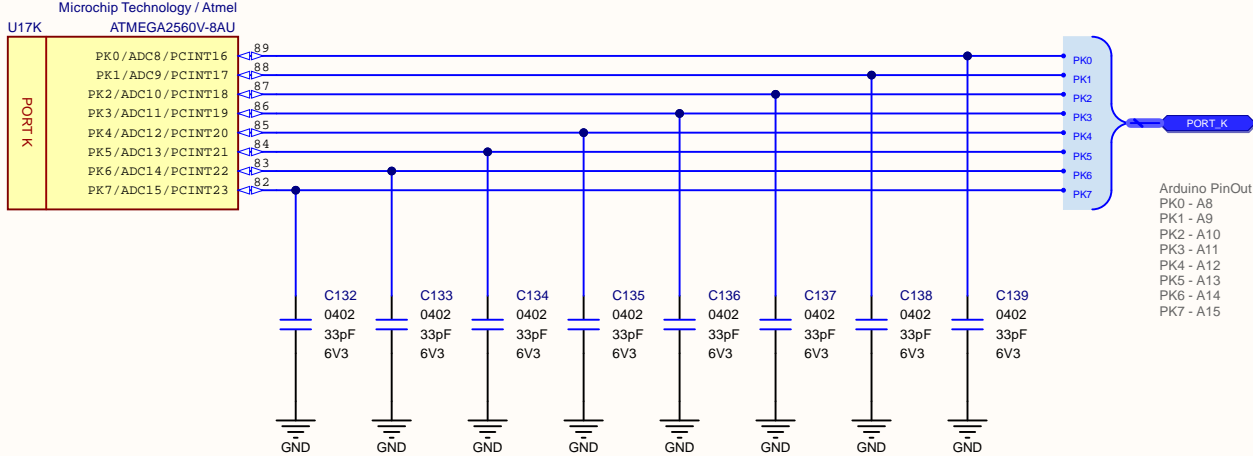
Title Master Micro Controller Port H Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 22.	Revision: B100AA R4		
Date: 22.01.2021	Time: 10:14:46	Sheet 22 of 54		
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GSM IoT Communication Pins



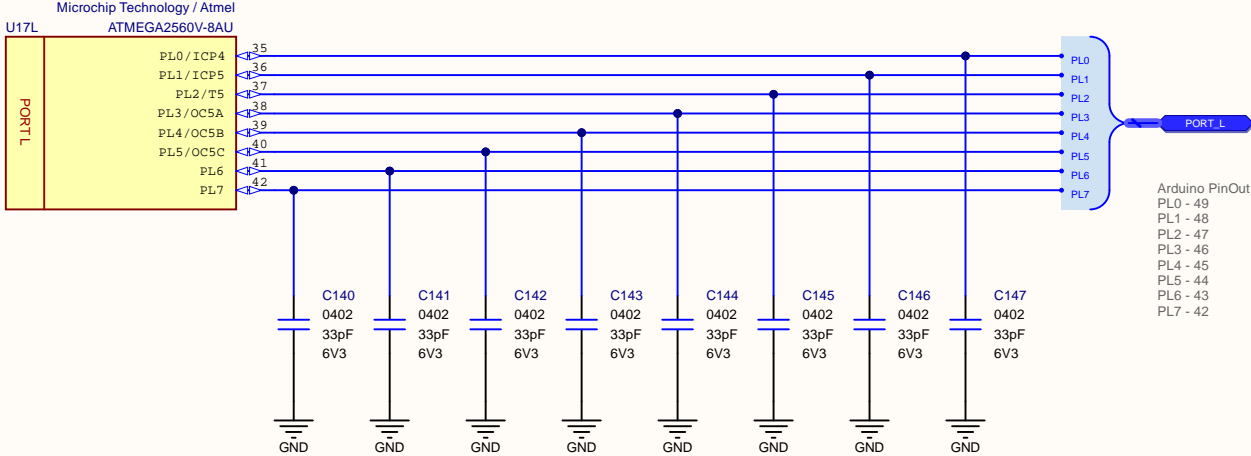
Title Master Micro Controller Port J Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
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Date: 22.01.2021	Time: 10:14:46	Sheet 23 of 54		
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Master MicroController K Port

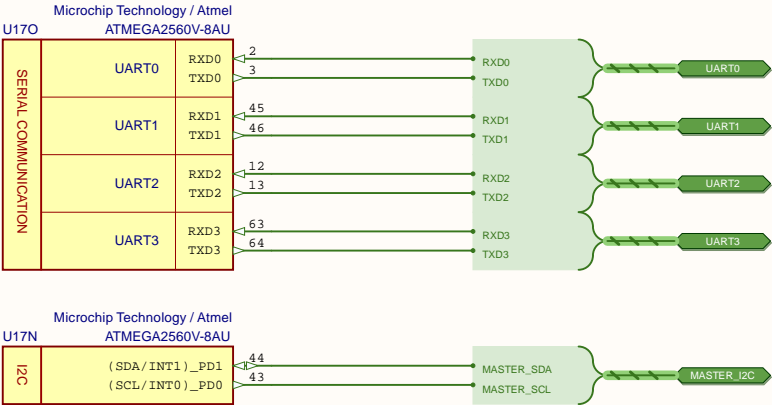


Title Master Micro Controller Port K Pin Out			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
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Date: 22.01.2021	Time: 10:14:46	Sheet 24 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port K.SchDoc				

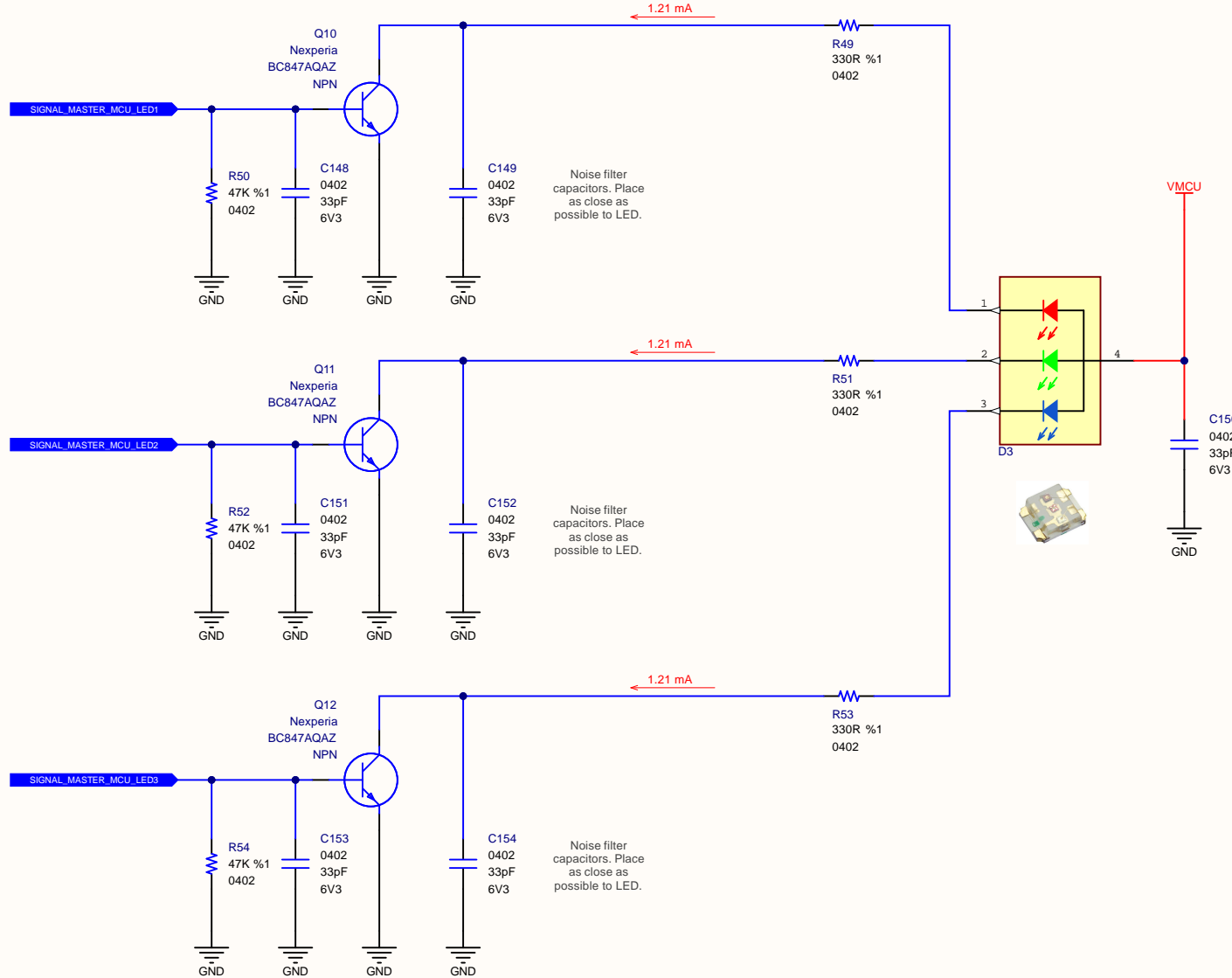
Master MicroController L Port




Communication Ports



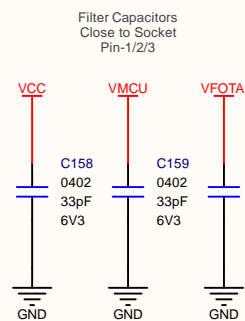
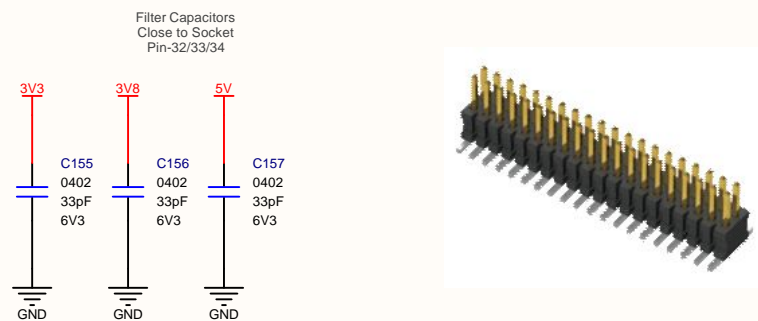
Main Microcontroller Status LED Indicators



