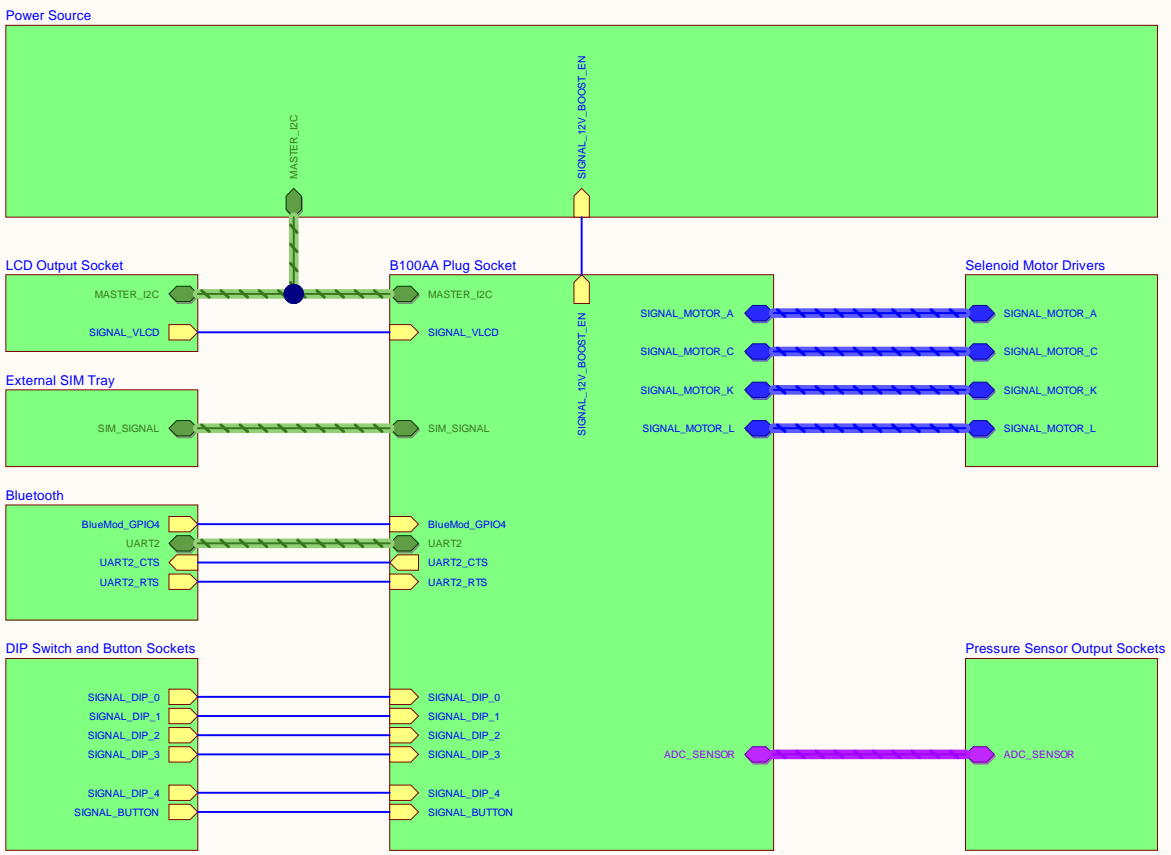



B151BA - Filter Automation System



Revision History

- AA001 (11.01.2021)
* Schematic creation.
- AA002 (11.01.2021)
* Add Bluetooth RTS and CTS pins to MCU.
* Add Bluetooth Boot0 and TestMode pins selectable with 0R resistor.
* Add Bluetooth HangUp pin to MCU.
* Add Bluetooth Test points.

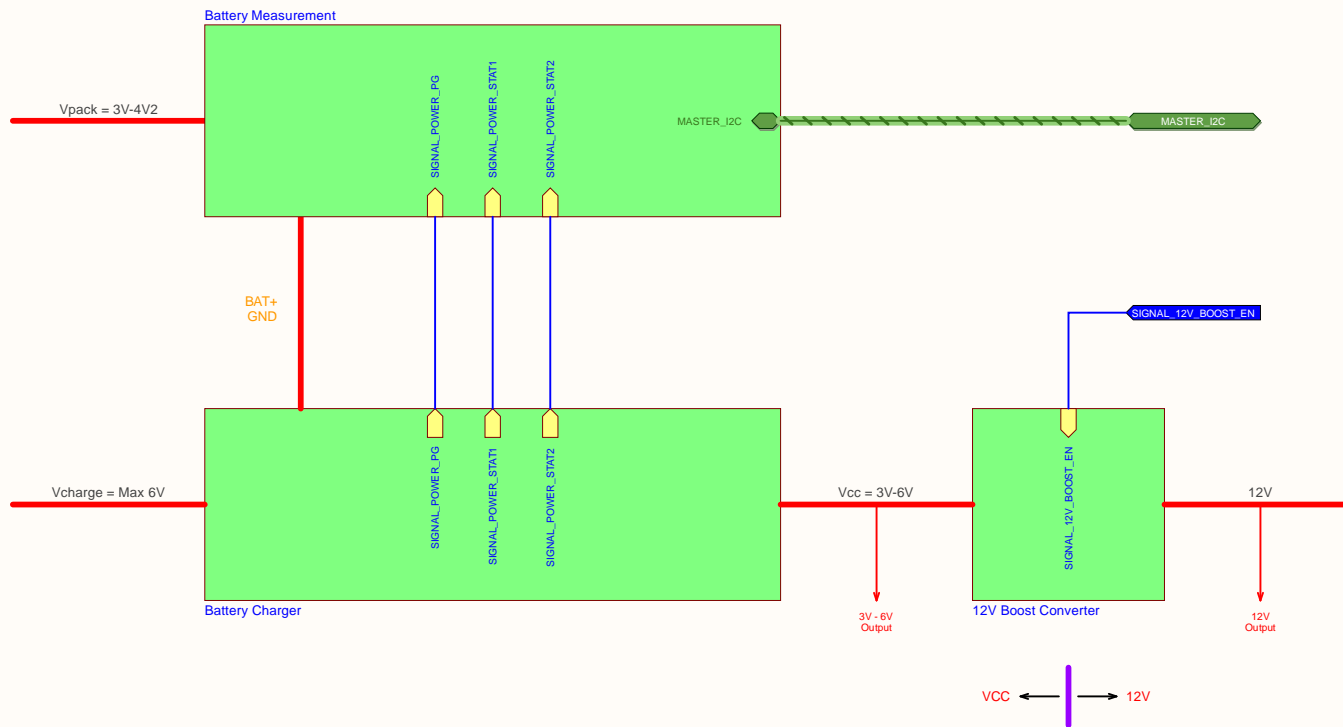
Title B151BA Block Diagram			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: BA001	Revision: B151BA			
Date: 12.02.2021	Time: 15:39:48	Sheet 1 of			
File: C:\Altium Projects\P511\BA\Electronic\B151BA\Design Files\Schematic\B151BA Block Diagram.SchDoc					



Li-Ion Battery
2 x 2500 mAh



Charge Power Socket



Title **Power Source**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **12.02.2021**

Time: **15:39:48**

Sheet **2** of

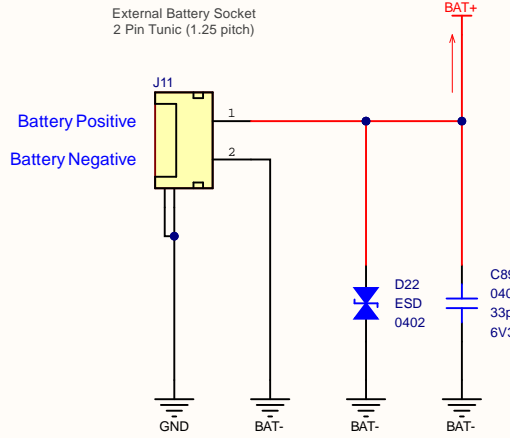
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Ovoo Electronics

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

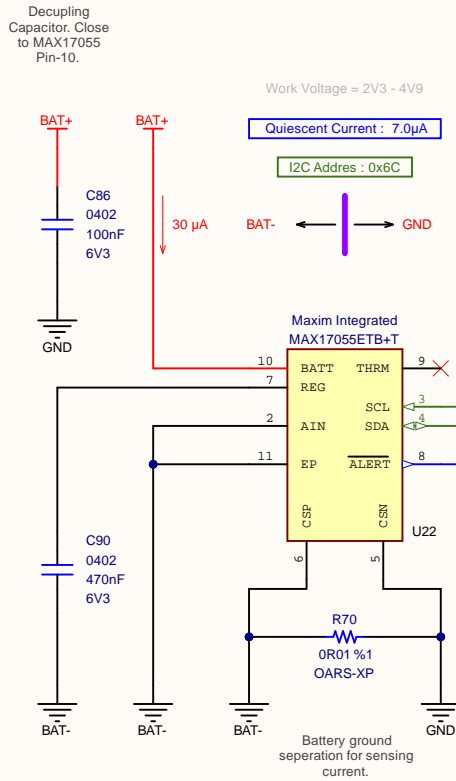


Battery Socket

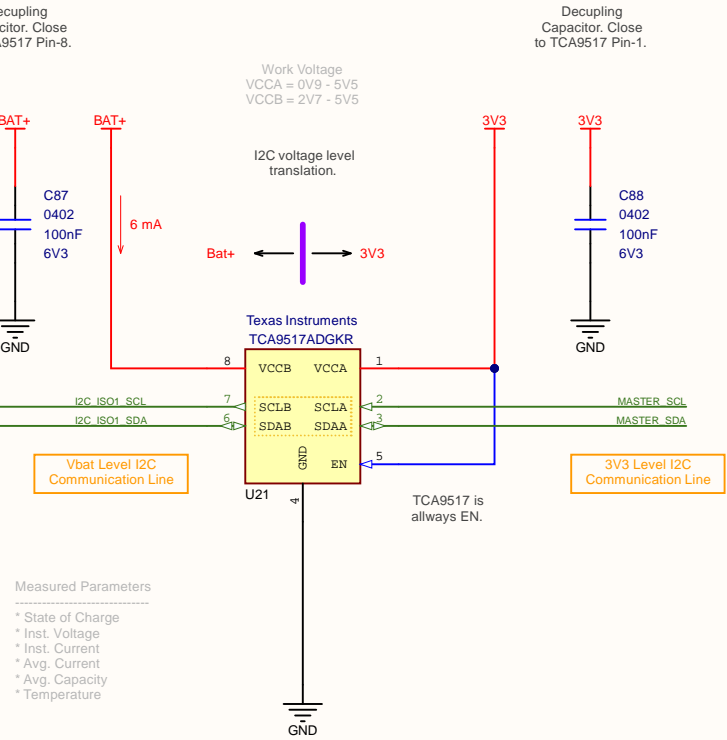


B151BA module have a battery
socket for 18650 Lilon battery pack.
Advice : 4x2500mAh VTC6

