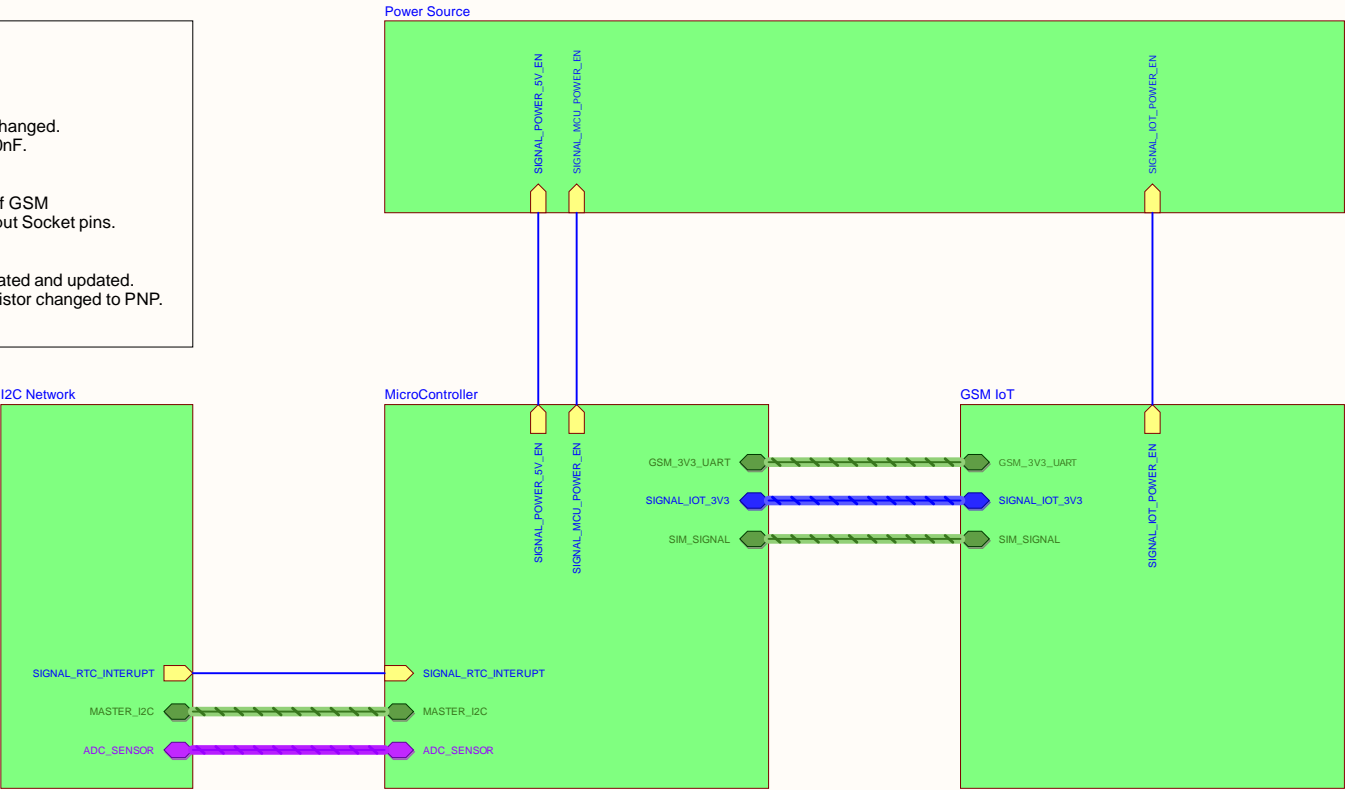


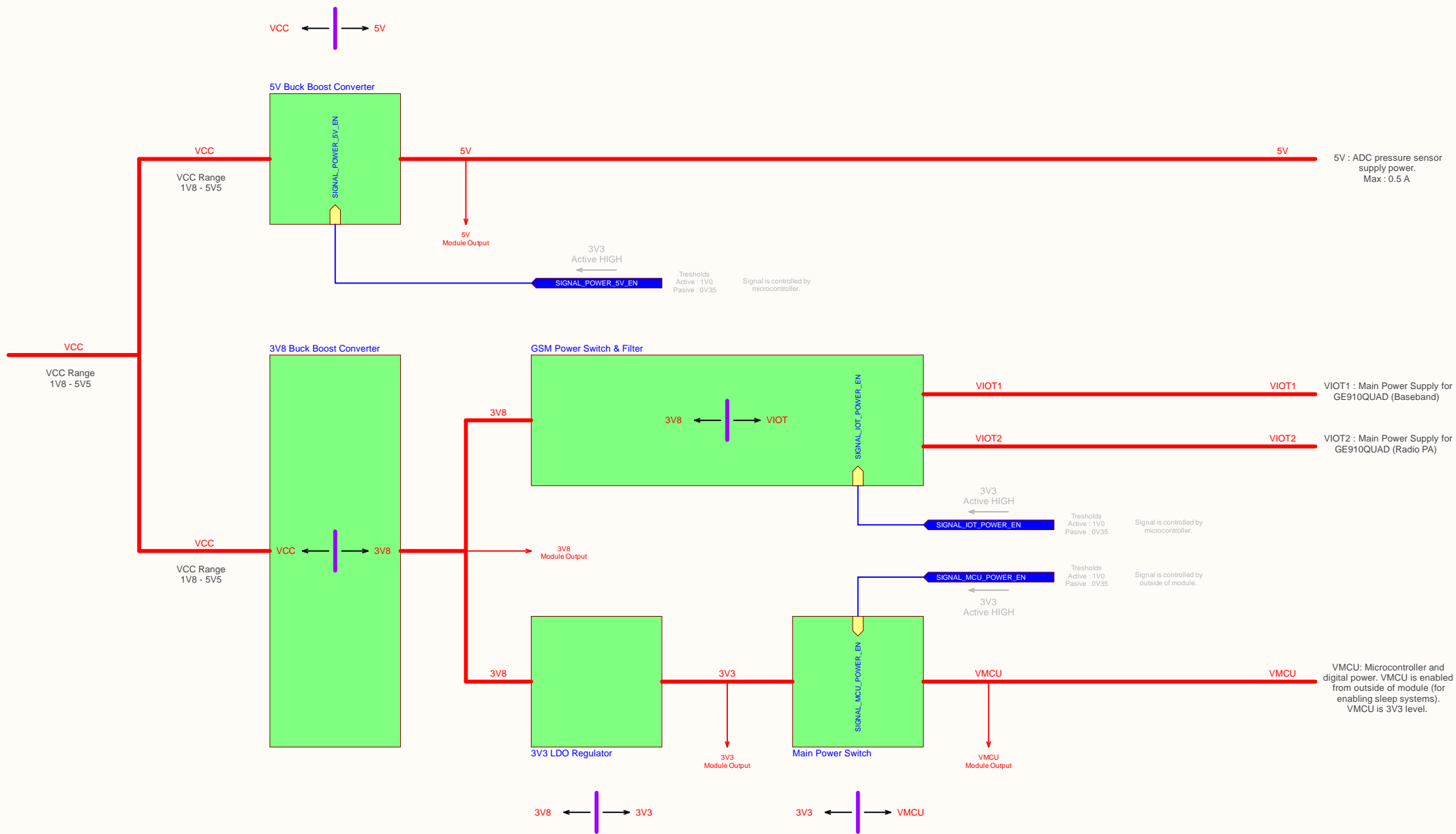
# B100 - Master IoT MicroController

## Revision History

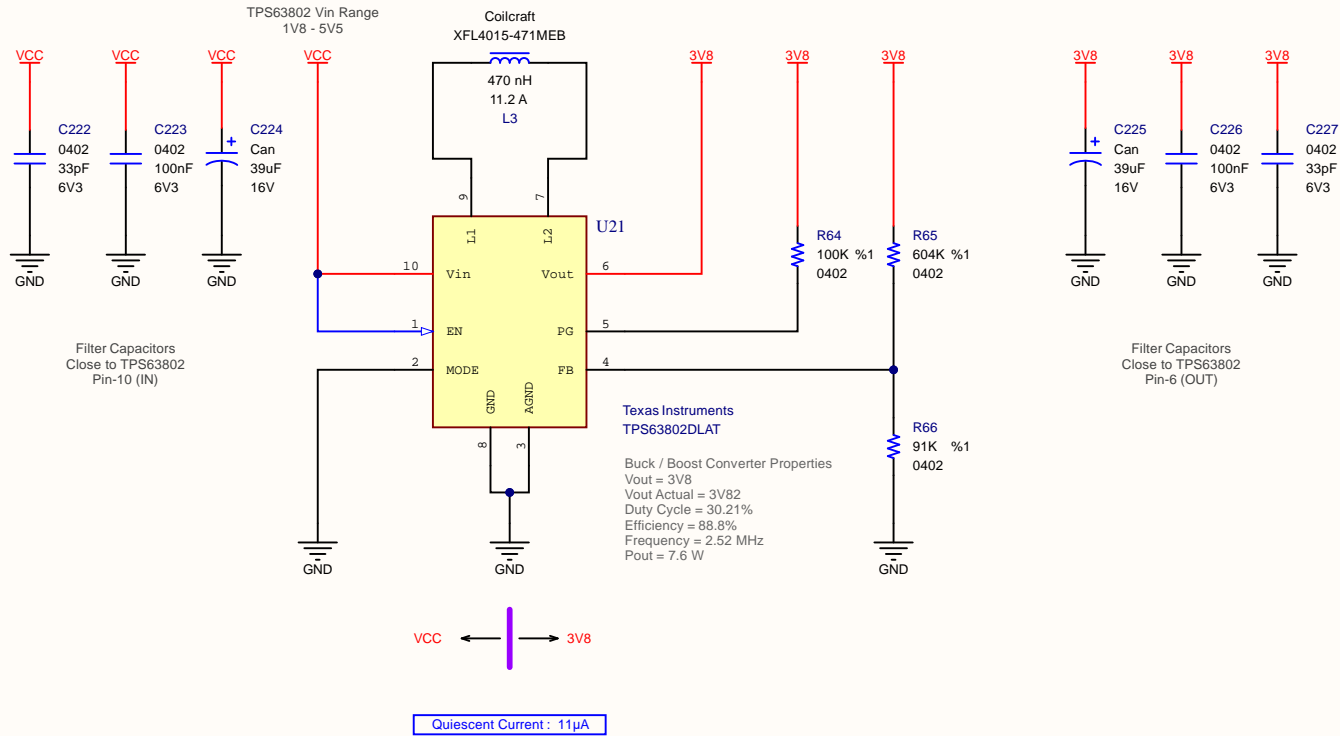
- AA001 (05.01.2021)  
\* Schematic creation.
- AA002 (11.01.2021)  
\* Bidirectional signal translator IC changed.  
\* SIM Vcc capacitor changed to 100nF.
- AA003 (19.01.2021)  
\* 33 pF capacitor added to VAUX of GSM  
\* 33 pF capacitors added to all Output Socket pins.
- AA004 (22.01.2021)  
\*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




Power Archtechure



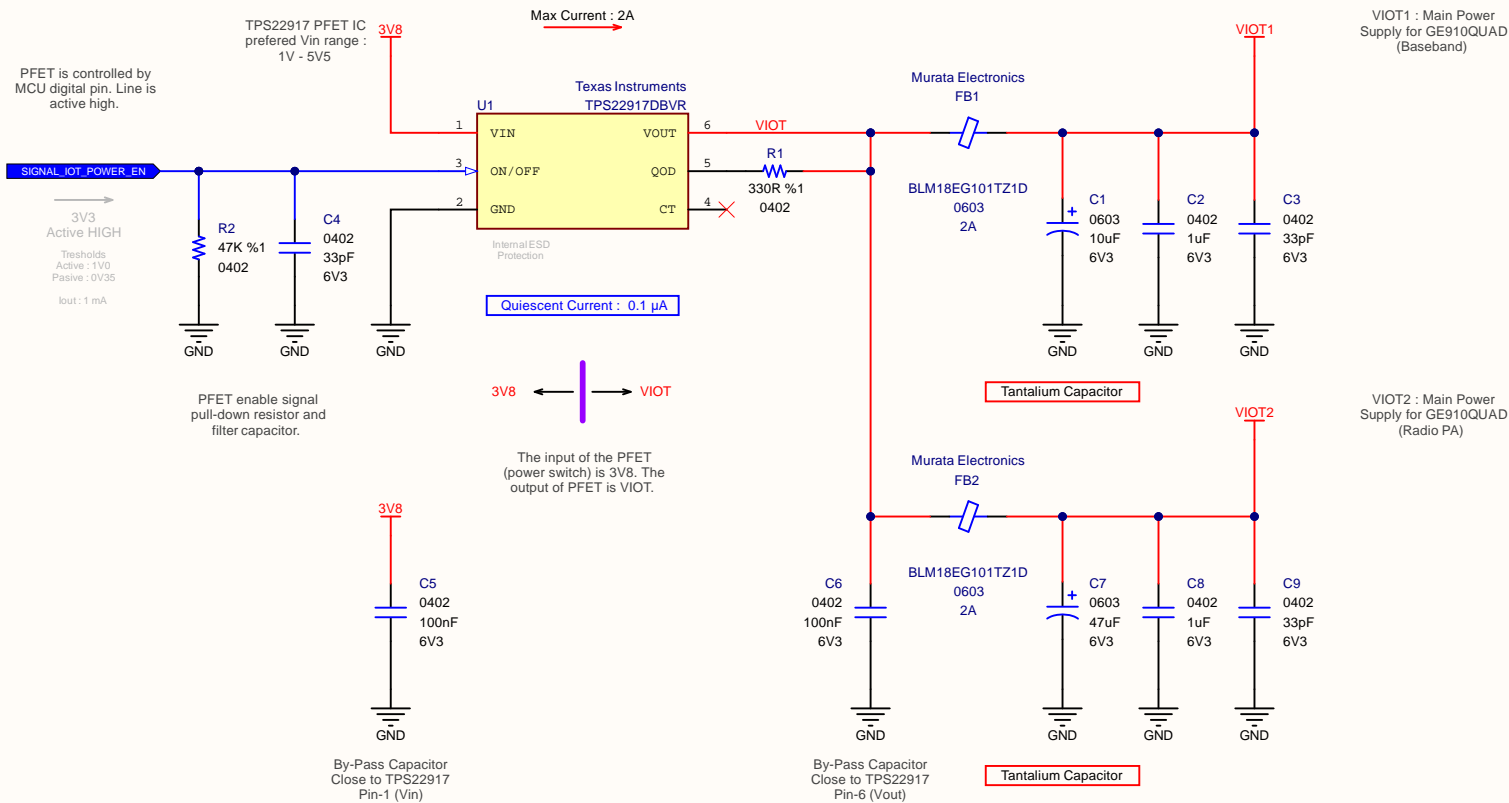
### 3V8 Buck Boost Converter



Title 3V8 DC/DC Buck Boost Converter			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 3	Revision: B100AA R4			
Date: 29.01.2021	Time: 11:13:03	Sheet 3 of 54			
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\3V8 Buck Boost Converter.SchDoc					

## GSM Modem Power Switch

## GSM Module Power Filter



Title GSM Power Switch and Filter

Size: A4

Number: 4

Revision: B100AA R4

Date: 29.01.2021

Time: 11:13:03

Sheet 4 of 54

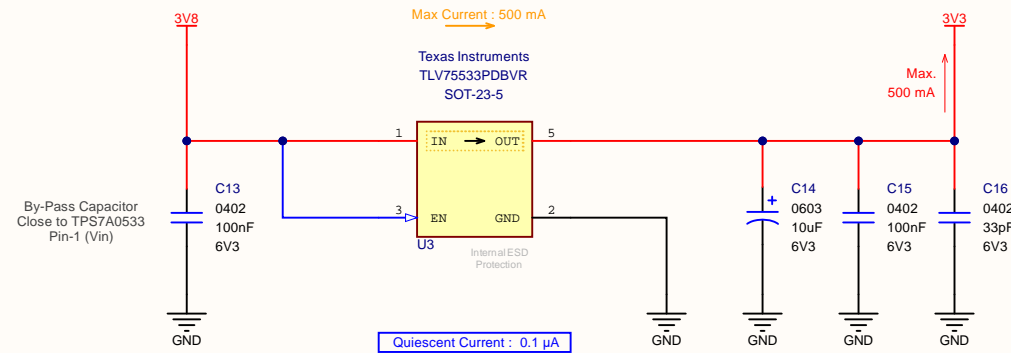
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\GSM Power.SchDoc

Ovoo Electronics

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


Ovoo

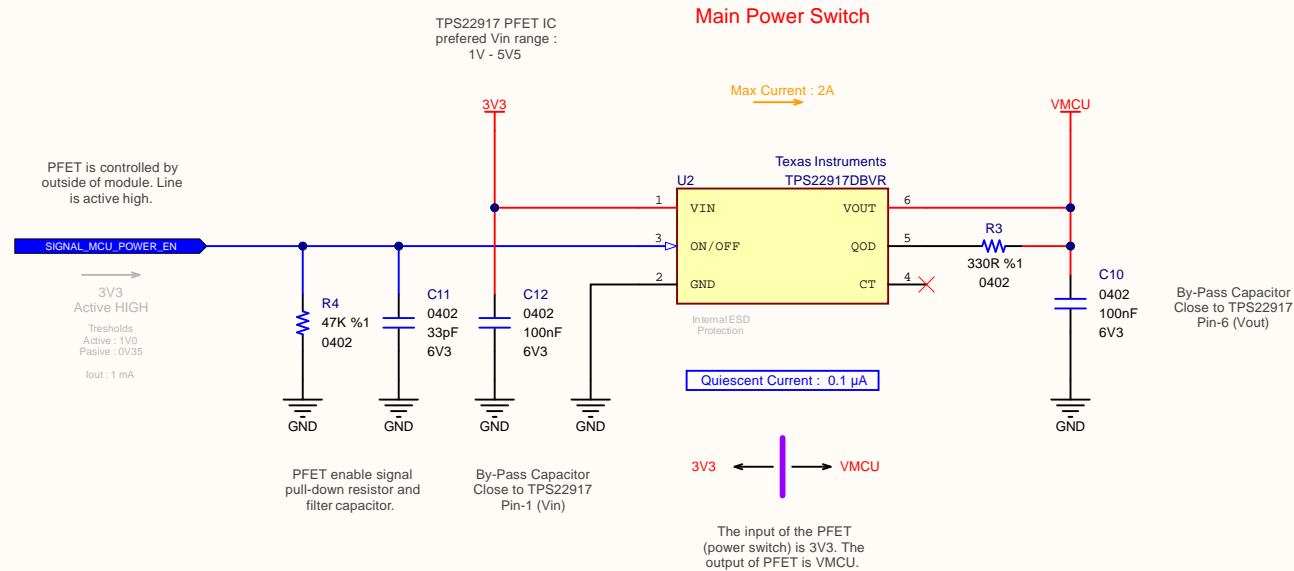
### 3V3 LDO Regulator




3V8 ← → 3V3

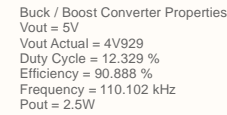
TLV75533 LDO is a 3V3 regulator. LDO is always enable.