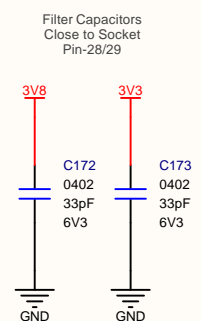
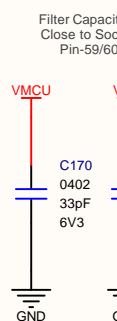
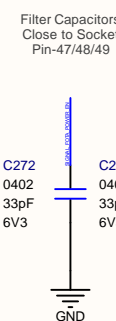
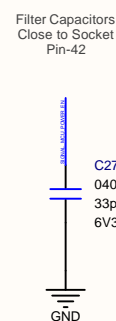
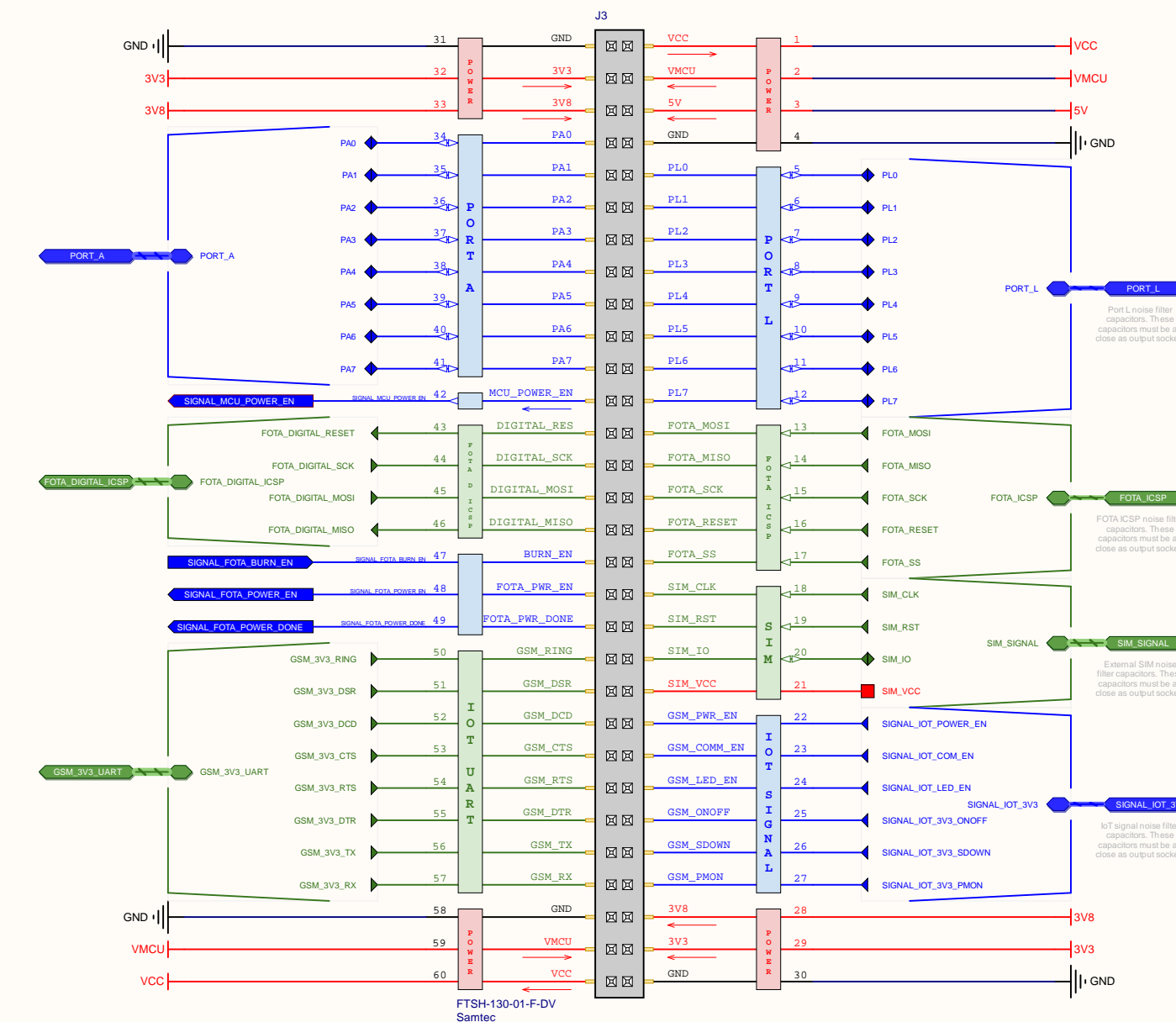
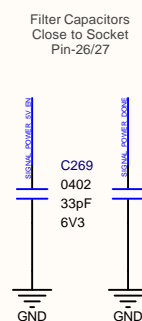
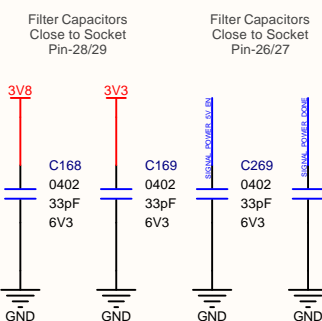
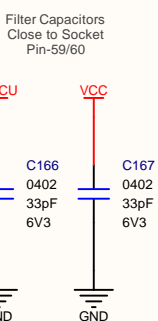
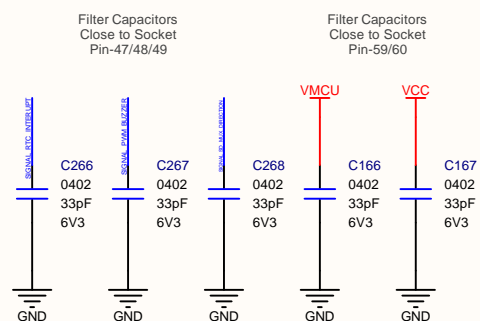
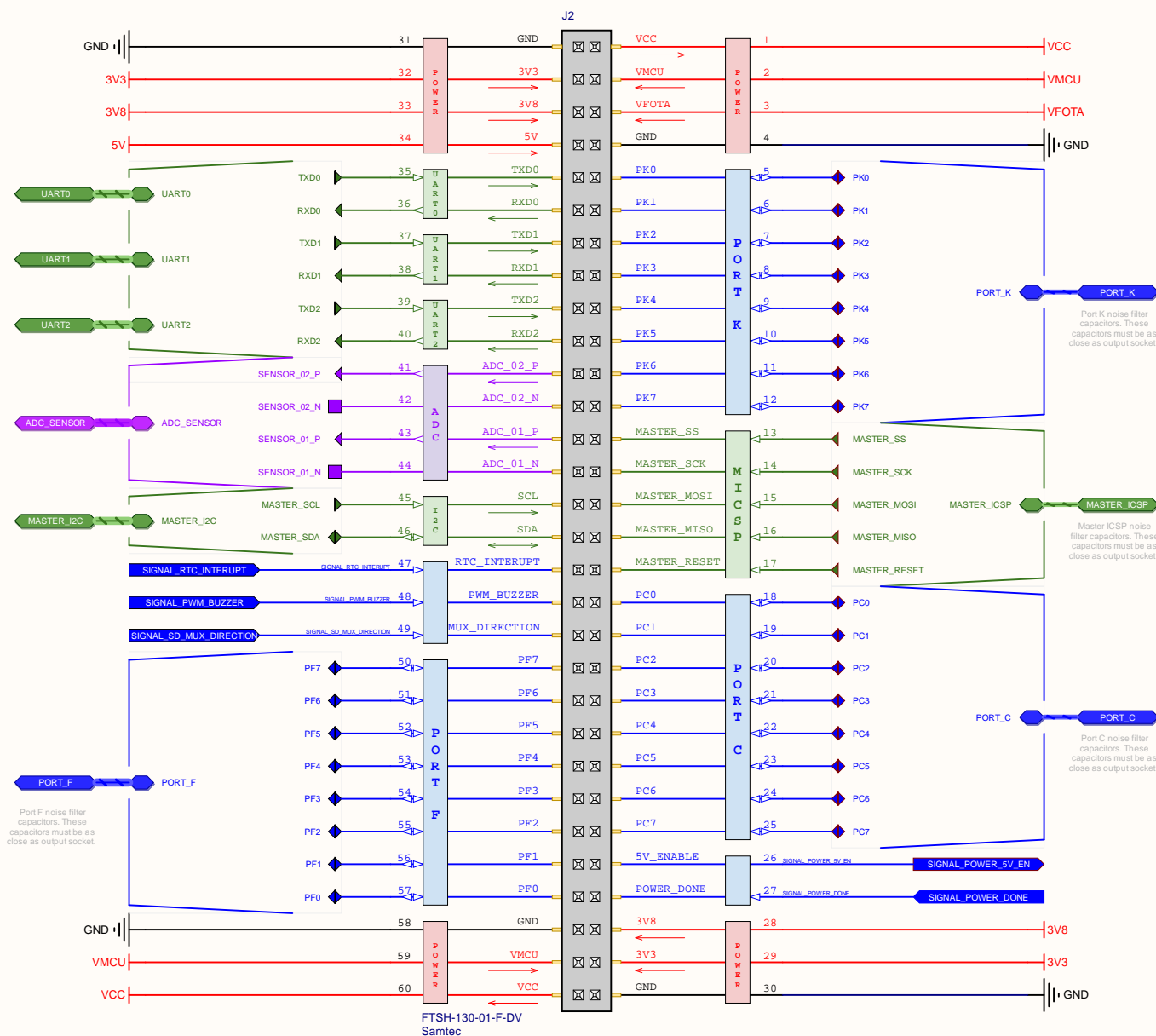
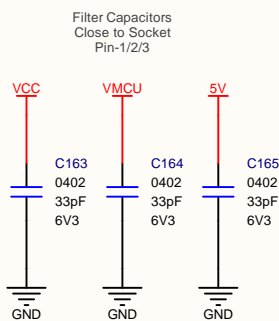
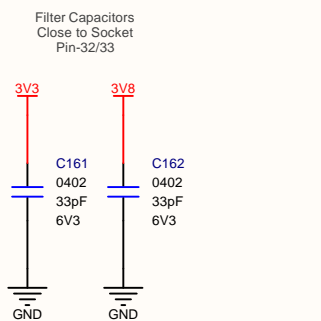
Title Master MicroController LED			Ovoo Electronics		
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		Sheet 27 of 54			
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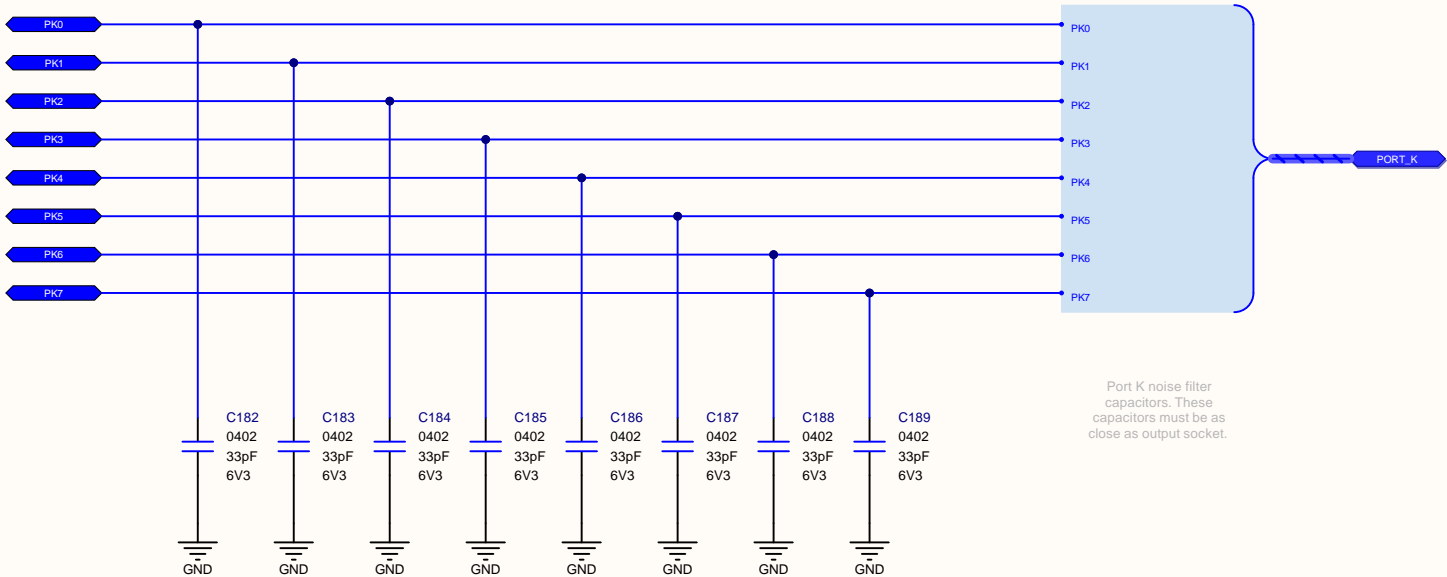
Module Output Socket A