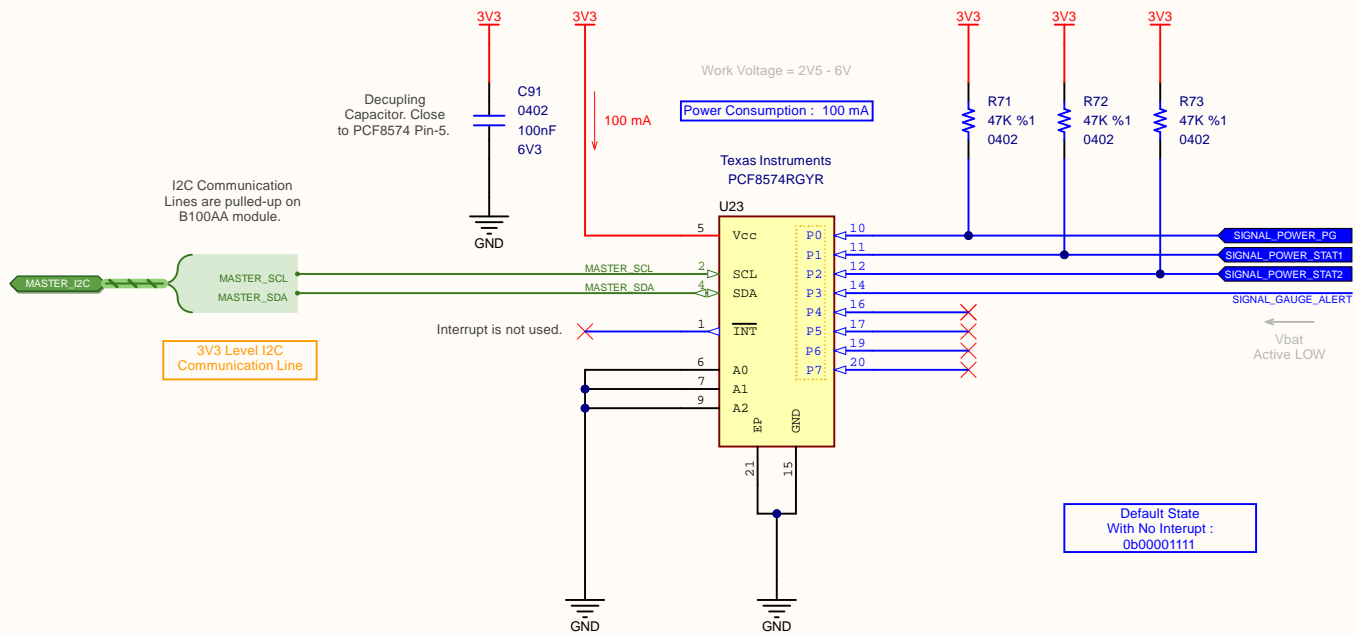
Battery Measurement



I2C Buffer (Voltage Translator)



I2C I/O Expander



A

B

C

D

A

B

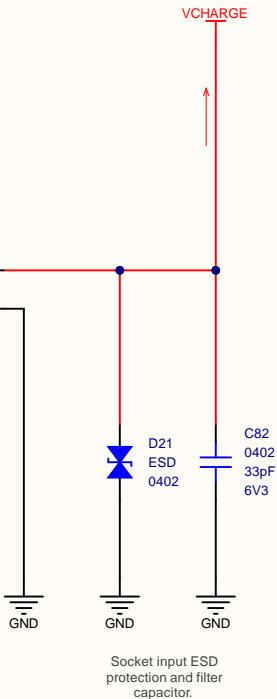
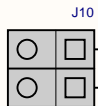
C

D

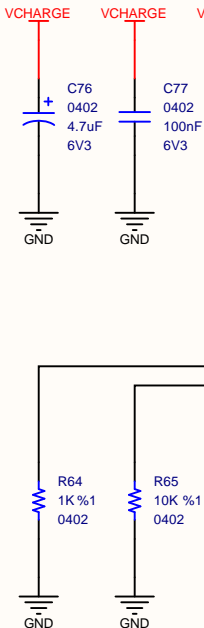
Charge Feed Socket

CUI Devices Manufacturer :
Screwless Screw Type :
2 Position :
3.5 mm Pitch :
45 Degree Orientation :
24 - 20 AWG Wire Gauge :
Terminal Color :
Button Color :

Charge Feed Socket



By-Pass Capacitors
Close to MCP73871
Pin-18/19 (IN)

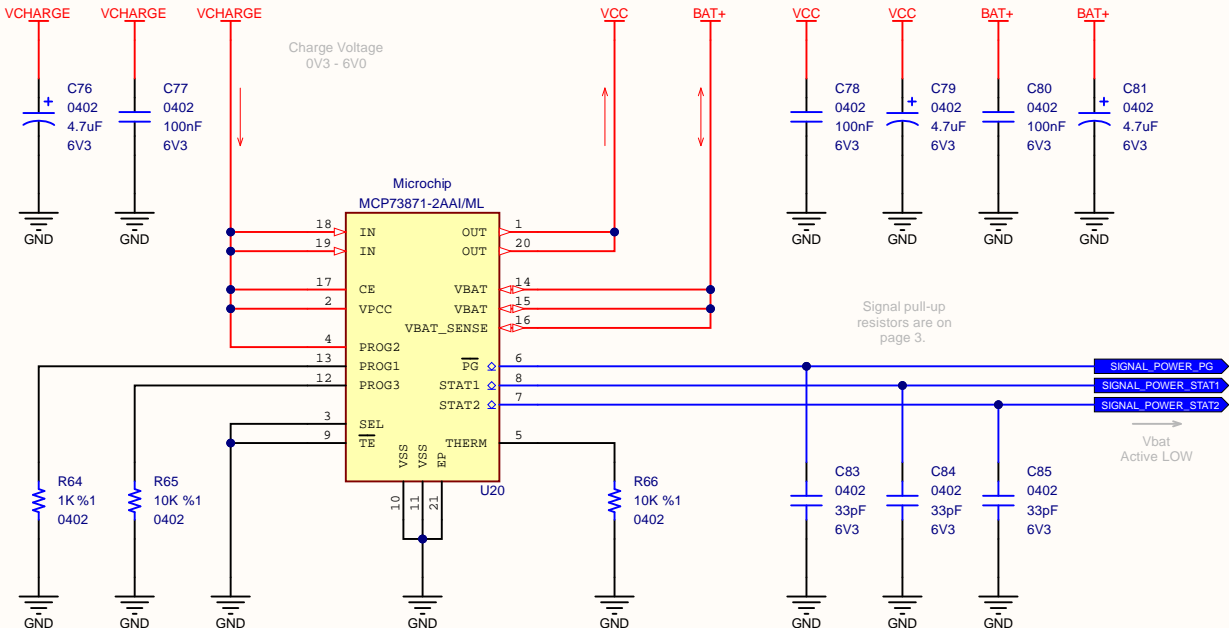


Battery Charger

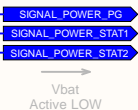
Charge Voltage
0V3 - 6V0

By-Pass Capacitors
Close to MCP73871
Pin-1/20 (OUT)

By-Pass Capacitors
Close to MCP73871
Pin-14/15 (OUT)



Signal pull-up
resistors are on
page 3.




SEL Pin : Input type selection (Low for USB port, High for other type of power source)

TE Pin : Enables Safety Timer when active Low.

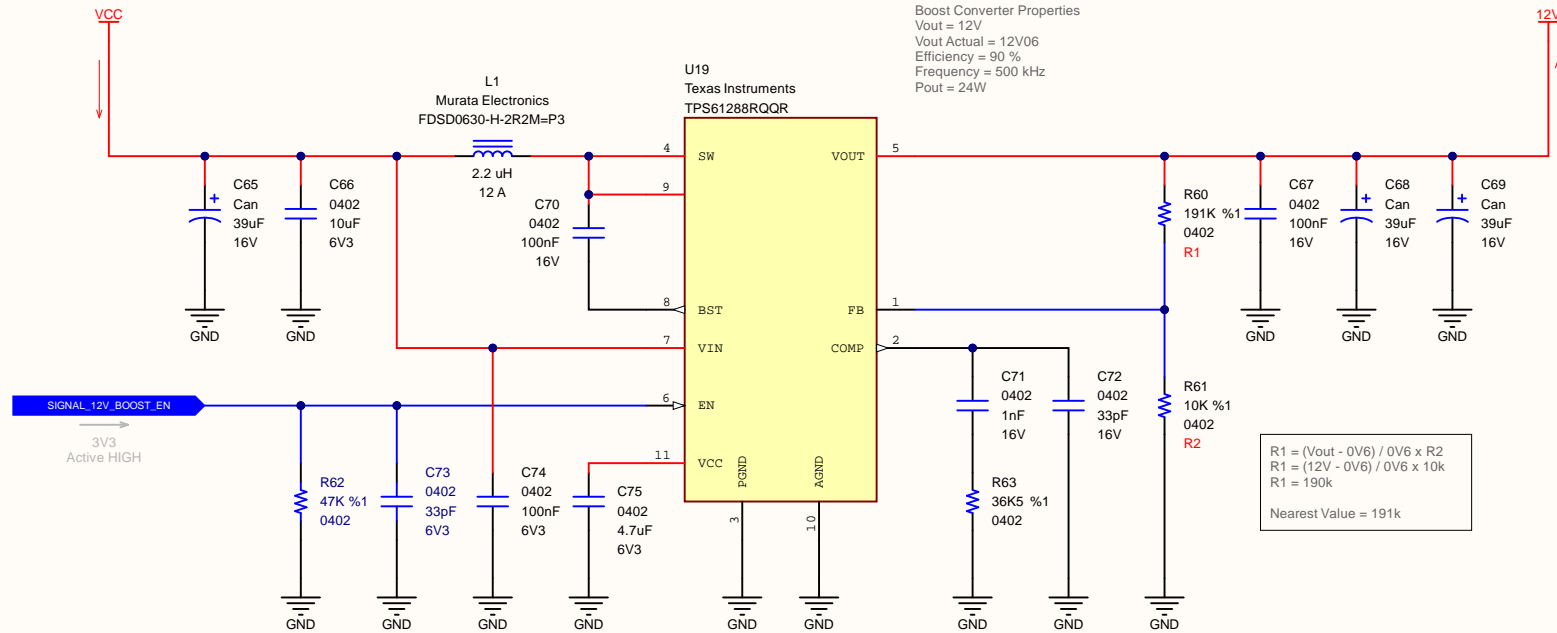
PROG1 Pin : Fast charge current regulation setting with
PROG1 = High. Preconditioning set point for both USB port
and other type of power source. 1K = 1A charge current limit.

PROG2 Pin : USB port input current limit selection when
PROG2 = HIGH. (Low = 100 mA, High = 500 mA)

PROG3 Pin : Termination set point for power source and USB
port. Minimum charge current. 10K = 100 mA.