Title 3V3 LDO Regulator			Ovoo Electronics	
Size: A4	Number: 5	Revision: B100AA R4	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Date: 29.01.2021	Time: 11:13:03	Sheet 5 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\3V3 LDO Regulator.SchDoc				



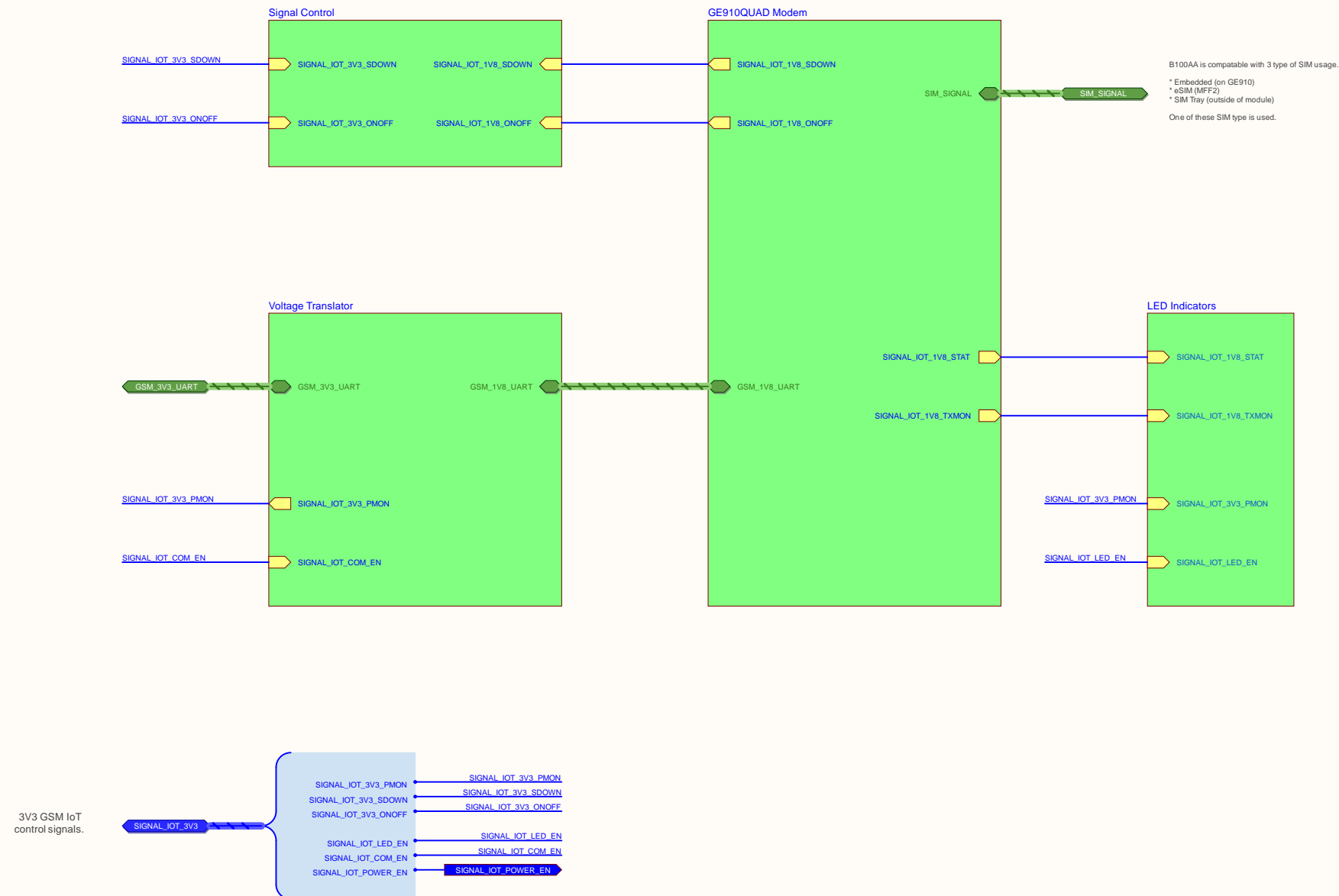
Title <b>Main Power Switch</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah, Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>6</b>	Revision: <b>B100AA R4</b>		
Date: <b>29.01.2021</b>	Time: <b>11:13:03</b>	Sheet <b>6</b> of <b>54</b>		
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Main Power Switch.SchDoc</b>				


VCC ← | → 5V



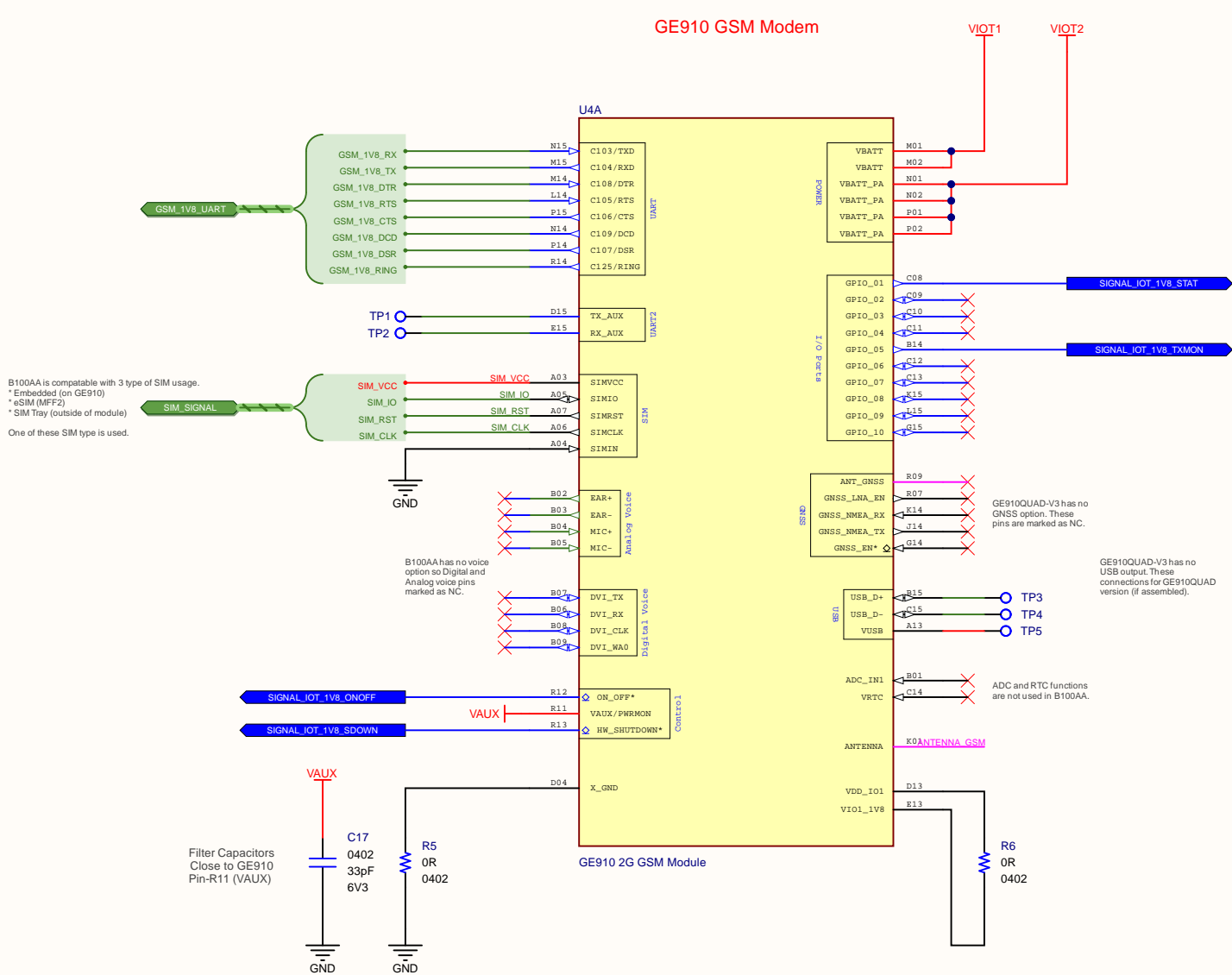
<b>Title</b> 5V DC/DC Buck Boost Converter			<b>Ovoo Electronics</b> Necip Fazıl Mah.    Ofisarmak Sok. Bırgıld A/pt. No: 19/B Meram / Konya Türkiye	
<b>Date:</b> A4	<b>Number:</b> 7	<b>Revision:</b> B100AA R4		
<b>Date:</b> 29.01.2021	<b>Time:</b> 11:13:03	<b>Sheet</b> 7    of    54		
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## GSM IoT Communication Layer

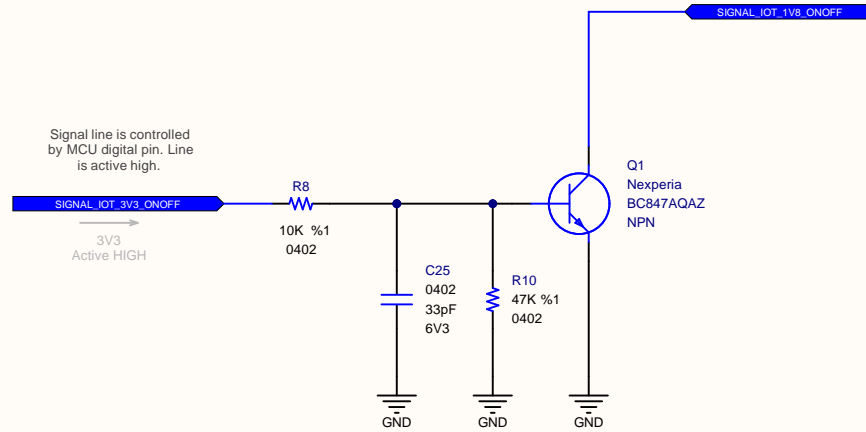


<b>Title</b> <b>GSM IoT Block Diagram</b>			<b>Ovoo Electronics</b> Necip Fazıl Mah. Ortarmak Sok. Birgül Apt. No: 19/6 Meram / Konya Türkiye	
<b>Size:</b> A3	<b>Number:</b> 8	<b>Revision:</b> B100AA R4		
<b>Date:</b> 29.01.2021	<b>Time:</b> 11:13:03	<b>Sheet</b> 8    of    54		
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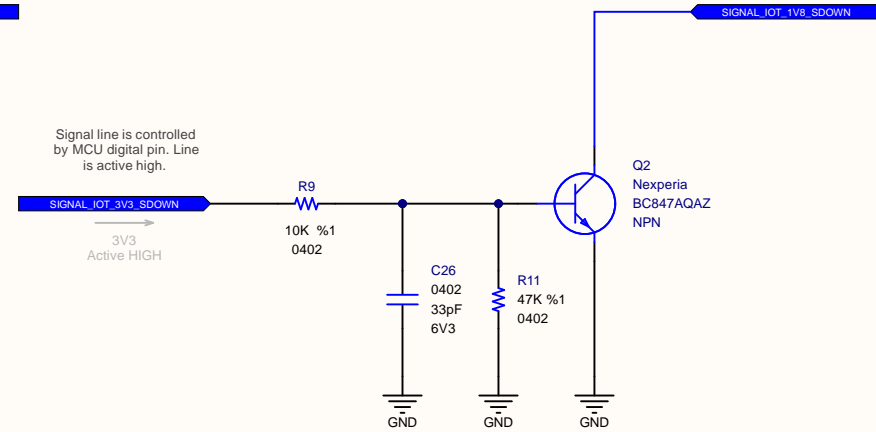