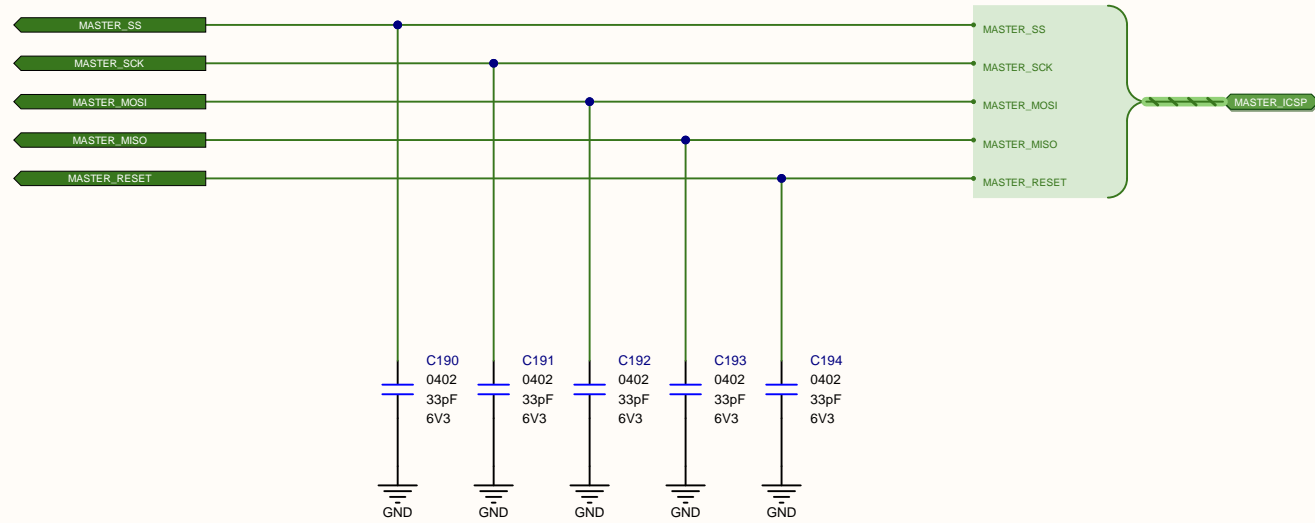



Module Output Socket B



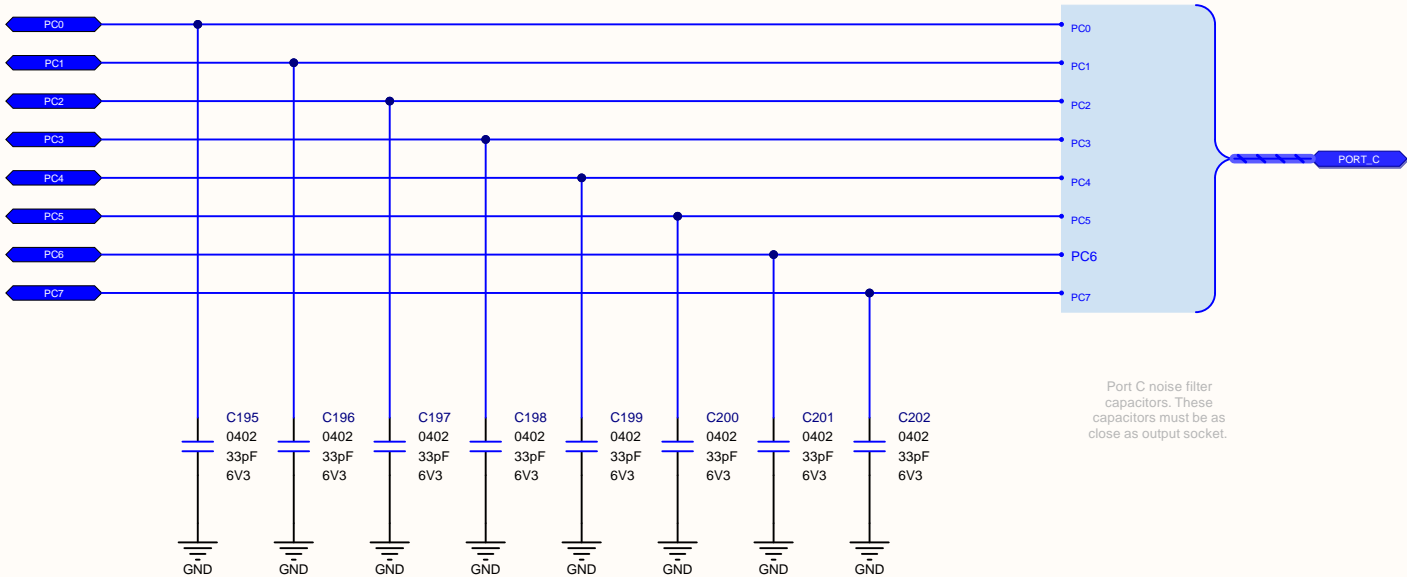
Port K Output Socket Noise Capacitors



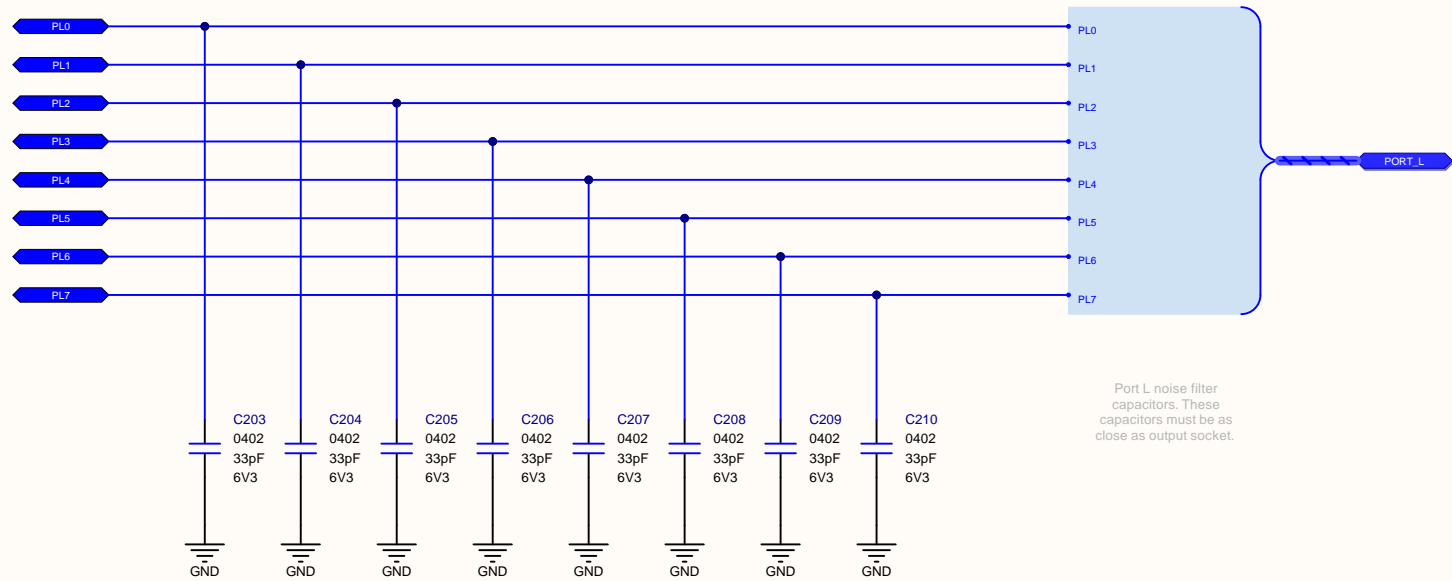



Title Master ICSP Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 30.	Revision: B100AA R4			
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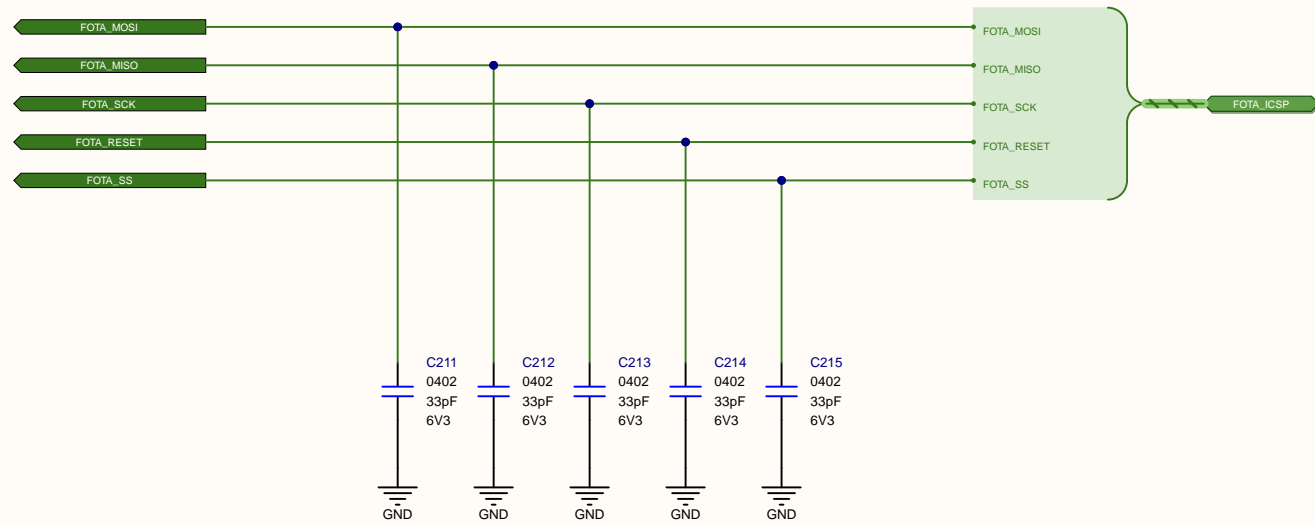
Port C Output Socket Noise Capacitors