Title Battery Charger			Ovoo Electronics Necip Fazıl Mah. Ortamak Sok. Birgül Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: BA001	Revision: B151BA			
Date: 12.02.2021	Time: 15:39:48	Sheet 4 of 28			
File: C:\Altium Projects\PS11\BA\Electronic\B151BA\Design Files\Schematic\Battery Charger.SchDoc					

12V Synchronous Boost Converter



Title **12V Synchronous Boost Converter**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **12.02.2021**

Time: **15:39:48**

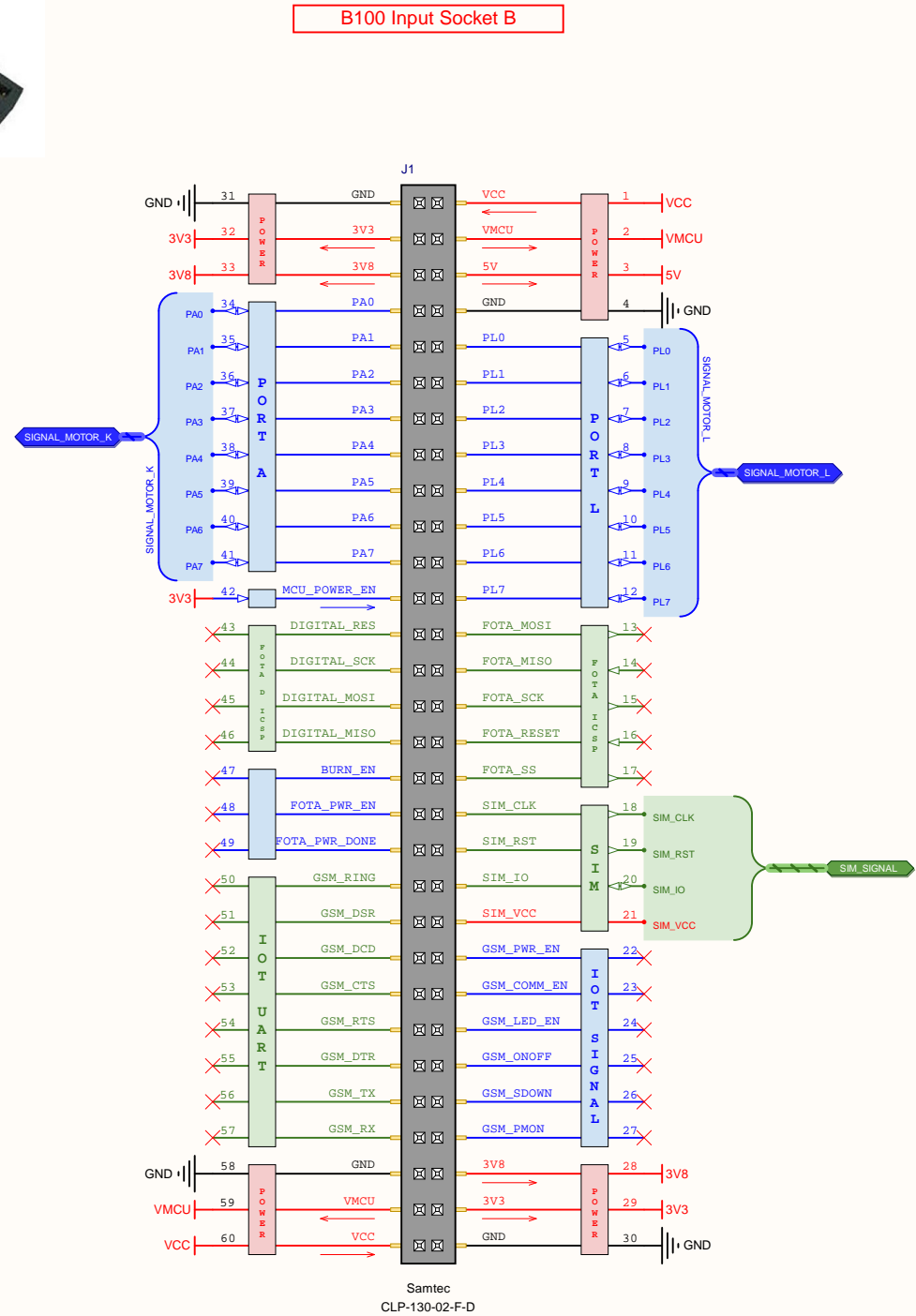
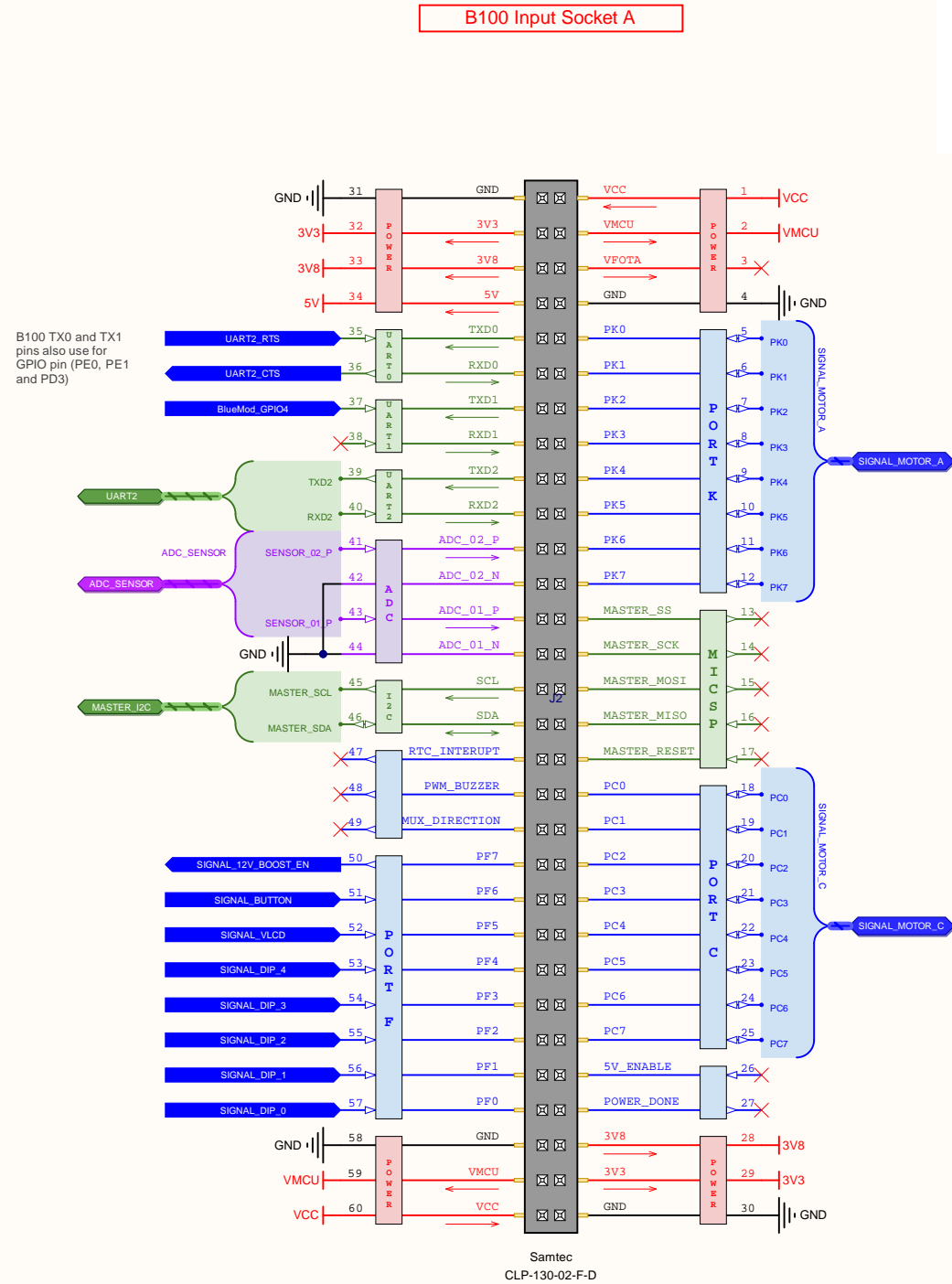
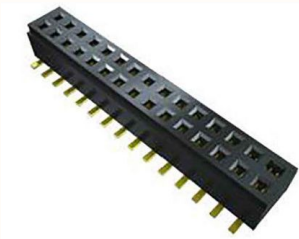
Sheet **5** of **28**

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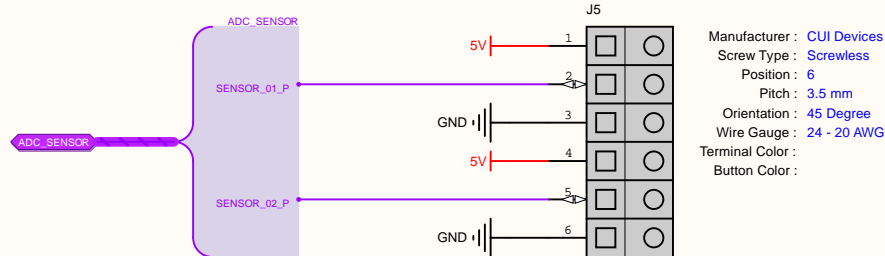
Ovoo Electronics

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





Analog Pressure Sensor Output Sockets



Power Supply

UART

UART2

UART2

UART2_RTS

UART2_RTS

UART2_CTS

UART2_CTS

BlueMod+S50

RF Antenna

GPIO

BlueMod_GPIO4

BlueMod_GPIO4

Title Bluetooth Module

Ovoo Electronics

Size: A4

Number: BA001

Revision: B151BA

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

Date: 12.02.2021

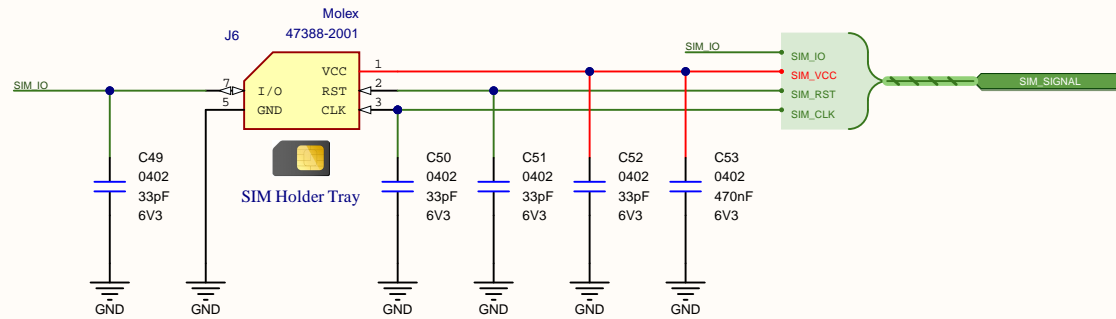
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Sheet 8 of *


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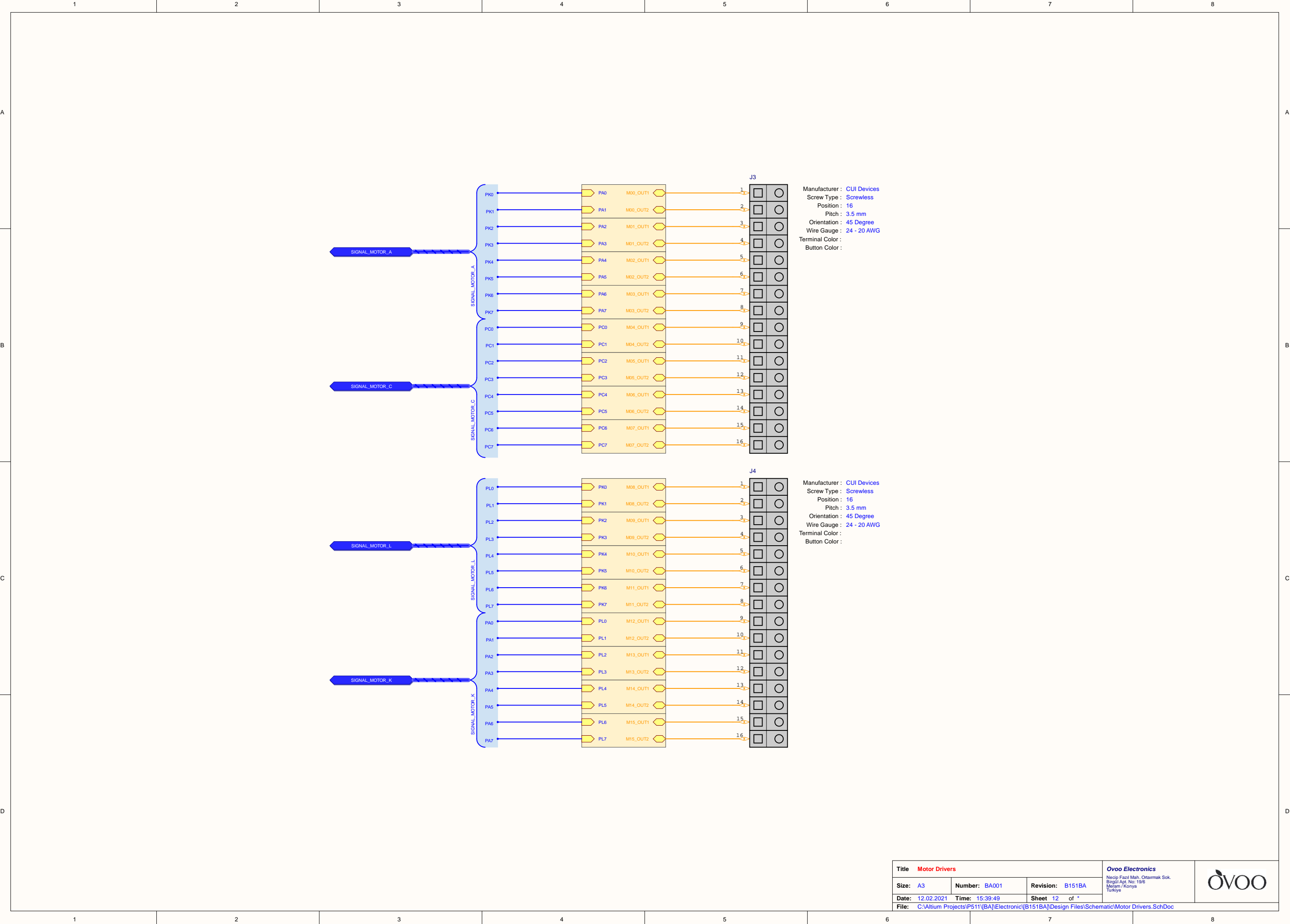