## GSM Module On/Off Signal



## GSM Module Shut Down Signal



Title GSM Control Signal Management

Size: A4

Number: 10

Revision: B100AA R4

Date: 29.01.2021

Time: 11:13:03

Sheet 10 of 54

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

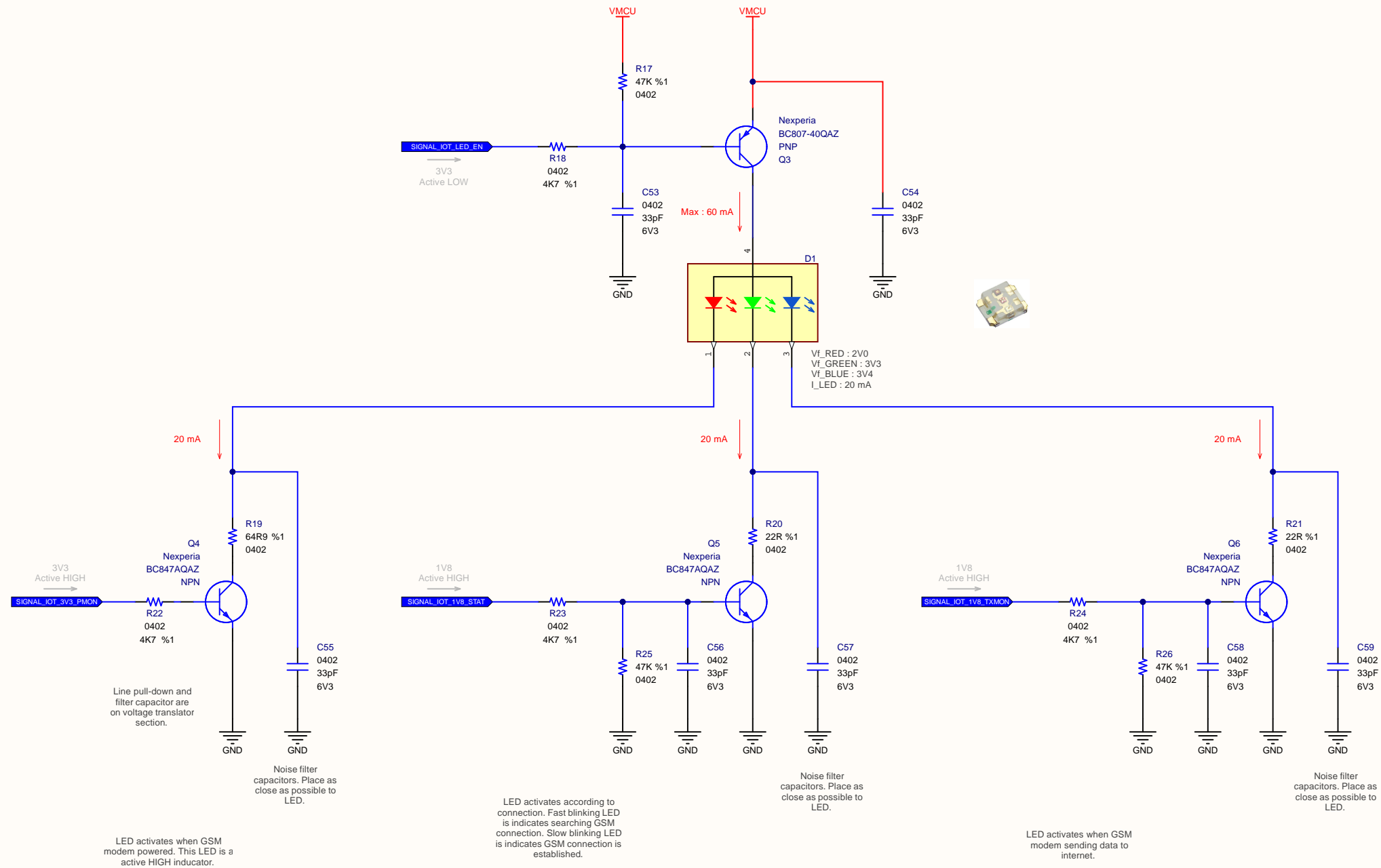
Ovoo Electronics

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

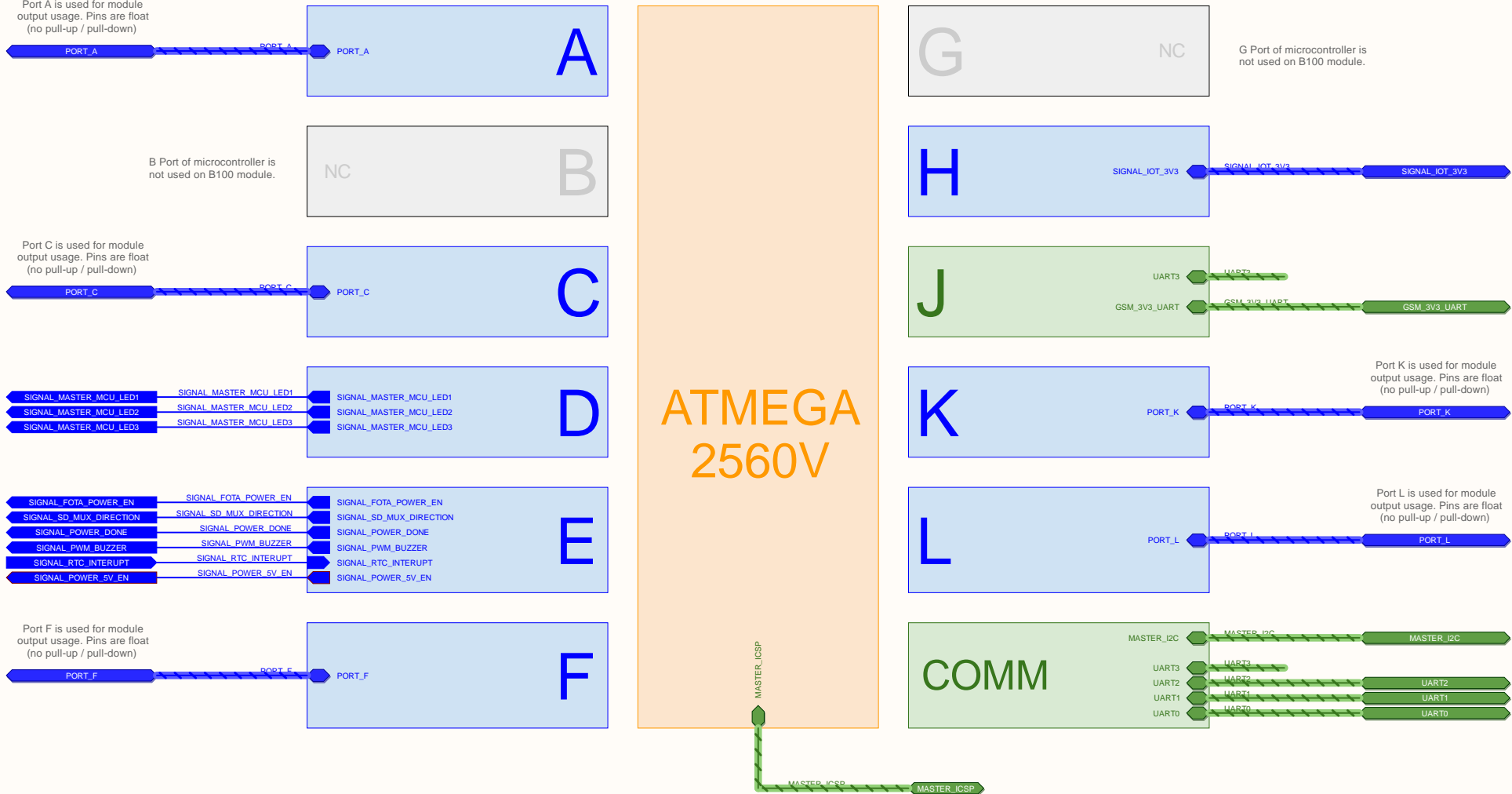
OVOO




GSM IoT LED Indicators

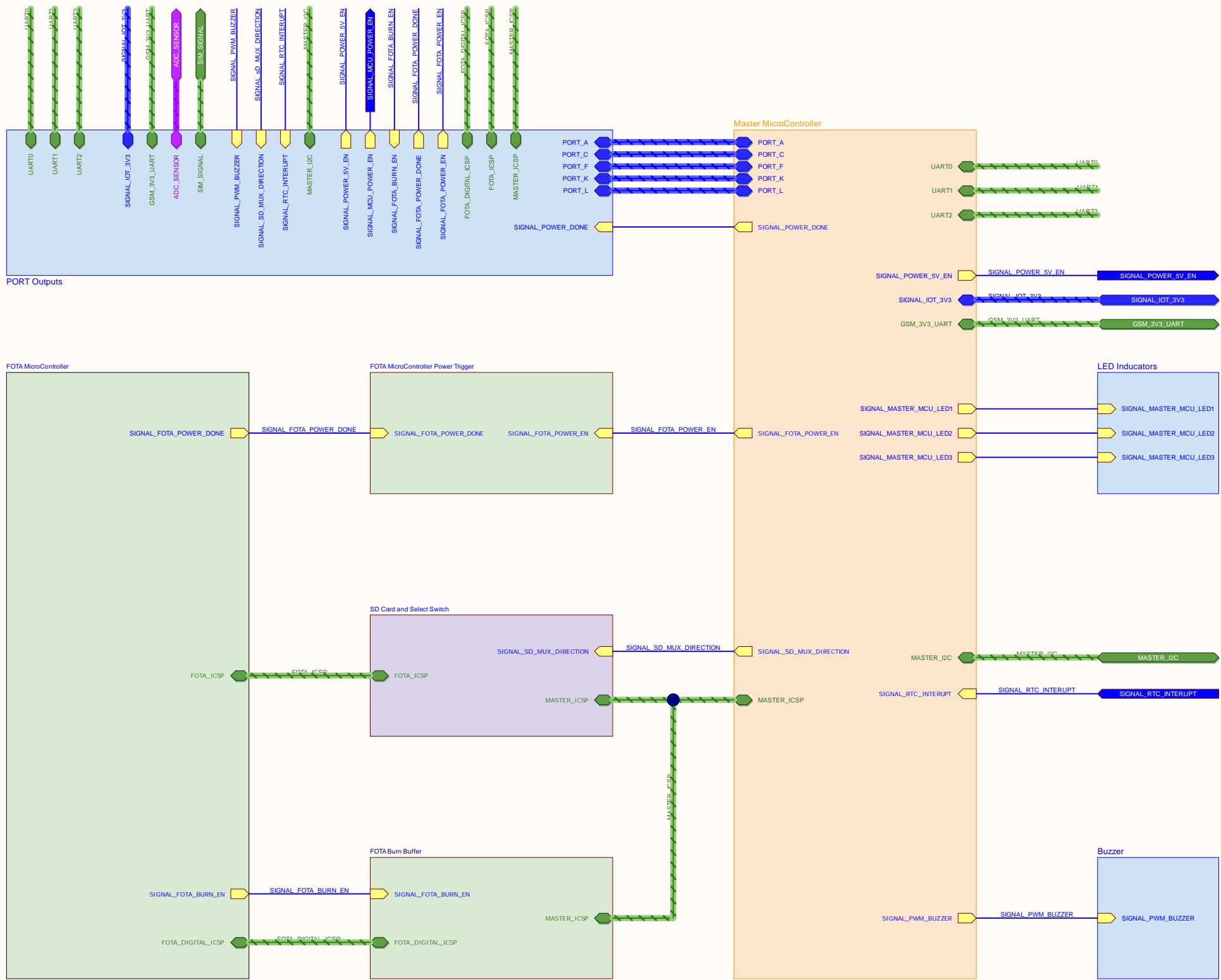


# Master MicroController



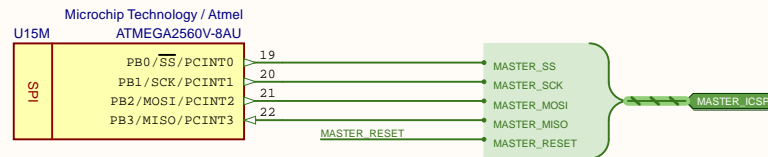
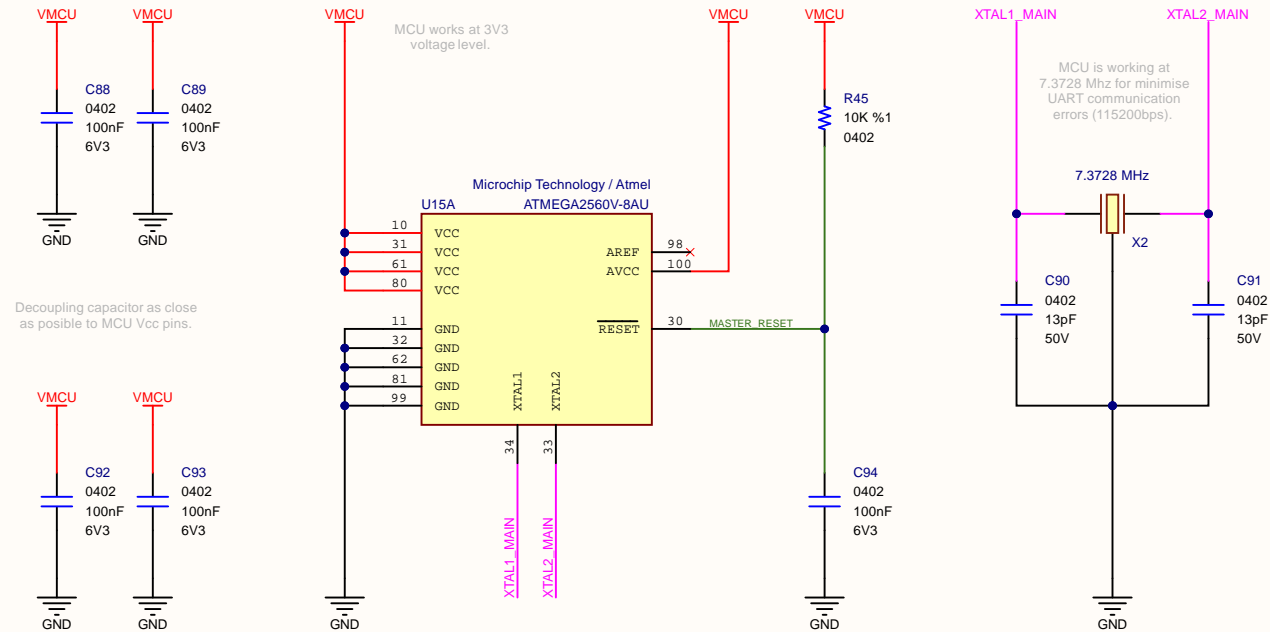
<b>Title    Master Micro Controller</b>			<b>Ovoo Electronics</b> Necip Fazıl Mah. Otarmak Sok. Birgül Apt. No: 19/6 Meram / Konya Türkiye	
<b>Size:</b> A3	<b>Number:</b> 13	<b>Revision:</b> B100AA R4		
<b>Date:</b> 29.01.2021	<b>Time:</b> 11:13:04	<b>Sheet</b> 13 <b>of</b> 54		
<b>File:</b> C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController.SchDoc				

# B100 MicroController




## MicroController

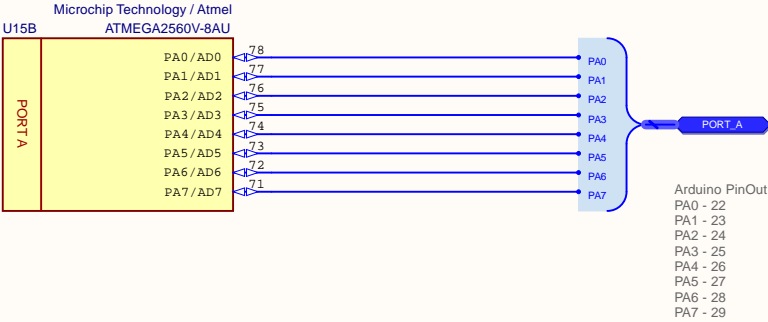
## Crystal Oscillator



## Master MicroController ICSP

Title <b>Master MicroController Core</b>			<b>Ovoo Electronics</b> Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Size: <b>A4</b>	Number: <b>15</b>	Revision: <b>B100AA R4</b>			
Date: <b>29.01.2021</b>	Time: <b>11:13:04</b>	Sheet <b>15</b> of <b>54</b>			
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Master MicroController A Port





A

B

C

D

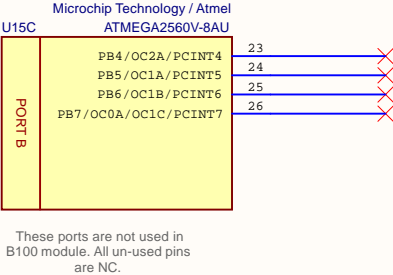
A


B

C

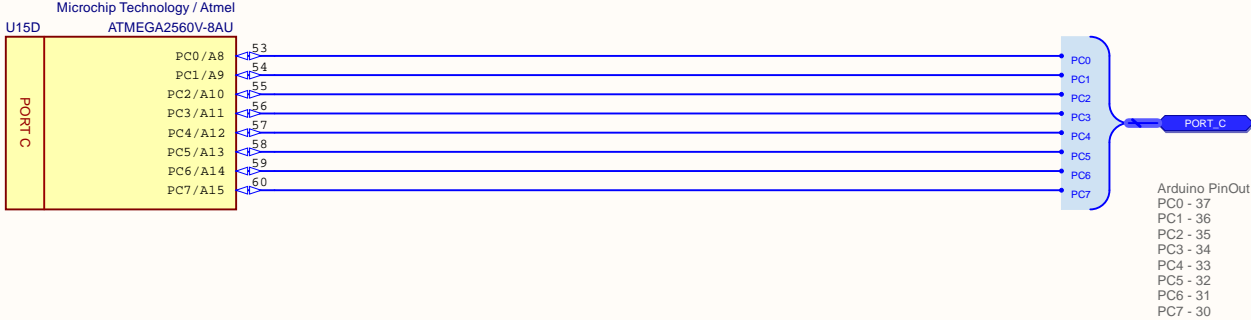
D

Master MicroController B Port

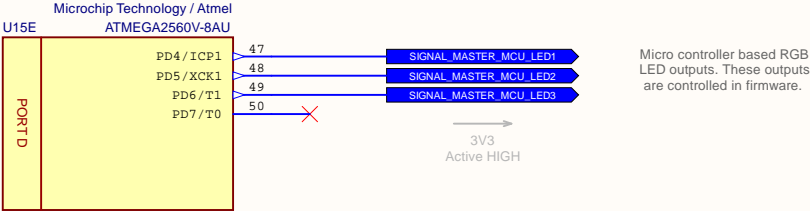



Title Master Micro Controller Port B Pin Out			<div>Ovoo Electronics</div> <div>Necip Fazıl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye</div> <div></div>
Size: A4	Number: 17	Revision: B100AA R4	
Date: 29.01.2021	Time: 11:13:04	Sheet 17 of 54	
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port B.SchDoc			

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: 29.01.2021	Time: 11:13:04	Sheet 19 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port D.SchDoc				

A

B

C

D

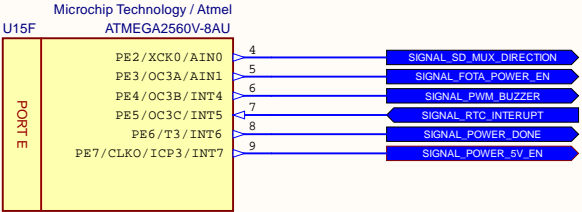
A


B

C

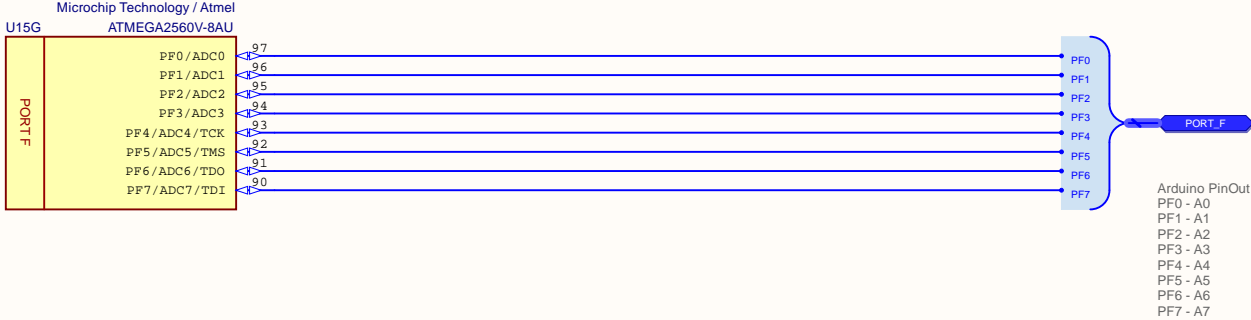
D

Master MicroController E Port

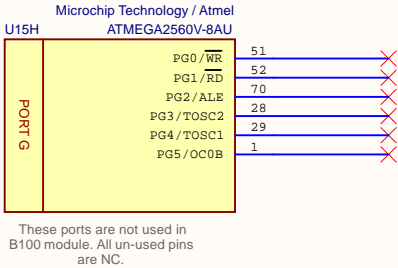



Title Master Micro Controller Port E Pin Out			<div>Ovoo Electronics</div> <div>Necip Fazıl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye</div> <div></div>
Size: A4	Number: 20	Revision: B100AA R4	
Date: 29.01.2021	Time: 11:13:04	Sheet 20 of 54	
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController Port E.SchDoc			

Master MicroController F Port

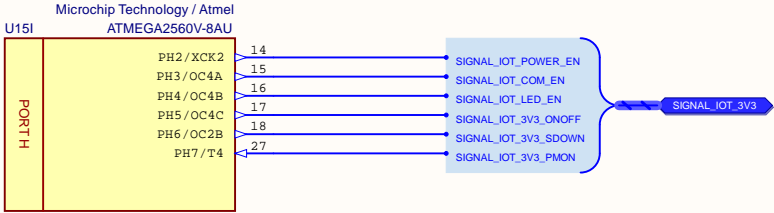



Master MicroController G Port



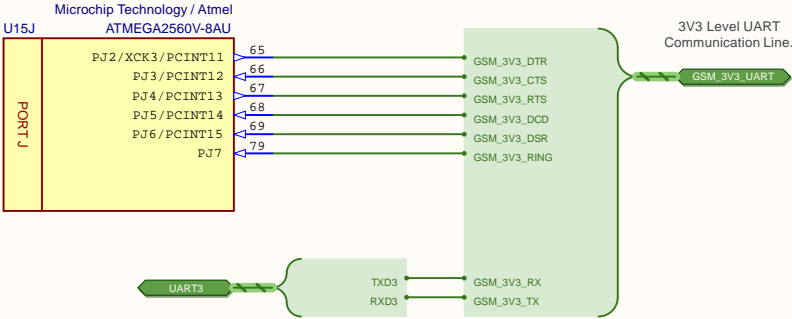
Title Master Micro Controller Port G Pin Out			Ovoo Electronics  Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: 22	Revision: B100AA R4		
Date: 29.01.2021	Time: 11:13:04	Sheet 22 of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master 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: 29.01.2021	Time: 11:13:04	Sheet 23 of 54		
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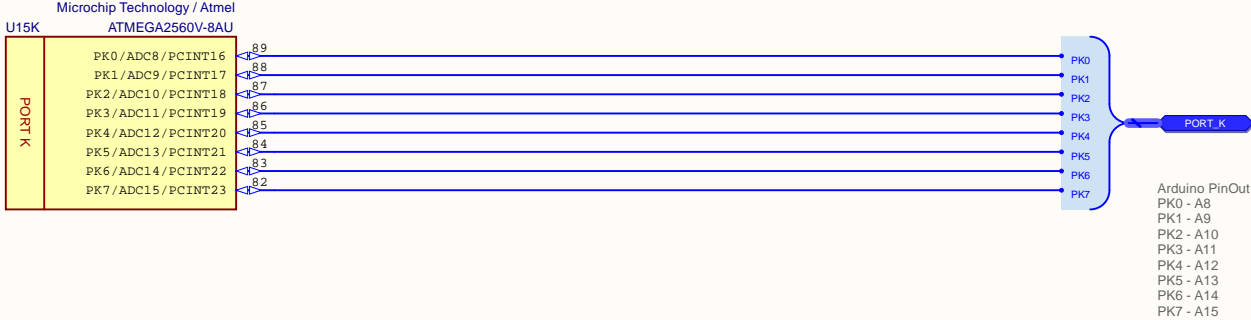
GSM IoT Communication Pins