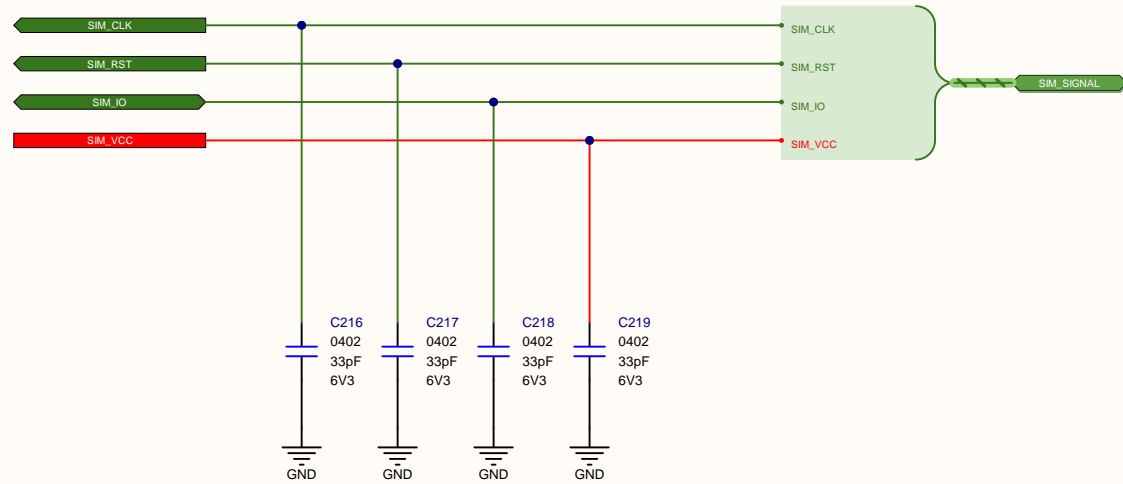


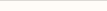
Port L Output Socket Noise Capacitors



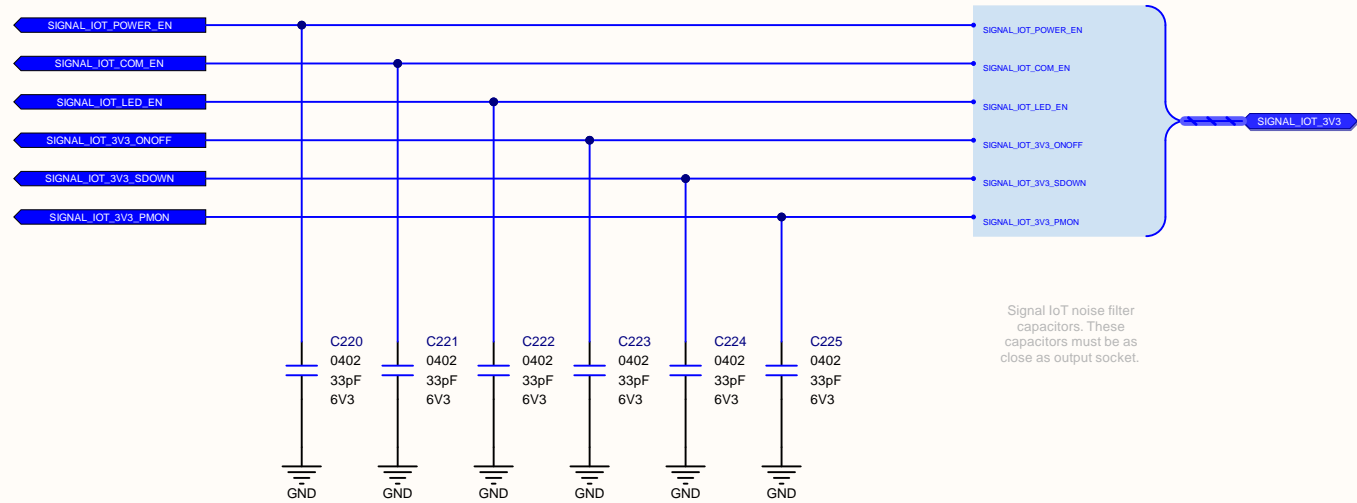
Title PORT L Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
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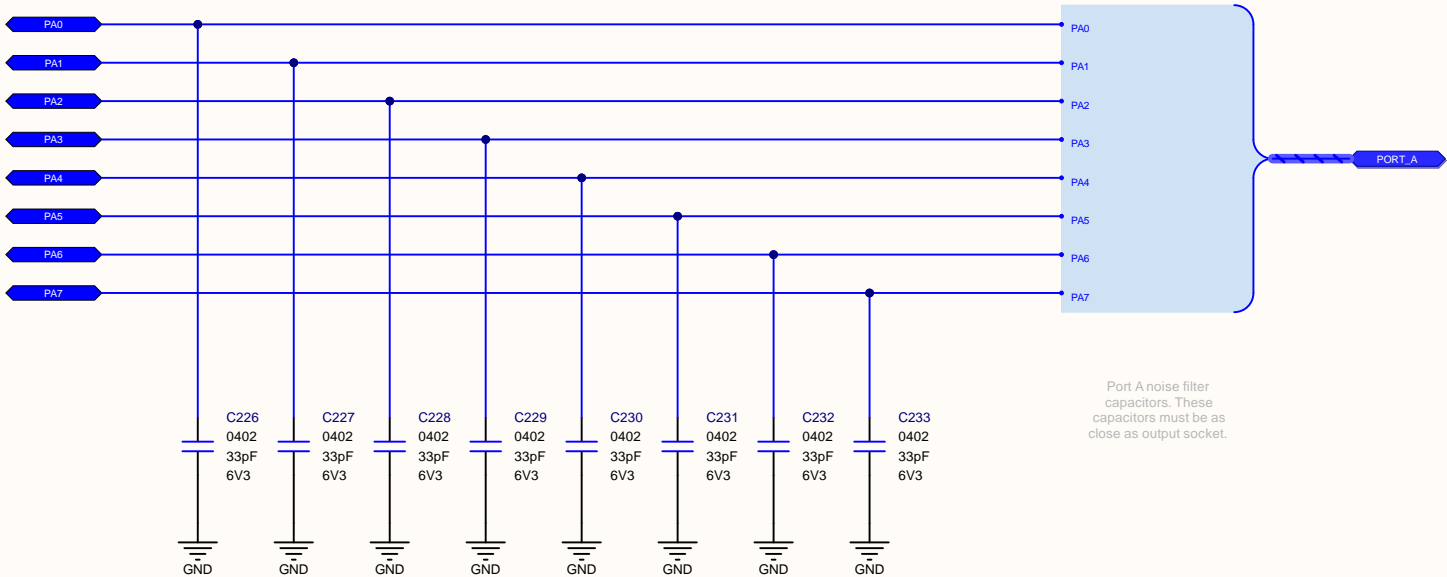
Title FOTA ICSP Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 34.	Revision: B100AA R4		
Date: 22.01.2021	Time: 10:14:47	Sheet 34 of 54		
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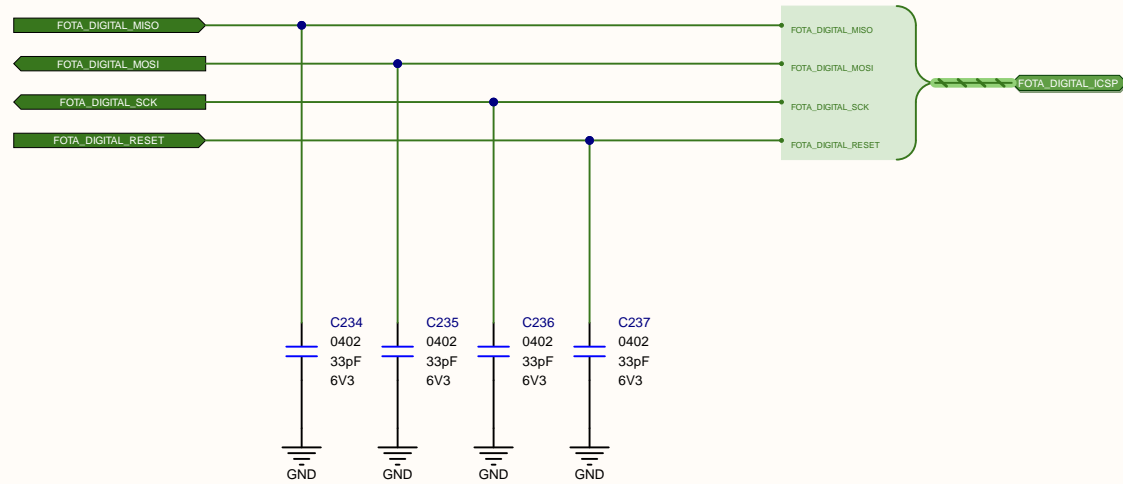
Signal IoT Output Socket Noise Capacitors




Title PORT K Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 35.	Revision: B100AA R4		
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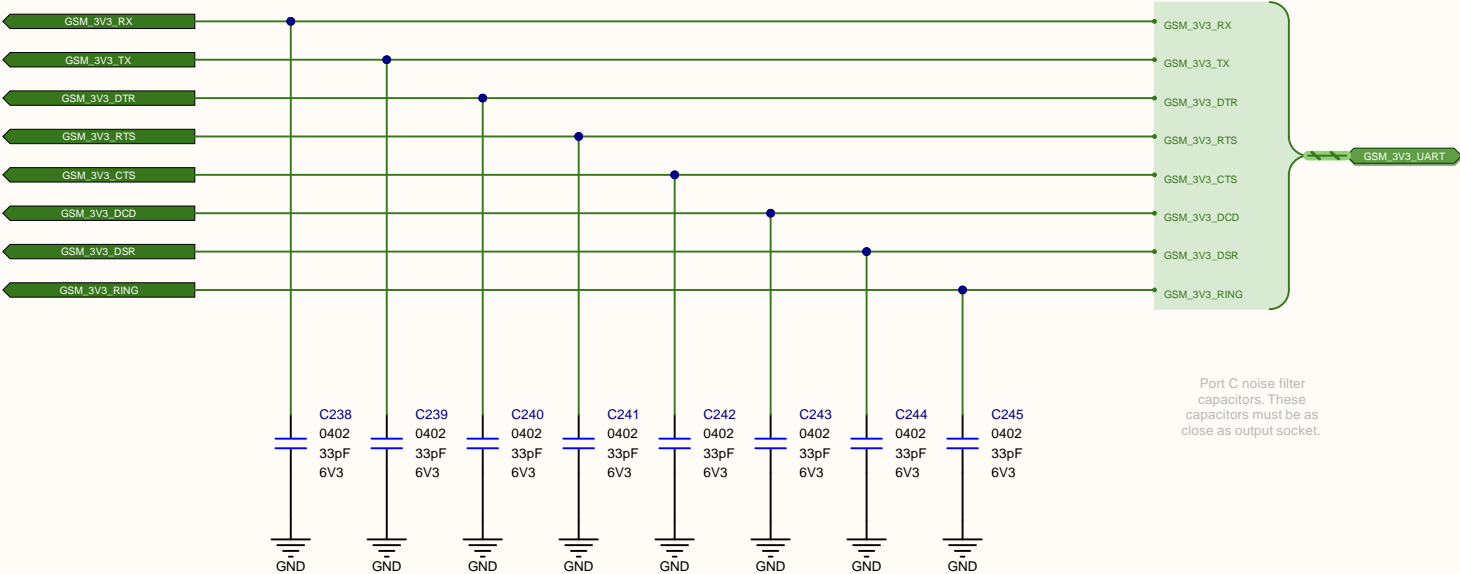
Port A Output Socket Noise Capacitors