OnBoard Sim Tray

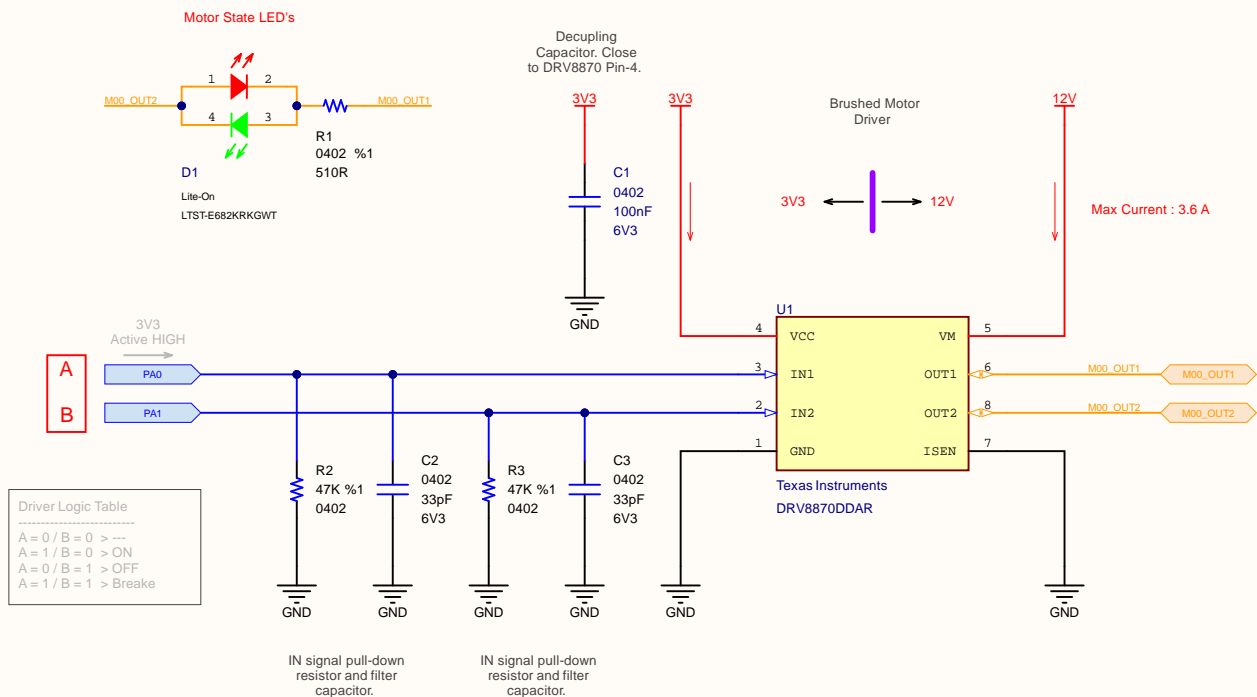


SIM_VCC capacitor is
chosed according Telit
SIM integration guide.

Title External SIM Tray			Ovoo Electronics		
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Date: 12.02.2021	Time: 15:39:48	Sheet 9 of *			
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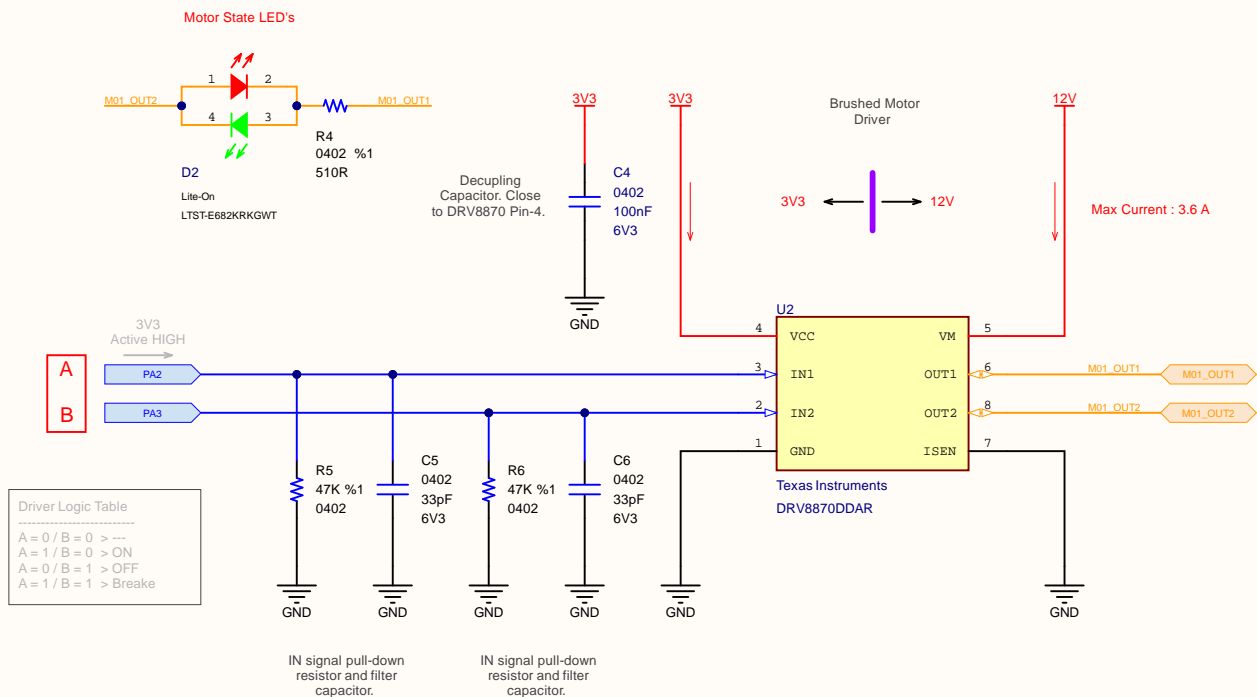
Solenoid Driver 01



Title Solenoid 00 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:49	Sheet 13 of *	
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ovoo

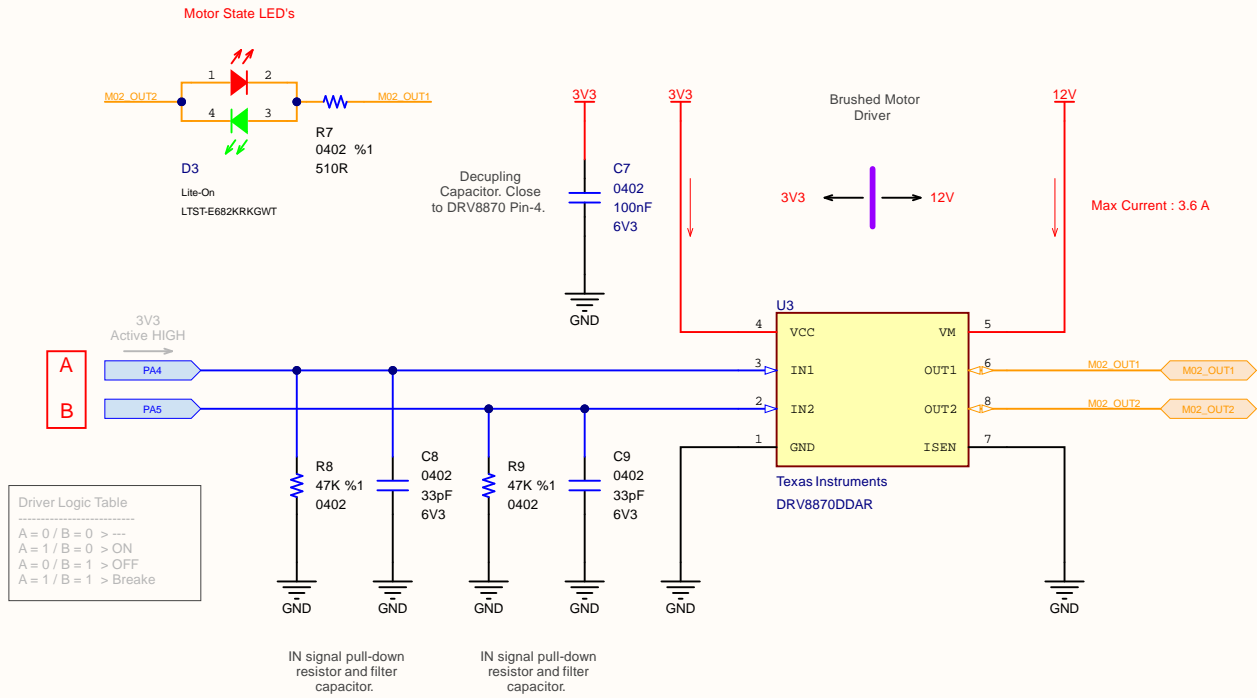
Solenoid Driver 02



Title Solenoid 01 Driver			Ovoo Electronics	
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Date: 12.02.2021	Time: 15:39:49	Sheet 14 of *		
File: C:\Altium Projects\PS511\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 01 Driver.SchDoc				

ovoo

Solenoid Driver 03



Title **Solenoid 02 Driver**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **12.02.2021**