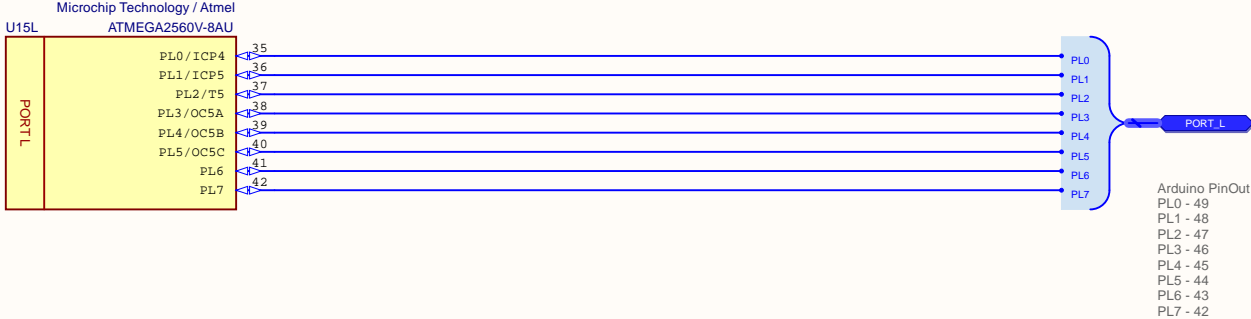
Title Master Micro Controller Port J Pin Out			Ovoo Electronics  Necip Fazıl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
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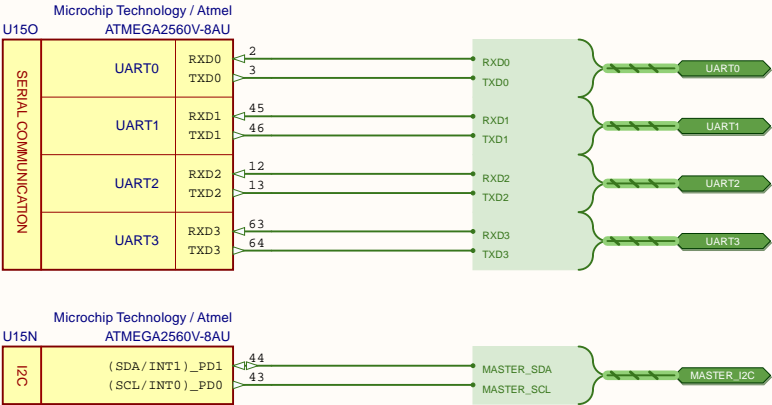
Master MicroController K Port



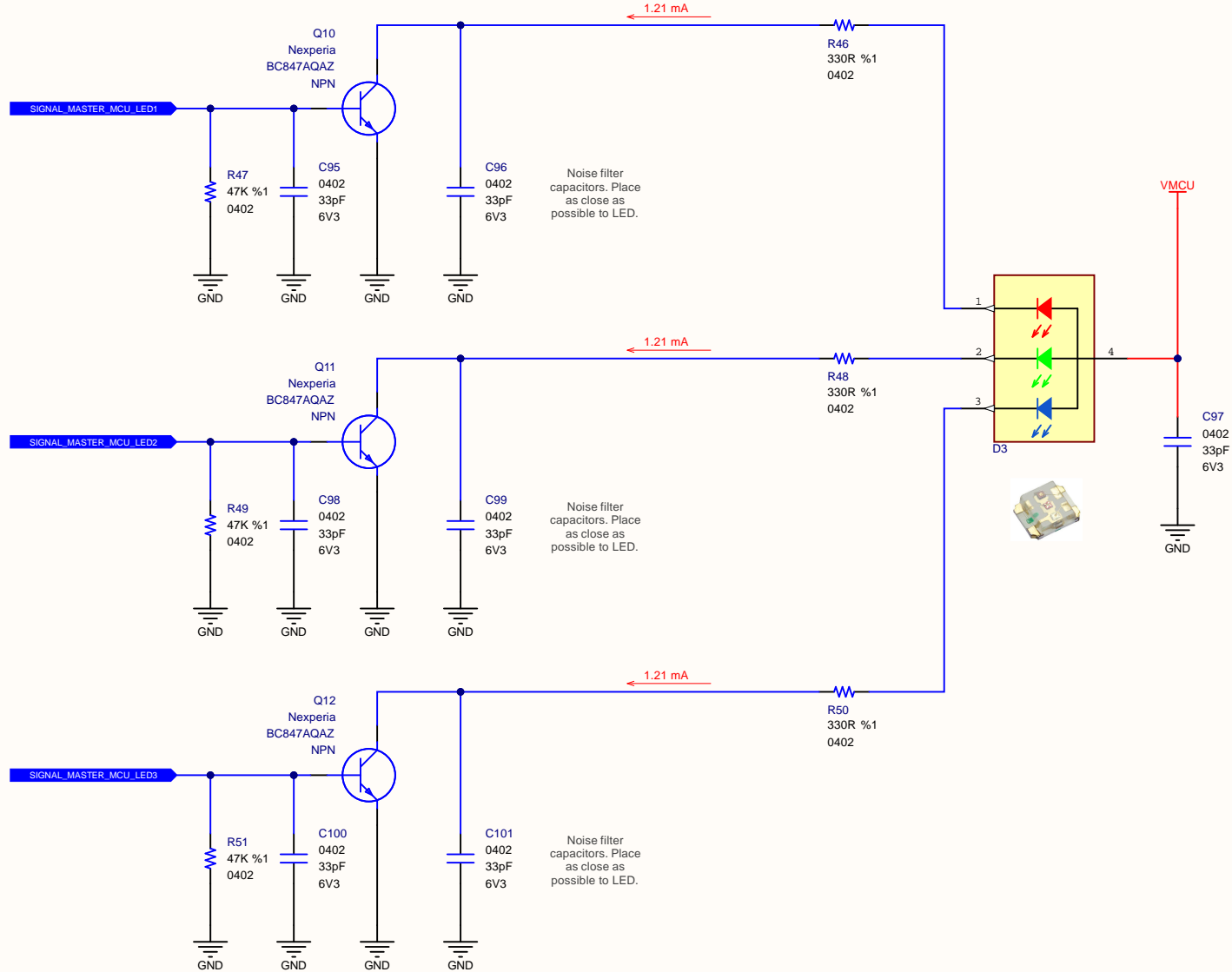
Master MicroController L Port




Communication Ports



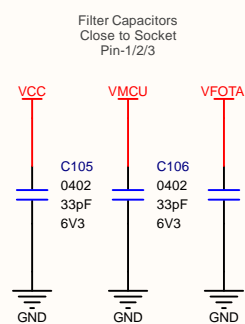
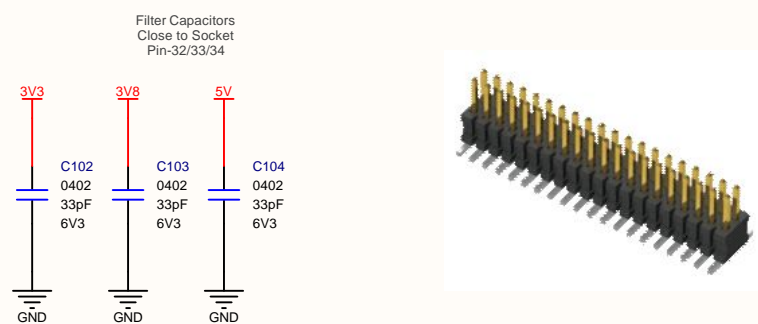
# Main Microcontroller Status LED Indicators



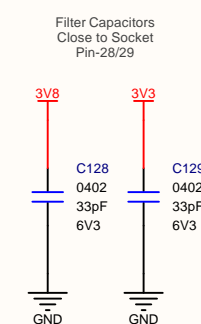
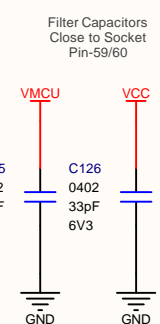
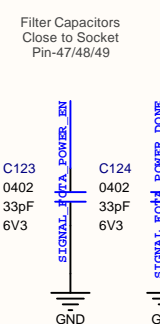
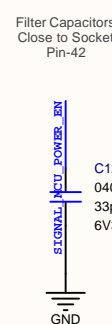
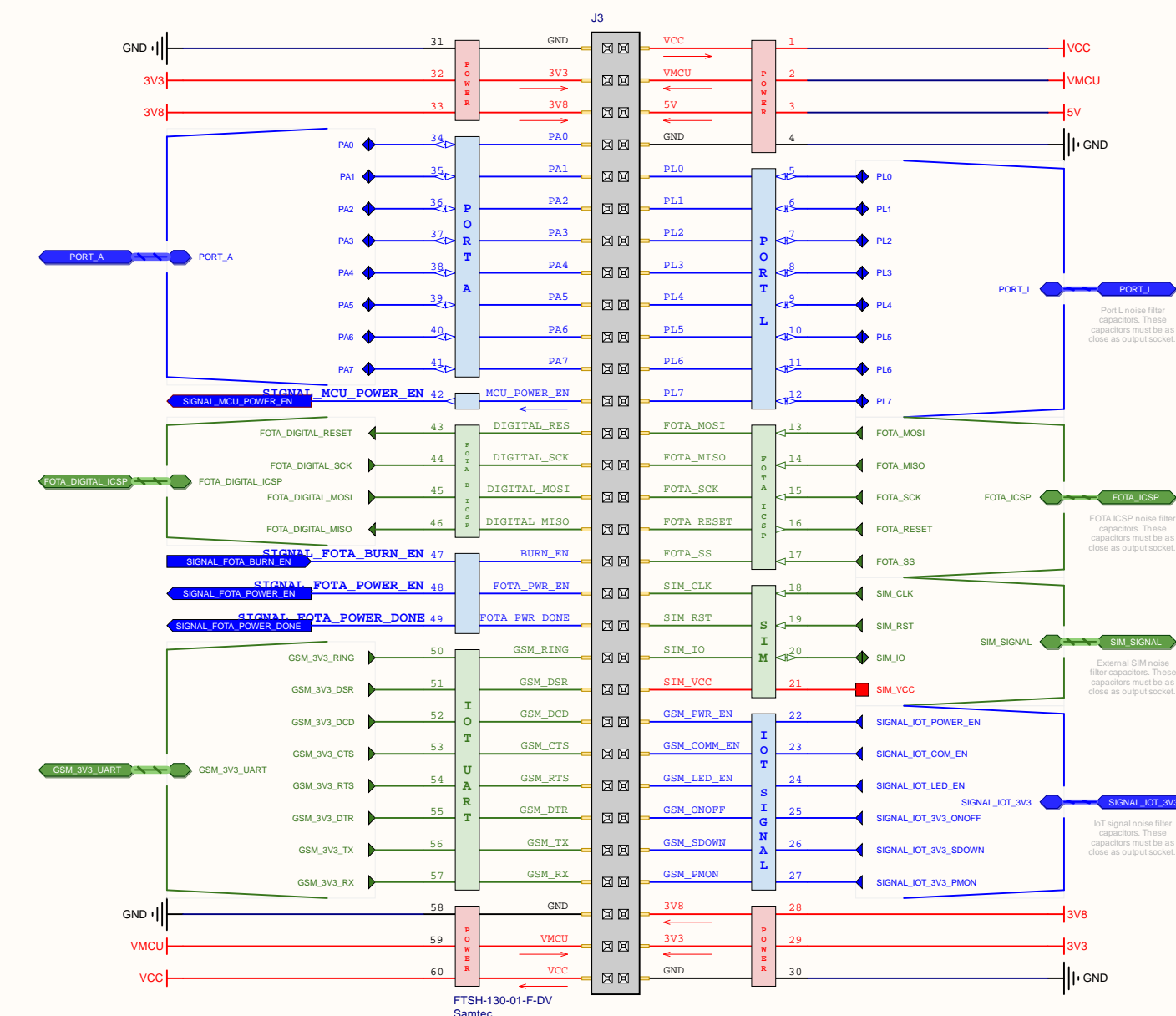
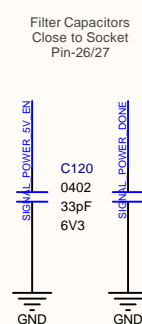
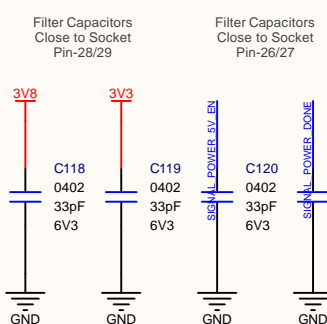
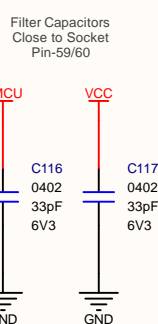
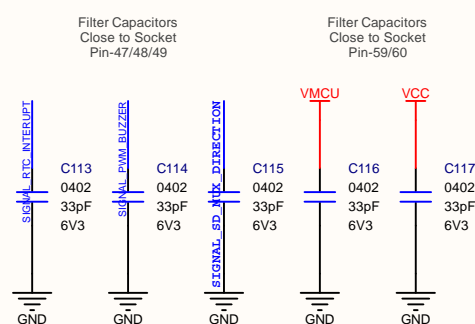
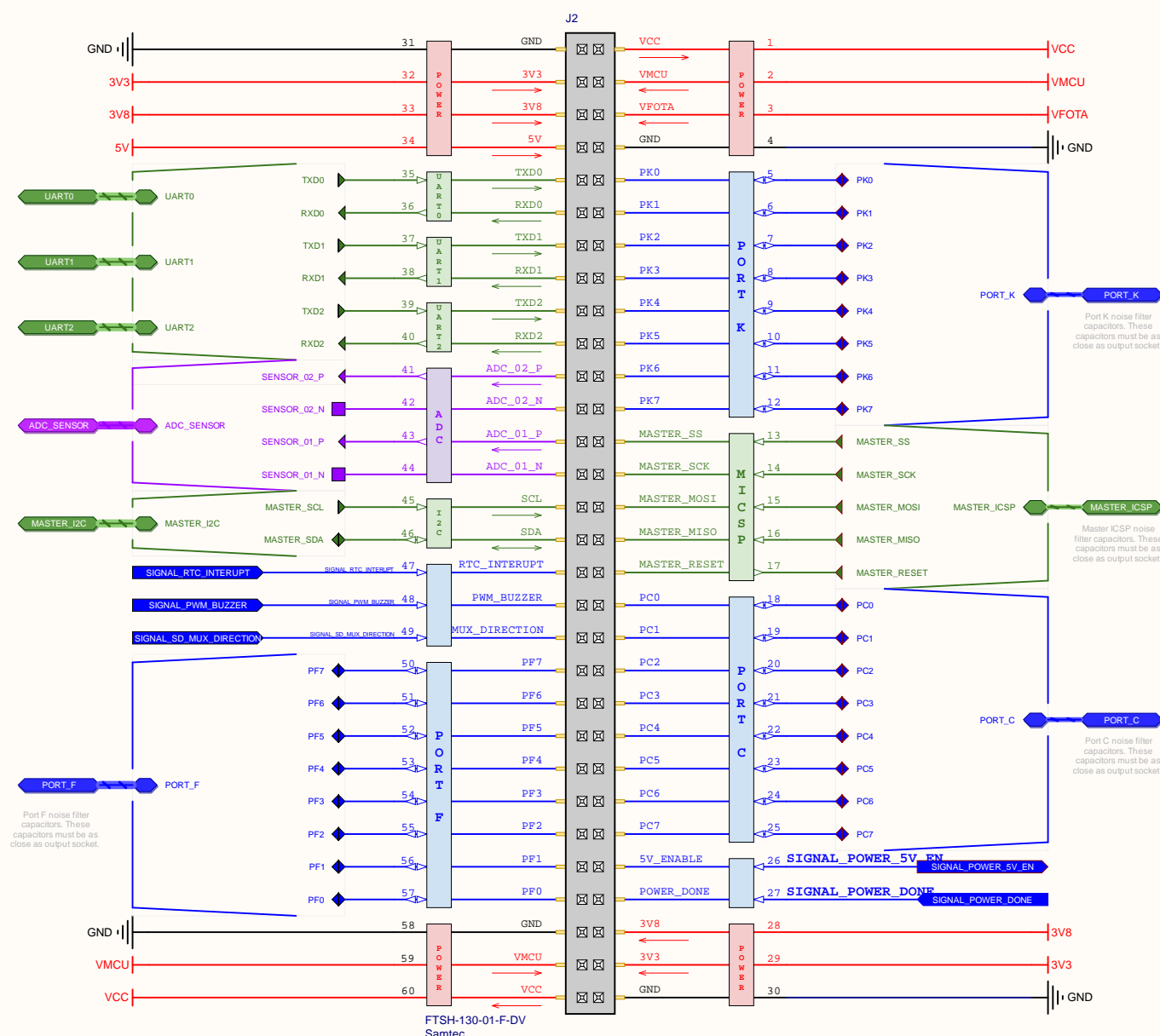
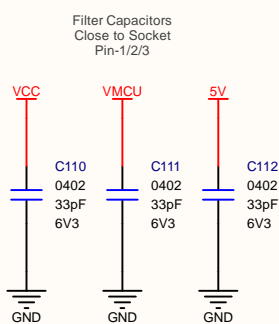
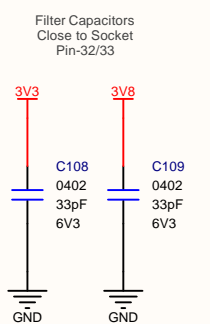
Title Master MicroController LED			Ovoo Electronics		
Size: A4			Revision: B100AA R4		
Number: 28			Necip Fazıl Mah. Ortamak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Date: 29.01.2021			Sheet 28 of 54		
Time: 11:13:04			File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Master MicroController LED.SchDoc		