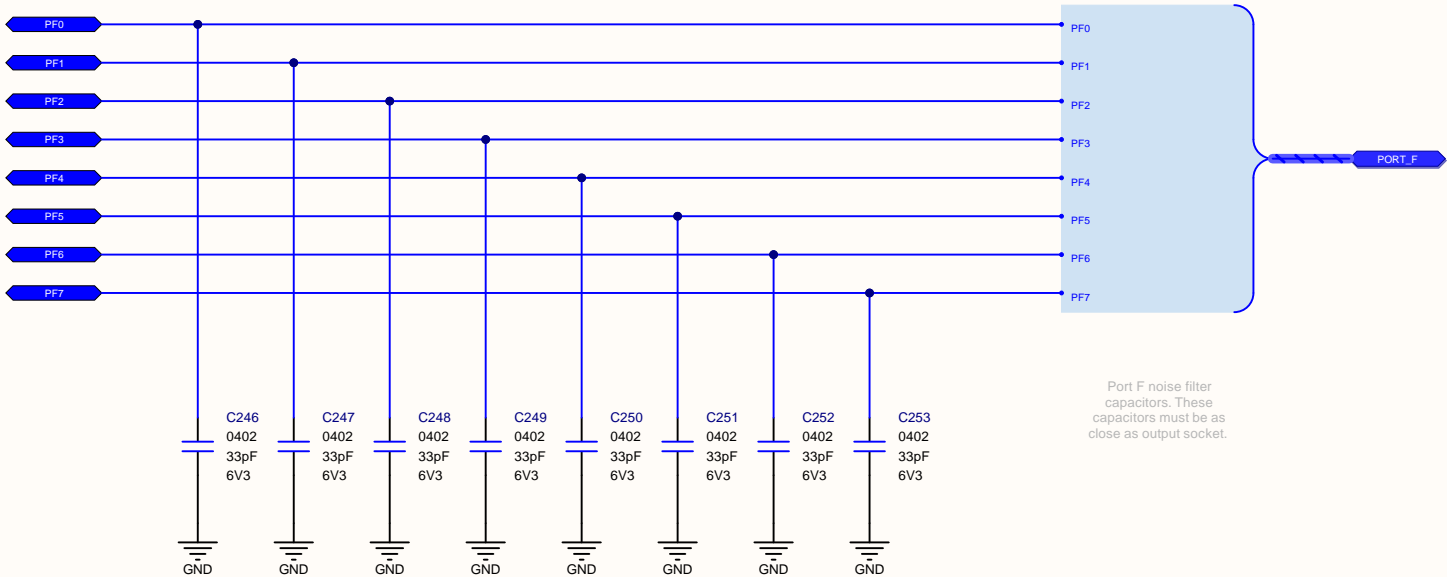


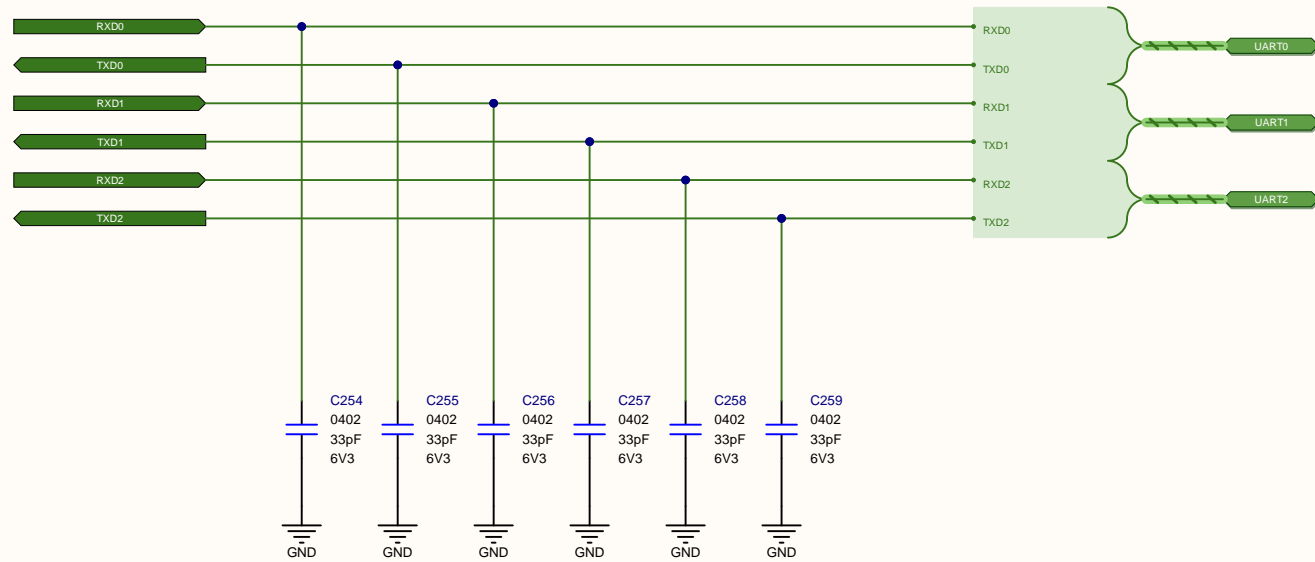
Title FOTA Digital ICSP Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 37.	Revision: B100AA R4		
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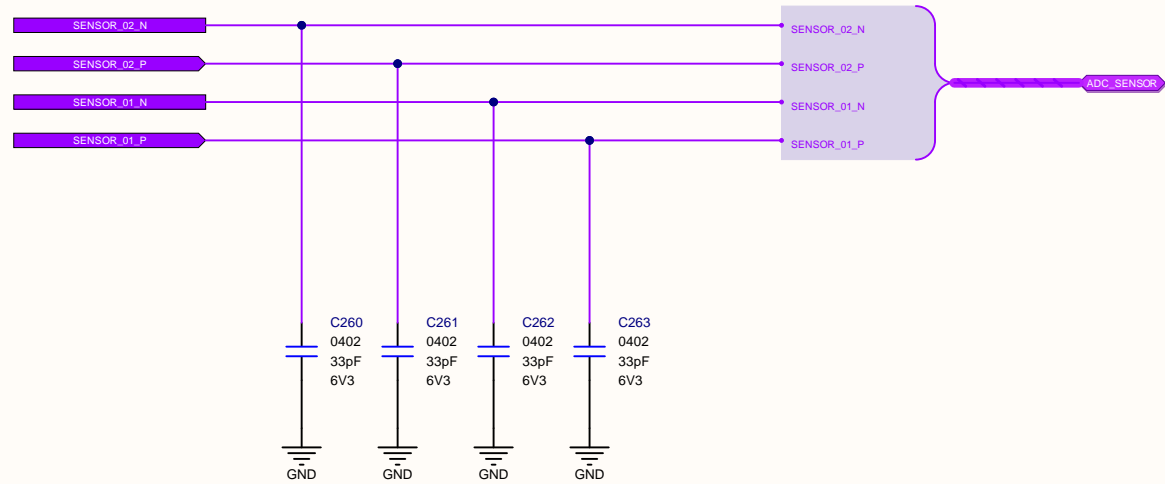
IoT UART Output Socket Noise Capacitors

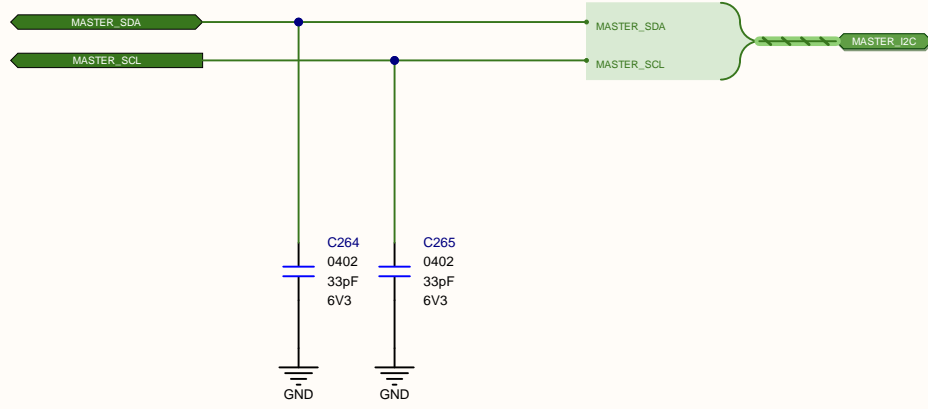



Port F Output Socket Noise Capacitors





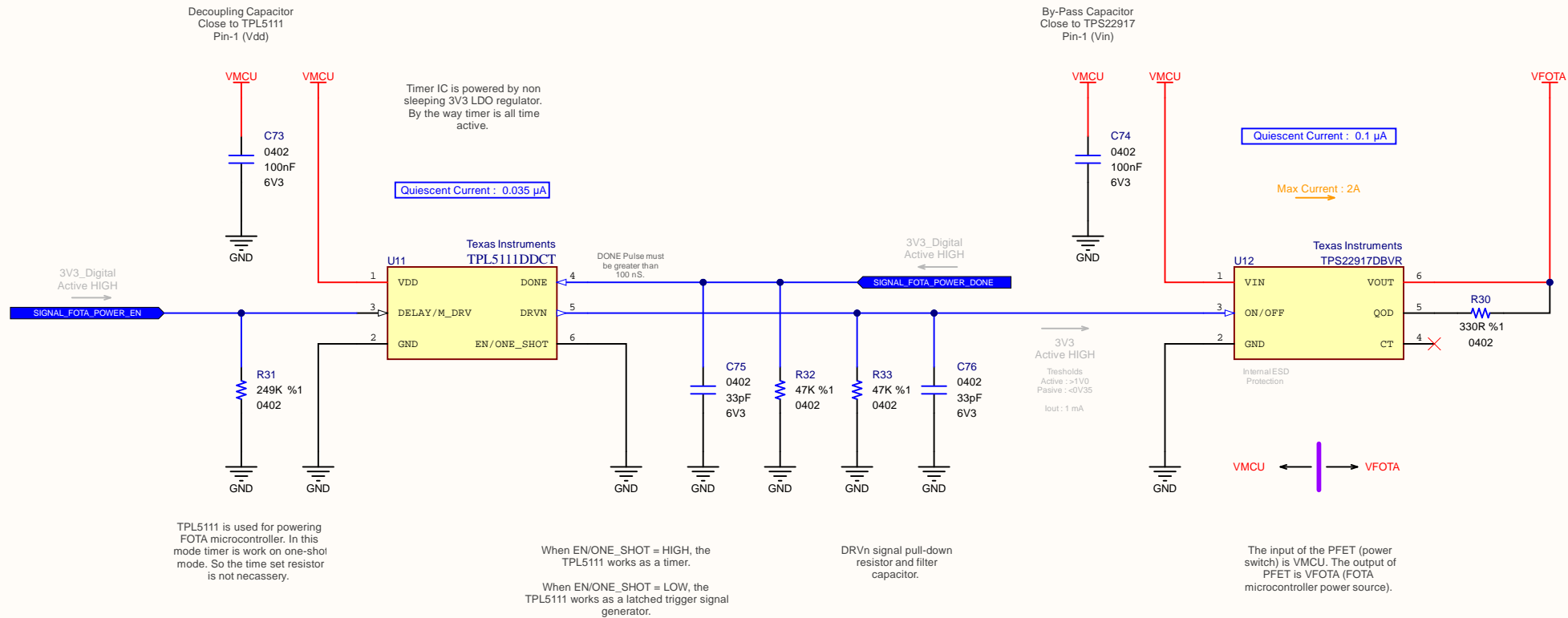




Title I2C Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
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Date: 22.01.2021	Time: 10:14:48	Sheet 42 of 54		
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Power Trigger