Time: **15:39:49**

Sheet **15** of *****

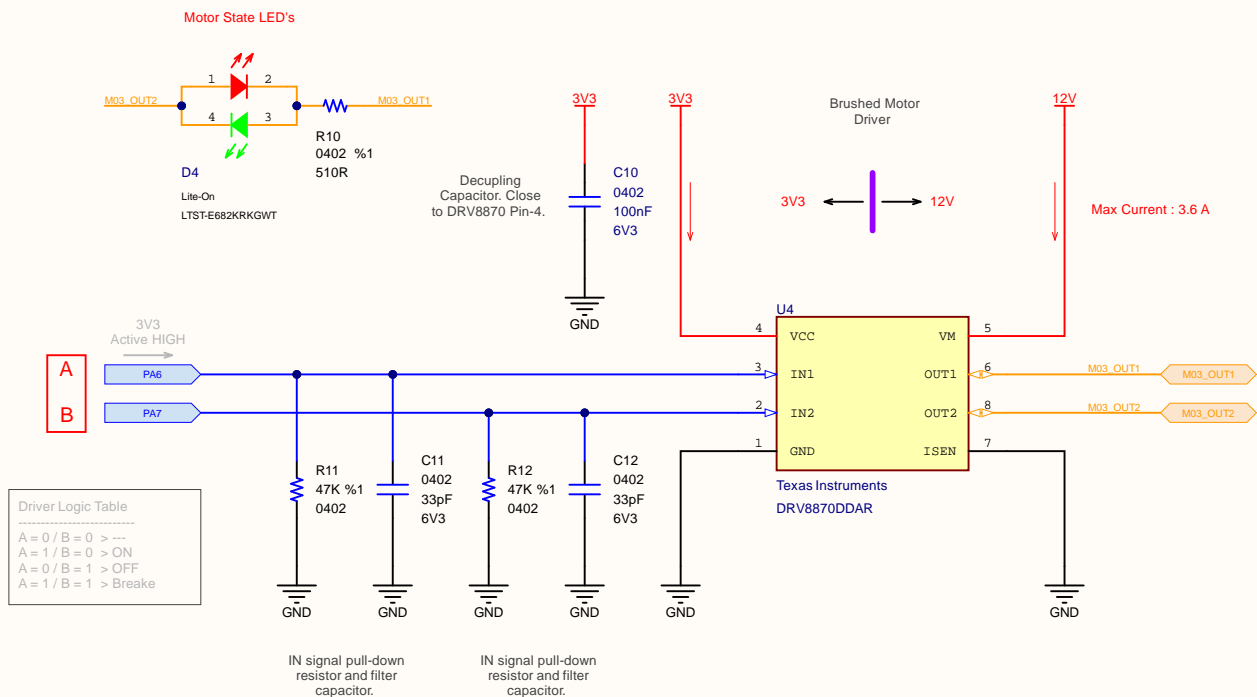
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Ovoo Electronics

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

OVOO

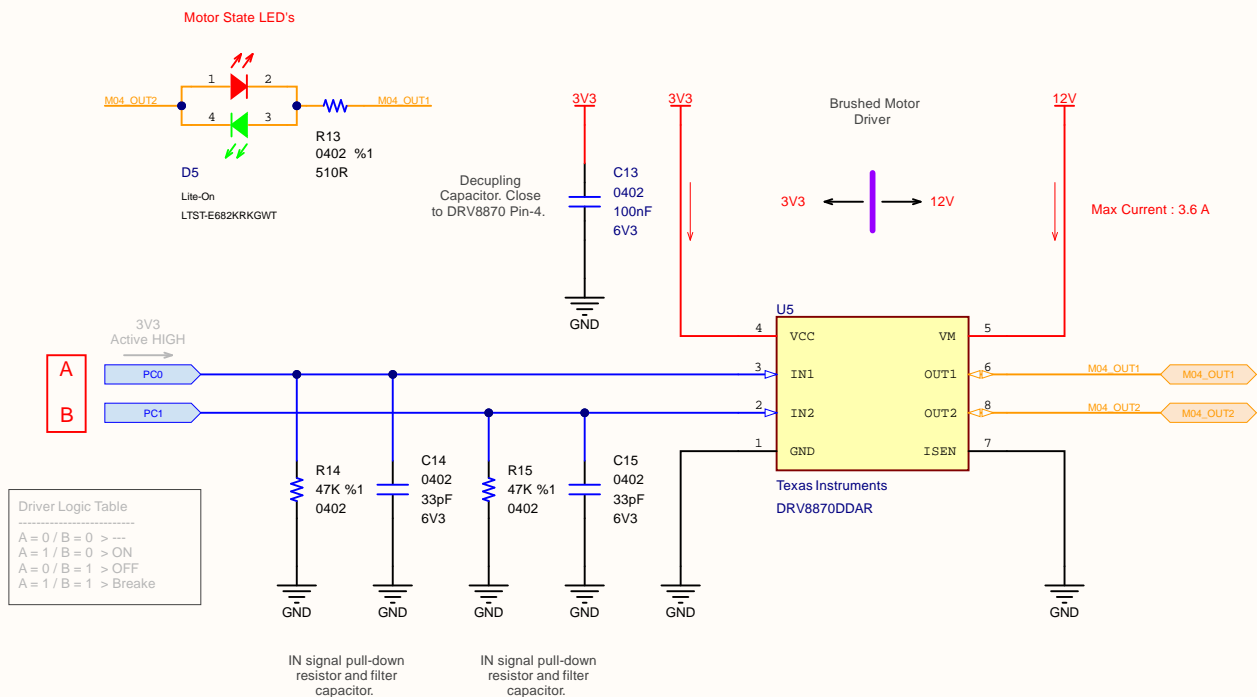
Solenoid Driver 04



Title Solenoid 03 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:49	Sheet 16 of *	
File: C:\Altium Projects\IP511\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 03 Driver.SchDoc			

ovoo

Solenoid Driver 05



Title **Solenoid 04 Driver**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **12.02.2021**

Time: **15:39:49**

Sheet **17** of *****

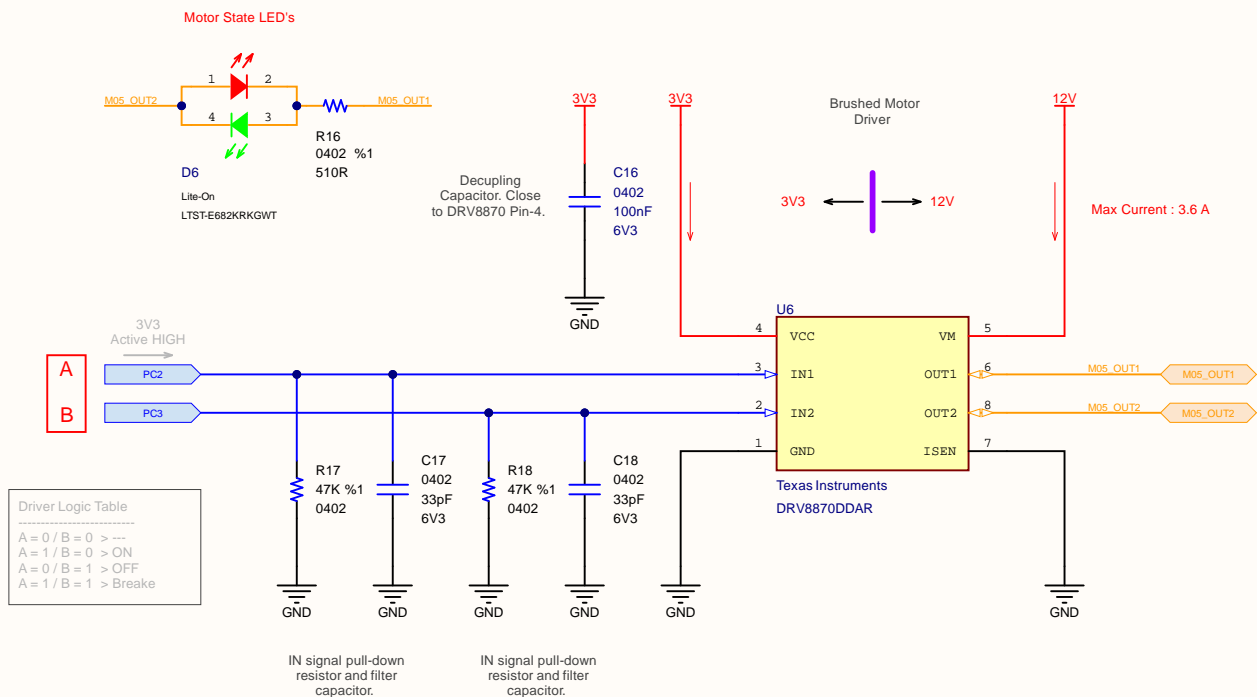
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Ovoo Electronics

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



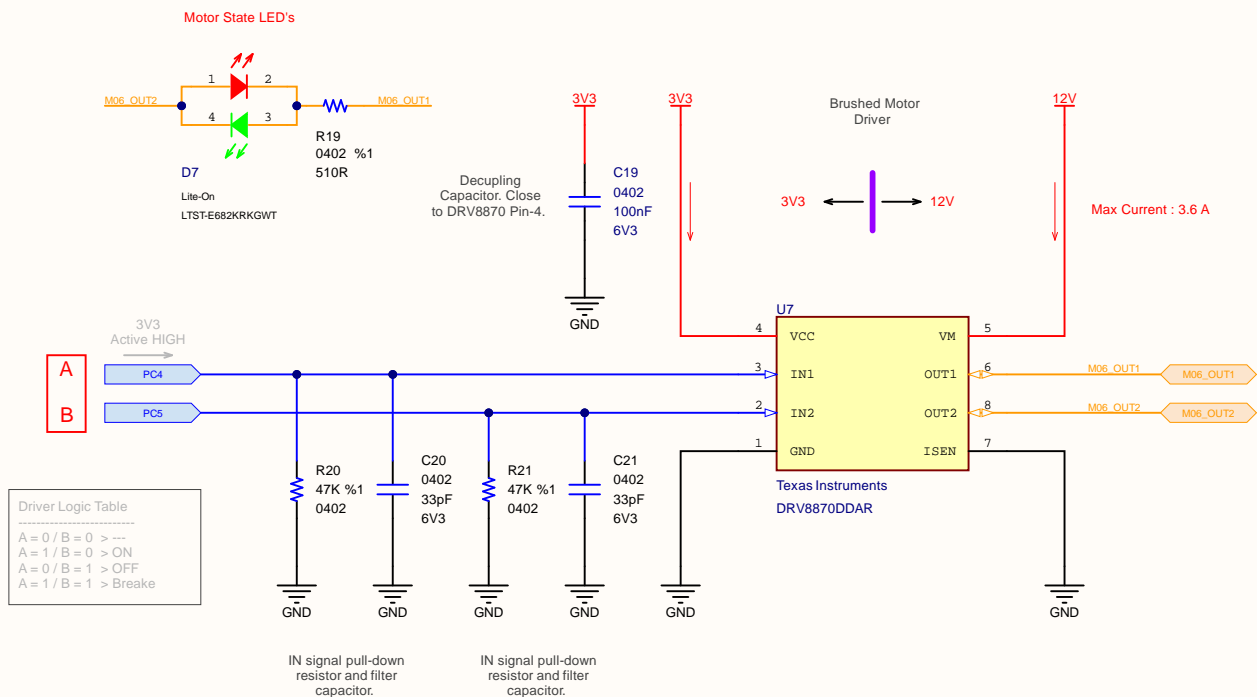
Solenoid Driver 06



Title Solenoid 05 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:49	Sheet 18 of *	
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ovoo