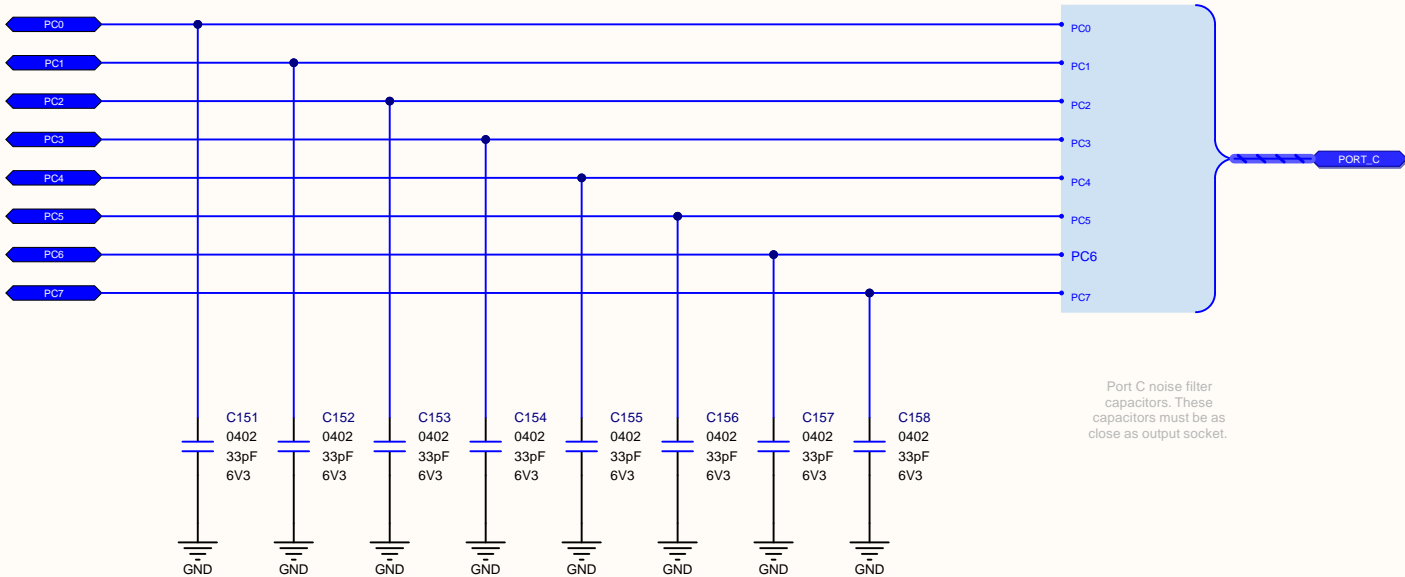
Module Output Socket A



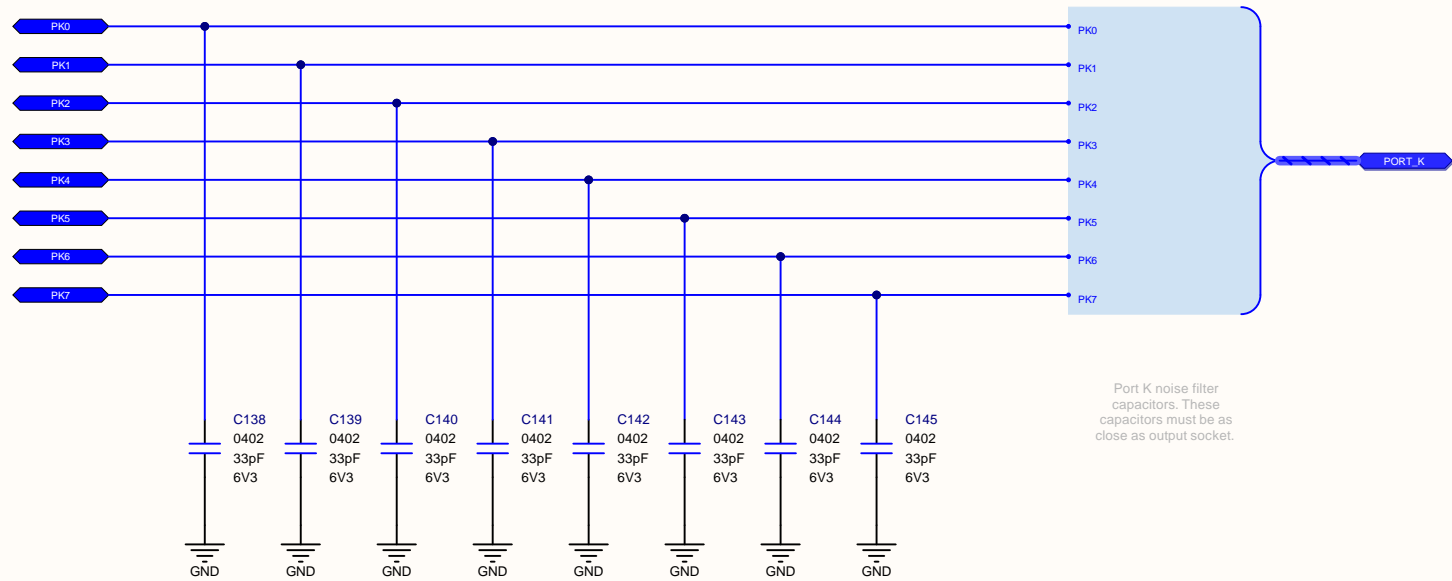
Module Output Socket B




Port C Output Socket Noise Capacitors

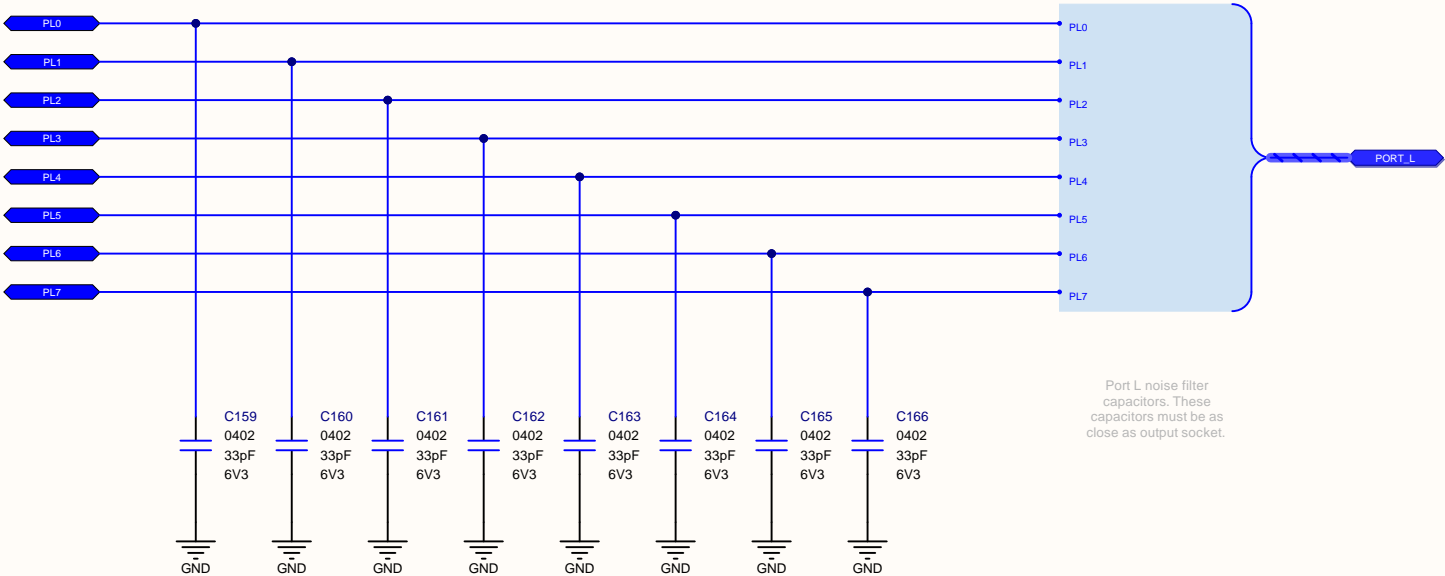


## Port K Output Socket Noise Capacitors

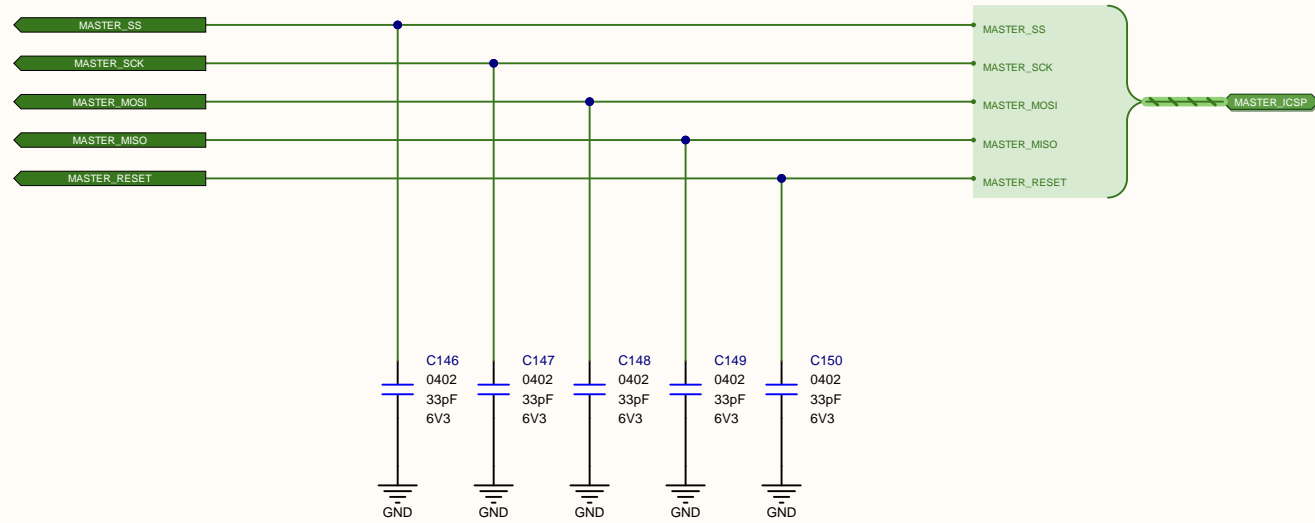


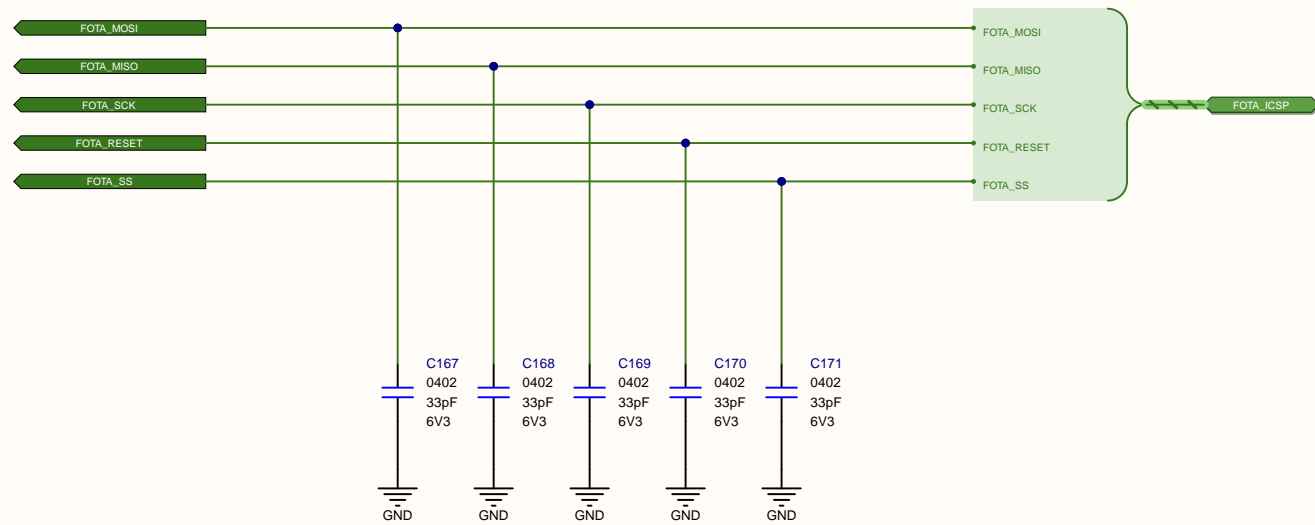
Title <b>PORT K Filter Capacitors</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>31</b>	Revision: <b>B100AA R4</b>		
Date: <b>29.01.2021</b>	Time: <b>11:13:05</b>	Sheet <b>31</b> of <b>54</b>		
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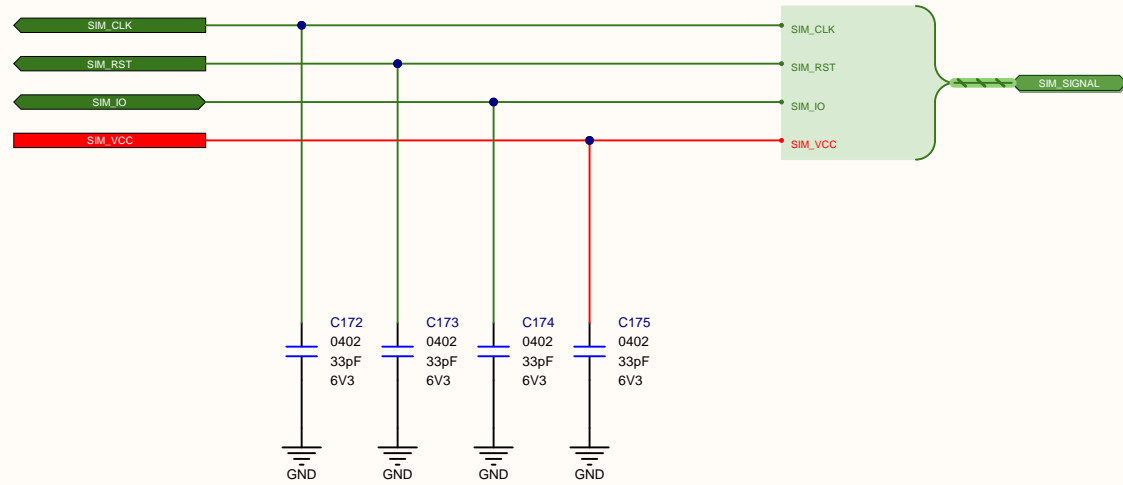
Port L Output Socket Noise Capacitors






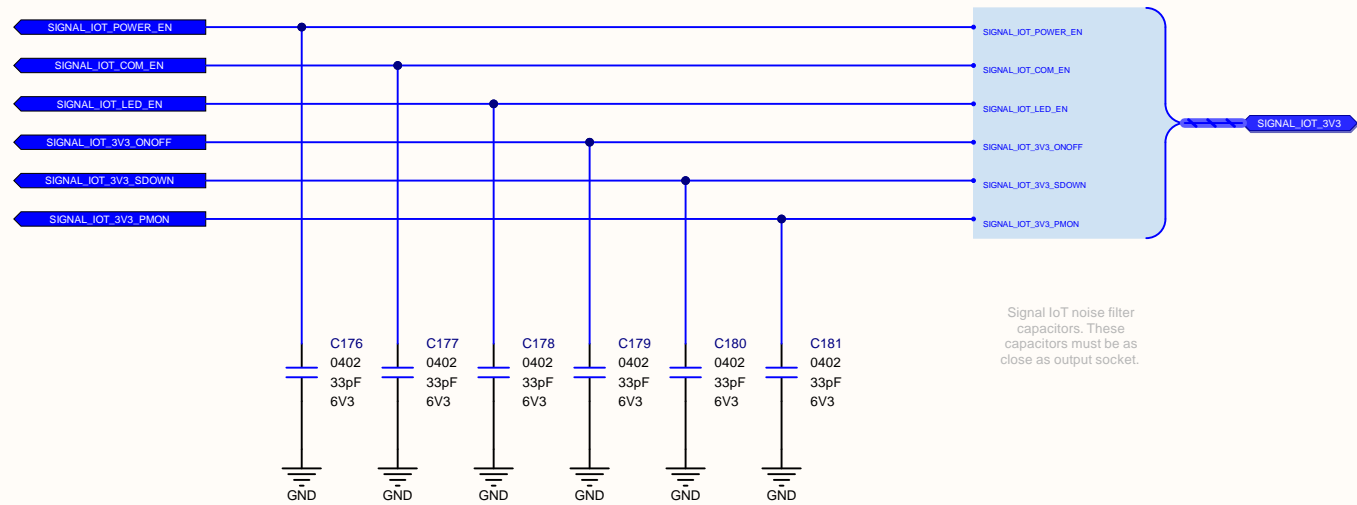







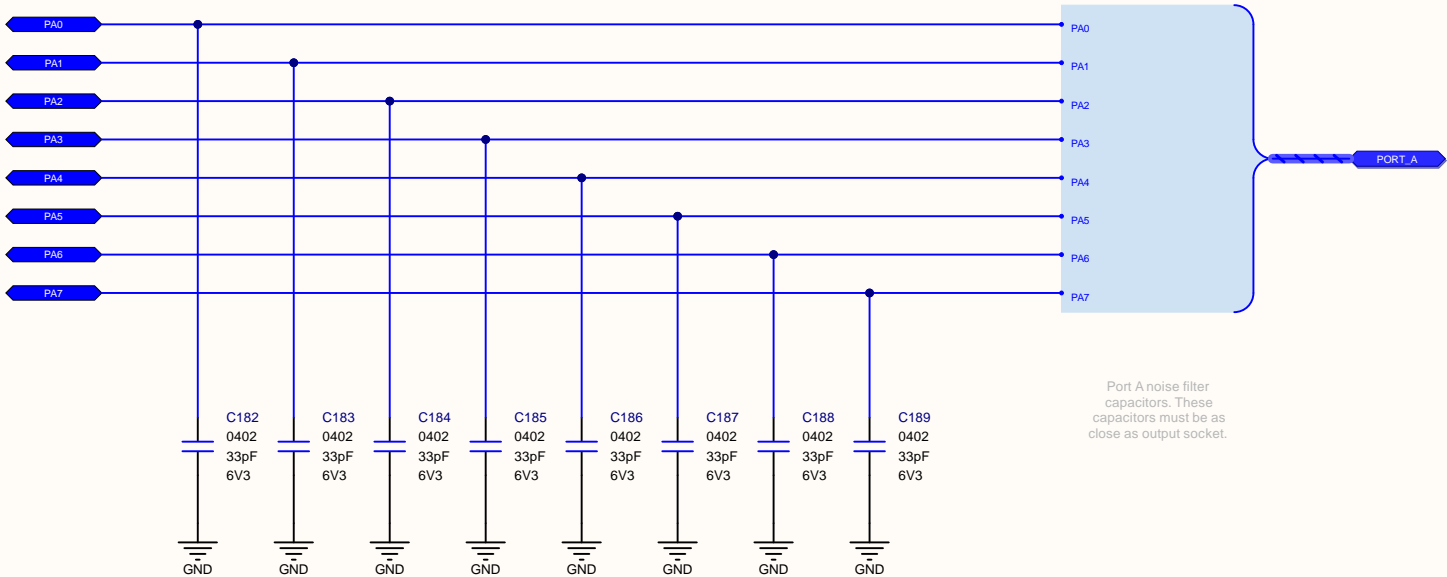
Title External SIM Filter Capacitors			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: 35	Revision: B100AA R4			
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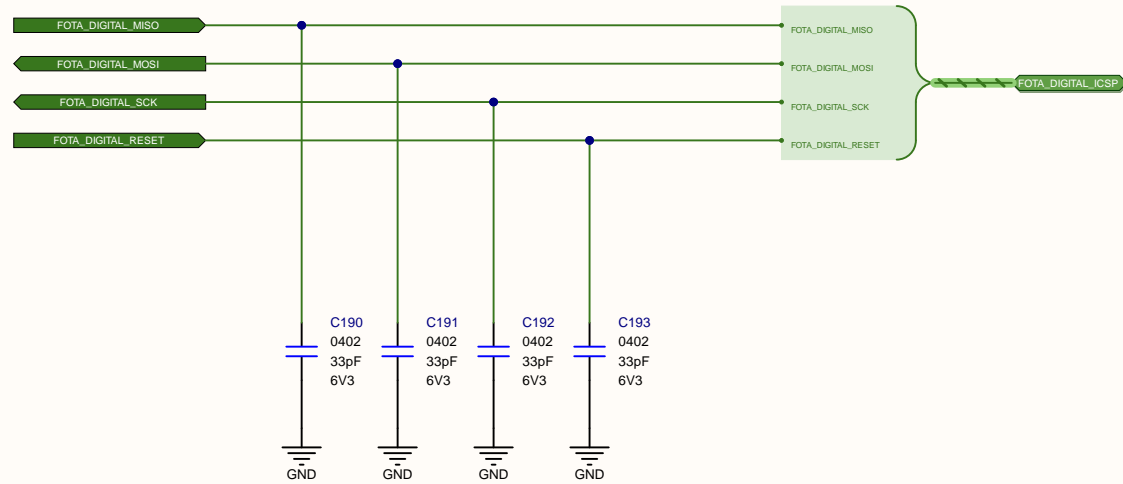
## Signal IoT Output Socket Noise Capacitors