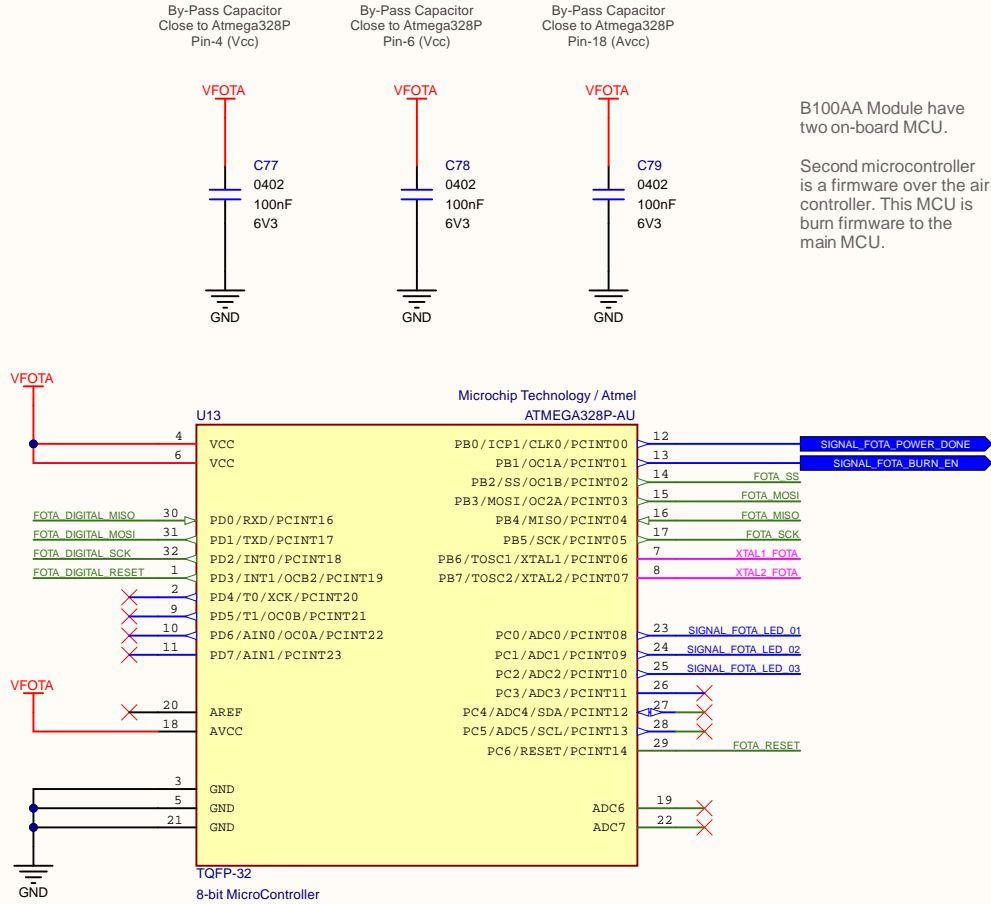
Power Switch



Title FOTA MicroController Latched Power Trigger			Ovoo Electronics Necip Fazıl Mah, Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 43.	Revision: B100AA R4			
Date: 22.01.2021	Time: 10:14:48	Sheet 43 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\FOTA MicroController Power Switch.SchDoc					



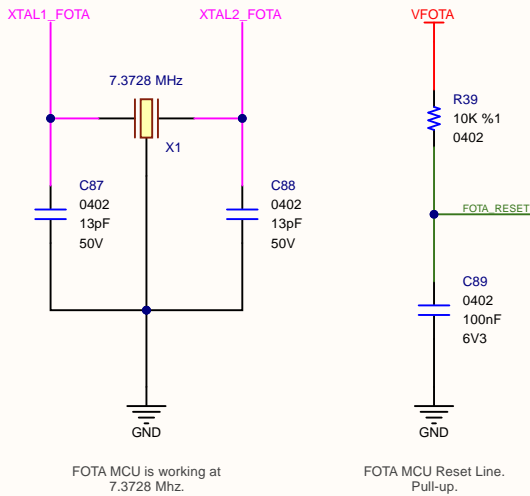
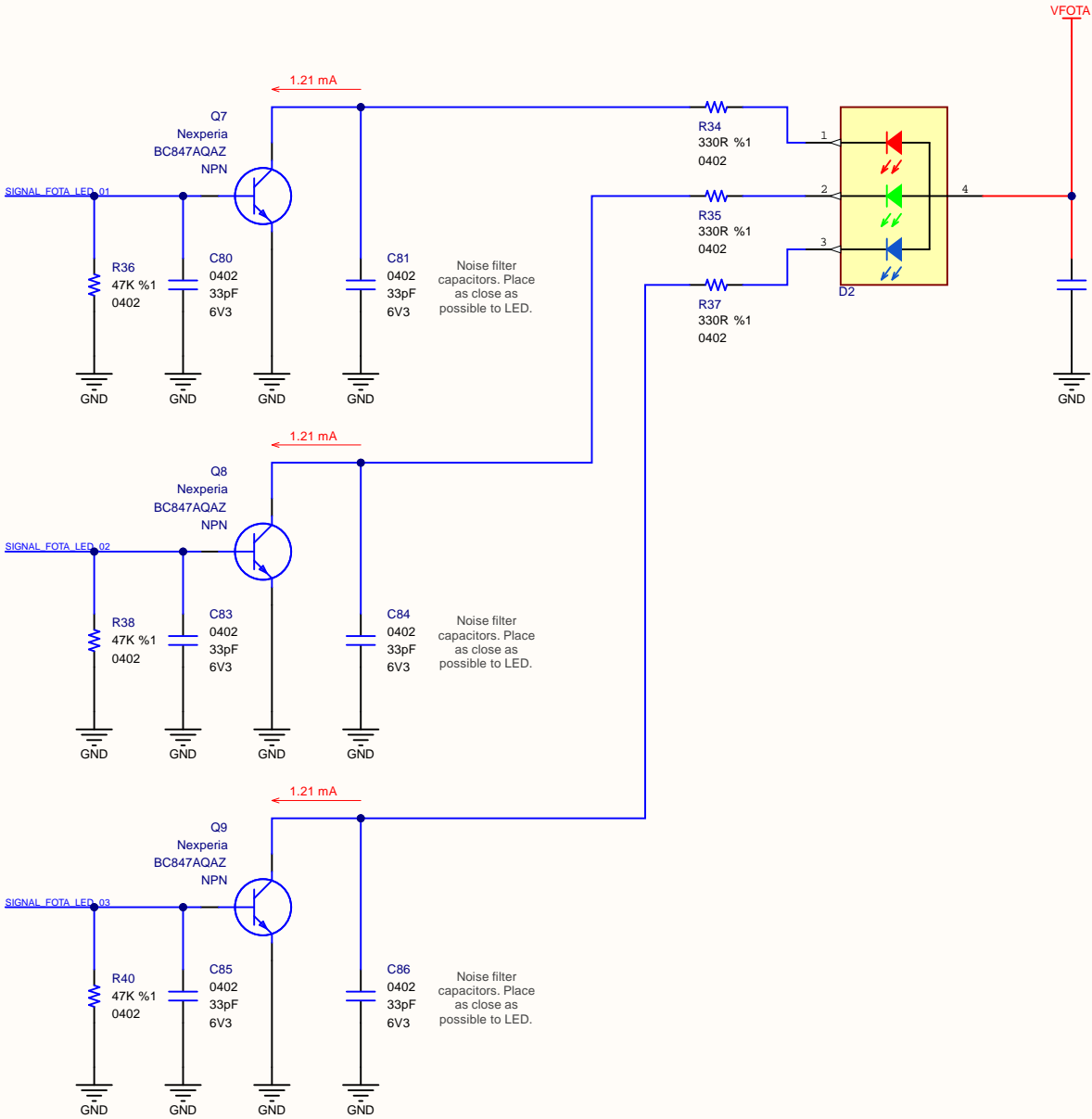
FOTA Micro Controller



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 Micro Controller ICSP



FOTA Digital ICSP (Main MCU Burn)