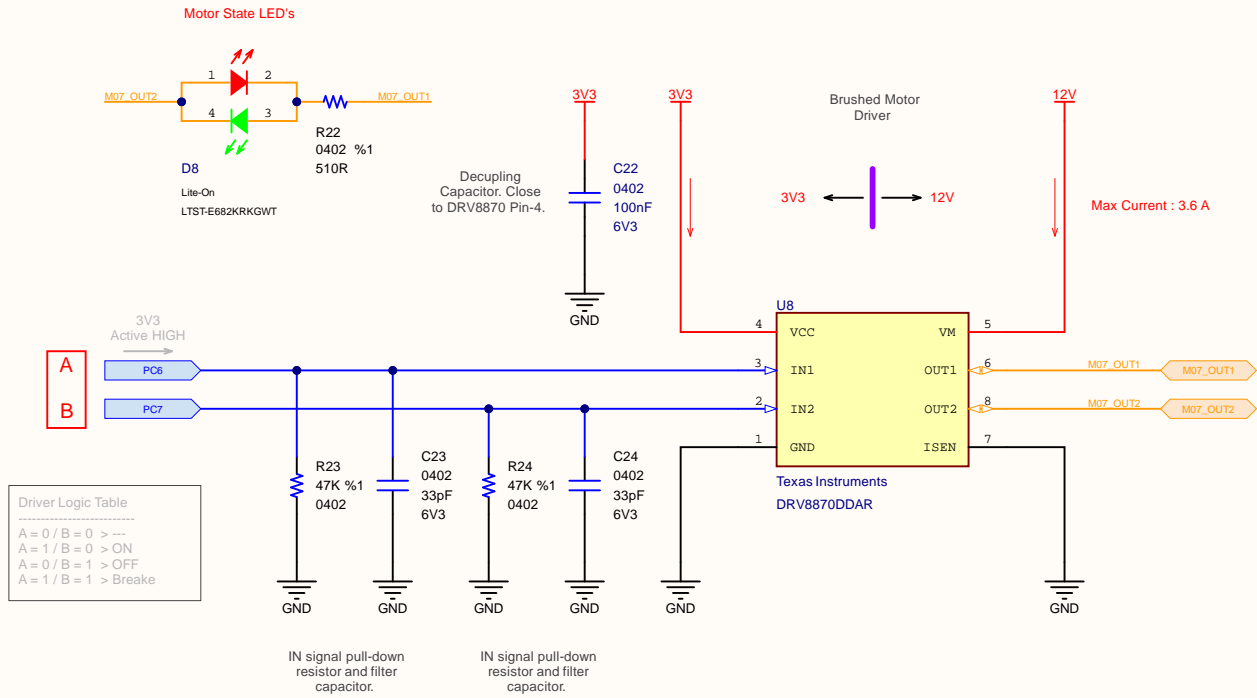
Solenoid Driver 07



Title Solenoid 06 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:49	Sheet 19 of *	
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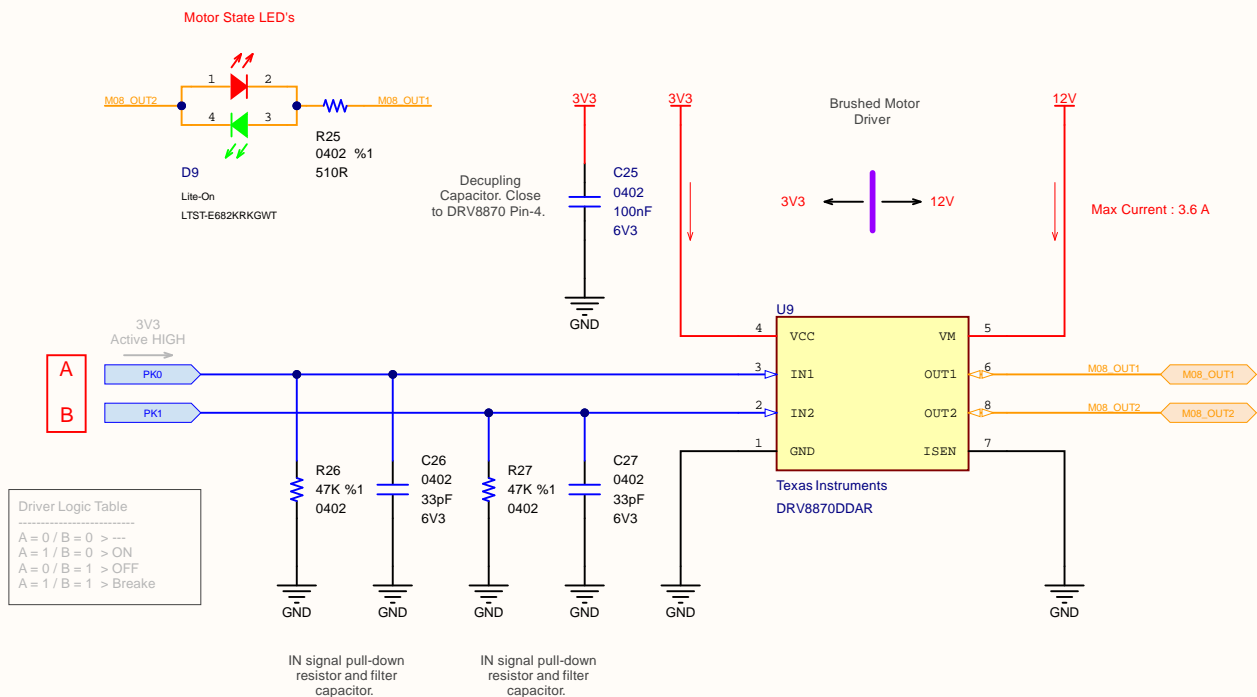


Solenoid Driver 08



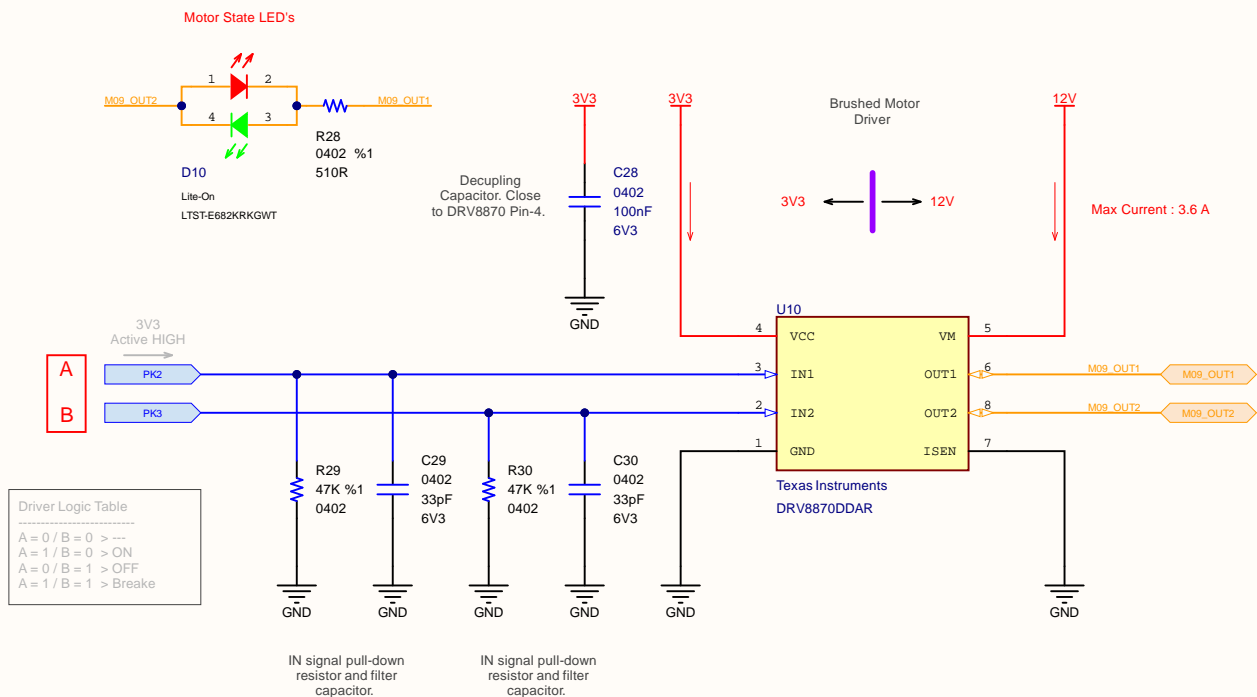
Title Solenoid 07 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:49	Sheet 20 of *	
File: C:\Altium Projects\IP511\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 07 Driver.SchDoc			


Solenoid Driver 09



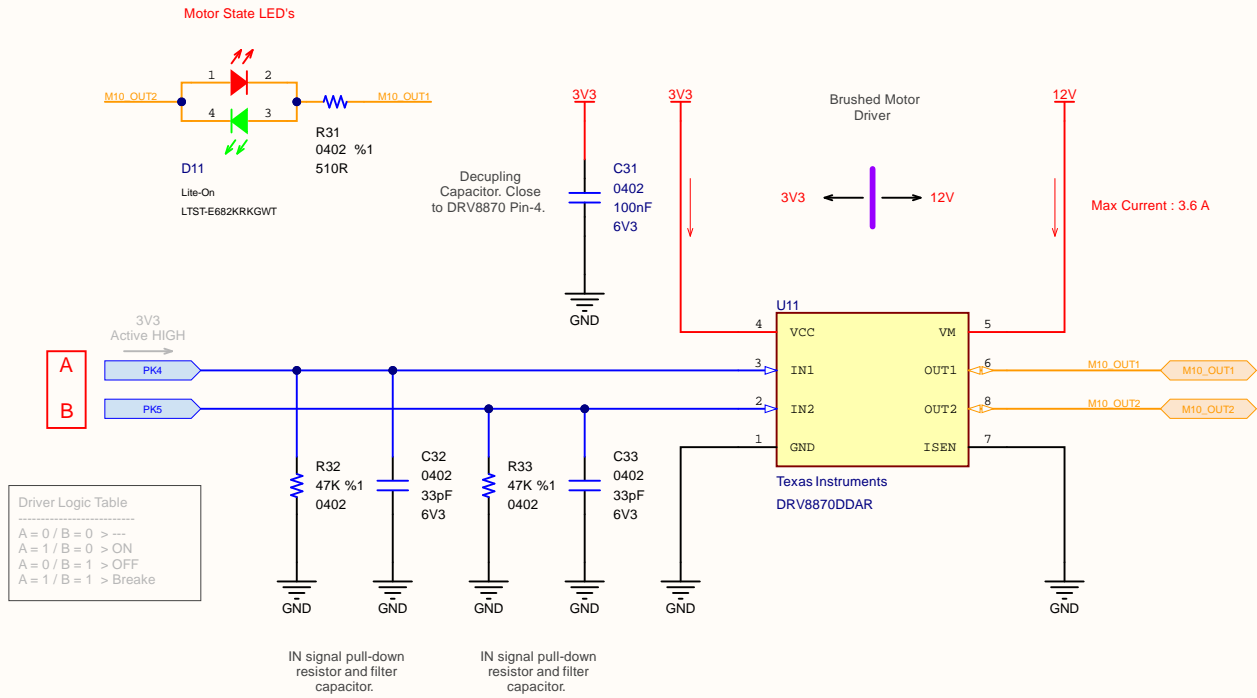
Title Solenoid 08 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: BA001	Revision: B151BA		
Date: 12.02.2021	Time: 15:39:49	Sheet 21 of *		
File: C:\Altium Projects\IP511\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 08 Driver.SchDoc				