Title <b>Signal IoT Filter Capacitors</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>36</b>	Revision: <b>B100AA R4</b>		
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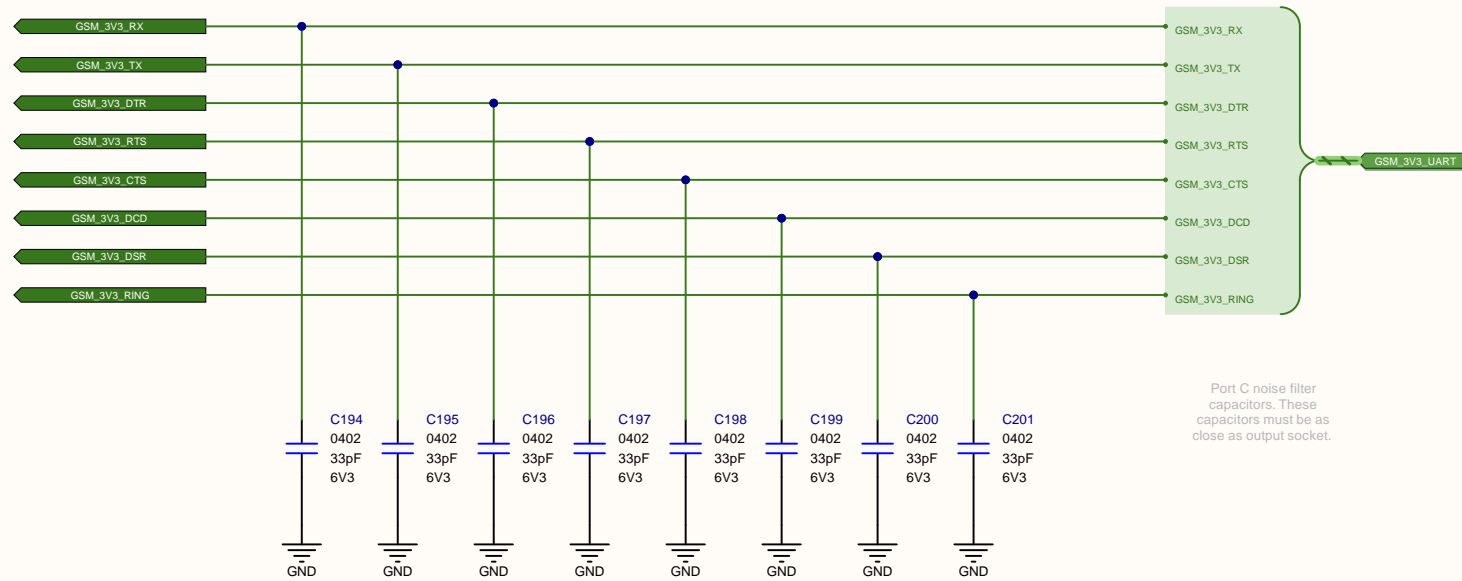
Port A Output Socket Noise Capacitors






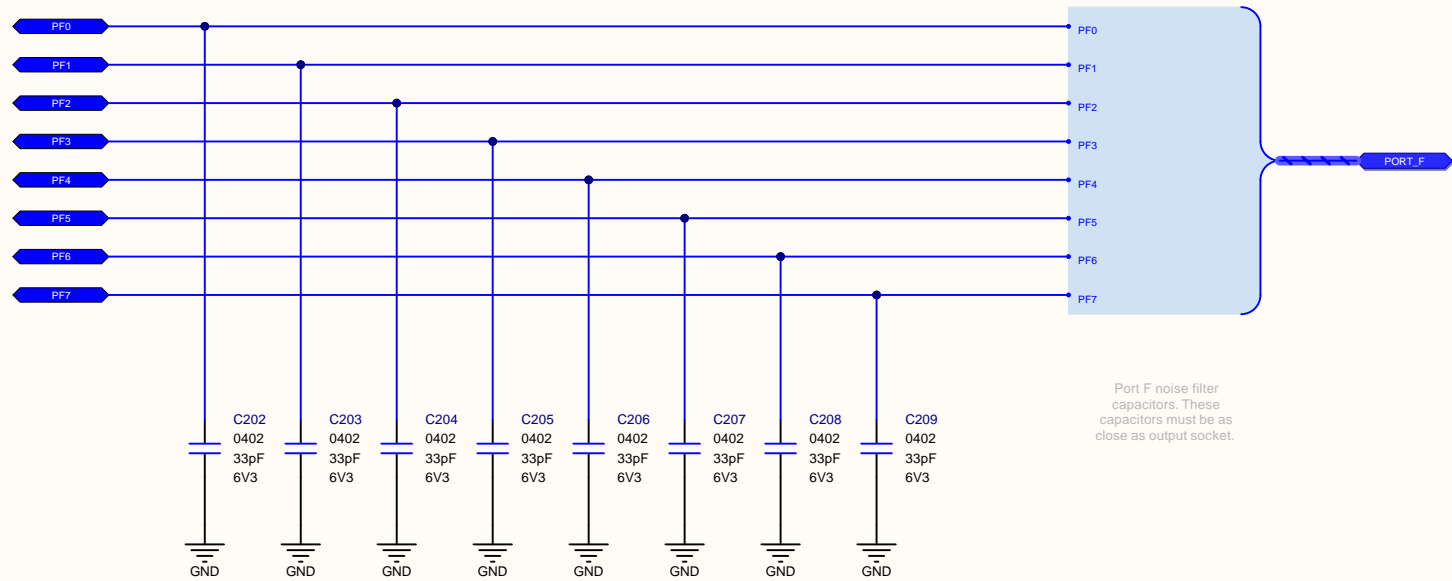
Title <b>FOTA Digital ICSP Filter Capacitors</b>			<b>Ovoo Electronics</b> Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>38</b>	Revision: <b>B100AA R4</b>		
Date: <b>29.01.2021</b>	Time: <b>11:13:05</b>	Sheet <b>38</b> of <b>54</b>		
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - FOTA Digital ICSP.SchDoc</b>				


## IoT UART Output Socket Noise Capacitors



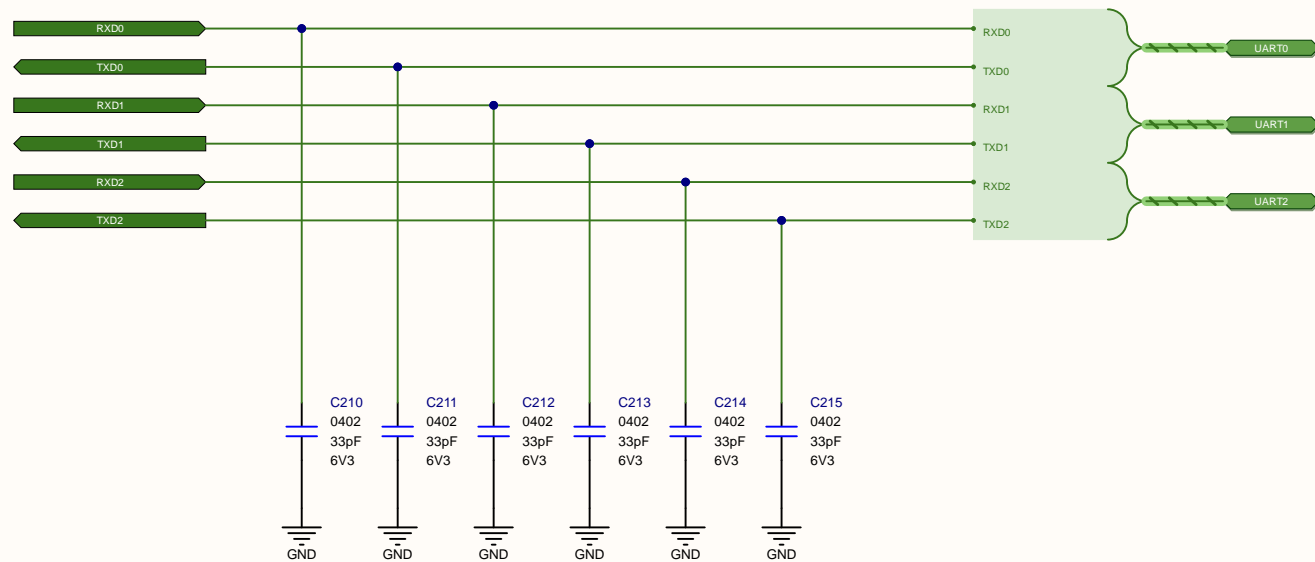
Title <b>IoT UART Filter Capacitors</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah. Ortamak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>39</b>	Revision: <b>B100AA R4</b>		
Date: <b>29.01.2021</b>	Time: <b>11:13:05</b>	Sheet <b>39</b> of <b>54</b>		
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Fiter Capacitors - IoT UART.SchDoc</b>				

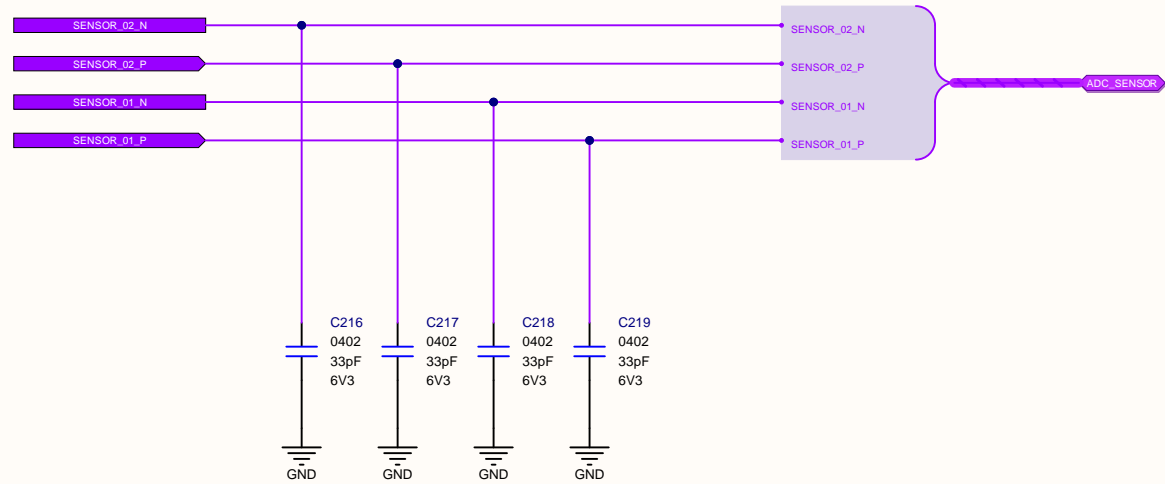
## Port F Output Socket Noise Capacitors




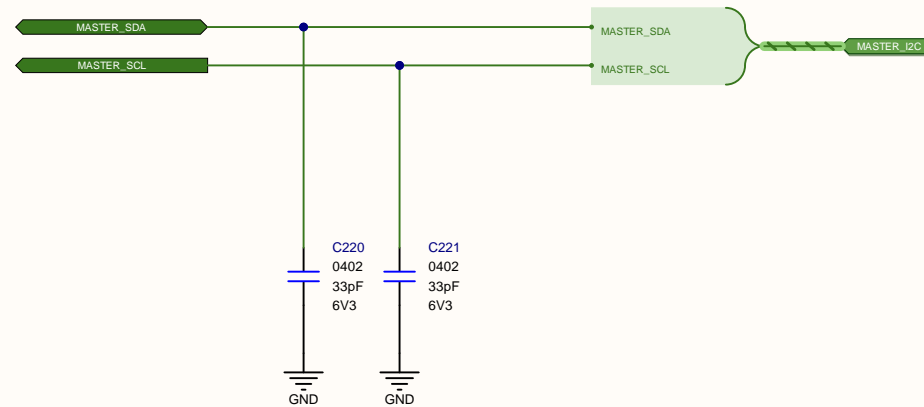
Title <b>PORT F Filter Capacitors</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>40</b>	Revision: <b>B100AA R4</b>		
Date: <b>29.01.2021</b>	Time: <b>11:13:05</b>	Sheet <b>40</b> of <b>54</b>		
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - Port F.SchDoc</b>				







Title <b>ADC Sensor Filter Capacitors</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: <b>A4</b>	Number: <b>42</b>	Revision: <b>B100AA R4</b>			
Date: <b>29.01.2021</b>	Time: <b>11:13:05</b>	Sheet <b>42</b> of <b>54</b>			
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Filter Capacitors - ADC Sensor.SchDoc</b>					