A

B

C

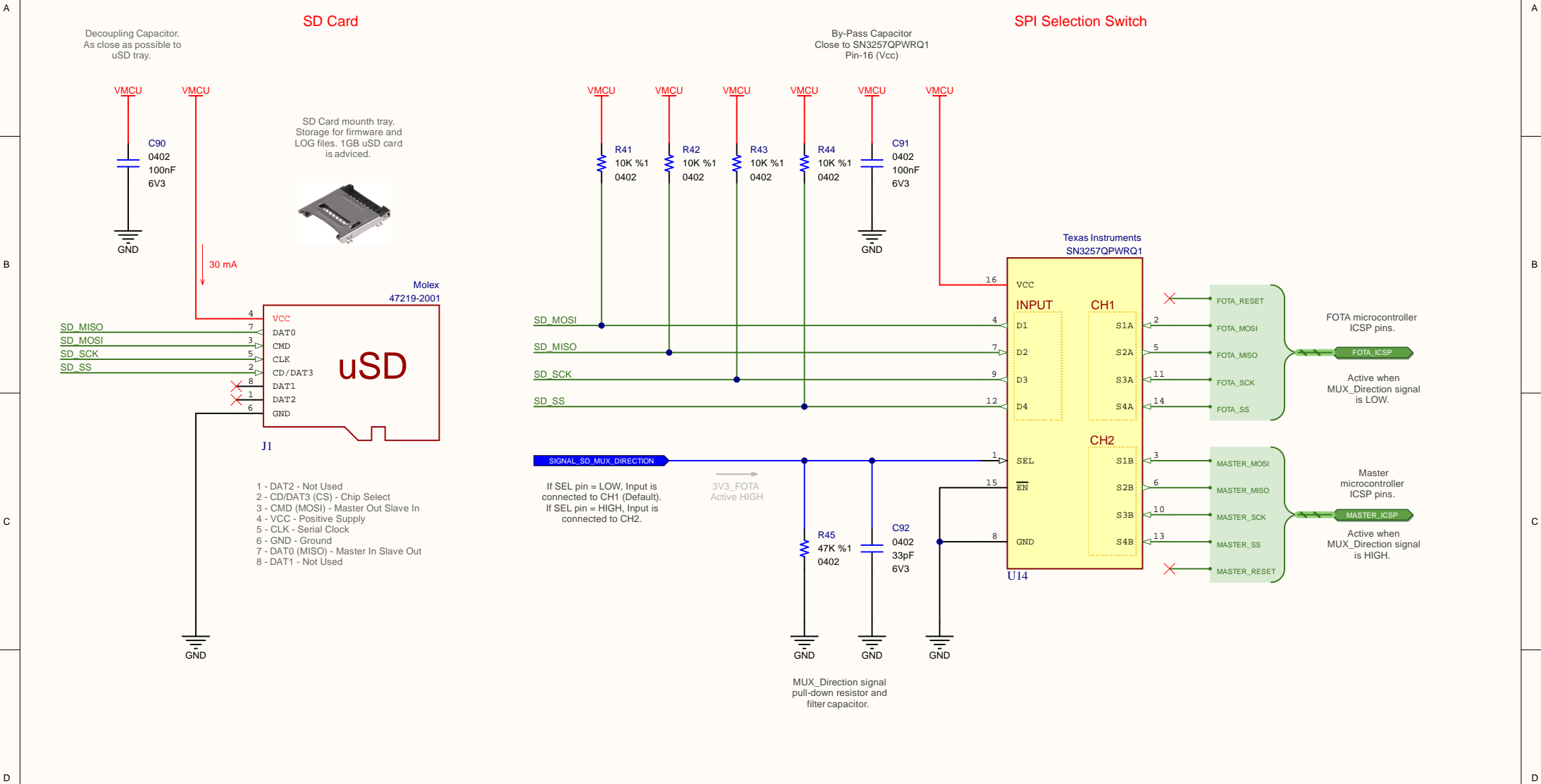
D


A

B

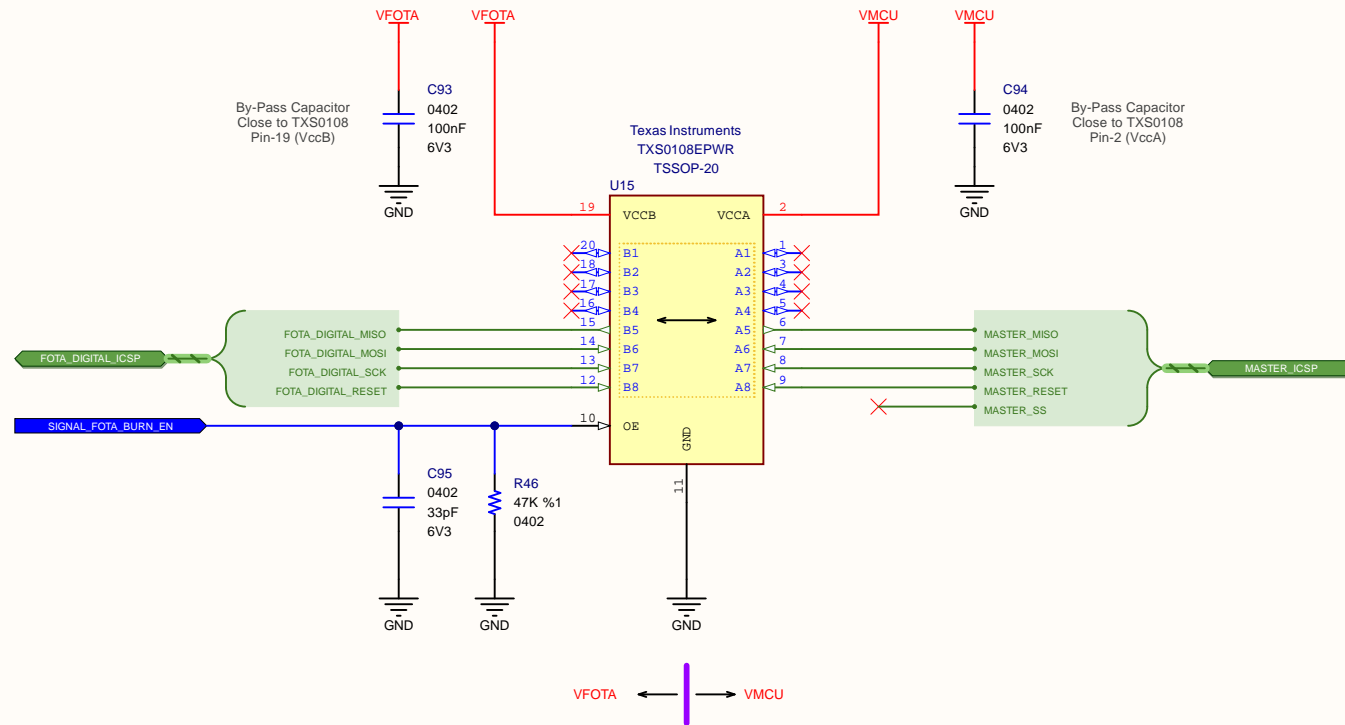
C

D



Title SD Card & Select Switch			Ovoo Electronics		
Size: A4	Number: 45.	Revision: B100AA R4	Necip Fazl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 22.01.2021	Time: 10:14:48	Sheet 45 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: 46.

Revision: B100AA R4

Date: 22.01.2021

Time: 10:14:48

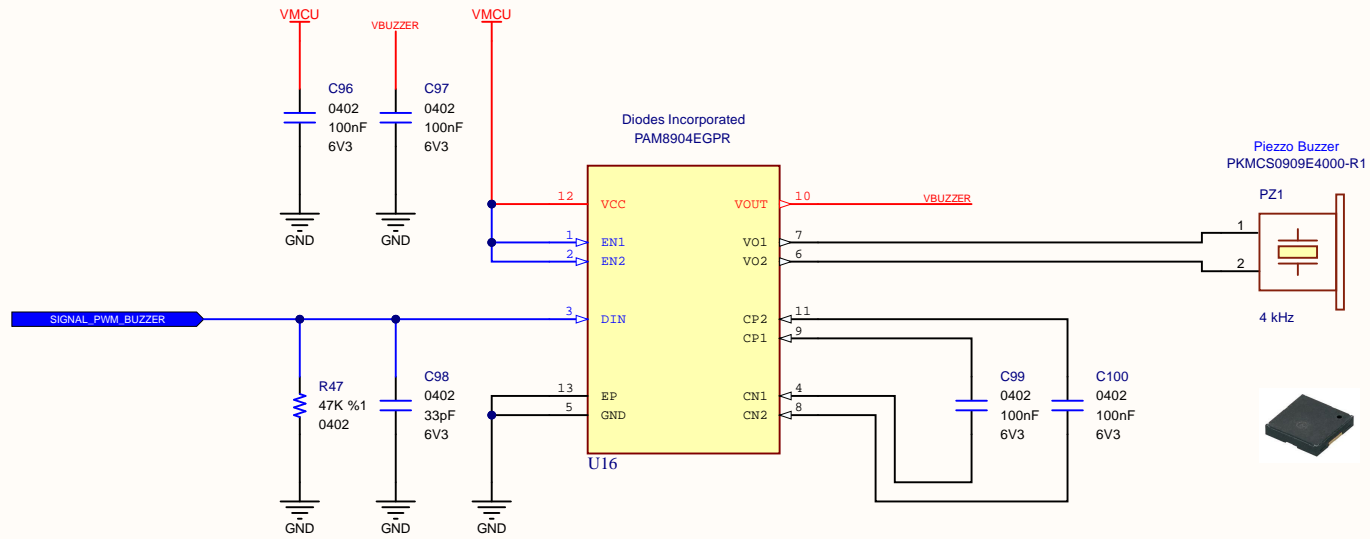
Sheet 46 of 54


File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\ICSP Burn Buffer.SchDoc

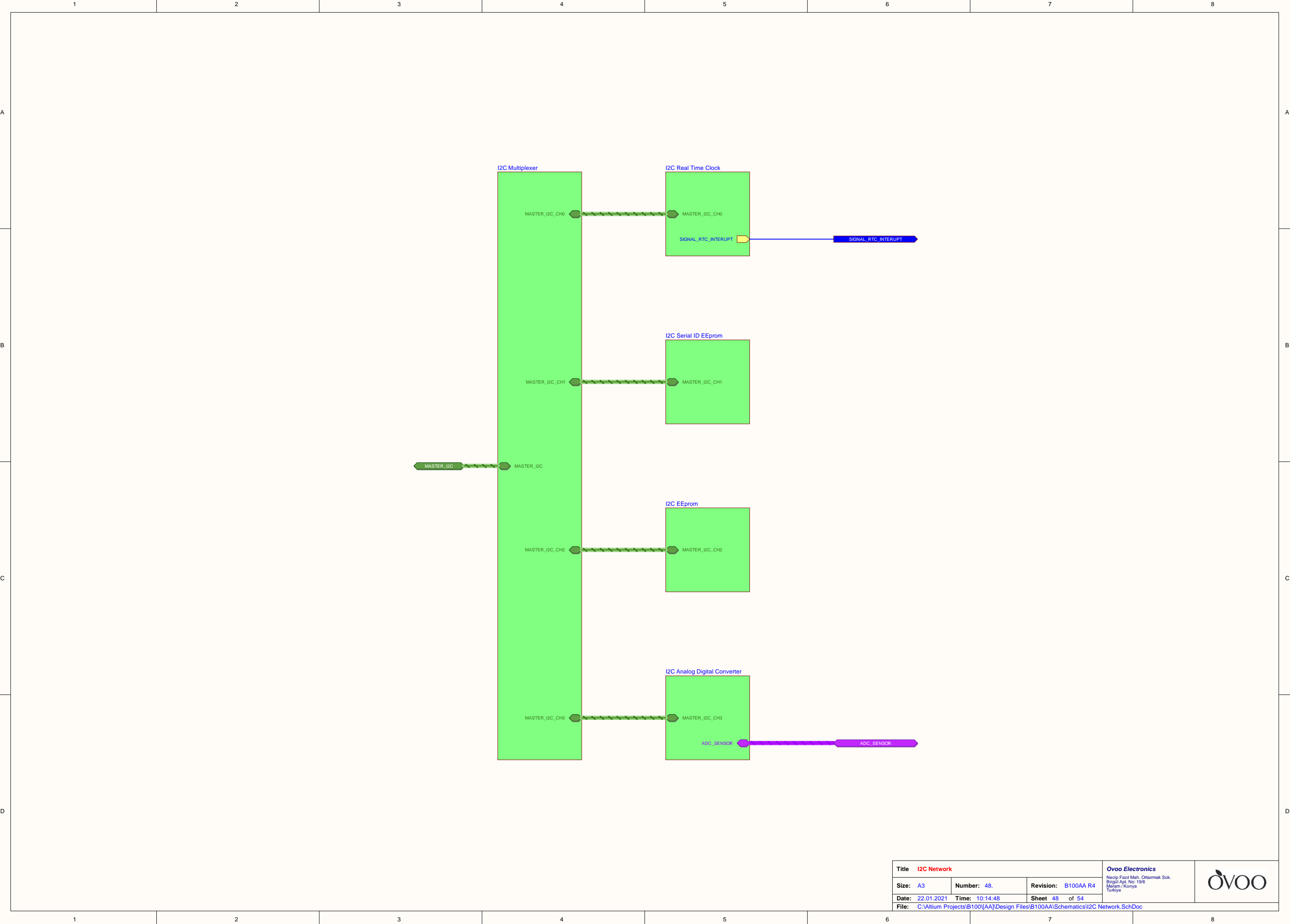
Ovoo Electronics

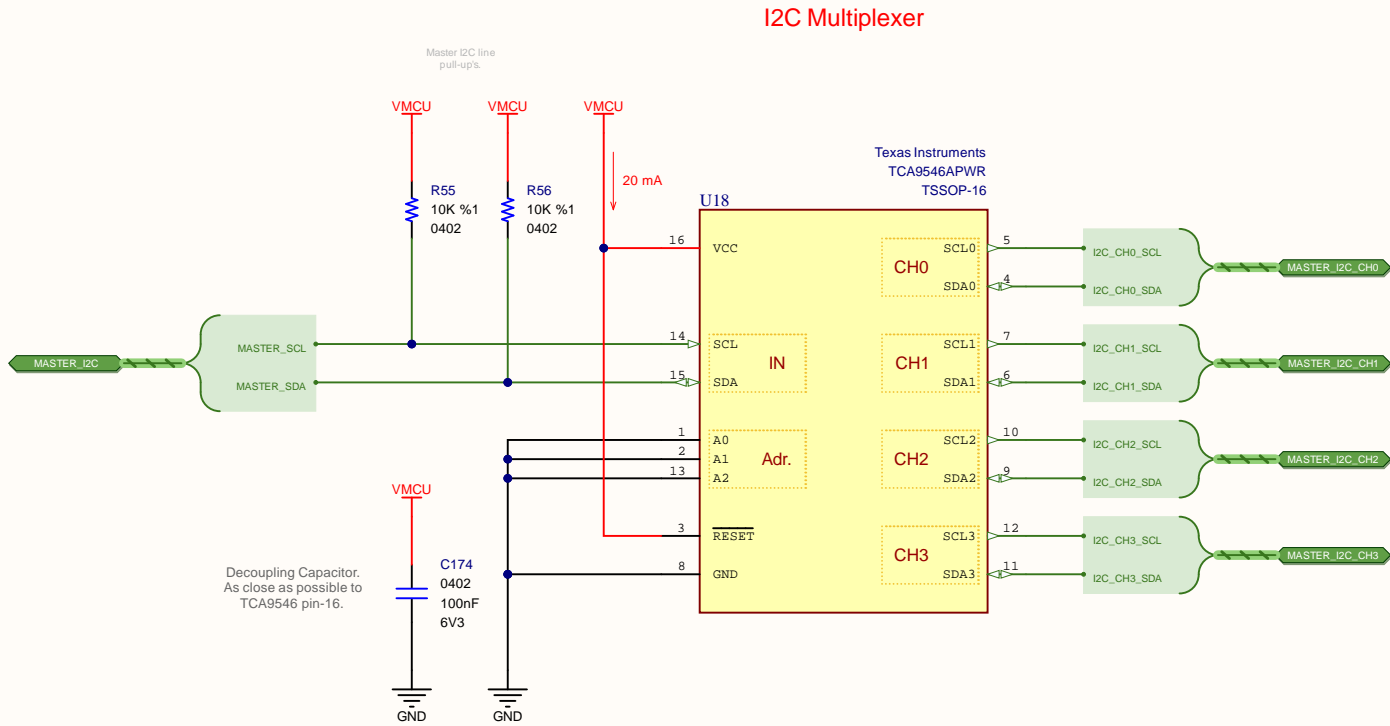
Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye


Piezzo Buzzer



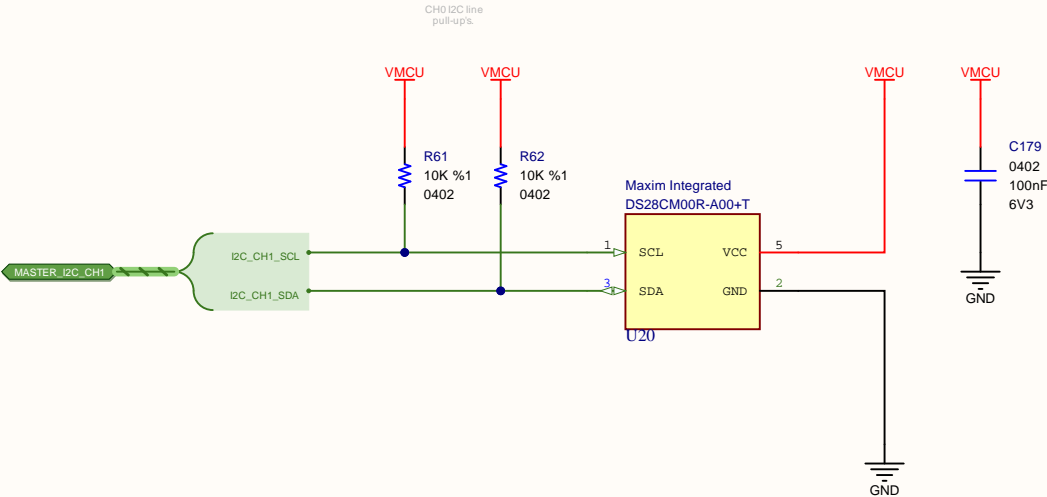
Title Buzzer			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 47.	Revision: B100AA R4		
Date: 22.01.2021	Time: 10:14:48	Sheet 47 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Buzzer.SchDoc				






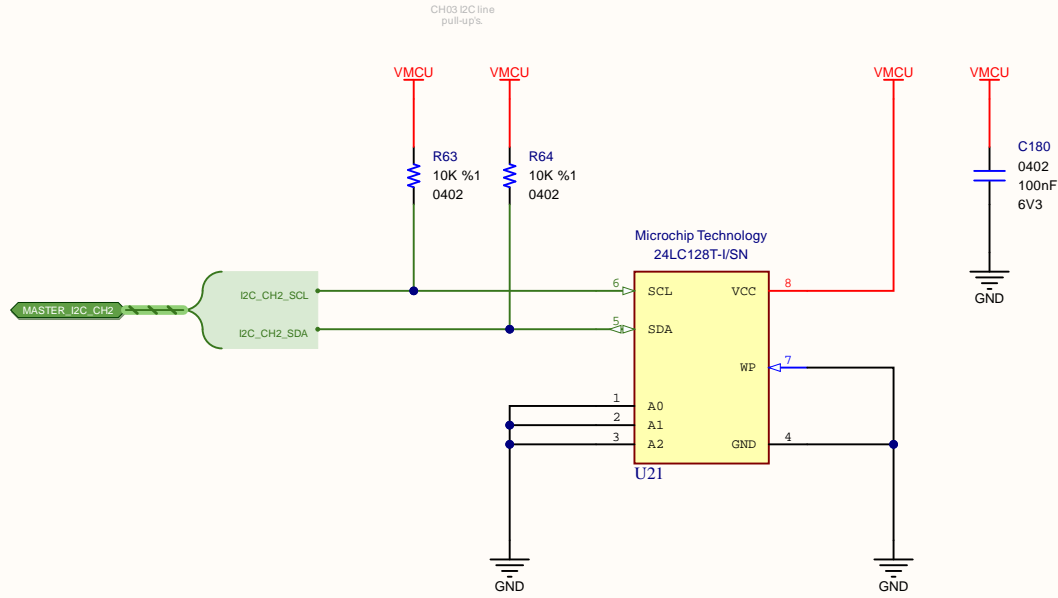
Title I2C Multiplexer			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 49.	Revision: B100AA R4			
Date: 22.01.2021	Time: 10:14:48	Sheet 49 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\I2C Multiplexer.SchDoc					

I2C Serial ID EEPROM



Title I2C Serial ID EEprom			Ovoo Electronics		
Size: A4	Number: 51.	Revision: B100AA R4	Necip Fazl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 22.01.2021	Time: 10:14:48	Sheet 51 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Serial ID EEPROM.SchDoc					

EEPROM



Title I2C EEprom

Size: A4

Number: 52.

Revision: B100AA R4

Date: 22.01.2021

Time: 10:14:48

Sheet 52 of 54

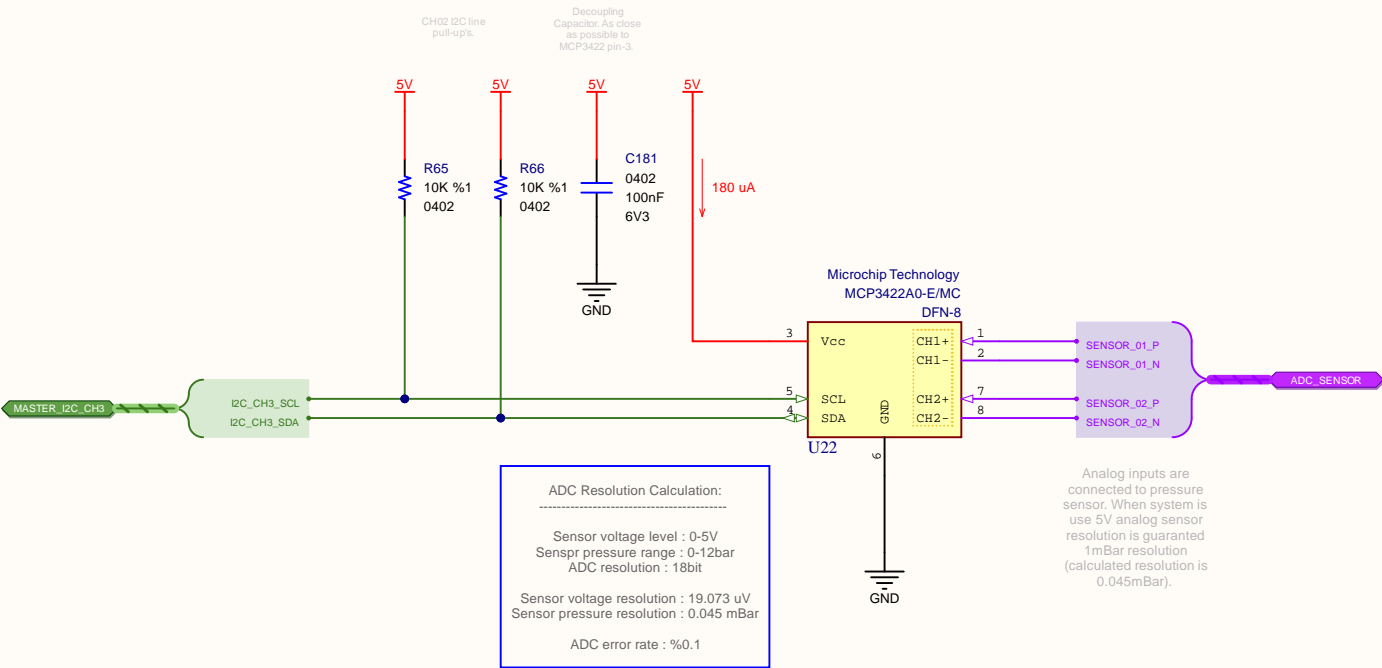
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Ovoo Electronics

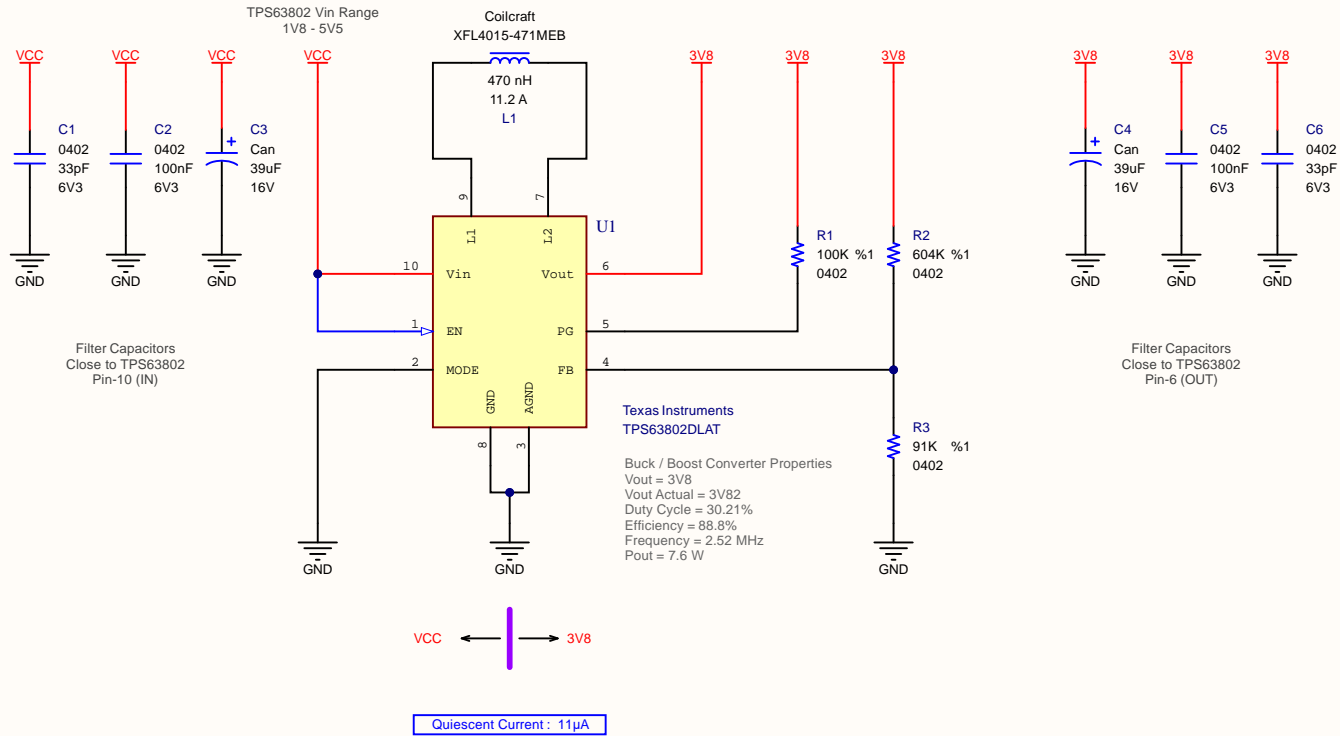
Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye




Analog Digital Converter

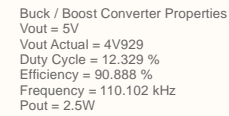



3V8 Buck Boost Converter



Title 3V8 DC/DC Buck Boost Converter			Ovoo Electronics		
Size: A4	Number:	Revision: B100AA R4	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Date: 22.01.2021	Time: 10:14:49	Sheet of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\3V8 Buck Boost Converter.SchDoc					

VCC ← | → 5V



Title 5V DC/DC Buck Boost Converter			Ovoo Electronics Necip Fazıl Mah. Ortaköy Sok. Bırgıld Apt. No: 19/B Meram / Konya Türkiye	
Size: A4	Number:	Revision: B100AA R4		
Date: 22.01.2021	Time: 10:14:49	Sheet of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\5V Buck Boost Converter.SchDoc				