Solenoid Driver 10



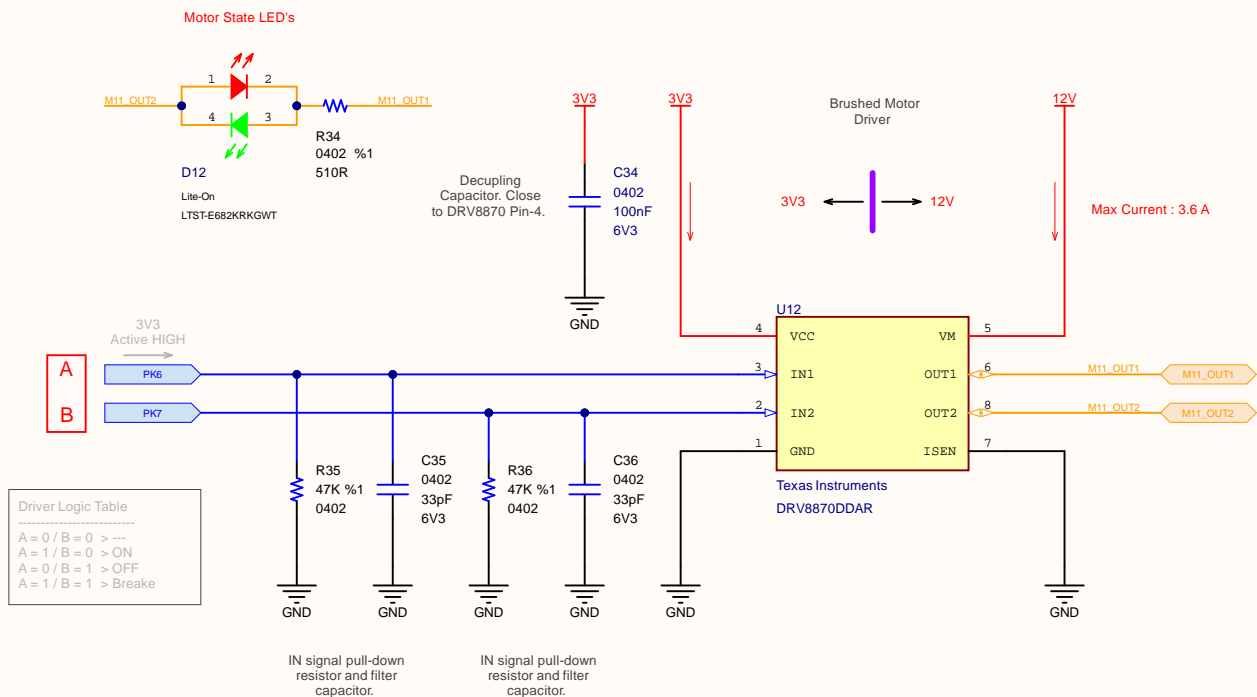
Title Solenoid 09 Driver			Ovoo Electronics		
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Date: 12.02.2021	Time: 15:39:49	Sheet 22 of *			
File: C:\Altium Projects\IP511\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 09 Driver.SchDoc					

Solenoid Driver 11



Title Solenoid 10 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: BA001	Revision: B151BA			
Date: 12.02.2021	Time: 15:39:49	Sheet 23 of *			
File: C:\Altium Projects\PS11\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 10 Driver.SchDoc					

Solenoid Driver 12



Title **Solenoid 11 Driver**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **12.02.2021**

Time: **15:39:49**

Sheet **24** of *****

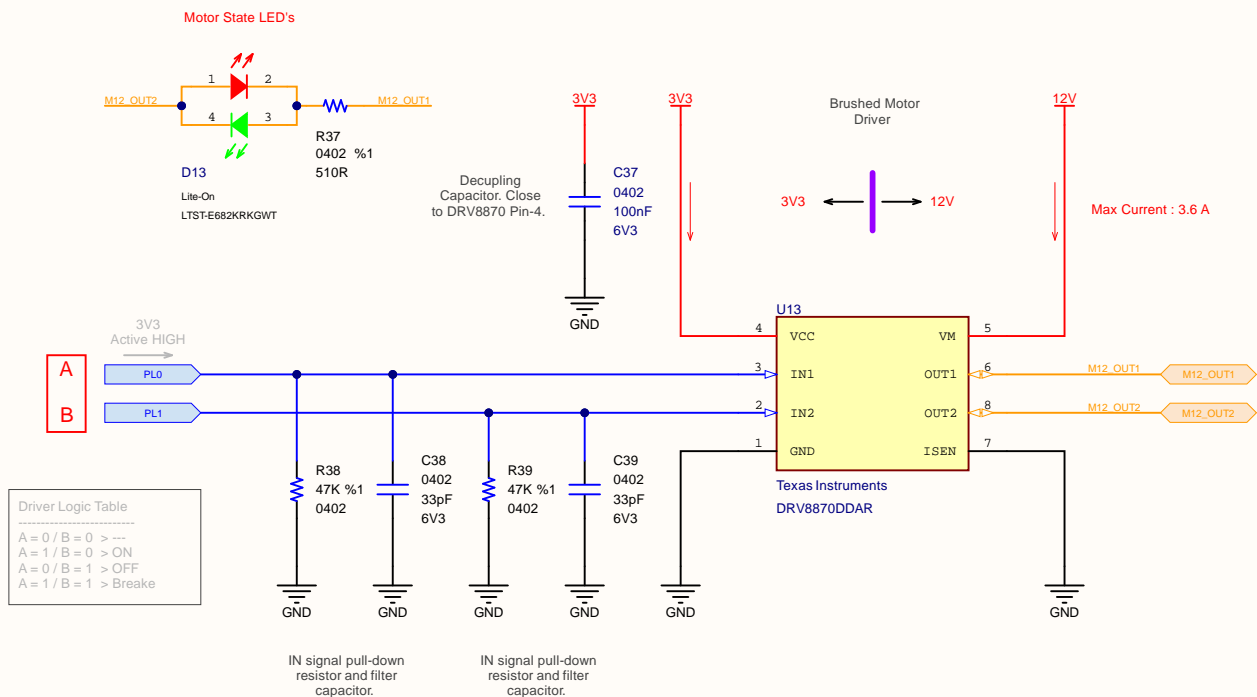
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Ovoo Electronics

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

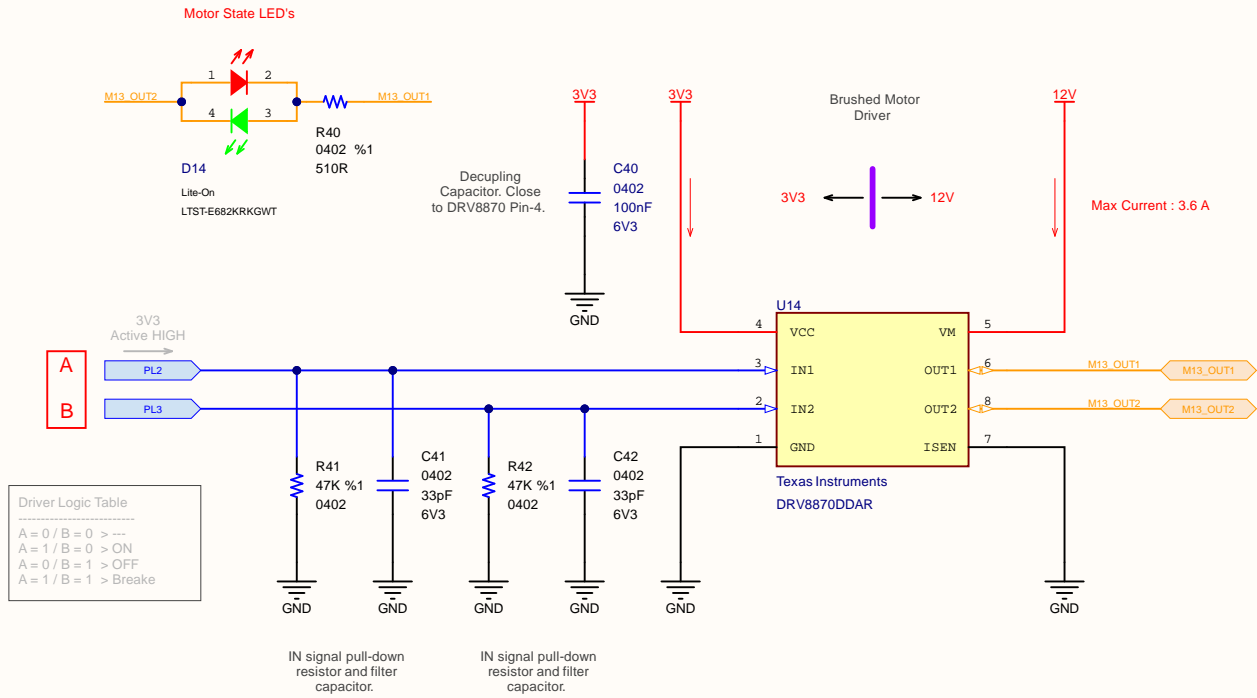
OVOO

Solenoid Driver 13



Title Solenoid 12 Driver			Ovoo Electronics		 <p>Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye</p>
Size: A4	Number: BA001	Revision: B151BA			
Date: 12.02.2021	Time: 15:39:49	Sheet 25 of *			
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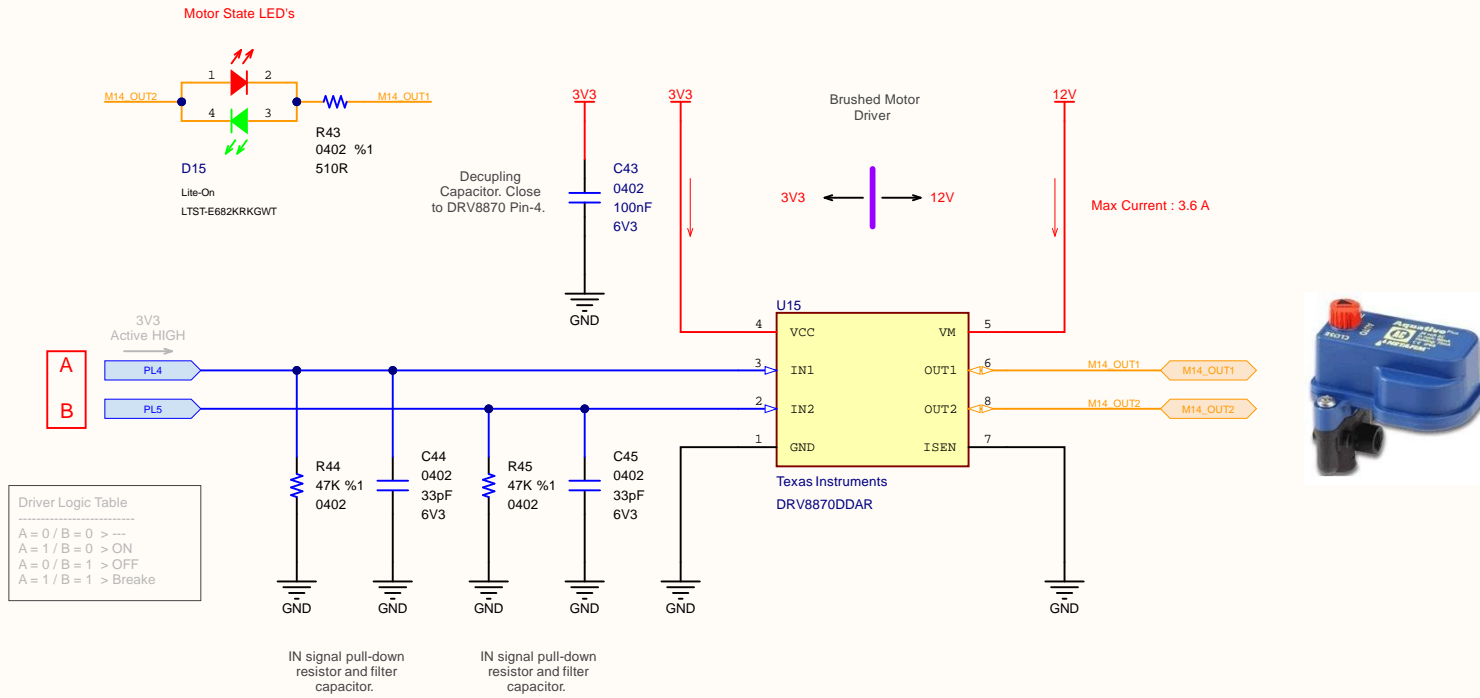
Solenoid Driver 14