Title I2C Filter Capacitors

Size: A4

Number: 43

Revision: B100AA R4

Date: 29.01.2021

Time: 11:13:05

Sheet 43 of 54

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

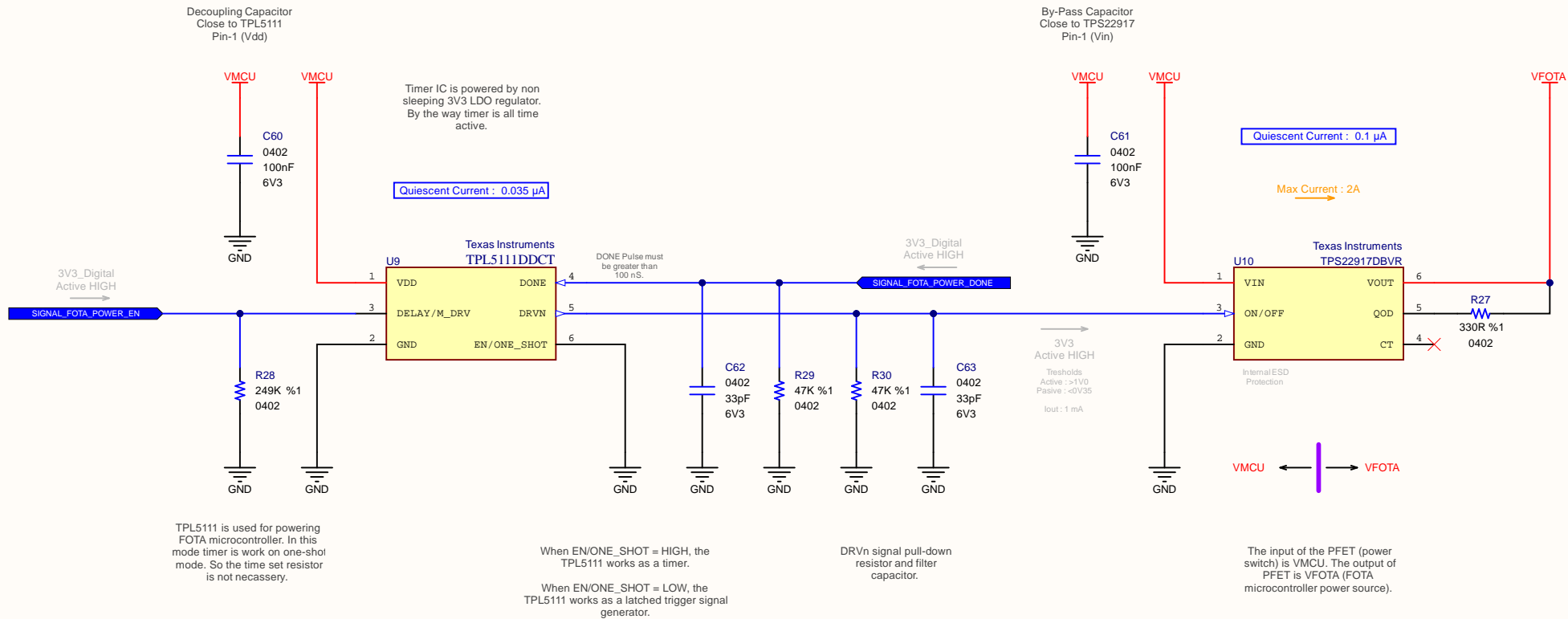
Ovoo Electronics

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



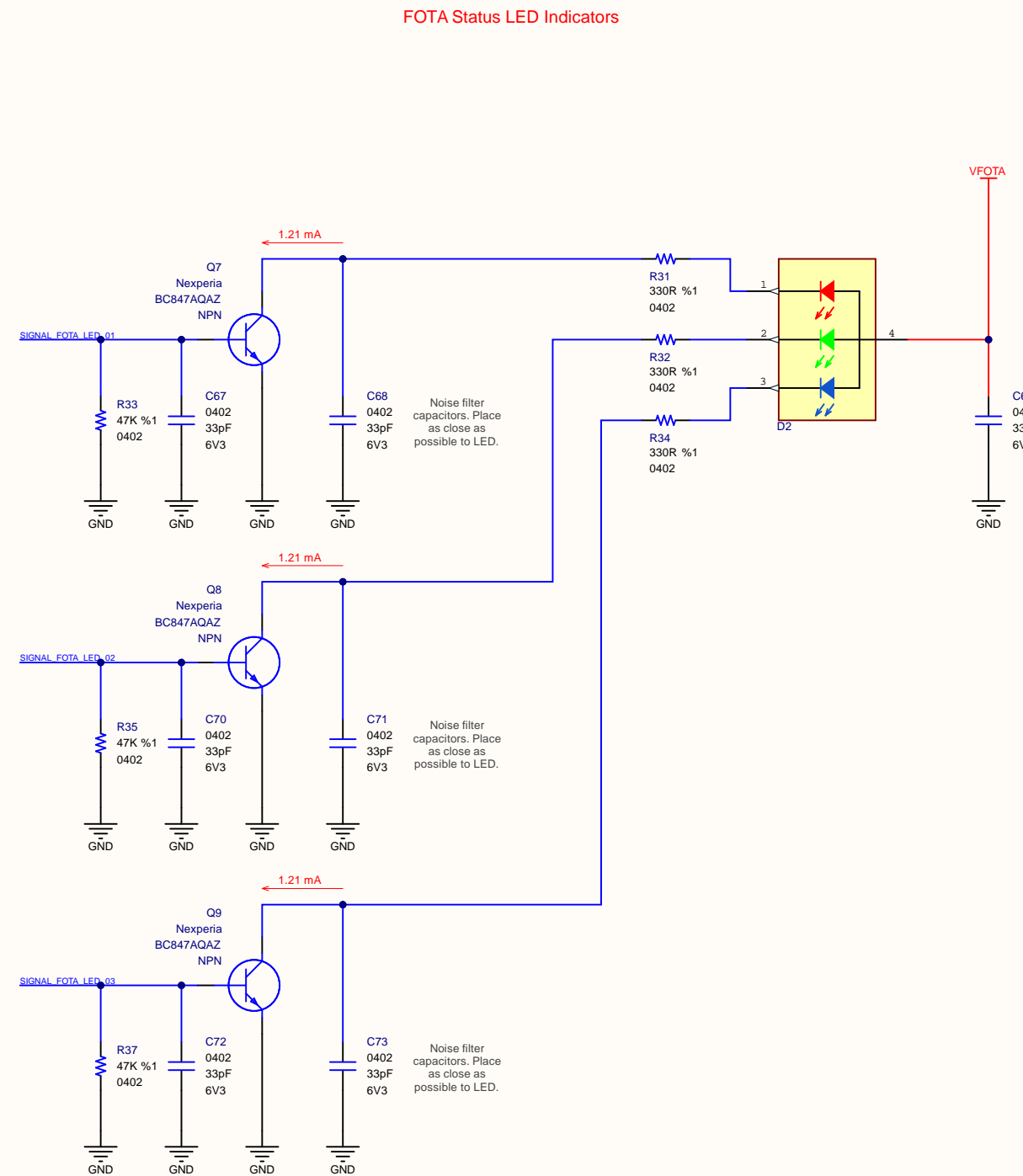
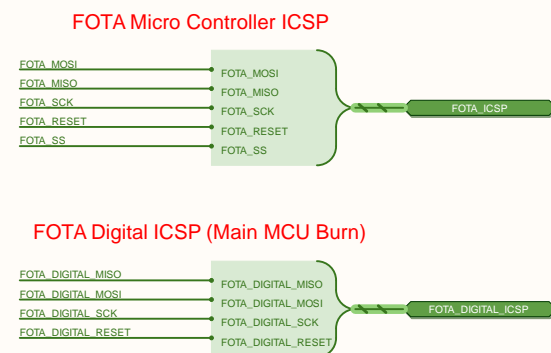
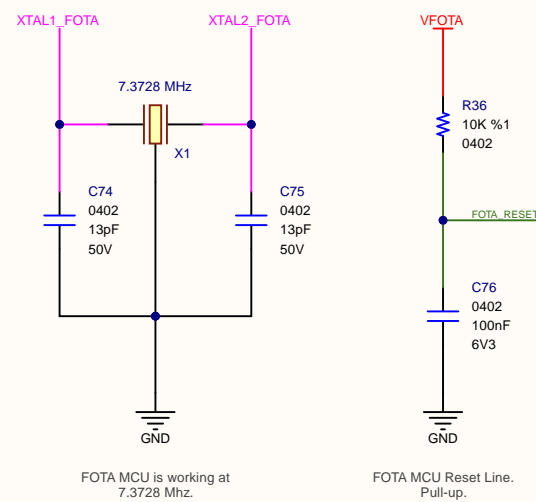
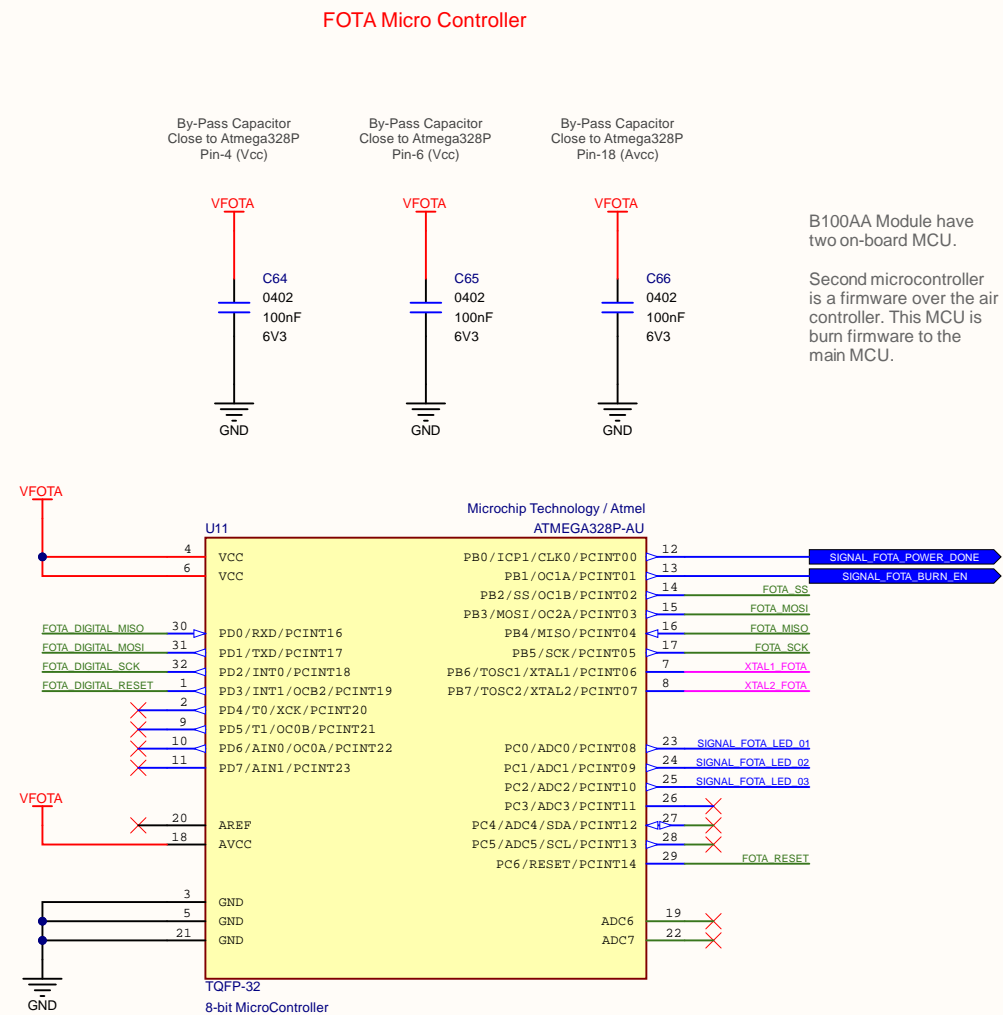
## Power Trigger


## Power Switch



Title <b>FOTA MicroController Latched Power Trigger</b>			<b>Ovoo Electronics</b>	
Size: <b>A4</b>	Number: <b>44</b>	Revision: <b>B100AA R4</b>	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Date: <b>29.01.2021</b>	Time: <b>11:13:05</b>	Sheet <b>44</b>	of <b>54</b>	
File:    C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\FOTA MicroController Power Switch.SchDoc				





<b>Title</b> <b>FOTA MicroController</b>			<b>Ovoo Electronics</b> Necip Fazil Mah. Otaurmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
<b>Size:</b> <b>A3</b>	<b>Number:</b> <b>45</b>	<b>Revision:</b> <b>B100AA R4</b>			
<b>Date:</b> <b>29.01.2021</b>	<b>Time:</b> <b>11:13:05</b>	<b>Sheet</b> <b>45</b> <b>of</b> <b>54</b>			
<b>File:</b> C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\FOTA MicroController.SchDoc					

A

B

C

D

A

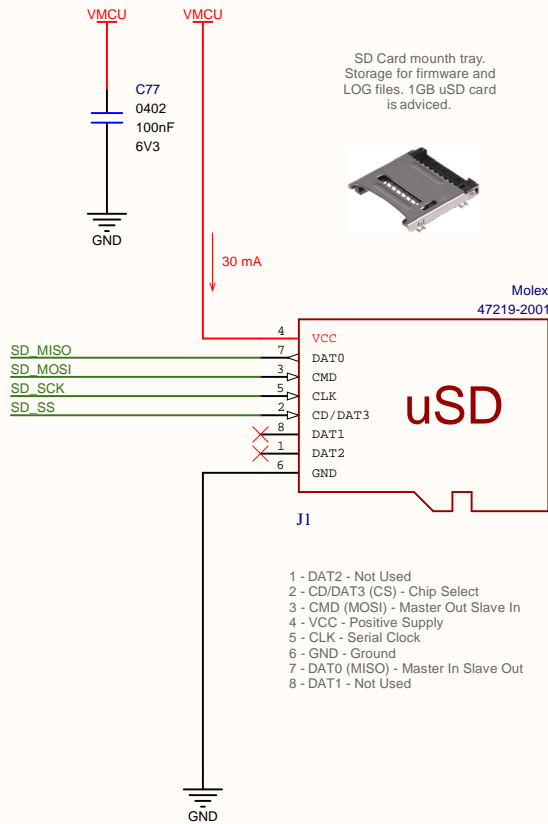
B

C

D

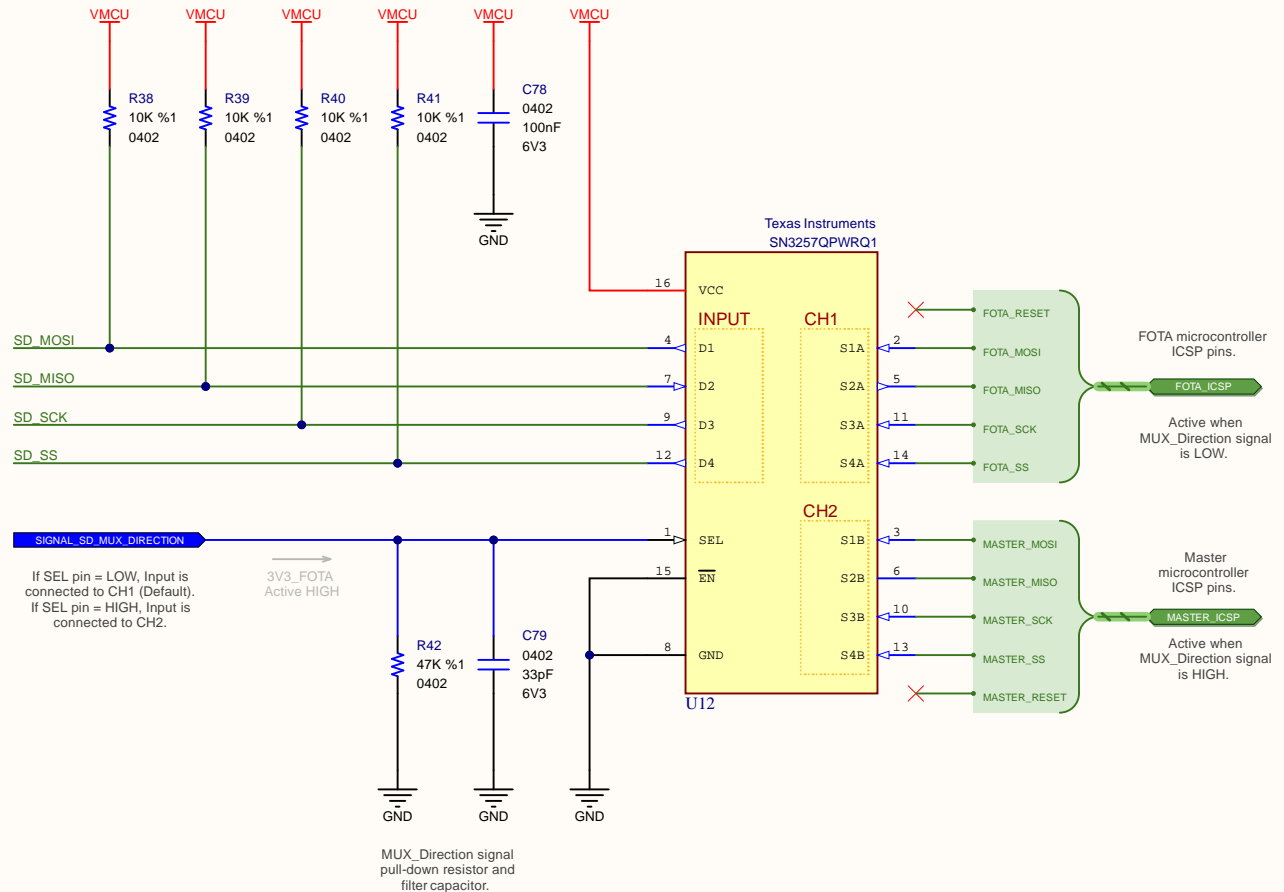
Decoupling Capacitor.  
As close as possible to  
uSD tray.

## SD Card



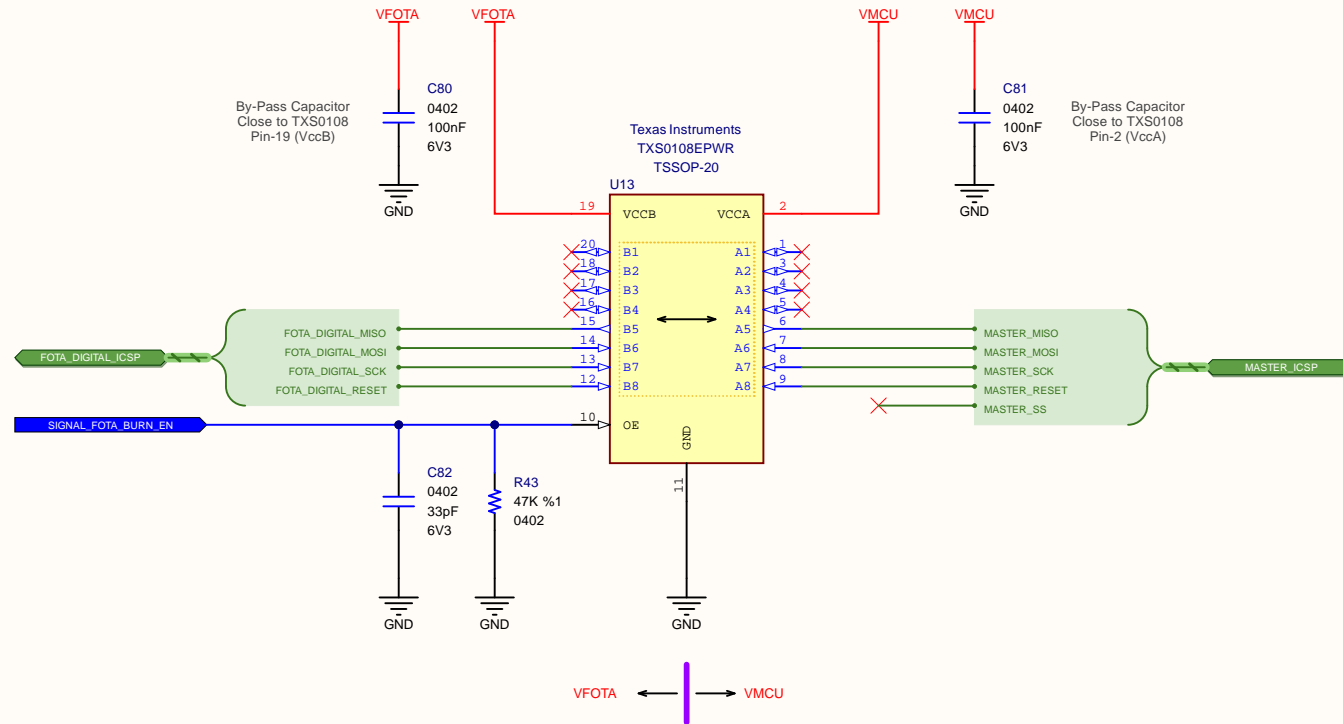
By-Pass Capacitor  
Close to SN3257QPWRQ1  
Pin-16 (Vcc)

## SPI Selection Switch



Title <b>SD Card &amp; Select Switch</b>			<b>Ovoo Electronics</b> Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: <b>A4</b>	Number: <b>46</b>	Revision: <b>B100AA R4</b>	
Date: <b>29.01.2021</b>	Time: <b>11:13:05</b>	Sheet <b>46</b> of <b>54</b>	
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\SD Card.SchDoc</b>			

## ICSP Burn Buffer



Title FOTA Burn Buffer

Size: A4

Number: 47

Revision: B100AA R4

Date: 29.01.2021 Time: 11:13:06

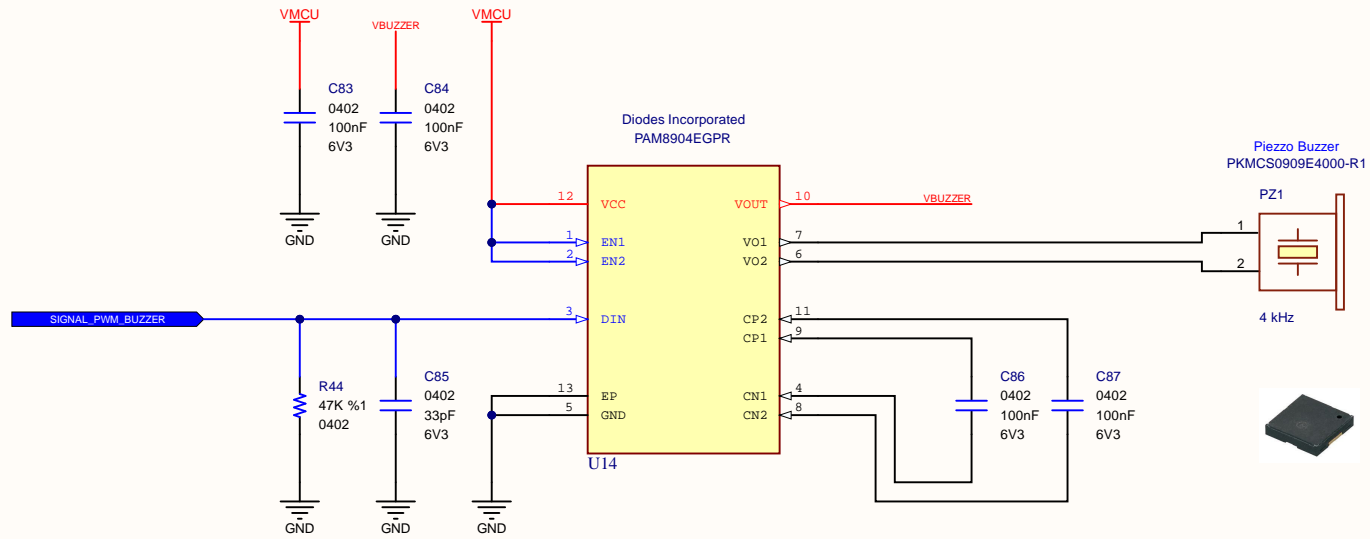
Sheet 47 of 54


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

Ovoo Electronics

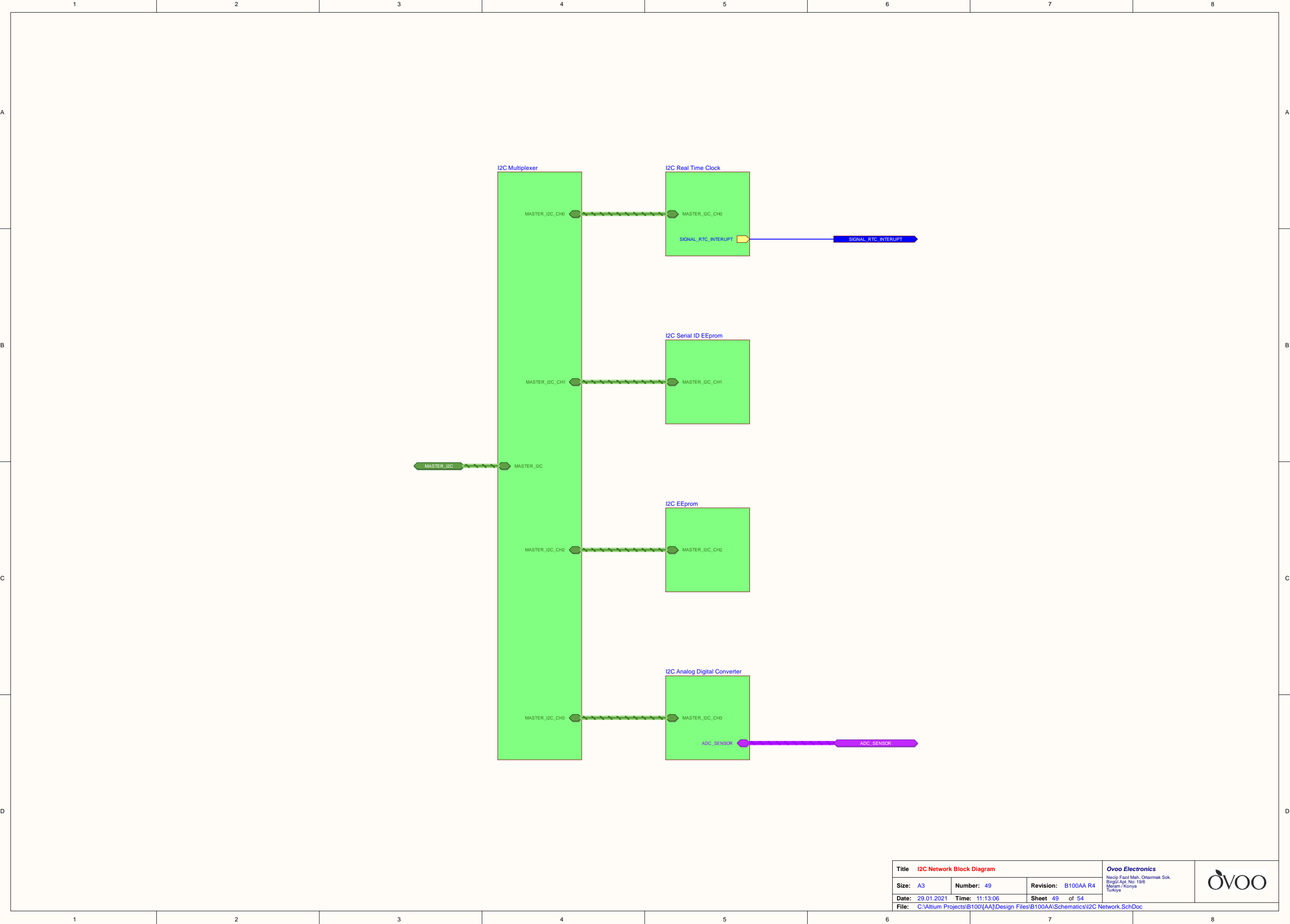
Necip Fazıl Mah. Ortarmak Sok.  
Bırgölü Apt. No: 19/6  
Meram / Konya  
Türkiye

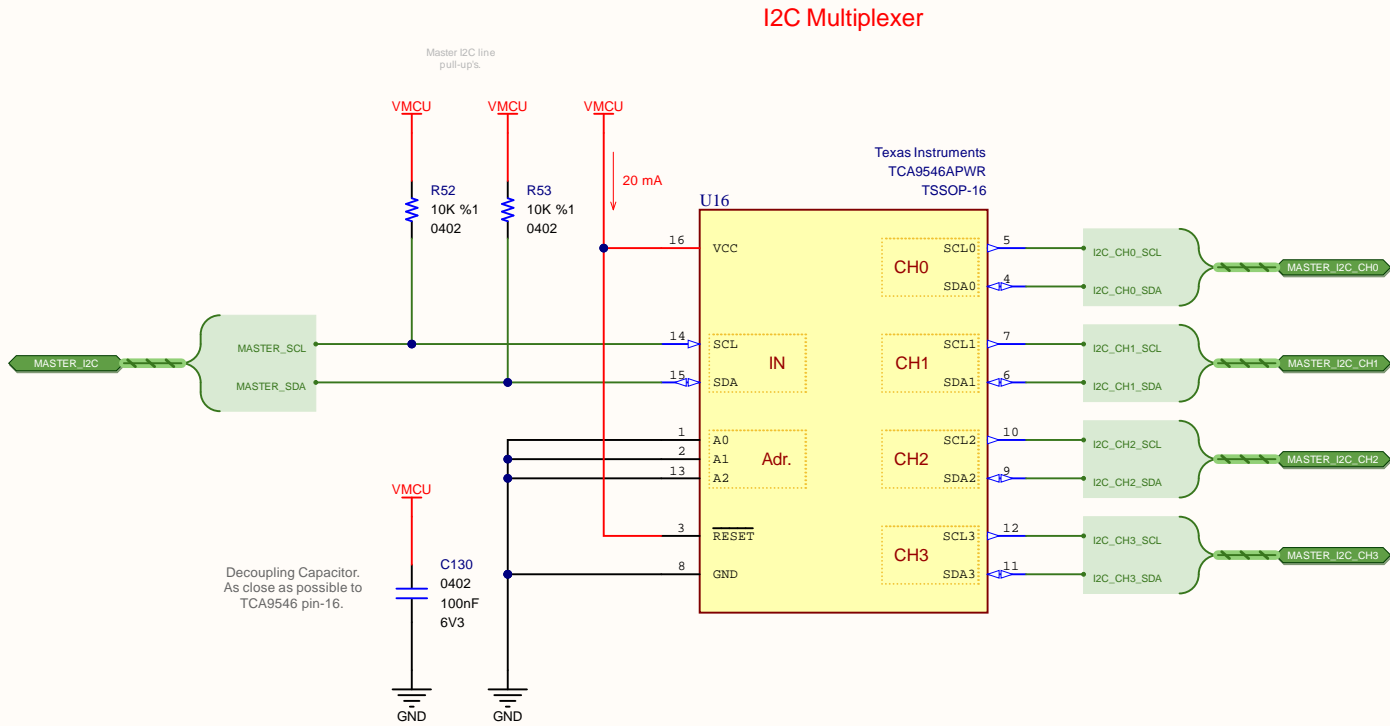
## Piezzo Buzzer




Title <b>Buzzer</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>48</b>	Revision: <b>B100AA R4</b>		
Date: <b>29.01.2021</b>	Time: <b>11:13:06</b>	Sheet <b>48</b> of <b>54</b>		
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Buzzer.SchDoc</b>				



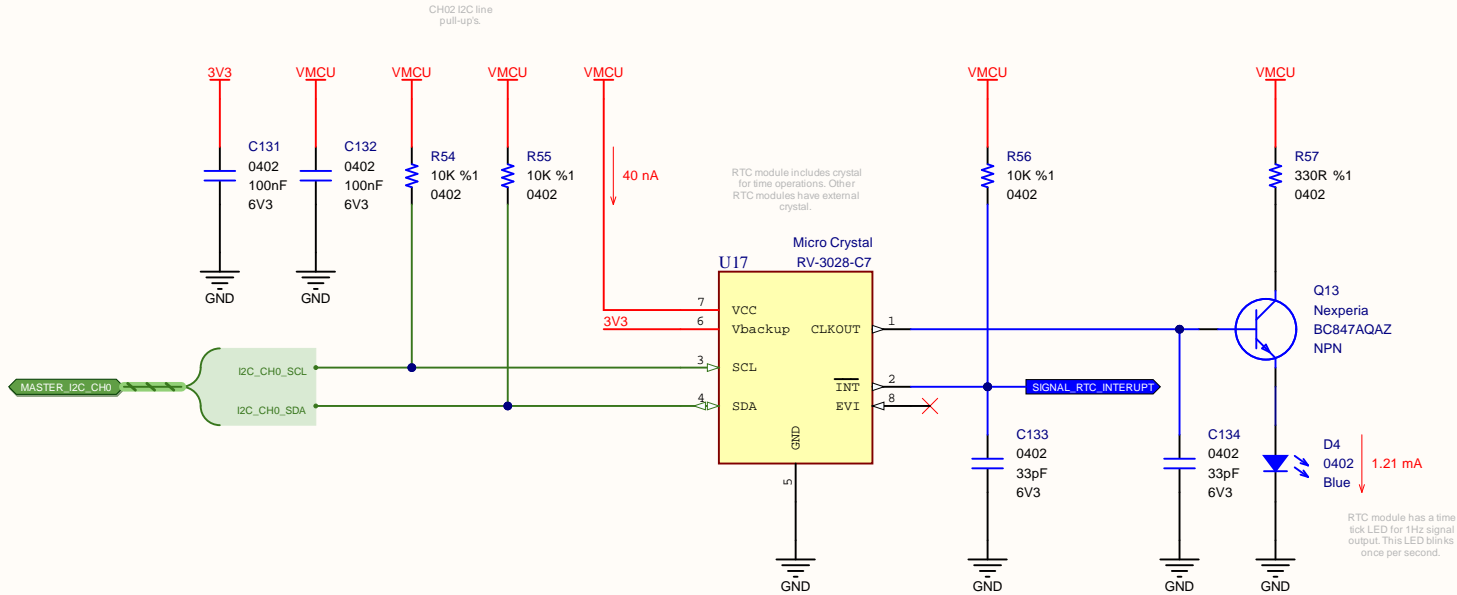




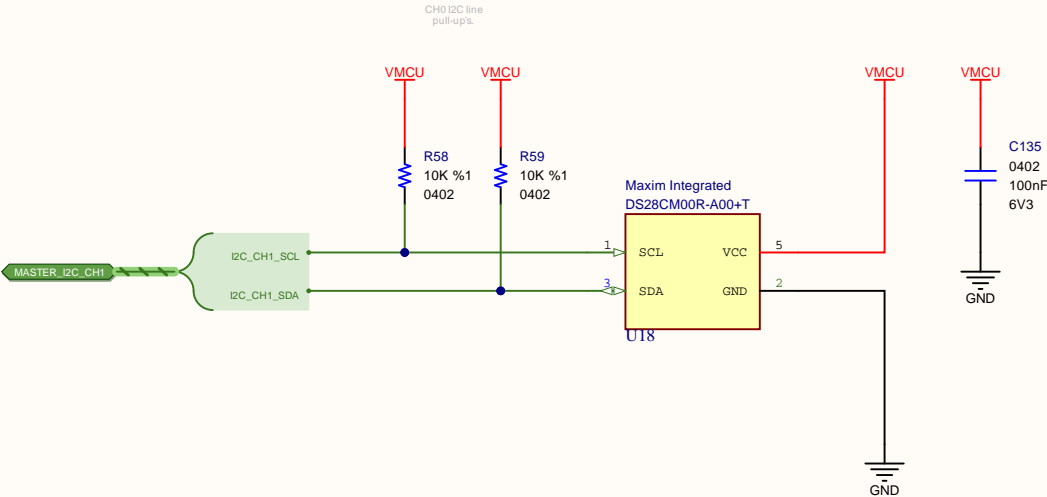
Title I2C Multiplexer			Ovoo Electronics		
Size: A4			Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Number: 50			Revision: B100AA R4		
Date: 29.01.2021			Time: 11:13:06		
Sheet 50			of 54		
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\I2C Multiplexer.SchDoc					




Real Time Clock

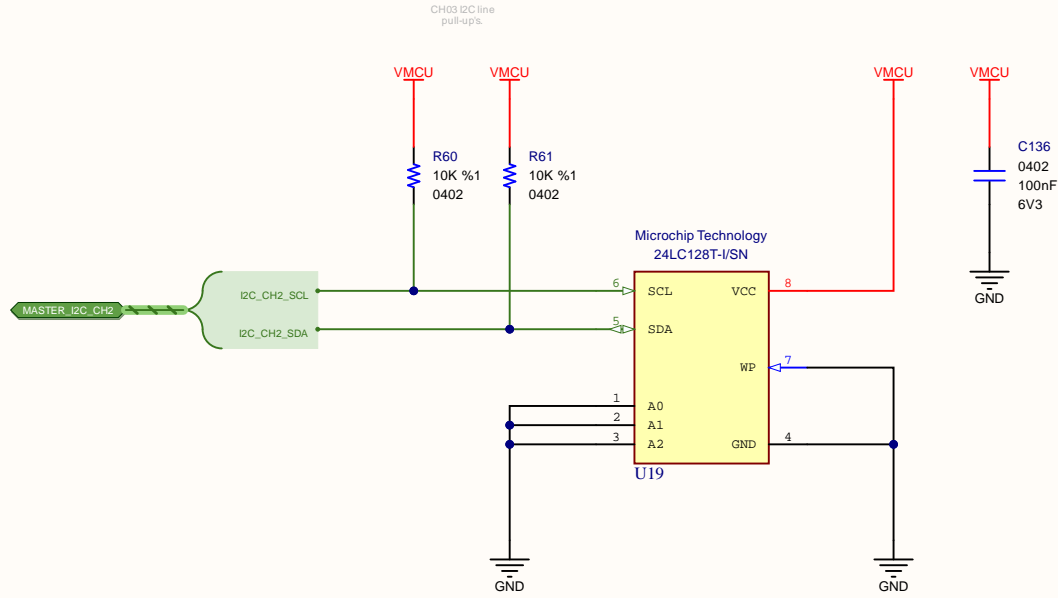


I2C Serial ID EEPROM



Title I2C Serial ID EEprom			Ovoo Electronics		
Size: A4	Number: 52	Revision: B100AA R4	Necip Fazl Mah. Ortairmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye		
Date: 29.01.2021	Time: 11:13:06	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: 29.01.2021 Time: 11:13:06

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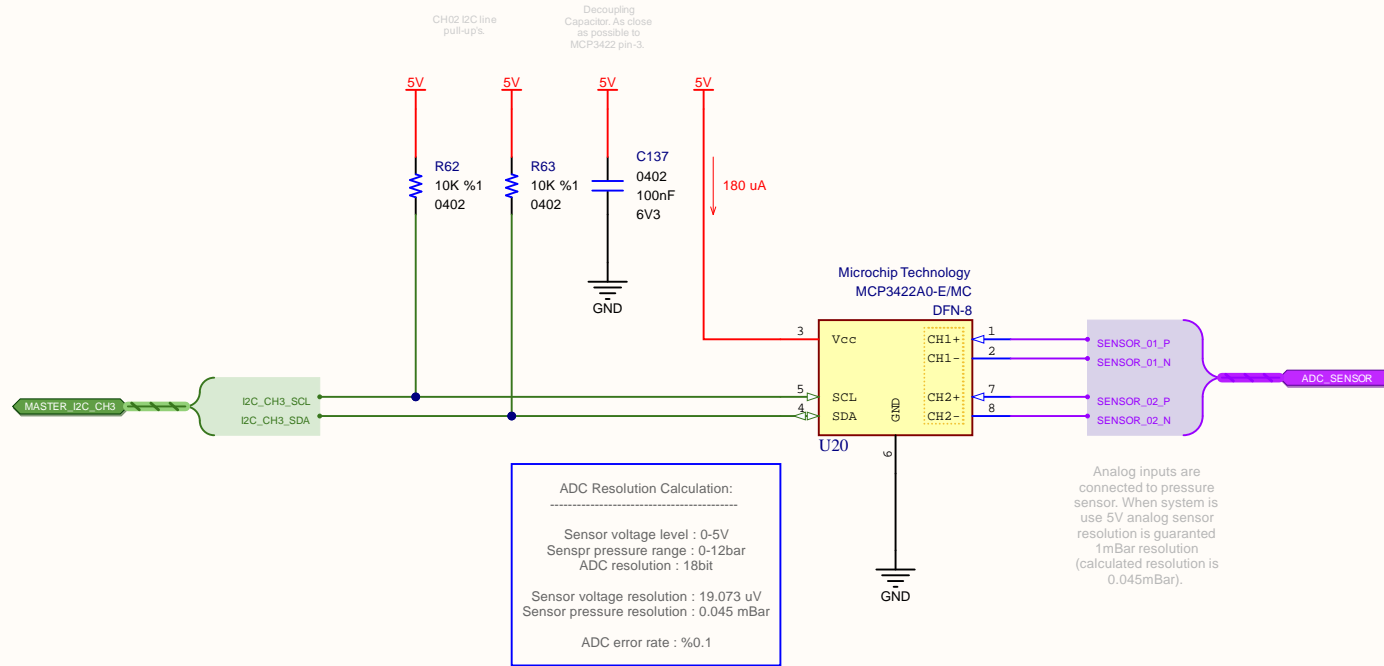
File: C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\EEPROM.SchDoc


Ovoo Electronics

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



## Analog Digital Converter



Title <b>Analog Digital Converter</b>			<b>Ovoo Electronics</b>  Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: <b>A4</b>	Number: <b>54</b>	Revision: <b>B100AA R4</b>		
Date: <b>29.01.2021</b>	Time: <b>11:13:06</b>	Sheet <b>54</b> of <b>54</b>		
File: <b>C:\Altium Projects\B100\AA\Design Files\B100AA\Schematics\Analog Digital Converter.SchDoc</b>				