Title Solenoid 13 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:50	Sheet 26 of *	
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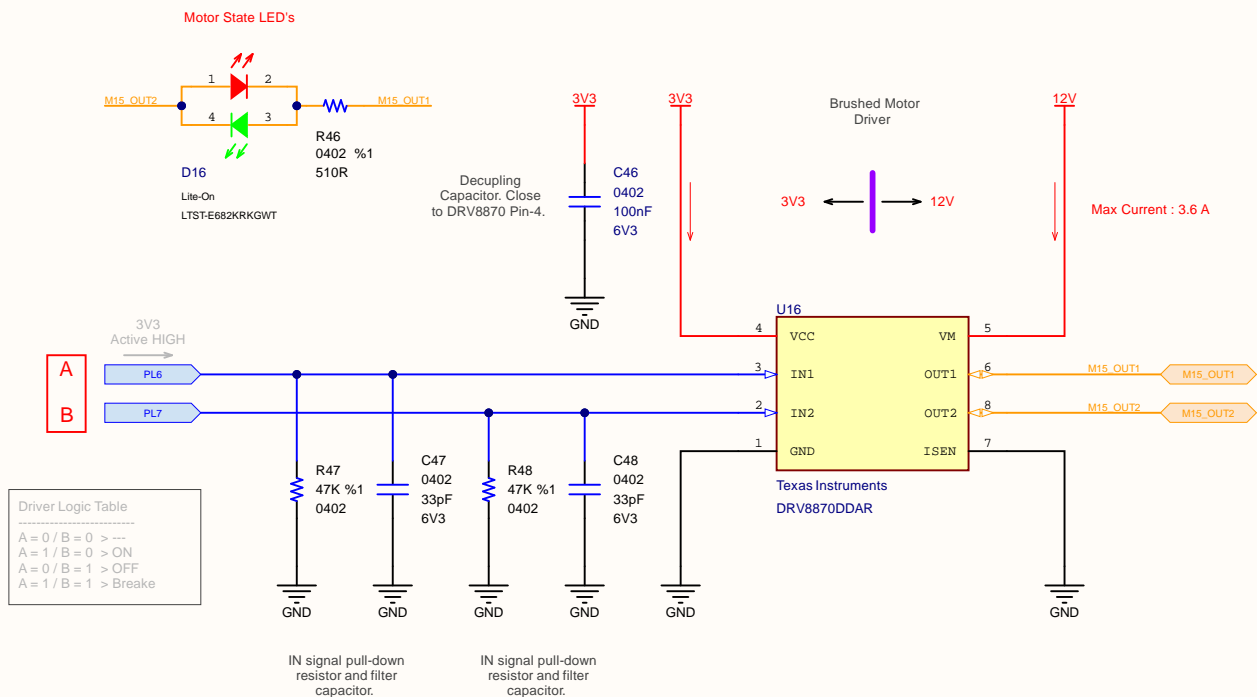
Solenoid Driver 15



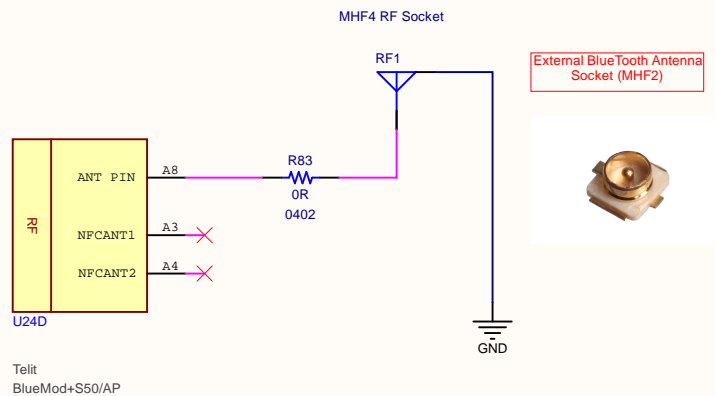
Title Solenoid 14 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:50	Sheet 27 of *	
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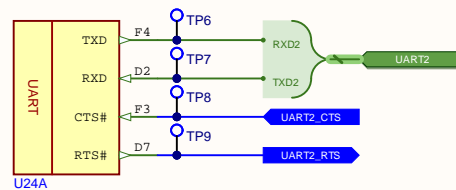
Solenoid Driver 16




Title Solenoid 15 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: BA001	Revision: B151BA		
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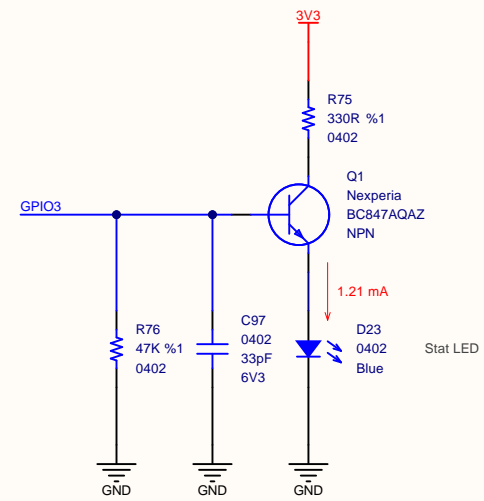
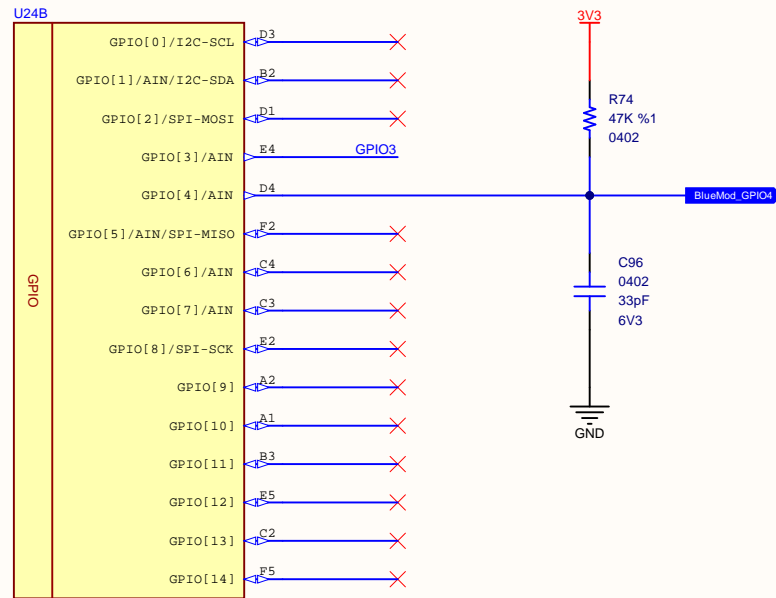
Title BlueMod+S50 Antenna			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: BA001	Revision: B151BA		
Date: 12.02.2021	Time: 15:39:50	Sheet of		
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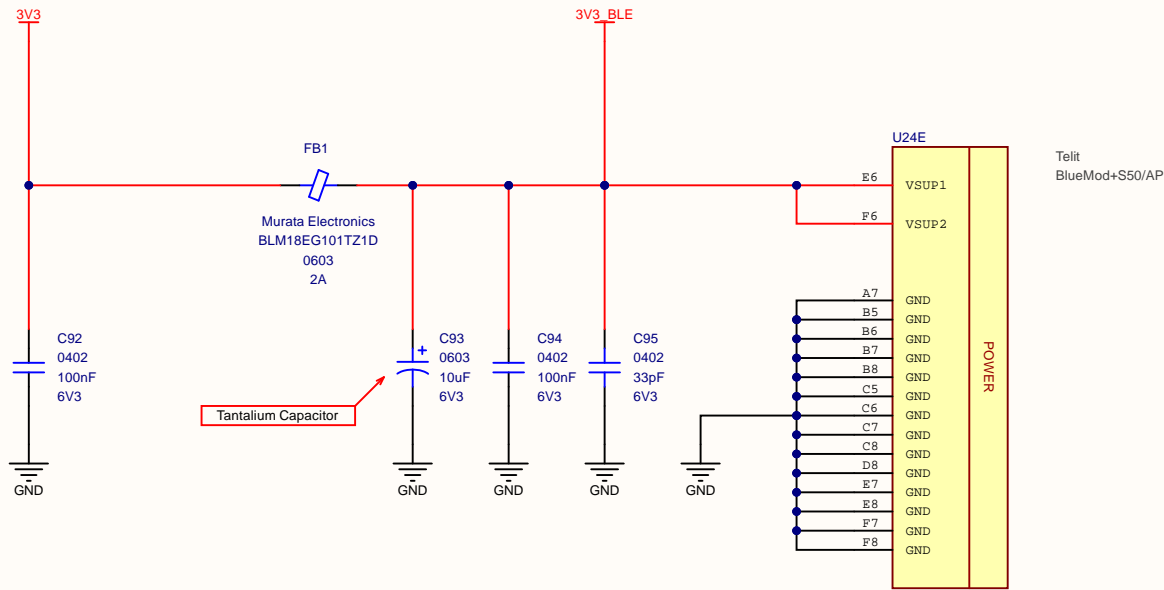
Telit
BlueMod+S50/AP

Title BlueMod+S50 Communication			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: BA001	Revision: B151BA		
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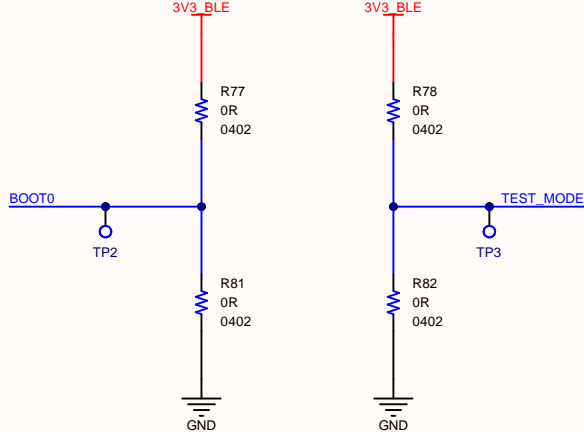
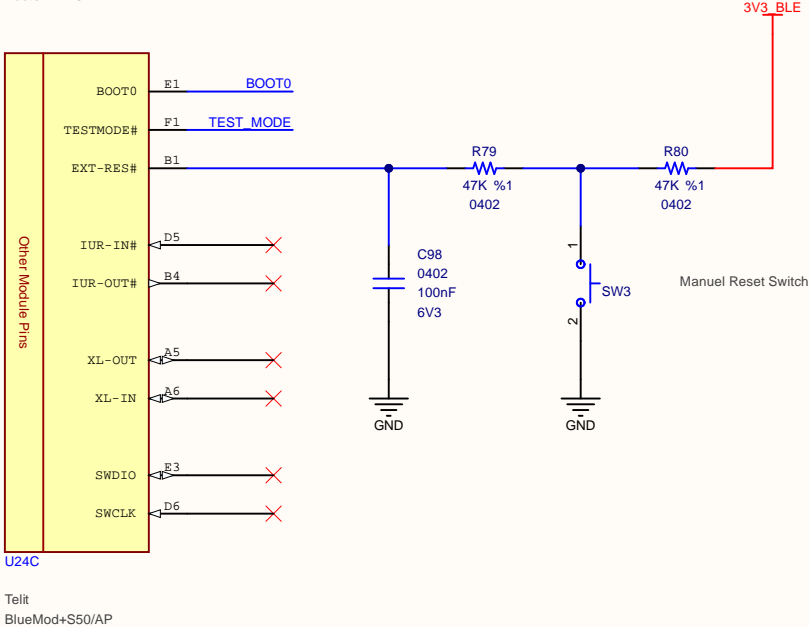
Telit
BlueMod+S50/AP



Title BlueMod+S50 GPIO			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 12.02.2021	Time: 15:39:50	Sheet of	
File: C:\Altium Projects\IP511\BA\Electronic\B151BA\Design Files\Schematic\BlueMod+S50 GPIO.SchDoc			



MicroController Mode :
TestMode -> LOW
Boot0 -> HIGH



Test Mode - Boot0
LOW / LOW : Test Mode
LOW / HIGH : DTM (19200, 8N1)
HIGH / LOW : Firmware (115200, 8N1)
HIGH / HIGH : Bootloader